



XDesignerPlus V4 User Manual

Manual Revision List

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목차

CHAPTER 1 - Overview	15
1.1 Hardware overview	15
1.1.1 Use of the product	15
1.1.2 Communication ports of the product	15
1.1.3 List of supported PLCs	16
1.1.4 XTOP menu screen	20
1.1.5 Touch calibration method	27
1.1.6 How to switch from the Run Screen to the Menu Screen	27
1.2 Software overview	28
1.2.1 PC hardware specifications	28
1.2.2 Touch program writing and testing order	29
1.2.3 Software types and supported XTOP models	29
1.2.4 Using old project files in the new XDesignerPlus4 software	29
1.2.5 Relationship between software version and TOP OS version	31
1.2.6 How to upgrade/downgrade OS	32
CHAPTER 2 - Installation	35
2.1.1 Downloading the XDesignerPlus4 program	35
2.1.2 Installing XDesignerPlus4	36
2.1.3 Updating the XDesignerPlus4 program	39
2.1.4 Removing the XDesignerPlus4 program	39
2.1.5 Running the XDesignerPlus4	40
CHAPTER 3 - Overall Composition of XDesignerPlus4	42
3.1 XDesignerPlus4 composition	42
3.2 Menu composition	42
3.2.1 File menu (Alt + F)	42
3.2.2 Edit menu (Alt + E)	44
3.2.3 View menu (Alt + V)	46
3.2.4 Project menu (Alt + P)	47
3.2.5 Draw menu (Alt + D)	48
3.2.6 Tag menu (Alt + T)	49
3.2.7 Tool menu (Alt + O)	50
3.2.8 Transmission menu (Alt + R)	51
3.2.9 Window menu	51
3.2.10 Help menu	52
3.2.11 Toolbar Composition	52
3.2.12 File toolbar	52
3.2.13 Transmission toolbar	53
3.2.14 Grid toolbar	53
3.2.15 Hint toolbar	53
3.2.16 Help toolbar	54
3.2.17 Screen toolbar	54
3.2.18 Edit toolbar	55
3.2.19 Align toolbar	55
3.2.20 Draw toolbar	56
3.2.21 Tag toolbar	57
3.2.22 Zoom toolbar	57
3.3 Screen composition	57
3.3.1 Base screen	57
3.3.2 Window screen	58

3.3.3	Sub screen	58
3.3.4	Global screen	60
3.3.5	Docking window composition.....	65
3.3.6	Status bar	65
3.3.7	Shortcut list	66
CHAPTER 4 - File Menu		69
4.1	New (Ctrl + N)	69
4.1.1	New project	69
4.1.2	New base screen	71
4.1.3	New window screen	72
4.1.4	New sub screen	73
4.2	Opening a project (Ctrl + O)	74
4.3	Add new project	74
4.3.1	Add new project	74
4.3.2	Add open project.....	75
4.3.3	Using multiple projects.....	76
4.4	Making templates	78
4.4.1	Step 1: Create template	78
4.4.2	Step 2: Copy screen	79
4.4.3	Step 3: Convert Address	80
4.4.4	Step 4: Macro.....	82
4.5	Importing templates	83
4.5.1	Step 1: Select template.....	83
4.5.2	Step 2: Copy screen	83
4.5.3	Step 3: Convert address	83
4.5.4	MultiCopy	85
4.6	Save project (Ctrl + S).....	85
4.7	Save as (Shift + Ctrl + S).....	86
4.8	Close a project.....	86
4.9	Close all projects.....	87
4.10	Print (Ctrl + P)	87
4.10.1	Printed items.....	87
4.10.2	Option	88
4.10.3	Using the printer.....	92
4.10.4	Using a roll printer	92
4.11	Recent files	98
4.12	Exit (Alt + F4).....	99
CHAPTER 5 - Edit Menu.....		101
5.1	Select.....	101
5.1.1	Normal selection.....	101
5.1.2	Range selection.....	101
5.1.3	Selecting partially overlapping shapes/tags.....	102
5.1.4	Selecting overlapping shapes/tags using the POP-UP menu	102
5.1.5	Multiple select and deselect	103
5.2	Move and resize	103
5.2.1	Moving and resizing using the mouse	103
5.2.2	Moving and resizing using the keyboard	103
5.2.3	Moving and resizing in the properties page	104
5.2.4	Resizing using the keyboard and mouse.....	104
5.3	Undo and redo	105
5.3.1	Undo (Ctrl + Z)	105
5.3.2	Redo (Ctrl + R).....	105

5.4	Select all.....	105
5.5	Copying and deleting	105
5.5.1	Cut (Ctrl + X).....	105
5.5.2	Copy (Ctrl + C).....	105
5.5.3	Multi copy (Ctrl + T).....	105
5.5.4	Paste (Ctrl + V).....	107
5.5.5	Paste in same position (Ctrl + Shift + V).....	107
5.5.6	Delete.....	107
5.6	Group.....	107
5.6.1	Create group (Ctrl + G).....	107
5.6.2	Ungroup (Ctrl + G).....	108
5.6.3	Editing shapes/tags in groups.....	108
5.7	Rotate.....	108
5.7.1	Rotate left (<).....	108
5.7.2	Rotate right (>).....	108
5.7.3	Cancel rotate (/).....	109
5.8	Properties.....	109
5.9	Mirror.....	109
5.9.1	Mirror vertical.....	109
5.9.2	Mirror horizontal.....	109
5.10	Cancel inheritance	109
5.11	Align	109
5.12	Snap.....	113
5.12.1	Grid snap.....	114
5.12.2	Object snap	114
CHAPTER 6 - View Menu.....		116
6.1	Show name (F5).....	116
6.2	Show ID (F5).....	117
6.3	Docking window.....	117
6.3.1	Handling docking windows	118
6.4	Project manager	122
6.4.1	Screen	122
6.4.2	Global settings.....	129
6.5	MY CLIPBOARD.....	130
6.5.1	Palette	130
6.5.2	Items	131
6.6	List window	132
6.6.1	Composition of the list window.....	132
6.6.2	Selecting shapes/tags/groups.....	133
6.6.3	Viewing shape/tag/group properties	133
6.7	Properties window	133
6.7.1	Composition of the properties window.....	134
6.8	Memory manager	134
6.8.1	Composition of the memory manager.....	134
6.9	Global object.....	137
6.9.1	Registering global objects	138
6.9.2	Using global objects	138
6.9.3	Deleting and changing properties	138
6.9.4	Cancel inheritance.....	139
6.10	Status number	140
6.11	Zoom in/Zoom out.....	141
6.12	Toolbar option.....	142

6.13	Hint	142
6.13.1	Show hint (Ctrl + H).....	142
6.13.2	Hint option (Shift + Ctrl + H)	142
6.14	Previous screen (PageUp)	143
6.15	Next screen (PageDown)	143
6.16	Language.....	143
CHAPTER 7 - Project Menu.....		145
7.1	Edit master screen.....	145
7.2	Master screen properties.....	145
7.3	Text table.....	146
7.3.1	Preparing the text table.....	146
7.3.2	Setting a text table in a project	148
7.3.3	Selecting the language to display.....	149
7.3.4	Viewing each language in the edit screen.....	149
7.3.5	Batch automatic registration of text tables.....	149
7.4	Logging setting.....	149
7.4.1	Basic items page	150
7.4.2	Column name & data type page	152
7.4.3	Advanced page	153
7.4.4	New/Save/Delete button	154
7.4.5	Logging list.....	154
7.4.6	Memory usage display	154
7.4.7	Viewing logging data	155
7.4.8	Setting logging data autosave to CF memory.....	157
7.5	Alarm setting	158
7.5.1	Alarm list registration	159
7.5.2	Select alarm content registration method	160
7.5.3	Solution tip	160
7.5.4	Color info/Current alarm trigger count/Address monitoring	162
7.5.5	Editing the alarm list	163
7.6	Recipe setting	164
7.6.1	Setting recipe block count/word count	164
7.6.2	Recipe movement condition	165
7.6.3	Recipe movement target address.....	166
7.6.4	Memory usage display	166
7.6.5	New/Save/Delete button	167
7.6.6	Recipe data block.....	168
7.6.7	Loading/saving recipe data during operation.....	170
7.6.8	Saving recipe data to a CF memory card	170
7.7	Script setting	171
7.7.1	Global scripts and local scripts	171
7.7.2	Composition of the script settings screen	172
7.7.3	Script conditions	173
7.7.4	Script list.....	174
7.7.5	Script operation	174
7.7.6	Format of script content.....	183
7.7.7	Closing the script settings screen	184
7.8	Message table.....	184
7.8.1	Composition of the message table screen.....	184
7.8.2	Message registration	185
7.9	Event log	187
7.9.1	Add event / Add group.....	187

7.9.2	Event registration	188
7.9.3	CF card settings	188
7.9.4	Event log file saved on the CF memory card	189
7.10	Password setting.....	189
7.10.1	Password setting.....	190
7.10.2	Screen level settings (Base screen).....	190
7.10.3	Use device indirect.....	191
7.10.4	Password window screen and operation	191
7.10.5	Setting the security level for shapes and tags.....	192
7.10.6	Level refresh time	193
7.11	Symbol manager.....	193
7.11.1	Writing the symbol list.....	193
7.11.2	Using symbol addresses in a project	194
7.11.3	Tag and general settings.....	194
7.11.4	Export/Import	195
7.12	Project property.....	197
7.12.1	[Project settings] page	197
7.12.2	[Global alarm scroll] page.....	205
7.12.3	TOP setting.....	205
7.12.4	PLC setup	207
7.12.5	CF card settings	209
CHAPTER 8 - Shape Menu		212
8.1	Dot.....	212
8.2	Line	212
8.3	Rectangle, rounded rectangle.....	213
8.3.1	Rectangle.....	213
8.3.2	Rounded rectangle.....	214
8.4	Ellipse.....	215
8.5	Arc, pie, chord	216
8.6	TEXT.....	217
8.7	Fill	219
8.8	Polyline, polygon	220
8.9	Image.....	220
8.10	Rect ruler.....	221
8.11	Circle ruler	222
CHAPTER 9 - Common Tag Settings		225
9.1	Composition of the tag properties screen	225
9.1.1	Information page	225
9.1.2	Preview.....	226
9.1.3	Security	226
9.1.4	OK/cancel buttons	226
9.2	Address entry	226
9.2.1	Address types	227
9.2.2	Entering addresses using the keyboard.....	236
9.2.3	Entering addresses using the address keypad.....	237
9.3	Color palette.....	239
9.3.1	Selecting colors from basic colors.....	239
9.3.2	Registering/selecting My colors.....	240
9.3.3	RGB input/selection	240
9.4	Image library	241
9.4.1	Composition of the image library.....	241
9.4.2	Image registration.....	242

CHAPTER 10 - Bit Lamp Tag.....	244
10.1 Bit Lamp Tag Overview.....	244
10.2 Page composition of the bit lamp properties screen.....	244
10.3 Display page.....	244
10.3.1 Display settings (VISUAL).....	245
10.3.2 Lamp setup.....	246
10.3.3 Caption.....	247
CHAPTER 11 - Word Lamp Tag.....	249
11.1 Word Lamp Tag Overview.....	249
11.2 Page composition of the word lamp properties screen.....	249
11.3 Display page.....	250
11.3.1 Display settings (VISUAL).....	250
11.3.2 Lamp Setup.....	251
11.3.3 Caption.....	252
11.4 Case page.....	252
11.4.1 CASE List.....	252
11.4.2 Condition setting.....	253
11.4.3 Caption and lamp shape setting.....	254
CHAPTER 12 - N Lamp Tag.....	256
12.1 N Lamp Tag Overview.....	256
12.2 Page composition of the N lamp properties screen.....	256
12.3 Display page.....	256
12.3.1 Display settings (VISUAL).....	257
12.3.2 Range setup.....	258
CHAPTER 13 - Bit Select Lamp Tag.....	263
13.1 Bit Select Lamp Tag Overview.....	263
13.2 Page composition of the bit lamp properties screen.....	263
13.3 Display page.....	264
13.3.1 Display settings (VISUAL).....	264
13.3.2 Range setup.....	265
CHAPTER 14 - Touch Tag.....	267
14.1 Touch tag overview.....	267
14.2 Page composition of the touch tag properties screen.....	267
14.3 Display page.....	268
14.3.1 Display settings (VISUAL).....	268
14.3.2 Touch color.....	269
14.3.3 Caption.....	270
14.4 Interlock page.....	270
14.4.1 Bit state condition.....	271
14.4.2 Word value condition.....	271
14.5 Operation page.....	271
14.5.1 Operation list.....	272
14.5.2 Operation settings.....	273
CHAPTER 15 - Touch + Bit Lamp Tag.....	287
15.1 Touch + bit lamp overview.....	287
CHAPTER 16 - Touch + Word Lamp Tag.....	289
16.1 Touch + word lamp tag overview.....	289
CHAPTER 17 - Touch + N Lamp Tag.....	291
17.1 Touch + N lamp overview.....	291
CHAPTER 18 - Touch + Bit Select Lamp Tag.....	293
18.1 Touch + bit select lamp overview.....	293
CHAPTER 19 - Numeric Tag.....	295

19.1	Numeric Tag Overview	295
19.2	Page composition of the numeric tag properties screen	295
19.3	Address page.....	296
19.3.1	Address setting	296
19.3.2	Data processing	297
19.4	Case page	298
19.4.1	CASE List	299
19.4.2	CASE Condition & Status	300
19.5	Display page.....	301
19.5.1	Display settings (VISUAL).....	301
19.5.2	Format setting (FORMAT)	302
CHAPTER 20 - String Tag.....		304
20.1	String tag overview	304
20.2	Page composition of the string tag properties screen.....	304
20.3	Address page.....	304
20.4	Display page.....	305
CHAPTER 21 - Keypad display (numeric) tag.....		307
21.1	Keypad display (numeric) overview.....	307
21.2	Page composition of the keypad display (numeric) tag properties screen.....	307
21.3	Address page.....	308
21.3.1	Address setting	308
21.3.2	Data processing	309
21.4	Input mode page.....	312
21.4.1	Input mode settings.....	313
21.4.2	Registering keypad (tenkey).....	316
21.5	Case page	318
21.5.1	CASE List	319
21.5.2	CASE Condition & Status	319
21.6	Display page.....	321
CHAPTER 22 - Keypad Display (String) Tag.....		323
22.1	Keypad display (string) overview	323
22.2	Page composition of the keypad display (string) tag properties screen	323
22.3	Address page.....	324
22.4	Input mode page.....	324
22.5	Display page.....	324
CHAPTER 23 - Bit Message Tag		327
23.1	Bit message tag overview	327
23.2	Page composition of the bit message properties screen	327
23.3	Message page	328
23.3.1	Display settings (DISPLAY).....	328
23.3.2	Message settings	329
23.4	Address page.....	329
CHAPTER 24 - Word Message Tag		331
24.1	Word message tag overview	331
24.2	Page composition of the word message tag properties screen	331
24.3	Message page	331
24.3.1	Display settings (DISPLAY).....	331
24.3.2	Message settings	333
24.4	Address page.....	335
CHAPTER 25 - Bit Window Tag		337
25.1	Bit window tag overview	337
25.2	Page composition of the bit window tag properties screen	337

25.3	Window page	337
25.3.1	Window	338
25.3.2	Popup position (VISUAL)	339
CHAPTER 26 - Word Window Tag		342
26.1	Word window tag overview.....	342
26.2	Page composition of the word window tag properties screen	342
26.3	Window page	343
26.3.1	Window	343
26.3.2	Popup position (VISUAL)	345
26.4	Moving the window screen position during operation	347
CHAPTER 27 - Bit Parts Tag		350
27.1	Bit parts tag overview	350
27.2	Page composition of the bit parts properties screen	350
27.3	Parts page	351
27.3.1	Action when image list is set	351
27.3.2	Action when sub screen is set	353
CHAPTER 28 - Word Parts Tag		356
28.1	Word parts tag overview	356
28.2	Page composition of the word parts properties screen	356
28.3	Parts page	356
28.3.1	Parts settings	357
28.3.2	Address and parts number setting.....	358
CHAPTER 29 - Alarm Tag		361
29.1	Page composition of the alarm tag properties screen	361
29.2	Alarm settings page	362
29.2.1	Current alarm settings.....	362
29.2.2	Setting alarm history.....	364
29.2.3	Alarm history (CF) settings	366
29.3	Display page	367
29.3.1	Frame setting.....	367
29.3.2	Font/color setting	369
CHAPTER 30 - Alarm Ext Tag		371
30.1	Composition of the alarm ext tag properties screen	371
30.2	Display page.....	372
30.2.1	Frame setting.....	372
30.2.2	Font/color setting	373
30.3	Alarm settings page.....	374
30.3.1	ALARM FEATURE	374
30.3.2	Alarm data.....	374
30.3.3	Key setting.....	375
CHAPTER 31 - Log Table.....		377
31.1	Log table overview.....	377
31.2	Page composition of the log table properties screen	377
31.3	Data page.....	378
31.3.1	Table setting	378
31.3.2	Data format	378
31.4	Display page.....	379
31.4.1	Frame setting.....	380
31.4.2	Default column width.....	380
31.4.3	Font.....	381
CHAPTER 32 - Event Log Viewer Tag.....		383
32.1	Event log viewer tag overview.....	383

32.2	Page composition of the event log viewer tag properties screen	384
32.3	Event log page	384
32.4	Display page.....	385
32.4.1	Frame setting.....	385
32.4.2	Font/color.....	385
CHAPTER 33	CHAPTER 33 - Bar Graph Tag.....	387
33.1	Bar graph tag overview.....	387
33.2	Page composition of the bar graph tag properties screen	387
33.3	Graph page	388
33.3.1	Graph style	388
33.3.2	Graph data setting	390
33.4	Display page.....	390
33.4.1	Color setting.....	391
33.4.2	Range setup	391
CHAPTER 34	CHAPTER 34 - Linear Graph Tag	394
34.1	Linear graph tag overview.....	394
34.2	Page composition of the linear graph tag properties screen	394
34.3	Display page.....	395
34.3.1	Frame setting.....	395
34.3.2	Graph feature	395
34.4	Graph page	396
CHAPTER 35	CHAPTER 35 - Graph Ex Tag	399
35.1	Graph Ex Tag overview.....	399
35.2	Composition of the graph Ex tag properties screen	399
35.3	Display page.....	400
35.3.1	Frame setting.....	400
35.4	Graph page	400
35.4.1	Graph feature	400
35.4.2	Cursor.....	401
35.4.3	Scale to	402
35.5	Data page.....	403
35.5.1	Adding data to display in the graph.....	403
35.5.2	Graph kind.....	403
35.5.3	Graph data/read direction	404
35.5.4	Min value/Max value	406
35.5.5	Visibility on/off address.....	406
35.5.6	Line setting.....	407
CHAPTER 36	CHAPTER 36 - Record Tag	409
36.1	Record tag overview	409
36.2	Page composition of the record tag properties screen.....	410
36.3	Display page.....	410
36.3.1	Frame setting.....	410
36.3.2	Key setting.....	411
36.4	Graph page	412
36.4.1	Record feature	413
36.4.2	Show X-axis/Y-axis grid.....	414
36.4.3	Cursor.....	414
36.5	Data page.....	415
36.5.1	Data type/size.....	416
36.5.2	Adding data to display in the graph.....	416
36.5.3	[The value of Y axis when X axis cursor is placed upon graph] (internal address)	416
36.5.4	Graph data/read direction	416

36.5.5	Min value/Max value	417
36.5.6	Visibility on/off address.....	418
36.5.7	Line setting	418
CHAPTER 37 - X/Y Chart A Tag		420
37.1	X/Y chart A tag overview	420
37.2	Composition of the X/Y chart A tag properties screen	420
37.3	Graph setting page	421
37.4	Graph data page.....	423
37.5	Display page.....	424
37.5.1	Frame setting.....	424
37.5.2	Update condition	425
CHAPTER 38 - X/Y Chart B Tag		428
38.1	X/Y chart B tag overview.....	428
38.2	Composition of the X/Y chart B tag properties screen	429
38.3	Graph setting page	429
38.3.1	Graph feature.....	430
38.3.2	Graph data setting	430
38.4	Display page.....	431
38.4.1	Frame setting.....	432
38.4.2	Update condition	432
38.5	Data set page	434
38.6	Graph condition page	435
CHAPTER 39 - Calculation Tag		438
39.1	Calculation tag overview	438
39.2	Page composition of the calculation tag properties screen	438
39.3	Condition page	439
39.3.1	Cycle conditions.....	439
39.3.2	Bit state condition.....	439
39.3.3	Word value condition	439
39.4	Operation page.....	441
39.4.1	Composition of the operation page.....	441
39.4.2	Operation settings.....	442
CHAPTER 40 - Comm Tag		451
40.1	Comm tag overview.....	451
40.2	Page composition of the comm tag properties screen	451
40.3	Condition page	452
40.3.1	Cycle condition	452
40.3.2	Bit state condition.....	452
40.4	Operation page.....	453
40.4.1	[Read] communication method.....	453
40.4.2	[Write] communication method.....	453
CHAPTER 41 - Clock Tag.....		456
41.1	Clock tag overview.....	456
41.2	Page composition of the clock tag properties screen.....	456
41.3	Display page.....	456
41.3.1	Clock format	457
41.3.2	Font.....	457
CHAPTER 42 - Filelist Tag.....		459
42.1	Filelist overview.....	459
42.2	Page composition of the filelist tag properties screen.....	459
42.3	Data page.....	459
42.4	Display page.....	460

42.5	Touch buttons used in the file list	460
42.6	Searching/copying files using File manager	461
CHAPTER 43 - DocViewer Tag.....		464
43.1	DocViewer tag overview.....	464
43.2	Page composition of the DocViewer tag properties screen	465
43.3	Display page.....	465
43.3.1	Frame setting.....	466
43.3.2	TITLE FONT/COLOR.....	466
43.4	DocViewer setting page	466
CHAPTER 44 - Slide Tag.....		469
44.1	Slide tag overview	469
44.2	Page composition of the slide tag properties screen	469
44.3	Display page.....	470
44.4	Condition page.....	471
44.4.1	Setting operating conditions	471
44.4.2	Animation setting	474
CHAPTER 45 - Animation Function		476
45.1	Animal function overview.....	476
45.2	Page composition of the animal function properties screen.....	476
45.3	Visible page.....	477
45.4	Position page.....	477
45.4.1	Track move	478
45.4.2	Position move	479
45.5	Rotation page.....	481
45.5.1	Auto rotate	482
45.5.2	Manual rotate	482
45.5.3	Operation conditions	483
45.6	Track edit.....	484
CHAPTER 46 - Tool Menu		487
46.1	Cross reference	487
46.1.1	Searching addresses based on the tag	487
46.1.2	Searching tags using addresses.....	488
46.1.3	Convert to Excel.....	489
46.2	Address converter	490
46.2.1	PLC Select.....	490
46.2.2	Address List	491
46.2.3	Address Convert Rule.....	492
46.2.4	Convert Rule List.....	495
46.2.5	Saving convert rules and converting addresses.....	495
46.3	Screen Manager.....	496
46.3.1	View	496
46.3.2	Editing.....	497
46.4	CF-Recipe Maker.....	499
46.4.1	Settings before using CF-Recipe	499
46.4.2	Created CF-Recipe file.....	500
46.4.3	CF-Recipe load/save.....	502
46.5	Screen preview	502
46.5.1	Screen preview options	502
46.5.2	Save screen as image file	503
46.6	PDF image converter	504
46.6.1	Converting PDF files	505
46.6.2	Exporting images.....	506

46.7	My button maker	507
46.7.1	MBS image editing.....	507
46.7.2	File menu.....	510
46.8	Image library	511
46.8.1	Composition of the image library.....	511
46.9	Project image tool.....	513
46.9.1	Convert and save images	513
46.9.2	Image list.....	514
46.9.3	Image statistics and info.....	514
46.10	Run Simulator	515
46.10.1	Menu and toolbar composition	515
46.10.2	Address List	516
46.11	TopView client creation	517
46.11.1	Creating a client file.....	518
46.11.2	TopView screen	519
46.12	Editing options	520
46.12.1	Editing options page.....	520
46.12.2	Hint Option.....	521
CHAPTER 47 - Transfer Menu.....		524
47.1	Transfer overview	524
47.2	Build and transfer	525
47.2.1	Project builder.....	525
47.2.2	Transmitter run after build.....	529
47.3	Running the transmitter	529
47.3.1	Composition of the transmitter.....	530
47.4	Errors that occur during transfer.....	536
47.5	V4.0 OS Upgrade	536
47.6	USB driver installation	537
47.7	Transfer to USB memory storage device	537
47.7.1	Copying and transmitting projects to USB memory	537
47.7.2	Copying and transmitting OS and font files to USB memory.....	538
47.7.3	Copy internal address and logging data to USB memory.....	538
CHAPTER 48 - Window Menu		541
48.1	Minimize all	541
48.2	Maximize all.....	541
48.3	Cascade.....	542
48.4	Tile	542
48.5	Close all.....	543
CHAPTER 49 - Help Menu		545
49.1	Help	545
49.2	Communication manual	545
49.3	Product info.....	545

CHAPTER 1 Overview

CHAPTER 1 - Overview

Thank you for your purchase from MZI. Before using, please read this manual and sufficiently familiarize yourself with the product and its software XDesignerPlus4 for proper use.

1.1 Hardware overview

The following is a hardware overview for XTOP.

1.1.1 Use of the product

XTOP handles the complex functions of cutting edge FA equipment with a graphic interface.

XTOP communicates with various controllers such as PLC, and allows users to visually monitor and control equipment in real-time.

(1) Fields of application

XTOP is being used in a variety of different fields.

Field	Subfield
Displays	Logistics equipment, surveillance equipment, washing equipment, return equipment, etc.
Chemicals/steel	Pharmaceuticals, plastics, cosmetics, chemical processes, steelmaking, ironmaking, etc.
Foods/beverages	Instant noodles, noodles, soups, snacks, rice, ice cream, milk, packing machines, warehouse management, etc.
Textiles	Dyeing, printing, dry cleaning, weaving, rotating machinery, etc.
Energy	Petroleum refineries, batteries, power generation, hydropower, etc.
Semiconductors/electronics	Gas cabinets, BMC, cooling equipment, scrubber equipment, loaders/unloaders, chambers, lead framers, laser markers, etc.
Automotive/shipbuilding	Painting, welding, pressing assembly, etc.

1.1.2 Communication ports of the product

Depending on the model, various communication ports are provided, among serial, ethernet, USB Device/Host, CF card, SD card, and Fieldbus.

Communication ports	Description
Power	AC 85~264V or DC 24V(20~28V) power is provided, depending on the model.
Serial	Two serial ports, COM1, and COM2 are provided. [COM1] has 6 pins, and supports only RS-232C communications. [COM2] has 9 or 15 pins, and supports RS-232C/422/485 communications. [COM1] can connect to both PCs and controllers. [COM2] can connect to controllers.
Ethernet	Connects to controllers or PCs for ethernet communications.

USB device	Is located on the front face of the product. Uses a USB cable to communicate with the PC.
USB host	This port is used to connect to USB memory storage devices or printers.
CF card	This port is used to insert CF memory cards.
Fieldbus	A Profibus module (option) can be equipped for Profibus communication. Alternatively, a CC-Link module (option) can be equipped for CC-Link communication.

1.1.3 List of supported PLCs

The following is a list of controllers that can be used for communication. The list of controllers supported is continuously updated. Please refer to the M2I Co., Ltd. website (www.m2i.co.kr) for the latest information.

Connectable PLC

Manufacturer	Series	CPU Type	RS-232C/ 422/485	Ethernet
MITSUBISHI Electronic Corporation	MELSEC-Q *주 1)	Q□□/00J/□□H/□□UDH/□□UDEH	●	●
	MELSEC-FX	FX0/1/2/1S/1N/2N/2NC/3U/3UC/3G	●	
		10/20GM	●	
	MELSEC-A	A1N/2N/3N	●	●
		A1S(H)/2S(H)/AOJ2(H)	●	●
		A2A/3A/2A-S1	●	●
		A2U/3U/4U/2USH	●	●
CC-Link(RD)	CC-Link Master Device	●		
OMRON Industrial Automation	SYSMAC CJ2	CJ2H	●	●
	SYSMAC CJ1	CJ1G/1M	●	●
	SYSMAC CS1	CS1G/H	●	●
	SYSMAC CP	CP1L/1H	●	●
	SYSMAC C	C50/120/200/500/1000	●	
		CQM1/1H	●	
		CPM1/2A/2C	●	
LS Industrial Systems	XGT	XGK/XGI/XGR	●	●
	XGB	XEC/XBC/XBM	●	●
	GLOFA-GM	GM1/2/3/4/6/7	●	●
	Master-K	80/120/200/300/1000S	●	●
		10S1/10/30/60/100S	●	
		60/200H	●	
		500(H)/1000	●	
SIEMENS AG.	SIMATIC S7-1200	All Models		●
	SIMATIC S7-400	All Models	●	●
	SIMATIC S7-300	All Models	●	●

	SIMATIC S7-200	All Models	●	
	SIMATIC S5	90/95/100/115/135/155U	●	
	PROFIBUS DP	PROFIBUS DP Master Device	●	
Rockwell Automation (Allen Bradely)	ControlLogix	1756	●	●
	CompactLogix	1768/1769	●	●
	MicroLogix	1000/1200/1500 system	●	●
	SLC500	SLC5/03/04/05	●	●
	PLC-5	PLC5/11/20/30/40/40L/60/60L	●	
MODBUS	MODBUS	All Models	●	
	MODBUS/TCP	All Models		●
GE Fanuc Intelligent Platforms	VersaMax PLC	IC200C/N/U□□□□□	●	●
	Series 90-30 PLC	IC693C□□□□□	●	●
	Series 90-70 PLC	IC697C□□□□□	●	●
	PACSystems RX3i	IC695□□□□□	●	●
	PACSystems RX7i	IC698C□□□□□	●	●
Schneider Electric Industries	Micro	TSX37 All models	●	
	Premium	TSX/TPMX P57 All models	●	●
	Twido	TWD LCAA/LMDA All models	●	
	Quantum	140 CPU All models	●	●
	Momentum	171 CCS/CCC All models	●	●
	M340	M340		●
	MDrive	MAI3CRL23□6-□□□	●	
PANASONIC Electric Works	FP	FP2(SH)/X/Σ/0/e/M/10S(H)/3/1,FP-X	●	
YASKAWA Electric Corporation	PROGIC-8	PROGIC-8	●	
	MP900/2000	MP920/930/2200/2300	●	●
	Control Pack	CP-9200SH	●	
YOKOGAWA Electric Corporation	FA-M3	F3SP□□-□N/H/S	●	●
FUJI Electric	Micrex-SX	SPH□□□	●	
	Micrex-F	F, F□□(S/H), F1□□(S/H), F200	●	
KEYENCE Corporation	KV	KV-700/1000	●	
		KV-10/24	●	
KOYO Electronic Industries	DL-205/305/405	D2 240/330/430	●	
FATEK Automation Corporation	FBs	FBs-□□MA/MC/MN	●	●
	FBe	FBe-□□MA/MC	●	
	FBn	FBn-□□MCT	●	
RS Automation	Alpha	N7/NX(70/700/750/CCU)	●	

	Plus	NX7/NX Plus(70P/700P/CCU+)	●	
	SPC	SPC-10/100/120S/300	●	
	X8	All Models	●	●
KDT Systems	CP	CM1-CP3/4□	●	●
	XP	CM1-XP1/2/3□	●	●
	BP	CM2-BP16/32□□	●	●
Comfile Technology	Tiny PLC	TCP-3X/9X	●	
	Qubloc	All models	●	
Hitachi Industrial Equipment Systems	HIDIC-H	EH-150	●	
		Micro EH	●	
POSCON	POSFA A	POSFA-A	●	
EMERSON	EC20	EC20	●	
Delta	DVP	DVP series	●	
VIGOR Electric Corporation	M/VB/VH	M series / VB series / VH series	●	

Connectable DDC

ASIC	DDC	DDC	●	
Speed tech	ExtDDC	ST/PS, ST/RS, ASIC/2-7040	●	
SAIA	SAIA	PCD2	●	

Connectable Temperature Controller

RKC Instrument	CB	CB100/400/500/700/900	●	
	FB900/400	All models	●	
	HA900/400	All models	●	
	MA900/901	All models	●	
	SRV	V-TIO-A/V-TIO-C	●	
	SRX	X-TIO-A	●	
	SA200/100	SA100	●	
	SR Mini HG	H-PCP-A/H-PCP-J	●	
	SRZ	Z-TIO/DIO/CT/COM	●	
HanyoungNux	NP200/100	All models	●	
	NX, PX	NX9/7/3/2, PX9/7	●	
	RT	RT9	●	
	UX100	UX100	●	
SamwonTech	NOVA500	SD5□□/SL5□□/SP5□□/ST5□□	●	
	NOVA300	SD3□□/SS3□□/ST3□□	●	

	SP790	SP7□□	●	
YOKOGAWA Electric Corporation	UT/UP/UM	UT/(UP/UM/UD)3/4/5/7/1 0□□	●	
CHINO Corporation	DB	DB1/DB2 All models	●	
	KP	KP1/2/3 All models	●	
	LT	LT23/3/4/830 All models	●	
	JU	JU All models	●	
	JW	JW All models	●	
IMO	DTP	DTP/TP	●	

Connectable Invertor

Sanken	SAMCO-i	ihf/ipf/QS/QT/It/iF	●	
LS Industrial Systems	Starvert Inverter	SV- iS7/G5A/P5A/C5/V5/G5/S 5/H/V/S3	●	
ABB	ACS	ACS140/400/500	●	
Huropec	HC	HC	●	
FEBA	UDICON	UDICON	●	
	SMARTCON	SMARTCON	●	
FUJI Electric Systems	Inverter	FRN□□□□11S-□	●	
IMO	Jaguar	CUB/VXSM/VXM	●	

Connectable Weigh Indicator

AND	AD	AD4326/4327/4328/4329	●	
CAS	CI/NT	CI/NT	●	
BONGSHIN	BS	BS	●	
SEWHACNM	SI 3000		●	
SinHan	SH5100		●	

Connectable Barcode Reader

General Barcode Reader	USB/RS-232C	USB/RS-232C	●	
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Connectable RFID Reader

OMRON	RFID	V680	●	
LS Industrial Systems	RFID	XCODE-1306/1307	●	
CEYON Technology	RFID	RIM125	●	
		TRA5	●	

Connectable Motion Controller

DONGBU (DASAROBOT)	iMS-J	iMS-J	●	
	iM-Σ	iM-Σ2/3/4/5/6/7/8	●	
	UNICON	UNICON	●	
	DTR	DTR2/3/4	●	
ROBOSTAR	Newro	RCS6000/RCM	●	
EMOTIONTEK	MCU	MCU-MA/MP/XA/XP	●	
	MCU2	MCU-MA2/MP2/XA2/XP2	●	
	MCS	MCS-80A4/P4/A8/P8	●	
OMRON	Campositioner	3F88L-160/162	●	
Gidding & Lewis	MMC	MMC	●	
Hyundai Heavy Industries	Hi4 Robot	BD412 Board	●	
Bosch-Rexroth AG	VisualMotion	VM7,VM8	●	
Delta-Tau	PMAC	Mini-PMAC	●	

Connectable Servo

MITSUBISHI Electronic Corporation	MELSERVO	MR-J2S/M, MR-J3	●	
HIGEN Motor(ㄱ OTIS)	FDA	FDA6000/7000	●	
LS MECAPION (ㄱ Metronix)	Anypack	APD-VS/VP/VK/VN□□	●	

Connectable Pump

Alcatel	ADP/ADS		●	
Ebra	EST/ESR/ESA		●	
Edward	iM		●	
Kashiyama	SDE		●	
LOT	DD		●	

1.1.4 XTOP menu screen

The XTOP has a [Menu Screen] and an [Run Screen].

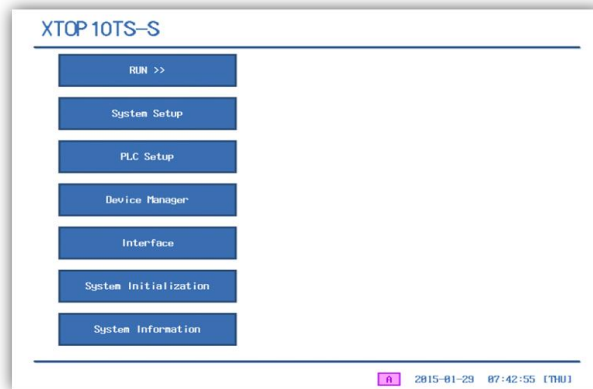
In the [Menu Screen], the XTOP settings can be accessed. The model name and the version of the loaded OS can be viewed. Also, date, time, and communication settings can be made, and system initialization can be performed. A diagnostics menu is provided for checking normal operation of the XTOP. The [Run Screen] is the screen where the loaded project program is operated. Users can easily switch between the menu screen and the run screen.

(☞ See [1.1.6] of [chapter 1] for how to switch screens.)

(1) First page

This is the first page of the menu screen. On the first page, there are buttons to navigate to each page of the menu screen. On the left top, the model name of the product is shown. On the bottom right, the

currently selected language, date, and time are shown. The language, date and time can be changed.

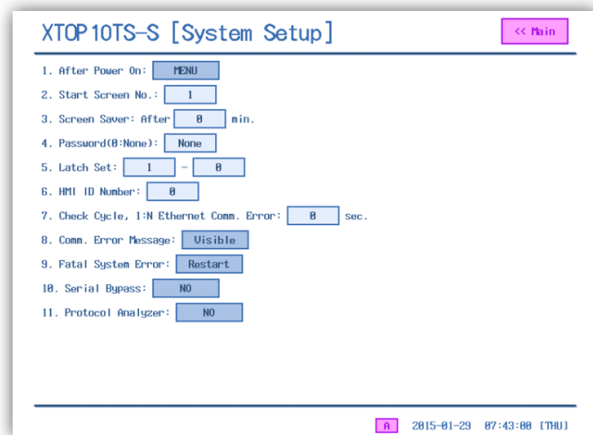


[Fig. First page]

No	Menu	Description
1	RUN	When the RUN button is touched, the screen switches from the menu screen to the run screen.
2	System setup	The system setup screen is brought up.
3	PLC setup	The PLC setup screen is brought up.
4	Device manager	The device manger screen is brought up.
5	Interface	The interface screen is brought up.
6	System initialization	The system initialization screen is brought up.
7	System information	The system information screen is brought up.
8	[A] – Language	The current language for the [Menu Screen] is displayed. Touch to select between Korean and English.
9	Date / Time	The current date and time are displayed. Touch to change.

(2) System setup screen

On this page, basic XTOP settings can be made.

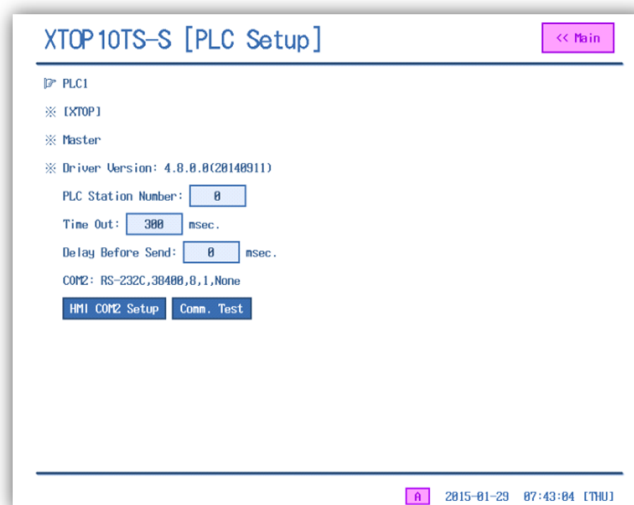


[Fig. System setup screen]

No	Menu	Description
1	Initial operation mode	Set the operation mode when XTOP is turned ON. [Menu]: The menu screen is shown. [Run]: The run screen is shown.
2	RUN start screen number	Set the number of the first screen to be shown on the run screen.
3	Screen saver	This function turns off the backlight if the system is left idle for a set period of time. Set the time in minutes. When the screen is touched, the backlight is switched back on. By using this function, the service life of the backlight can be extended.
4	Password	If a password is entered, the password is asked for for downloads and uploads, and when entering the menu screen.
5	Latch set	XTOP has internal addresses from 0 to 5119. Internal addresses are in word units. All address data is erased if power is reset. However, if latches are set, data is preserved even if power is reset.
6	TOP ID number	The ID number of XTOP for N:1 communication is set.
7	Check cycle, 1:N Ethernet Comm. Error	Set the cycle for checking Ethernet 1:N comm errors.
8	Comm. Error message	Set to use the communication error message display function. [Visible]: Error details are shown on the bottom of the run screen when a communication error occurs. [Invisible]: The message is not shown.
9	Fatal system error	Set the action when a fatal system error occurs. [Restart] XTOP power is reset when an error occurs. [Stop]: XTOP stops operation.
10	Serial bypass	Set whether to use serial bypass.
11	Protocol analyzer	Set whether to use the protocol analyzer.

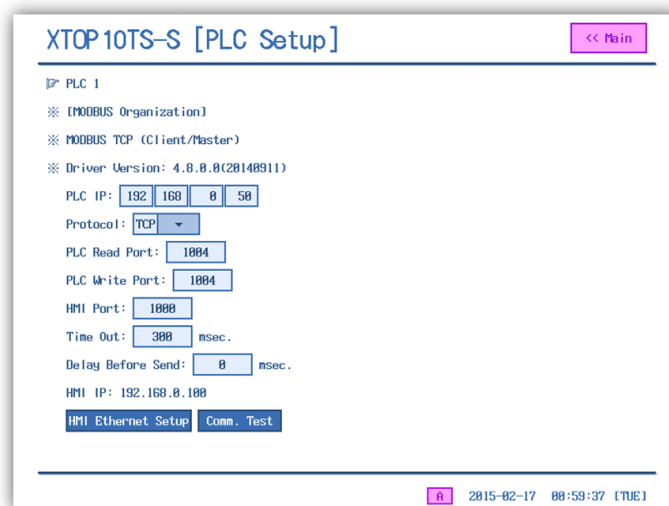
(3) PLC setup screen

From this page, communication settings can be made for the PLC connected to XTOP.



[Fig. PLC setup screen]

No	Menu	Description
<Setting 1: Serial communication>		
1	(PLC info)	Info on the set PLC is shown.
2	(Communication info)	Info on the set communication method is shown.
3	PLC station number	Set the station number (used for comm. diagnostics) of the controller connected to the COM port.
4	Time out	Set the time out period for the controller connected to the COM port. (Time out: Time during which controller (PLC) response is waited for)
5	Delay before send	Set the pre-send delay of the controller connected to the COM port. (Delay before send: When the XTOP require communication, communication is performed after the set delay.)
6	TOP COM setting	Brings up the communications settings screen (device manager) of XTOP.
7	Communication diagnostics	Diagnoses communication with the PLC connected to the COM port. (OK is shown if there are no anomalies.)

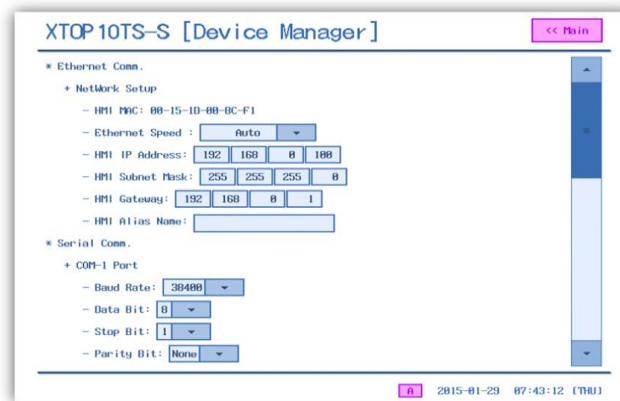


[Fig. PLC setup screen 2]

No	Menu	Description
<Setting 2: Ethernet communication>		
1	(PLC info)	Info on the set PLC is shown.
2	(Communication info)	Info on the set communication method is shown.
3	PLC IP	Set the IP address for the controller connected to the ethernet port.
4	Protocol	Set the protocol for the controller connected to the ethernet port.
5	PLC read port	Set the read port for the controller connected to the ethernet port.
6	PLC write port	Set the write port for the controller connected to the ethernet port.
7	TOP Port	Set the XTOP port for the controller connected to the ethernet port.
8	PLC station number	Set the station number (used for comm. diagnostics) of the controller connected to the

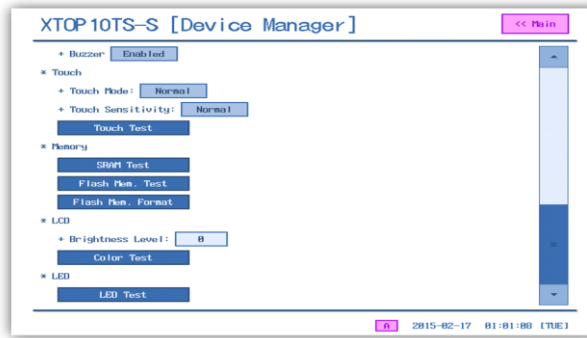
		ethernet port.
9	Time out	Set the time out period for the controller connected to the COM port. (Time out: Time during which controller (PLC) response is waited for)
10	Delay before send	Set the time out period for the controller connected to the ethernet port. (Time out: Time during which controller (PLC) response is waited for)
11	TOP IP	Set the pre-send delay of the controller connected to the ethernet port. (Delay before send: When the XTOP require communication, communication is performed after the set delay.)
12	TOP ethernet setting	Brings up the communications settings screen (device manager) of XTOP.
13	Communication diagnostics	Diagnoses communication with the PLC connected to the ethernet port. (OK is shown if there are no anomalies.)

(4) Device manager screen



[Fig. Device manager screen]

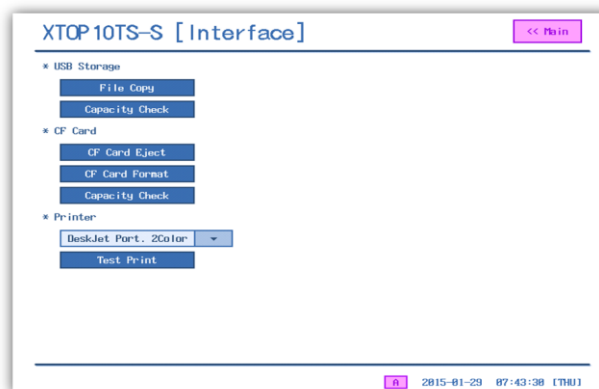
No	Menu	Description
<Ethernet communication>		
1	MAC	The MAC address of XTOP is shown.
2	IP Address	Set the IP address for XTOP.
3	Subnet mask	Set the subnet mask for XTOP.
4	Gateway	Set the gateway for XTOP.
<Serial communication>		
1	Baud rate	Set the communication speed (baud rate) of the controller connected to the COM port.
2	Data bit	Set the data bits for the controller connected to the COM port.
3	Stop bit	Set the stop bit for the controller connected to the COM port.
4	Parity bit	Set the parity bits for the controller connected to the COM port.
5	Signal level	Set the signal level (RS-232C/422/485) of the controller connected to the COM port.
6	COM loopback diagnostics	Diagnoses communication with the controller connected to the COM port. (OK is shown if there are no anomalies.)



[Fig. Device manager screen 2]

No	Menu	Description
1	Buzzer	Set whether to use a buzzer sound with touch.
2	Touch method	Set the touch method. (Normal / Safe) (Safe: Two-touch prevention)
3	Touch sensitivity	Set touch sensitivity. (Normal / Low)
4	Touch test	Test whether the touch position is normal. Click the 'X' button on the top right corner to exit the touch test.
5	SRAM test	Test whether the SRAM memory is normal. (If there are no anomalies, the 'SRAM normal' message is shown.)
6	Brightness level	Set the brightness of the LCD. (Level 0: Brightest ~ Level 7: Darkest)
7	Color test	Test the status of the LCD screen. Click the 'X' button on the top right corner to exit the touch test.
8	LED test	Test the status of the LEDs on the front face of the XTOP. (The LEDs on the front face are lit, alternating between green and red.)

(5) Interface screen

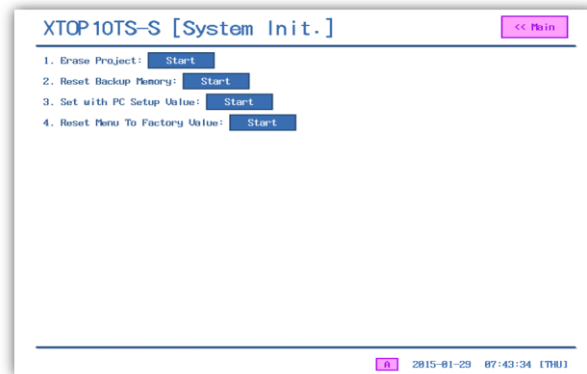


[Fig. Interface screen]

No	Menu	Description
1	File copy	Using a USB memory device, USB memory data is copied to XTOP, or XTOP data is copied to the USB memory. (Project files / OS files / font files)

2	Capacity check	The total capacity / used capacity / remaining capacity of the USB memory is shown.
3	CF Card Eject	Click to safely remove a CF card.
4	CF Card Format	Formats a CF card.
5	Capacity check	The total capacity / used capacity / remaining capacity of the CF card is shown.
6	Printer	Set the properties (portrait/landscape, color) for the printer connected to XTOP.
7	Test print	Perform test print for the printer connected to XTOP.

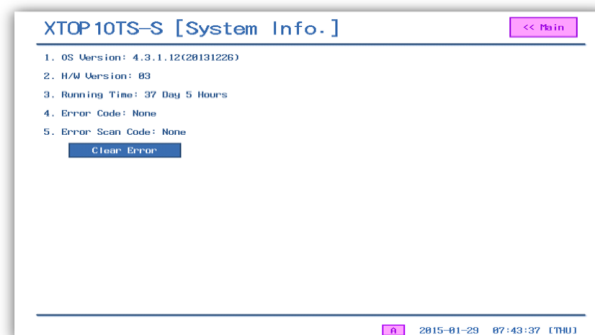
(6) System initialization screen



[Fig. System initialization screen]

No	Menu	Description
1	Erase project	Initializes the project file.
2	Reset backup memory	Initializes backup memory data.
3	Set with PC setup value	In [Project]-[Project property] of XDesignerPlus4 on the PC, click the model name of the touch. [HMI Setting] is shown on the right. If HMI settings have been made, the value is set to these settings.
4	Reset menu to factory value	Initialize communication settings and all initial settings to their factory default values. (When reset is performed, the menu screen is changed to English.)

(7) System information screen

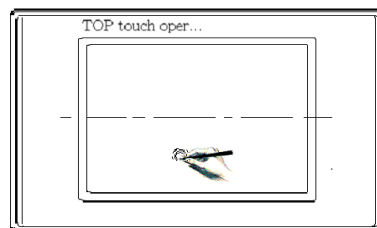


[Fig. System information screen]

No	Menu	Description
1	OS Version	The OS version of XTOP is shown. The version and date of the OS is shown.
2	H/W Version	The hardware version of XTOP is shown.
3	Running Time	The running time of XTOP is shown.
4	Error Code	When an error occurs, an error code is displayed.
5	Error Scan Code	When an error occurs, the location of the error is shown.
6	Clear error	Delete an error that has occurred.

1.1.5 Touch calibration method

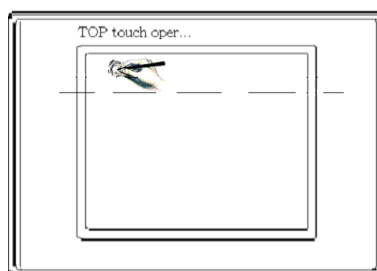
With the [Analog Touch] method, the touch position may change due to external factors such as temperature. When the touch position requires correction during use of the product, calibration is performed as follows.



[Fig. Touch calibration method]

- ① Turn the XTOP off. Touching the bottom half of the screen, turn the touch screen on. A moment later, the screen shows the message [Remove your fingers]. When the fingers are removed, [Touch calibration mode] is entered.
- ② The message [Touch anywhere to calibrate.] is shown, and a countdown [10, 9, 8, ..., 0] is shown on the screen. Before the count down reaches [0], touch anywhere on the screen.
- ③ The message [Press the center of the screen.] is displayed, together with a black rectangle. Using the touch pen, touch the marked area accurately. According to the messages displayed, touch the top left, top right, bottom left, and bottom right parts of the screen.
- ④ After designating the screen positions, the message [Press the screen to save.] is shown. Touch the screen one more time to complete touch calibration. The message [Data Writing...] is displayed.

1.1.6 How to switch from the Run Screen to the Menu Screen



[Fig. Switching to the menu screen]

(1) Method 1

Turn the XTOP off. When power is turned on, a [Beep] is sounded.

As soon as the beep is sounded, touch the main key part of the menu screen (the LCD screen directly beneath the TOP logo) to transition to the menu screen. If it is difficult to time your touch, reset the device, and tap regularly on the main key part.



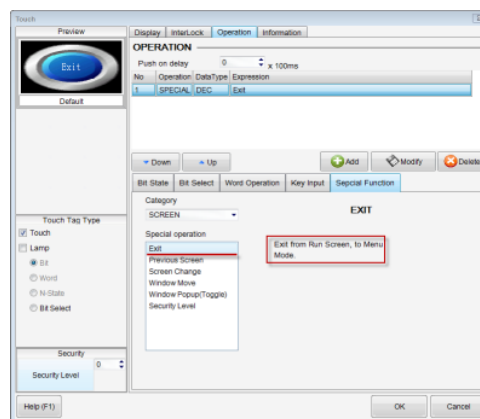
Note

If the power is turned on with the touch screen pressed, the menu screen is not brought up.

Tap the screen after the beep sounds.

(2) Method 2

Transition by registering a touch button on a project. From the [Operation] page of the touch tag, enable [EXIT] under [Special Functions]. When this touch button is pressed on the screen, the run screen is closed, and the menu screen is brought up.



[Fig. Switching to the menu screen using a touch button]

1.2 Software overview

The XDesignerPlus4 program used for XTOP screen projects is described.

1.2.1 PC hardware specifications

These are the minimum PC specifications for normal operation of the XDesignerPlus4 program.

Item	Minimum requirement	Recommended specifications
CPU	Pentium 3 800MHz or higher	Pentium 4 1.2Ghz or higher
Memory	512 MB or higher	1 GB or higher
Graphic Adapter and Monitor	SVGA(800*600) 16bit color or higher	SVGA(1024*768) 32bit color or higher
HDD Space	500 MB or more	1 GB or more
Key Board	Windows compatible keyboard	Windows compatible keyboard
Mouse	Windows compatible mouse	Windows compatible mouse

Printer	Windows compatible printer	Windows compatible printer
OS	Windows 2000/XP or higher	Windows 2000/XP or higher

1.2.2 Touch program writing and testing order

- ① After closing the PLC (controller) program, write a [Project] according to the PLC program.
- ② The completed project is transmitted to XTOP. Data can be transmitted between the PC and XTOP using serial/USB/ethernet cables.
- ③ The PLC and XTOP are connected depending on the communication method. Communication manuals are provided for each PLC manufacturer. Refer to these manuals when connecting the PC and XTOP. The communication manuals include detailed descriptions of communication setting methods, and wiring diagrams. The communication manuals are included in the XDesignerPlus4 software, and can also be downloaded individually from the website.
- ④ Check communications, and test the project. Communication status can be checked from the [Diagnostics screen] of the [Menu screen] of XTOP. If communication is not established between the PLC and XTOP, the XTOP does not operate normally.

1.2.3 Software types and supported XTOP models

Category	Software	Extension	Supported TOP models	Unsupported TOP models
New	XDesignerPlus4	*.DPX4	XTOP, HTOP series	All discontinued models Some XTOP models (XTOP10T, XTOP10TS, XTOP12T, XTOP15T)
	XDesignerPlus	*.DPX	ATOP, XTOP, HTOP series	Some discontinued models (TOP3SA, TOP3SAE, TOP5SAD, TOP8TA, XTOP10T, XTOP10TS, XTOP12T, XTOP15T)
Old model	TOP-Designer	*.TOP	Discontinued ATOP/CTOP model series	All XTOP, HTOP, Wide Type models
	XTOP-Designer	*.XOP	All XTOP series models	All ATOP, CTOP, HTOP, Wide Type models

XDesignerPlus4 can use XTOP and HTOP Series programs.

1.2.4 Using old project files in the new XDesignerPlus4 software

When the XDesignerPlus4 program is installed, the icon [XDPCConvertor] is created on the desktop.



[Fig. XDPCConvertor on the desktop]

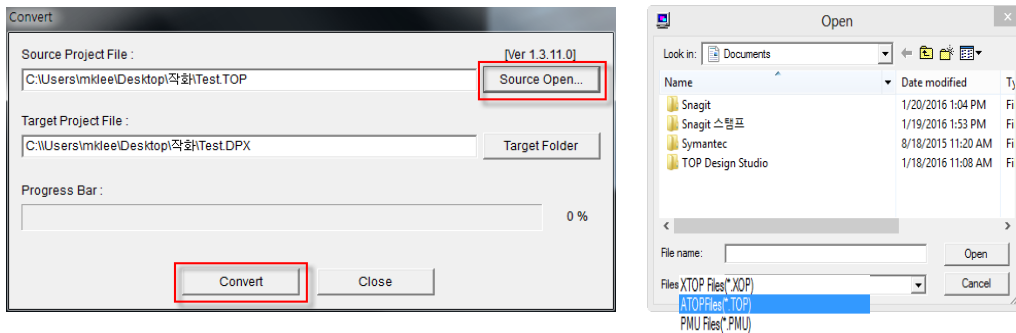
Using the XDPCConverter, a file for old software can be converted into a file for XDesignerPlus.

Using the [Source Open] button, open an old project file (*.TOP, *.PMU, *.XOP).

When the [Convertor] button on the bottom is clicked, a *.DPX file for XDesignerPlus is created in the path below.

Open the created file in XDesignerPlus4, then save again as a *.DPX4 file.

Note) Before opening, editing and transmitting a converted file, be sure to check the model name of the touch in [Project]-[Project property].

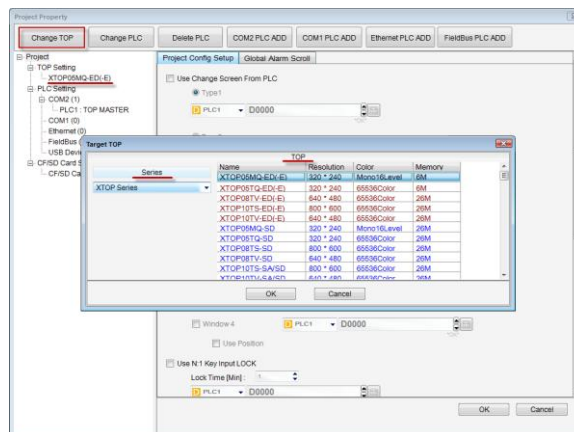


(1) Manual settings required after converting.

Same settings need to be performed manually after converting.

- ① When an ATOP file [*.TOP] file has been converted.

The touch model must be designated again in [Project]-[Project property]. In the previous TOP-Designer, touch screen models were grouped by resolution, and therefore model names did not have to be designated. However, in the XDesignerPlus4 program, individual touch model names must be designated.



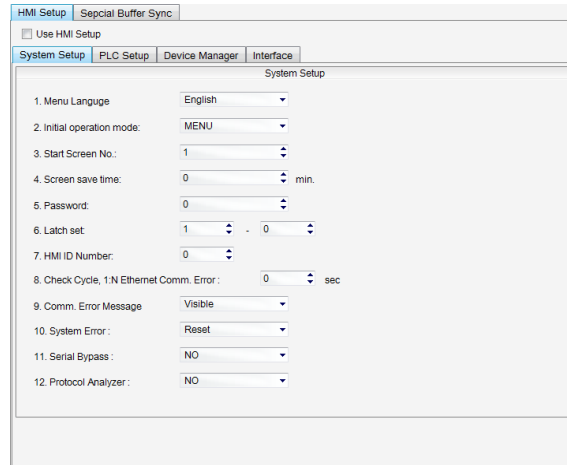
[Fig. Changing the touch model name]

If the wrong touch model name is selected, the project is not transferred to the touch screen.

After converting, the original file is backed up as a [*.OLD] file. The existing [*.TOP] file is internally changed, and therefore cannot be opened. Therefore, when using the existing file, please change the extension of the newly created [*.OLD] file to [*.TOP].

- ② When a [*.TOP] or [*X.OP] file has been converted

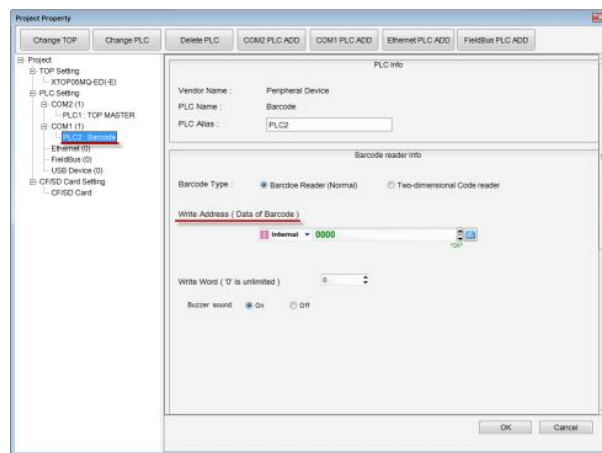
In [TOP-Designer] and [XTOP-Designer], the [Body settings] under the [File] menu are not converted. These [Body settings] are the same as [Use HMI settings] in [Project property] under the [Project] menu of [XDesignerPlus4]. Therefore, in the case of projects using body settings, check [Use HMI settings], and perform settings again. (☞ See [7.12.3] of [chapter 7] for the HMI setting method.)



[Fig. Using HMI settings]

Also, when using a barcoder, settings are not converted.

Therefore, barcoder settings must be performed again, as shown in the figure below.



[Fig. Barcoder settings]

1.2.5 Relationship between software version and TOP OS version

Software	TOP model	OS version
TOP-Designer	ATOP/CTOP	V 2.3
XTOP-Designer	XTOP	V 2.4
XDesignerPlus	ATOP/CTOP	V3.0

	XTOP/HTOP	V3.1
XDesignerPlus4	XTOP/HTOP	V4

If the XTOP OS version and the software version do not match, projects cannot be transferred.

1.2.6 How to upgrade/downgrade OS

XTOP products are equipped with version 4 since September 2014. If the XTOP OS version is 4, use XDesignerPlus V4. If the version is 3.1, XDesignerPlus V2 must be used.

If the touch is V4, data cannot be transmitted using XDesignerPlus V2.

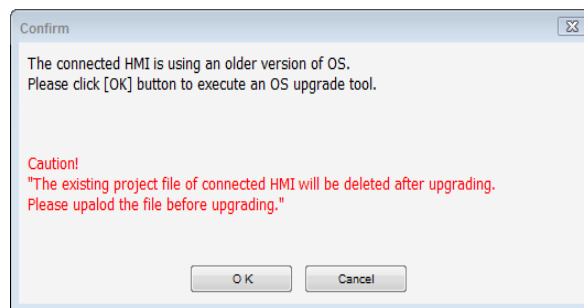
If the touch is V2, upgrade the touch to V4 to use XDesignerPlus V4.

XTOP OS Version	XDesignerPlus Version	Result	Action
V4	V2	Cannot connect to PC for transfer	1. Download XDesignerPlus V4 from the website, install, then run. 2. Downgrade and use XTOP. (All XTOP projects and data is erased when a downgrade is performed.)
Previous V3.1	V4	Asked to perform OS upgrade when transmitting.	1. Upgrade and use XTOP. (All XTOP projects and data is erased when an upgrade is performed.) 2. Download XDesignerPlus V2 from the website, install, then run.

(1) OS upgrade method

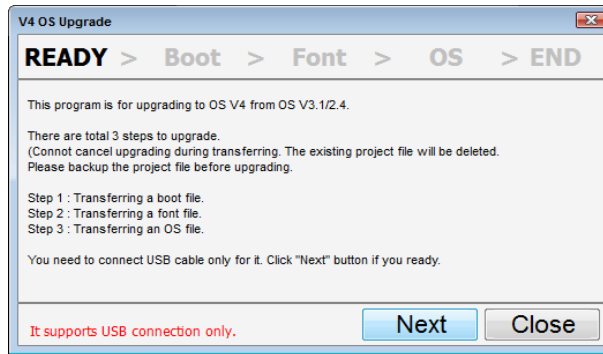
The process of changing a 3.1 version XTOP OS to V4 is called an OS upgrade.

When transmitting to a V3.1 XTOP from XDesignerPlus4, the following OS upgrade info message is shown. Because all data, including loaded projects, is erased from the touch when an OS upgrade is performed, a warning message is displayed together.

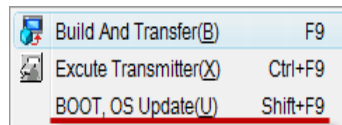


Click the [Ok] button to run the following [V4 OS upgrade] program.

Data transfer can only be performed using USB cable. Click the [Next] button to transfer the V4 upgrade Boot/Font/OS files in sequence. After transferring files at each stage, wait for the touch to reboot before making the next transfer. When transfer is completed, touch calibration is performed. Following the instructions on the screen, accurately touch the 5 points.



If the upgrade is interrupted, run the [Transfer]-[OS Upgrade] menu to resume.



(2) OS downgrade method

The process of changing a V4 version XTOP OS to V3.1 is called an OS downgrade. Run the transmitter in XDesignerPlus V2, and transfer the V3.1 Boot/Font/OS files in sequence. The V3.1 Boot/Font/OS files can be downloaded from [Downloads]-[Other Programs] on the website. After transferring files at each stage, wait for the touch to reboot before making the next transfer. When transfer is completed, touch calibration is performed. Following the instructions on the screen, accurately touch the 5 points.

CHAPTER 2 Installation

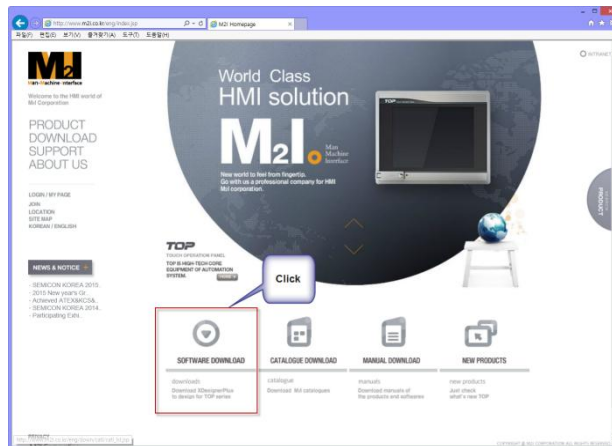
CHAPTER 2 - Installation

Installing the XDesignerPlus4 illustration program.

2.1.1 Downloading the XDesignerPlus4 program

XDesignerPlus4 can be downloaded for free from the M2I Co., Ltd. website (www.m2i.co.kr).

As shown in the figure below, click the software download button on the bottom of the main page.



[Fig. Navigating to the software download page on the website]

The software download page comprises the following list. Click XDesignerPlus4 on the top to download the latest full installation file. When XDesignerPlus4 is installed, OS files and USB driver files are included in the installation path.



[Fig. The software download page on the website]

Older version programs and OS files, etc., can be downloaded from the posts below.

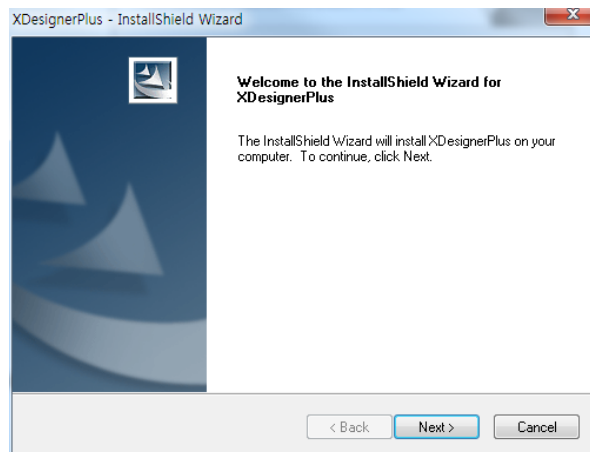
(1) Update and previous illustrator software

No	List	Description
1	XDesignerPlus V4	Illustrator software for XTOP OS V4.
2	XDesignerPlus V2	Illustrator software for XTOP OS V3.1.
3	Old TOP-Designer	Old software for ATOP.
4	Old XTOP-Designer	Old software for XTOP.
5	TOPAnywhere	An ethernet communication data management program.
6	USB driver	Driver files for USB transfer. This driver is installed automatically when XDesignerPlus4 is installed. The file is included in the path below, which is the installation path for XDesignerPlus4. [C:\Program Files (x86)\M2I Corp\XDesignerPlus4\usb_driver]

2.1.2 Installing XDesignerPlus4

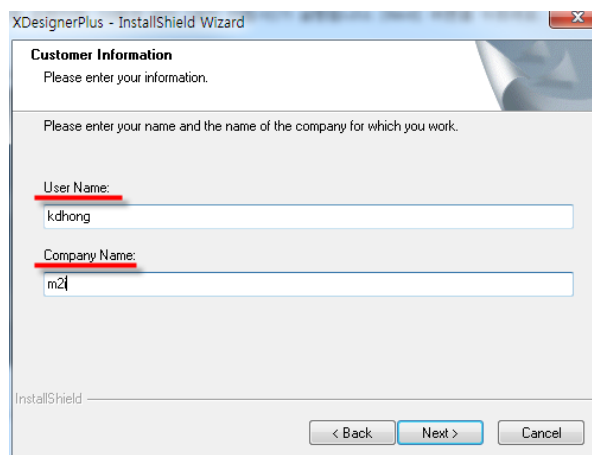
The installation method for the XDesignerPlus4 program is explained below.

- ① The downloaded file is a zipper file. Unzip the file.
- ② Double click and run the installation file (XDesignerPlus(Version)Setup.exe).
- ③ When the installation file is run, the following [Installation wizard] is run. Click the [Next] button.



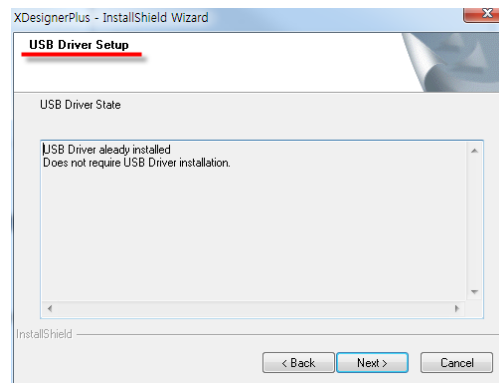
[Fig. Program installation wizard start screen]

- ④ Enter the user name and company name, then click the [Next] button.



[Fig. Enter user name and company name]

- ⑤ Next, the SUB driver is installed. If the driver is not already installed in the PC, the USB driver is installed. If the driver is already installed, the message "USB Driver already installed" is displayed.



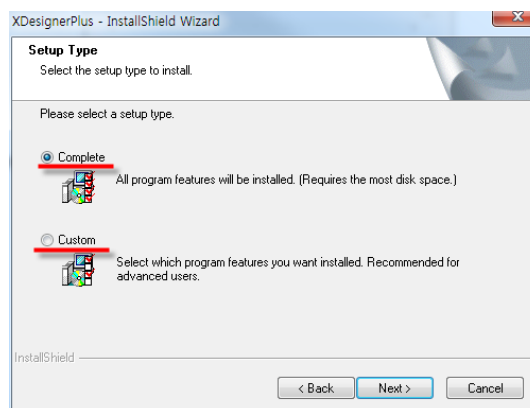
[Fig. USB driver installation]

- ⑥ Select the installation type, and click the [Next] button.

Complete – All items are installed, and the installation path is automatically set to

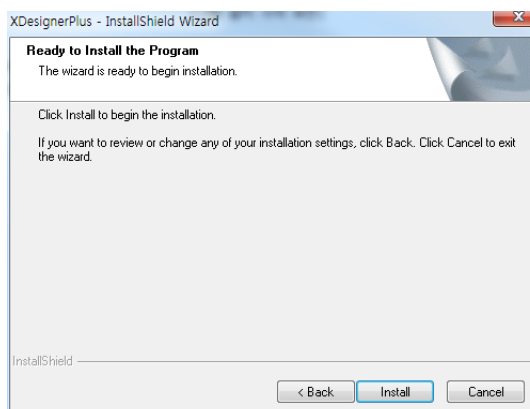
[C:\program Files\M2I Corp\ XDesignerPlus4]. (Recommended)

Custom – The items to install, and the installation path can be designated.



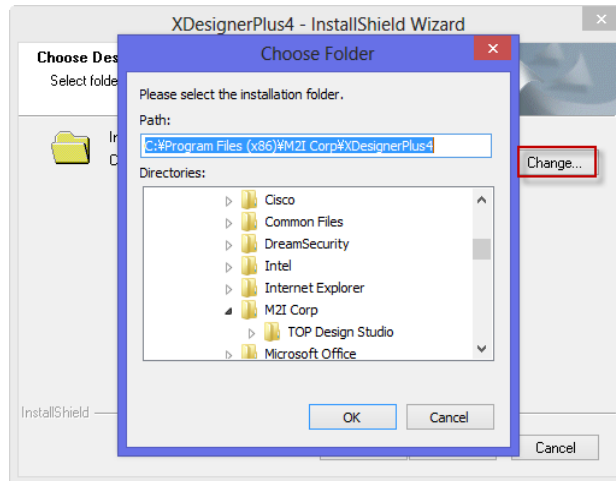
[Fig. Choosing setup type]

- ⑦ When [Complete] is selected, the installation start screen is shown immediately. Click the [Install] button to begin installation. To change settings, click the [Back] button. After [Install] button is clicked, installation proceeds and is completed.



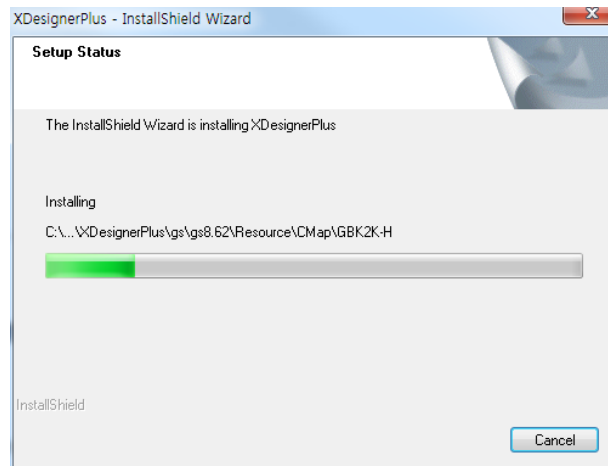
[Fig. Installation start screen]

- ⑧ When [Custom] is selected, the installation path can be specified using the [Change] button as shown in the figure below. When the [Next] button is clicked, installation proceeds and is completed.



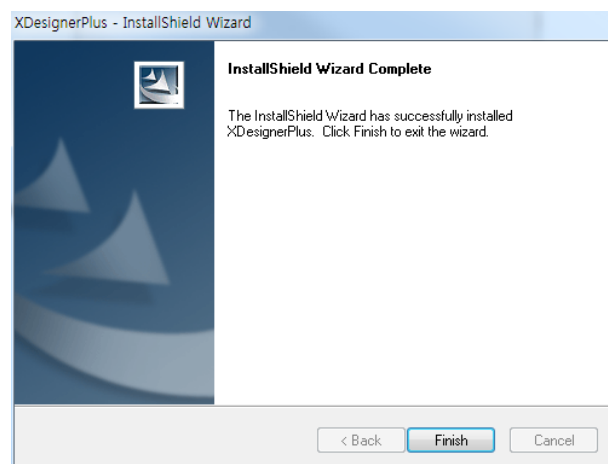
[Fig. Installation path selection]

This screen shows the installation in progress.



[Fig. Installation in progress]

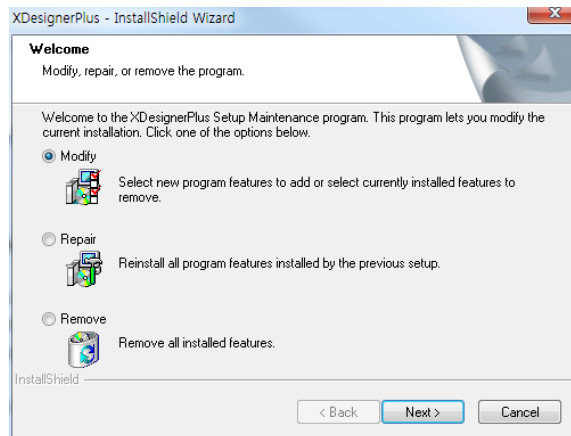
This screen shows the installation completed.



[Fig. Installation completed]

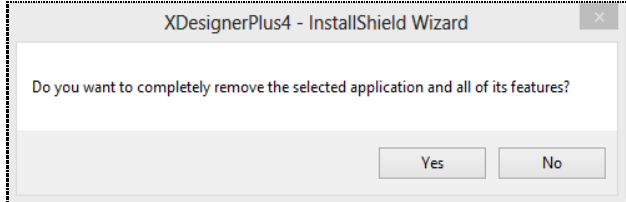
2.1.3 Updating the XDesignerPlus4 program

If the XDesignerPlus4 program is already installed on the PC, but the version is low, the following screen is brought up when the latest XDesignerPlus4 program is installed.



[Fig. XDesignerPlus4 update]

Select options and click the [Next] button. Installation proceeds according to the selected options.

List	Description
Modify	Only newly added functions are installed.
Repair	Re-install with the latest version.
Remove	Remove the XDesignerPlus4 program installed on the PC. Select [Remove] and click the [Next] button to bring up the following program removal confirmation message. Clicking [Yes] here removes the XDesignerPlus4 program. 

2.1.4 Removing the XDesignerPlus4 program

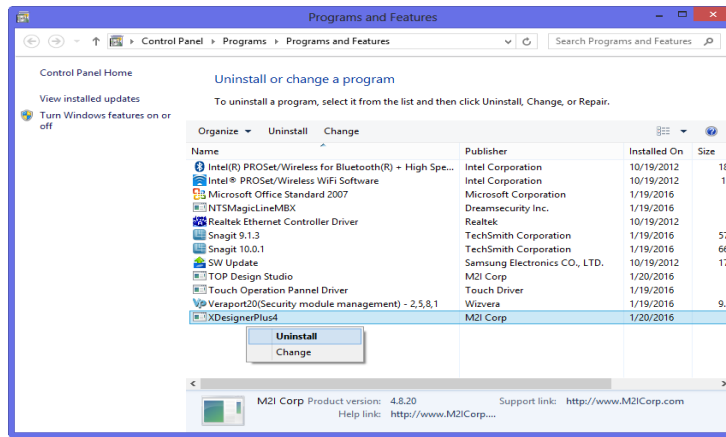
To remove the XDesignerPlus 4 program from the PC, select [Add/Remove Programs] from the [Control Panel] of Windows, then bring up the Add/Remove programs screen as shown in [Fig. Add/Remove Programs].

Select XDesignerPlus4 and click the [Modify/Remove] button on the right to complete the XDesignerPlus4 removal process.



Note

Even if the installed XDesignerPlus4 program is removed, project files created by the user, image libraries, and other files that were created after the installation are not deleted.



[Fig. Add/Remove Program]

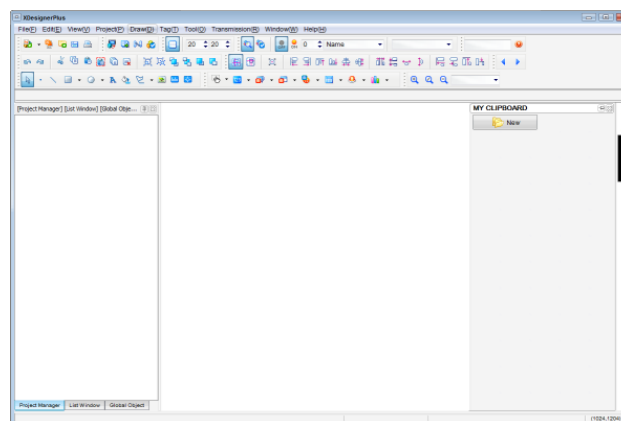
2.1.5 Running the XDesignerPlus4

When installation of the XDesignerPlus4 program is completed successfully, an XDesignerPlus4 icon is created on the desktop. Also, an XDesignerPlus4 shortcut icon is created in the Path [Start]-[All Programs]-[M2I Corp]-[XDesignerPlus4] of Windows.

Click the icon on the desktop, or the XDesignerPlus4 icon from the Windows start menu. The following screen for language selection is shown. Select from English, Korean, Chinese, and Arabic.



Click the [OK] button to run the XDesignerPlus4 program. The display language can be changed in [View]-[Language].



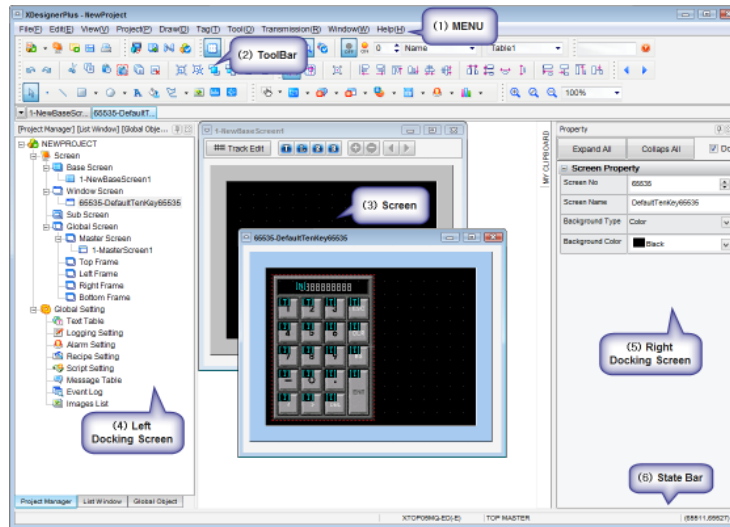
[Fig. XDesignerPlus4 program run screen]

CHAPTER 3 Overall Composition of XDesignerPlus4

CHAPTER 3 - Overall Composition of XDesignerPlus4

3.1 XDesignerPlus4 composition

The XDesignerPlus 4 screen is composed as follows.



[Fig. Screen composition]

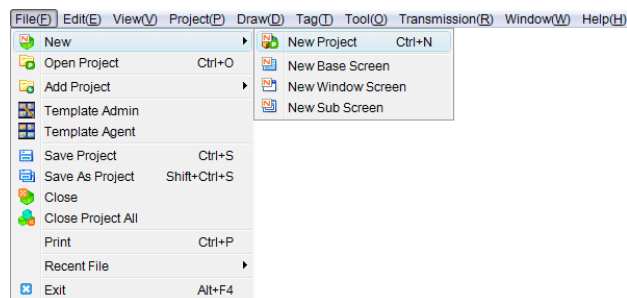
[Menu] is located on the top, and the [ToolBar] is beneath. There are [Docking Windows] on the left and right, and the [Screen] is shown in the center. At the bottom is the [Status bar].

3.2 Menu composition

This menu is necessary for illustrating. Menu items are file, edit, view, project, draw, tag, tool, transmission, window, and help. Each of the menus is explained in detail from [Chapter 4] onwards. In this chapter, the composition of each menu will be explained briefly.

3.2.1 File menu (Alt + F)

In the file menu, tasks such as new project creation/save/open/close/end can be performed. Also, by creating base screens/window screens/sub screens, and using the [Add project] menu, multiple project functionality is provided. (See [chapter 4] for a more detailed description of the file menu.)



[Fig. File menu]

(1) New Project (Ctrl + N)

Creates a project and screens.

Menu	Description
New project	Creates a new project.
New base screen	Creates 1 base screen in addition to the existing base screen.
New window screen	Creates 1 window screen in addition to the existing window screen.
New sub screen	Creates 1 sub screen in addition to the existing sub screen.

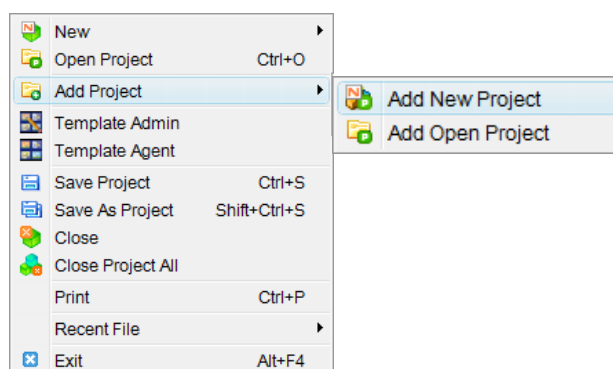
(2) Open Project (Ctrl + O)

Loads a project file written with XDesignerPlus4 and saved as a [*.*DPX4] file.

(3) Add project

This menu provides multiple project functionality.

Multiple project functionality allows for up to 4 projects to be opened in the XDesignerPlus4 program for editing. Using this function, different projects can be edited at the same time, and functions such as copying screens between different projects are facilitated.



[Fig. Add project]

Menu	Description
Add new project	A new project is created, and added to the bottom of [Project manager].
Add open project	A saved project is opened, and added to the bottom of [Project manager].

(4) Template admin

A template saves the base format of the illustrator format, and allows for continued use of that format afterwards. A template file is created using the currently open project file.

(5) Template agent

Retrieves a template file.

(6) Save Project (Ctrl + S)

Save the currently opened project. If the project has never been saved before, then the save path and [File name] are designated, and the file is saved as a [*].DPX4] file.

(7) Save As Project (Shift + Ctrl + S)

The currently open project is saved as a separate file with a different name.

(8) Close

Among the currently open projects, the active project is closed.

(9) Close project all

All currently open projects are closed.

(10) Print (Ctrl + P)

The content of the project is printed.

(11) Recent file

A list of recently opened projects is shown. When an item is selected from the list, the corresponding project is opened.

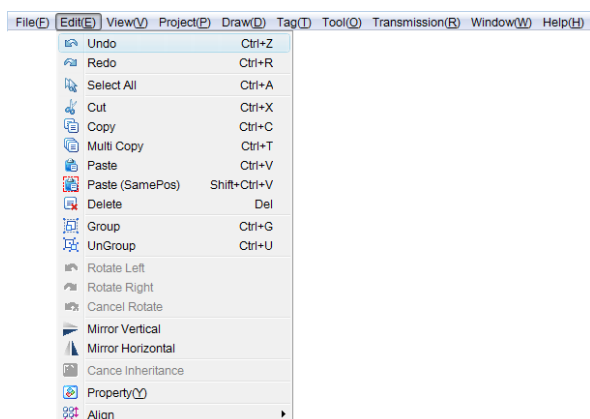
(12) Exit (Alt + F4)

The XDesignerPlus4 program is exited.

3.2.2 Edit menu (Alt + E)

In the edit menu, shapes and tags registered to the screen can be edited.

(See [chapter 5] for a more detailed description of the edit menu.)



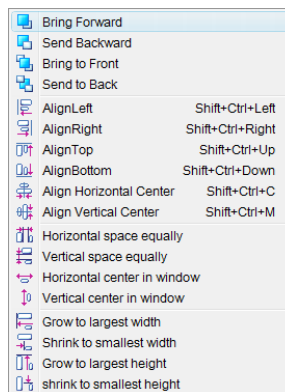
[Fig. Edit menu]

Menu	Description
Undo (Ctrl + Z)	Undo the latest edits made, one step at a time. Up to 50 steps can be undone for each screen.

Redo (Ctrl + R)	<p>Cancels undos, one step at a time.</p> <p>Up to 50 steps can be redone for each screen.</p>
Select all (Ctrl + A)	All shapes and tags registered to the currently active screen are selected.
Cut (Ctrl + X)	Cut the selected shape, tag or group.
Copy (Ctrl + C)	Copy the selected shape, tag or group.
Multi copy (Ctrl + T)	Copy the selected shapes, tags, or groups along the X or Y axis, at the set intervals.
Paste (Ctrl + V)	Paste the cut or copied shape, tag or group at the location clicked with the mouse.
Paste (SamePos) (Shift + Ctrl + V)	Paste the cut or copied shape, tag or group at the same position.
Delete (Del)	Delete the selected shape, tag or group.
Group (Ctrl + G)	Group two or more selected shapes or tags.
Ungroup (Ctrl + G)	Ungroup.
Rotate left	Rotate the selected shape, tag or group left.
Rotate right	Rotate the selected shape, tag or group to the right.
Cancel rotate	Rotate the rotated shape, tag or group to the original position.
Mirror vertical	Flip the selected shape, tag or group vertically by 180 degrees.
Mirror horizontal	Flip the selected shape, tag or group horizontally by 180 degrees.
Cancel inheritance	This function is associated with global objects. The inheritance of inherited tags is canceled.
Property (Enter)	The properties window for the selected shape, tag or group is opened.
Align	Aligns the selected shape, tag or group.

(1) Align

A variety of align functions are provided, as shown in the figure below.



[Fig. Align functions]

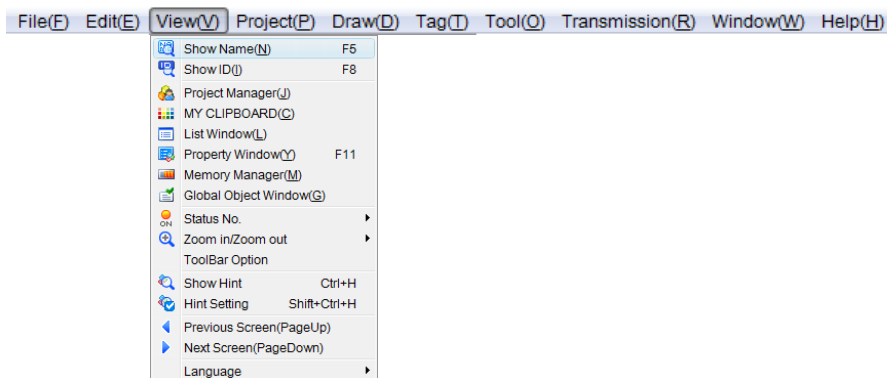
Menu	Description
Bring forward	If shapes are overlapping, the selected shape is drawn one step forward.
Send backward	If shapes are overlapping, the selected shape is drawn one step behind.
Bring to front	If shapes are overlapping, the selected shape is drawn at the very front.
Send to back	If shapes are overlapping, the selected shape is drawn at the very rear.

Align left (Shift + Ctrl + Left)	Aligns two or more selected shapes, tags or groups to the left.
Align right (Shift + Ctrl + Right)	Aligns two or more selected shapes, tags or groups to the right.
Align top (Shift + Ctrl + Up)	Aligns two or more selected shapes, tags or groups along the top.
Align bottom (Shift + Ctrl + Down)	Aligns two or more selected shapes, tags or groups along the bottom.
Align horizontal center (Shift + Ctrl + C)	Aligns two or more selected shapes, tags or groups along the horizontal center.
Align vertical center (Shift + Ctrl + M)	Aligns two or more selected shapes, tags or groups along the vertical center.
Horizontal space equally	Horizontally spaces two or more selected shapes, tags or groups equally.
Vertical space equally	Vertically spaces two or more selected shapes, tags or groups equally.
Horizontal center in window	Moves the selected shape, tag to the horizontal center of the screen.
Vertical center in window	Moves the selected shape, tag to the vertical center of the screen.
Grow to largest width	The width of two or more selected shapes, tags or groups are made equal, to match the size of the widest.
Shrink to smallest width	The width of two or more selected shapes, tags or groups are made equal, to match the size of the smallest.
Grow to largest height	The height of two or more selected shapes, tags or groups are made equal, to match the size of the highest.
Shrink to smallest height	The height of two or more selected shapes, tags or groups are made equal, to match the size of the smallest.

3.2.3 View menu (Alt + V)

In the view menu, the various docking windows provided on the left and rights sides of the program can be made visible or invisible. Also, help baloons, ON/OFF status, zoom in/zoom out, language, and other view methods can be selected.

(☞ See [chapter 6] for a more detailed description of the view menu.)



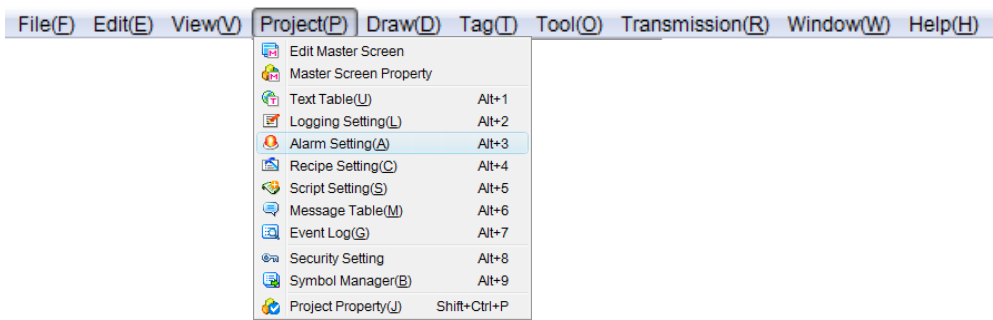
[Fig. View Menu]

Menu	Description
Show name (F5)	The [Tag name] is shown in the [Hint] shown on the top left corner of tags registered to the screen.
Show ID (F6)	The [Tag ID] is shown in the [Hint] shown on the top left corner of tags registered to the screen.
Project manager	This is a left side docking window. From this window, the project screen and overall settings can be viewed and managed at a glance.
MY CLIPBOARD	This is a right side docking window. Frequently used shapes, tags, and groups can be registered for convenient use when performing repetitive tasks.
List window	This is a left side docking window. Lists of registered shapes, tags, and groups for the currently open screen are shown.
Property window (F11)	This is a right side docking window. The properties of the selected shapes and tags registered to the screen are shown.
Memory manager	This is a left side docking window. Lamps indicate the memory usage status of addresses used in the currently open screen.
Global object	This is a left side docking window. Shapes, tags, and groups can be placed here by drag&drop, then taken out and registered to screens. When registered to a screen, properties are inherited. When the properties of shapes, tags, or groups registered in global objects are changed, the properties of all inherited shapes, tags, and groups are changed simultaneously. Inheritance can be partially enabled, or disabled.
Status no.	The shape of the tag depending on its ON/OFF status and 0~15 bit status can be viewed.
Zoom in/Zoom out	Zoom in or zoom out of the screen. 40~400% is supported.
Toolbar option	Edit the toolbar. Frequently used toolbars can be selected and registered.
Show hint (Ctrl + H)	Decide whether to use [Hints] attached to tags.
Hint setting (Shift + Ctrl + H)	This is the same as [Tools]-[Editing options]-[Hints]. The font color, background color, and font size for Hints can be set.
Previous screen (PageUp)	Navigate to the screen with the previous number from the currently open base screen, window screen, sub screen or global screen.
Next screen (PageDown)	Navigate to the screen with the next number from the currently open base screen, window screen, sub screen or global screen.
Language Display language	Select the language for the XDesignerPlus4 program. The default setting is English. Users can select among [English, Korean, Chinese, Arabic].

3.2.4 Project menu (Alt + P)

In the project menu, settings that apply generally to all projects are made.

( See [chapter 7] for a more detailed description of the project menu.)



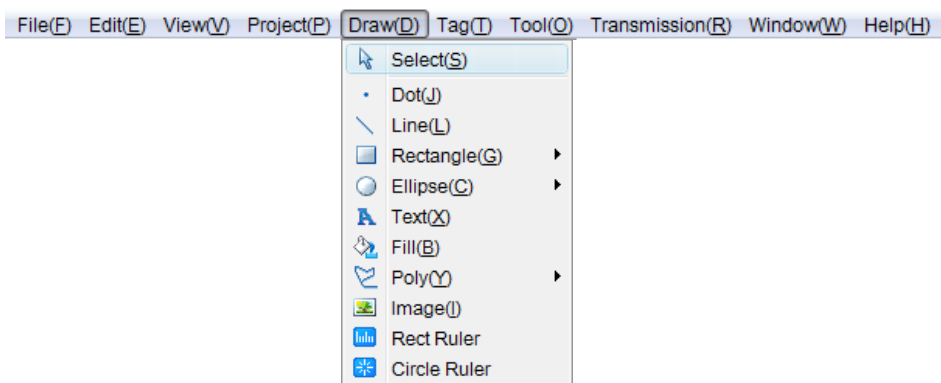
[Fig. Project menu]

Menu	Description
Edit master screen	Open and edit the master screen, which is a global screen.
Master screen property	Shows the [Screen property] window for the master screen, which is a global screen.
Alarm setting	Set alarm data.
Logging setting	Set logging data.
Recipe setting	Set recipe (parameter) data.
Script setting	Set global scripts.
Password setting	Set the password according to level, and set the security level for each screen.
Event log	Set event log data.
Message list	Enter message data.
Symbol manager	Set the symbol list.
Text table	When using multiple languages, set multilanguage text data.
Project property (Shift + Ctrl + P)	Here, general project settings are made. The touch model and PLC model, etc., are set.

3.2.5 Draw menu (Alt + D)

In the draw menu, various shapes necessary for illustration are provided.

(☞ See [chapter 8] for a more detailed description of the draw menu.)



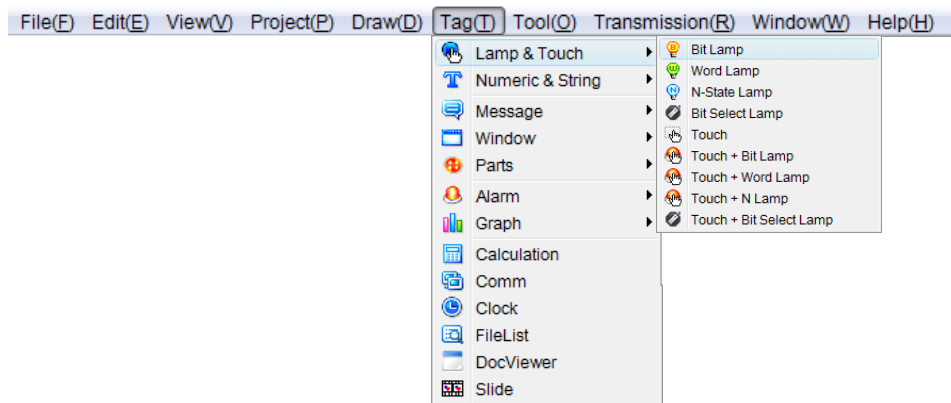
[Fig. Draw menu]

Menu	Description	Suboptions
Select	In select mode, shapes and tags registered to the screen can be selected.	
Dot	Draws a dot.	
Line	Draws a line.	
Rectangle	Draws a rectangle.	Rectangle, rounded rectangle
Ellipse	Draws an ellipse.	Circle, arc, pie, ellipse
Text	Writes text.	
Fill	Fills a closed area with color.	
Poly	Draws a polygon.	Broken line, polygon
Image	Register images such as bitmap or jpg	
Rect ruler	Draws a rectangular ruler.	
Circle ruler	Draws a circle ruler.	

3.2.6 Tag menu (Alt + T)

In the tag menu, various tags for action designation, controller data display, or control are provided.

(☞ See [chapters 9~43] for a more detailed description of the tag menu.)



[Fig. Tag Menu]

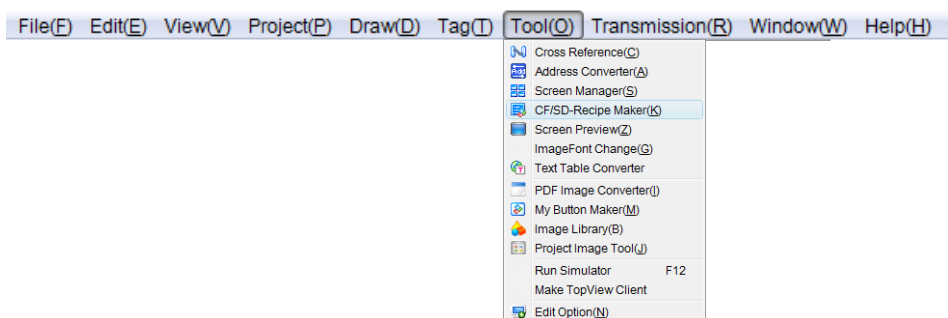
Menu	Description	Suboptions
Touch	Registers touch buttons. The designated actions are performed, and data changes are shown.	Bit lamp, word lamp, N lamp, touch, touch + bit lamp, touch + word lamp, touch + N lamp
Numeric & string	Data is displayed as numeric or string, or numeric or string values are entered.	Numeric, string, show numeric keys, show string keys
Message	The registered message is called and displayed, depending on the conditions.	Bit message, word message
Window	A window screen is called, depending on the conditions.	Bit window, word window
Parts	Images or subscreens are called, depending on the conditions.	Bit parts, word parts

Alarm	Alarms that have been triggered are displayed. The log table displays logging data.	Alarm, expand alarm, log table, event log viewer
Graph	Data is shown as a graph.	Bar/broken line graph, expanded graph, record, X/Y chart A, X/Y chart B
Calculation	The designated action is performed, depending on the conditions.	
Comm	Data is moved between the controller and the touch screen.	
Clock	The date and time are displayed.	
File list	The data saved in the touchscreen, the CF memory card, and the USB memory storage device is shown, and moved.	
DocViewer	Displays PDF files.	
Slide	Uses multiple images to create an animation effect.	

3.2.7 Tool menu (Alt + O)

The tool menu provides convenient functions necessary to form and manage the project screen.

(☞ See [chapter 44] for a more detailed description of the tool menu.)



[Fig. Tool menu]

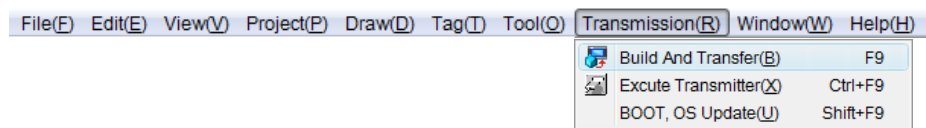
Menu	Description
Address/tag cross reference	View the current status of addresses used in the project.
Address converter	Performs batch conversion of addresses used in the project, depending on conditions.
Screen Manager	Project screens can be viewed at a glance. Multi-copy, delete, and rename of screens are possible.
CF-Recipe Maker	Creates, saves, and manages recipe data in the CF memory card.
Screen preview	Shows the screen being edited like the actual touch screen, and saves the preview screen as an image.
PDF image converter	Converts PDF files into images for use in the [DocViewer] tag.
My button maker	Manually create button images.
Image library	Images here are used as the image for lamp or touch buttons. Images provided in the program are shown. Images can be added/deleted by users.

Project image tools	All images used in the image are shown in a list, together with detailed info. Images can be converted, or only the necessary images can be selected and saved to the PC.
Run simulator (F12)	Using this function, the project currently being edited can be run virtually on the PC, without a touch screen and controller.
TopView client creation	Using this function, the current screen of the touch screen can be monitored from the PC when the PC and touchscreen are connected through ethernet.
Editing options	XDesignerPlus4 program options can be set to suit the user.

3.2.8 Transmission menu (Alt + R)

The transmission menu is used when transferring project/OS/Font files to the touch equipment, or when uploading touch screen data to the PC.

(☞ See [chapter 45] for a more detailed description of the transmission menu.)



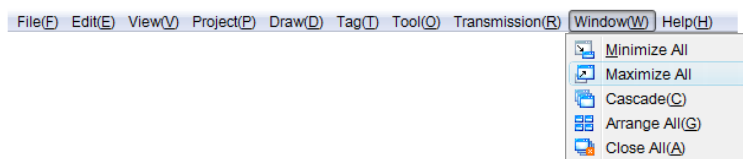
[Fig. Transfer Menu]

Menu	Description
Build and transfer (F9)	Builds (compiles) a project, then runs the transmitter and transmits the project. This is used when transmitting projects.
Execute Transmitter (Ctrl + F9)	Immediately runs the transmitter. This is used when project building (compiling) is not necessary, that is, when performing tasks such as OS transmission or upload.

3.2.9 Window menu

The window menu provides functions to organize currently open editing screens.

(☞ See [chapter 46] for a more detailed description of the window menu.)



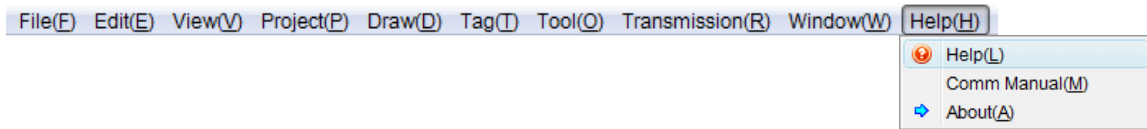
[Fig. Window menu]

Menu	Description
Minimize all	Minimizes all open screens.
Maximize all	Maximizes all open screens.
Cascade	Aligns all open screens in cascading order.
Tile	Tiles all open windows.
Close all	Closes all open screens.

3.2.10 Help menu

Info on the XDesignerPlus4 program, and online help are provided.

(☞ See [chapter 47] for a more detailed description of the help menu.)

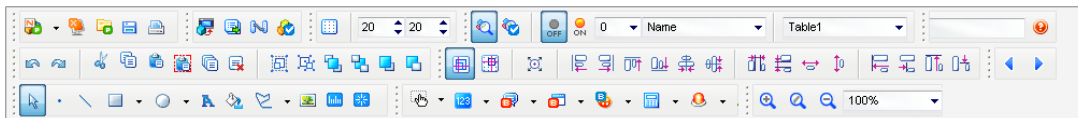


[Fig. Help menu]

Menu	Description
Help	XDesignerPlus4 program help: user manuals are provided as PDF files.
Communication manual	Communication manuals for different manufacturers can be viewed. Wiring diagrams and communication setting methods are described.
Product info	Info such as the XDesignerPlus4 program version, etc., is shown.

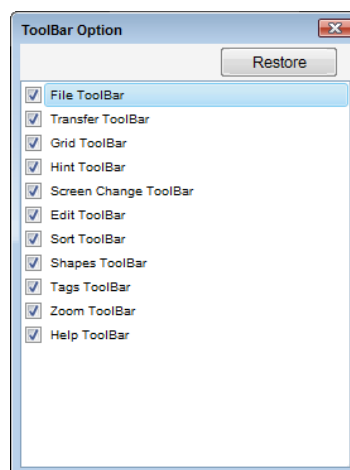
3.2.11 Toolbar Composition

The [Toolbar] comprises image buttons for frequently used menu functions. Clicking the icon of the desired function immediately performs the action. This allows fast and convenient use of functions.



[Fig. Toolbar]

By pressing the shortcut(Ctrl + W), the toolbar can be hidden or shown. To edit the toolbar, run [Toolbar options] from the [View] menu. In [Toolbar options], groups in the toolbar can be hidden or shown.



[Fig. Toolbar options]

3.2.12 File toolbar

This toolbar includes functions that are used frequently in the file menu.



[Fig. File toolbar]

Toolbar image	Function
	[File]-[New]
	[File]-[Close screen]
	[File]-[Open project]
	[File]-[Save project]
	[File]-[Print]

3.2.13 Transmission toolbar

This toolbar includes frequently used transmission functions.

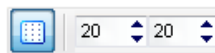


[Fig. Transmission toolbar]

Toolbar image	Function
	[Transmit]-[Build and transfer]
	[Tool]-[Address/Tag Cross Reference]
	[Project]-[Project Property]
	[Project]-[Symbol Manager]

3.2.14 Grid toolbar

The dots on the screen are referred to as the [Grid]. Set whether to show the grid, and the grid intervals.

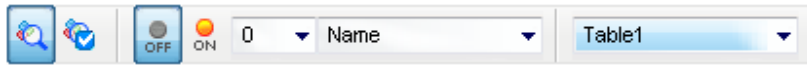


[Fig. Grid toolbar]

Toolbar image	Function
	[Tools]-[Editing options]; set whether to display the grid. When pressed, the grid is shown.
20	[Tools]-[Editing options]; set the grid intervals in pixels.

3.2.15 Hint toolbar

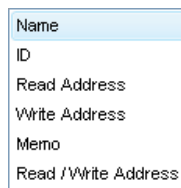
Set the Hint and status display. Hints are descriptions attached above tags. Hints are referred to as hints. Set whether to display hints, and the type of hint. The shape of the tag can be viewed depending on whether status display has been set to ON or OFF. When using multilanguage tables, the languages set for the table can be viewed.



[Fig. Hint toolbar]

Toolbar image	Function
	Set whether to display hints. When pressed, hints are shown.
	[Tools]-[Editing options]-[Hints]; set the color and font size of hints.
	[View]-[Status number]; The shape of the tag can be viewed, depending on the ON/OFF status set for the tag registered to the screen, and the 0~15 bit status.
Name	The type of hint to display is set.
Table1	When using multilanguage tables, the language set for the table can be viewed on the screen.

(1) Type of hint shown

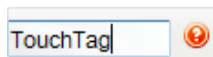


[Fig. Type of hint shown]

Type shown	Description
Name	The name of the tag is displayed. Ex) Touch Tag = [T]
ID	This is the ID of the tag. The number is assigned in the order registered to the screen. Ex) [00001]
Read Address	The address where data is read for the addresses used in the touch program is shown.
Write Address	The address where touch program data is written for the addresses used in the touch program is shown.
Memo	The content of [Property]-[Memo] of properties in tags or shapes is shown.
Read/Write Address	All addresses used in the touch program are shown.

3.2.16 Help toolbar

From this toolbar, manual contents can be searched. Enter the search phrase, and click the button to search.





[Fig. Help toolbar]

3.2.17 Screen toolbar

This toolbar is used to navigate screens.



[Fig. Screen toolbar]















Toolbar image	Function
	Navigate from the currently open base screen, window screen, sub screen, or global screen to the previous screen.
	Navigate from the currently open base screen, window screen, sub screen, or global screen to the next screen.

3.2.18 Edit toolbar

This toolbar includes functions that are used frequently in the edit menu.



[Fig. Edit toolbar]



Toolbar image	Function
	[Edit]-[Undo]
	[Edit]-[Redo]
	[Edit]-[Cut]
	[Edit]-[Copy]
	[Edit]-[Paste]
	[Edit]-[PasteSame]
	[Edit]-[Copy multi]
	[Edit]-[Delete]
	[Edit]-[Group]
	[Edit]-[Ungroup]
	[Edit]-[Align]-[Bring forward], Bring to front
	[Edit]-[Align]-[Send back], Send to back
	Bring forward
	Send back
















3.2.19 Align toolbar

This toolbar is used to align shapes or tags registered to the screen.



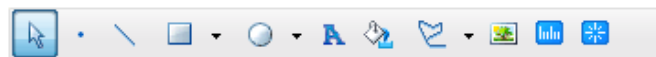
[Fig. Align toolbar]

Toolbar image	Function
	[Tools]-[Editing options], Snap object; when drawing/moving/resizing shapes or tags, horizontal and vertical snap lines are shown. Shapes or tags can be drawn to match pre-drawn shapes or tags.
	[Tools]-[Editing options], Snap grid; when drawing/moving/resizing shapes or tags, shapes or tags can be drawn to match the grid on the screen. This feature is useful when drawing squares or












	circles.
	Drawing by center; draw from the center out when drawing shapes or tags.
	[Edit]-[Align]-[Left align]
	[Edit]-[Align]-[Right align]
	[Edit]-[Align]-[Top align]
	[Edit]-[Align]-[Bottom align]
	[Edit]-[Align]-[Center align]
	[Edit]-[Align]-[Middle align]
	[Edit]-[Align]-[Equal horizontal space]
	[Edit]-[Align]-[Equal vertical space]
	[Edit]-[Align]-[Horizontal center in window]
	[Edit]-[Align]-[Vertical center in window]
	[Edit]-[Align]-[Grow to largest width]
	[Edit]-[Align]-[Shrink to smallest width]
	[Edit]-[Align]-[Grow to largest height]
	[Edit]-[Align]-[Shrink to smallest height]

3.2.20 Draw toolbar

This is the toolbar for the draw menu.



[Fig. Draw toolbar]

Toolbar image	Function
	[Draw]-[Select]
	[Draw]-[Dot]
	[Draw]-[Line]
	[Draw]-[Rectangle]: Rectangle, rounded rectangle
	[Draw]-[Ellipse]: Circle, arc, pie, ellipse
	[Draw]-[Text]
	[Draw]-[Fill]
	[Draw]-[Poly]: Broken line, polygon
	[Draw]-[Image]
	[Draw]-[Rect ruler]
	[Draw]-[Circle ruler]

3.2.21 Tag toolbar

This is the toolbar for the tag menu.



[Fig. Tag toolbar]

Toolbar image	Function
	[Tag]-[Touch]: Bit lamp, word lamp, N lamp, touch, touch + bit lamp, touch + word lamp, touch + N lamp
	[Tag]-[Numeric & String] : Numeric, string, show numeric keys, show string keys
	[Tag]-[Message]: Bit message, word message
	[Tag]-[Window]: Bit window, word window
	[Tag]-[Calculation]: Calculation, comm, time, file list, document viewer, slide
	[Tag]-[Alarm]: Alarm, expand alarm, log table, event log viewer
	[Tag]-[Graph]: Bar graph, broken line graph, expanded graph, records, X/Y chart A, X/Y chart B

3.2.22 Zoom toolbar

40% ~ 400% zoom in/zoom out is supported.

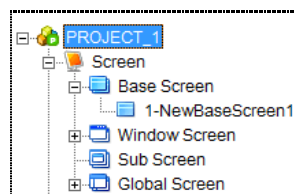


[Fig. Zoom toolbar]

Toolbar image	Function
	Zoom in by [+20%], beginning from 100%.
	Zoom out by [-20%], beginning from 100%.
	Return to the original 100% size.
	The % zoom in/zoom out is shown. The desired % can be set.

3.3 Screen composition

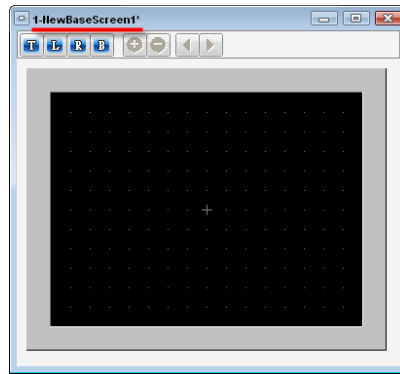
There are four types of screen: [Base screen], [Window screen], [Sub screen], and [Global screen].



[Fig. Screen types]

3.3.1 Base screen

The base screen is the background screen where illustration is performed. Up to 65535 screens with screen numbers in the range of [1~65535] can be drawn.

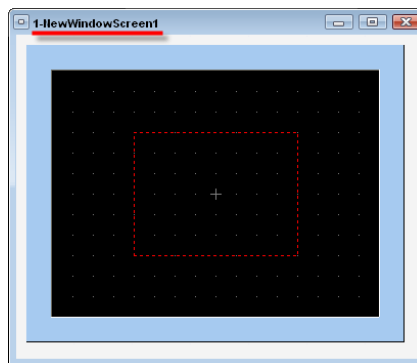


[Fig. Base screen]

3.3.2 Window screen

The window screen is called and used from the base screen when needed. To call the window screen, a [Window tag] or [Touch tag] is registered to the base screen.

Up to 65535 screens with screen numbers in the range of [1~65535] can be drawn. However, [65400~65499] are used for the tenkey (keypad) popup screen, and [65530~65535] are fixed for internal use for screens such as [File manager window/Password window/Auto tenkey window]. Therefore, caution is required so as not to assign other functions to screens [65400~65535].



[Fig. Window screen]

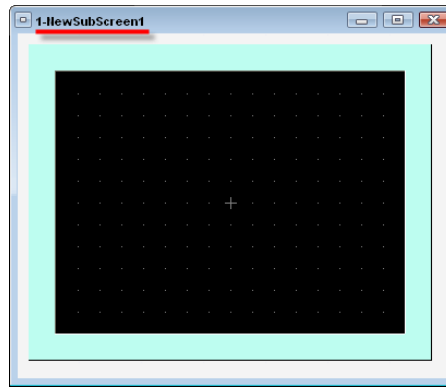
As shown in the figure above, a popup area is shown for window screens. Only the content within the popup area indicated by the red dotted line is called to the window screen.

(☞ See [chapter 23~24] for window screen popup implementation.)

3.3.3 Sub screen

The sub screen supports the illustration to be drawn on the base screen. The sub screen has no functions, and only images can be registered. Therefore, tags cannot be registered, and only shapes can. Background images can be registered to the sub screen and called from the base screen. Using part tags, animation effects can be applied.

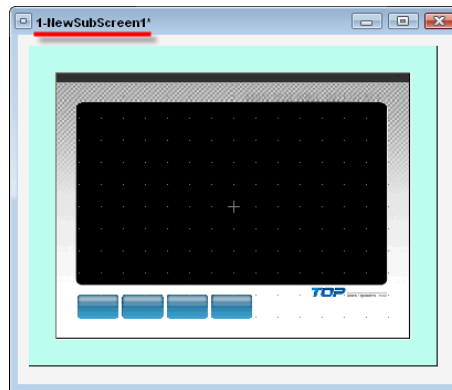
Up to 65535 screens with screen numbers in the range of [1~65535] can be drawn.



[Fig. Sub screen]

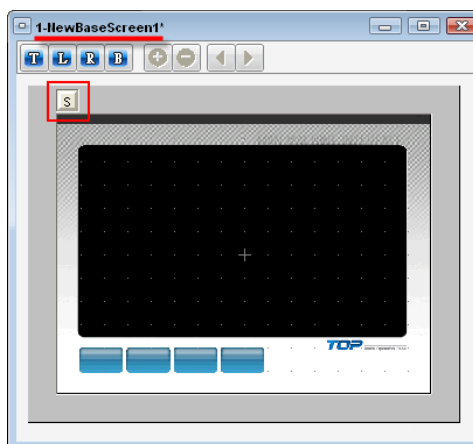
(1) Calling a subscreen from the base screen

When using the background drawn in sub screen 1 in the figure below as is in teh base screen, select sub screen 1 from the [Project manager], then drag with the mouse and drop on the base screen.



[Fig. Sub screen 1]

The image in the sub screen is registered as the background of the base screen, and the **S** button showing that a sub screen has been registered is shown on the top left corner of the base screen.



[Fig. Base screen with sub screen 1 called]

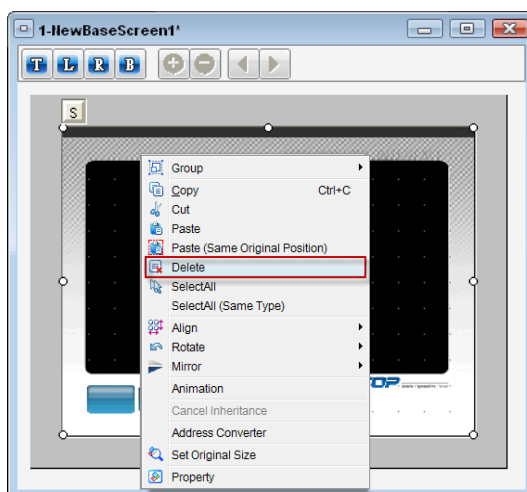
When the **S** button is double clicked, info on the registered sub screen is displayed, as shown in the following figure.

ID	Sub No	<input type="checkbox"/> Hide	<input type="checkbox"/> Absolute POS	<input type="checkbox"/> Lock
1	1	N	Y	N

[Fig. Info of the registered sub screen]

Info	Description
ID	IDs are assigned to sub screens registered to the base screen as well. The ID number is assigned in the order registered to the screen.
Sub No	This is the umber of the registered sub screen.
Hide	When checked, the sub screen is hidden and is not visible. The screen is visible on the actual touch screen.
Absolute POS	This is the absolute position coordinate. When this is set to [Y], the position of the shape registered to the sub screen can be changed. If the setting is [N], the position of the shape registered to the sub screen cannot be changed.
Lock	This is the lock function. If the setting is [Y], the sub screen cannot be edited, and if the setting is [N], the sub screen can be edited.

To delete a registered sub screen, select and delete the sub screen image from the base screen.



[Fig. Deleting a registered sub screen]

(2) Using the sub screen with part tags

(☞ See [chapter 25~26] for part tags.)

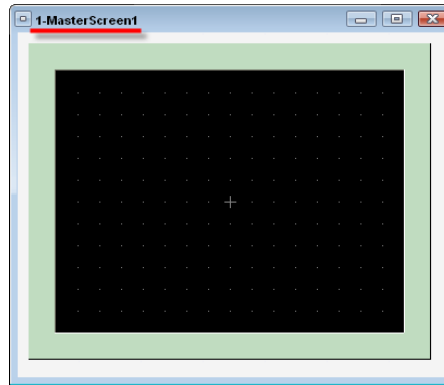
3.3.4 Global screen

The global screen is a screen that can be applied to all base screens. Images or functions commonly used in all base screens are registered to the global screen, and called and used as needed. There are two types of global screen: master screen and frame screen.

(1) Master screen

Shapes or tags commonly used in base screens are implemented in the master screen, and applied to

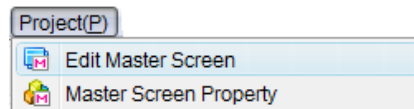
each base screen. Whether to use the master screen can be set for each base screen. Only 1 master screen can be drawn for one project.



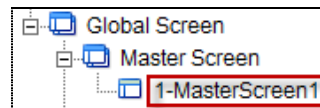
[Fig. Master screen]

① Drawing the master screen

Select [Project]-[Edit Master Screen] from the menu, or double click Master Screen in the project manager to open the master screen.



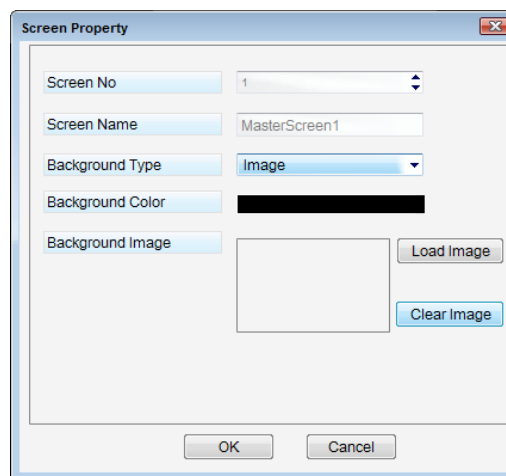
[Fig. Master Screen in the menu]



[Fig. Master Screen in the project manager]

Master screen editing is identical to base screen editing.

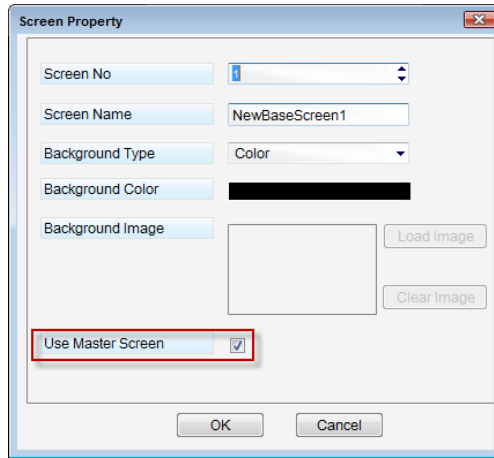
Also, as shown in the figure below, screen properties are also identical to the base screen.



[Fig. Master screen properties]

② **Using the master screen**

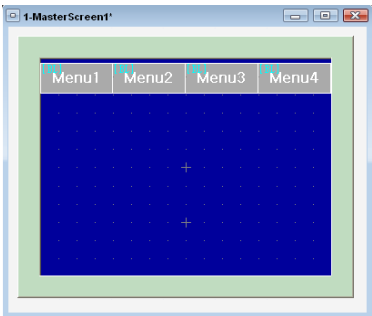
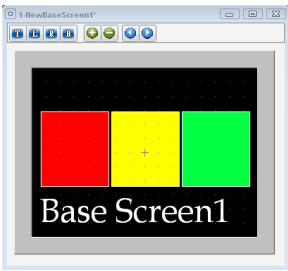
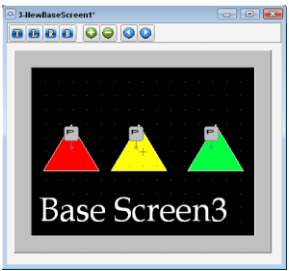
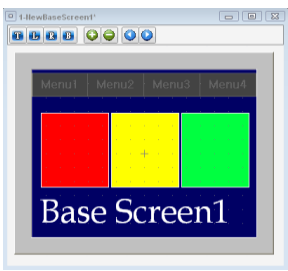
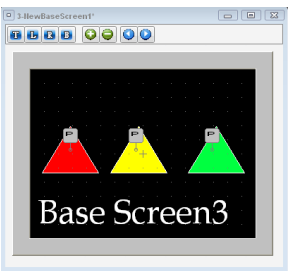
Master screens are not used alone, but are registered to base screens. To register to a base screen, check [Use master screen] in the [Property screen] of the base screen, as shown in the figure below.



[Fig. Base screen properties]

In the base screen, master screen content cannot be edited. Master screen content can only be edited in the master screen edit screen.

③ **Example of master screen usage**

Master screen		
Base screen		
Use master screen Y/N	Yes	No
Result of using master screen		

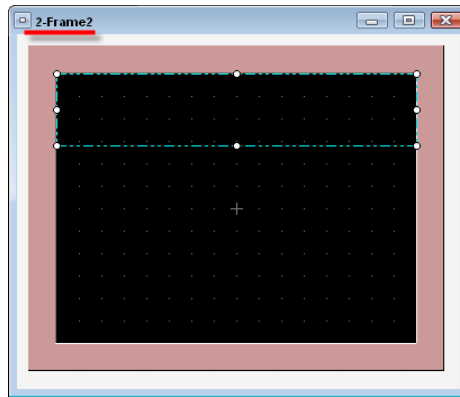
[Fig. Example of master screen usage]

(2) Frame screen

Common illustration frames are drawn and used commonly over multiple base screens.

There are 4 types of frame screen: top frame, bottom frame, left frame, and right frame.

A total of 65535 frame screens can be created.

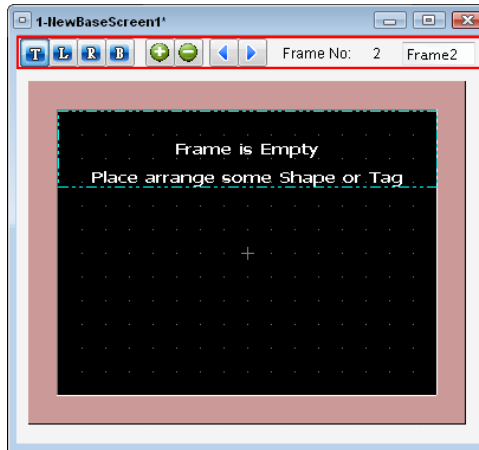


[Fig. Top frame screen]


① Creating and drawing frame screens



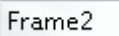
Frame screen editing is identical to base screen editing. However, like window screens, there is an area, and drawing must be performed within these areas. The size of these areas is freely adjustable.


Frame screens can be drawn using the buttons above the base screen. Alternatively, they can be created and drawn in [Project manager].

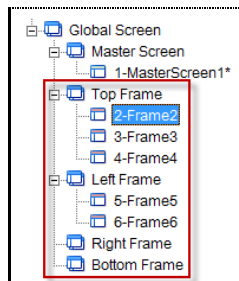


[Fig. Drawing frame screens]

Frame button	Function
	<p>[Frame screen edit/registration buttons]</p> <p>These are the buttons for Top, Left, Right, and Bottom frame screens. By pressing these buttons, the corresponding frame screens can be edited.</p> <p>With these buttons pressed, the [Create/Delete Frame Screen Button] can be used to create new frame screens or delete existing frame screens.</p> <p>When a pressed button is pressed again, the currently open frame screen is</p>

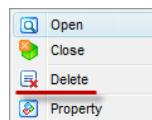
	registered to the base screen. Therefore, when the [Move frame screen button] is used to select the frame to register, then the pressed button is pressed once again, the frame is registered to the base screen.
	[Create/Delete Frame Screen Button] Register a new frame screen, or delete a selected frame screen.
	[Move frame screen button] Move to the previous or next frame screen.
Frame No: 2	The screen number of the frame screen is displayed.
	The name of the frame screen is displayed.

In [Project manager], frames are created by clicking the  button of the popup menu shown when items are right clicked with the mouse from the [Top frame, left frame, right frame, bottom frame] list. This is identical to the method of creating base screens. When a created frame screen is double clicked, the screen is opened, and can be edited.



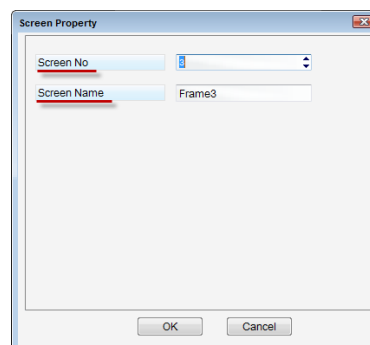
[Fig. Drawing frame screens]

Right click the number of the created frame screen to bring up a popup menu. Frame screens can be opened, closed, copied or deleted from this menu.





[Fig. Frame screen popup menu]

By entering [Properties] in the frame screen popup menu, the frame screen number and name can be modified, as shown in the figure below.



[Fig. Frame screen properties]

② Frame screen registration

Using the  [Edit/register frame screen button] of the main screen, frame screens can be registered or de-registered. With the [Edit/register frame screen button] pressed, select the screen to register with the  [Move frame screen button] to select the screen to register. Press the [Edit/register frame screen button] again to register the selected frame screen.

3.3.5 Docking window composition

The docking window is a functional window which can be shown or hidden as needed by the user.

6 types of docking window are provided in XDesignerPlus: Project manager, list window, memory manager, my clipboard, property window, and global object.

Click the [X] button on the top right corner of a docking window to hide, and select the docking window from the [View] menu to show again. Docking means that the window sticks like a magnet. Therefore, the docking window can be fixed in place by docking with the main window, or can be placed separately from the main window.

(1) Left side docking windows

Left side docking windows include the project manager, list window, and memory manager.

( See [chapter 6] for a more detailed description of the functions of each docking window.)

Type	Description
Project manager	From this window, the project screens and settings can be viewed and managed at a glance.
List window	Shows a list of shapes, tags, and groups registered to the currently opened screen.
Memory manager	Lamps indicate the memory usage status of addresses used in the currently opened screen.
Global object	Shapes, tags and group can be registered for programming through inheritance.

(2) Right side docking windows

Right side docking windows include my clipboard and the properties window.

( See [chapter 6] for a more detailed description of the functions of each docking window.)

Type	Description
MY CLIPBOARD	This function allows registration of frequently used shapes/tags/groups for easy retrieval when using repetitively.
Properties window	The properties of the selected shapes and tags registered to the screen are shown. When nothing has been selected, the properties of the screen are shown. When editing shapes and tags, properties can be changed without entering the properties window.

3.3.6 Status bar

The status bar is displayed on the bottom right corner of the XDesignerPlus4 program. The name of the

set touch screen model, the set PLC model name, and the current mouse coordinates (X,Y) are shown.



[Fig. Status bar]

3.3.7 Shortcut list

Parent menu	Shortcut	Child menu 1	Child menu 2	Shortcut	
File	Alt + F	New file	New project	Ctrl + N	
		Open project		Ctrl + O	
		Save project		Ctrl + S	
		Save as		Shift + Ctrl + S	
		Exit		Alt + F4	
Edit	Alt + E	Undo		Ctrl + Z	
		Redo		Ctrl + R	
		Select all		Ctrl + A	
		Cut		Ctrl + X	
		Copy		Ctrl + C	
		Copy multiple		Ctrl + T	
		Paste		Ctrl + V	
		Paste (SamePos)		Shift + Ctrl + V	
		Delete		Del	
		Group		Ctrl + G	
		Ungroup		Ctrl + U	
		Rotate left		<	
		Rotate right		>	
		Cancel rotate		/	
		Properties		Enter	
		Align	Bring forward		Ctrl + Home
			Send backward		Ctrl + End
			Bring to front		Home
			Send to back		End
			Align left		Shift + Ctrl + Left
Align right			Shift + Ctrl + Right		
Align top			Shift + Ctrl + Up		
Align bottom			Shift + Ctrl + Down		
Align horizontal		Shift + Ctrl + C			

			center	
			Align vertical center	Shift + Ctrl + M
View	Alt + V	Show name		F5
		Show ID		F8
		Properties window		F11
		Status number	0 (OFF)	Ctrl + 1
			1 (ON)	Ctrl + 2
		Show hint		Ctrl + H
		Hint setting		Shift + Ctrl + H
		Previous screen		PageUp
Next screen		PageDown		
Project	Alt + P	Text table		Alt + 1
		Logging setting		Alt + 2
		Alarm setting		Alt + 3
		Recipe setting		Alt + 4
		Script setting		Alt + 5
		Message list		Alt + 6
		Event log		Alt + 7
		Password setting		Alt + 8
		Symbol manager		Alt + 9
		Project property		Shift+ Ctrl + P
Tool	Alt + O	Simulator		F12
Transfer	Alt + R	Build and transfer		F9
		Execute Transmitter		Ctrl + F9
Edit screen			Increase shape line thickness	+
			Reduce shape line thickness	-
			Show properties window	F11
			Toggle toolbar show	Ctrl + W

CHAPTER 4 File Menu

CHAPTER 4 - File Menu

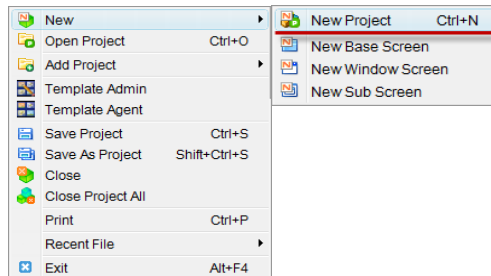
The [File] menu is explained. The file menu performs the role of creating and saving new projects. Also, saved project files can be opened or closed, and multiple projects can be added and opened.

4.1 New (Ctrl + N)

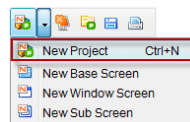
Create a new project or screen.

4.1.1 New project

Create a new project. From the menu, select [File]-[New]-[New project], or select [New]-[New Project] from the toolbar to bring up a new project settings window.

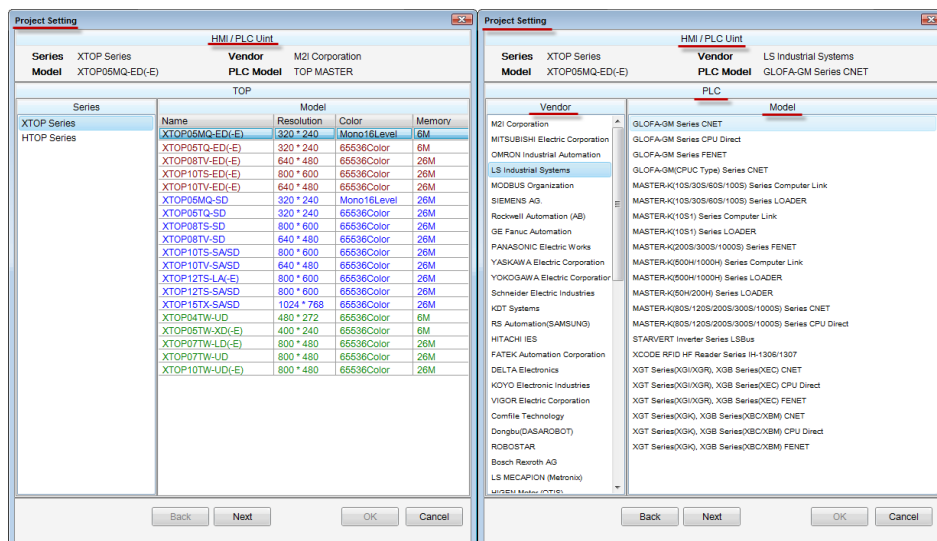


[Fig. Select new project from the menu]



[Fig. Select new project from the toolbar]

The screen for [New project] settings is the [Project settings] window.

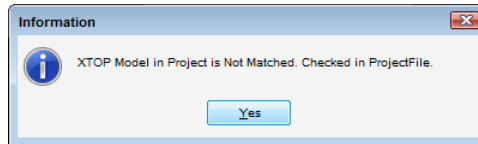


[Fig. Project settings]

Select the model name of the touch used, and the model of the controller (PLC).

(1) Setting the XTOP model name

Select the touch series between XTOP and HTOP. Enter the accurate product model name under Model. If the project is transmitted with the wrong model name, the following error message is shown, and transmit fails.



[Fig. Error Message]

(2) PLC model setting

For [PLC model], first select the [Manufacturer], then select the accurate [PLC Model] for the selected manufacturer. If the wrong controller (PLC) model is selected, the address of that PLC cannot be entered in the project, and communication cannot be established with the PLC.

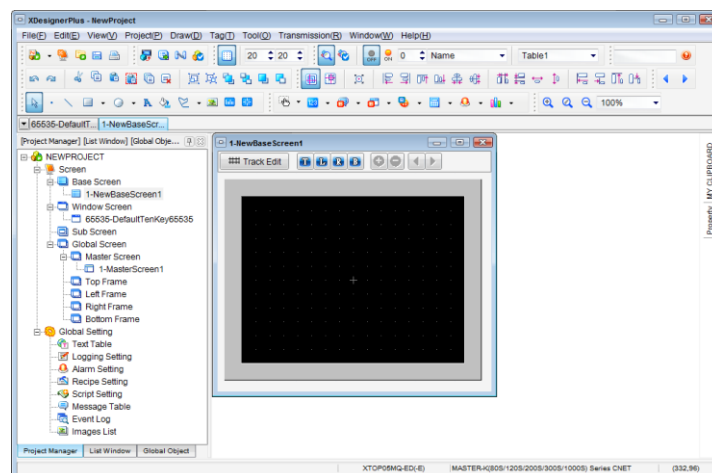
PLC model selection is explained in the [PLC communication manual] provided for each manufacturer.

(📄 Communication manuals can be downloaded from the website.)

(3) Created projects

After selecting the touch model name and PLC model, click the [Ok] button.

The newly created project looks like the following figure. The project has the temporary name [NEWPROJECT]. This name can be changed when saving the project. [Base screen] 1 and [Window screen] 65535 are created automatically, and base screen 1 is opened and shown.



[Fig. Creating a new project]

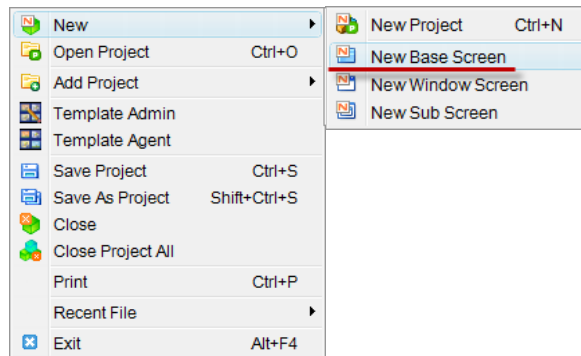
Touch model name or PLC model can be changed under [Project info] in the [Project] menu.

4.1.2 New base screen

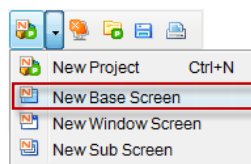
Add a new base screen to the project. The base screen is the background screen where illustration is performed.

There are 3 ways to create the screen.

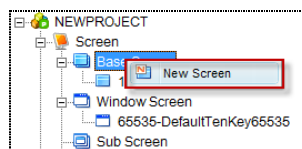
- ① Select [File]-[New]-[New base screen] from the menu.
- ② Select [New]-[New base screen] from the toolbar.
- ③ Click the [Base screen] list from the project manager, then right-click. Click [New screen] in the popup menu that appears.



[Fig. Select new base screen from the menu]

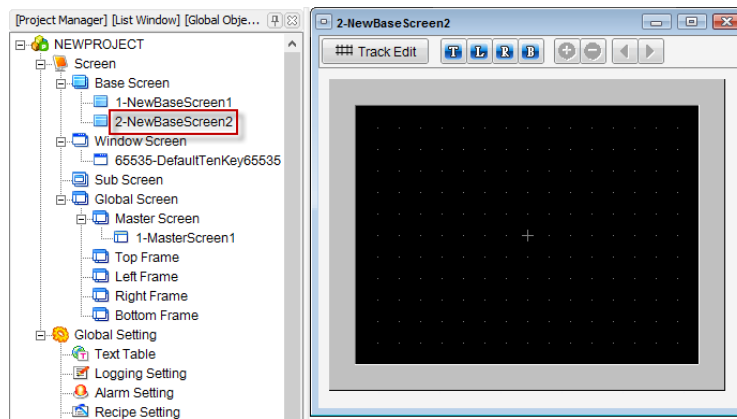


[Fig. Select new base screen from the toolbar]



[Fig. Select new screen from the project manager]

When [New base screen] is run, a [Base screen] is added, with the number following the largest of the currently registered [Base screens].



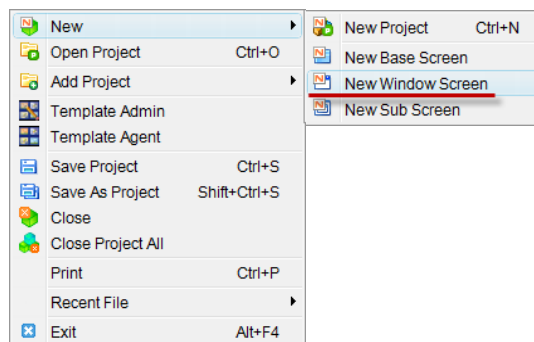
[Fig. Creating a new base screen]

4.1.3 New window screen

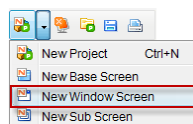
Add a new window screen to the project. The window screen is called and used from the base screen when needed.

There are 3 ways to create the screen.

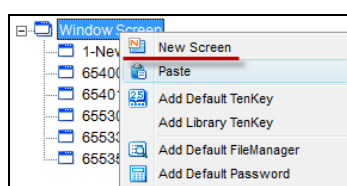
- ① Select [File]-[New]-[New window screen] from the menu.
- ② Select [New]-[New window screen] from the toolbar.
- ③ Click the [Window screen] list from the project manager, then right-click. Click [New screen] in the popup menu that appears.



[Fig. Select new window screen from the menu]



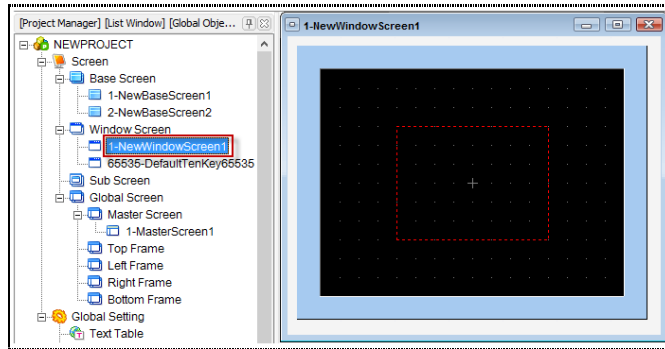
[Fig. Select new window screen from the toolbar]



[Fig. Select new screen from the project manager]

When [New window screen] is run, a window is added, with the number following the largest of the currently registered [Window screens]. Here, numbers after [65400], which are internally reserved numbers, are excluded.

When [New window screen] is run, a screen with the number 1 is created, as shown in the figure below.



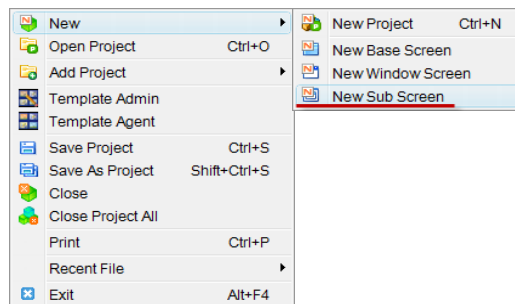
[Fig. Creating a new window screen]

4.1.4 New sub screen

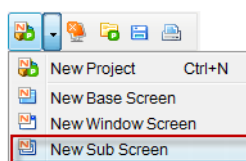
Add a new sub screen to the project. The sub screen supports the illustration to be drawn on the base screen. The sub screen has no functions, and only images can be registered. Therefore, tags cannot be registered, and only shapes can. Background images can be registered to the sub screen and called from the base screen. Using part tags, animation effects can be applied.

There are 3 ways to create the screen.

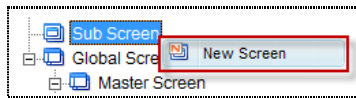
- ① Select [File]-[New]-[New sub screen] from the menu.
- ② Select [New]-[New sub screen] from the toolbar.
- ③ Click the [Sub screen] list from the project manager, then right-click. Click [New screen] in the popup menu that appears.



[Fig. Select new sub screen from the menu]

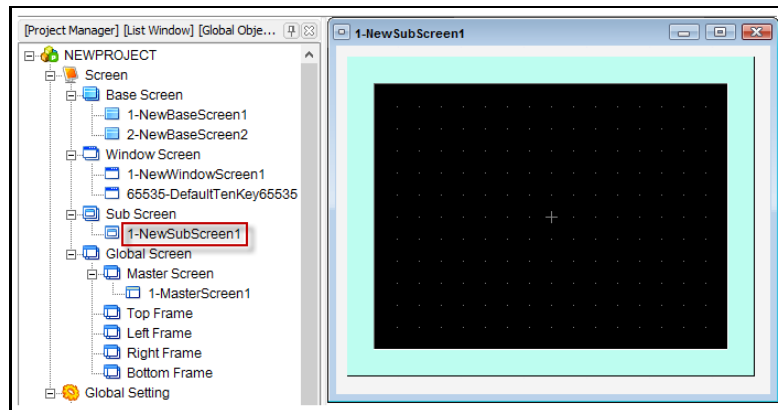


[Fig. Select new sub screen from the toolbar]



[Fig. Select new screen from the project manager]

When [New sub screen] is run, a sub screen is added, with the number following the largest of the currently registered [Sub screens]. A screen with the number 1 is created, as shown in the figure below.



[Fig. Creating a new sub screen]

4.2 Opening a project (Ctrl + O)

When a project is opened, a project file saved as [*.DPX4] is opened.

When [Open project] is selected, the [Open] screen is shown. The extension for project files is [*.DPX4]. Therefore only [*.DPX4] files are visible in the [Open] screen. Select the project file to open then click the [Open] button.

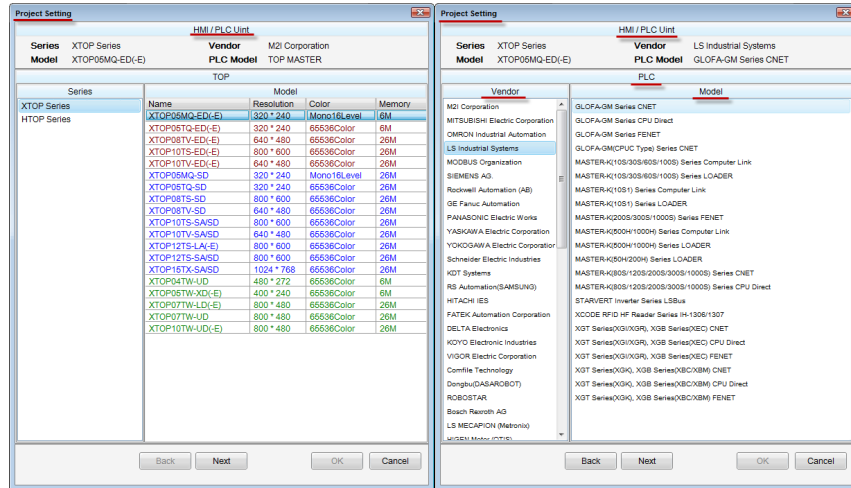
4.3 Add new project

[Add new project] provides multi project functionality.

[Multiple projects] is a function that allows for up to 4 projects to be opened and edited in the XDesignerPlus4 program. Using this function, multiple projects can be edited simultaneously. Functions such as copying screens between different projects can be used easily as well. Projects can be added by adding a new project, or retrieving an existing project.

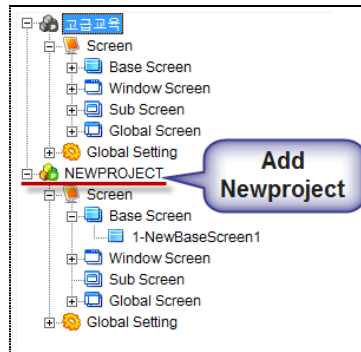
4.3.1 Add new project

Add a project by creating a new project. When [Add new project] is run, the [Project settings] screen is shown. Select the model name of the touch screen used, and the controller (PLC) model. Then click the [OK] button.



[Fig. Project settings]

After [Add new project] is completed, a project with the name [NEWPROJECT] is created and activated in [Project Manager].



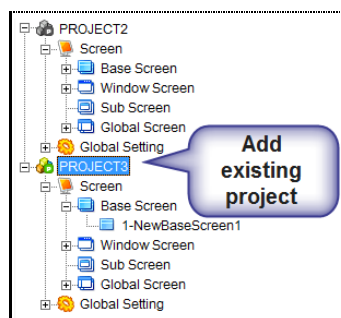
[Fig. Add new project]

4.3.2 Add open project

A project file saved as *.DPX or *.DPX4 is opened and added.

When [Add open project] is selected, the [Open] screen is shown. The extension for project files is [*.*DPX, *.DPX4]. Therefore only [*.*DPX, *.DPX4] files are visible in the [Open] screen. Select the project file to open then, click the [Open] button.

The existing project has been added.



[Fig. Add existing project]

4.3.3 Using multiple projects

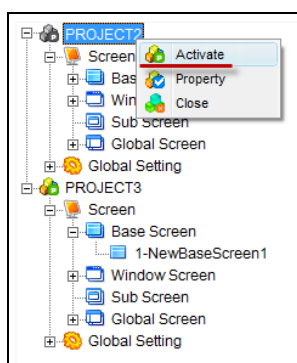
Using multiple projects is explained.

(1) Activating projects

If multiple projects are opened, only one of these projects is [Activated]. When actions such as transfer and save are performed in the XDesignerPlus4 program, only activated projects are transmitted and saved.

To activate a project, select the project name in the [Project Manager] and select [Activate] from the popup menu that appears when the project name is right-clicked.

Activated project names are shown in red, and inactive project names are shown in black. When an inactive project is activated, the previously activated project is automatically deactivated.



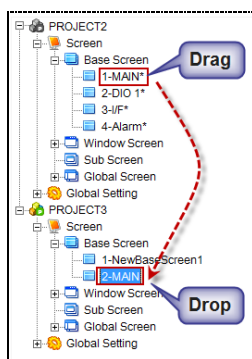
[Fig. Activating projects]

(2) Copying screens between different projects

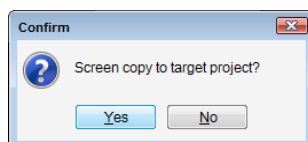
In multiple projects, screens can be copied simply between different projects.

① Drag & drop method

Drag the screen to copy then drop onto the desired project screen. This copies the screen.



[Fig. Drag & drop method of screen copying]



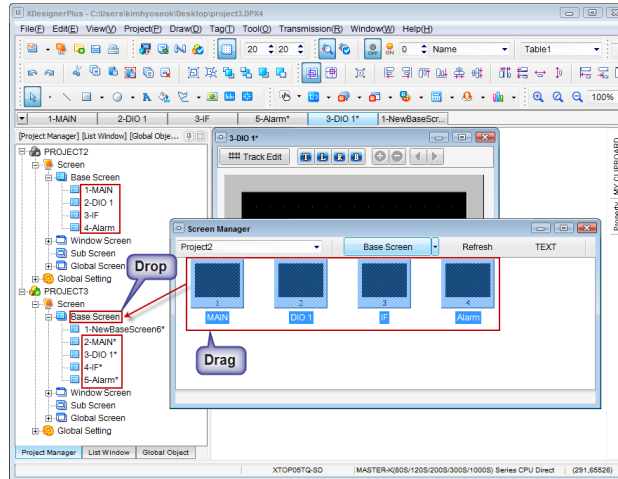
[Fig. Screen copy confirmation message]

② Using the screen manager menu

Use [Tools]-[Screen manager] to more simply copy screens.

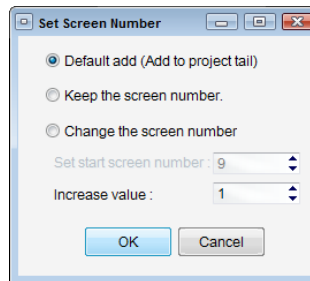
In [Screen manager], the screens registered to the screen can be viewed at a glance. From the [Screen manager] screen, select the screen to copy. Then drag the screen and drop on the [Screen name] of the desired project in [Project manager]. The copied screens are then pasted into the target project.

There is no limit to the number of screens that are copied. Therefore, multiple screens can be simultaneously [Copy/Pasted].



[Fig. Copying screens using the screen manager menu]

[Drag & drop] to show a screen for setting the number of the copy/pasted screens.



[Fig. Screen number settings]

Menu	Description
Default add	The screens are added with numbers following the largest of the screen numbers in the project.
Keep the screen number	Keep the screen number of the source project.
Change the screen number	Designate the start screen number.
Start screen number	This is used only when the [Change the screen number] option is selected. The value is the number of the changed screen number.
Increase value	When multiple screens are copied, this value is the interval by which the screen numbers of the copied screens increase.

(3) Edit function

Tags/shapes/groups registered to a single project screen can also be edited using [Copy/Cut/Paste/Paste same] functions in other project screens.

4.4 Making templates

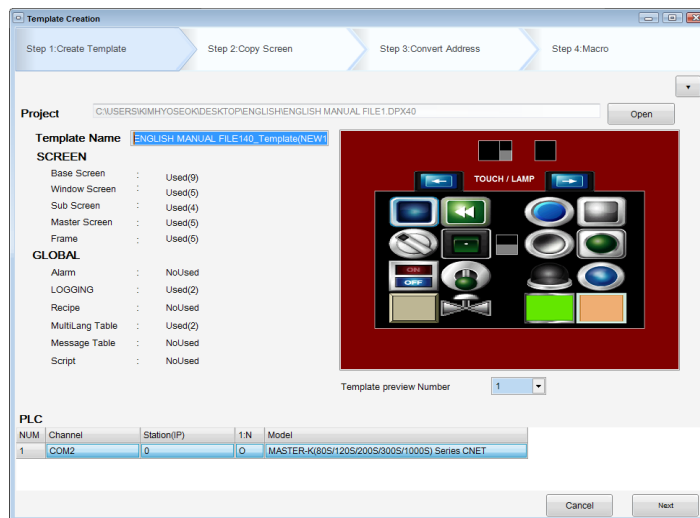
If there is a large number of similar projects, projects can be created easily and quickly by using templates.

A template refers to the basic framework of a project. If a single completed project is used frequently with small modifications, it is advisable to create a template.

Instead of creating projects from scratch, templates made and saved previously are opened and supplemented to create a project.

There are two template functions: Create template and import template.

Using Create template, a template is made using a currently open project. In Import template, a created template is opened in XDesignerPlus to create a new project.



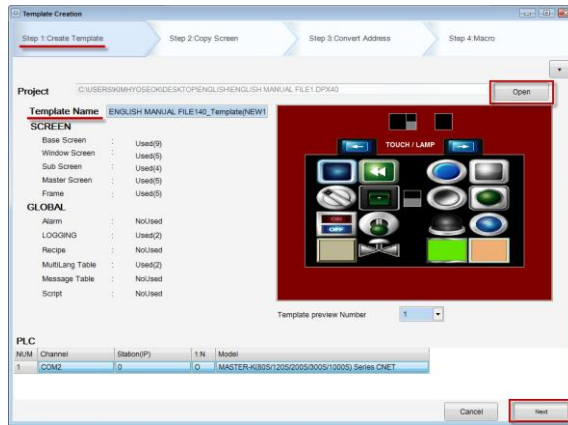
[Fig. Making templates]

When [Create template] is run, the screen shown in the figure above is shown.

[Create template] has 4 steps: [Create template]-[Copy screen]-[Convert address]-[Macro].

4.4.1 Step 1: Create template

This is the first step for template creation. If a project is open in XDesignerPlus4, the open project is used to make a template. If there is no open project, the [Import] button can be used to import a project to create the template from. If the open project has not been saved, save the project.

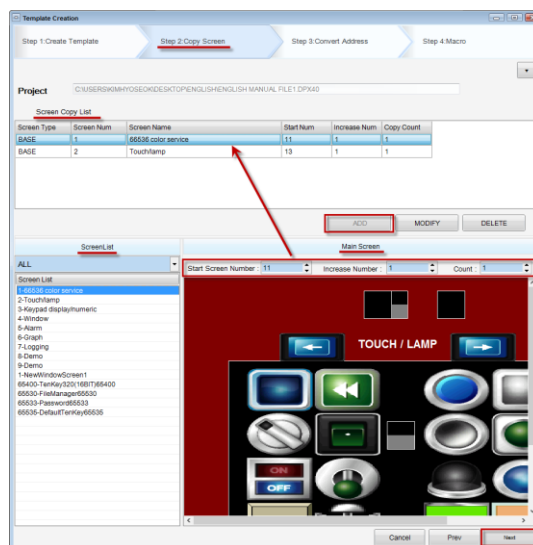


[Fig. Step 1: Create template]

Menu	Description
Import	Import a project file (*.DPX4). If the create template menu has been selected with a project open in XDesignerPlus4, the template is created from the open project.
Template name	By default, [_Template] is added to the project. The name can be modified.
Template preview screen number	By changing the screen number, the representative screen of the template can be changed.
Screen	The number of registered screens is shown.
Global	Whether global settings are used, and the number of lists is shown.
PLC	PLS settings are displayed.
Cancel	Template creation is canceled.
Next	The next step is brought up.

4.4.2 Step 2: Copy screen

Multiple selected screens can be copied.



[Fig. Step 2: Copy screen]

From the [Screen List] shown in the bottom left, select the screens for multiple copy. When screens are selected, an image of the selected screen is shown in the [Main control screen] on the right, and the [Add] button above the [Main control screen] is activated. After setting the copy start number, the screen number increase interval, and the copy count, click the [Add] button to add the selected screen to the [Screen copy list].

Menu	Description
Start number	This is the number of the copy of the first screen selected in the screen list. Be careful to ensure that this number does not overlap with the existing screen numbers currently in the [Screen list].
Increase num	The numbers for the copies increases by this number. If the increase num is 1, screen numbers increase by increments of 1: 31, 32, 33 ...
Copy count	Set the number of copies.

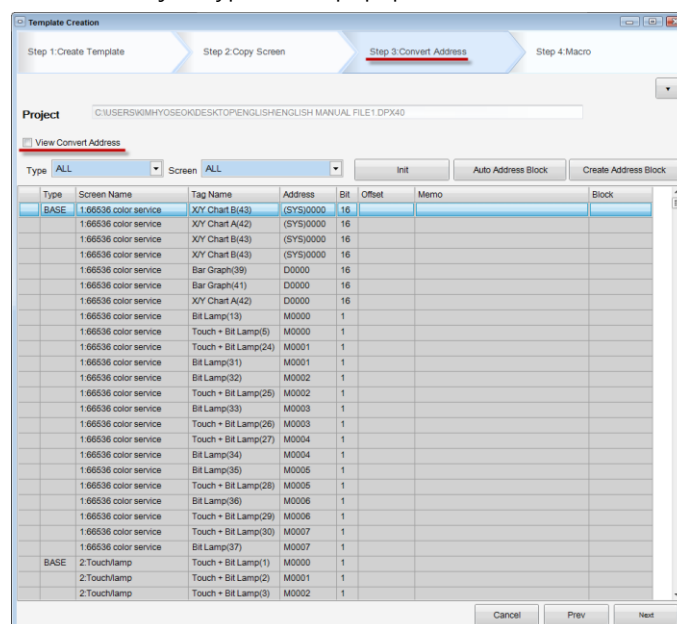
Menu	Description
Cancel	Template creation is canceled.
Previous	Move to step 1.
Next	Move to step 3.

4.4.3 Step 3: Convert Address

An address block is created. An address block can be created only for the same address of the same screen.

When the same addresses are grouped, they can be converted at once.

Double click the list to view the object type in the popup screen.



[Fig. Step 3: Convert Address]

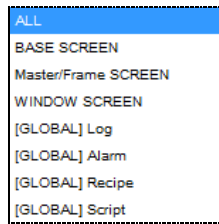
(1) View registered addresses only

Show only addresses with address blocks in the list.

(2) Type/screen

By designating the type and screen, all addresses of the project can be seen, or addresses can be displayed by type and by screen. The type can be set according to screen type and general setting type, as shown in the figure below.

All screen addresses can be designated, or a single screen address can be designated.



[Fig. Type list]

(3) Initialize

Cancel block settings to this point, and initialize.

(4) Auto address block

Automatically create a block for all addresses.

(5) Create address block

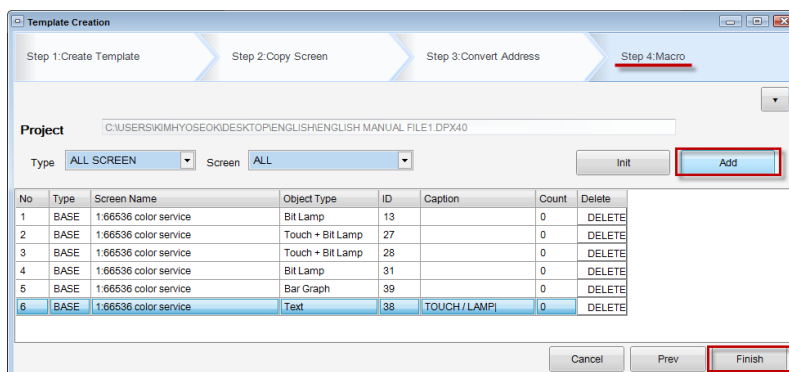
Manually create an address block.

The content of the list is as shown in the table below.

Menu	Description
Type	The screen type and general setting type are shown.
Screen Name	The screen number and screen name are shown.
Tag Name	The name of the tag is displayed. The number in parentheses is the ID.
Address	The address used in the address is shown.
Bit	The length of the address is shown, in bits.
Offset	The difference between the block and the address is shown.
Memo	Memos can be recored in lists set as blocks.
Block	When a block is set, the [REMOVE ALL] button is created. When this button is clicked, the block is deleted. Lists not designated as blocks have the [REMOVE] button. When this button is clicked, the item is deleted.

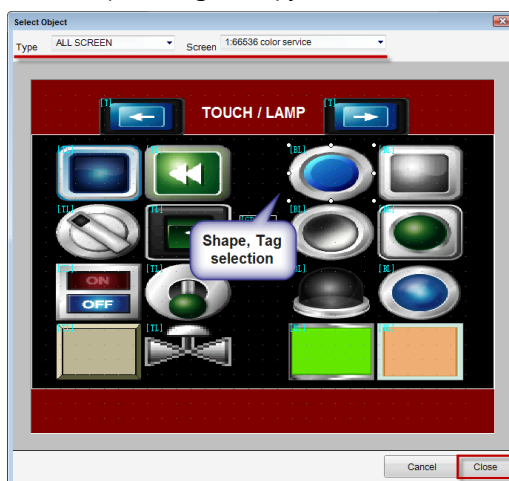
4.4.4 Step 4: Macro

Shapes or tags on the same screen can be selected for multiple copies. Press the [Add] button to bring up the [Select object] screen.



[Fig. Step 4: Macro]

When the type and screen are selected, the corresponding screens are displayed, as shown in the figure below. From the screen, select the shape or tag to copy, and click the [Close] button on the bottom.



[Fig. Object selection]

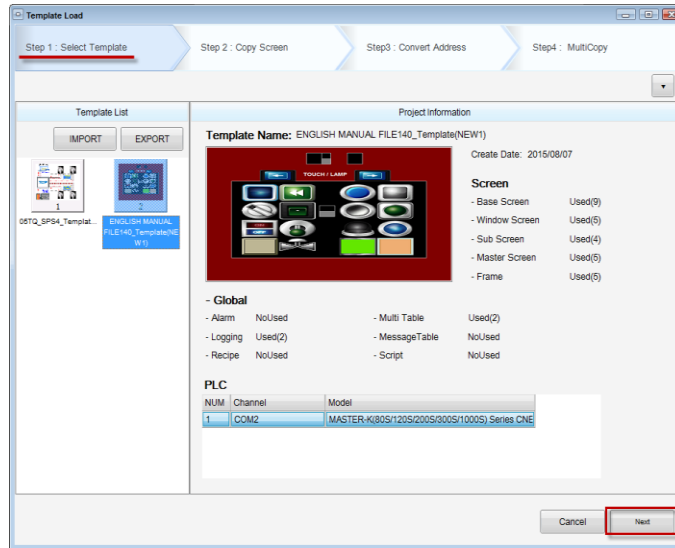
The selected objects (shape, tag) are added as lists to the macro screen. After adding, the captions and copy count can be modified from the list. The content of the list is as shown in the table below.

Menu	Description
No	This number is the object number, assigned sequentially.
Type	The screen type and general setting type are shown.
Screen Name	The screen number and screen name are shown.
Object Type	The type of object is shown.
ID	The ID of the object is shown.
Caption	The caption of the object is modified. Double click a cell to modify.
Count	Set the number of copies. Double click a cell to modify.
Delete	By clicking this button, registered objects can be deleted.

Step 4: After completing macro settings, click the [Finish] button to finish creating the template.
 The template file is saved in the following path, with the extension [*.tml].
 [C:\Program Files\WM2I Corp\XDesignerPlus4\Template]

4.5 Importing templates

A saved template file [*.tml] is imported, and a project for actual use is created.



[Fig. Importing templates]

4.5.1 Step 1: Select template

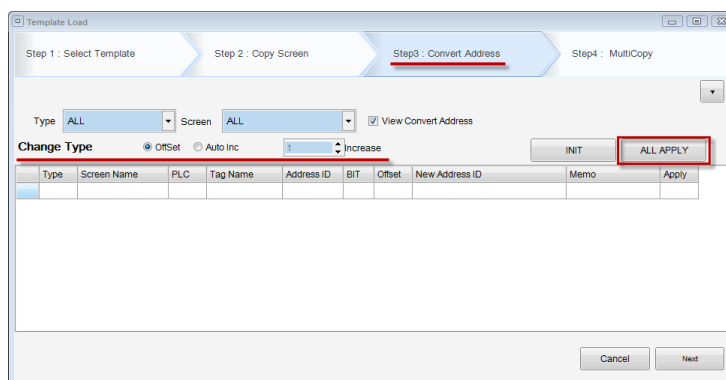
When the [File]-[Import template] menu is run, the following screen is shown. The template list on the left shows the template files saved in the path [C:\Program Files\WM2I Corp\XDesignerPlus4\Template]. Template files in other PCs can be copied and placed in the path above for importing. Unnecessary templates can be deleted from the path above. When a template file is selected from the template list, [Project information] is shown on the right. Click the [Next] button to move to step 2.

4.5.2 Step 2: Copy screen

[Step 2: Copy screen] of template import is the same as [Step 2: Copy screen] of the template creation process. The screen of the template to copy are designated and copied. Here, multiple copying to create multiple screens from one source screen is possible.

4.5.3 Step 3: Convert address

In [Step 3: Convert address] of template creation, objects using the same address of the same screen were made into a block. Here, the address of this block is set. Double click the list to view the object type in the popup screen.



[Fig. Step 3: Convert address]

(1) Type/screen

Lists can be viewed, categorized by screen type, general setting type, and as individual screens.

(2) View registered addresses only

Show only addresses with address blocks in the list.

(3) Address completion method

Offset and auto increase address completion methods are available.

In the OffSet method, the address is increased by the setting in the Offset column of the list.

In the auto increase method, the entered increase value is applied to addresses in all blocks.

(4) All apply button

When the all apply button is used, the addresses of the list are changed depending on the address completion method setting.

In the case that the [New Address ID] for the group has been double clicked in the list and the address has been manually changed as well, settings are applied to all addresses in the block.

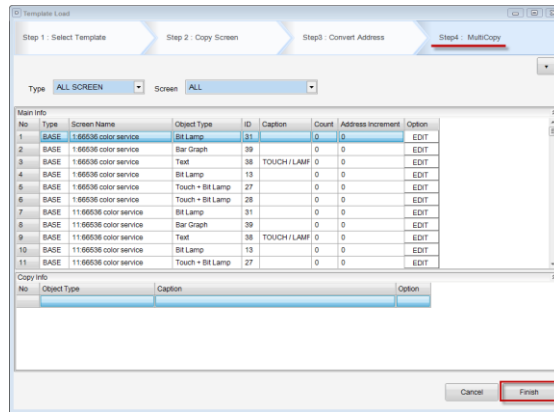
Menu	Description
Type	The screen type and general setting type are shown.
Screen Name	The screen number and screen name are shown.
PLC	The name of the PLC is displayed.
Tag Name	The name of the tag is displayed. The number in parentheses is the ID.
Address ID	The address used in the address is shown.
Bit	The length of the address is shown, in bits.
Offset	The difference between the block and the address is shown.
New Address ID	The changed address is displayed. By double clicking, the address of the group and each object can be changed. When the changed address is wrong, the address is shown in red. When the [Next] button is clicked, a warning message is shown.
Memo	Memos are shown.
APPLY	When the APPLY button is clicked, the addresses of the current block are changed according to

	the address increase method. Depending on the group address, changed addresses are applied to all objects within the group.
--	---

Click the [Next] button to move to Step 4: MultiCopy.

4.5.4 MultiCopy

The objects registered in [Step 4: Macro] of template creation are shown in a list. Using the [EDIT] button of each list, the properties of the objects can be changed. In each list, multicopy can be performed using [Count] and [Address Increment].



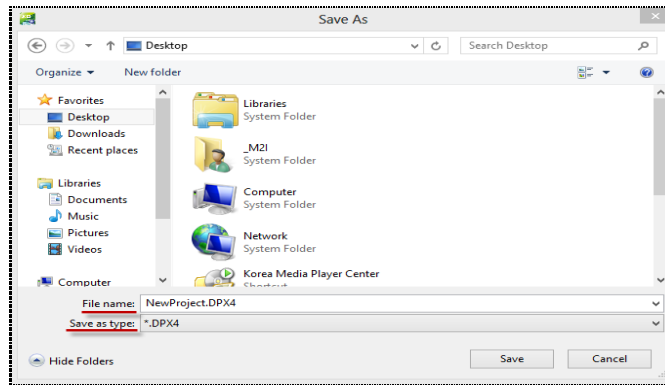
[Fig. Step 4: MultiCopy]

Menu	Description
No	This number is the object number, assigned sequentially.
Type	The screen type and general setting type are shown.
Screen Name	The screen number and screen name are shown.
Object Type	The type of object is shown.
ID	The ID of the object is shown.
Caption	The caption of the object is modified. Double click a cell to modify.
Count	Set the number of copies. Double click a cell to modify.
Address Increment	Set the increment to increase addresses by in Multicopy. Double click to modify.
Option	By clicking the [Edit] button, object properties can be modified.

Click the [Finish] button to create a project based on the selected template.

4.6 Save project (Ctrl + S)

Save the project that is currently open. If the project has already been saved as a file, changes are saved to that file. If the project has not been saved as a file, the [Save as] screen is brought up for designation of the save path and file name.



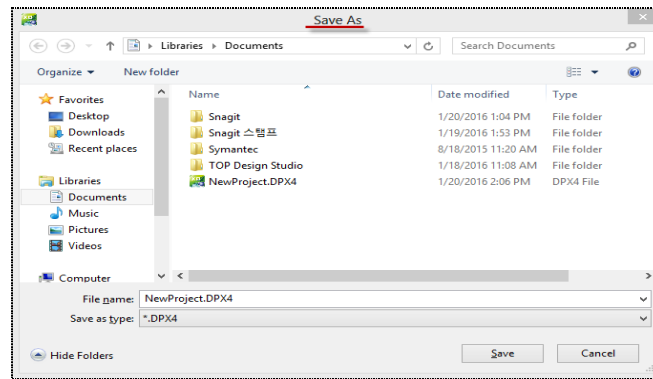
[Fig. Save project]

Designate the file path and the file name. The default [File name] is [NewProject]. The desired name can be entered. As the extension of projects is [*.DPX4], the [File format] is automatically set at [*.DPX4]. Click the [Save] button to save the file.

4.7 Save as (Shift + Ctrl + S)

Save the project that is currently open with a different name. This function is used to create a new file and save with a different name. When [Save as] is run, a [Save as] screen is brought up for designation of the new save path and file name.

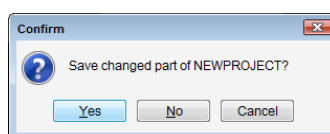
The file name and file path of the [Save as] screen is preset using existing file info. Enter a new file path and new file name. Click the [Save] button to save on a different name.



[Fig. Save as]

4.8 Close a project

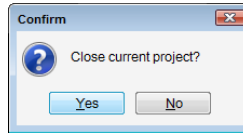
Close the project that is currently activated. If the currently activated project has not been saved, a message asking whether to save the project is shown.



[Fig. Save confirmation message]

Button	Description
Yes	Save the changes to the project, and close the project.
No	Do not save the changes to the project, and close the project.
Cancel	Cancel closing the project.

If no changes have been made to the project, the close confirmation message is shown.

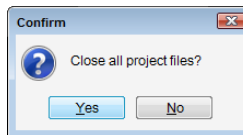


[Fig. Close confirmation message]

Button	Description
Yes	Close the project.
No	Cancel closing the project.

4.9 Close all projects

When multiple projects are open, all open projects are closed.



[Fig. Close confirmation message]

Button	Description
Yes	Close all projects.
No	Cancel closing all projects.

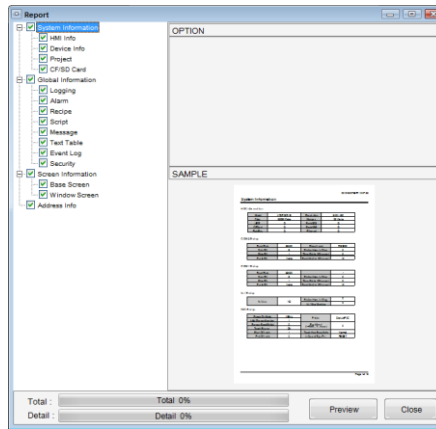
If the [Yes] button is clicked, messages appear asking whether to save each of the open projects that have been changed. The changed projects can be saved here.

4.10 Print (Ctrl + P)

The content of the project is printed. When [Print] is run, the [Report] screen is brought up. The content shown in the [Report] screen can be printed according to the format shown in the [SAMPLE], or printed after editing.

4.10.1 Printed items

Items that can be printed are system information, global information, screen information, and address info.



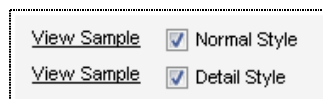
[Fig. Print]

Print	Description
System information	Print all system info.
HMI info	Info on the set touch screen.
Device information	Info on the set PLC (controller).
Project	Project info set in [Project settings]
CF card	Info on the CF memory card set in [Project settings]
Global settings	Print all global info.
Logging	Logging settings.
Alarm	Alarm settings.
Recipe	Recipe settings.
Script	Script content.
Message	Message table settings.
Multilanguage table	Multilanguage table settings.
Event log	Event log settings.
Security settings	Password settings.
Screen info	Print all screens.
Base screen	Base screen.
Window screen	Window screen.
Address info	Print a list of addresses used in the project.

4.10.2 Option

Here, print options can be set. Click [View sample] to check the print format under [SAMPLE], and select options.

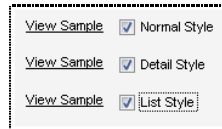
(1) Logging print options



[Fig. Logging print options]

Option	Description
Normal Style	Only print basic logging settings.
Detail Style	Print logging settings in detail.

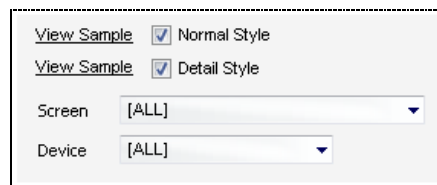
(2) Screen print options



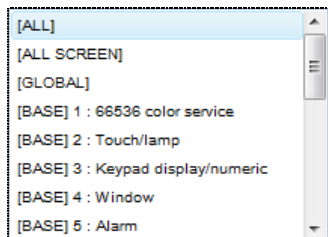
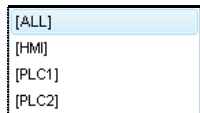
[Fig. Screen print options]

Option	Description
Normal Style	Print one screen per page.
Detail Style	A list of registered tags is printed together with the screen.
List Style	Print all screens as a list.

(3) Address print options



[Fig. Address print options]

Option	Description
Normal Style	Print a list of used addresses.
Detail Style	When the list of used addresses is printed, the ID and name of the tags where the addresses are used is also printed.
Screen	<p>Select the screen range for the list of addresses to be printed.</p>  <p>[ALL] stands for all addresses used in the project, [ALL SCREEN] stands for all addresses used in the screen, and [GLOBAL] stands for all addresses used in global settings. To print only a list of addresses used in a single screen, select the desired page.</p>
Device	<p>Select the type of address to print.</p> 

	[ALL] stands for all addresses, [HMI] stands for internal addresses of the touch screen, and [PLC] stands for PLC addresses.
--	--

① **SAMPLE**

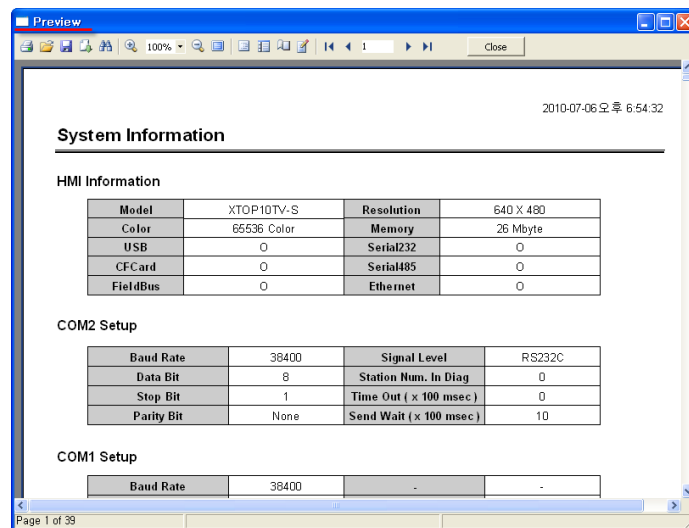
When the list to print is selected, the format is shown under [SAMPLE] depending on the print items and options.

② **Preview**

Check the items to print on the list to the left of the [Report] screen then click the [Preview] button on the bottom. A new [Preview] screen composed of the checked items is brought up, showing the actual file to be printed.

In the [Preview] screen, the print format can be set, and the [Preview] can be edited.

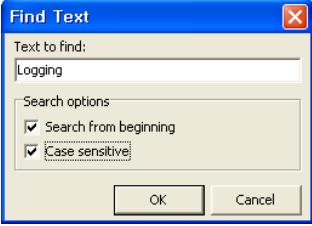


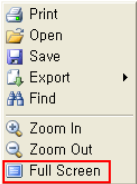


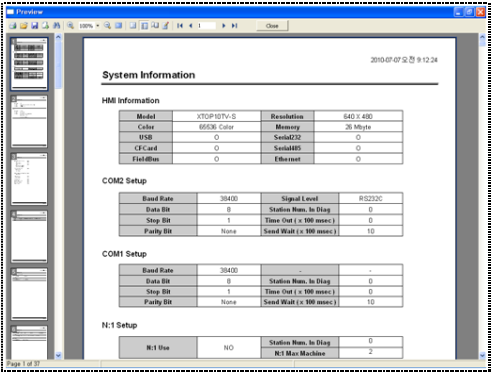

Also, the current [Preview] screen can be saved, or a saved [Preview] file can be imported.

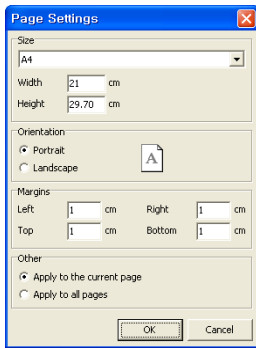

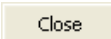


[Fig. Preview]

When the print button is clicked on the [Preview] page, the file is printed.

Toolbar	Description
	Print the current preview file.
	Import a saved preview file [*.fp3].
	Save the preview file. The file extension is [*.fp3].
	Export to another file. The available export file types are as follow. <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> Excel table (OLE)... RTF file... BMP image... JPEG image... </div>
	This is the [Find] function. Enter text (a word) and click the [OK] button to search. In [Search options], [Search from beginning] searches from the top. [Case sensitive]

	<p>can be set to perform a case sensitive search.</p>  <p>The 'Find Text' dialog box has a 'Text to find:' field containing 'Logging'. Under 'Search options', both 'Search from beginning' and 'Case sensitive' are checked. 'OK' and 'Cancel' buttons are at the bottom.</p>
 <p>A zoom control bar showing a plus sign, a '100%' dropdown menu, and a minus sign.</p>	<p>This is the [Zoom in/Zoom out] function.</p> <p>This is used to zoom into or zoom out of the preview screen.</p> <p>The (+) zooms in in 25% increments, and the (-) button zooms out in 25% increments.</p> <p>The zoom in/out ratio can also be entered manually.</p>
 <p>A small icon representing the Full Screen function.</p>	<p>This is the [Full Screen]. This function is used to view the preview screen in full screen mode. To return from the full screen mode to the original preview screen, right click the mouse to bring up the popup menu.</p>  <p>A context menu with options: Print, Open, Save, Export, Find, Zoom In, Zoom Out, and Full Screen. The 'Full Screen' option is highlighted with a red box.</p> <p>Click [Full Screen] in the popup menu to return to the preview screen.</p>
 <p>A small icon representing the Report Outline function.</p>	<p>This is the [Report Outline] function.</p> <p>An outline of the screen is shown to the left of the preview screen.</p>
 <p>A small icon representing the Thumbnails function.</p>	<p>This is the [Thumbnails] function.</p> <p>A list of screens is shown to the left of the preview screen.</p>  <p>A screenshot of the 'Preview' window. On the left, a vertical list of thumbnails is visible. The main area shows 'System Information' with tables for HMI, COM2, COM1, and N:1 Setup. The date and time '2010.07.07 02:09:13.24' are in the top right.</p>
 <p>A small icon representing the Page settings function.</p>	<p>[Page settings]</p> <p>The printing paper is set in [Size].</p> <p>[Orientation] is the direction of the paper. Select between portrait and landscape.</p> <p>In [Margins], page margins can be set.</p> <p>In [Other], [Apply to the current page] applies settings to the current page. Select [Apply to all pages] to print all pages.</p>

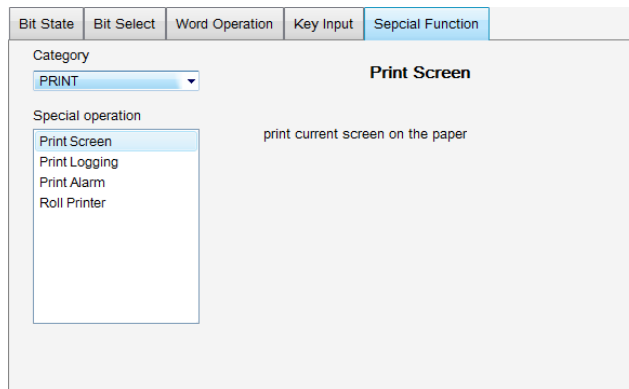
	
	<p>Navigate pages using the page navigation buttons.</p> <p>The current page number is displayed.</p>
	<p>Close the preview screen.</p>

4.10.3 Using the printer

The printer can be used to print the touch screen in operation, or print logging or alarm data. Connect the printer using the USB Host port. Currently, only printers supporting the PCL Level3 protocol of HP can be used.

(1) Setting in the XDesignerPlus4 program

Touch tags of calculation tags can be registered to the screen and printed. Under special functions for touch tags or calculation tags, set the [Category] to [PRINT] to show items that can be printed with the printer in [Special Operations].



[Fig. Print]

Print	Description
Print Screen	Print the currently operating screen using the connected printer.
Print Logging	Print currently saved logging data using the connected printer.
Print Alarm	Print currently saved alarm data using the connected printer.

4.10.4 Using a roll printer

(1) Function

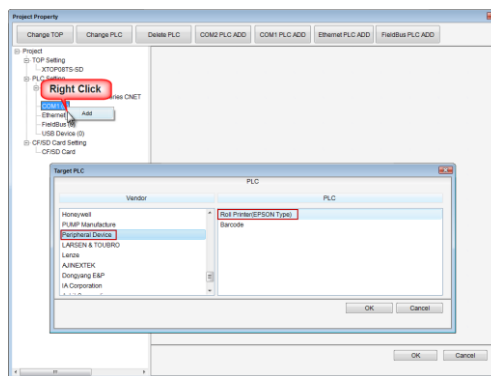
Data for the internal addresses of the touch can be printed using a roll printer. A roll printer is a mini printer used for printing receipts, etc. The XTOP COM1 (232C only) and a roll printer are used. Only the values of numerical and string tags using internal addresses can be printed. Only roll printers supporting the [Epson Protocol] and RS232C can be used.

(2) Setting in the XDesignerPlus4 program

① Connecting the roll printer and adding to the project

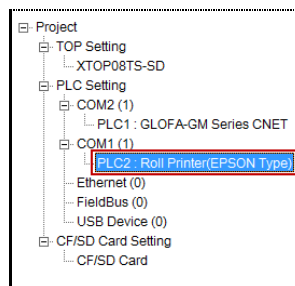
The roll printer is connected to the COM1 port. The COM2 port of the touch screen is used for communicating with the PLC.

After transferring the project to the touch screen, connect the roll printer. Create a new project in the XDesignerPlus4 program, then enter, [Menu]-[Project]-[Project settings] and right click [COM1] as shown below.



[Fig. Adding roll printer device]

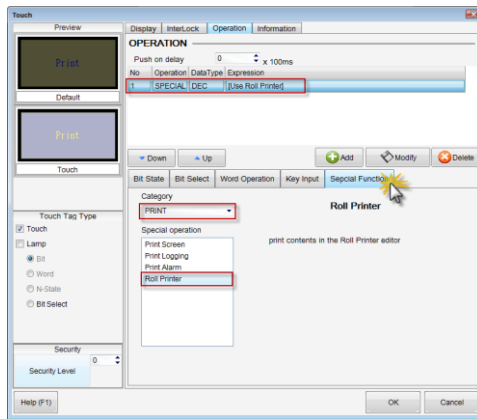
Run the [Add] popup menu. The [Target PLC] window is brought up. Under vendor, select [OTHERS], and select [roll printer (EPSON type)] as the PLC name. Roll printer(EPSON) is added to the [COM1] port, as shown below.



[Fig. Adding roll printer]

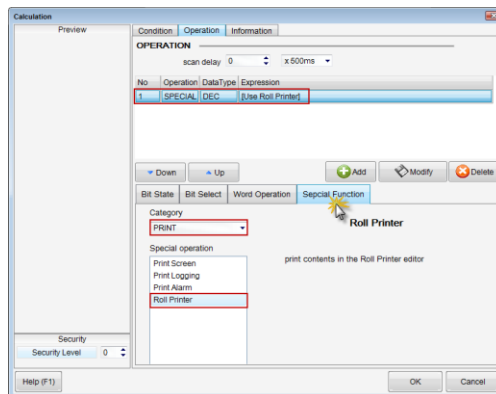
② Illustrating

Operation tags and touch tags are used to send a print command to the printer. In [Special functions] of the [Operation] page of the touch tag or operation tag, set "Roll Printer". Select [Special functions] in the [Operation] page of the touch tag and set to "Roll Printer".



[Fig. Touch tag print button]

Set conditions in the [Operation conditions] page of the operation tag, then select [Special function] in the [Operation] page as shown below, and set to "Roll Printer."

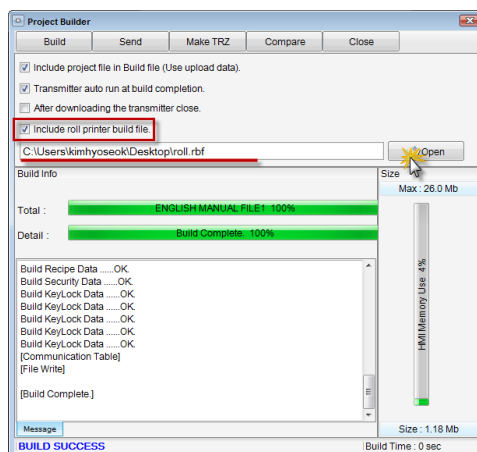


[Fig. Operation tag print function]

③ Transmitting

Run the [Transfer]-[Build and Transfer] menu, then check the [Include roll printer build file] option in the [Project builder] screen, and add the [*.rbf] file. The [*.rbf] file is created in [C:\#Program Files\M2I Corp\#XDesignerPlus4\#TEMP] when save or compile is performed in the [Roll printer editor].

Include the file, [Compile] again, then [Transfer].

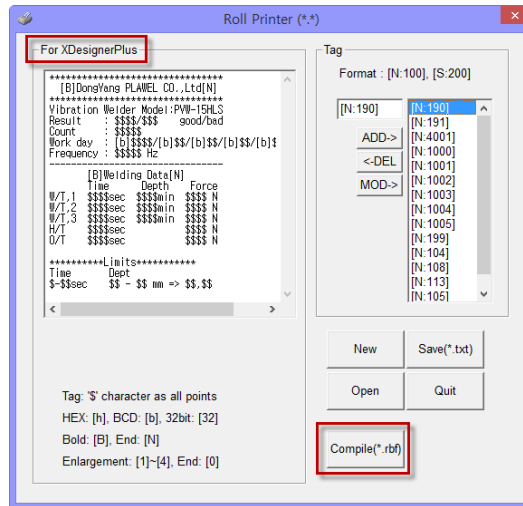


[Fig. Adding the roll printer edit file]

(3) Roll Printer editor

Using the roll printer editor, write the print format and content. In the [Start] program, run [All programs]-[M2I Corp]-[XDesignerPlus4]-[RollPrinter].

The left side is the [Edit] portion, and the right side is the [Tag registration] portion. The left edit portion is the part where the body to be printed is written, and the tag registration portion is where the type and address of each of the tags used in the body are set.



[Fig. Roll printer editor]

① Writing the body

First, the body is written. The body is written according to the form the user wishes to print. The body is printed as-is. The method of using and editing tags in the body is as follows.

② Showing tags

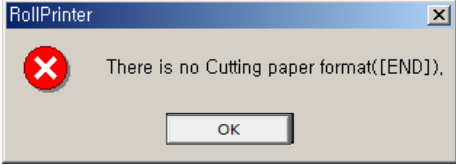
Numerical and string tags can be used.

In the case of numerical tags, '\$' is displayed according to the number of places of the numbers displayed. In the case of string tags, the number of '\$' is equal to the number of letters in the string. The following commands can be written in front of the '\$' marks in numerical tags.

No	Command	Description
1	[32]	This is written when the data size of the numerical size is 32 bits. A 32 bit value is printed.
2	[h]	This is written when the data type of the numerical tag is HEX data. Hexadecimal values are printed.
3	[b]	This is written when the data type of the numerical tag is BCD data. BCD values are printed.

In the body, the following commands can be used.

No	Command	Description
1	[B]	Used in front of a string when displaying text in the body with bold font. Add the command [B] in front of the string to show in bold, and add the command [N] to the end of the string to show in bold. [B] stands for Bold, and [N] is for Normal.

2	[N]	Used at the end of a string in the body when displaying the string in bold font.
3	[0]	This is the default font size. To return to the default font size after increasing the font size, add [0] to the end.
4	[1]	Magnify the horizontal and vertical size of the default font by a factor of 2.
5	[2]	Magnify the horizontal and vertical size of the default font by a factor of 3.
6	[3]	Magnify the horizontal and vertical size of the default font by a factor of 4.
7	[4]	Magnify the horizontal and vertical size of the default font by a factor of 5.
8	[END]	<p>This command cuts the paper in the roll printer. This must be included at the end of the body. If the [END] command is missing from the body, the following error message is shown.</p> 



Warning *The [B], [N] [0]~[4], [END] commands may not be supported by the printer. Please check with the printer vendor.

*Note when writing the body that commands are not printed. That is, when a command is used, the letters are pulled forward by the number of places occupied by the command.

*The number of characters in a line varies according to the printer type. Please write the body after checking.

*Consecutive commands can be written.

"[1][B]AA" displays "AA" in bold, double-sized font.

"[32][h]\$\$\$\$\$\$\$\$" shows that the address data of the numerical tag is 32 bit hexadecimal data.

③ Entering tags

After writing the body, enter the tag address. This is because the number of tag addresses that can be entered is equal to the number of tags written in the body. Tags cannot be entered before writing the body.

Tag addresses are entered in the format [N:100], [S:200] in the tag address entry box.

"N" denotes a numeric tag. "S" denotes a string tag.

After the colon (:), enter the internal address. Currently, only internal addresses are supported for roll printers.

[N:100] denotes the value of a numeric tag that uses internal address station 100.

After entering, click the [ADD] button to add the entered tag address to the list box. Below the tag address entry box, there are three buttons. The three buttons operate as follows.

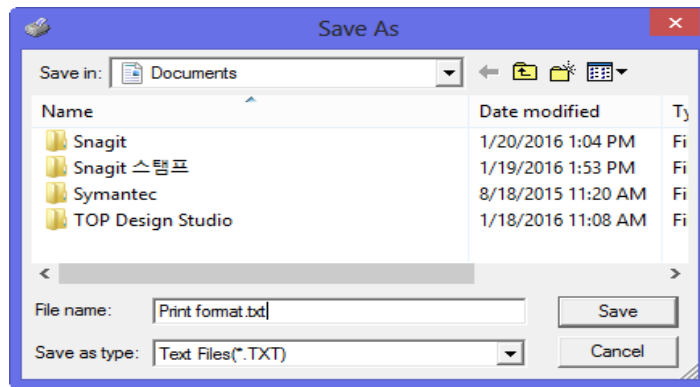
Button	Description
ADD	Checks whether the tag address entered in the tag entry box has been entered according to the proper format, then adds the address to the list box on the right. If the tag input format is not correct, an error message is shown and the tag must be entered again. To add a tag address in the middle of tag addresses added to the list, select the middle of the list, write a new tag address in the tag input window, and click the [ADD] button. This adds the newly entered tag address behind the tag address selected in the list.
MOD	Modify an entered tag address. Select the tag address to modify from the list, then edit the tag address in the [Tag input window] and click the [MOD] button to modify the selected tag address.
DEL	Delete an entered tag address. Select the tag address to delete from the list, and click the [DEL] button to delete that tag address.

If the tag input format is not correct, an error message is shown and the tag must be entered again.

No	Error	Description
1	There is no text!	When a tag address has been entered with no text in the body
2	First brackets '[' is missing!	When the first bracket is missing
3	Indication of Numeric Tag and String Tag is error!	When characters other than 'N' denoting a numeric tag or 'S' denoting a string tag have been entered
4	Colon(:) is missing!	When the colon has been omitted
5	System buffer address is missing!	When the internal address has been omitted
6	System buffer address is error!	When the internal address has not been entered correctly
7	Last brackets ']' is missing!	When the last bracket is missing
8	All tags are already input!	When the number of tag addresses entered is greater than the number of tags entered in the body

④ Saving

After entering the body and all tags correctly, click the [Save] button on the bottom right hand corner. If a file that has already been saved has been opened, the file name is indicated on the top of the roll printer editor. If a file has been opened and its content has been edited, changes are overwritten in that file. If the file has not been saved, the following save routine is executed, and input is saved as a [*].TXT file.



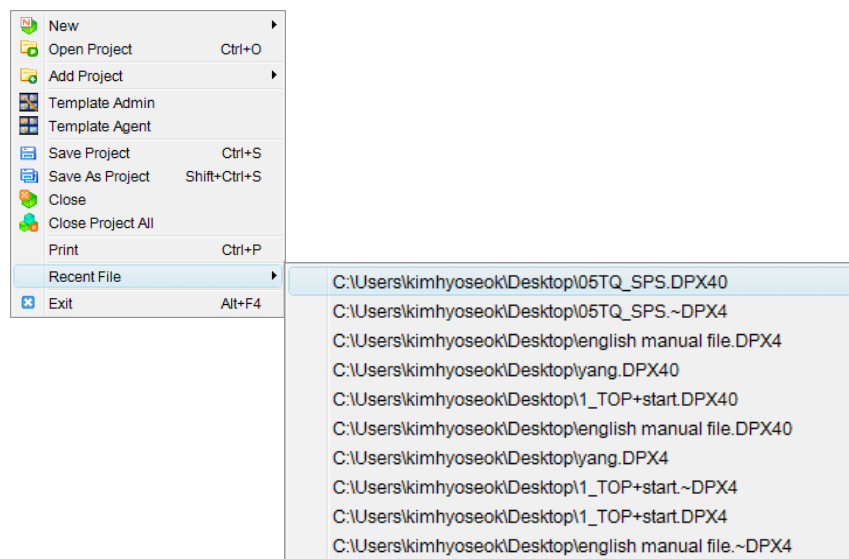
[Fig. Saving]

Button	Description
New	Erases all items in the editor for new entry.
Save	Saves the content of the editor as a TEXT file, and simultaneously creates a file for internal transfer.
Open	Reads a TEXT file, and shows the content of the read file in the editor.
Quit	Exits the roll printer editor.
Compile(*.rbf)	A file to be included [*.*rbf] when transmitting from XDesignerPlus is created. The [*.*rbf] file is created in [C:\#Program Files\#M2I Corp\#XDesignerPlus4\#TEMP]. Compile must be performed to use the print function.

4.11 Recent files

A list of recently opened files is shown. Up to 10 items are saved in the list.

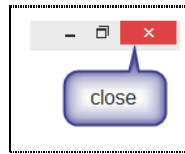
Select the desired project from the list to open the selected project.



[Fig. Selecting a recent file from the list]

4.12 Exit (Alt + F4)

The XDesignerPlus4 program is exited. Select [File]-[Exit] from the menu, or click the Close[X] button on the top right corner of the XDesignerPlus4 screen.



[Fig. Exiting with the [X] button]

Messages appear asking whether to save each of the open projects that have been changed. The program is exited after the projects are saved.

CHAPTER 5 Edit Menu

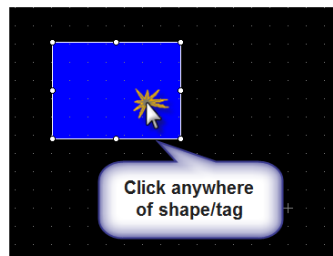
CHAPTER 5 - Edit Menu

The [Edit] menu is explained. The edit menu provides general editing functions such as shape/tag copy and paste when editing the project screen, as well as rotate, align, and group/ungroup functions, allowing for more convenient and accurate editing.

5.1 Select

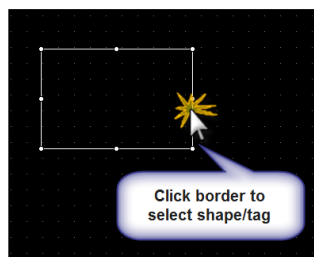
5.1.1 Normal selection

All shapes/tags registered to the edit screen can be selected by clicking the left mouse button. The method of selecting shape and touch tags is different depending on whether fill is used. In the case of shape/touch tags that are filled, click any part within the area to select.



[Fig. Selecting filled shapes/tags]

If there is no fill property, the border, which is the line forming the border must be selected in order to select.

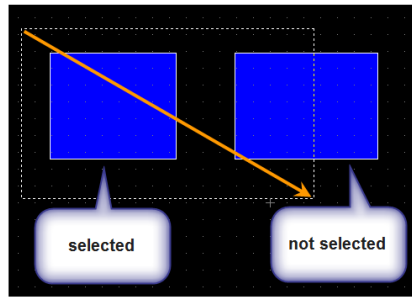


[Fig. Selecting non-filled shapes/tags]

5.1.2 Range selection

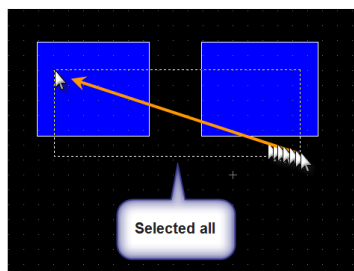
In this method, the dotted rectangular area that is shown when the mouse is dragged in the edit screen is used to select. There are two methods of range selection. Using these two methods depending on the editing situation, shapes/tags can be selected or deselected conveniently.

- (1) When dragging the selection area from the left to right, only shapes/tags that are fully included within the area are selected.



[Fig. Select only shapes/tags that are fully included]

- (2) When dragging the selection area from the left to right, all shapes/tags that overlap with the selection area are selected.

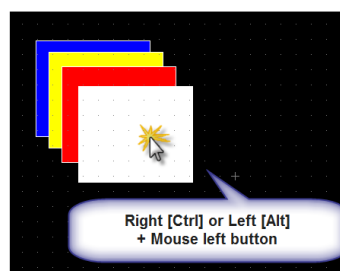


[Fig. Select shapes/tags that overlap partially with the selection area]

5.1.3 Selecting partially overlapping shapes/tags

When two or more shapes/tags are overlapping, it may be difficult to select the shape/tag desired.

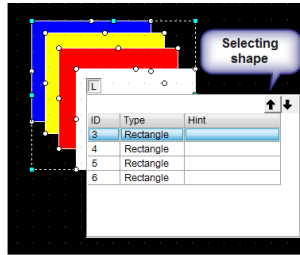
[Fig. Selecting overlapping shapes] shows a situation where multiple shapes are overlapping. In this case, left click the mouse with the right [Ctrl] button on the key board pressed. Each time the mouse is clicked, the shapes in the area are selected in sequence. If there is no Ctrl key on the right side, the left Alt key can be used instead.



[Fig. Selecting overlapping shapes]

5.1.4 Selecting overlapping shapes/tags using the POP-UP menu

When shapes/tags are overlapping, to select only the desired shapes or tags, a pop-up menu may be used. Using range selection, select all the shapes and tags in the location where the desired shape/tag is located, and double click. A pop-up menu showing the list of selected items is shown, as seen in [Fig. Pop-up menu selection]. Select the shapes/tags in the list to conveniently select the desired shapes/tags. Only the properties of selected shapes/tags can be edited.



[Fig. Pop-up menu selection]

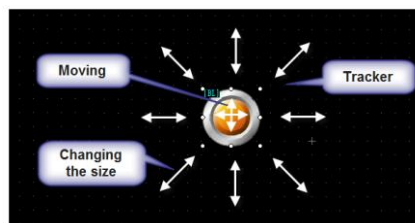
5.1.5 Multiple select and deselect

With a shape/tag selected, select another shape/tag with the [Shift] key on the keyboard pressed to select or deselect additional shapes

5.2 Move and resize

5.2.1 Moving and resizing using the mouse.

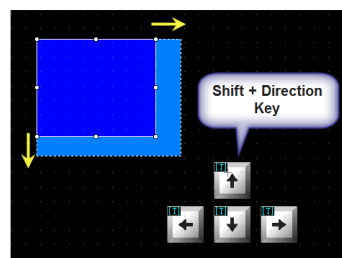
When a shape/tag is selected, a tracker is shown as seen in [Fig. Tracker and mouse cursor]. The tracker has 8 directions. The tracker in the direction desired by the user can be clicked with the left mouse button and dragged to resize. If the mouse cursor is above a filled shape/tag or above the border of a non-filled shape/tag, the cursor turns into a cross-shaped arrow. By dragging with the left mouse button, the shape/tag can be moved to the desired location.



[Fig. Tracker and mouse cursor]

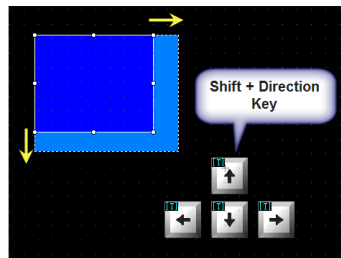
5.2.2 Moving and resizing using the keyboard

With a shape/tag selected, the direction keys on the keyboard can be used to move the shape in pixel units. Pressing the space bar changes the move units from pixels to the grid units shown on the screen. The move unit is changed each time the space bar is pressed.



[Fig. Moving shapes/tags using the keyboard]

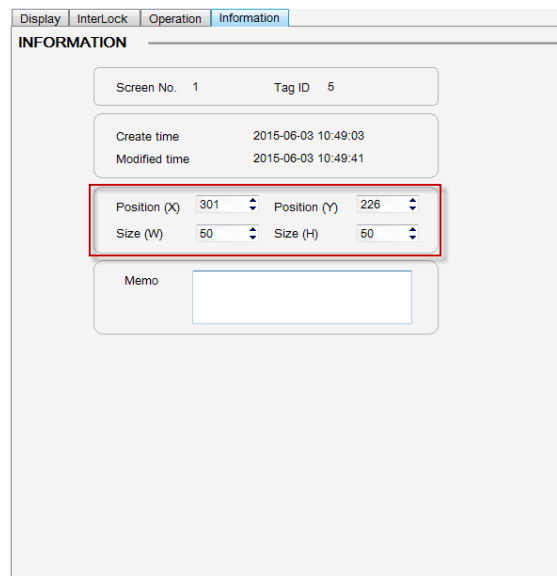
By pressing the direction keys with the Shift button of the keyboard pressed, the shape/tag can be resized. Resizing is only possible to the right along the X axis, and down along the Y axis.



[Fig. Resizing shapes/tags using the keyboard]

5.2.3 Moving and resizing in the properties page

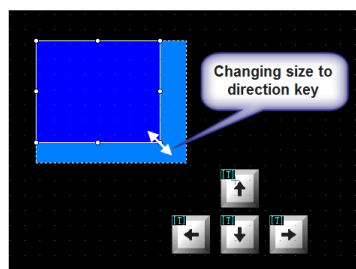
By changing the coordinates and size info in the [Properties] page of tag properties, the location and size can be changed. The left and top trackers shown on the tag are the standards for the coordinates. The size is indicated in pixels.



[Fig. Moving and resizing in the properties window]

5.2.4 Resizing using the keyboard and mouse

Shapes/tags can be resized using the keyboard and mouse together. Place the mouse cursor on the trackers of a selected shape/tag. The cursor turns into an arrow. Use the direction keys on the keyboard to resize.



[Fig. Resizing using the keyboard and mouse]

5.3 Undo and redo

5.3.1 Undo (Ctrl + Z)

Edits made in the project edit screen such as move, copy, paste, and delete of shapes/tags can be canceled in sequence. Up to 50 undos can be performed on each screen. Select [Edit]-[Undo] in the menu, or [Undo] in the toolbar.

5.3.2 Redo (Ctrl + R)

An [Undo] performed in the project edit screen can be reversed in sequence to the immediately previous status. Up to 50 redos can be performed on each screen. Select [Edit]-[Redo] in the menu, or [Redo] in the toolbar.

5.4 Select all

Select all shapes and tags registered in the screen. In the edit screen, select [Edit]-[Select all] in the menu, click the toolbar, or right-click the mouse. In the pop-up menu that appears, select [Select all]. Use the [Ctrl + A] keyboard shortcut in the screen to select all items.

5.5 Copying and deleting

5.5.1 Cut (Ctrl + X)

Cutting is the same function as performing copy and delete sequentially. Select a shape/tag and select [Edit]-[Cut] in the menu, click the toolbar, or right-click the mouse. In the pop-up menu that appears, select [Cut]. When a cut is performed, the selected shape/tag is saved in the WINDOWS clipboard.

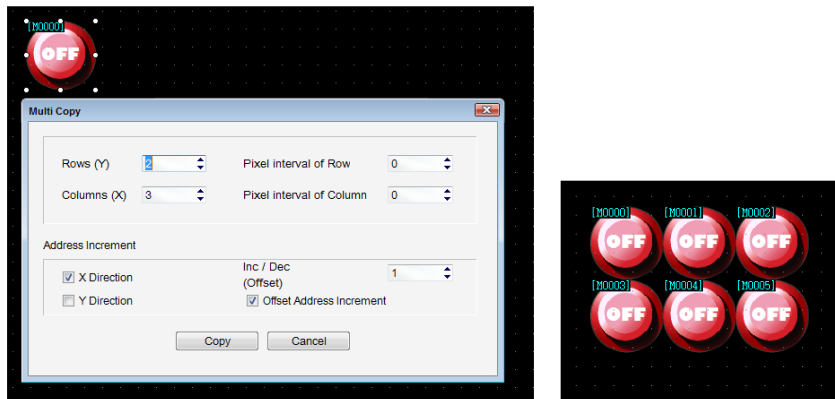
5.5.2 Copy (Ctrl + C)

Use the copy function to create copies of shapes/tags. Select a shape/tag to copy and select [Edit]-[Copy] in the menu, click the toolbar, or right-click the mouse. In the pop-up menu that appears, select [Copy]. When a copy is performed, the selected shape/tag is saved in the WINDOWS clipboard until the next copy or cut is performed.

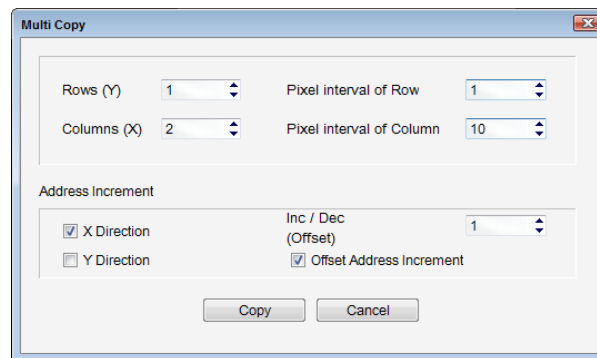
5.5.3 Multi copy (Ctrl + T)

This function can be used for convenient copying of one or many shapes/tags. In the case of tags, the addresses used for tags can be increased automatically, depending on options.

Select a tag and select [Edit]-[Multi copy] in the menu, or click the [Multi Copy] icon in the tool bar. [Multi copy] is shown, as seen in [Fig. Multi Copy].



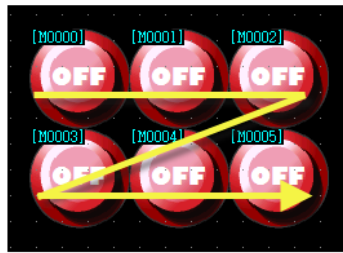
[Fig. Multi copy]



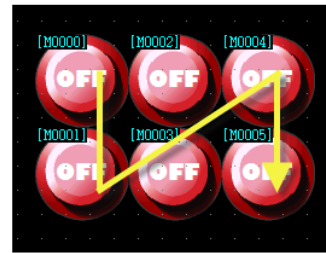
[Fig. Multi copy setting screen]

MultiCopy	Description
Rows (Y)	When Rows (Y) is selected, the number of additional copies made in the vertical direction is equal to the set value.
Pixel interval of row	Set the interval (pixels) between copies in the Y direction.
Columns (X)	When Columns (X) is selected, the number of additional copies made in the horizontal direction is equal to the set value.
Pixel interval of column	Set the interval (pixels) between copies in the X direction.
Address increment	The addresses of the copied items automatically increase according to the value set in [Inc/Dec (Offset)], beginning from the station of the address set for the original. When [X direction] is checked, address increase priority is given to the X direction. If [Y direction] is checked, address increase priority is given to the Y direction. e.g.) If the address of the original item is [MX0000], with 5 multicopy items, and an increment of 1, the addresses of the created items become [MX0000, MX0001, MX0002, MX0003, MX0004].

In the multi copy dialog window, [X direction] gives priority to address increase in the horizontal direction, and [Y direction] gives priority to address increase in the vertical direction.



[Fig. X direction address increase]



[Fig. Y direction address increase]

5.5.4 Paste (Ctrl + V)

This function is used to insert shapes/tags saved to the clipboard by copying or cutting in the position desired by the user. Select [Edit]-[Paste] in the menu, click the toolbar, or right-click the mouse. In the pop-up menu that appears, select [Paste]. If paste is performed without performing a cut or copy beforehand, nothing happens.

5.5.5 Paste in same position (Ctrl + Shift + V)

In the paste function described above, the position to paste the shape/tag must be designated with the mouse. [Paste in same position] is a function used to insert the copied item in the same position as the original. In the screen to paste to, select [Edit]-[Paste in same position], or select [Paste in same position] in the pop-up menu that is displayed when the right mouse button is clicked.

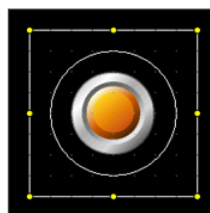
5.5.6 Delete

Delete the selected shape/tag. Select a shape/tag to delete and select [Edit]-[Delete] in the menu, click the toolbar, or right-click the mouse. In the pop-up menu that appears, select [Delete].

5.6 Group

5.6.1 Create group (Ctrl + G)

Multiple shapes/tags can be designated as a group for editing. Select two or more shapes/tags, and select [Edit]-[Group] in the menu, click the tool bar, or right click the mouse. In the pop-up menu that appears, select [Group] to group the selected items. The trackers for grouped shapes/tags are shown in yellow.



[Fig. Grouped]

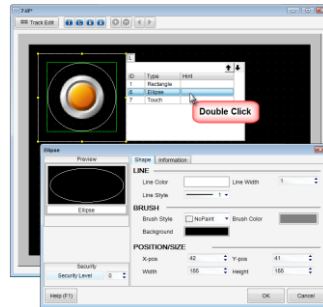
5.6.2 Ungroup (Ctrl + G)

Ungroup grouped shapes/tags. Select [Edit]-[Ungroup] in the menu, click the tool bar, or right click the mouse. In the pop-up menu that appears, select [Ungroup] to ungroup the group.

5.6.3 Editing shapes/tags in groups

Properties such as color or address can be changed for grouped shapes/tags without ungrouping.

Select a group and double click the left mouse button. This brings up a list of shapes/tags included in the group, as seen in [Fig. Editing group properties]. Double click the shape/tag to be changed from the list to bring up a property edit window.



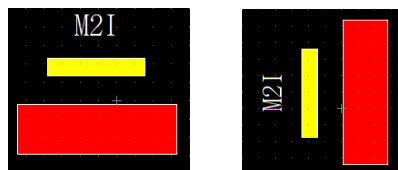
[Fig. Editing group properties]

5.7 Rotate

This function rotates shapes/tags to the right or to the left. Select the shapes/tags to align, and select the desired rotation direction in [Edit]-[Rotate] of the menu, or right-click the mouse and select [Rotate] in the pop-up menu.

5.7.1 Rotate left (<)

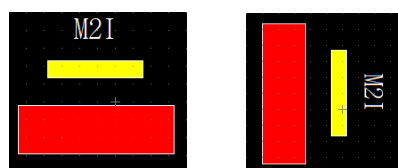
The selected shape/tag is rotated left by 90°.



[Fig. Rotate left]

5.7.2 Rotate right (>)

The selected shape/tag is rotated right by 90°.



[Fig. Rotate right]

5.7.3 Cancel rotate (/)

A rotated shape/tag is reverted to the original state.

5.8 Properties

This is used to run the edit properties window to change shape/tag properties. Select a shape/tag and select [Edit]-[Properties] in the menu, click the toolbar, or right-click the mouse. In the pop-up menu that appears, select [Properties]. For general use, double click the shape/tag to edit.

5.9 Mirror

5.9.1 Mirror vertical

Flip the selected shape, tag or group vertically by 180 degrees.

5.9.2 Mirror horizontal

Flip the selected shape, tag or group horizontally by 180 degrees.

5.10 Cancel inheritance

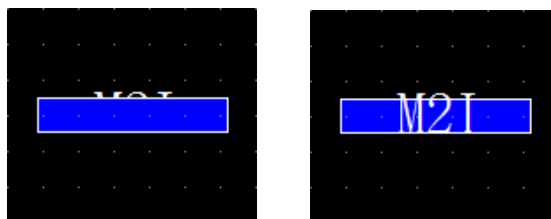
Inheritance of an object registered in global objects is canceled. If inheritance is canceled, changes to properties in the global object list are not applied to the canceled item.

5.11 Align

XDesignerPlus4 provides a variety of alignment functions. Alignment allows for simpler and more accurate editing. Select the shapes/tags to align, and select the desired rotation direction in [Edit]-[Rotate] of the menu. Alternatively, select the align icon in the toolbar on top of the screen, or right-click the mouse and select [Align] in the pop-up menu.

(1) Bring forward

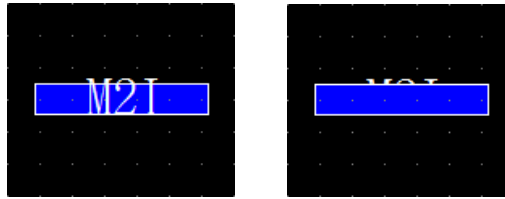
When a shape/tag is overlapped by another shape/tag and is located behind the other, the shape/tag is brought one step forward.



[Fig. Bring forward]

(2) Send backward

When a shape/tag is overlapped by another shape/tag and is located behind the other, the shape/tag is send one step backward.



[Fig. Send backward]

(3) Bring to front

The action is the same as [Bring forward], but when multiple items are overlapping, the selected item is brought to the very front.

(4) Send to back

The action is the same as [Send backward], but when multiple items are overlapping, the selected item is sent to the very back.

(5) Align left (Ctrl + Shift + ←)

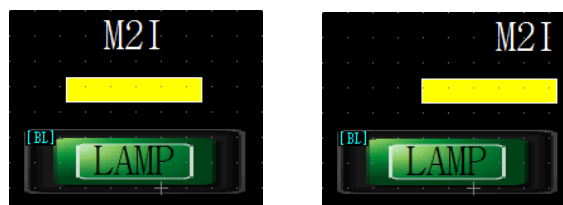
The selected shapes/tags are aligned according to the shape/tag located farthest to the left.



[Fig. Align left]

(6) Align right (Ctrl + Shift + →)

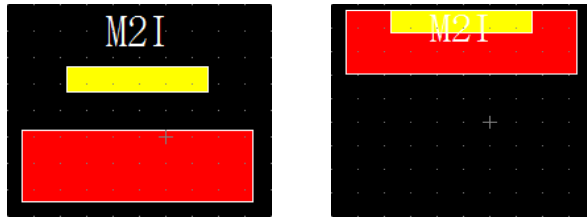
The selected shapes/tags are aligned according to the shape/tag located farthest to the right.



[Fig. Align right]

(7) Align top (Ctrl + Shift + ↑)

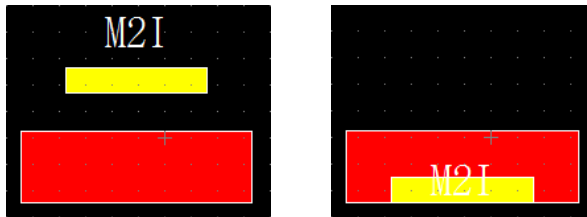
The selected shapes/tags are aligned according to the shape/tag located farthest to the top.



[Fig. Align top]

(8) Align bottom (Ctrl + Shift + ↓)

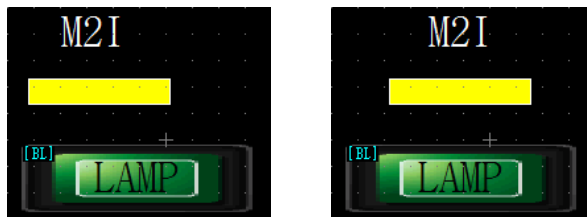
The selected shapes/tags are aligned according to the shape/tag located farthest to the bottom.



[Fig. Align bottom]

(9) Align center (Ctrl + Shift + ↕)

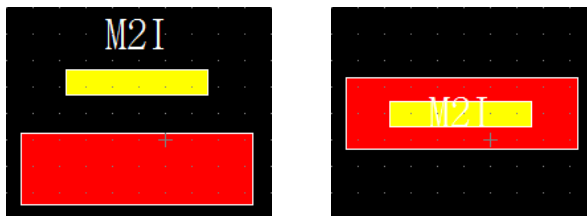
The selected shapes/tags are aligned along the central Y axis.



[Fig. Align center]

(10) Align middle (Ctrl + Shift + M)

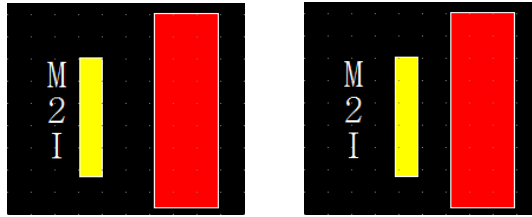
The selected shapes/tags are aligned along the middle X axis.



[Fig. Align middle]

(11) Horizontal space equally

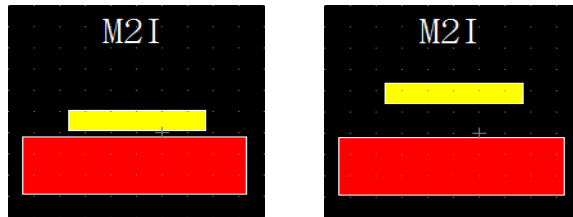
The selected shapes/tags are moved and spaced equally horizontally.



[Fig. Horizontal space equally]

(12) Vertical space equally

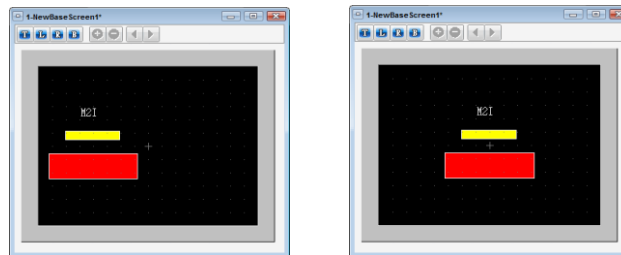
The selected shapes/tags are moved and spaced equally vertically.



[Fig. Vertical space equally]

(13) Horizontal center in window

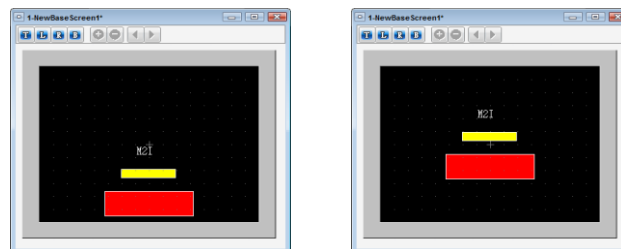
The selected shapes/tags are centered horizontally in the edit screen.



[Fig. Horizontal center in window]

(14) Vertical center in window

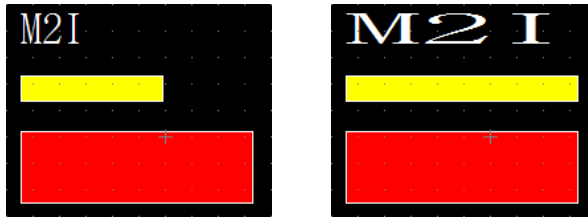
The selected shapes/tags are centered vertically in the edit screen.



[Fig. Vertical center in window]

(15) Grow to largest width

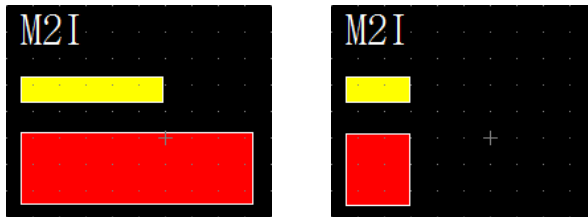
The selected shapes/tags are resized to the width of the widest item.



[Fig. Grow to largest width]

(16) Shrink to smallest width

The selected shapes/tags are resized to the width of the smallest item.



[Fig. Shrink to smallest width]

(17) Grow to largest height

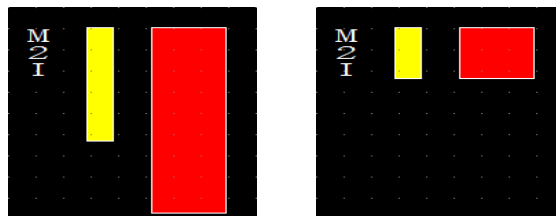
The selected shapes/tags are resized to the height of the highest item.



[Fig. Grow to largest height]

(18) Shrink to smallest height

The selected shapes/tags are resized to the height of the smallest item.



[Fig. Shrink to smallest height]

5.12 Snap

The dictionary definition of snap is 'to make a clicking sound.' The snap function, which is also known as the magnet function, provides a function where shapes and tags stick to a certain reference line when drawing, moving, or resizing.

5.12.1 Grid snap

In grid snap, shapes/tags are moved and resized according to the grid when the show grid option of the edit screen is used. When the mouse is used, the mouse pointer moves not by pixels by according to the grid spaces. When the keyboard is used, each time a direction key is pressed, the cursor moves along the grid.



[Fig. Toolbar grid snap]



Note For fine movement when grid snap is enabled, use the mouse to move with the [Ctrl] key pressed down. For fine movement using the keyboard, press the [Space] to transition between [Fine movement] ↔ [Grid snap] modes.

5.12.2 Object snap

While in grid snap, the snap function is provided along the preset grid, in object snap, the snap function is provided along the left or top, etc., of a shape/tag already registered in the screen by the user.

Snap-related options are provided at the bottom of [Tools]→[Editing options] in the menu.

Object snap options can be set to show a line at the point where snap occurs.

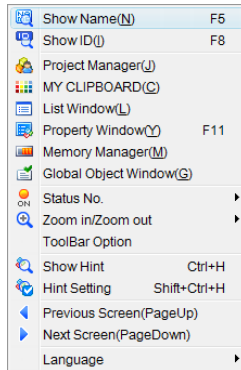


[Fig. Toolbar object snap]

CHAPTER 6 View Menu

CHAPTER 6 - View Menu

The [View] menu is explained. The view menu shows or hides the docking windows on the left and right side of the XDesignerPlus4 program. Various screen views can be set, and the program language can be selected.



[Fig. View Menu]

6.1 Show name (F5)

On the top left of tags registered in the screen, hints explaining the tag are shown. The tag name is shown in this hint.



[Fig. Tag name of a bit lamp]

The tag name is displayed as shown in the following table.

Tag	English	Tag name display
Bit lamp	Bit Lamp	[BL]
Word lamp	Word Lamp	[WL]
N lamp	N-State Lamp	[NL]
Touch	Touch	[T]
Touch + Bit Lamp	Touch+ Bit Lamp	[TL]
Touch + Word Lamp	Touch+ Word Lamp	[TW]
Touch + N lamp	Touch+ N-State Lamp	[TN]
Numeric	Numeric	[N]
Text	String	[S]
Show numeric keypad	Keypad Display Numeric	[NK]
Show string keypad	Keypad Display String	[CK]
Bit message	Bit Message	[MB]
Word message	Word Message	[MW]

Bit window	Bit Window	[WB]
Word window	Word Window	[WW]
Bit parts	Bit Parts	[BP]
Word parts	Word Parts	[WP]
Alarm	Alarm	[AL]
Alarm expand	AlarmEx	[ALEX]
Log table	Log Table	[LO]
Event log viewer	EventLog View	[EVLV]
Bar graph	Bar Graph	[GRA]
Linear graph	Linear Graph	[GRB]
Expanded graph	Graph Ex	[GEX]
Record	Record	[REC]
X/Y chart A	X/Y chart A	[XY]
X/Y chart B	X/Y chart B	[XY2]
Calculation	Calculation	[CA]
Comm	Comm	[CO]
Clock	Clock	[CL]
File list	File List	[LIST]
DocViewer	DocViewer	[DV]
Slide	Slide	[SL]

6.2 Show ID (F5)

On the top left of tags registered in the screen, hints explaining the tag are shown. The tag Id is shown in this hint.



[Fig. Tag ID of a bit lamp]

The [ID] is a number assigned according to the order of registration of shapes and tags on the screen. The ID is shown in [Properties] under shape or tag properties. The ID of the shape or tag registered first to the screen is [00001], and the ID of the shape or tag registered second is [00002].

6.3 Docking window

Docking means that the window sticks like a magnet.

Functional docking windows provided in the XDesignerPlus4 program include [Project manager], [List window], [Memory Manager] and [Global Object] on the left, and [My clipboard] and [Properties

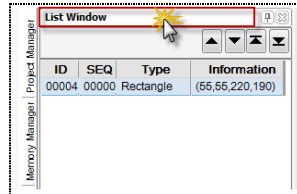
window] on the right.

6.3.1 Handling docking windows

All docking windows can be docked to the XDesignerPlus4 program or used separately, and can be shown or hidden as needed.

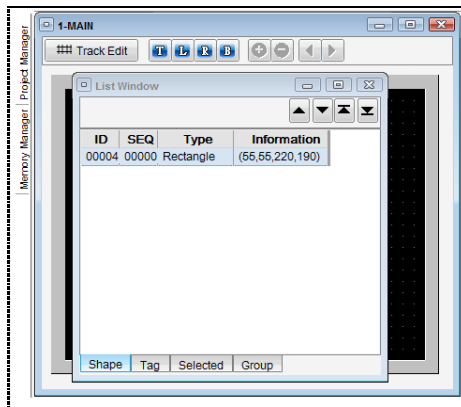
(1) Separating docking windows

Docking windows that have been docked can easily be separated by dragging with the mouse.



[Fig. Separating docking windows]

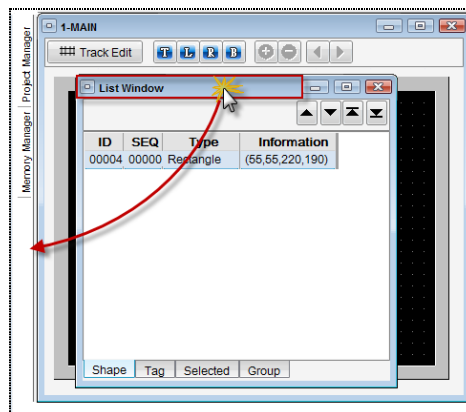
Click the [Title] part of a fixed docking window, and drag outward with the mouse. This separates the docking window, as seen in the figure below.



[Fig. Separating docking windows]

(2) Fixing docking windows in place.

Separated docking windows can be docked by dragging the [Title] with the mouse and [Dropping] in the vertical list section.



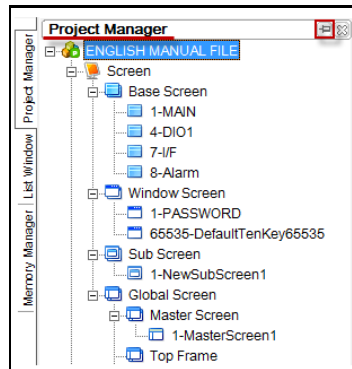
[Fig. Fixing docking windows in place]

(3) Showing and hiding docking windows

Docking windows appear immediately when selected from the [View] menu. As there are many types of docking window, all left and right docking windows can be docked, and [Shown/Hidden] as needed.

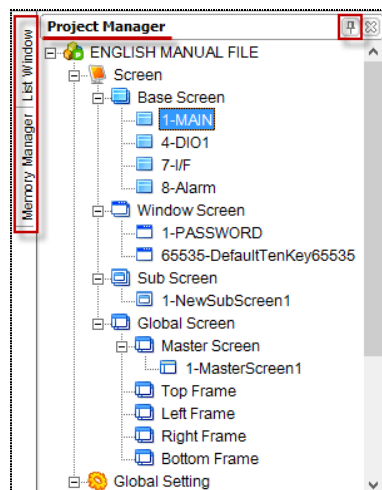
① Showing and hiding left docking windows

Left side docking windows include the project manager, list window, and memory manager. Select all of these windows in the [View] menu, register, and dock to show a vertical list on the left side. When the vertical list is clicked, the corresponding window is shown, as seen in the following figure.



[Fig. Show left docking window]

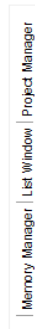
Here, the window is not fixed. When the mouse clicks another location, the window closes. To keep an open window open, click the thumbtack image (📌) on the top right hand corner. The thumbtack image changes (🔒), and the window is fixed in place.



[Fig. Show left docking window]

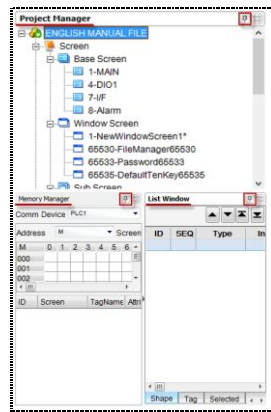
The title [Project] is shown on top, indicating that the [Project Manager] is open. In the vertical list, [Project] is removed, and [Memory] and [List Window] remain.

The three left docking windows can all be hidden by clicking the thumbtack image (🔒).



[Fig. Hidden left docking windows]

Also, all three left docking windows can be fixed open by clicking the thumbtack image (📌) on the top right corner.

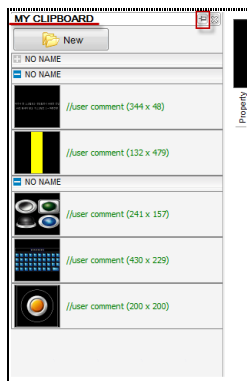


[Fig. All left docking windows open]

The position of docking windows can be adjusted to suit the user by dragging the top title portion with the mouse.

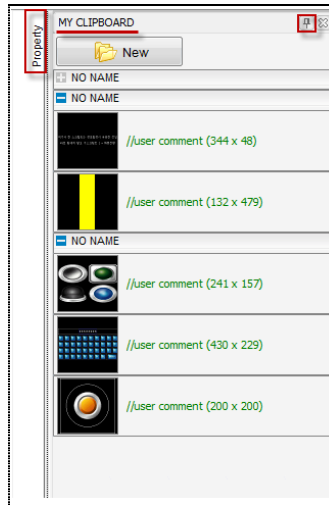
② Showing and hiding right docking windows.

Right side docking windows include my clipboard and the properties window. These windows are registered in the project by default. However, if they are closed, they can be selected from the [View] menu. Register and dock to create a vertical list on the right side. When the vertical list is clicked, the corresponding window is shown, as seen in the following figure.



[Fig. Show right docking window]

Here, the window is not fixed. When the mouse clicks another location, the window closes. To keep an open window open, click the thumbtack image (📌) on the top right hand corner. The thumbtack image changes (📍), and the window is fixed in place.



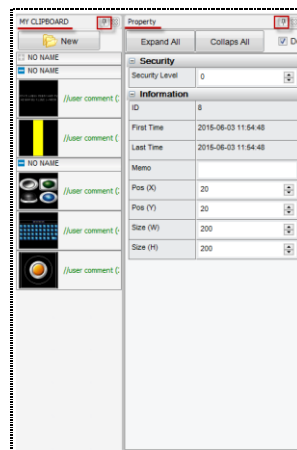
[Fig. Show right docking window]

The title [My clipboard] is shown on top. [My clipboard] is removed from the vertical list, leaving the [Properties] window. The two right docking windows can all be hidden by clicking the thumbtack image (📍).



[Fig. Hidden right docking windows]

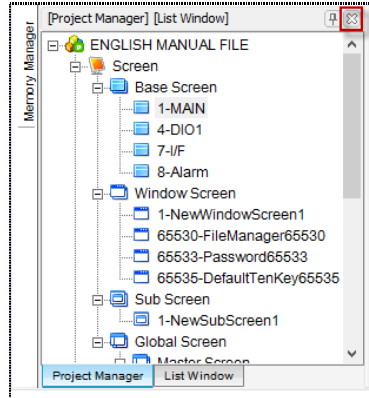
Also, both right docking windows can be fixed open by clicking the thumbtack image (📌) on the top right corner.



[Fig. All right docking windows open]

(4) Removing docking windows

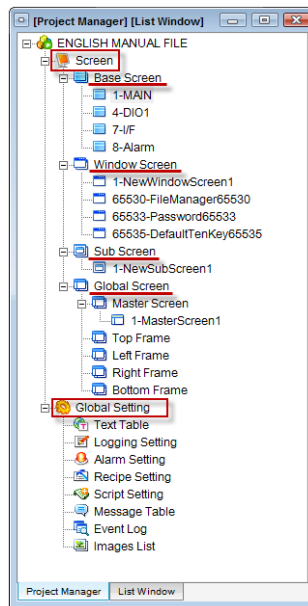
To close a docking window, click the [X] button on the top right corner. In the following figure, when the [X] button is clicked, the open project manager and list windows are closed.



[Fig. Removing docking windows]

6.4 Project manager


[Project manager] is a left docking window. From the [Project Manager] window, the project screens and settings can be viewed and managed at a glance. When the program is run, and a new project is created or an existing project is opened, a list of screens and general settings is shown in the project manager.



[Fig. Project Manager]

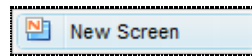
6.4.1 Screen

The screen composition of the project can be seen at a glance. Base screens, window screens, sub screens, and global screens are shown in a tree structure.

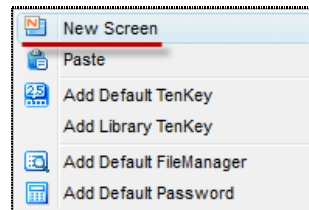
( See [3.4] of [chapter 3] for a description of each screen.)

① Creating screens

In [Project manager], click base screen, window screen, sub screen, top frame, left frame, right frame, or bottom frame, then right click the mouse to bring up the [New screen] pop-up menu.



[Fig. Base screen, subscreen, and frame screen pop-up menu]

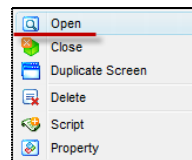


[Fig. Window screen popup menu]

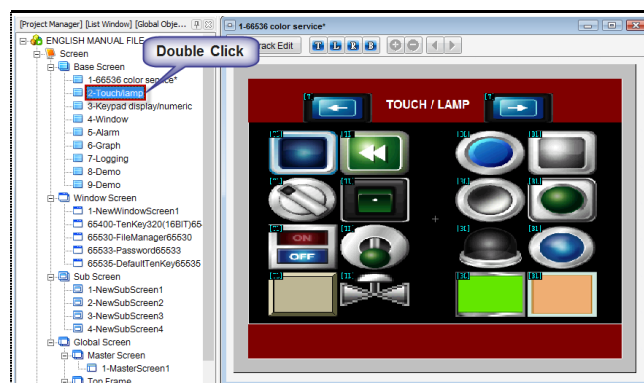
When new screen is clicked from the pop-up menu, a new screen is created depending on the screen type.

② Opening screens

Click the name of the projects screen to open then right click. Select [Open] in the pop-up menu that is shown, or [Double click] the screen name to open.



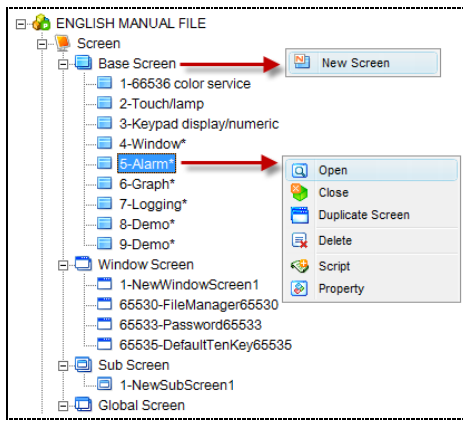
[Fig. Selecting [Open] in the screen name pop-up menu]



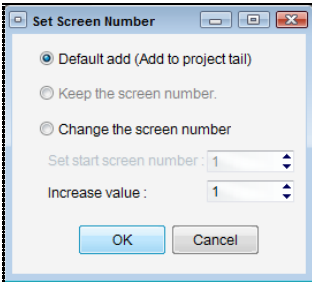
[Fig. Double clicking the screen name]

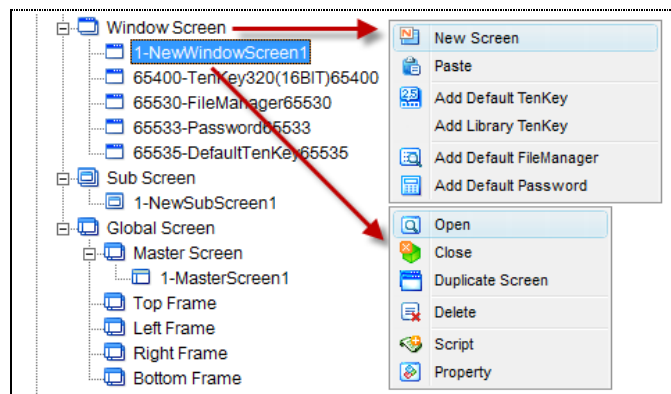
③ Pop-up menu

To bring up the pop-up menu, select the applicable list and right click the menu. A different pop-up menu is shown depending on the screen type.

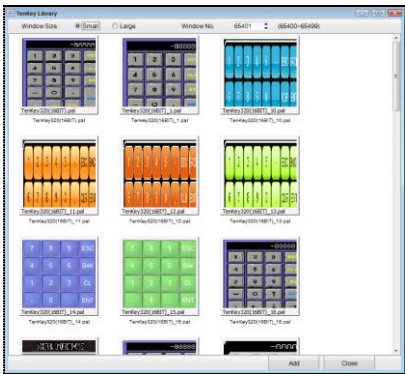
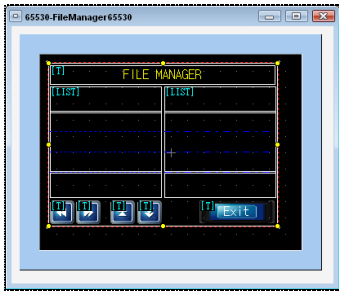
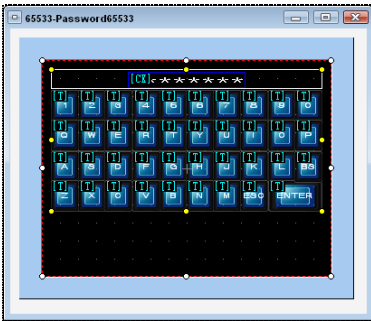


[Fig. Base screen pop-up menu]

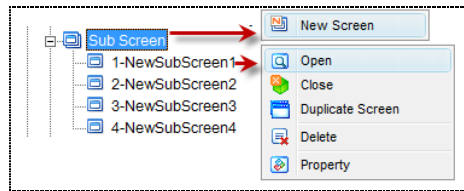
Pop-up menu	Description
New screen	Create a new base screen.
Open	Open the selected base screen.
Close	Close the selected base screen.
Copy screen	<p>Copy the selected base screen. When the menu is clicked, the [Set screen number] screen is brought up. Here, the numbers for the screens to be copied and newly created as set. When [Default add] is used, the copied screens are added from the number following the largest number of the registered base screens. In [Change the screen number], the [Start screen number] is entered, and the copied screens are added using the number that is entered.</p> 
Delete	Delete the selected base screen.
Script	Set the script that applies to the selected base screen only.
Properties	The properties of the selected base screen are shown.



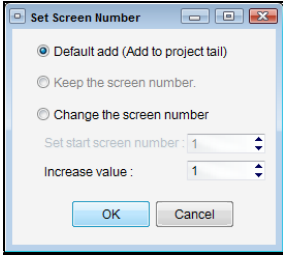
[Fig. Window screen popup menu]

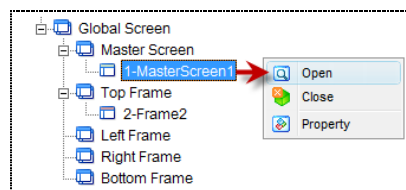
Pop-up menu	Description
New screen	Create a new window screen.
Add default tenkey	<p>Add a default tenkey window screen. The default tenkey window screen is automatically created when the project is created. However, if the default tenkey window screen has been deleted, this menu can be used to create a new window. The default tenkey window screen is used in the [Show numeric/string key tag].</p> <p>(☞ See [19.4.1] in [chapter 19] for instructions on how to use the default tenkey window.)</p>
Add library tenkey	<p>A tenkey (keypad) window screen registered to the library is added. Various small/large tenkeys are registered. Select the tenkey to register as a window screen, enter the [Window number], and click the [Add] button on the bottom. The window numbers that can be registered for library tenkeys are fixed:[65400~65499].</p> 
Add file manager window	<p>Add a file manager window screen.</p>  <p>(☞ See [40.6] in [chapter 40] for file manager usage instructions.)</p>
Add password window	<p>Add a password window screen. The password window screen is used to enter the password if the [Set password] function is used in the project. Touch the password entry portion on the top, enter the password using the string keypad, and press the [ENTER] key.</p> 

	(☞ See [7.10] in [chapter 7] for password settings and the password window screen.)
Open	Open the selected window screen.
Close	Close the selected window screen.
Copy screen	Copy the selected window screen.
Delete	Delete the selected window screen.
Script	Set the script that applies to the selected window screen only.
Properties	The properties of the selected window screen are shown.



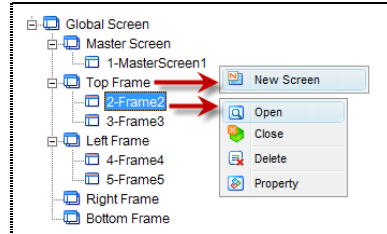
[Fig. Sub screen popup menu]

Pop-up menu	Description
New screen	Create a new sub screen.
Open	Open the selected sub screen.
Close	Close the selected sub screen.
Copy screen	<p>Copy the selected sub screen. When the menu is clicked, the [Set screen number] screen is brought up. Here, the numbers for the screens to be copied and newly created as set. When [Default add] is used, the copied screens are added from the number following the largest number of the registered sub screens. In [Change the screen number], the [Start screen number] is entered, and the copied screens are added using the number that is entered.</p> 
Delete	Delete the selected sub screen.
Properties	The properties of the selected sub screen are shown.



[Fig. Master screen popup menu]

Pop-up menu	Description
Open	Open the master screen.
Close	Close the master screen.
Properties	Show master screen properties.

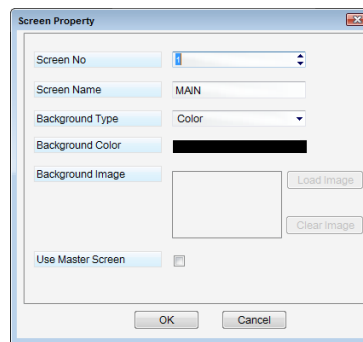


[Fig. Frame screen popup menu]

Pop-up menu	Description
New screen	Create a new frame screen.
Open	Open the selected frame screen.
Close	Close the selected frame screen.
Delete	Delete the selected frame screen.
Properties	The properties of the selected frame screen are shown.

④ Screen properties

The [Properties] of each screen are explained.



[Fig. Base screen properties]

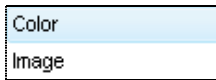
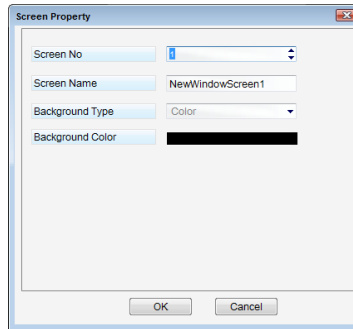
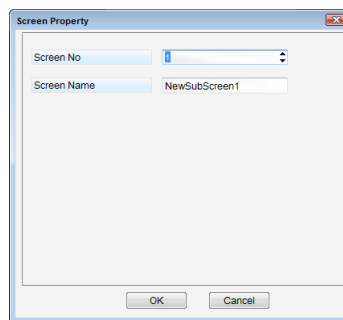
Properties	Description
Screen number	Designate the base screen number.
Screen name	Designate the base screen name.
Background type	Select the base screen background type. There are two types of background: [Color] and [Image]. 
B.G. color	If [Color] is chosen for the [Background type], choose the color.
Background image	If [Image] is chosen for the [Background type], use the [Load] button to load the

	image to use as the background (*.bmp, *.jpg, *.jpeg).
Use master screen	Check to use the master screen.



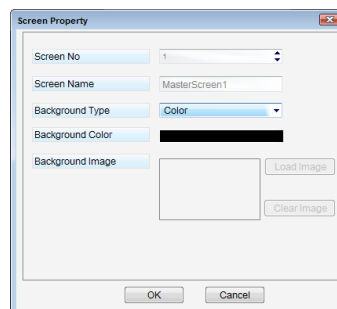
[Fig. Window screen properties]

Properties	Description
Screen number	Designate the window screen number.
Screen name	Designate the window screen name.
Background type	Select the window screen background type. Only [Color] can be used for window screen background type. This option is fixed to [Color].
B.G. color	Select the color to use as the background.




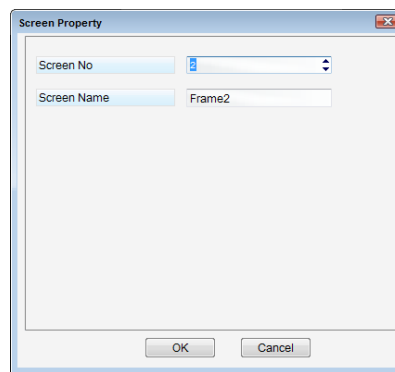
[Fig. Sub screen properties]

Properties	Description
Screen number	Designate the sub screen number.
Screen name	Designate the sub screen name.



[Fig. Master screen properties]

Properties	Description
Screen number	Show the master screen number. There is only 1 master screen, and the screen number cannot be changed.
Screen name	Show the master screen name. There is only 1 master screen, and the screen name cannot be changed.
Background type	Select the master screen background type. There are two types of background: [Color] and [Image]. 
B.G. color	If [Color] is chosen for the [Background type], choose the color.
Background image	If [Image] is chosen for the [Background type], use the [Load] button to register the image to use as the background (*.bmp, *.jpg, *.jpeg).

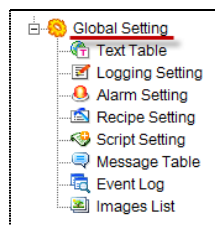


[Fig. Frame screen properties]

Properties	Description
Screen number	Designate the frame screen number.
Screen name	Designate the frame screen name.

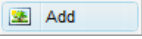
6.4.2 Global settings

These are common settings that apply generally throughout the project. Double click each list to bring up the corresponding setting screen.



[Fig. Global settings]

Global settings	Description
Multilanguage table	Set the multilanguage table. (☞ See [7.3] in [chapter 7] for the multilanguage table.)
Logging setting	Set logging data. (☞ See [7.4] of [chapter 7] for logging settings.)

Alarm setting	Set alarm data. (☞ See [7.5] of [chapter 7] for alarm settings.)
Recipe setting	Set recipe data. (☞ See [7.6] of [chapter 7] for recipe settings.)
Script	Set the script. (☞ See [7.7] of [chapter 7] for script settings.)
Message table	Set the message table. (☞ See [7.8] in [chapter 7] for the message table.)
Event log	Set the event log. (☞ See [7.9] of [chapter 7] for the event log.)
Image list	Register the image list to use in parts tags. Add images using the  button on the mouse right click pop-up menu. (☞ See [chapter 25~26] for part tags.)

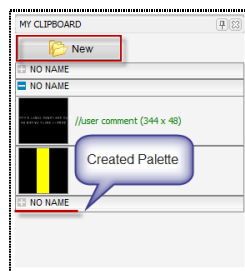
6.5 MY CLIPBOARD

My Clipboard is a right docking window. My Clipboard is a user library of sorts, where frequently used groups of shapes or tags are registered. Lists registered in my clipboard can be used conveniently through [Drag&Drop].


6.5.1 Palette

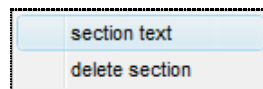
The [Palette] is a space for keeping frequently used groups of shapes or tags. There is no restriction to the number of palettes that can be created.

(1) Create/delete new palette



[Fig. Create new palette]

Click the  button on top to create the [Palette]. When a palette is created, a new palette is created with the name [NO NAME] at the bottom of the palette list. Select the create palette and right click to bring up a pop-up menu. Use this pop-up menu to change palette names, and deleted unused palettes.






[Fig. Palette popup menu]

Pop-up menu	Description
Palette title	Change the palette title.
Delete palette	Delete the palette. When a palette is deleted, items in the palette are deleted together.

(2) Opening/closing palettes

The [+] and [-] buttons to the left of the palette name can be used to open and view or close palettes.

Button	Description
	Denotes a closed palette that does not have items.
	Denotes a closed palette that has items.
	Denotes an open palette that has items.

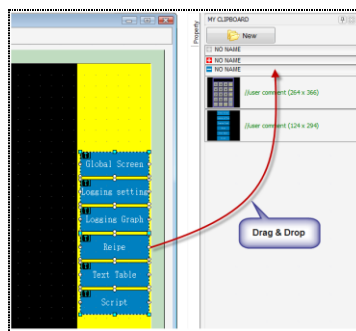
6.5.2 Items

[Items] refer to groups of frequently used shapes or tags that are registered in a [Palette]. [Items] can be added simply to palettes, and [Items] registered in [Palettes] can easily be taken out and registered to the screen.

(1) Registering palette items

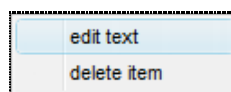
[Drag] the shapes or tags to register as [Items] and drop them on the [Palette].

There is no restriction to the number of [Items] that can be registered to a single [Palette].



[Fig. Item registration]

After registering an item, to change the name of the item, or to delete an unused item, select the item and right click the mouse to bring up a pop-up menu.

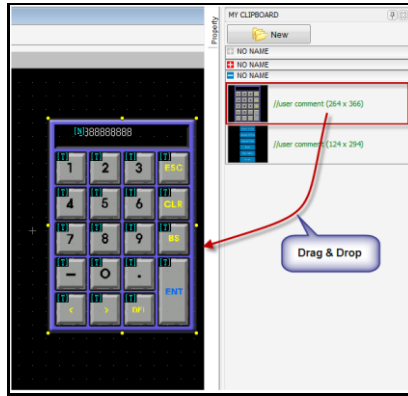


[Fig. Item popup menu]

Pop-up menu	Description
Edit text	Edit the TEXT (name) of the item.
Delete item	The item is deleted from the palette.

(2) Using registered items

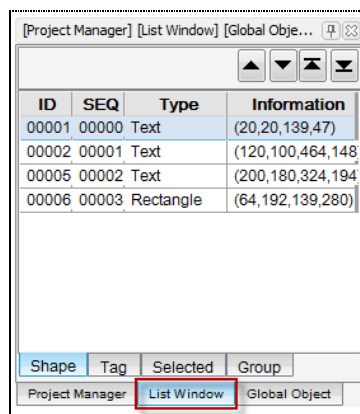
The method for using items registered in [My Clipboard] is as follows. Select the item to register to the screen, and [Drag&Drop] in the [Edit screen].



[Fig. Registering items to the screen]

6.6 List window

[List window] is a left docking window. The list window shows list of shapes/tags/selections/groups registered to the current edit screen. To view the list window, select [List window] at the bottom of the left docking window, or run [List window] in the [View] menu.



[Fig. List window]

6.6.1 Composition of the list window


(1) Page type

The list window comprises shape/tag/selection/group pages.

Page	Description
Shape	A list of shapes registered to the active screen.
Tag	A list of tags registered to the active screen.
Select	A list of shapes/tags/groups selected in the active screen.
Group	A list of groups registered to the active screen.

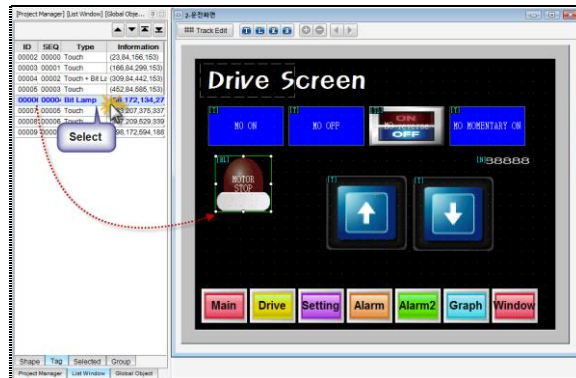
(2) List properties

ID, SEQ, type, and information are displayed in each list.

List property	Description
ID	The ID of the shape/tag/group is shown. The ID number is assigned in the order registered to the screen.
SEQ	SEQ stands for sequence, and indicates the run sequence. SEQ can be changed using the  button on the top right corner.
Type	[Shape type/tag type/group] is displayed.
Information	(Left, Top, Right, Bottom) position info is shown.

6.6.2 Selecting shapes/tags/groups

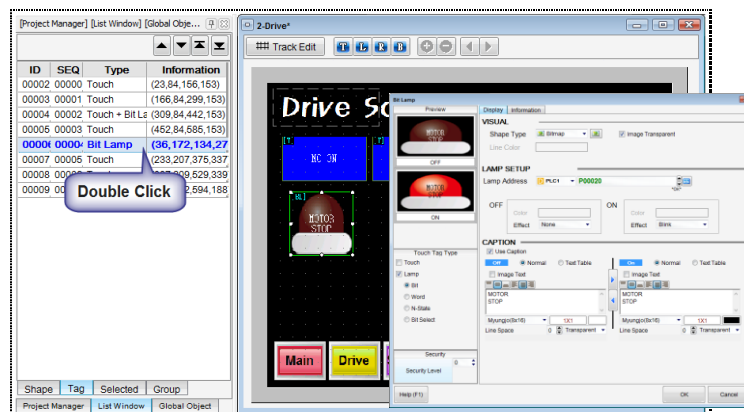
When a shape/tag/group is selected in the list window, the corresponding shape/tag/group is selected in the edit screen. The selected shape/tag/group is indicated by a light green area, as seen in the figure below.



[Fig. Selecting from the list window]

6.6.3 Viewing shape/tag/group properties

When an item in the list window is double clicked, the [Properties] screen of the corresponding tag/shape is brought up.

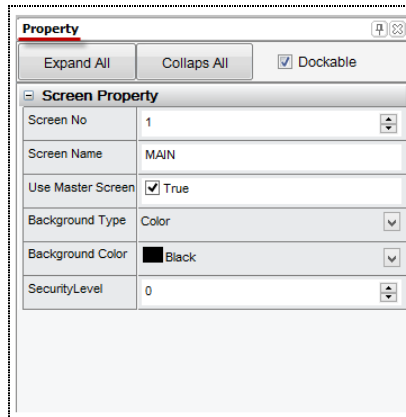


[Fig. Bringing up the properties screen from the list window]

6.7 Properties window

[Properties window] is a right docking window. The properties window shows screen properties and the

properties of tags and shapes registered to the screen and allows editing.



[Fig. Properties window]

6.7.1 Composition of the properties window

The details of the properties window are explained.

Item	Description
	Indicates that the properties window is not fixed. Clicking this button fixes the properties window in place.
	Indicates that the properties window is fixed. Clicking this button hides the properties window.
	Closes the properties window.
Expand all	Expands and shows all properties
Collapse all	Collapses and hides all properties
Dockable	If checked, the properties window can be docked on the right. If this is not checked, the properties window is separated, and cannot be docked.
	The properties list is collapsed and not visible. Clicking this button makes the properties list visible.
	The properties list is expanded and visible. Clicking this button collapses and hides the properties list.

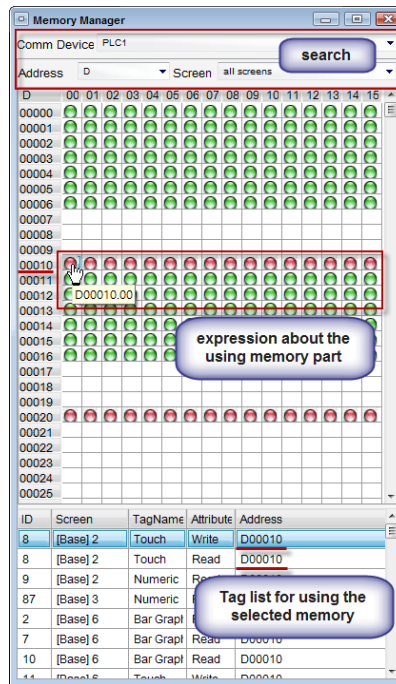
6.8 Memory manager

[Memory manager] is a right docking window. The memory manager displays the addresses used in the screen as physical areas.

6.8.1 Composition of the memory manager

The memory manager comprises three parts.

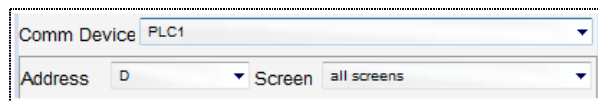
1. Search area for selection of communication device, address, and screen.
2. Area where the memory area of the address used according to the search area is shown using colored dots.
3. A list of tags using the address, shown when a colored dot is clicked.



[Fig. Memory manager]

(1) Search area

Designated the part of memory to show.








[Fig. Search area]

Search area	Description
Communication device	Select the type of address to view the memory usage situation for. In [PLC1], the memory usage of the PLC address is viewed. [Internal] show the memory usage status of internal addresses of the touch screen. One touch screen can communicate with multiple PLCs. When communicating with 1 PLC only, only PLC1 is shown. When communicating with 2 PLCs, PLC1 and PLC2 are shown. <div style="border: 1px solid black; padding: 2px; margin: 5px 0;"> PLC1 [Internal] </div>
Address	When PLC address has been selected, select the address range. Each PLC has a different address range.
Screen	View addresses used in all screens, or only addresses used in a single screen. Click [all screens] for all screens, and the corresponding window to view addresses for a single screen.

(2) Memory usage status display

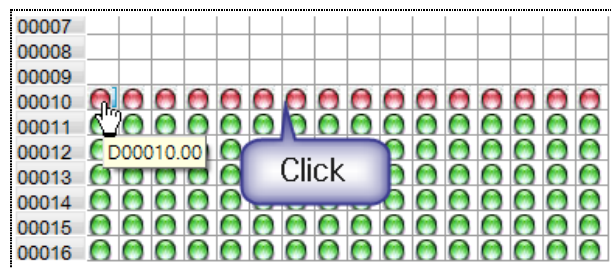
The [Rows] in the address area list word addresses, and the [Columns] list bits 0 through 15. Addresses

used in the project are indicated with round dots. Each dot indicates a bit address. Therefore, for addresses used as words, dots are shown from bits 0 to 15, while for addresses used as bits, dots are shown in only the one corresponding bit. The address is shown differently depending on the PLC selected and the type of address. If the address is in [8 bit], the number of columns becomes 8. If [32 bit] addresses, the number of columns becomes 32. The colors of the dots indicate the following properties.

Shape	Category	Description
 (Green)	Read property	Green dots are shown when addresses used in a tag are used as read addresses. A [Read address] is an address where data is only read for display on the touch screen.
 (Blue)	Write property	Blue dots are shown when addresses used in a tag are used as write addresses. [Write addresses] are addresses where data is input from the touch screen, and data is written to the controller.
 (Green/Blue)	Read/Write property	Dots that are half green and half blue are shown when addresses used in a tag are used for both read and write actions. [Read/Write addresses] are addresses where data input is received from the touch screen and written to the controller, and data is read from the controller and displayed on the touch screen.
 (Red)	Duplicate property	Red dots are displayed when an address is used in 2 or more tags.
 Note		The [Read/Write] properties in memory manager indicate properties for tag operation on the touch screen. They are unrelated to actual PLC address properties. For example, the address [X] of a particular PLC is a read-only bit address in the PLC, but if this address is used in the [Show numeric keys] tag in the touch screen, the address has [Read/Write properties]. The [Show numeric key] tag is a tag that uses tenkey to enter data in the PLC, and displays input data on the screen. Therefore, as input and display are performed at the same time, the set address is said to be used with a [Read/Write property].

(3) Show tag list

When a dot is clicked, the screen where the address is used, and tag info is displayed on the bottom of the memory manager. This function allows for easy locating of the tags where the address is used.



[Fig. Clicking a dot in the memory manager]

ID	Screen	TagName	Attribute	Address
8	[Base] 2	Touch	Write	D00010
8	[Base] 2	Touch	Read	D00010
9	[Base] 2	Numeric	Read	D00010
87	[Base] 3	Numeric	Read	D00010
2	[Base] 6	Bar Graph	Read	D00010
7	[Base] 6	Bar Graph	Read	D00010
10	[Base] 6	Bar Graph	Read	D00010
14	[Base] 6	Touch	Write	D00010

[Fig. Displaying the tag list in memory manager]

When the list above is [Double clicked], the screen where the tag is located is navigated to, and the tag is selected.

Tag info	Description
ID	This is the tag ID.
Screen	This is the number of the screen where the tag is registered.
Tag name	This is the tag name.
Properties	This is the property of the address used by the tag [Read address/Write address].
Address	This is the address used by the tag.

6.9 Global object

Global object is a function for registration and easy retrieval and use of shapes, tags, and groups that are frequently used. The function is similar to My Clipboard, but the concept of inheritance has been applied.



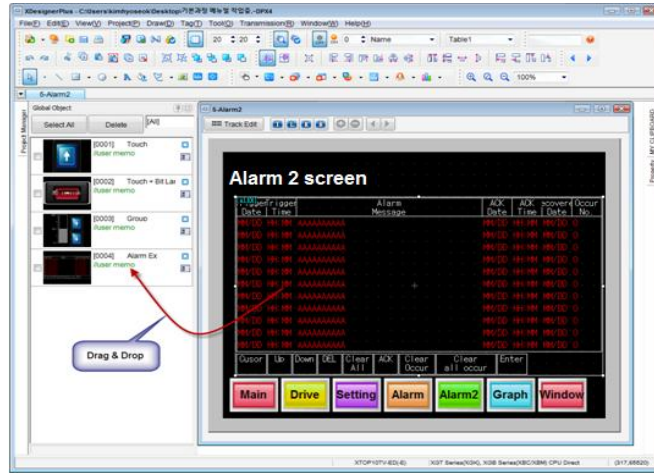
[Fig. Global object]

When a registered global object is used in the screen, properties are inherited. Inheritance means that the properties remain unchanged. If inheritance is not canceled for global objects registered in the screen, when properties are changed in the global object window list, the changes are applied to the properties of all global objects registered on the screen simultaneously. Therefore, by registering and using shapes, tags, and groups that are copied and used in multiple screens in global objects, these can

be modified in batch through the global object list. Inheritance can be partially or globally canceled.

6.9.1 Registering global objects

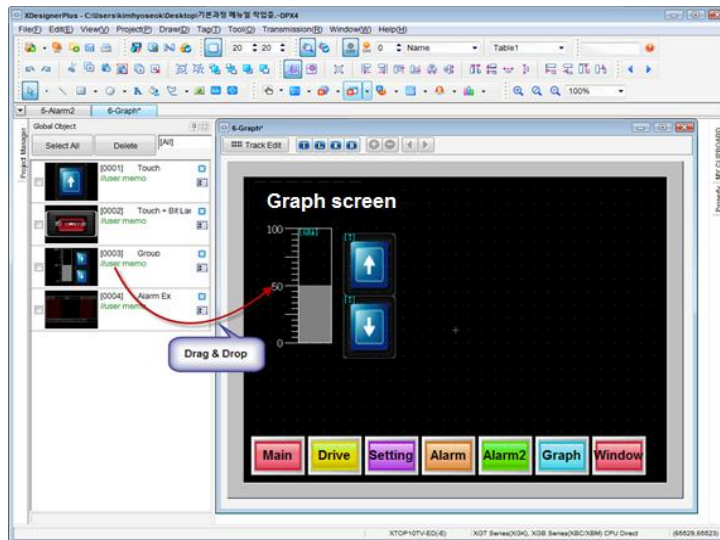
Global objects can be registered by dragging and dropping shapes, tags, and groups on the screen into the global object window.



[Fig. Global object registration]

6.9.2 Using global objects

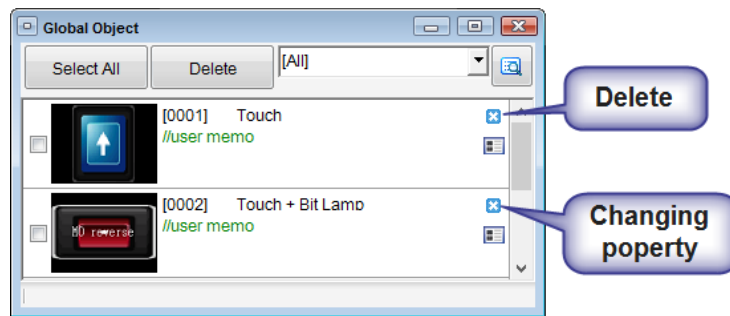
To use lists registered in the global object window, select and register using drag&drop as seen in the figure below.



[Fig. Using global objects]

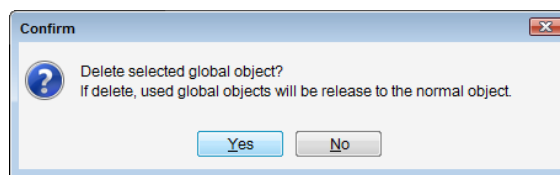
6.9.3 Deleting and changing properties

Registered global objects can be deleted by clicking the [X] mark on each list, as seen in the figure below. To delete multiple global objects at once, select the lists to delete, and click the [Delete] button on top.




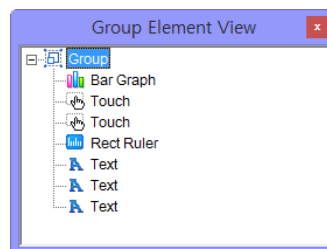
[Fig. Deleting and changing properties]

If a global object already in use in the screen is deleted, the following [Global objects registered in the screen will be released as normal objects.] message is shown.





[Fig. Delete confirmation message]

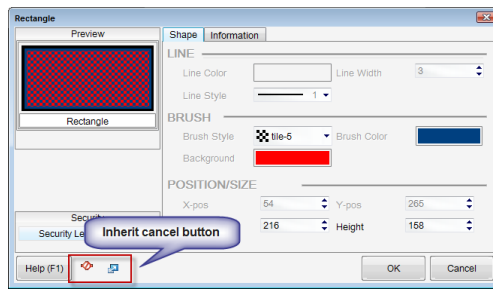
Click the [Yes] button to delete, and click the [No] button to cancel deletion. In the global object window, click the  image to change properties. If the global object is a group, the screen shown in the figure below is displayed, and the properties of individual objects in the group can be changed.



[Fig. Group properties list]


6.9.4 Cancel inheritance

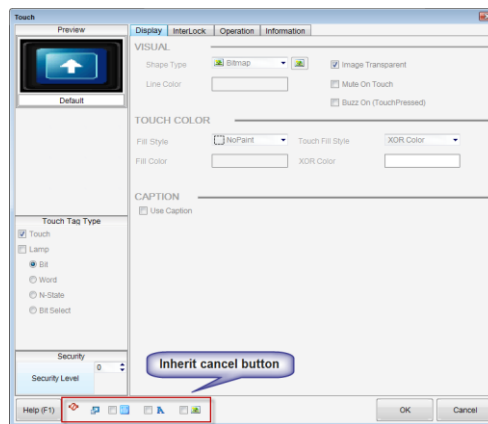
Properties can be edited by partially or globally canceling inheritance. If inheritance is canceled, changes to properties in the global object list are not applied to the canceled item. Double clicking a shape that has been retrieved from global objects and registered on the screen brings up the following properties screen. The settings part is disabled, and the cancel inheritance button  is shown on the bottom. If inheritance is canceled, the settings part is enabled, and properties can be changed. However, because inheritance is canceled, later changes to global object properties are not inherited, and these changes are not reflected.  is used to restore to the original size when resize has been performed.



[Fig. Canceling inheritance for a shape]

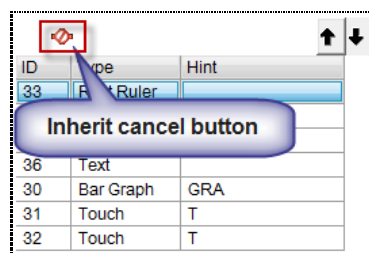
Double clicking a tag that has been retrieved from global objects and registered on the screen brings up the following properties screen.

 is used to cancel all inheritances. Inheritance can be canceled partially for addresses, captions, and images of tags.



[Fig. Canceling inheritance for a tag]

Double clicking a group that has been retrieved from global objects and registered on the screen brings up the following properties screen.



[Fig. Canceling inheritance for a group]

When the cancel inheritance button on top is clicked, inheritance is canceled for the entire group. By double clicking each object in the list, inheritance can be canceled individually.

6.10 Status number

[Status number] is a function that displays the tag shape in actual touch screen operation, depending on the data status of addresses set for tags.



[Fig. Status number]

In the case of a bit address, the tag is displayed according to the [ON/OFF] status. In [ON status], the shape of the tag when tag data is [ON] is shown. In [OFF status], the shape of the tag when tag data is [OFF] is shown.

In the case of word addresses, the status of the tag is displayed according to the [ON/OFF] statuses of bit 00 through bit 15. In the case of word lamps, N lamps, and word messages, statuses [0~15] are used, and up to the 16th tag status can be viewed according to the set sequence.

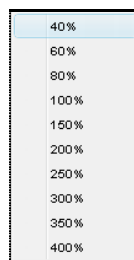
In the toolbar shown in the figure below, status numbers can be set in the same manner.



[Fig. Toolbar status numbers]

6.11 Zoom in/Zoom out

The project edit screen can be zoomed in or out.






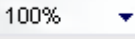
[Fig. Zoom in/out from the menu]

Zoom out of 40%~80%, and zoom in of 150%~400% is supported. 100% is the original size.

Zoom in/out is also possible using the mouse wheel with the [Ctrl key] pressed down. Also, the screen can be zoomed in/out from the toolbar.



[Fig. Zoom in/out from the toolbar]

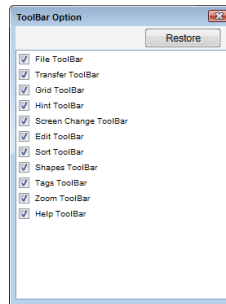
Toolbar image	Function
	Zoom in by [+20%], beginning from 100%.
	Zoom out by [-20%], beginning from 100%.
	Return to the original 100% size.
	The % zoom in/zoom out is shown. The desired % can be set.

6.12 Toolbar option

Toolbar option allows editing of the toolbar. Among the 11 toolbars, only the frequently used functions can be checked and used.



[Fig. Toolbar]



[Fig. Toolbar options]

By pressing the shortcut (Ctrl + W), the toolbar can be hidden or shown.

6.13 Hint

6.13.1 Show hint (Ctrl + H)

Hints are help balloons. Hints are descriptions attached above tags.

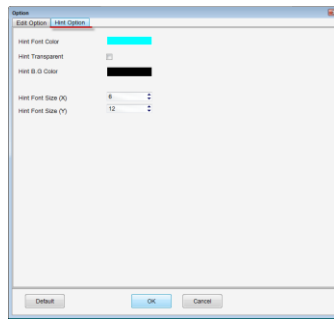


[Fig. Hint]

In the [Show hint] menu, whether to display hints can be set. When the menu is run once, hints are shown. If the menu is run again, hints are not shown.

6.13.2 Hint option (Shift + Ctrl + H)

Set the [Font color/background color/font size] for hints. This is the same as [Tools]-[Editing options]-[Hints].



[Fig. Hint option]

6.14 Previous screen (PageUp)

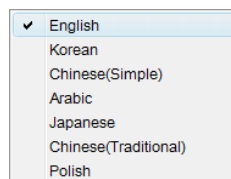
Navigate to the screen with the previous number from the currently open base screen, window screen, sub screen or global screen.

6.15 Next screen (PageDown)

Navigate to the screen with the next number from the currently open base screen, window screen, sub screen or global screen.

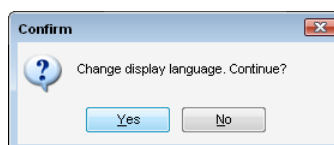
6.16 Language

Select the language to display in the XDesignerPlus4 program. When the program is run for the first time after installation, English is displayed. To change to Korean or Chinese, select the language under [View]-[Language].



[Fig. Language]

When a language is selected, the following confirmation language is shown.



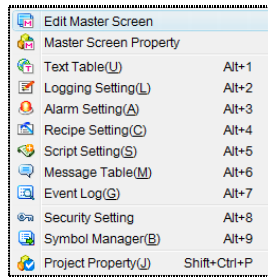
[Fig. Language change confirmation message]

If the [Yes] button is clicked, the language is changed to the selected language.

CHAPTER 7 Project Menu

CHAPTER 7 - Project Menu

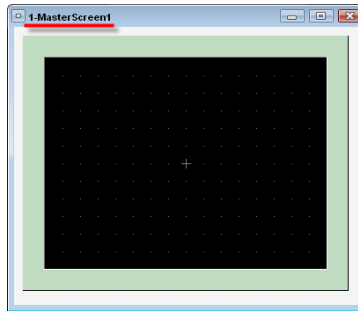
The [Project] menu is explained. In the project menu, settings that apply to the overall project are made.



[Fig. Project menu]

7.1 Edit master screen

Opens, shows, and allows editing of the master screen.



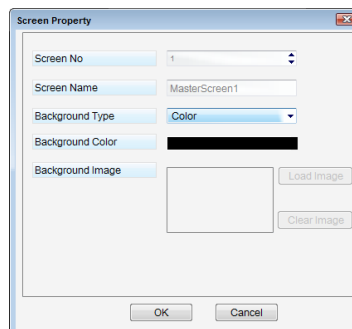
[Fig. Master screen]

The [Master screen] is a global screen where shapes and tags used commonly in base screens are implemented, for application and use in individual base screens.

( See [3.4.4] of [chapter 3] for how to use the master screen.)

7.2 Master screen properties

Show master screen properties. The master screen background can be changed from the properties screen.



[Fig. Master screen properties]

Properties	Description
Screen number	Shows the master screen number. There is only 1 master screen, and the screen number cannot be changed.
Screen name	Show the master screen name. There is only 1 master screen, and the screen name cannot be changed.
Background type	Select the master screen background type. <div style="border: 1px dashed black; padding: 5px; display: inline-block; margin: 10px 0;"> Color Image </div> There are two types of background: [Color] and [Image].
Hint B.G. color	If [Color] is chosen for the [Background type], choose the color.
Background image	If [Image] is chosen for the [Background type], use the [Load] button to load the image to use as the background (*.bmp, *.jpg, *.jpeg).

7.3 Text table

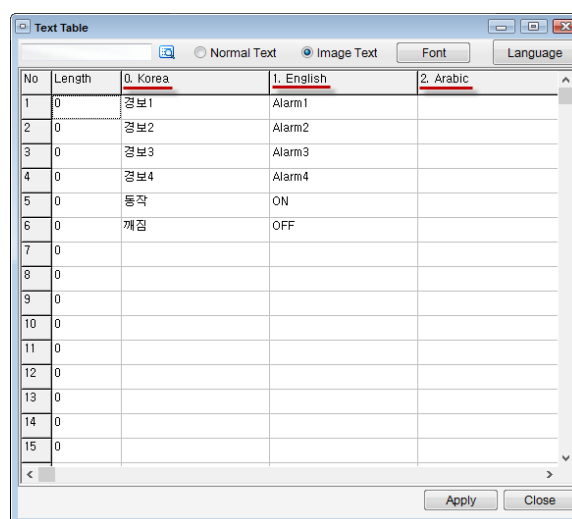
The text table is the same as the text table under general settings in the [Project manager]. Text is a function that converts strings used in projects into various languages, depending on conditions.

The usage method for the text function is as follows.

1. Register all strings used in the project in the [Text table], by language.
2. Set all string input parts in the project using the [Text table].
3. Set the data for the special address [_MULTI_LANG], depending on the language to be displayed.

7.3.1 Preparing the text table

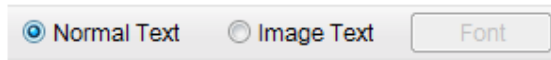
The text table is prepared as follows.




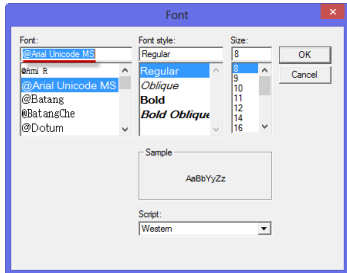
[Fig. Text table]

(1) Select font to display

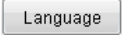
Set whether to display text as normal text or image text in the project.

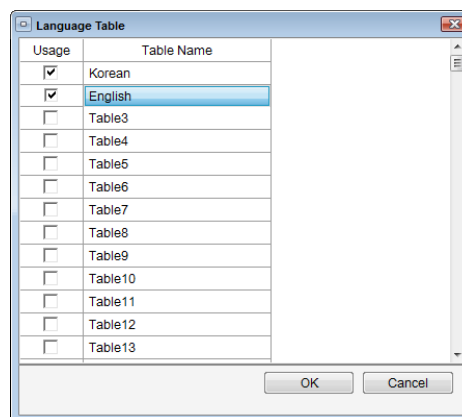


[Fig. Font selection]

Font	Description
Normal text	In normal text, characters are displayed using font provided by XTOP. The fonts provided by XTOP are limited to [English, Korean, and Chinese]. Therefore, when languages other than [English, Korean and Chinese] have been used in the text table, this option must be set as image text.
Image text	<p>In image text, characters are displayed using font provided in the PC.</p> <p> Press the button and set the font to use as shown in the figure below.</p>  <p>In some cases, some fonts are unable to display certain languages. Select a font with the word [Unicode] in the font name to safely display any language.</p>

(2) Table setting

First, press the  button on the top right corner to set the table. In table settings, the number of tables created should be equal to the number of languages to use. Each table created should be designated with a name. After completing settings, click the [OK] button.

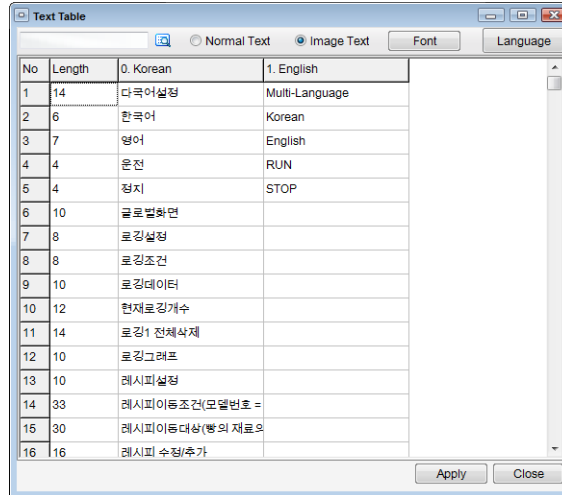


[Fig. Table setting]

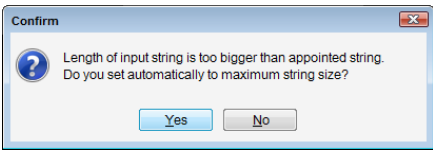
Table setting	Description
Usage	Check as many boxes as the number of languages to use. Up to 16 different languages can be registered.
Table Name	Set the table name by selecting in [Select Language], or through manual entry.

(3) Entering strings for each language

All strings used in the project must be registered. The strings for each language must be entered manually, or copied and pasted from files such as Excel files.

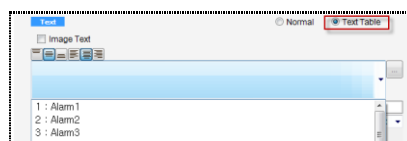


[Fig. Entering strings for each language]

Title	Description
No	This number is assigned sequentially to registered strings. Up to 10000 images can be registered.
Length	<p>This is the length of the longest string among the strings entered for each language. After entering all strings, press the [Apply] button. The following message appears, and settings are made automatically.</p>  <p>When the [Yes] button is pressed, the length of the longest string is registered automatically.</p>
[Table number. Table name]	<p>The [Table number] is placed ahead of the [Table name] set in [Table settings].</p> <p>The table number becomes condition data for language selection.</p>

7.3.2 Setting a text table in a project

Select the [Text table] for all parts where strings are entered in the project, and select the strings registered in the text table. The list of the text table list comprises the strings in the first table.



[Fig. Text settings in the project]

7.3.3 Selecting the language to display

By changing the value of the special address [_MULTI_LANG], the language displayed can be changed.

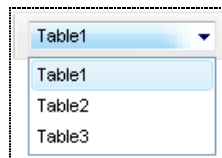
No	Length	0. Korea	1. English
1	0	경보1	Alarm1
2	0	경보2	Alarm2

[Fig. Table number]

If the [Table number] in the column name of the text table above is the same as the data of special address [_MULTI_LANG], the language for that column is displayed. In the case of the table above, if the data of [_MULTI_LANG] is [0], Korean is displayed, and English is displayed for [1].

7.3.4 Viewing each language in the edit screen

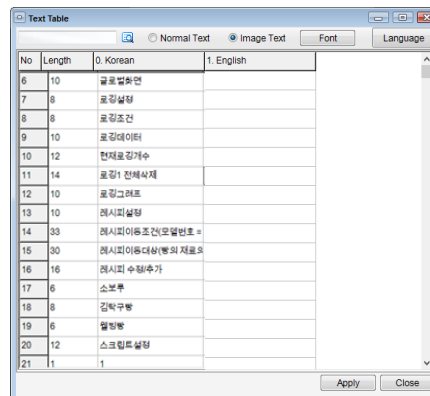
To view each language in the edit screen, use the toolbar. Depending on the table selected, the language set in the text table is displayed on the screen.



[Fig. Table toolbar]

7.3.5 Batch automatic registration of text tables

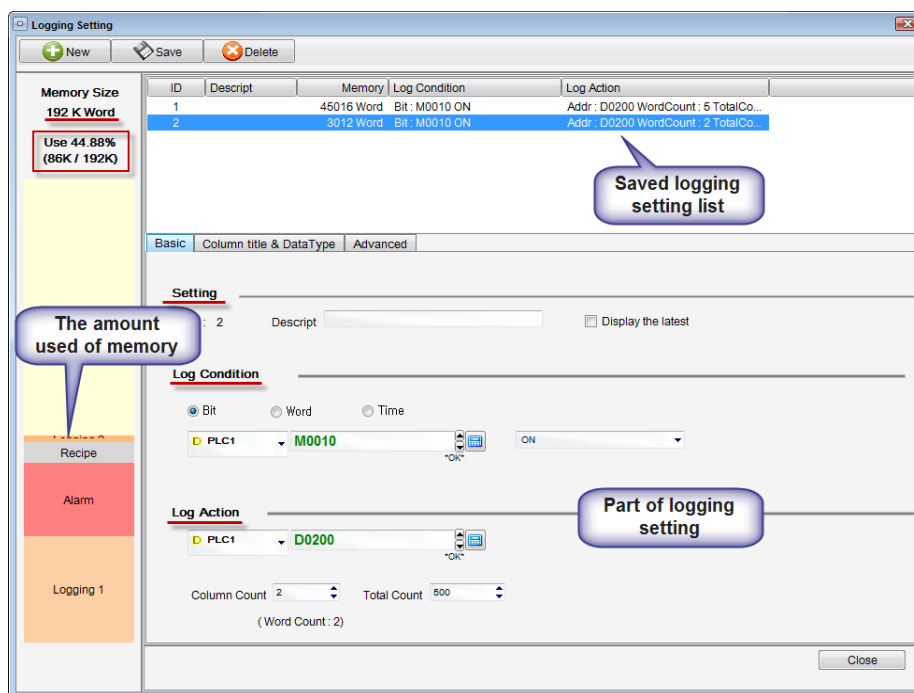
By using [Tools]-[Text table converter], all strings registered to the shapes and tags in the currently open project are registered in the first column of the text table, and the characters used in the shapes and tags of the project are automatically designated using the text table. Therefore, it is only necessary to write the tables for other languages in the text table.



7.4 Logging setting


Logging is a function for recording data. Particular data in the PLC or an internal address is recorded according to conditions.


Internal touch memory or a CF memory card can be used as storage memory.



[Fig. Logging setting]

7.4.1 Basic items page

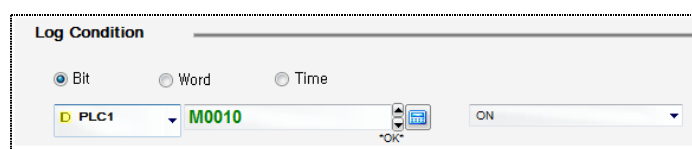
After setting the basic items page, which comprises the [Settings], [Log conditions], and [Log action] parts, click the  button on top to save logging settings.

Setting	Description
ID	The ID refers to the logging number. The ID is set automatically and sequentially. Up to 8 logs can be set. That is the IDs available are [1~8]. After saving logging ID [1], click the  button on top to set logging ID [2].
Description	Enter a description for each logging.
Display the latest	Normally, the logging data that occurred first is saved on the first line, and logging data that occurs later is saved in the following lines. When [Display the latest] is checked, the logging save order is reversed, and the latest logging data is saved to the top of the list.

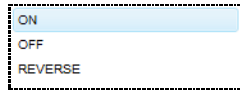
(1) Log condition

Set the conditions that trigger logging. That is, set the conditions for data recording. Select among [Bit], [Word], and [Time].

① Bit condition



[Fig. Bit condition]



[Fig. Bit condition]

In the bit condition, when a bit address has been entered, and the data of that bit address satisfies the set [ON/OFF/Reverse] conditions, logging data is saved.

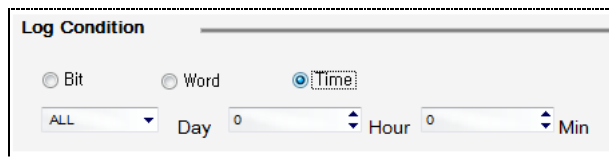
② **Word condition**



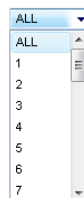
[Fig. Setting the word condition in logging conditions]

In the word condition, when a word address has been entered, and the data of that word address satisfies the set range conditions, logging data is saved.

③ **Time condition**



[Fig. Setting the time condition in logging conditions]

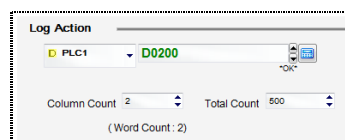


[Fig. Setting the date in the time condition]

In the time condition, logging data is saved at the determined date or time. [Day] stands for day. Settings available are 1~31. [ALL] stands for every day. The time is entered in [Hour] and [Min]. When the time is set as seen in the figure above, logging data is saved at [9:30 everyday].

(2) Log action

Set the area to record as logging data.



[Fig. Log action setting]

Setting	Description
Address	Set the start address of the PLC or internal address to record as logging data. By default, logging is saved in word (16 bit) units; therefore, word addresses are entered.
Column Count	This is the number of logging data. With the set address as the start address, set how many columns will be saved. Logging data may be 16 bit (1 word) in some cases, and 32 bits (2 words) in other cases. Therefore, the column count and word count may be different.
Word Count	This is the number of words actually used. With the address entered as the start address, how many word addresses will be recorded is indicated.
Total Count	This is the total number of logging data. Whenever the log condition is satisfied, logging data is saved. The total number of logging data is equal to the total count. After the total count has been reached, if new logging data occurs, the oldest logging data is deleted, and the new logging data is saved. When saving to a CF memory card, the total count does not apply. Logging data can be saved up to the set size of the CF memory card.

7.4.2 Column name & data type page

After completing settings in the basic page, set the column name & data type page. Logging data is recorded according to the column properties set in the column name & date type page.

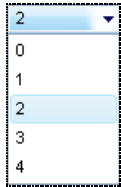
The screenshot shows the 'Column title & Data Type' configuration page. It includes the following settings:

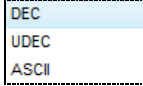
- Column No.: 2
- Title: product amount
- Data Type: DEC
- Data Size: 16bit (selected)
- Data Length: 5
- Decimal Places: 0

Below the settings is a 'Logging Title & Format Preview' table:

Date	Time	product amount	W1	W2
2015-06-10	16:37:00	17118	25408	05704

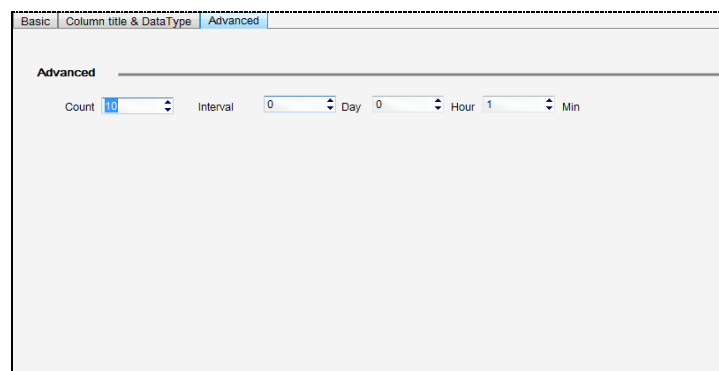
[Fig. Column name & data type settings]

Column properties	Description
Column number	Column numbers start from [0]. Date starts from column [0], Time starts from column [2], and data starts from column [2]. 
Title	Enter the title of each column. If the column name is changed, the changed column name is used when actual logging data is saved.

Data type	<p>Set the data type of each column.</p> <p>Select among [DEC], [UDEC], and [ASCII]. [DEC] is signed decimal, [UDEC] is unsigned decimal, and [ASCII] is text type.</p> <p>When [ASCII] has been set, designate [Number of letters used in string]. Two English letters can be saved in one-word address.</p> 
Data size	<p>Set the data size for each column.</p> <p>Select between [16 bit] and [32 bit].</p>
Data length	<p>Data length is the [Total number of places] of each logging data.</p> <p>If 16-bit data size has been selected, select from among 1~5 places.</p> <p>If 32-bit data size has been selected, select from among 1~10 places.</p>
Float data when input the default number of ___ decimal places.	<p>The number of decimal places can be designated when showing each logging data.</p>
Logging title & format preview	<p>When column properties are set as above, the actual appearance of logging data saved according to the settings made can be previewed.</p>

7.4.3 Advanced page

The advanced page shows additional logging setting functions.



[Fig. Advanced page]

(1) Logging count and interval

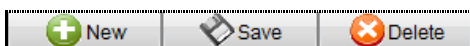
When the logging conditions set in basic settings have been satisfied, this function records additional logging data equal to [Count], with a time interval. [Count] is the number of additional logging data to create. In [Interval], designate the time interval for creation of logging data. The minimum length is 1 minute.

For example, if the above settings have been applied, logging data is recorded once at the time point when the logging condition is recorded. This is followed by 9 more logging data at 2 minute intervals to give a total of 10 logging data.

That is, whenever the logging condition is satisfied, 10 logging data are recorded.

7.4.4 New/Save/Delete button


Create and delete logging data using the buttons above.



[Fig. New/Save/Delete button]

Button	Description
New	Register new logging settings in the logging list.
Save	Save the logging settings to the logging list.
Del	Delete logging settings selected from the logging list.

7.4.5 Logging list

This is a list of set logging data. Logging operates according to the logging list. After changing logging settings, be sure to click the  button and save to the logging list.

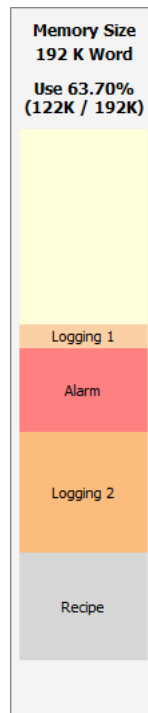
ID	Descript	Memory	Log Condition	Log Action
1	data2(product...	45016 Word	Bit : M1000 ON	Addr : D2000 WordCount : 5 TotalCo...
2	data1	45016 Word	Bit : M0010 ON	Addr : D0200 WordCount : 5 TotalCo...

[Fig. Logging list]

Menu	Description
ID	This is the logging number.
Descript	This is the logging description
Memory	This is the memory usage of the logging The memory usage of the logging is calculated as $[(\text{Word Count} + 4 \text{ Word date and time data}) \times (\text{Total count} + \text{Count in the advanced page}) + 4 \text{ Word}]$. The 4 word added to the end is used as info for the current logging.
Log Condition	This is the logging condition.
Log Action	This is the logging action.

7.4.6 Memory usage display

The total memory used for data storage is 192K Word. This memory is used for saving logging/alarm/recipe data. The figure below shows the current memory usage relative to total memory.



[Fig. Memory usage]

7.4.7 Viewing logging data

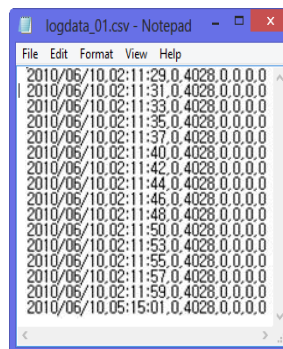
Logging data is saved in the [*.CSV] file format. These files can be viewed on the PC using the Excel program, or using the CF Viewer program.

There are many ways of viewing logging data saved on the touch.

- ① Use Ethernet/USB/Serial cable to upload logging data to the PC, and view from the PC.
- ② Copy logging data to a USB memory storage device, then insert the USB memory storage device/CF memory card in the PC, and view from the PC.
- ③ The number tag, log table tag, ext graph tag, and record tag can be used on the touch screen for real-time viewing.

(1) Format of saved logging data

Logging data is saved in the [*.CSV] file format, separated with [,] as shown in the figure below. Logging data is saved in the order of date, time, and data.

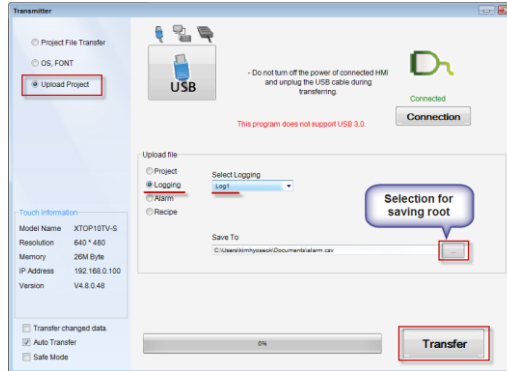


[Fig. Saved logging data]

(2) Logging data upload

Run [Transfer]-[Run transmitter]. In the transmitter, designate [Data upload] - [Logging].

In [Select logging], select the logging number. Select the upload path, then press the [Transfer] button to proceed with the upload.



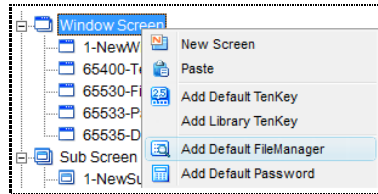
[Fig. Logging data upload]

(3) Copying logging data to USB/CF memory

Logging data can be copied to a USB memory storage device or CF memory card, and viewed from the PC.

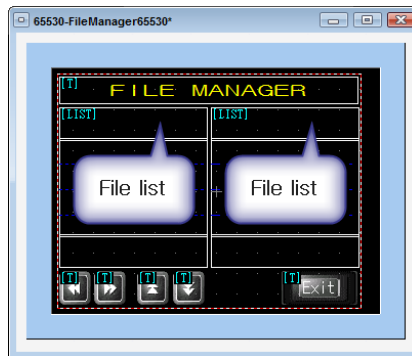
① Copying using the file manager

Logging data can be copied to a USB memory storage device or CF memory card using the file manager.



[Fig. Add file manager window]

After selecting the windows screen in [Project manager], right click with the mouse to bring up a popup menu. [Add file manager window] in this popup menu. The file manager window is as shown below.



[Fig. File manager window screen]

The file manager window comprises two file lists. Select touch internal memory in the file list on the left, and select USB memory storage device or CF memory card in the file list on the right. The data in each memory is shown in the list below. Select logging data in the touch, and use the arrow buttons to copy the data to the left side. (☞ See [chapter 40] for the file list and file manager.)

② Copying logging data from the XTOP menu screen to USB memory

Logging data can be copied to a USB memory storage device from the XTOP menu screen.

Press the [Interface]-[USB Storage]-[File Copy] button on the XTOP menu screen. Select Logging in the popup screen, then click the [HMI->USB] button to save the logging data to the USB memory storage device.

USB memory must be inserted in the XTOP.

③ Displaying logging data using tags

Using the [NumberLog table/Ext graph/Record] tags, logging data can be displayed in realtime on the screen.

Using the [Number tag], 1 logging data can be viewed. Using the [Log table tag], logging data can be viewed in table format. Using the [Ext graph tag] and [Record tag], logging data can be viewed in graph format, and data change trends can be viewed as well. (☞ See [chapter 9~43] for tag usage instructions.)

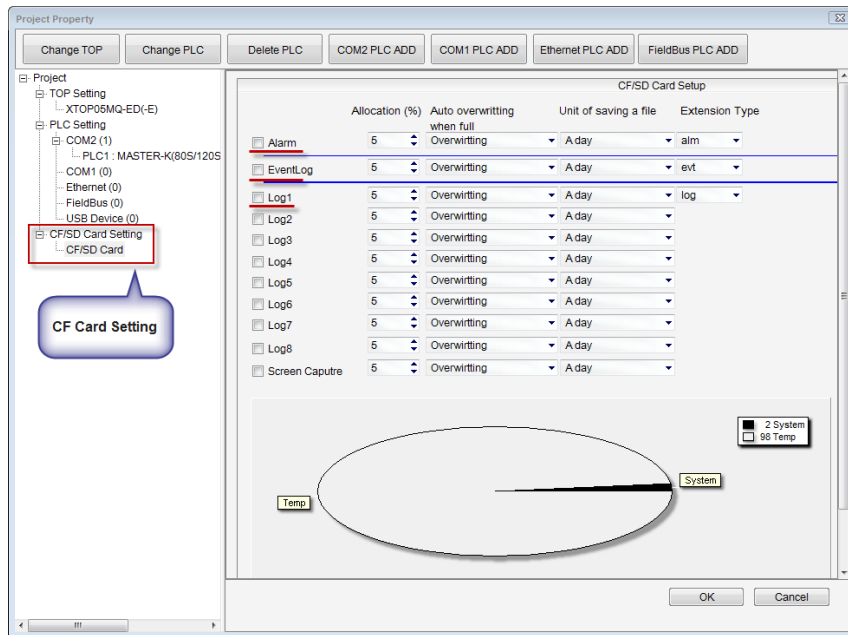
7.4.8 Setting logging data autosave to CF memory

Logging data is saved to the internal backup memory (192K Word) of the touch. This memory is disabled memory, and maintains data even if power is cut off. However, as the capacity of this memory is limited, logging data can also be saved in a [CF memory card] to save larger amounts of logging data. The usage method for the CF memory card is as follows.

(1) For CF memory cards of 2 gigabytes or less, format as FAT16. For cards exceeding 2 gigabytes, format as FAT32. When the CF card is inserted into the touch, the message "CF Card FAT Reading..." is shown on the top left corner. If the card is successfully recognized, the message "CF Card INIT OK" appears and disappears. If the card is not recognized, the error message "CF Not FAT File Format" is displayed.

(2) Enter the [Project]-[Project settings]-[CF card setting] menu to perform CF card settings.

(☞ See [7.12.5] of [chapter 7] for the CF memory card setting method.)

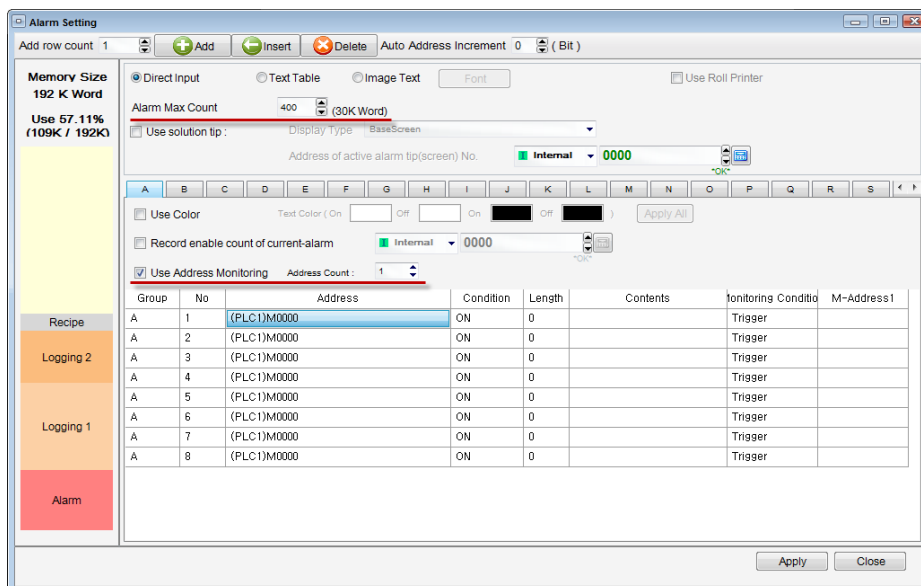


[Fig. Save logging data to CF card setting]

7.5 Alarm setting

Set the alarm list. The alarm list is a list of various problems that occur in the controller.

If an alarm list is registered in alarm settings, alarm tags can be used to display alarms on the touch screen when alarms occur.



[Fig. Alarm setting]

When an alarm occurs, the touch saves alarm details in memory. By designating the maximum alarm count, how many alarms will be saved can be designated. Designate the maximum alarm count to display the memory usage on the left. 192KWord internal memory can be used as data storage space. The count can be designated within this scope.

7.5.1 Alarm list registration

Enter the alarm list.

Group	No	Address	Condition	Length	Contents	Screen No	Monitoring Condition	M-Address1
A	1	(PLC1)P00000	ON	10	온도급상승	2	발생	
A	2	(PLC1)P00001	ON	8	P1 ERROR	0	발생	
A	3	(PLC1)P00002	ON	8	P2 ERROR	0	발생	
A	4	(PLC1)P00003	ON	8	P3 ERROR	0	발생	
A	5	(PLC1)P00004	ON	8	P4 ERROR	0	발생	
A	6	(PLC1)P00005	ON	8	P5 ERROR	0	발생	
A	7	(PLC1)P00006	ON	8	P6 ERROR	0	발생	
A	8	(PLC1)P00007	ON	8	P7 ERROR	0	발생	

[Fig. Alarm list registration]

In each alarm list, enter the following info.

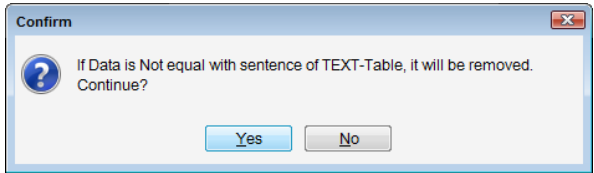
Properties	Description
Group	<p>Up to 64 groups can be designated, from A to BL.</p> <p>When each of the buttons A~BL is pressed, a list of alarms registered to the selected group is displayed. Alarms can be entered into the selected group.</p>
No	<p>This number is the list of the alarm list, assigned sequentially.</p> <p>The alarm number is assigned sequentially, even if it is not entered manually.</p>
Address	<p>This is the monitoring address of the alarm list. Only bit addresses can be used as the address.</p> <p>Double click the address entry part, and enter the monitoring address for each alarm list.</p>
Condition	<p>This is the condition for the monitoring address.</p> <p>Double click the condition entry part, and enter the ON/OFF condition.</p> <p>In the [ON] condition, the alarm is triggered when the data of the monitoring address becomes ON.</p> <p>In the [OFF] condition, the alarm is triggered when the data of the monitoring address becomes OFF.</p>
Length	<p>This is the length of the alarm.</p> <p>The length is set automatically, counting English as 1 character, and Korean as 2 characters.</p>
Contents	<p>This is the string to display when alarm trigger conditions have been satisfied, and an alarm is triggered.</p>
Screen No	<p>This is displayed if [Use solution tip] is checked.</p>

	See the section on solution tips below.
Monitoring Condition	This is displayed if [Use address monitoring] is checked. Select between [Trigger] and [Clear]. In [Trigger], the data of the monitoring address at the time point when the alarm has been triggered is saved. In [Clear], the data of the monitoring address at the time point when the alarm has been cleared is saved. See the section on address monitoring below.
M-Address1	This is displayed if [Use address monitoring] is checked. Individual addresses can be set. The number of addresses is equal to the number of addresses. The data of the set address is saved at the time an alarm is triggered or cleared. See the section on address monitoring below.

7.5.2 Select alarm content registration method

Select the alarm content registration method, from direct input, text table, and image text.



Text	Description																																																						
Direct input	In the alarm tag or alarm ext tag, alarm content manually entered by the user is displayed using a font provided by the touch.																																																						
Text table	<p>Use a string registered in the text table as the alarm content. Select the alarm content from the text table, as shown in the figure below.</p> <table border="1"> <thead> <tr> <th>Group</th> <th>No</th> <th>Address</th> <th>Condition</th> <th>Length</th> <th>Contents</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>1</td> <td>(SYS)0000.00</td> <td>ON</td> <td>6</td> <td>Alarm1</td> </tr> <tr> <td>A</td> <td>2</td> <td>(SYS)0000.01</td> <td>ON</td> <td>6</td> <td>Alarm2</td> </tr> <tr> <td>A</td> <td>3</td> <td>(SYS)0000.02</td> <td>ON</td> <td>6</td> <td>Alarm3</td> </tr> <tr> <td>A</td> <td>4</td> <td>(SYS)0000.03</td> <td>ON</td> <td>6</td> <td>Alarm4</td> </tr> <tr> <td>A</td> <td>5</td> <td>(SYS)0000.04</td> <td>ON</td> <td>6</td> <td>Alarm5</td> </tr> <tr> <td>A</td> <td>6</td> <td>(SYS)0000.05</td> <td>ON</td> <td>6</td> <td>Alarm6</td> </tr> <tr> <td>A</td> <td>7</td> <td>(SYS)0000.06</td> <td>ON</td> <td>6</td> <td>Alarm7</td> </tr> <tr> <td>A</td> <td>8</td> <td>(SYS)0000.07</td> <td>ON</td> <td>6</td> <td>Alarm8</td> </tr> </tbody> </table> <p>The text table cannot be used in combination with other types. If an alarm list entered as direct input or image text exists, changing this setting to text table deletes the existing alarm list. Therefore, when changed, the following message appears.</p> 	Group	No	Address	Condition	Length	Contents	A	1	(SYS)0000.00	ON	6	Alarm1	A	2	(SYS)0000.01	ON	6	Alarm2	A	3	(SYS)0000.02	ON	6	Alarm3	A	4	(SYS)0000.03	ON	6	Alarm4	A	5	(SYS)0000.04	ON	6	Alarm5	A	6	(SYS)0000.05	ON	6	Alarm6	A	7	(SYS)0000.06	ON	6	Alarm7	A	8	(SYS)0000.07	ON	6	Alarm8
Group	No	Address	Condition	Length	Contents																																																		
A	1	(SYS)0000.00	ON	6	Alarm1																																																		
A	2	(SYS)0000.01	ON	6	Alarm2																																																		
A	3	(SYS)0000.02	ON	6	Alarm3																																																		
A	4	(SYS)0000.03	ON	6	Alarm4																																																		
A	5	(SYS)0000.04	ON	6	Alarm5																																																		
A	6	(SYS)0000.05	ON	6	Alarm6																																																		
A	7	(SYS)0000.06	ON	6	Alarm7																																																		
A	8	(SYS)0000.07	ON	6	Alarm8																																																		
Image text	Alarm content manually entered by the user in the alarm tag or alarm ext tag is displayed as image text using various Windows fonts.																																																						

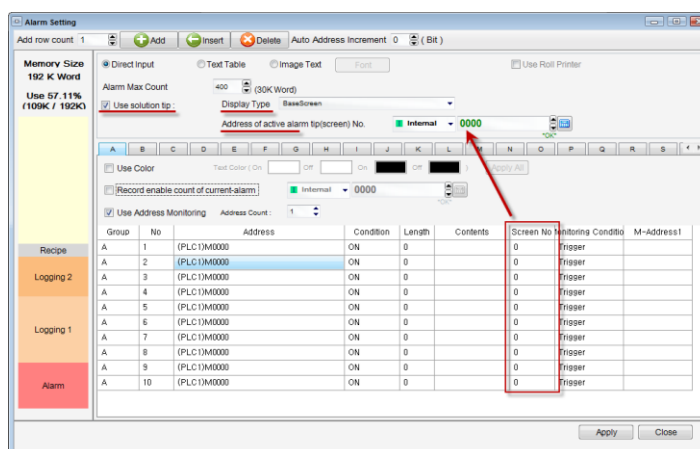
Multiple lines can be entered as the alarm content. With the [Ctrl] key on the keyboard pressed down, press the [ENTER] key to enter content in the next line.

7.5.3 Solution tip

When an alarm occurs, solution tips are displayed for the alarm that has been triggered, or a page where

action can be taken is brought up. The solution tip function only works in the [Alarm ext] tag. (See [chapter 27~28] for alarm and alarm ext tag usage methods.)

When [Use solution tip] is checked, [Screen No] appears on the alarm list.

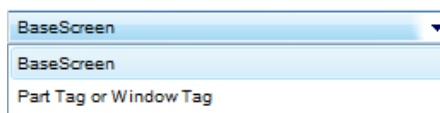


[Fig. Use solution tip]

Set the use solution tip function as follows.

1. Select the display type.
2. Designate the address of the active alarm tip screen no.
3. Register the Screen No. for each alarm list.

Different actions can be taken for different display types. There are two display types, as seen in the figure below.



[Fig. Display type]

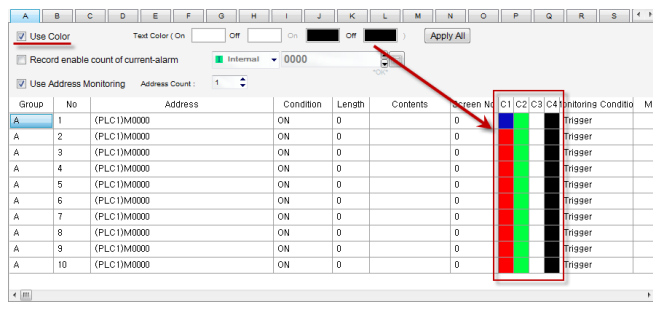
Display type	Description
Base Screen	This function switches the screen to take action for a triggered alarm. From the alarm ext tag, select the triggered alarm for which action will be taken. Then press the [ENTER] key of the alarm ext tag. The screen transitions to the base screen number set in [Screen No] for that alarm.
Parts tags or window tags	This function calls image, sub screens or window screens to take action for a triggered alarm. Using parts tags or window tags in the base screen, set the same address as the [Address of active alarm trip (screen) No.] From the alarm ext tag, select the triggered alarm for which action will be taken. Then press the [ENTER] key of the alarm ext tag. The number set in [Screen No] for the alarm is entered as data in [Address of active alarm trip (screen) No.]. This data is used in the parts tag or window tag to call images, sub screens, or window screens. Therefore, by using parts tags or window tags depending on each alarm, images or subscreens containing solution tips, or window screens containing action buttons, can be

called.

7.5.4 Color info/Current alarm trigger count/Address monitoring

(1) Use color

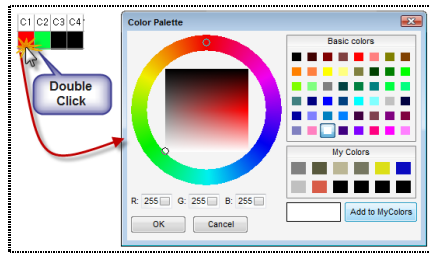
Colors can be set for each alarm. Use color is used to designate different colors for each alarm. When an alarm is triggered, the color under Use Color is used, instead of the color set in the alarm or alarm ext tag.



[Fig. Use color]

Color	Description
On text color (C1)	The text color for currently triggered alarm content.
On background color (C2)	The background color for currently triggered alarm content.
Off text color (C3)	The text color for cleared alarm content.
Off background color (C4)	The background color for cleared alarm content.
Apply all	Apply the set colors to all alarm lists.

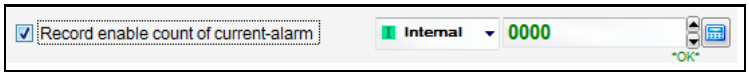
When [Use color] is checked, color info is added to each alarm list. To change the color in color info, double click as seen in the figure below.



[Fig. Color setting]

(2) Record enable count of current-alarm

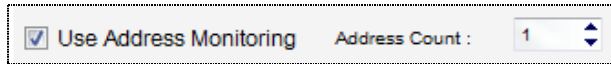
Saves data on the number of currently triggered alarms at the designated address. When a numeric tag is registered to the touch screen and the value of the set address is displayed, the number of currently triggered alarms can be displayed.



[Fig. Record enable count of current-alarm]

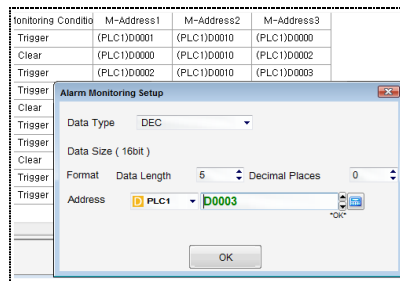
(3) Address monitoring function

This function saves(logs) the data of the designated address at the time point when the alarm is triggered or cleared. Up to 10 addresses can be set. As seen in the figure below, check [Use address monitoring], then enter the [Address count] between 1 and 10.



[Fig. Check Use Address Monitoring]

When [Use Address Monitoring] is checked, the [Monitoring Condition] and [M-Address] columns are created in the alarm list, as seen in the figure below. The number of [M-Address] created is equal to the number of addresses.



[Fig. Monitoring address setting]

In [Monitoring Condition], the time point when monitoring address data is saved is set. In [Trigger], data is saved when the alarm is triggered. In [Clear], data is saved when the alarm is cleared. [M-Address] is the part where the address to monitor is set. The M-Addresses are assigned sequential numbers, according to the number of addresses. The data of the monitoring addresses can be displayed on the screen through the [Alarm ext tag].

7.5.5 Editing the alarm list

(1) Add/insert/delete



Add alarm	Description
Add row count 1	In the beginning, only 1 alarm is registered. Enter the add row count. This number should be equal to the number of alarms to be added. Up to 1999 can be added.
	Alarms are added and registered according to the add row count.
	Alarms are inserted into the alarm list, according to the add row count.
	Alarms in the area selected in the alarm list are deleted.
Auto address increment 0 (Bit)	Addresses are automatically added using bit increments, and registered.

(2) Copy/paste

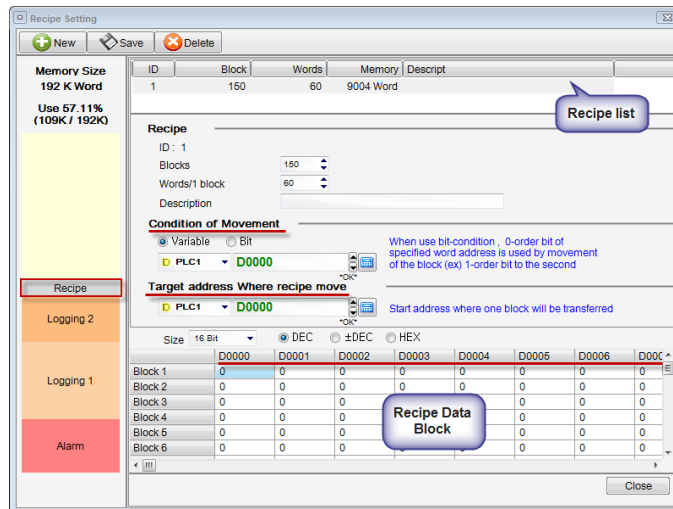
After dragging and selecting the alarm list with the mouse, the list can be copied (Ctrl+C) and pasted in a different group (Ctrl+V). Also, the copied alarm list area can be pasted in an Excel file. Content registered in an Excel file can be copied and pasted into the alarm list.

Group	No	Address	Condition	Length	Contents
A	1	(PLC1)P0000	ON	10	temperature increase
A	2	(PLC1)P0001	ON	8	P1 ERROR
A	3	(PLC1)P0002	ON	8	P2 ERROR
A	4	(PLC1)P0003	ON	8	P3 ERROR
A	5	(PLC1)P0004	ON	8	P4 ERROR
A	6	(PLC1)P0005	ON	8	P5 ERROR

[Fig. Selected alarm list area]

7.6 Recipe setting

A recipe is a parameter movement function. The recipe movement function is a function where recipe data required in the PLC or touch is saved in touch internal memory or a CF memory card, and the data of the recipe appropriate to a set movement condition is moved to the set address range if the movement condition is satisfied.



[Fig. Recipe setting]

7.6.1 Setting recipe block count/word count

Set the recipe block count and word count. Only 1 recipe set can be set. Even if the [New] button is clicked, the message [Max. number of recipes is 1.] is shown.

ID : 1
Blocks <input type="text" value="150"/>
Words/1 block <input type="text" value="60"/>
Description <input type="text"/>

[Fig. Setting block count/word count]

Recipe	Description
ID	As only 1 recipe can be set, only the ID 1 is shown.

Blocks	This is the total number of blocks of the recipe data. The number of block numbers created is equal to the total number of blocks. If the total block count is 1000, blocks are created for block numbers 1 through 1000.
Words/1 block	This is the number of words per 1 block.
Description	A description of the set recipe.

When blocks and words/1 block are entered, [Memory usage] is displayed on the left. The table in [Recipe data block] on the bottom is changed according to the block count and words/1 block.

7.6.2 Recipe movement condition

[Variable] and [Bit] recipe movement conditions are provided.



[Fig. Recipe movement condition]

(1) Variable condition

In the variable condition, recipe data is moved when the set [Word address data] and the [Recipe block number] to be moved are the same. The moment the data of the set word address is changed, the recipe data with the same number as that data is moved. As block numbers begin with 1, is the data at the variable condition address is [0] or the block number is exceeded, recipe data is not moved. Operation in the variable condition is as shown in the table below.

Address	Variable condition	Movement block
D0050	Data value = 1	Block 1
	Data value = 2	Block 2
	Data value = 3	Block 3

	Data value = 999	Block 999
	Data value = 1000	Block 1000

(2) Bit condition

In the bit condition, the bit state of the set [Word address] becomes the movement condition of the recipe. The number of bit addresses required from bit 0 of the set word address is equal to the total block count. That is, as the set word address is 16 bit, if the block count exceeds 16, the bit of the address following the word address is used.

The moment the state of the bit address becomes ON from OFF, the corresponding recipe block is moved.

Operation in the bit condition is as shown in the table below.

Address	Bit condition	Movement block
D0050	Bit 0 ON	Block 1
	Bit 1 ON	Block 2
	Bit 2 ON	Block 3

	Bit 13 ON	Block 14
	Bit 14 ON	Block 15
	Bit 15 ON	Block 16
D0051	Bit 0 ON	Block 17
	Bit 1 ON	Block 18
	Bit 2 ON	Block 19

	Bit 13 ON	Block 30
	Bit 14 ON	Block 31
	Bit 15 ON	Block 32

When using the bit condition, ensure that the data of the bit addresses used does not become ON simultaneously. Even if the data become ON simultaneously, only one recipe movement occurs.

7.6.3 Recipe movement target address

The movement target address is the block where the recipe data block is moved to when the recipe movement conditions are satisfied.



[Fig. Recipe movement target address]

The set address is the start address, and the target address is equal to the words/1 block. When an address is set, the word column in the [Recipe data block] in the bottom is changed to the target address.

7.6.4 Memory usage display


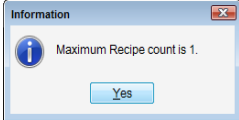
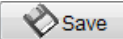
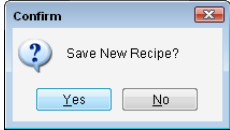
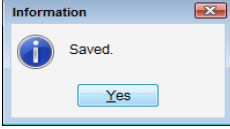

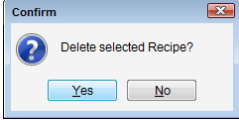
In memory usage, the amount of the 192K Word backup memory of the touch used by the currently set recipe is shown as a graph. Recipe memory usage is $[(\text{Total block count} \times \text{Words per lock}) + 4]$. The 4 word added to the end is used to save info on the current recipe.



[Fig. Recipe memory usage]

7.6.5 New/Save/Delete button

Create, save, or delete recipe settings.

Button	Description
	<p>Creates a recipe. If this button is pressed when a recipe has already been created and set, the following message appears. This is because only 1 recipe can be set.</p> 
	<p>Save the set recipe, and register to the recipe list. When saving for the first time, the following message appears.</p>  <p>When the settings of a saved recipe are changed, then saved, the following message appears.</p> 
	<p>The set recipe is deleted.</p> 

7.6.6 Recipe data block

(1) Composition of the recipe data block

When recipe settings are performed, the [Recipe data block] is displayed according to the settings. Block numbers are shown on the left side; the number of rows is the same as [Block count]. One row signifies one block.

In each column, target addresses are displayed. The number of target addresses is equal to [Words per block].

	D0000	D0001	D0002	D0003	D0004	D0005	D0006
Block 1	10	20	30	40	50	60	70
Block 2	1	2	300	400	500	600	700
Block 3	0	0	0	0	0	6000	0
Block 4	0	0	0	0	0	0	0
Block 5	0	0	0	0	0	0	0
Block 6	0	0	0	0	0	0	0

[Fig. Recipe data block]

The default initial values for recipe block data are automatically set to [0]. This data can be entered manually by the user in the recipe settings screen, or while manipulating the touch. As this data is Excel compatible, Excel data can be copied and pasted, or recipe data can be copied and pasted into Excel.

(2) Viewing recipe data by type

Recipe data can be viewed in various ways, according to size and type.



[Fig. Recipe data size and type]

Recipe	Description
size	Select between 16 bit and 32 bit.
DEC	Show as unsigned decimal.
±DEC	Show as signed decimal.
HEX	Show as hexadecimal.

Recipe data is displayed as follows, depending on size and type. Using the same data, different size and type have been set. As there are 6 words per block, there are six columns when the data size is 16 bit. However, if the data size is 32 bit, the number of columns becomes 3.

① [Size: 16bit, type: DEC]:

	Size 16 Bit							
	D0000	D0001	D0002	D0003	D0004	D0005	D0006	D0007
Block 1	10	20	30	40	50	60	70	0
Block 2	100	200	300	400	500	600	700	0
Block 3	1000	0	0	0	0	6000	0	0
Block 4	10000	0	0	0	0	0	0	0
Block 5	0	0	0	0	0	0	0	0
Block 6	0	0	0	0	0	0	0	0

② [Size: 16bit, type: ±DEC]:

	Size 16 Bit							
	D0000	D0001	D0002	D0003	D0004	D0005	D0006	D0007
Block 2	100	200	300	400	500	600	700	0
Block 3	1000	0	0	0	0	6000	0	0
Block 4	10000	0	0	-3720	-9999	-11000	0	0
Block 5	0	0	0	0	0	0	0	0
Block 6	0	0	0	0	0	0	0	0
Block 7	0	0	0	0	0	0	0	0

③ [Size: 16bit, type: HEX]:

	Size 16 Bit							
	D0000	D0001	D0002	D0003	D0004	D0005	D0006	D0007
Block 2	64	C8	12C	190	1F4	258	2BC	0
Block 3	3E8	0	0	0	0	1770	0	0
Block 4	2710	0	0	F178	D8F1	D508	0	0
Block 5	0	0	0	0	0	0	0	0
Block 6	0	0	0	0	0	0	0	0
Block 7	0	0	0	0	0	0	0	0

④ [Size: 32 bit, type: DEC]:

	Size 32 Bit			
	D0000	D0002	D0004	D0006
Block 2	123	369	159	0
Block 3	123456	369258	159159	0
Block 4	123456789	369258147	159159159	0
Block 5	0	0	0	0
Block 6	0	0	0	0
Block 7	0	0	0	0

⑤ [Size: 32 bit, type: ±DEC]:

	Size 32 Bit			
	D0000	D0002	D0004	D0006
Block 2	123	369	159	0
Block 3	123456	369258	159159	0
Block 4	123456789	-60238582!	159159159	0
Block 5	-123123	-12345678!	-12345678!	0
Block 6	0	0	0	0
Block 7	0	0	0	0

⑥ [Size: 32 bit, type: HEX]:

	D0000	D0002	D0004	D0006
Block 2	7B	171	9F	0
Block 3	1E240	5A26A	26DB7	0
Block 4	499602D3	DC18525F	5EDDC2A7	0
Block 5	FFFE1F0D	F8A432EB	B669FD2D	0
Block 6	0	0	0	0
Block 7	0	0	0	0

7.6.7 Loading/saving recipe data during operation

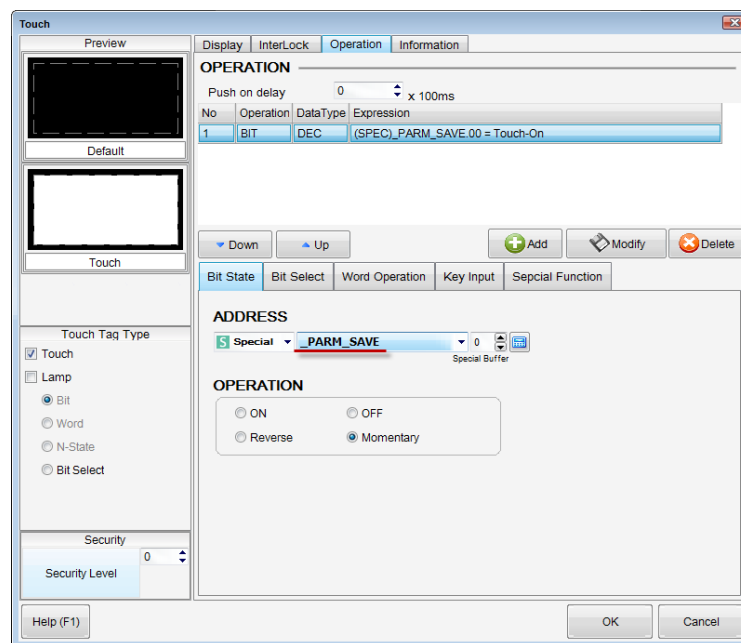
(1) Loading recipe data during operation

The moment recipe movement conditions are satisfied; the data block of the recipe block is moved to the target address.

Therefore, in order to load a saved recipe data block, operate the recipe movement condition.

(2) Saving recipe data during operation

Recipe data blocks can be manually entered in the recipe setting screen, but recipe data can be changed or saved while operating the touch as well. When [_PARM_SAVE] among the special buffer addresses becomes 1, the data currently in the target address is saved to the recipe data block. As for the block number that is saved, if the [Recipe movement condition] is [Variable], the data is saved in the same block number as the variable address data, and if the [Recipe movement condition] is [Bit], the data is saved to the block number corresponding to the bit address in ON state.



[Fig. Special buffer for saving recipe data]

7.6.8 Saving recipe data to a CF memory card

Recipe data is saved in the backup memory of the touch by default, by CF memory cards can also be used. To save recipe data using a CF memory card, use the [CD-Recipe creator] to save set recipes to

the CF memory card. Recipes set using the [CF-Recipe creator] are saved in the [*.CSV] file format.

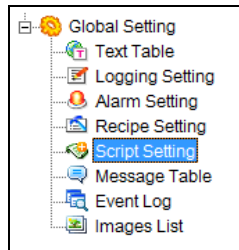
The CF-Recipe creator can be run from the [Tools]-[CF-Recipe creator] menu. (See [44.4] of [chapter 44] for recipe settings using the CF-Recipe creator.)

7.7 Script setting

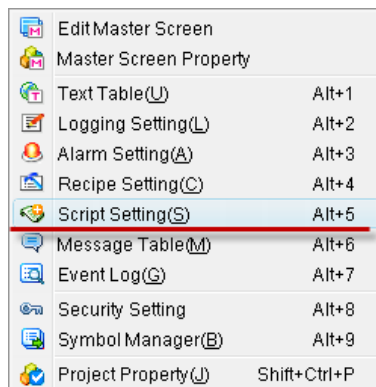
With scrips, the touch is operated by writing an operation program, instead of registering tags on the screen.

7.7.1 Global scripts and local scripts

[Global scripts] apply to the overall project, and [Local scripts] apply only to individual screens. Global scripts can be run by running [General settings]-[Script] in [Project manager], or running [Script settings] in the [Project] menu. Global scripts are run whenever conditions are satisfied.

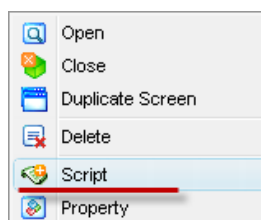


[Fig. Global script in the project manager]



[Fig. Global script in the project menu]

Local scripts can be set in base screens and window screens. Select the screen to set the script for in the [Project manager], then right click the mouse. Run [Script] in the popup menu. Local scripts are run only when the screen they are assigned to is running.

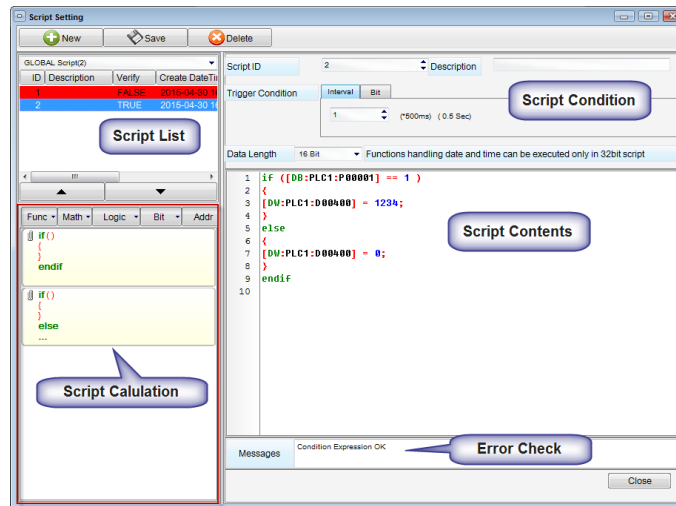


[Fig. Base screen and window screen local scripts]

The methods for setting global scripts and local scripts are the same.

7.7.2 Composition of the script settings screen

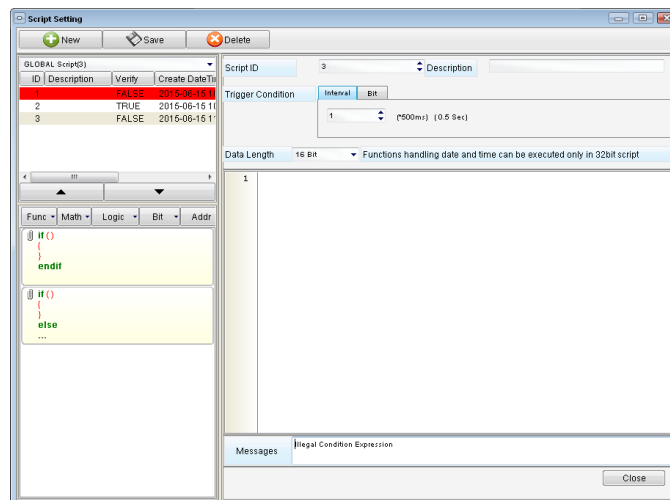
The script settings screen is as follows.



[Fig. Script setting]

(1) New script button

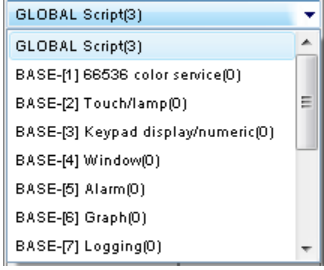
Creates a script, assigning a new script ID. When the new script button is clicked, a new script is created and added to the script list. The [Script condition] part is filled with default values, and the [Script content] part is opened.



[Fig. New script]

(2) Composition of the script settings screen

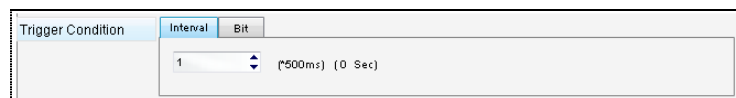
Script	Description
Save button	Saves the set script conditions and contents.
Delete button	Deletes the currently selected script.

Script ID	This script number is assigned sequentially according to the order of creation.
Description	This is a description of the script.
Condition	This is the condition for the script to be run. The moment the condition is satisfied; the content of the script is run.
Data Length	Select between 16 bit and 32 bit. If 32 bit is selected, the key operations in the script contents are run in 32 bit units.
Script content	The content of the operations to be run are implemented according to the script format.
Error check	When script content is entered, the content is checked to see whether the script format is matched. If normal, [Condition Expression OK] is displayed. If there is an error, [illegal Condition Expression] is displayed.
Global script/ Local script selection	Global script or local script can be selected. 
Script list	A list of set scripts.
Script operation	These operations are provided for writing script content.

7.7.3 Script conditions

[Interval] and [Bit] script trigger conditions are provided.

(1) Interval condition

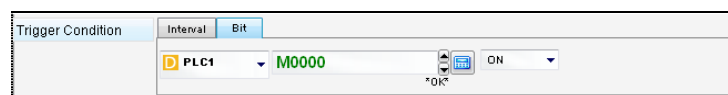


[Fig. Interval condition]

In the interval condition, the script is run in set intervals.

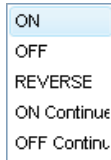
The interval can be entered in 500ms (0.5 second) units.

(2) Bit condition



[Fig. Bit condition]

In the bit conditions, the script is run according to the bit state of the set address. The bit state can be selected from [ON, OFF, REVERSE, ON Continue, and OFF Continue].

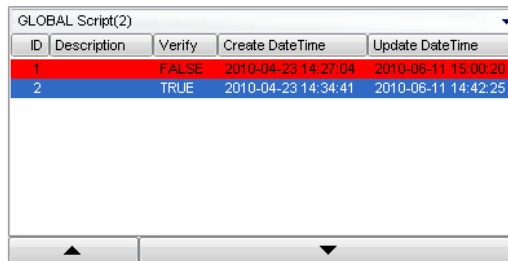


[Fig. Bit state setting]

Bit state	Description
ON	The script is run when the data of the bit address becomes ON.
OFF	The script is run when the data of the bit address becomes OFF.
REVERSE	The script is run when the data of the bit address becomes REVERSE.
ON Continue	The script is run continuously when the data of the bit address is ON.
OFF Continue	The script is run continuously when the data of the bit address is OFF.



7.7.4 Script list

When a script is created or saved, the script is registered to the script list.



[Fig. Script list]

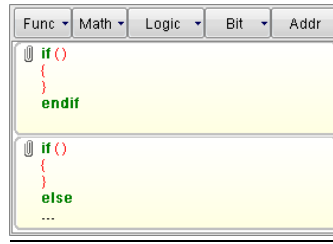
The combo box on the top comprises a list of global scripts and local scripts for each screen. Select global script or local script to see the corresponding list of scripts.

Script list	Description
ID	The script ID is the script number.
Description	This is a description of the script.
Verify	If the content of the script fits the format without errors, [TRUE] is shown. If there is an error, [FALSE] is shown. Scripts that are [FALSE] do not operate.
Create Date Time	This is the script create time. This indicates the time created with the [New script] button.
Update Date Time	This is the script update time. This indicates the time of the update using the [Save] button.
	Scripts with the same condition are run according to the order in the script order. Therefore, using this button, scripts registered in the list can be moved up in the list.
	Scripts with the same condition are run according to the order in the script order. Therefore, using this button, scripts registered in the list can be moved down in the list.

7.7.5 Script operation


Script content is written using the script operation part. The script operation part comprises function

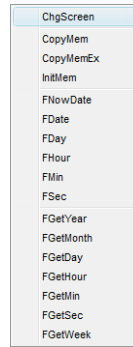
operations, mathematic operations, logical operations, bit operations, an address input part, [if] and [if~else] statements, and a clipboard.



[Fig. Script operations part]

(1) Function operation

 If this button is pressed, a list of the functions provided is shown.



[Fig. Function operation]

The change screen and memory-related functions are as follows.

No.	Function	Category	Description
1	ChgScreen	Format	ScreenNum(ScreenNum);
		Description	Changes the screen. ScreenNum is the base screen number to change to.
		Example of registration	ChgScreen(2); Brings up base screen number 2.
2	CopyMem	Format	CopyMem(SrcAddress, DesAddress, Count);
		Description	The data in the controller or internal address is copied. SrcAddress is the start address to copy. DesAddress start address to copy to. Count is the number of addresses to copy.
		Example of registration	CopyMem([DW:PLC1:D0000], [SW:0200], 20); The 20 address data in stations [D0~D19] of PLC1 are copied to internal address stations [200~219] of the touch.
3	CopyMemEx	Format	CopyMem(SrcAddress, DesAddress, CountAddress);
		Description	The data in the controller or internal address is copied.

			SrcAddress is the start address to copy. DesAddress start address to copy to. CountAddress is the address that has the number of addresses to copy as data.
		Example of registration	CopyMem([DW:PLC1:D0000], [SW:0200], [SW:0300]); If there is the value 20 at internal address station 300, the 20 address data in stations [D0~D19] of PLC1 are copied to internal address stations [200~219] of the touch.
4	InitMem	Format	InitMem(SrcData, DesAddress, Count);
		Description	The data in the controller or internal address is initialized. SrcData is the data to be initialized. DesAddress start address to initialize. Count is the number of addresses to initialize.
		Example of registration	CopyMem(3, [DW:PLC1:D0000], 10); The 10 address data in stations [D0~D9] for PLC1 are all initialized to [3].

The functions associated with date and time is as follow.

Time calculation functions used the format [UNIX TIMESTAMP].

[UNIX TIMESTAMP] is a function that converts dates following [00:00:00 January 1, 1970] into seconds.

For example, if [00:00:00 January 21, 2010] is converted into seconds, a 1264032000 [UNIX TIMESTAMP] value is given. This means that 1264032000 seconds have passed since [00:00:00 January 1, 1970].

Note that because the data in the converted value exceeds 65535, which is the maximum value for 16 bit, the computation must be performed in 32 bit units by checking [32 bit check]. Also, because of the restriction on the size of the converted value, the format can be used only up to [January 19, 2038].


After this date, the calculated value becomes a negative value.

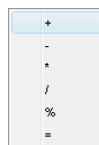
No.	Function	Category	Description
1	FNowDate	Format	FNowDate();
		Description	Calculates the current time as a [UNIX TIMESTAMP]. That is, the current time is converted into seconds.
		Example of registration	[SW:0100] = FNowDate(); Converts the current time into seconds, then inserts the result into 32 bit internal address station 100.
2	FDate	Format	FDate(year, month, day, hour, minute, second);
		Description	Calculates the designated time as a [UNIX TIMESTAMP]. That is, the designated time is converted into seconds. [year, month, day, hour, minute, second] can be entered into the address station.
		Example of	[SW:0100] = FDate(2010, 1, 21, 18, 20, 50);

		registration	Converts the 18:20:50 January 21, 2010 into seconds, then inserts the result into 32 bit internal address station 100.
3	FDay	Format	FDay(day);
		Description	Calculates the set date in seconds.
		Example of registration	[SW:0100] = FDay(100); Converts 100 days into seconds, then inserts the result into 32 bit internal address station 100.
4	FHour	Format	FHour(hour);
		Description	Calculates the set time into seconds.
		Example of registration	[SW:0100] = FHour(100); Converts 100 hours into seconds, then inserts the result into 32 bit internal address station 100.
5	FMin	Format	FMin(minute);
		Description	Calculates the set minutes into seconds.
		Example of registration	[SW:0100] = FMin(100); Converts 100 minutes into seconds, then inserts the result into 32 bit internal address station 100.
6	FSec	Format	FSec(second);
		Description	Calculates the set seconds into seconds. (The set value and converted value are the same.)
		Example of registration	[SW:0100] = FSec(100); Converts 100 seconds into seconds, then inserts the result into 32 bit internal address station 100.
7	FGetYear	Format	FGetYear(TIMESTAMP value);
		Description	The TIMESTAMP value is converted into [Years].
		Example of registration	[SW:0100] = FGetYear([SW:0102]); or [SW:0100] = FGetYear(1264032000); The value 1264032000 is converted into [Years], and the result is inserted into 32 bit internal address station 100.
8	FGetMonth	Format	FGetMonth(TIMESTAMP value);
		Description	The TIMESTAMP value is converted into [Months].
		Example of registration	[SW:0100] = FGetMonth([SW:0102]); or [SW:0100] = FGetMonth(1264032000); The value 1264032000 is converted into [Months], and the result is inserted into 32 bit internal address station 100.
9	FGetDay	Format	FGetDay(TIMESTAMP value);
		Description	The TIMESTAMP value is converted into [Days].
		Example of registration	[SW:0100] = FGetDay([SW:0102]); or [SW:0100] = FGetDay(1264032000);

			The value 1264032000 is converted into [Days], and the result is inserted into 32 bit internal address station 100.
10	FGetHour	Format	FGetHour(TIMESTAMP value);
		Description	The TIMESTAMP value is converted into [Hours].
		Example of registration	[SW:0100] = FGetHour([SW:0102]); or [SW:0100] = FGetHour(1264032000); The value 1264032000 is converted into [Hours], and the result is inserted into 32 bit internal address station 100.
11	FGetMin	Format	FGetMin(TIMESTAMP value);
		Description	The TIMESTAMP value is converted into [Minutes].
		Example of registration	[SW:0100] = FGetMin([SW:0102]); or [SW:0100] = FGetMin(1264032000); The value 1264032000 is converted into [Minutes], and the result is inserted into 32 bit internal address station 100.
12	FGetSec	Format	FGetSec(TIMESTAMP value);
		Description	The TIMESTAMP value is converted into [Seconds].
		Example of registration	[SW:0100] = FGetSec([SW:0102]); or [SW:0100] = FGetSec(1264032000); The value 1264032000 is converted into [Seconds], and the result is inserted into 32 bit internal address station 100.
13	FGetWeek	Format	FGetWeek(TIMESTAMP value);
		Description	The TIMESTAMP value is converted into [Weekday]. (1: Sun, 2: Mon, 3: Tue, 4: Wed, 5: Thu, 6: Fri, 7: Sat)
		Example of registration	[SW:0100] = FGetWeek([SW:0102]); or [SW:0100] = FGetWeek(1264032000); The value 1264032000 is converted into [Weekdays], and the result is inserted into 32 bit internal address station 100.

(2) Mathematic operators

 If this button is pressed, a list of the mathematic operators provided is shown.



[Fig. Mathematic operation]

Mathematic operation	Description
+	This operator calculates the sum (addition) of the two operands.
-	This operator calculates the difference (subtraction) of the two operands.

*	This operator calculates the product of the two operands.
/	This operator calculates the quotient of the two operands.
%	This operator divides the operands and calculates the remainder.
=	This operator substitutes the values of the operands.

(3) Logical operators



If this button is pressed, a list of the logical operators provided is shown.



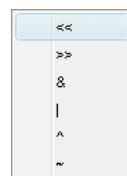
[Fig. Logical operators]

Logical operators	Description
And	This operator is used between two statements. If both statements are TRUE, the operator becomes TRUE.
or	This operator is used between two statements. If one of the two statements is TRUE, the operator becomes TRUE.
not	This operator is used in front of a statement, and becomes FALSE if the statement is TRUE.
<	This operator is used to compare the size of two operands, to indicate that the operand on the right is greater.
<=	This operator is used to compare the size of two operands, to indicate that the operand on the right is greater or equal to the operand on the left.
<>	This operator is used to indicate that the values of two operands are not the same.
>	This operator is used to compare the size of two operands, to indicate that the operand on the left is greater.
>=	This operator is used to compare the size of two operands, to indicate that the operand on the left is greater or equal to the operand on the right.
==	This operator is used to indicate that the values of two operands are the same.

(4) Bit operators



If this button is pressed, a list of the bit operators provided is shown.



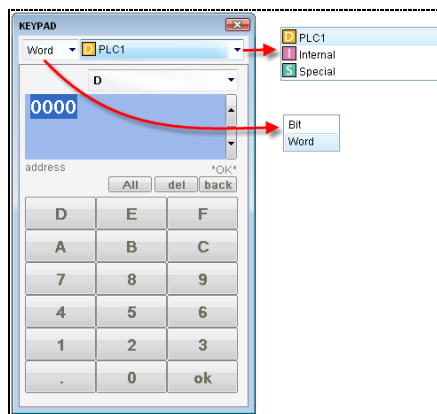
[Fig. Bit operators]

Bit operators	Description
<<	This operator bit shifts the binary value of the left operand to the right. The size of the shift is equal to the value of the operand on the right.
>>	This operator bit shifts the binary value of the left operand to the left. The size of the shift is equal to the value of the operand on the right.
&	This operator performs a bit AND operation on the binary values of two operands.
	This operator performs a bit OR operation on the binary values of two operands.
^	This operator performs a bit XOR operation on the binary values of two operands.
~	This operator is used in front of an operand to perform a bit NOT operation on the binary value of the operand.

(5) Address input part

Using the [Keypad] that appears when this  button is clicked, addresses can be registered to script content.

Select bit addresses and word addresses for input. The bit address is the address to use for the bit function, and the word address is the address to use for the word function. [PLC1] is the controller address, [Internal] is the XTOP internal address, and [Special] is an XTOP special address.



[Fig. Address entry]

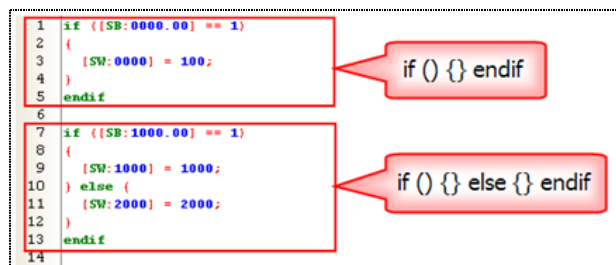
The address entry method is as follows.

Address	Bit/Word	Format
PLC Device	Bit	[DB:PLC1:PLC bit address] DB stands for Device Bit. PLC1 designates a specific PLC, as multiple PLCs can be connected. The PLC address is a bit address, and is entered as an identifier + station number. e.g.) [DB:PLC1:M0000]
	Word	[DW:PLC1:PLC word address] DW stands for Device Word. PLC1 designates a specific PLC, as multiple PLCs

		<p>can be connected.</p> <p>The PLC address is a word address, and is entered as an identifier + station number. e.g.) [DW:PLC1:D0000]</p>
Internal (System Buffer)	Bit	<p>[SB: Internal address bit]</p> <p>SB stands for System buffer Bit.</p> <p>Because internal addresses do not have identifiers and are in word (16bit) units, designate which number bit is used when using bit addresses. e.g.) [SB:0000.00]</p>
	Word	<p>[SW: Internal address]</p> <p>SW stands for System buffer Word.</p> <p>Because internal addresses do not have identifiers and are in word (16bit) units, only the station number needs to be entered. e.g. [SW:0000]</p>
Special (Special)	Bit	<p>[SB: Special address bit]</p> <p>SB stands for System address Bit.</p> <p>Because special addresses are in word (16bit) units, designate which number bit is used when using bit addresses. e.g.) [SB:_1OFF.00]</p>
	Word	<p>[SW: Special address bit]</p> <p>SW stands for System address Word.</p> <p>Because special addresses are in word (16bit) units, only the special address needs to be entered.</p> <p>e.g.) [SW:_1OFF]</p>

(6) Syntax (if and if~else syntax)

[if~endif] and [if~else~endif] syntax is provided.



[Fig. If syntax]

Syntax	Description
if (conditional expression) {action syntax} endif	An [if] conditional statement. In the parentheses [()] next to [if], enter the conditional statement. If the condition is TRUE, the action syntax in [{}], is executed. The end of an [if] conditional statement must be [endif].
if (conditional expression) {action syntax} else {Action syntax} endif	An [if else] conditional statement. In the parentheses [()] next to [if], enter the conditional statement. If the condition is TRUE, the action syntax in [{}], is executed. Also, if the condition is FALSE, the action syntax in the [{}], next to [else] is executed. The end of an [if else] conditional statement must be [endif].

[if] statements may be used within another [if] statement. The number of [if] statements that can be embedded within [if] statements is not limited. That is, as shown in the figure below, an [if] statement can be used within another [if] statement, and [if] statements can be continuously embedded within [if] statements in other [if] statements.

```

1  if ( [DB:PLC1:P0003] == 1 )
2  {
3      if ( [DW:PLC1:D0000] == 100 )
4      {
5          [DW:PLC1:D0100] = 333;
6      }
7      else
8      {
9          [DW:PLC1:D0100] = 222;
10     }
11     endif
12 }
13 else
14 {
15     [DW:PLC1:D0100] = 111;
16 }
17 endif

```

[Fig. [if] statement embedded in an [if] statement]

The script statement above can be described as follows.

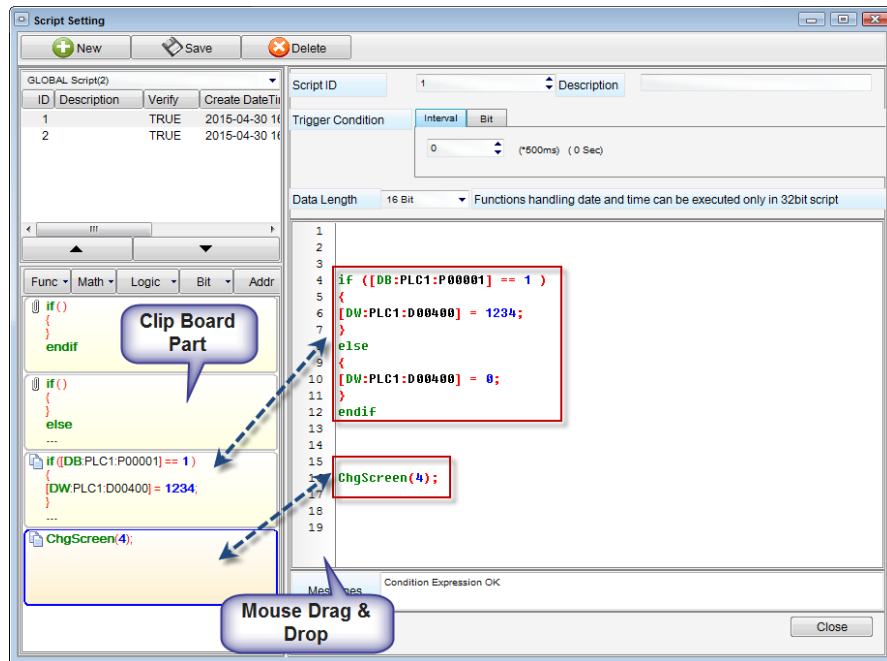
Description
If the data at the P3 bit address is On, and the data at station D0 is 100, the data 333 is entered in station D100.
If the data at the P3 bit address is ON, and the data at station D0 is not 100, the data 222 is inserted in station D100. If the data at the P3 bit address is OFF, enter the data 111 is inserted in station D100.

[if~endif] and [if~else~endif] statements can be conveniently registered in script content by dragging and dropping the statements registered in the bottom left corner with the mouse. The method of registration is explained in the clipboard section below.

(7) Clipboard

The space on the bottom left is the clip board part. By default,[if~endif] statements and [if~else~endif] statements are registered. In the clipboard part, [Mouse drag&drop] can be used to register parts of written scripts. Also, scripts registered in the clipboard part can be moved to the script content screen using [Mouse drag&drop].

The clipboard part cannot be saved. Therefore, if the [Script settings] screen is closed, all statements excluding the [if~endif] statement and [if~else~endif] statement disappear



[Fig. Clipboard part]

(8) Address offset function

The [Address offset function] is a function that specifies an additional address in the addresses of the script. The data of the additional address is added to the station number of the [Original address], and the corresponding station can be used. The additional address is called the [Offset address]. The offset address can be inserted in the format [:@SW:0200] behind the [Standard address]. [:@SW:0200] means that internal address station 200 is used as the offset address.

The statement [DW:PLC2:D0000]=[SW:0000:@SW:0511]; is described below. When [DW:PLC2:D0000]=[SW:0000] is used without an offset address, the data at internal address station 0 is entered into station [D0000] of PLC2. However, when an offset address is used, this means that when the data at internal address station 511 is [5], the data at internal address station 5 (internal address station 0 plus [5]) is entered into station [D0000] of PLC2. The address offset function can be designated for each address used in the script content.

7.7.6 Format of script content

Script content is mostly written using the script operation part. Additional formats for writing script content are described in the following.

(1) Entering comments

Comments are used when entering descriptions, etc., that are unrelated to the program. In the script, single line and multiline remarks can be entered.

```

1 // Single-line remark example
2
3
4 /*
5 Multi-line
6 remark
7 example
8 */

```

[Fig. Script remarks]

Single line remarks are denoted by [//] ahead of the remark. To insert multiline remarks, indicate the start of the remark with [/*], and indicate the end of the remark with [*/].

(2) Format for the end of action statements

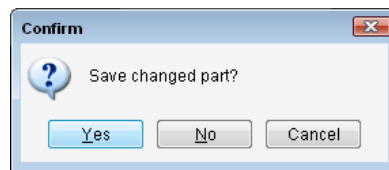
The ends of commands in scripts must be marked with [;]. [;] indicates the end of a command.

If a command does not have the [;] mark, the error display part reads [illegal Condition Expression] and indicates that there is an error in script content.

7.7.7 Closing the script settings screen

After completing script settings, press the [X] button on the top right corner of the script settings screen, or click the button on the bottom right corner to close the settings screen.

If changes have been made, the following message is shown before closing to save changes.



[Fig. Save changes confirmation message]

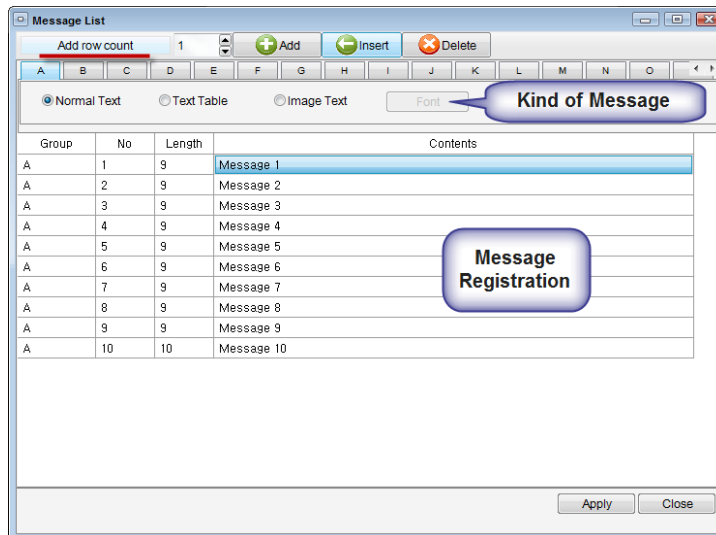
7.8 Message table

In the message table, strings to be used in bit message/word message tags are registered.

The message table setting method is as follows.

1. Set groups.
2. Add messages to register.
3. Enter the content (string) for each of the added messages.

7.8.1 Composition of the message table screen.



[Fig. Message table]

Message table	Description
Add row count <input type="text" value="10"/>	Enter the number of messages to add.
	Adds messages. The number of messages is equal to the [Add row count].
	Inserts one message in the middle of registered messages. Select the position to insert into, and click the [Insert] button. A new message is added and inserted into that position.
	Deletes the selected message. Using the keyboard arrow keys or dragging the mouse with the Shift key pressed, multiple messages can be selected and deleted at once.
Normal text	In the message tax, message content manually entered by the user is displayed using a font provided by the touch.
Text table	A string registered in the text table is used as the message content.
Image text	Message content manually entered by the user in the message tag is displayed as image text using various Windows fonts.
Group setting <input type="button" value="A"/> <input type="button" value="B"/>	26 groups can be designated, from A to Z
Message registration part	The content of individual messages added to the message list is entered.
	After completing message table settings, press Apply to save changes.
	After completing message table settings, close the message table settings screen. If changes have not been saved, the following message is shown to confirm save changes. <div style="text-align: center;"> </div>

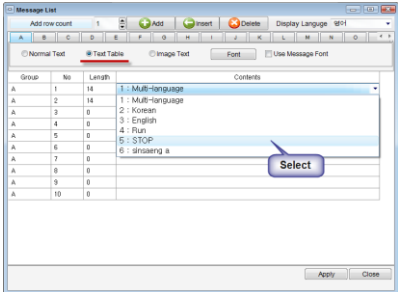
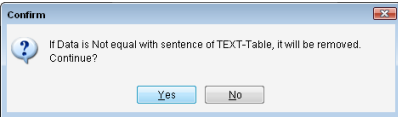
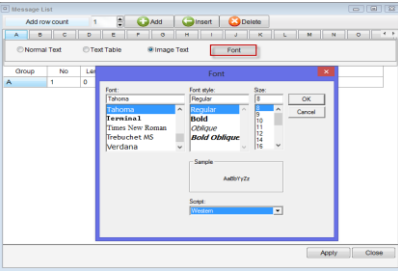
7.8.2 Message registration

(1) Composition of the message registration part

Message	Description
Group	Shows the applicable group, from A~Z.
No	This number is the number of each message, assigned sequentially.
Length	If the content of the message is entered, the length is automatically calculated and set.
Contents	This is the content of each message. Multiline input is supported.

(2) Entering the message.

Enter the content of each message, depending on the [Normal text], [Text table], and [Image text] selection. For [Normal text] and [Image text], enter the string manually. For the [Text table] setting, select among the strings registered in the [Text table].

String type	Description
Normal text	In the message tag, message content manually entered by the user is displayed using a font provided by the touch.
Text table	<p>A string registered in the text table is used as the message content.</p>  <p>The text table cannot be used in combination with other types.</p> <p>If an alarm list entered as direct input or image text exists, changing this setting to text table deletes the existing message list. Therefore, when changed, the following message appears.</p> 
Image text	<p>Message content manually entered by the user in the message tag is displayed as image text using various Windows fonts. When image text has been selected, click the [Font] button and set the font for the image text to be displayed.</p> 

(3) Copy/paste

Messages entered can be copied/pasted. Drag and select multiple messages with the mouse, or use the arrow keys to select multiple messages with the Shift key on the keyboard pressed, then press [Ctrl + C] to copy. Press [Ctrl + V] to paste. Messages can be copied and pasted into other groups, or Excel files. If the number of messages to paste exceeds the number of registered messages, the number of registered messages is automatically increased. For example, if 20 messages are pasted when 10 messages are registered, 10 additional messages are added before the 20 messages are pasted.

(4) Entering multiline messages

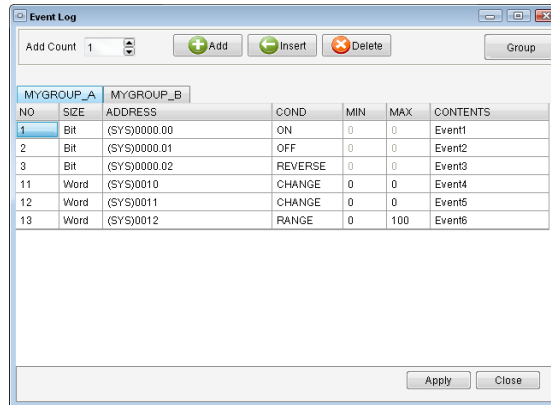
Multiple lines can be entered as the message content. With the [Ctrl] key on the keyboard pressed down, press the [ENTER] key to enter content in the next line.



[Fig. Entering multiline message content]

7.9 Event log


The event log is a function that monitors events at a particular address. Bit addresses and word addresses are registered as events in the [Event log] screen according to conditions. If the conditions of a registered event are satisfied, event log data is recorded in the CF memory card. The event log data saved on the CF memory card can be displayed on the screen using the event log viewer tag. Up to 255 groups can be used, with up to 254 events registered.






[Fig. Event log]

7.9.1 Add event / Add group

Add events and groups using the buttons on top.

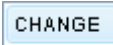

Event log	Description
Add count	Enter the number of events to add.
	The number of new events added is equal to [Add count]. The addresses of newly added events increase automatically by 1 from the address in the last line.

	New events are added above the selected event. The number of events added is equal to [Add count].
	Deletes the selected event. To select multiple events, drag with the mouse or select events with the [Shift] key pressed down.
	Adds a group.

7.9.2 Event registration

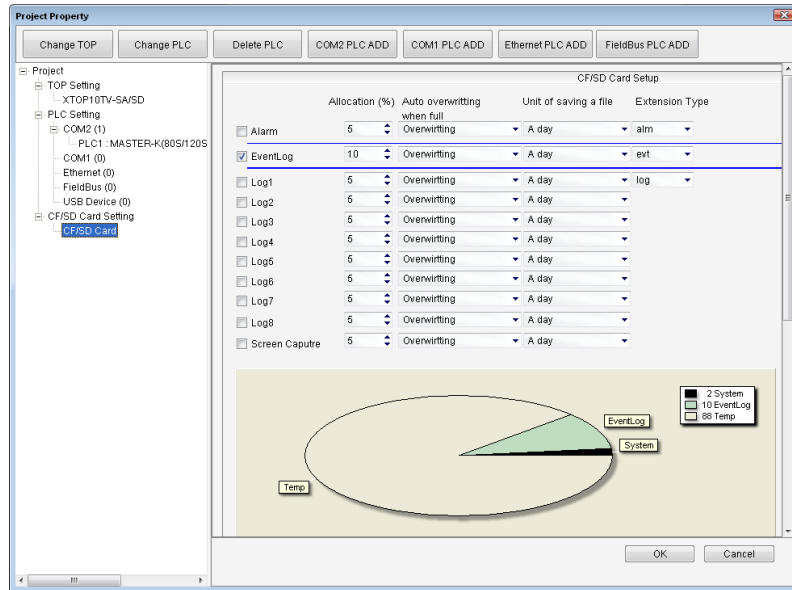
MYGROUP_A		MYGROUP_B				
NO	SIZE	ADDRESS	COND	MIN	MAX	CONTENTS
1	Bit	(SYS)0000.00	ON	0	0	Event1
2	Bit	(SYS)0000.01	OFF	0	0	Event2
3	Bit	(SYS)0000.02	REVERSE	0	0	Event3
12	Word	(SYS)0011	CHANGE	0	0	Event5
13	Word	(SYS)0012	RANGE	0	100	Event6

[Fig. Event registration]

Event	Description
Group	If groups are added, pages with the names [MYGROUP_A], [MYGROUP_B], ... are added on top.
Number	Numbers are assigned according to the order of registration.
size	Select between [Bit] and [Word].
Address	Set the address to monitor.
Condition	<p>The conditions when using [Bit] addresses are as follow.</p> <p>In [ON], a record is made the moment the data of the bit address is turned ON.</p> <p>In [OFF], a record is made the moment the data of the bit address is turned OFF.</p> <p>In [REVERSE], a record is made the moment the data of the bit address is reversed.</p> <p>The conditions when using [Word] addresses are as follow.</p> <div style="text-align: center;">   </div> <p>In [CHANGE], a record is made when the data of the word address is changed.</p> <p>In [RANGE], a record is made when word address data changed satisfies the designated range.</p>
Minimum	This is the minimum value when using the [RANGE] condition for a [Word] address.
Maximum	This is the maximum value when using the [RANGE] condition for a [Word] address.
Description	<p>Enter the content to be recorded when event conditions are satisfied.</p> <p>Multiple lines can be entered as the event content. With the [Ctrl] key on the keyboard pressed down, press the [ENTER] key to enter content in the next line.</p>

7.9.3 CF card settings

To save data created in the [Event log] in the CF memory card, [Project settings]-[CF card settings] must be made in the [Project] menu. Check [Event log] as seen in the figure below, then [Allocate]. If [CF card settings] is not performed, event log data is not saved in the CF memory card.



[Fig. CF card settings]

7.9.4 Event log file saved on the CF memory card

If a registered event satisfies the conditions, the following is recorded in the CF memory card.



[Fig. Event log recorded on the CF memory card]

Event logs are created as [*.evt] files, and data is separated using commas. As for the format of recorded event logs, [Event number, date occurred, time occurred, event content, date before change, data after change] are recorded whenever an event occurs.

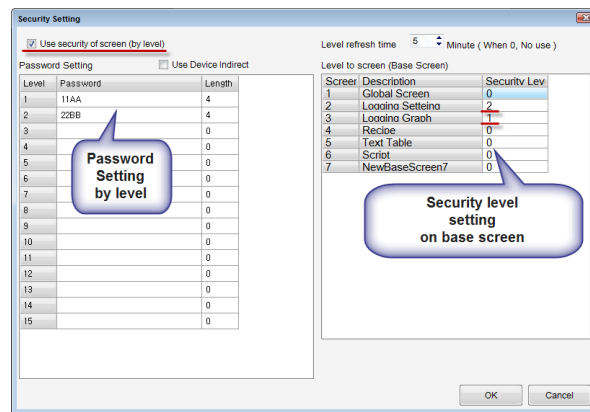
7.10 Password setting

In this function, a password is set for the screen. When the screen is transitioned, the screen can be viewed only if the password entered is correct.

Up to 15 passwords can be set for the levels. Enter the level of the password for each base screen on the right. Screens with low levels can be transitioned to without entering passwords. Higher level screens can only be seen if the password is entered.

The password setting screen is set as follows.

- (1) Check [Use security of screen].
- (2) Set the password. The password level can be set from 1 to 15. To use one password, set password for level 1 only. The password is a combination of English letters and numbers, and is limited to 8 characters. When [Use device indirect] is checked, the password is saved in an address, and the password can be changed during operation.
- (3) Enter the level number in the [Security level] column of the base screen to apply the password to. For screens where no password is set, enter 0. Only level numbers for which passwords are set can be entered.
- (4) Set the level refresh time. This is the time for which the login is maintained. Enter 0 if not used.



[Fig. Password setting]

7.10.1 Password setting

15 passwords can be set, from level 1 to level 15.

First decide how many passwords to use, and enter passwords beginning from level 1. Passwords are entered as a combination of English letters and numbers; passwords are not case-sensitive, and are recognized as upper case characters. The maximum password length is 8.

7.10.2 Screen level settings (Base screen)

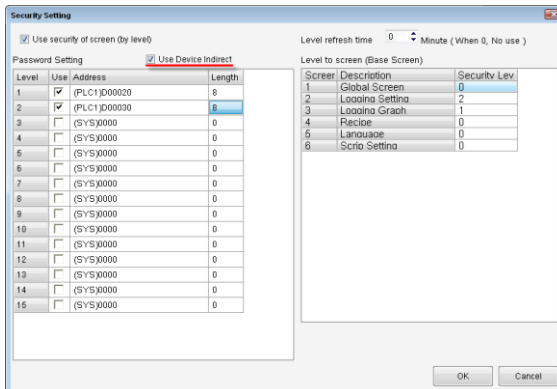
In the table on the right, the [Security level] for each base screen can be set. Only level numbers for which passwords are set can be entered. For screens not using passwords, enter 0 into the [Security level].

When transitioning from a low level screen to a high level screen, the password must be entered. When transitioning from a high level screen to a low level screen, no password entry is required.

Title	Description
Screen	This is the number of the base screen registered to the project.
Description	This is the name of the base screen registered to the project.
Security level	Set the level number for each base screen.

7.10.3 Use device indirect

In this function, the password is saved in the PLC or an internal address and used. If an indirect address is used, the password can be modified during operation.



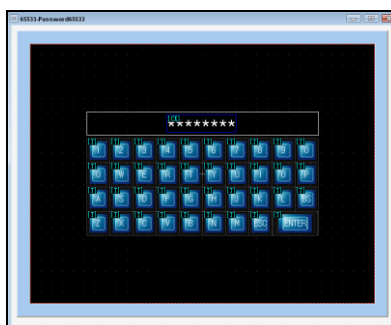
[Fig. Use device indirect]

Title	Description
Level	This is the level number. Level 1 is the lowest level, and level 15 is the highest level.
Use	Check the boxes to use passwords. The number of boxes checked should be equal to the number of passwords used.
Address	Set the address to start saving passwords from. The number of addresses used varies according to length.
Length	Set the length of the password. As 2 password letters can be saved in a single word address, the password is saved according to the length entered, with the set address as the start address.

When the address is set to [D20] and the length is set to 8 in the figure above, the password is saved from station D20 to station D23. The password must first be entered in the address set in the project screen or the PLC program before beginning operation.

7.10.4 Password window screen and operation

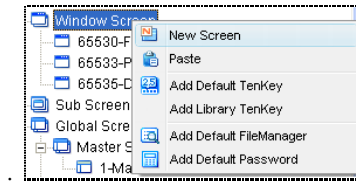
After completing settings in the [Password setting] screen, press the [OK] button. The [Password screen] shown in the figure below is automatically created.



[Fig. Password window screen]

[Password screen] is a screen that is added to window screen number 65533, which allows password entry. When transitioning to a password locked screen, the [Password window screen] automatically pops up for

password entry. If the 65533 password window screen is deleted during project editing, or to manually add and use a password window screen to the project, run the [Add password window] menu in the [Popup menu] of the window screen as shown in the figure below.

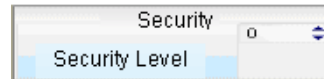


[Fig. Add password window]

The number of the password window screen is internally fixed to 65533. Note that if the screen number is changed, the password window screen does not pop up properly.

7.10.5 Setting the security level for shapes and tags

Individual security levels can be set for all shapes and tags. There is a part for entering the security level in the bottom left corner of the properties screen for shapes and tags, as seen in the figure below.

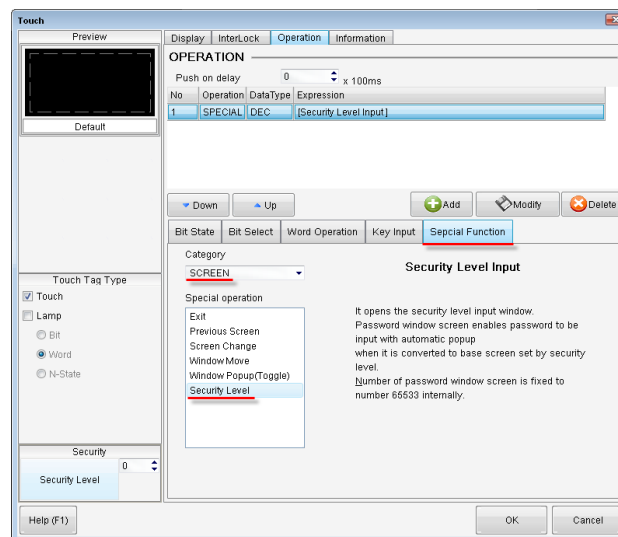


[Fig. Security level]

A security level of [0] indicates no security setting. If a security level of [1] or higher is entered, the shape/tag is visible only if the password for the applicable level number is used to log in. If the login is not performed, the applicable shape/tag is not visible on the screen.

Users which to log in from a screen can use touch tags, as shown below.

Register a touch tag on the screen, set the category to [SCREEN] in [Special Functions], and set the [Security Level]. When a touch button set in this manner is touched during operation, a [Password window screen] pops up for login.



[Fig. Password input window popup using touch tags]

7.10.6 Level refresh time

Level refresh time Minute (When 0, No use)

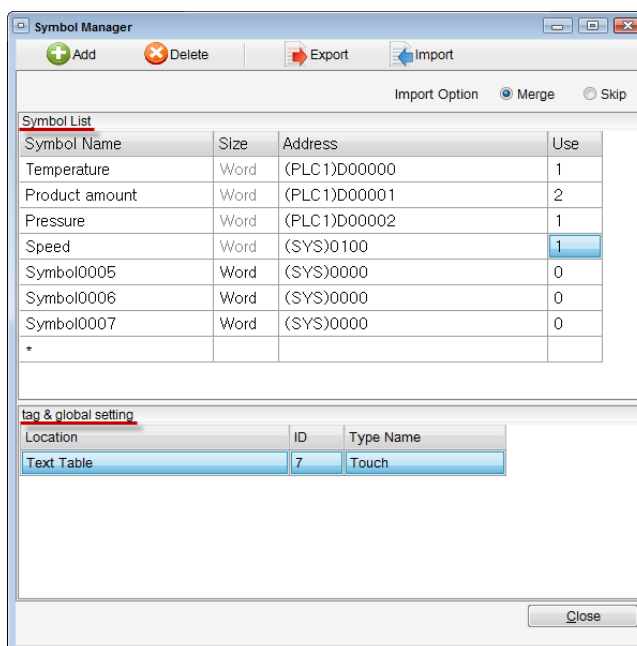
[Fig. Level refresh time]

The level refresh time can be entered in minutes. This function maintains the login for the set period when a user logs in to enter a higher level screen from a lower level screen. When transitioning to a higher level screen after moving to a lower level screen, the higher level screen can be returned to for the set period without having to log in. The set period is measured as the time during which there is no touch input. If a certain period (minutes) elapses from the last user touch, the acquired level authority disappears.

7.11 Symbol manager

A symbol address is an address where a different name has been assigned to an address.

The program can be used more conveniently if PLC or internal addresses are assigned with names indicating their actual usage in the system, etc. To use symbol addresses, which are a type of address, the appropriate setting must be set in the [Symbol manager].



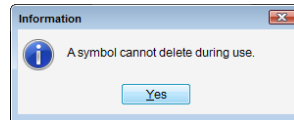
[Fig. Symbol manager]

In the top portion of the [Symbol manager] screen, symbol addresses can be registered. The bottom portion shows the locations where each symbol address is used in the project, and symbol info.

7.11.1 Writing the symbol list

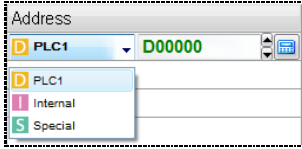
A list of symbol addresses is written. Using the [Add] button on top, items are added to the list. The number of items added should be equal to the number of symbol addresses to register. For symbol address list items that are not necessary, click the [Delete] button to delete. Symbol addresses that are

being used are not deleted, and the following message is displayed.



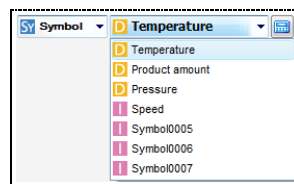
[Fig. Alarm message when a symbol address is use is deleted]

When each column is double clicked, input can be entered.

Symbol list	Description
NAME	Designate the name of the symbol address. Set the name to use when the symbol address is selected in the project.
SIZE	If the address to register is a bit address, set to [Bit]. Set as [Word] if the address is a word address.
VALUE	Set the actual address. 
USE	This is the number of symbol addresses used in the project. This number is calculated and displayed automatically.

7.11.2 Using symbol addresses in a project

When using symbol addresses in a project, first select [Symbol] as the address type. The symbol address registered in [Symbol manager] is shown as a list, as seen in the following figure. Select the symbol address to use.



[Fig. Using symbol addresses]

7.11.3 Tag and general settings

The location where the symbol address is used is displayed, with symbol info. When a symbol address other than [0] is clicked in the [USE] portion of the symbol list, arrows are shown, as seen in the figure below. If the arrows are clicked, a list of tags and general settings where that symbol address has been used is displayed on the bottom.



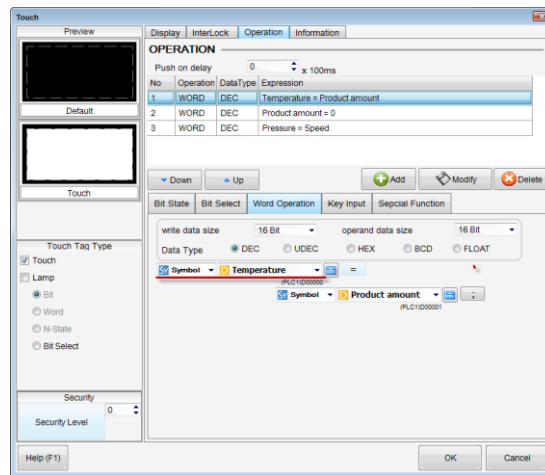
[Fig. USB column]

tag & global setting		
Location	ID	Type Name
Text Table		Touch
Text Table		Touch

[Fig. Info on locations where the symbol address is used]

Use location	Description
Location	This is the name of the base screen where the symbol address has been used.
ID	This is the ID of the tag where the symbol address has been used.
Name	This is the name of the tag where the symbol address has been used.

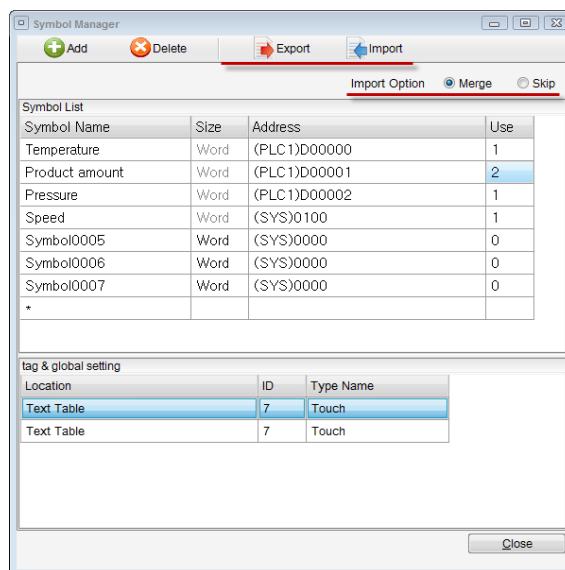
When the list is double clicked, the applicable tag/general settings screen is called and displayed.



[Fig. Touch tag where a symbol address has been used]

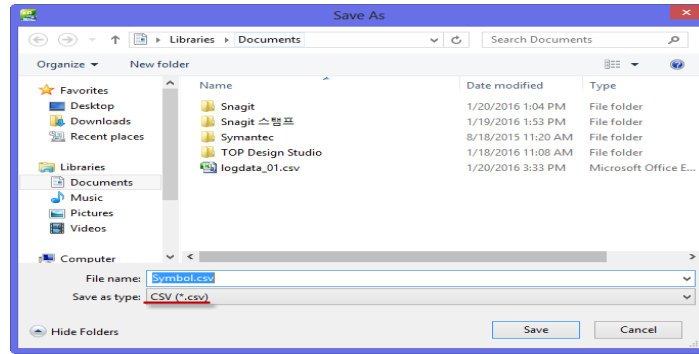
7.11.4 Export/Import

The written symbol address list can be exported as a file. In the [Symbol manager] screen shown below, click the [Export] button on top.



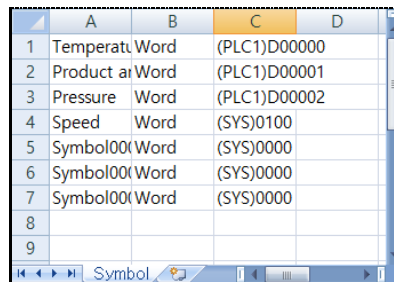
[Fig. Symbol manager export]

The following save screen is shown, and the written symbol address list can be saved as a CSV file.



[Fig. Symbol address list export]

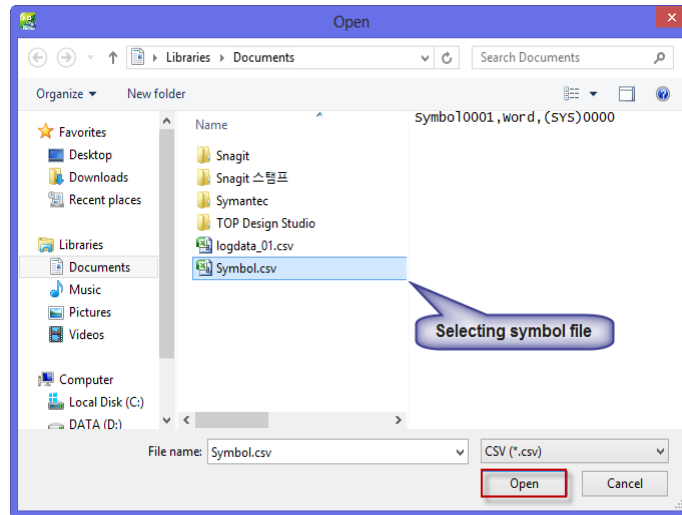
CSV files can be viewed in Excel as seen in the figure below.



[Fig. Saved symbol list file]

Saved symbol list files (CSV files) can be imported using the import button.

Files can be selected and opened using the open screen shown below.



[Fig. Importing]

Redundant data handling options can be set when importing saved symbol list files.

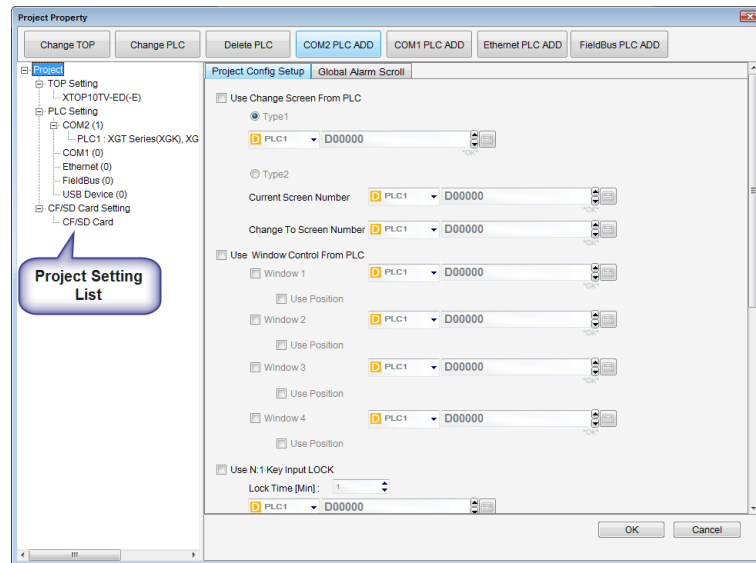
Use location	Description
Overwrite	Overwrite data with the same address.
Skip	Do not overwrite data with the same address, and register all data in the list.

7.12 Project property

Info associated with the general project environment is managed here.

The major functions of project settings are as follow.

1. Project environment settings
2. Setting touch model names, and setting the touch menu screen.
3. Select the PLC model communicating using [Serial/Ethernet/USB] communication, and set communication settings.
4. CF memory card settings.



[Fig. Project settings]

The [Project settings] screen comprises the buttons on top, the [Project settings list] on the left, and the [List setting details] on the right. The [Project settings list] comprises the [Project part], [Touch settings part], [PLC settings part], and the [CF card settings part].

When [Project] is selected in the [Project settings list], the [Project setting] and [Global alarm scroll] pages are shown on the right. The [Project settings] page is explained first.

7.12.1 [Project settings] page

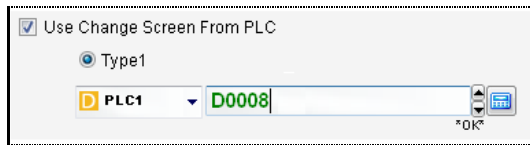
(1) Screen change from PLC

This function allows the touch screen to be controlled from the PLC for changing screen.

When a particular PLC address is set, the data of that address becomes the number of the base screen of the touch, and transitions the screen of the touch. There are two methods of [Use change screen from PLC]: [Type1] and [Type2].

① Type1

In [Type1], only 1 address is set for screen change. That is, the same address is used as the [Read address] and [Write address] for changing screen in [Type1].

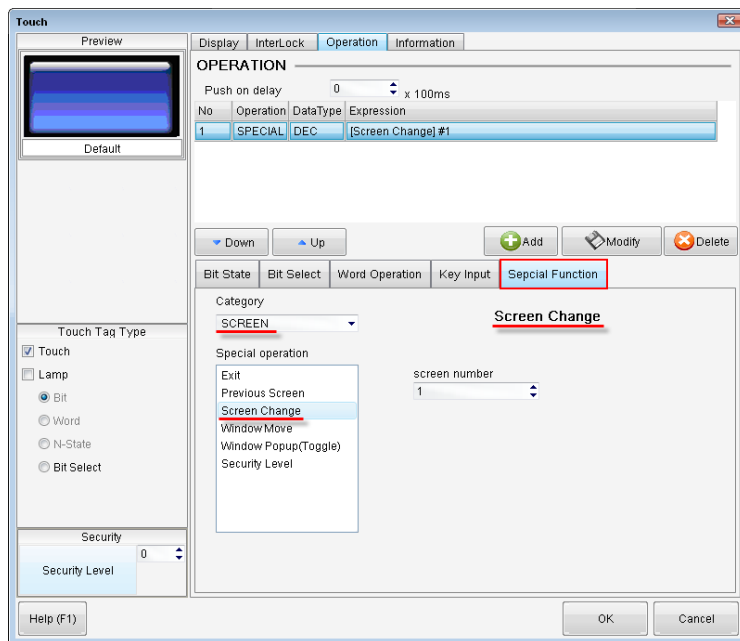


[Fig. Type1]

Address	Description
[D0008] Read address	This is the address where touch data is read. The data at the PLC address is read by the touch, and the screen is changed.
[D0008] Write address	This is the address where touch data is recorded. This is the address where the touch records the current screen number as the data of the PLC address.

If the data of the designated screen change address is changed, the touch transitions to the screen whose number matches that data. (Read function) Also, if a screen transition touch button is registered to the touch screen, pressing this touch button causes the screen number to be entered as data into the [Use change screen from PLC] address, and transitions to the applicable screen. (Write function)

The screen change touch buttons are set as follows.



[Fig. Touch tag screen change function]

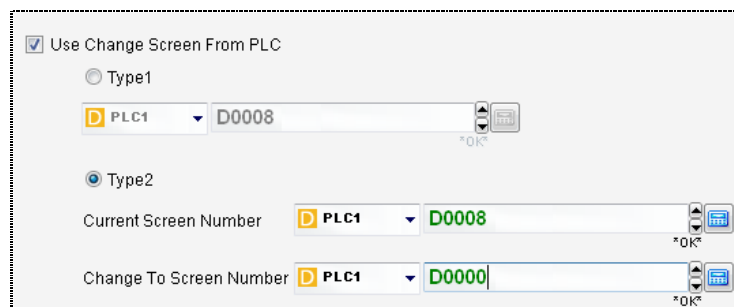
For example, if the touch is currently displaying screen number 1, and if the PLC address [D0008] is used as the screen transition address, screen transition operates as follows. When the touch button to change to screen number 3 is pressed from the project screen, the number of the screen to move to [3] is written at PLC address [D0008], and screen number 3 is moved to. Also, if the data [5] is entered into address [D0008] of the PLC program, the HMI changes to screen number 5.

Type1	Before RUN	Begin RUN	Transition to screen number 3 with touch button	Change data of [D0008] to [5] in the PLC program
D0008	Arbitrary initial value	1	3	5
	→			
Action description	This is the initial state before the touch is run. There may be an arbitrary initial value in station [D0008] of the PLC.	If RUN begins with the number of the initial screen of the touch being [1], the first screen becomes 1, and [1] is written to station [D0008].	If a touch tag set with screen number 3 is touched, the data in station [D0008] is changed to [3], and screen number 3 is brought up.	In the PLC program, changing the data in [D0008] to [5] brings up screen number 5.

However, in the [Type 1] function, if the user enters new screen transition data in station [D0008] through the PLC program while simultaneously touching the screen transition touch tag, the touch brings up the last recorded screen number in station [D0008]. In this situation, the touch may appear to be malfunctioning. To prevent this phenomenon, method [Type2], where a separate [Read address] and [Write address] are used, is used.

② Type2

This function is improved over [Type1]. The [Read address] and [Write address] necessary for screen transition are set separately. In Type2, as the [Read address] and [Write address] exist separately, the PLC program does not overwrite data in the address used for screen change.



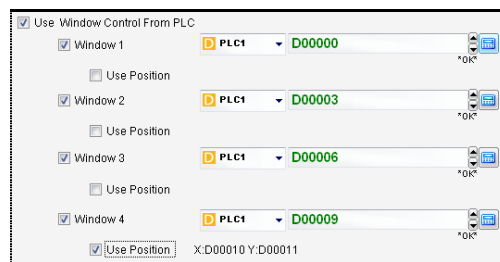
[Fig. Type2]

Address	Description
[D0008] Current screen number (Read address)	This is the address the touch reads data from. When data is changed in the PLC program, the touch reads the data from the [Read address] and changes the screen. Data is read and the screen is transitioned only if the data has been changed.
[D0000] Change the screen number (Write address)	This is the address where the touch records data. The [Write address] is the address where the screen number is recorded and the screen transition is performed when a screen transition is performed using a special function of the touch button.

Type2	Before RUN	Begin RUN	Transition to screen number 3 with touch button	Change data of [D0008] to [5] in the PLC program
D0000 (Write address)	Arbitrary initial value	1	3	5
Action description	This is the initial state before the touch is run. There may be arbitrary initial values in stations [D0000] and [D0008] of the PLC.	If RUN begins with the number of the initial screen of the touch being [1], the first screen becomes 1, and [1] is written to station [D0000].	If a touch tag set with screen number 3 is touched, the data in station [D0000] is changed to [3], and screen number 3 is brought up.	In the PLC program, changing the data in [D0008] to [5] brings up screen number 5. The data of [D0000] is changed to [5] in the PLC program.
D0008 (Read address)	Arbitrary initial value	Arbitrary initial value	0	5

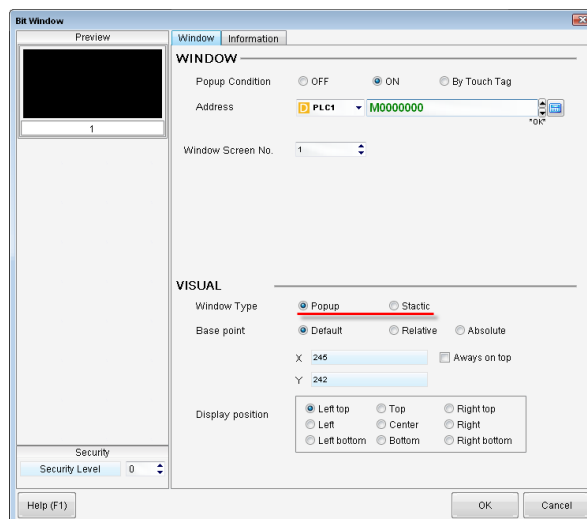
(2) Use window control from PLC

This function pops up a global window screen using the address of the PLC connected to the touch, regardless of a particular screen. Up to 4 can be set.



[Fig. Use window control from PLC]

In the actual unit, up to 4 popup window screens and 4 fixed window screens can be set for a single screen. Popup type and fixed type windows can be set in the window tag, as seen in the figure below.



[Fig. Bit window tag]

The use window control from PLC function is included as a popup type. That is, if a popup type window tag operates on the current screen, with 2 window screen popups, even if the Use window control from PLC setting is set for 4 window screen popups, only 2 window screens pop up.

The setting method is as follows. The data of the PLC address set in Window 1 becomes the number of the window screen to pop up. In the case of numbers for window screens whose data is 0 or does not exist, the window screen does not pop up.

The two addresses in the next device of the set PLC can be used as the popup position of the window screen.

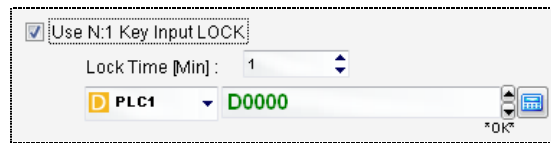
If [Use Position] is checked, X is automatically designated as the next station, and Y is designated automatically as the station following that.

As for the position on the touch screen, if the resolution of the touch is 640x480, the top left corner becomes (0,0) and the bottom right corner becomes (640,480). The top left corner of the window screen popup is located in this position.

If [Use Position] is not used, the window pops up in the (0,0) position.

(3) Use N:1 Key Input LOCK

[N:1] is used when 1 PLC (controller) communicates with multiple touch units. [N] denotes the number of touches, and [1] denotes the number of PLCs (controllers).

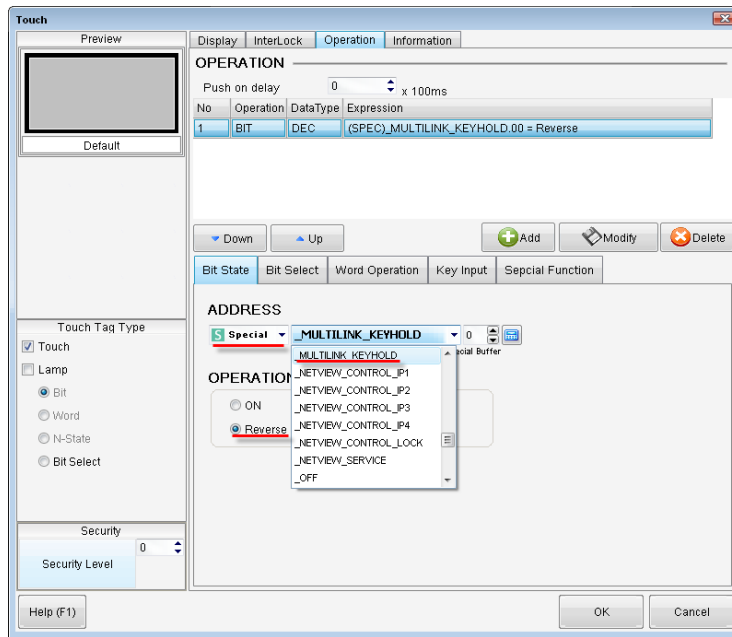


[Fig. Use [N:1] Key Input Lock]

If [N:1] Ethernet communication is used, this option is used to occupy operations in the touch that is operated. That is, the function is used to prevent simultaneous input of the touches connected to same PLC.

To use this function, a touch tag to enable and disable key input lock is necessary. The touch tag that enables and disables key input lock is set to turn the data in [_MULTILINK_KEYHOLD] among the [Special] addresses ON/OFF.

[_MULTILINK_KEYHOLD]	Description
[ON]	The key hold function is engaged. The station number of the touch is recorded in the address set in [Use N:1 key input lock]. All input from touches other than the touch with the station number recorded at this address is blocked.
[OFF]	The key hold function is disengaged.



[Fig. Touch tag to enable/disable the key input lock function]

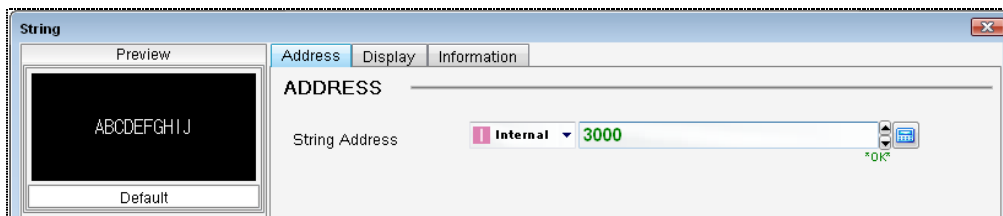
(4) Use Sysbuf. to save string of Keypad (40 words)

This is used when entering text using a [Keypad display (string) tag]. This function is currently not used, as a separate special address [_KEY_STR_DISP32(32Bit)] has been added. When entering strings, a string keypad as shown in the figure below is used. A [String tag] that shows the string entered is registered on the top.



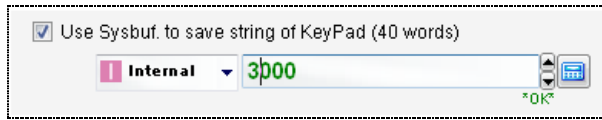
[Fig. String keypad]

Conventionally, the string tag address is designated as part of the internal address, as seen below.



[Fig. Address of a string tag registered to the keypad]

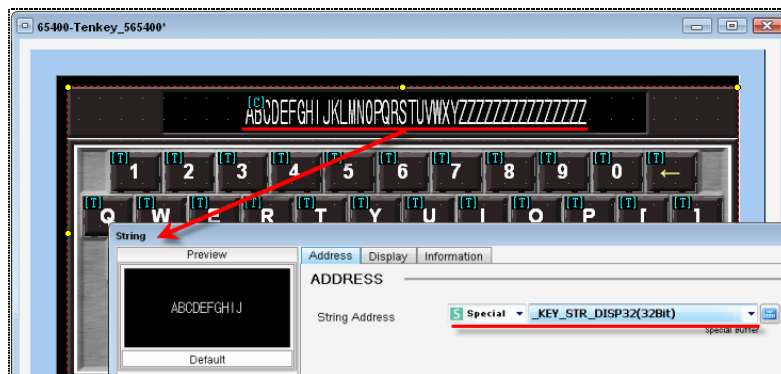
Set the [Internal address for saving key input strings] to be identical to the internal address of the string tag of the string keyboard.



[Fig. Use Sysbuf. to save string of Keypad function]

When the above settings are made, when a string key is entered in the string keypad, the characters entered in the string tag portion are displayed in sequence. Conventionally, it was judged that allocating certain addresses for key value display when the string keypad is not used was inefficient. The composition was as follows, so that the setting could be engaged only when the keypad is being used.

Currently, the string keypad string tag is the newly added special address. The [Internal address for saving key input strings] does not need to be set, making use more convenient.



[Fig. String keypad with a special address]

As shown below, numeric tags are registered in the numeric keypad. This numeric tag is the part that displays the numeric key value. This numeric tag has a special address, as shown in the table below.

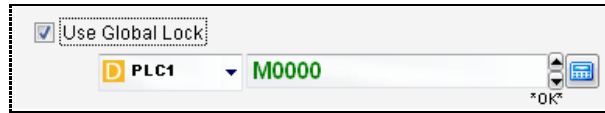


[Fig. Numeric keypad]

Special address	Description
[_KEY_DSP]	Shows the key value entered through numeric keys. This is a 16-bit address.
[_KEY_DISP32(32Bit)]	Shows the key value entered through numeric keys. This is a 32-bit address.
[_KEY_STR_DISP32(32Bit)]	Shows the key value entered through string keys.

(5) Use global lock

[Global lock] is a function that locks the touch so that it cannot be controlled, depending on conditions. That is, the function prevents touches from being registered even if the screen is touched.



[Fig. Using global lock]

If the data of the set bit address is [ON], touch does not work, and if the data is [OFF], the lock function is disengaged, and touch is possible.

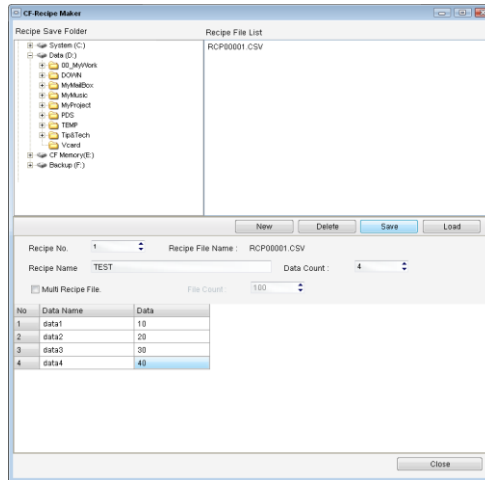
(6) Use CF/SD-Recipe

This function saves recipe data in a CF memory card. Check when using this function.



[Fig. Using CF/SD-Recipe function]

Use [CF-Recipe Creator] in the [Tools] menu to create and save recipe data files to CF memory cards.



[Fig. CF-Recipe Maker]

(☞ See [44.4] of [chapter 44] for info on how to set the [CF-Recipe generator].)

(7) Setting use of remote functions



[Fig. Remote functions]

[Remote functions] are [TOPView] functions where the screen of the touch is monitored from the PC. [Remote functions] are possible only when the PC and ethernet are connected through Ethernet. They can be engaged in [Create TOPView client] in the [Tools] menu.

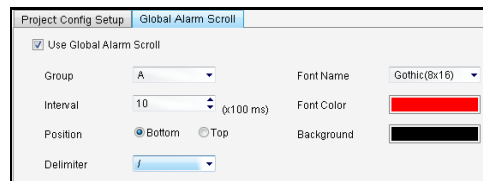
(☞ See [44.12] of [chapter 44] for TOPView client creation.)

To use TOPView functions, that is, remote functions, [Use remote monitoring] must be checked.

Remote function	Description
Use Remote Monitoring	The touch screen is monitored from the PC.
Use Remote Control	The touch screen is not only monitored from the PC, but also controlled using mouse clicks.

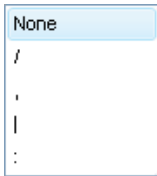
7.12.2 [Global alarm scroll] page

[Global alarm scroll] is a function where the triggered alarms are displayed in a single line on the screen. Only currently triggered alarms are scrolled one letter at a time from right to left.



[Fig. Global alarm scroll]

First, check [Use global alarm scroll]. Next, make detailed settings as shown below.

Global alarm scroll	Description
Group	Set the group of the alarm list to be displayed.
Scroll interval	Set the time taken for one letter to scroll.
Scroll position	Select the position of the alarm display on the screen, between [Top] and [Bottom].
Delimiter	Select the letter that separates alarms. 
Font	Set the font of the alarm.
Hint font color	Set the font color of the alarm.
Hint B.G. color	Set the background color of the alarm.

If the settings in the figure above are set, the following is displayed across the bottom of the screen during operation. Triggered alarms are displayed, scrolling from right to left one letter every 1 second, which is the scroll interval. Alarms are separated with [/].



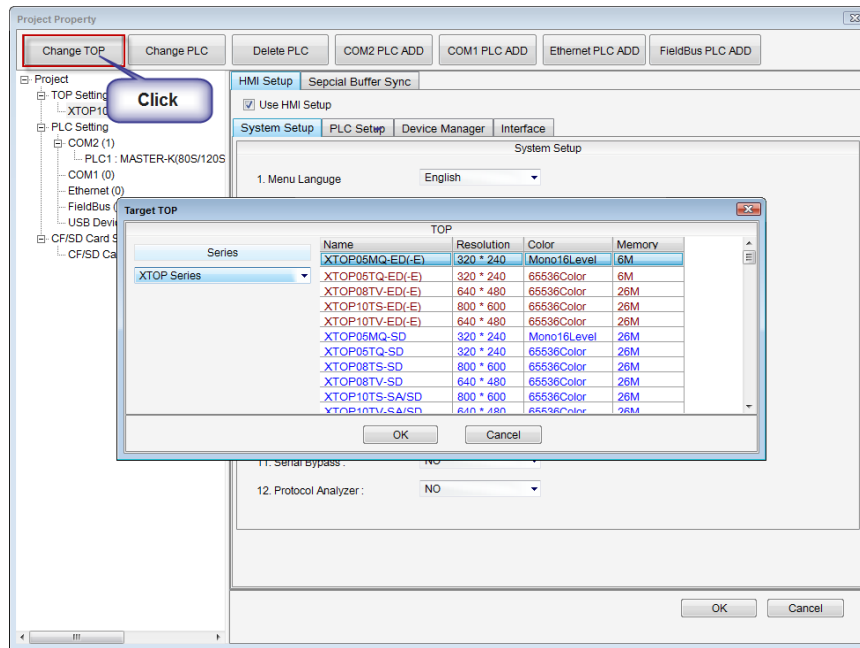
[Fig. Global alarm scroll display]

7.12.3 TOP setting

This is the [TOP settings] part of the [Project setting list] on the left side. Functions for changing the model name of the touch and setting the menu screen are provided.

(1) Changing the touch model name

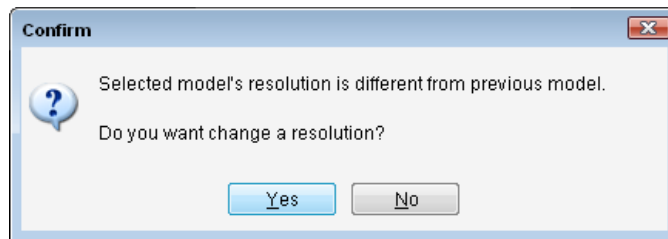
The model name of the touch currently set for the project is changed.



[Fig. Changing the touch model name]

If the [Change TOP] button on top is clicked, as shown in the figure above, a screen for touch model selection is shown. Select the model to change to, and click the [OK] button.

When a different model with a different resolution is designated, the following message appears.



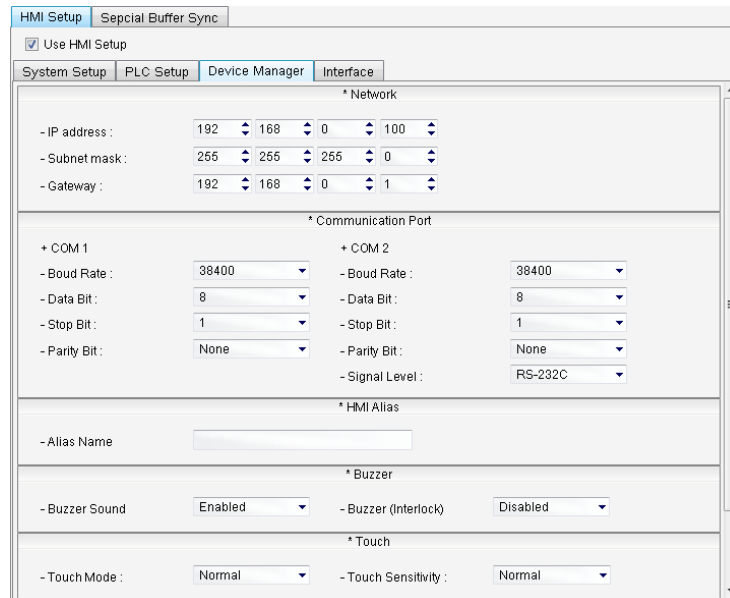
[Fig. Resolution change confirmation message]

Resolution change	Description
[Yes] button	The size of shapes and tags registered to the screen are automatically changed to match the resolution. However, the automatic resize function does not apply to some letters or tags. These must be changed manually.
[No] button	The size of the shapes and tags registered to the screen remain the same.

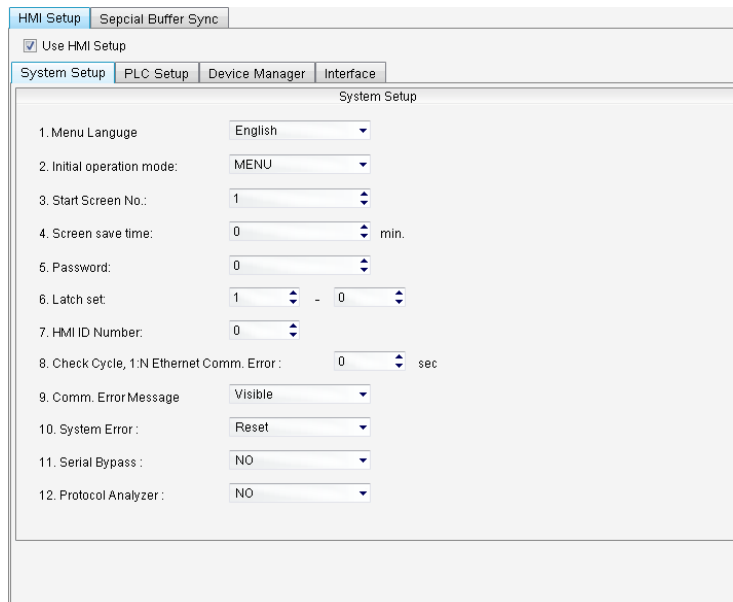
(2) Setting the touch menu screen (use HMI settings)

The menu on the menu screen of the touch can be set in the project. When the project is transmitted to the touch, the menu screen on the touch is changed to the menu settings made in the project.

First, check [Use HMI setup]. Next, set the [Communication setup] and [TOP SETUP (touch setup)] pages.



[Fig. Communication setup page in Use HMI setup]



[Fig. Touch setup page in Use HMI setup]

(See [1.1.4] of [chapter 1] for the menu screen of the touch.)

The set [Communication setup] and [TOP SETUP (touch setup)] pages can be initialized using the [Initialize Comm setup] and [Initialize HMI setup] on top.

Button	Description
Initialize Comm setup	The settings in the comm setup page are initialized.
Initialize HMI setup	The settings in the TOP SETUP (touch setup) page are initialized.

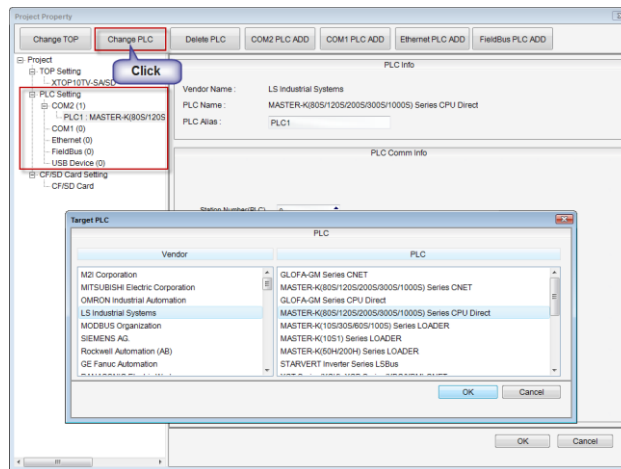
7.12.4 PLC setup

This is the [PLC settings] part of the [Project setting list].

The touch that communicates with the PLC is modified/added/deleted.

(1) PLC change

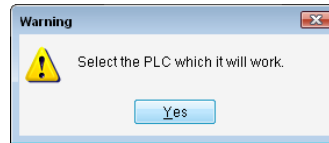
The model of the set PLC is changed.



[Fig. PLC Change]

PLC changes are performed as follows.

1. Select the PLC to change from the [Project setting list] on the left. If the [Change PLC] button is pressed without selecting the PLC to change, the following message appears.



[Fig. PLC change warning message]

2. First, press [Change PLC] on top.
3. From the popup screen, the vendor of the PLC to change to is selected.
4. Next, select the PLC model.
5. Press the [OK] button to change the PLC model.

(2) Add PLC

The touch communicates with the PLC (controller) using 232/422/485 serial communication, Ethernet communication, FieldBus communication, and USB communication.



[Fig. PLC setup]

Like the list in the PLC settings part above, the touch has the following communication ports.

Communication ports	Description
COM2 (Serial)	This is a serial port that communicates with the PLC(controller) using 232C/422/485

	communication.
COM1 (Serial)	This is a serial port that communicates with the PC. Additionally, it can communicate with the PLC (controller) using 232C communication.
Ethernet	This is an ethernet port that communicates with the PC or PLC (controller).
FieldBus	Uses FieldBus communication.
USB device	Communicates with the PLC (controller) using USB communication. Supports communication with the barcode reader.

Using the following buttons, the PLCs for each communication port can be added/modified/deleted.

Button	Description
PLC Change	The model of the set PLC is changed.
Delete PLC	The set PLC is deleted.
Add COM2 PLC	Add a PLC to connect to the COM2 port.
Add COM1 PLC	Add a PLC to connect to the COM1 port.
Add ethernet PLC	Add a PLC to connect to the ethernet port.
Add FieldBus	Add controllers for FieldBus communication.

When the set PLC model is clicked from the [Project settings list] on the left, the [Device info] and [Communication options] of the PLC are displayed on the right side.

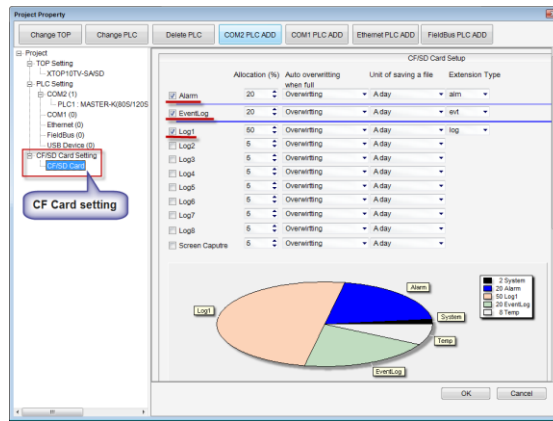
The screenshot displays a configuration window for a PLC. It is divided into two main sections: 'PLC Info' and 'PLC Comm Info'.
 In the 'PLC Info' section, the following details are shown:
 - Vendor Name: LS Industrial Systems
 - PLC Name: MASTER-K(80S/120S/200S/300S/1000S) Series CPU Direct
 - PLC Alias: PLC1
 In the 'PLC Comm Info' section, there is a dropdown menu labeled 'Station Number(PLC)' with the value '0' selected.

[Fig. Device info and communication options of the set PLC]

PLC setup	Description
Device information	The vendor/product name(model)/alias of the set PLC are displayed. [Alias] is the PLC name displayed in the address setting part of the project, and can be changed.
Comm options	Different options can be set for each PLC.

7.12.5 CF card settings

This is set when saving alarms or logging data using CF memory cards. When [CF Card] is clicked in the [Project settings list], the screen shown in the figure below appears.

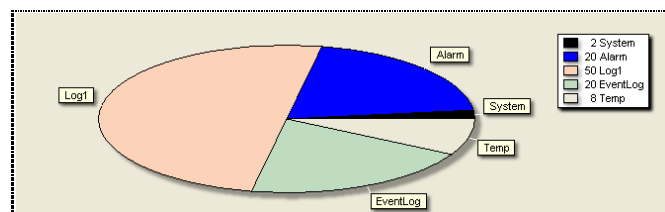


[Fig. CF memory card settings]

Alarms, logging, and event log data can be saved in CF memory cards. 1 to 8 logging lists can be set. Therefore, the list comprises Log1 ~ Log8, as shown above. First, check (☑) the data to be saved in the list. Next, set the details below.

Item	Description
Allocation (%)	Set what percentage (%) of the total capacity of the CF memory card to use for the checked item.
Memory full	<p>The mode of operation when the allocated storage space has been filled is selected, between [Overwriting] and [Stop saving].</p> <div style="border: 1px dashed black; padding: 5px; display: inline-block;"> <p>Overwriting</p> <p>Stop Saving</p> </div> <p>In [Overwriting], data continues being saved, erasing the oldest data. In [Stop saving], data saving is stopped.</p>
Save unit	<p>Select between [A day] and [A month] as the file generation interval.</p> <div style="border: 1px dashed black; padding: 5px; display: inline-block;"> <p>A day</p> <p>A month</p> <p>Saving as User defined</p> </div> <p>In [A day], files are generated every day, saving data for a day. In [A month], files are generated every month, saving data for a month.</p>

If the [Allocation (%)] part is set, a graph is displayed.



[Fig. CF memory card allocation graph]

The graph shows 2% allocated to the system, 20% allocated to alarms, 50% allocated as logging area 1, 20% allocated to the event log, and 8% unallocated.

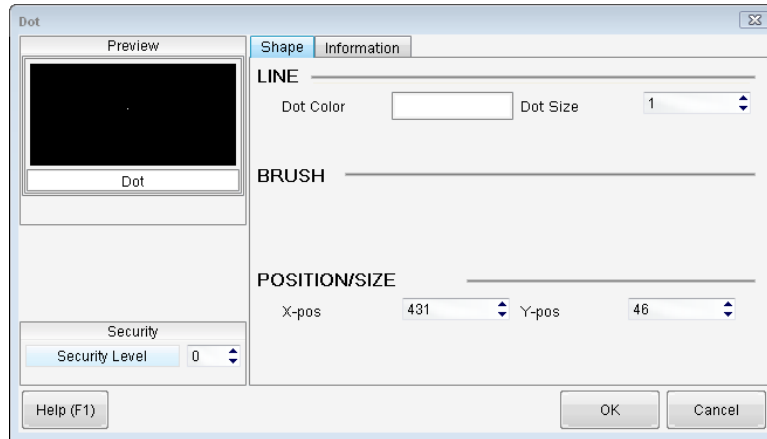
CHAPTER 8 Shape Menu

CHAPTER 8 - Shape Menu

The shape menu is used when drawing pictures on the screen. After registering shapes on the screen properties can be changed through the property screen.

8.1 Dot

Draws a dot. Dots of size 1~10dot can be drawn in various colors.



[Fig. Dot properties screen]

(1) Dot color/dot size

Set the color and size of the dot.

Line	Description
Dot color	Set the dot color using the color palette.
Dot size	Select the dot size, from 1~10dot.

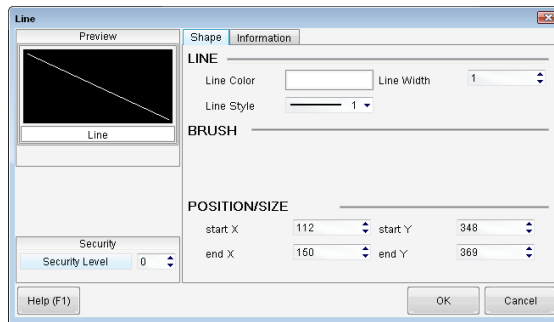
(2) Position/size

The value of the X/Y coordinates where the dot is currently located are displayed. Values can be set manually.

Position/size	Description
X position	Set the x coordinate position of the dot.
Y position	Set the Y coordinate position of the dot.

8.2 Line

Draws a line. Lines of thickness 1~10dot can be drawn in various colors and line shapes. Drop on the screen, then drag with the left mouse button pressed to draw a line. Drag with the [Shift] key on the keyboard pressed down to draw vertical or horizontal lines.



[Fig. Line properties screen]

(1) Line

Set the color, thickness, and style of the line.

Line	Description
Line color	Set the line color using the color palette.
Line width	Select the line width, from 1~10dot.
Line style	Select the style of the line.

(2) Position/size

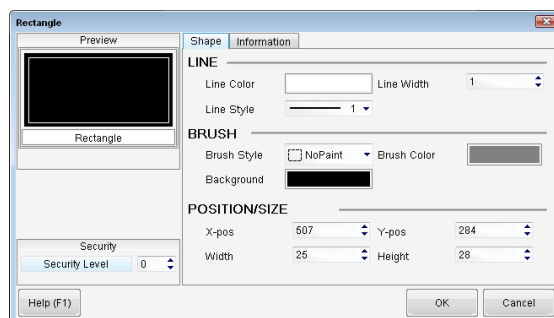
The value of the X/Y coordinates where the line is currently located, and the size of the line are displayed.

Values can be set manually.

Position/size	Description
Start X	Set the x coordinate position of the point where the line starts.
Start Y	Set the y coordinate position of the point where the line starts.
End X	Set the x coordinate position of the point where the line ends.
End Y	Set the y coordinate position of the point where the line ends.

8.3 Rectangle, rounded rectangle

Draw rectangles or rectangles with rounded corners. Drop on the screen, then drag with the left mouse button pressed to draw. Drag with the [Shift] key on the keyboard pressed down to draw a square.



[Fig. Rectangle properties screen]

8.3.1 Rectangle

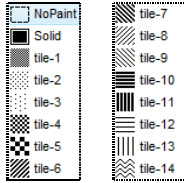
(1) Line

Set the color, thickness, and style of the lines forming the rectangle.

Line	Description
Line color	Set the line color using the color palette.
Line width	Select the line width, from 1~10dot.
Line style	Select the style of the line.

(2) Brush

The inside of the rectangle is filled with color. Two types of color can be selected to apply a pattern.

Fill	Description
Fill method	Select the internal pattern for rectangles or rounded rectangles from the list below. When [tile-1 ~ tile-14] are selected, the color set in [Brush color] is used as the color of the lines. 
Brush color	Set the color of the parts shown in black in the patterns in [Brush style].
Background color	Set the color of the parts shown in white in the patterns in [Brush style].

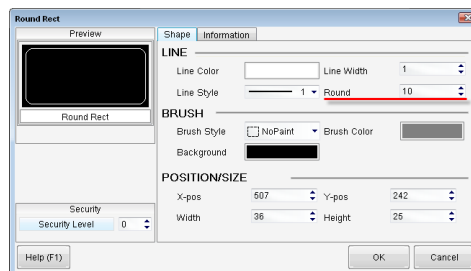
(3) Position/size

The value of the X/Y coordinates where the rectangle is currently located, and the size of the rectangle are displayed. Values can be set manually.

Position/size	Description
X position	Set the x coordinate position of the rectangle or rounded rectangle.
Y position	Set the y coordinate position of the rectangle or rounded rectangle.
Width	Set the width of the rectangle or rounded rectangle.
Height	Set the height of the rectangle or rounded rectangle.

8.3.2 Rounded rectangle

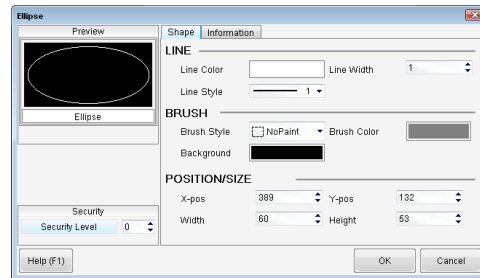
The settings are the same as for rectangle, with an additional item for rounding of the corners. [Round] indicates the degree of roundness of the corners. The larger the value, the rounder the shape is. [0] denotes a rectangle.



[Fig. Rounded rectangle properties]

8.4 Ellipse

Draw a circle or an ellipse. Various colors and line types are supported. Using the internal fill options, brush color and background colors, the inside of the circle can be painted.



[Fig. Circle properties screen]

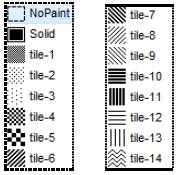
(1) Line

Set the color, thickness, and style of the lines forming the circle.

Line	Description
Line color	Set the line color using the color palette.
Line width	Select the line width, from 1~10dot.
Line style	Select the style of the line.

(2) Brush


The inside of the circle is filled with color. Two types of color can be selected to apply a pattern.

Fill	Description
Fill method	<p>Select the internal pattern for the circle from the list below.</p> <p>When [tile-1 ~ tile-14] are selected, the color set in [Brush color] is used as the color of the lines.</p> 
Brush color	Set the color of the parts shown in black in the patterns in [Brush style].
Background color	Set the color of the parts shown in white in the patterns in [Brush style].

(3) Position/size

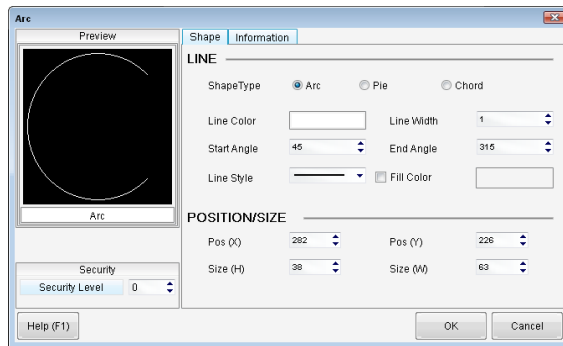
The value of the X/Y coordinates where the circle is currently located, and the size of the circle are displayed. Values can be set manually.

Position/size	Description
X position	Set the x coordinate position of the circle.
Y position	Set the y coordinate position of the circle.

Width	Set the height of the circle.
Height	Set the height of the circle.
<p>Note</p>  <p>Draw shapes after pressing the icon above in the toolbar. The shape is drawn out from a central spot. This option is especially useful when drawing circles.</p>	

8.5 Arc, pie, chord

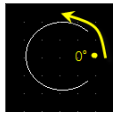
Arcs, pies, and chords are drawn. Various colors and line types are supported; by setting angle degrees, various shapes can be expressed. The size can be adjusted manually by dragging with the left mouse button pressed.



[Fig. Arcs, pies, and chord properties screen]

(1) Line

Select arc, pie or chord from the shape type, and set the color, width, and style of the lines.

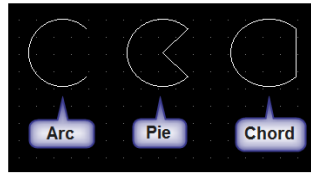
Line	Description	
Shape type	Select from arc, pie, and chord.	
Line color	Set the line color using the color palette.	
Line width	Select the line width, from 1~10dot.	
Start angle	Enter the angle of the upper end point (start angle)	
End angle	Enter the angle of the lower end point (end angle)	
Line style	Select the style of the line.	
Brush Color	Set the inner color of the pie or chord. This is not supported for arcs.	

(2) Boundary

The value of the X/Y coordinates where the arc, pie or chord is currently located, and the size are displayed. Values can be set manually.

Boundary	Description
X axis position	Set the x coordinate position of the arc, pie, or chord.
Y axis position	Set the y coordinate position of the arc, pie, or chord.

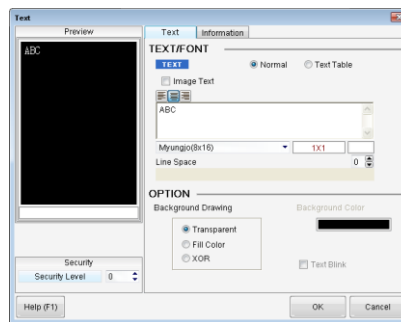
Height	Set the height of the arc, pie, or chord.
Width	Set the width of the arc, pie, or chord.



[Fig. Arc, pie, chord]

8.6 TEXT

Register strings. Strings are displayed using touch fonts and various PC Windows fonts.



[Fig. String properties screen]

(1) Text/font

Enter text and set the font and size.

Text/font	Description
Normal	Display the entered text using touch internal font.
Text table	Select and use a string registered in the [Text table].
Image text	The entered text is displayed using a PC Windows font. The text is converted internally into an image, and transmitted to the touch.

(2) Option

The background properties of the text are set, and a blink effect can be applied. Background properties are as follow.

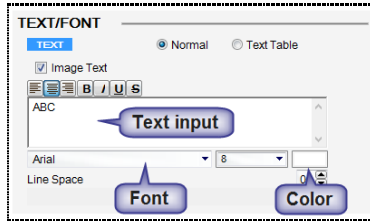
Option	Description
Transparent	A transparent background is displayed for the text.
Fill color	Color is used in the text background. Set the color in [Background color]. If [Fill color] has been set, the [Blink] effect can be used. [Blink] is an emphasizing effect where the string appears and disappears, in 0.5 second intervals.
XOR	When the background color of text and a shape in the background overlap, the colors are displayed as XOR (reverse). Set the color to XOR in [Background color].

(3) Text input setting

There are three ways of text input : [Normal], [Image text], and [Text table].

① Normal text

Text is displayed using fonts in the touch. Enter the text in the text input part, and set detailed properties.

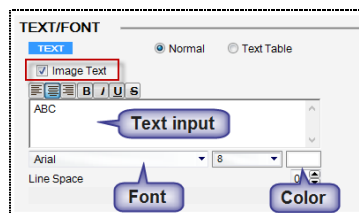


[Fig. Normal text]

Normal text	Description
Align	Select from [Left], [Center], and [Right] align.
Text input	Enter the text to display.
Font	Select the font of the displayed font from the list below.
Text size 	The width/height of the font selected under font is magnified by the font width ratio.
Color	Set the color of the text.
Line space	Set the space between lines if 2 or more lines of a string have been entered.





② Image text

Text is displayed using PC Windows fonts. Therefore, a greater variety of expression than normal text is possible. The text is converted internally into an image, and transmitted to the touch. As seen in the figure, check [Image text], and enter the text.



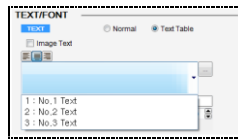
[Fig. Image text]

The usage method is the same as [Normal text]. The text size input is changed, and are added.

Display property	Description
	Text is displayed in bold.
	Text is displayed with italics.
	Text is underlined.
	A cancel line is drawn across the middle of the text.

③ Text table

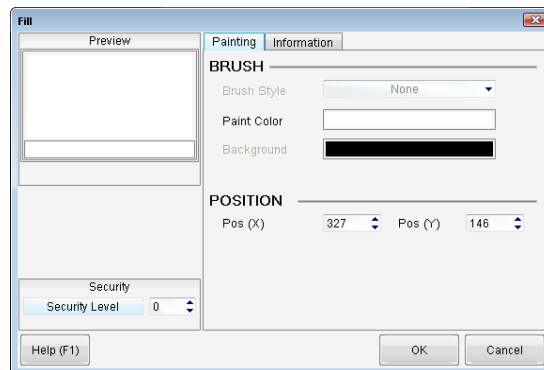
Select and display a string registered in the text table. To use the text table, [Project]-[Text table] must be set from the menu first. (See [7.3] in [chapter 7] for the text table.) When [Text table] is selected, the display is changed as seen in the figure below. Select and use a string from the list.



[Fig. Text table text]

8.7 Fill

Fills a closed area with color. Register inside a closed area formed by lines, shapes, or closed areas inside bitmaps to fill with color.




[Fig. Fill properties screen]

(1) Brush

Set the color to use for [Fill]

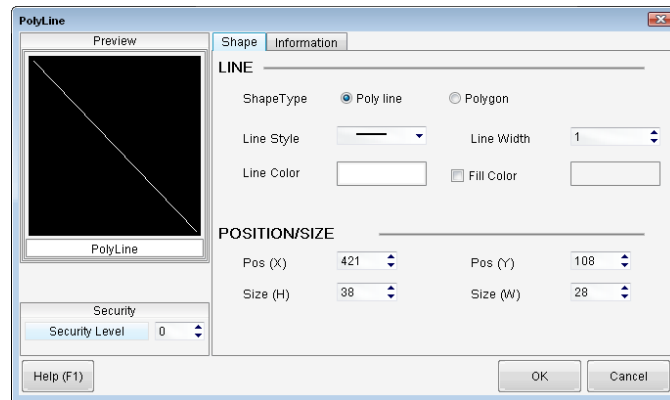
(2) Position/size

The value of the X/Y coordinates where fill is currently located are displayed. Values can be set manually.

Position/size	Description
X position	Set the x coordinate position for fill.
Y position	Set the y coordinate position for fill.
 Note	[Fill] must be registered after drawing a closed area. [Fill] works properly only if the closed area is created beforehand.

8.8 Polyline, polygon

Polylines or polygons are registered on the screen. When dots are drawn consecutively, polylines connecting those points, and polygons connecting the first and last points are drawn. Left click the mouse on the screen multiple times to draw the desired polyline or polygon. End by right clicking the mouse. Yellow trackers are displayed on the dots. The shape can be changed by dragging these trackers.



[Fig. Polyline properties screen]

(1) Line

Set the color, thickness, and style of the lines forming the polyline or polygon.

Line	Description
Shape type	Select polyline or polygon.
Line style	Select the style of the line from the list below.
Line width	Select the line width, from 1~10dot.
Line color	Set the line color using the color palette.
Fill color	Set the internal color of the polygon.

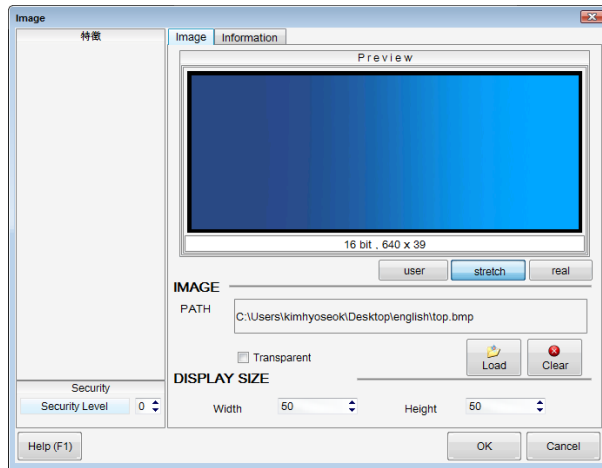
(2) Boundary

The value of the X/Y coordinates where the polyline/polygon is currently located, and the size are displayed. Values can be set manually.

Boundary	Description
X axis position	Set the x coordinate position of the polyline or polygon.
Y axis position	Set the y coordinate position of the polyline or polygon.
Height	Set the height of the polyline or polygon.
Width	Set the width of the polyline or polygon.

8.9 Image

Register images (bitmap, jpg, jpeg). Images saved on the PC are displayed on the screen in the desired size.



[Fig. Image properties screen]

(1) Preview

Registered images are shown in the preview.

Preview	Description
User	The image in the preview screen is optimized to the registered image size, that is, [DISPLAY SIZE].
Stretch	The image is stretched to fill the entire preview screen.
Real	The image is displayed in the preview in the original resolution.

(2) Loading images

Load images saved on the PC, or delete loaded images.

Image	Description
Path	The path of the loaded image is displayed.
Transparent	A transparent background is displayed for the image. If transparent is selected, the black parts of bitmaps are not displayed, making them transparent.
Load	Load images using the [Load image] screen.
Erase	Delete the loaded image.

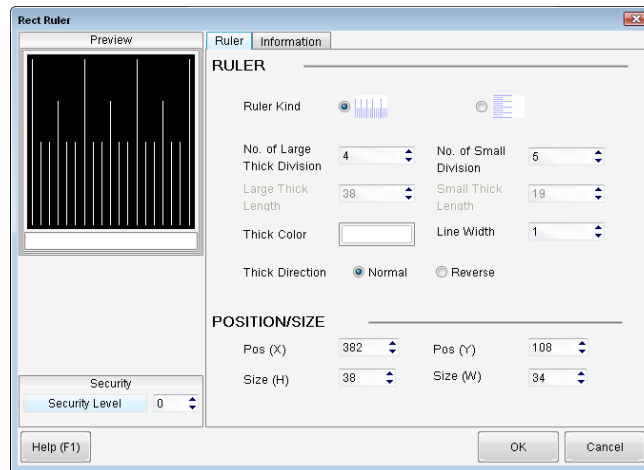
(3) Display size

The size of the current image is displayed. Values can be set manually.

Display size	Description
Width	Set the width of the image.
Height	Set the height of the image.

8.10 Rect ruler

Register a rectangular ruler on the screen. This is used when drawing vertical or horizontal rulers, and for graphs. The size can be adjusted manually by dragging with the left mouse button pressed. Drag with the [Shift] key on the keyboard pressed down to draw a square ruler.



[Fig. Rect Ruler properties screen]

(1) Ruler

Set the shape, direction, color and thickness of the ruler.

Ruler	Description
Ruler kind	Select between horizontal and vertical rulers
No. of large thick division	Enter the number of large thick divisions to insert within the designated area.
No. of small division	Enter the number of small divisions to insert between the large thick divisions.
Large thick length	Large thick division length applies only to circle ruler. Therefore, this option is disabled.
Small thick length	Small division length applies only to circle ruler. Therefore, this option is disabled.
Thick color	Select the color for the lines that form the ruler.
Line width	Select the line width, from 1~10dot.
Thick direction	For horizontal rulers, the direction is up or down. For vertical rulers, the direction is left or right.

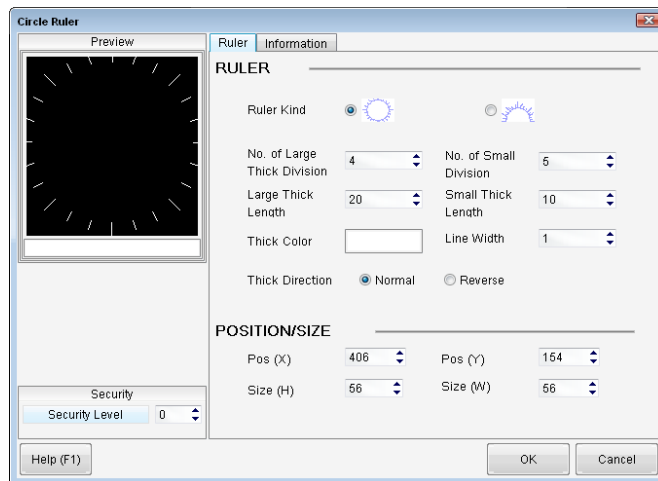
(2) Position

The value of the X/Y coordinates where the rect ruler is currently located, and the size of the rect ruler are displayed. Values can be set manually.

Position	Description
X axis position	Set the x coordinate position of the rect ruler.
Y axis position	Set the y coordinate position of the rect ruler.
Height	Set the height of the rect ruler.
Width	Set the width of the rect ruler.

8.11 Circle ruler

Register a circle ruler on the screen. This is used when drawing circle or semicircle rulers, and for graphs. By dragging with the left mouse button pressed, the size of the ruler can be adjusted directly. By dragging with the [Shift] key on the keyboard press, circular rulers can be drawn.



[Fig. Circle Ruler properties screen]

(1) Ruler

Set the shape, direction, color and thickness of the ruler.

Ruler	Description
Ruler kind	Select between circle and semicircle rulers
No. of large thick division	Set how many large thick divisions the area inside the circle will be divided into.
No. of small division	Set how many small divisions to insert between the thick divisions.
Large thick length	Set the length of the large thick divisions.
Small thick length	Set the length of the small divisions.
Thick color	Select the color for the lines that form the ruler.
Line width	Select the line width, from 1~10dot.
Thick direction	Select the direction of the divisions, between pointing inward and pointing outward from the circle.

(2) Position

The value of the X/Y coordinates where the ruler is currently located, and the size of the ruler are displayed. Values can be set manually.

Position	Description
X axis position	Set the x coordinate position of the circle ruler.
Y axis position	Set the y coordinate position of the circle ruler.
Height	Set the height of the circle ruler.
Width	Set the width of the circle ruler.

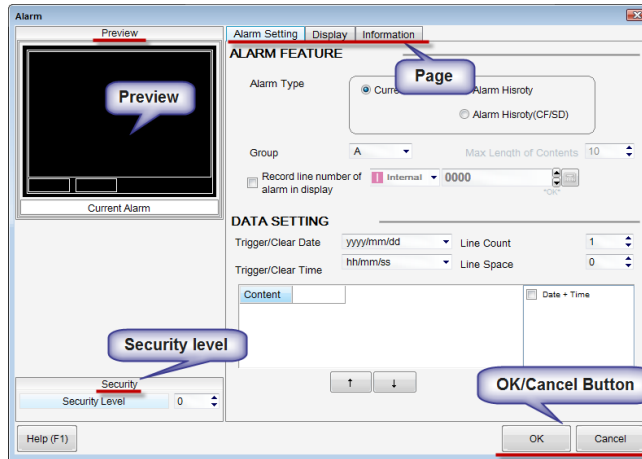
CHAPTER 9 Common Tag Settings

CHAPTER 9 - Common Tag Settings

Before illustrating using tags, please use common tag settings thoroughly for proper use.

9.1 Composition of the tag properties screen

The right side of the tag properties screen comprises individual screens. On the left are the preview and security setting functions. On the bottom, there are the [OK] and [Cancel] buttons.

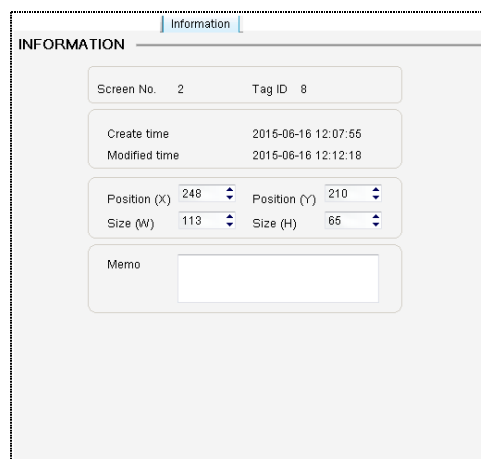


[Fig. Composition of the tag properties screen]

9.1.1 Information page

Each tag has a different page composition. However, every tag has an [Information] page where tag information is displayed. Therefore, the [Information] page is described in common tag settings.

The [Information] page shows information on the registered tag. The number of the registered screen, tag ID, time created and time modified, location and size are shown. Location and size info can edit.



[Fig. Information page]

Information	Description
Screen number	This is the number of the screen where the tag is registered.

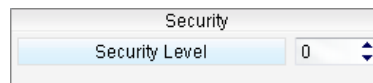
Tag ID	This is the tag ID. The ID number is assigned to shapes and tags in the order they are registered to the screen.
Create time	This is the time the tag was first registered to the screen.
Modified time	This is the time of the last modification of the tag.
X axis position	This is the x coordinate of the top left corner of the position the tag was registered to the screen.
Y axis position	This is the y coordinate of the top left corner of the position the tag was registered to the screen.
Width	This is the tag width.
Height	This is the tag height.
Memo	Tag info can be entered into the memo.

9.1.2 Preview

[Preview] shows the tag according to the settings in the tag information screen. The appearance of the tag here is identical to the tag registered to the actual edit screen. Changes to properties can be conveniently viewed through the [Preview], without having to check the actual edit screen.

9.1.3 Security

Individual security levels can be set for all shapes and tags. Security levels are set in [Password setting] of the [Project] menu. (See [7.10] of [chapter 7] for password settings.)





[Fig. Security level]

Passwords apply only when level passwords are enabled in [Password settings.] A security level of [0] indicates no security setting. If a security level of [1] or higher is entered, a tag is visible only if a level equal to or greater than the value entered for the security level is used to log in. If the login is not performed, the applicable tag is not visible on the screen.

9.1.4 OK/cancel buttons

OK/Cancel buttons are provided on the bottom right corner of the information screen.

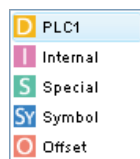
Button	Description
	After completing all settings, click the OK button to save.
	If this button is pressed, the changes to tag information made after opening the information screen are not saved, and are canceled. The tag properties before the tag information screen was opened are preserved.

9.2 Address entry

This is the method of setting the address in a project.

9.2.1 Address types

There are 5 major types of device : PLC (connected controller) address, internal touch address, special touch address, symbol address, and offset address.



[Fig. Address types]

A detailed explanation of each address follows.

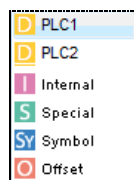
Address	Description
PLC address.	[D] stands for device.
Internal address	[I] stands for internal address.
Special address	[S] stands for special address.
Symbol address	[SY] stands for symbol address.
Offset address	[O] stands for offset address.

(1) PLC address.

This is the address of the controller that communicates with the touch. List items are created. The number of list items is equal to the number of controllers connected.

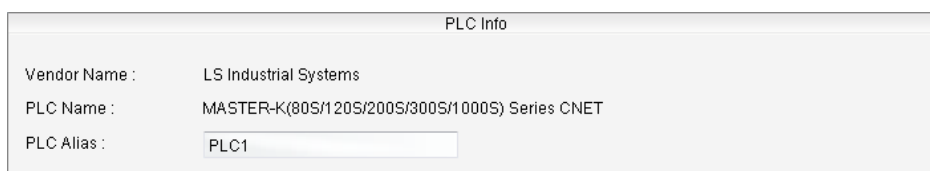
① PLC name

Multiple controllers can be connected to one touch. When multiple controllers are connected, PLC names are generated as [PLC1], [PLC2], [PLC3], ... by default, as seen in the figure below.



[Fig. PLC names]

By selecting each PLC in [Project]-[Project property], the name of each PLC can be changed in [Alias] under [Device information].



[Fig. Changing the PLC name]

② Characteristics of PLC addresses

In PLC addresses, each address has a separate area (identifier), station, and place number. In the project,

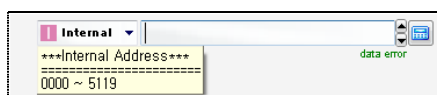
addresses must be entered appropriately to the address format of each PLC. For example, the addresses for MASTER_K 80S from LSIS are as seen in the following table.

Identifier	Range of stations used	Number of places in the station
P (Input/output relay)	0000 ~ 015F	4
M (internal relay)	0000 ~ 191F	4
K (Keep relay)	0000 ~ 031F	4
L (Link relay)	0000 ~ 063F	4
F (Special relay)	0000 ~ 063F	4
T (Timer)	0000 ~ 1255	4
C (Counter)	000 ~ 255	3
S (Step relay)	00.00 ~ 99.99	5
D (Data register)	0000 ~ 4999	4

Details on the address of each PLC are provided in the [Communication Manual] provided separately for each PLC. The range of the address range and stations which can be used when entering PLC addresses in the program are indicated. When a wrong address has been entered, an error is displayed, preventing entry of wrong addresses.

(2) Internal address

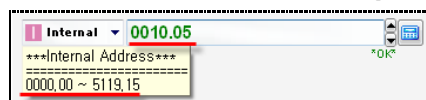
This is the internal address of the touch. The touch has an internal address range. This area is all in [16 bit], that is, in word units. Also, as seen in the description of the figure below, there is no separate identifier. The range of stations that can be used is from [0000] to [5119].



[Fig. Internal address used as a word address]

When using a word address, as the internal address is in word units, the station number can be entered as is. When using as a bit address, the bit place must be entered after the station number.

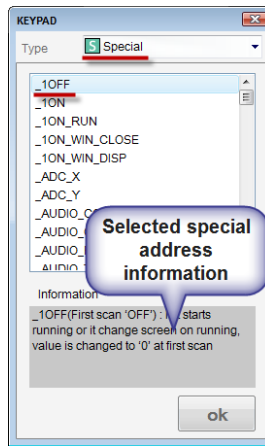
For example, when using the 6th bit of internal address station 10, [10.05] is entered.



[Fig. Internal address used as a bit address]

(3) Special address

This is the internal special address of the touch. Special addresses are internal addresses assigned with individual names for special functions. They are all in [16 bit] word units. When special address is selected in the [Address keypad] as seen in the figure below, a description of each special address can be seen in the information part on the bottom.



[Fig. Special address]

Special addresses are as follows.

No	Special address	Description
1	_1OFF	Becomes 0 at the first scan when the touch begins operation, or transitions screens.
2	_1ON	Becomes 1 at the first scan when the touch begins operation, or transitions screens.
3	_1ON_RUN	Becomes 0 at the first scan when the touch begins operation.
4	_ADC_X	Saves the Analog to Digital Convert X position upon touch.
5	_ADC_Y	Saves the Analog to Digital Convert Y position upon touch.
6	_AUDIO_CONTROL	This is the audio control buffer, which stops at 0, and plays for values other than 0.
7	_AUDIO_CUR_TIME	Saves the current audio playback time.
8	_AUDIO_FILE_NUM	Saves the file number to play audio.
9	_AUDIO_TOTAL_TIME	Saves the total audio playback time.
10	_AUDIO_VOLUME	This is the buffer that saves audio volume.
11	_BACK_OFF_COUNTDOWN	This is the remaining time until the backlight is turned off. (Minutes)
12	_BACK_OFF_TIME	This is the backlight off setting time. (Minutes)
13	_BARCODE_READ	Becomes 1 when the barcode reader successfully reads a barcode.
14	_BAT_WARNING	This is the battery warning that becomes 1 when battery replacement is needed.
15	_BL_BR_CONT	This is the LCD brightness level. Step0~Step7 are provided. This is the value set in [LCD brightness adjustment] in the touch menu screen.
16	_BTCAP	This is the buffer to display remaining battery life for the HTOP.
17	_CF_ALARM_CAPA	This is the capacity used by alarms in the CD memory card.
18	_CF_ALARM_SRCH_DAY	This is a special buffer for searching alarm data saved in the CF. After setting the date in the year/month/date special buffer, press the button set using touch tag-[Special function]-[CF Alarm Search(Date)] to display the

		applicable alarms.
19	_CF_ALARM_SRCH_MONTH	This is a special buffer for searching alarm data saved in the CF. After setting the date in the year/month/date special buffer, press the button set using touch tag-[Special function]-[CF Alarm Search(Date)] to display the applicable alarms.
20	_CF_ALARM_SRCH_YEAR	This is a special buffer for searching alarm data saved in the CF. After setting the date in the year/month/date special buffer, press the button set using touch tag-[Special function]-[CF Alarm Search(Date)] to display the applicable alarms.
21	_CF_EJECT	This flag is set before removing the CF memory card. It is set to 1 before the CF memory card is removed.
22	_CF_EVENTVIEW_SRCH_DAY	This is a special buffer for searching Event Log data saved in the CF. After setting the date in the year/month/date special buffer, press the button set using touch tag-[Special function]-[CF Event Log Search(Date)] to display the applicable Event Logs.
23	_CF_EVENTVIEW_SRCH_MONTH	This is a special buffer for searching Event Log data saved in the CF. After setting the date in the year/month/date special buffer, press the button set using touch tag-[Special function]-[CF Event Log Search(Date)] to display the applicable Event Logs.
24	_CF_EVENTVIEW_SRCH_YEAR	This is a special buffer for searching Event Log data saved in the CF. After setting the date in the year/month/date special buffer, press the button set using touch tag-[Special function]-[CF Event Log Search(Date)] to display the applicable Event Logs.
25	_CF_INSERT	This becomes 1 when a CF memory card is inserted into the touch.
26	_CF_LOGGED_CAPA_1	This is the capacity used by Log1 data in the CD memory card. (0.00%)
27	_CF_LOGGED_CAPA_2	This is the capacity used by Log2 data in the CD memory card. (0.00%)
28	_CF_LOGGED_CAPA_3	This is the capacity used by Log3 data in the CD memory card. (0.00%)
29	_CF_LOGGED_CAPA_4	This is the capacity used by Log4 data in the CD memory card. (0.00%)
30	_CF_LOGGED_CAPA_5	This is the capacity used by Log5 data in the CD memory card. (0.00%)
31	_CF_LOGGED_CAPA_6	This is the capacity used by Log6 data in the CD memory card. (0.00%)
32	_CF_LOGGED_CAPA_7	This is the capacity used by Log7 data in the CD memory card. (0.00%)
33	_CF_LOGGED_CAPA_8	This is the capacity used by Log8 data in the CD memory card. (0.00%)
34	_CN_ERR	This becomes 1 when a comm error occurs in the COM2 port during operation.
35	_CN_ERR_P2	This becomes 1 when a comm error occurs in the COM1 port during operation.
36	_CN_ERR_PE	This becomes 1 when a comm error occurs in the ethernet port during operation.
37	_COMM_BLOCK_1N_COM1	This is used for [1:N] communication in the COM1 port.

		<p>The applicable bit position corresponds to the area code.</p> <p>When this bit is ON, communication with the applicable area code is not performed.</p>
38	_COMM_BLOCK_1N_COM2	<p>This is used for [1:N] communication in the COM2 port.</p> <p>The applicable bit position corresponds to the area code.</p> <p>When this bit is ON, communication with the applicable area code is not performed.</p>
39	_COMM_STS_1N_COM1	<p>This 32 bit special buffer is used for [1:N] communication in the COM1 port.</p> <p>The applicable bit position corresponds to the area code.</p> <p>The comm status for each area code is displayed.</p> <p>If the value is 1, the controller for the applicable area code is in comm error state.</p>
40	_COMM_STS_1N_COM2	<p>This 32 bit special buffer is used for [1:N] communication in the COM2 port.</p> <p>The applicable bit position corresponds to the area code.</p> <p>The comm status for each area code is displayed.</p> <p>If the value is 1, the controller for the applicable area code is in comm error state.</p>
41	_DAY_OF_THE_WEEK	<p>This is the day of week for the date set in the touch. (0-Sunday, 1-Monday, 2-Tuesday, 3-Wednesday, 4-Thursday, 5-Friday, 6-Saturday)</p>
42	_DOCVIEW_ALL	<p>This is the total number of pages displayed in the DocViewer tag.</p>
43	_DOCVIEW_NUM	<p>This is the number of the current page displayed in the DocViewer tag.</p>
44	_ETH_IP1_RUN	<p>This is a buffer used to change the PLC comm IP during operation, which sets IP1.</p>
45	_ETH_IP2_RUN	<p>This is a buffer used to change the PLC comm IP during operation, which sets IP2.</p>
46	_ETH_IP3_RUN	<p>This is a buffer used to change the PLC comm IP during operation, which sets IP3.</p>
47	_ETH_IP4_RUN	<p>This is a buffer used to change the PLC comm IP during operation, which sets IP4.</p>
48	_ETH_PLC_NO	<p>This is a buffer used to change the PLC comm IP during operation, which designates the PLC order registered in the project. (Starts from 1)</p>
49	_ETH_READ_PORT_RUN	<p>This is a buffer used to change the PLC comm IP during operation, which designates the read port.</p>
50	_ETH_WRITE_PORT_RUN	<p>This is a buffer used to change the PLC comm IP during operation, which designates the write port.</p>
51	_EVENT_LOG_CAPA	<p>This special buffer displays the CF capacity (%) for Event Log.</p>
52	_FUN_KEY_VAL	<p>This is the number of the function key pressed in the extruder (for LSMtron only).</p>
53	_KEY_DISP32(32Bit)	<p>This 32 bit buffer for displaying input key data is used in the display</p>

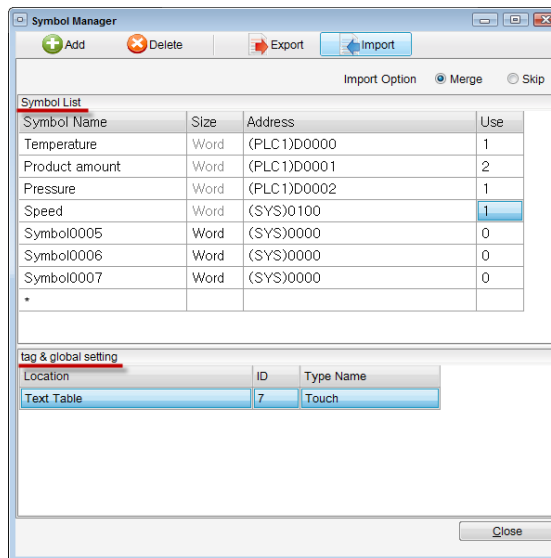
		keyboard tag.
54	_KEY_DSP	This 16 bit buffer for displaying input key data is used in the display keyboard tag.
55	_KEY_ENT	This beocmes 1 when the [Enter] key is pressed in the touch.
56	_KEY_INPUT_MAX(32Bit)	This is the maximum input value used in the display keyboard tag.
57	_KEY_INPUT_MIN(32Bit)	This is the minimum input value used in the display keyboard tag.
58	_KEY_STR_DISP32 (32Bit)	This is a buffer for displaying string input.
59	_LOGED_ALL_1	If the total log count is reached in Log1, this becomes 1.
60	_LOGED_ALL_2	If the total log count is reached in Log2, this becomes 1.
61	_LOGED_ALL_3	If the total log count is reached in Log3, this becomes 1.
62	_LOGED_ALL_4	If the total log count is reached in Log4, this becomes 1.
63	_LOGED_ALL_5	If the total log count is reached in Log5, this becomes 1.
64	_LOGED_ALL_6	If the total log count is reached in Log6, this becomes 1.
65	_LOGED_ALL_7	If the total log count is reached in Log7, this becomes 1.
66	_LOGED_ALL_8	If the total log count is reached in Log8, this becomes 1.
67	_LOGED_ALL_CLR_1	If this value is not 0, all data in Log1 is erased. After logging data is erased, the value automatically becomes 0.
68	_LOGED_ALL_CLR_2	If this value is not 0, all data in Log2 is erased. After logging data is erased, the value automatically becomes 0.
69	_LOGED_ALL_CLR_3	If this value is not 0, all data in Log3 is erased. After logging data is erased, the value automatically becomes 0.
70	_LOGED_ALL_CLR_4	If this value is not 0, all data in Log4 is erased. After logging data is erased, the value automatically becomes 0.
71	_LOGED_ALL_CLR_5	If this value is not 0, all data in Log5 is erased. After logging data is erased, the value automatically becomes 0.
72	_LOGED_ALL_CLR_6	If this value is not 0, all data in Log6 is erased. After logging data is erased, the value automatically becomes 0.
73	_LOGED_ALL_CLR_7	If this value is not 0, all data in Log7 is erased. After logging data is erased, the value automatically becomes 0.
74	_LOGED_ALL_CLR_8	If this value is not 0, all data in Log8 is erased. After logging data is erased, the value automatically becomes 0.
75	_LOGED_CUR_BL_1	The current number of logs in Log1 is displayed.
76	_LOGED_CUR_BL_2	The current number of logs in Log2 is displayed.
77	_LOGED_CUR_BL_3	The current number of logs in Log3 is displayed.
78	_LOGED_CUR_BL_4	The current number of logs in Log4 is displayed.
79	_LOGED_CUR_BL_5	The current number of logs in Log5 is displayed.
80	_LOGED_CUR_BL_6	The current number of logs in Log6 is displayed.
81	_LOGED_CUR_BL_7	The current number of logs in Log7 is displayed.
82	_LOGED_CUR_BL_8	The current number of logs in Log8 is displayed.

83	_LOGED_ONE_1	This value becomes 1 whenever logging occurs once in Log1.
84	_LOGED_ONE_2	This value becomes 1 whenever logging occurs once in Log2.
85	_LOGED_ONE_3	This value becomes 1 whenever logging occurs once in Log3.
86	_LOGED_ONE_4	This value becomes 1 whenever logging occurs once in Log4.
87	_LOGED_ONE_5	This value becomes 1 whenever logging occurs once in Log5.
88	_LOGED_ONE_6	This value becomes 1 whenever logging occurs once in Log6.
89	_LOGED_ONE_7	This value becomes 1 whenever logging occurs once in Log7.
90	_LOGED_ONE_8	This value becomes 1 whenever logging occurs once in Log8.
91	_MULTI_HOLD_RUN	In [N:1] communication, when this is set to 1, the controller communicates only with the applicable touch.
92	_MULTI_HOLD_STS	In [N:1] communication, this value becomes [1] if there is a touch HOLD state among the connected touches.
93	_MULTI_LANG	This changes the type of language set in the text table. For [0], the language in the first column of the text table is displayed, and For [1], the language in the second column of the text table is displayed.
94	_MULTILINK_KEYHOLD	In ethernet [N:1] communication, touch is disabled if this value is [1].
95	_NETVIEW_CONTROL_IP1	This is the IP1 address when using remote control.
96	_NETVIEW_CONTROL_IP2	This is the IP2 address when using remote control.
97	_NETVIEW_CONTROL_IP3	This is the IP3 address when using remote control.
98	_NETVIEW_CONTROL_IP4	This is the IP4 address when using remote control.
99	_NETVIEW_CONTROL_LOCK	[1] disables remote control.
100	_NETVIEW_SERVICE	When using remote control, [0] enables remote monitoring only, and [1] enables remote control as well.
101	_OFF	This value is 0 at all times when the touch is operating.
102	_ON	This value is 1 at all times when the touch is operating.
103	_PARM_CUR_BLOCK	Contains the current block number of the recipe.
104	_PARM_DEFAULT_LD	If this value is not [0], the recipe data of the project is loaded to the memory of the touch. The value automatically becomes 0 when loading has been completed. Recipe data is executed once automatically when a project file has been transmitted to the touch.
105	_PARM_FILE_ERR	This value becomes 1 when an error occurs while moving a recipe block.
106	_PARM_RESTORE	If this value is not [0], the data in the current task area is stored in the memory of the touch whenever the data in the task area (target address) is changed. This is used when current task data is used the next time as well.
107	_PARM_SAVE	If this value is not [0], the data in the current task area is stored in the memory of the touch. The value automatically becomes 0 when saving has been completed.
108	_PORT_IN	(LSMtron only) displays the LED illumination state when the I/O option module is used.

109	_PORT_OUT	(LSMtrononly) This is the LED output buffer for the output TOP6L of AUX (Option board), etc.
110	_RECIPE_FINISHED	This value becomes [1] when the action of writing recipe data to the target address has been completed.
111	_RSSI	This special buffer is used to display the HTOP receiving sensitivity.
112	_RTC_DAY	This is the day (date) data of the touch RTC. (BCD 1 ~ 31)
113	_RTC_DAYOFWEEK	This is the day of week for the date set in the touch. (1-Sunday, 2-Monday, 3-Tuesday, 4-Wednesday, 5-Thursday, 6-Friday, 7-Saturday)
114	_RTC_HUR	This is the hour data of the touch RTC. (BCD 0 ~ 23)
115	_RTC_MIN	This is the minute data of the touch RTC. (BCD 0 ~ 59)
116	_RTC_MTH	This is the month data of the touch RTC. (BCD 1 ~ 12)
117	_RTC_SEC	This is the seconds data of the touch RTC. (BCD 0 ~ 59)
118	_RTC_YER	This is the year data of the touch RTC. (BCD 1999 ~ 2098)
119	_RUN_OUT	If this value is other than [0], the run screen is closed, and the menu screen is brought up.
120	_SCR_NUM	The current screen number is saved. By entering the screen number to transition to the page is transitioned.
121	_SCR_NUM_READ	The current screen number is saved. This is a read only buffer, and data cannot be written.
122	_SCR_SVE	If the value is not [0], the backlight is turned off. If the value of [0], the backlight is turned on. When the touch screen is touched when the backlight is off, the backlight is turned on, and the value automatically becomes 0.
123	_SCR_SVE_STATE	0: Backlight on state , 1: Screen save state.
124	_SCREEN_LOCK	This special buffer is used to lock/unlock touch action. If the value is 1, all touch is disable.d
125	_SECURITY_LEVEL	The security level of the current scren is saved.
126	_STN_BR_CONT	This is the LCD brightness level. (Limited to STN models)
127	_STOG	Scan reverse : During operation, the value is reversed at the time of each scan : 0->1, 1->0.
128	_T1S	Counts [0~65535] each second during operation.
129	_TOUCH_PRESSED	Turns bit 0 ON when touch tags or display keyboard tags are pressed.
130	_USB_INSERT	Is [1] if the USB host is connected.
131	_WS_ID	This buffer stores the W-STATION ID.

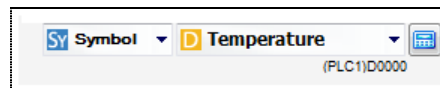
(4) Symbol address

A symbol address is an address where the address has been substituted with an alias. Assign an alias to addresses in [Symbol manager] in the [Project] menu.



[Fig. Registering addresses in the symbol manager]

Symbols are visible in the address entry window only when there is a symbol list in the symbol manager. When an address is entered, the address is saved with the newly assigned alias.

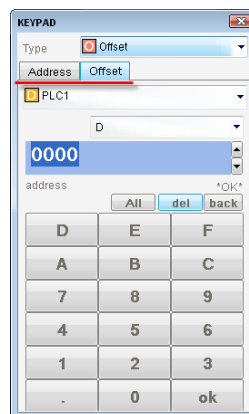


[Fig. Symbol address entry]

After assigning and registering the alias [Temperature] to station [D0000] in the symbol manager, register the symbol address as [Temperature] as shown above. (See [7.11] in [chapter 7] for the symbol manager.)

(5) Offset address

An offset address can additionally be set for each address. In this function, the station number resulting from adding the value of the offset address to the actual address can be used. If the type is set to offset, the keypad is changed as seen in the figure below. The actual address, Address, and the offset address, Offset, can be set.

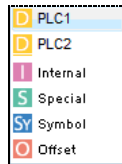


[Fig. Offset address]

The address set in the Address page is the actual address. The address set in the Offset page is the address to use as the offset value. The actual operating address becomes [Address station + value of the Offset address]. For example, if the Address is [D0020], the Offset address is [D0300] and the data at [D0300] is [0], the actual operating address is [D0020]. If the data at [D0300] is [21], the actual operating address becomes [D0041].

9.2.2 Entering addresses using the keyboard

Addresses are manually entered using the keyboard. First, select [Address type] in the combo box.



[Fig. Address type]

Next, manually enter the address, according to the format of the selected address type.

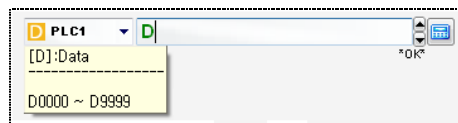
(1) Automatic address display function

The address range, station range, and the number of places in the station number are displayed automatically in a popup hint. If the address entry window is empty, a range of available addresses is displayed.



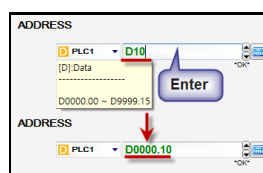
[Fig. Automatic address range display]

When an address range is selected, a simple explanation of the selected address range, and the range of available stations are displayed.



[Fig. Automatic station number range display]

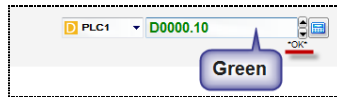
Enter the station number, according to the range of available station numbers. After entering the station number, press the [ENTER] key on the keyboard. The number of places in the addresses is matched automatically.



[Fig. Automatic station number place number matching function]

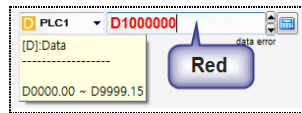
(2) Automatic error display function

If an accurate address is entered, the address is displayed in green, and [OK] is displayed beneath




[Fig. When an accurate address has been entered]

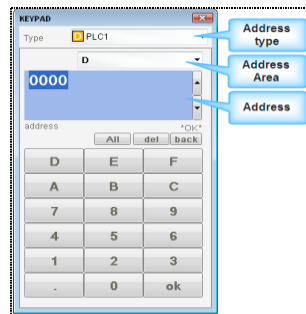
If an improper address has been entered, the address is displayed in red, and [data error] is displayed beneath. This prevents entry of improper addresses.



[Fig. When an improper address has been entered]

9.2.3 Entering addresses using the address keypad

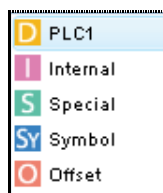
Enter addresses using the calculator shaped button () to the right of the address input area.



[Fig. Address keypad]

(1) Address input order

First, select [Address type].



[Fig. Address type]

Next, select the [Address range] according to the address type selected. When the address type is selected, a list of address ranges is automatically displayed.

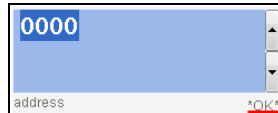


[Fig. Address range]

When PLC is selected as the [Address type], the address ranges of the applicable PLC are automatically displayed as a list in the combo box in [Address range]. Lastly, enter the station number, according to the range and number of places. The station can be entered using the keyboard, or using the number keypad toward the bottom of the address keypad. In the address keypad, like address entry using the keyboard, when a station number is entered, whether the entered station address conforms to the format of the address is displayed.

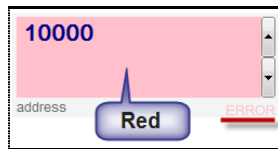
(2) Error display

When an accurate address is entered, [OK] is displayed beneath the station input window.



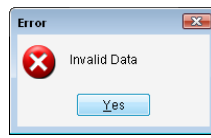
[Fig. When an accurate address has been entered]

If an improper address has been entered, the background of the station number is displayed in red, and [Error] is displayed beneath the station input window. This prevents entry of improper addresses.



[Fig. When an improper address has been entered]

When the [OK] button is pressed with an improper address entered, an error message is shown.

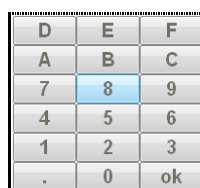


[Fig. Error Message]

(3) Input button

This button is used to enter the station number.

Button	Description
	Select all stations of the entered address.
	Deletes the station number for the selected addresses.
	The function is the same as the backspace key; the station numbers of the address entered are erased one by one.

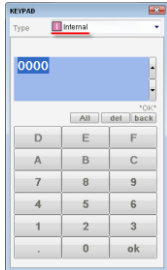
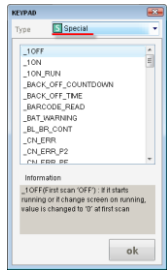
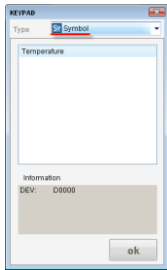


[Fig. Numeric keypad of the address keypad]

Numeric keypad	Description
A ~ F	These keys are for entry of hexadecimal data.
0 ~ 9	These are the 10 numeric keys.
.	This is the decimal key.
ok	After completing address entry, press the [OK] button to complete address entry.

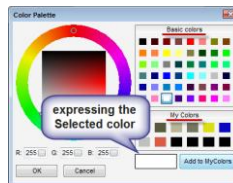
(4) Entering internal/special/symbol addresses

The address keypad for entering internal addresses/special addresses/symbol addresses is as follows.

Internal address	Special address	Symbol address
		
After entering the station number for the internal address, press the [OK] button.	Select special address, the press the [OK] button.	Select symbol address, the press the [OK] button.

9.3 Color palette

The color palette is used when selecting colors for the project. In addition to the default colors in the color palette, desired colors can be registered and used. The color palette is as follows.



[Fig. Color palette]

On the right, the default colors and the My colors palette are shown.

On the left, there is a palette where detailed colors can be selected using the mouse.

On the bottom right corner, the color is displayed as RGB values.

9.3.1 Selecting colors from basic colors.

The color palette provides 48 basic colors.



[Fig. Basic colors]

When a basic color is selected, the selected color is marked with a rectangle.

Press the [OK] button to register the color.

Below the color palette, the selected color is displayed. The selected color can be viewed here.

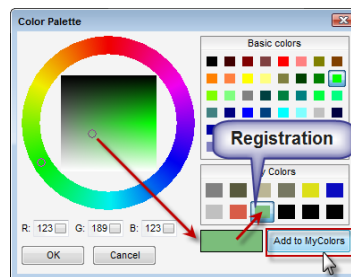


[Fig. Display of the selected color]

9.3.2 Registering/selecting My colors

In [My colors], user defined colors can be registered and used.

(1) Registering user defined colors



[Fig. Registering user defined colors]

To register a [User defined color] in [My colors], first select the part of [My colors] to register the new color to, then select the user defined color. If the part to register the new color is not selected in [My colors], the new color is registered in the first space in [My colors]. To select a user defined color, select a default color in the large circle to the left, or in [Basic colors]. The rectangular portion displays the selected color with varying brightness/saturation. Use the mouse to select the [User defined color] from here.

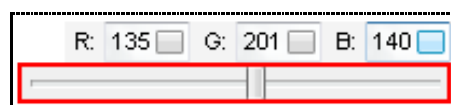
The selected color can be viewed using the RGB data displayed on the bottom, and the [Expressing the selected color] portion. To register a selected color in [My colors], press the button. A user defined color can be used in various parts of the project, once registered.

(2) Selecting colors in My colors

In the project, select a color registered in [My colors], and press the [OK] button.

9.3.3 RGB input/selection

In the color palette, RGB color codes can be entered to set the color. RGB is a code used to determine colors using combinations of R=Red, G=Green, and B=Blue.




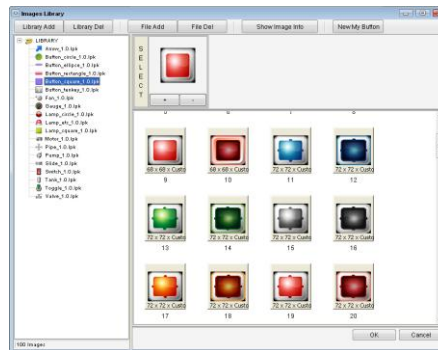
[Fig. RGB color code input]

By referring to RGB color codes, individual RGB values can be designated. Click the RGB value input part. The values can be set easily using the [Slide adjusting bar] as seen in the figure above.

9.4 Image library

[Image library] is used when registering images in touch tags or lamp tags.

[Image library] shows the bitmap images provided by default in the XDesignerPlus4 program. From here, images can be registered in projects. Users can also add new images, and newly added images can be registered in projects. When [Image library] is run from the [Tools] menu, or the  button is pressed in the part of a tag using a bitmap, [Image library] is displayed.



[Fig. Image library]

9.4.1 Composition of the image library

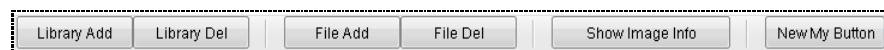
The left side has an explorer structure. When each list is selected, the images in the selected list are shown on the right side. Select and drag&drop and image into the [SELECT] box. Press [OK] to select the image.

On top, there are the [Library Add/Del], [File Add/Del], [Show Image info], and [New My Button] buttons.

(1) Library structure

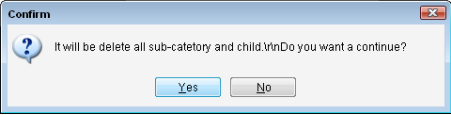
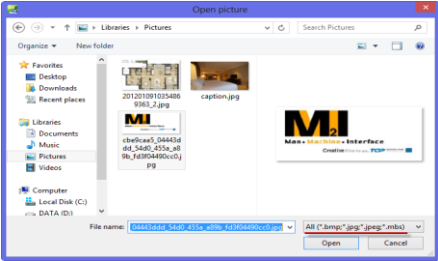

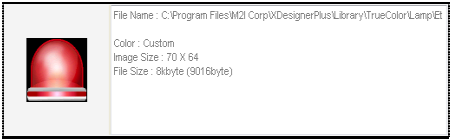
Images are in the installation path where XDesignerPlus4 is installed. The default path is [C:\Program Files\M2I Corp\XDesignerPlus4\library].

① Top button



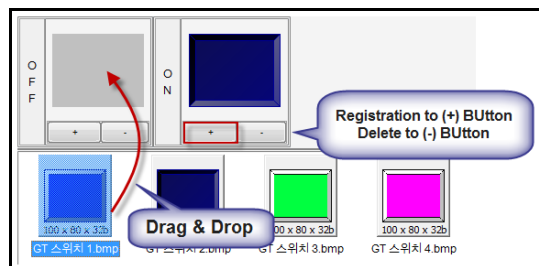
[Fig. Top button]

Button	Description
Library Add	Add a new folder to the selected folder.
Library Del	Delete the selected folder. When a folder is deleted, child folders and images in the folder are also deleted. The following confirmation message is shown.

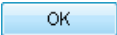
	
File Add	<p>Add a image to the selected folder. When the file add button is selected, the [Open picture] window where the image to add is selected is show.n The types of images that can be registered are [*.*bmp], [*.*jpg], [*.*jpeg], [*.*mbs].</p> 
File Del	<p>Delete the selected image. When the file del button is clicked, the following confirmation message is shown.</p> 
Show Image Info	<p>Image for the selected image is shown on the bottom right.</p>  <p>The path, color, image size, and file size of the image is shown.</p>
New My Button	<p>My button maker is opened for creation of a new button. This is equivalent to running [My button maker] in the [Tools] menu. (☞ See [44.7] in [chapter 44] for instructions on using My button maker.)</p>

9.4.2 Image registration

When a folder is selected, the images contained in the folder are shown on the bottom right corner. Select and register the images to register to the image. The selected images can be registered using mouse drag&drop, or using the [+] button. Registered images can be removed using the [-] button.



[Fig. Image registration]

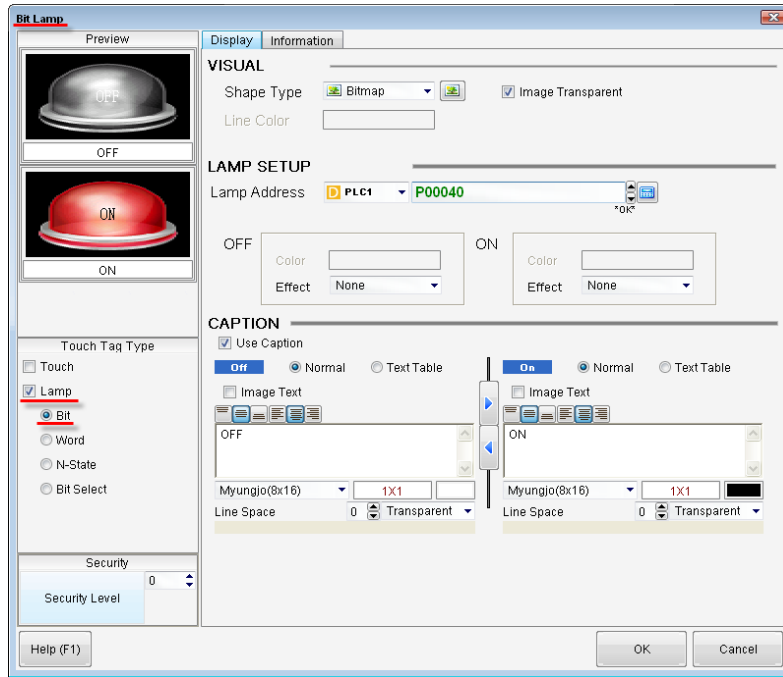
After completing image registration, press the  button on the bottom to end image registration.

CHAPTER 10 Bit Lamp Tag

CHAPTER 10 - Bit Lamp Tag

10.1 Bit Lamp Tag Overview

A bit lamp tag is a tag that indicates the ON/OFF status of a set bit address using a colored circle/rectangle or image. This is the properties screen for bit lamp tags.



[Fig. Bit lamp properties screen]

In [Touch tag type] of the properties screen, the type is set depending on the use. To use the touch function only, check [Touch] only. To use the lamp function only, check [Lamp] only. To use both functions, check both [Touch] and [Lamp]. If the lamp function has been checked, the touch tag type becomes [Bit lamp/word lamp/N lamp/Bit select] according to the selections in [Bit, Word, N state, Bit select]. For bit lamp tags, check [Lamp] only, and select [Bit].

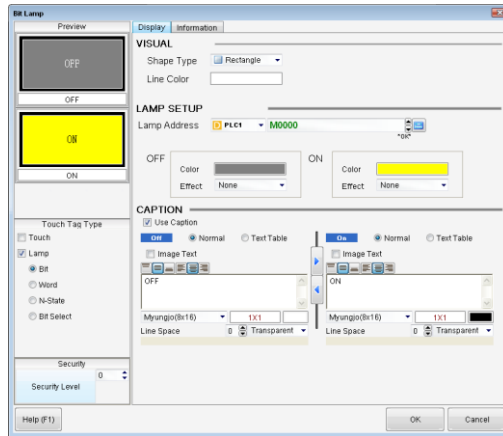
10.2 Page composition of the bit lamp properties screen

The bit lamp tag properties screen comprises the [Display] and [Information] pages.

Property page	Description
Displays	On this page, the shape and address of the lamp, and the caption are set.
Information	On this page, bit lamp tag info is displayed. The number of the registered screen, tag ID, time created and time modified, location and size are shown. Location and size info can be edited.

10.3 Display page

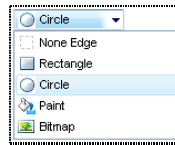
On this page, the shape and address of the lamp, and the caption are set.



[Fig. Bit lamp display page]

10.3.1 Display settings (VISUAL)

Select the shape type and set the shape of the lamp. Shape types are : [None Edge], [Rectangle], [Circle], [Paint], and [Bitmap].



[Fig. Shape Types]

Shape Types	Description
None Edge	This is a rectangular lamp without edges.
Rectangle	This is a rectangular lamp with edges.
Circle	This is a circular lamp.
Paint	With this lamp, a closed shape that has already been drawn is filled with color.
Bitmap	Image lamp.

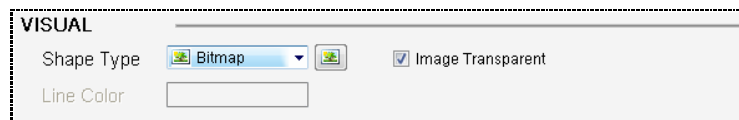
(1) Shape lamp

[None Edge], [Rectangle], [Circle] and [Paint] shape types are called shape lamps.



The color of the line is the color of the boundaries of the outlines of the shape. Among shape lamps, the line color is designated for [Rectangle] and [Circle]. Among shape lamps, [None Edge] and [Paint] do not have edges. Therefore, no line color is designated. Therefore, when [None Edge] or [Paint] is selected in shape type, the part for setting the [Line Color] is disabled.

(2) Image lamp

When the shape type has been set as [Bitmap], the lamp is called an image lamp.

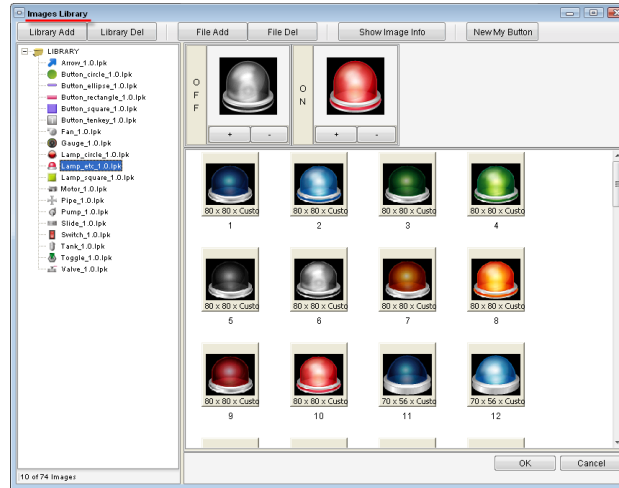


[Fig. Bitmap(image) lamp]

When [Bitmap(bitmap image)] is selected as the shape type, the  button is shown on the right side. When the  button is clicked, the [Image Library] is displayed, and the ON/OFF images can be selected.

In the [Image Library], the images provided by default in the XDesignerPlus program, and images added by the user (*.bmp), (*.jpg), (*.jpeg)) can be registered as the images for ON/OFF lamps.

(See [9.4] of [chapter 9] for info on the image library.)

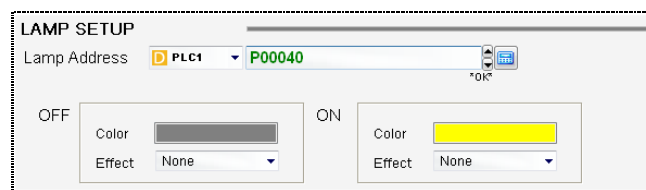


[Fig. Image library]

[Image Transparency] is a function that makes the black background of a registered image transparent, if the background color of the screen to register is not black.

10.3.2 Lamp setup

The bit address, the ON/OFF color of the shape lamp, and the blink/hide/reverse display effects are set.



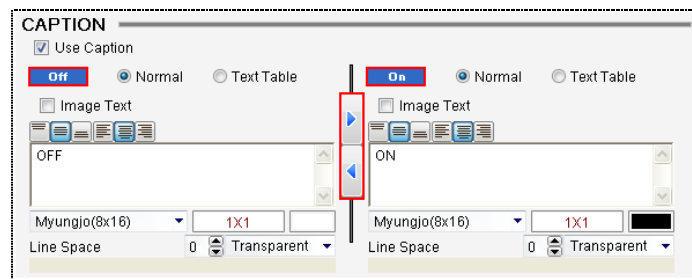
[Fig. Lamp setup]

Lamp setup	Description
Lamp address	Enter the bit address to display the ON/OFF state for.
Off color	This is the color of the lamp that is shown when lamp address data is [OFF]. This setting applies to shape lamps, and is disabled for image lamps.
ON color	This is the color of the lamp that is shown when lamp address data is [ON]. This setting applies to shape lamps, and is disabled for image lamps.
Effect (Effect)	This function applies a highlight effect to the lamp that is displayed. [Blink], [Hide] and [Reverse] effects are available.

	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;"> None Blink Hide </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> None Blink Hide Reverse </div> </div> <p style="text-align: center;">[Fig. OFF effect] [Fig. ON effect]</p> <p>No reverse function is provided for the [OFF effect].</p> <p>The [Blink] and [Hide] effects cannot be used at the same time for ON and OFF.</p>
None	No effect function is used.
Blink	The lamp appears and disappears (turns on/turns off) at 0.5 second intervals. When this option is checked for OFF, the [OFF] lamp appears and disappears. When this option is checked for ON, the [ON] lamp appears and disappears.
Hide	This function is used to hide the lamp. When this option is checked for OFF, the [OFF lamp] is not shown when OFF. When this option is checked for ON, the [ON lamp] is not shown when ON.
Reverse	This function is used to emphasize the ON state. When ON, the ON and OFF lamps are alternately displayed at 0.5 second intervals.

10.3.3 Caption

Caption is a function used to write text on ON/OFF lamps.



[Fig. Caption]

The text on the left is the text written on the OFF lamp, and the text on the right is the text to be written on the ON lamp. These can be set individually, and settings made on one side can be sent to the opposite side using the arrow buttons in the center. The text input method is the same as the method for entering [Shape]-[String].

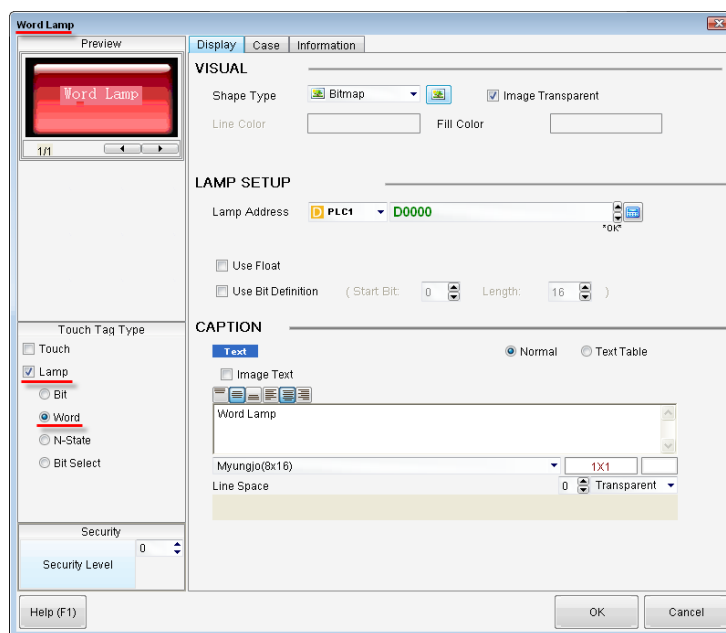
(☞ See [8.6] in [chapter 8] for instructions on how to enter text.)

CHAPTER 11 Word Lamp Tag

CHAPTER 11 - Word Lamp Tag

11.1 Word Lamp Tag Overview

A word lamp tag is a tag that shows the data for a set word address using a colored circle/rectangle or image. A word address generally refers to a [16bit] address. This is the properties screen for word lamp tags.



[Fig. Word lamp properties screen]

In [Touch tag type] of the properties screen, the type is set depending on the use. To use the touch function only, check [Touch] only. To use the lamp function only, check [Lamp] only. To use both functions, check both [Touch] and [Lamp]. If the lamp function has been checked, the touch tag type becomes [Bit lamp/word lamp/N lamp/Bit select] according to the selections in [Bit, Word, N state, Bit select]. For word lamp tags, check [Lamp] only, and select [Word].

11.2 Page composition of the word lamp properties screen

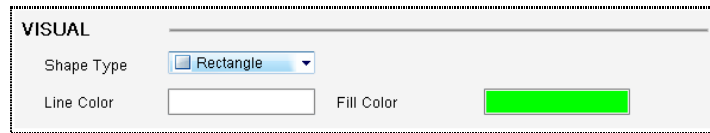
The word lamp tag properties screen comprises the [Display], [Case], and [Information] pages.

Property page	Description
Displays	On this page, the shape of the base lamp that is displayed when there is no lamp address or case, and captions can be set.
Case	On this page, the shape and the captions to be displayed depending on the case are set.
Information	On this page, word lamp tag info is displayed. The number of the registered screen, tag ID, time created and time modified, location and size are shown. Location and size info can be edited.

11.3 Display page

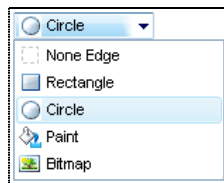
A word lamp tag is a tag that displays word address data using lamps. In the display page, the word address is entered, and the shape and caption of the base lamp that is shown when there is no case is set.

11.3.1 Display settings (VISUAL)



[Fig. Display setting]

Select the shape type and set the shape of the lamp. Shape types are : [None Edge], [Rectangle], [Circle], [Paint], and [Bitmap].



[Fig. Shape Types]

Shape Types	Description
None Edge	This is a rectangular lamp without edges.
Rectangle	This is a rectangular lamp with edges.
Circle	This is a circular lamp.
Paint	With this lamp, a closed shape that has already been drawn is filled with color.
Bitmap	Image lamp.

(1) Shape lamp

[None Edge], [Rectangle], [Circle] and [Paint] shape types are called shape lamps.

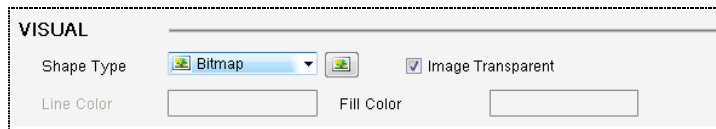
The color of the line is the color of the boundaries of the outlines of the shape. Among shape lamps, the line color is designated for [Rectangle] and [Circle]. Among shape lamps, [None Edge] and [Paint] do not have edges. Therefore, no line color is designated. Therefore, when [None Edge] or [Paint] is selected in shape type, the part for setting the [Line Color] is disabled.

The fill color refers to the color inside the shape. Set the default color that is displayed when the conditions set in the [Case] page are not satisfied.



(2) Image lamp

When the shape type has been set as [Bitmap], the lamp is called an image lamp.

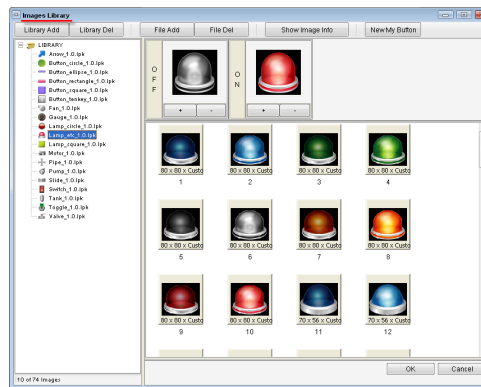
Set the default image that is displayed when the conditions set in the [Case] page are not satisfied.



[Fig. Bitmap(image) lamp]

When [Bitmap(bitmap image)] is selected as the shape type, the  button is shown on the right side. When the  button is clicked, the [Image Library] is displayed, and the image can be selected. In the [Image Library], the images provided by default in the XDesignerPlus program, and images added by the user (*.bmp), (*.jpg), (*.jpeg)) can be registered as the images for lamps.

(See [9.4] of [chapter 9] for info on the image library.)

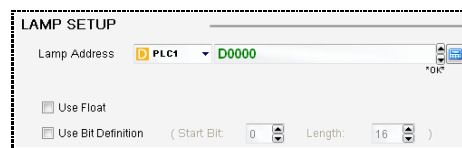


[Fig. Image library]

[Image Transparency] is a function that makes the black background of a registered image transparent, if the background color of the screen to register is not black.

11.3.2 Lamp Setup

In the lamp settings part, the lamp address is set. Because the tag is a word lamp tag, a word address is entered.



[Fig. Lamp setup]

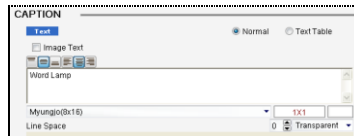
Lamp setup	Description
Use float	Using the lamp address as [Float], the address can be displayed with the lamp with decimal places. When [Use float] is checked, the data for the minimum/maximum values in the [Case] page can also be entered as float type (decimals). This cannot be used together with [Use bit definition].
Use bit definition	In use bit definition, the [Word Address] which is the case address is changed to binary. For example, if the case address is [D0000] and the data at station [D0000] is [2000], [2000] is changed to binary : [0000/0111/1101/0000].

Use Bit Definition (Start Bit: Length:)

When the start bit is set to [2] and the length is set to [4], only 4 bits from the second bit of [0000/0111/11[01/00]00] are used. [0100] changed to a decimal number becomes [4]. This cannot be used together with [Use float].

11.3.3 Caption

Caption is a function used to write text on lamps. Set the caption of the default lamp that is displayed when the conditions set in the [Case] page are not satisfied.



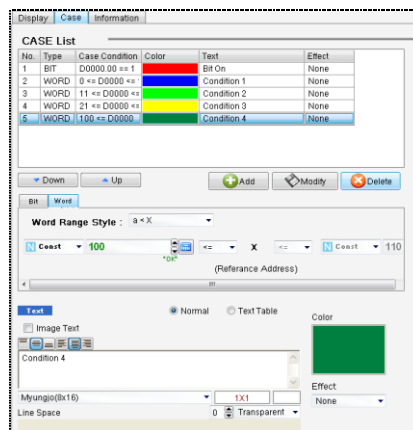
[Fig. Caption settings]

The text input method is the same as the method for entering [Shape]-[String].

(☞ See [8.6] in [chapter 8] for instructions on how to enter text.)

11.4 Case page

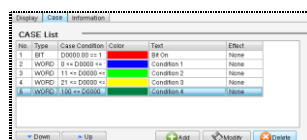
Set the shape and caption of the lamps to be displayed depending on the case. Up to 64 lamps can be set for different cases.



[Fig. Word lamp case page]

11.4.1 CASE List

This is a list of set cases. Up to 64 cases can be set for word lamps.



[Fig. Case list]

In the bottom, set the case and lamp shape. Then use the [Add/Modify/Delete] buttons to add to the list.

Also, using the [DOWN/UP] buttons, the order of the list can be changed. When there are two cases satisfying the conditions, the lamp for the case that is higher in the list is displayed.

11.4.2 Condition setting

For word lamp tags, functions are expanded, and bit conditions can be set in addition to word conditions.

(1) Bit condition

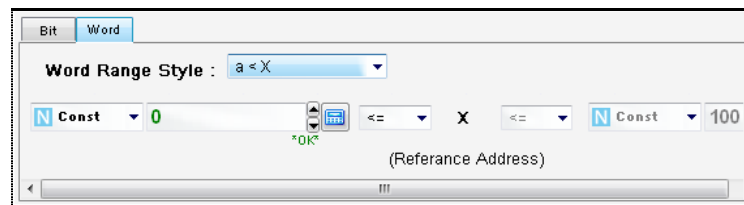
Lamps can be displayed according to the [ON/OFF] status of the bit address. Enter the bit address in [Condition bit], and select the OFF/ON button. Set the bit condition, and set the lamp shape in the bottom, then add to the case list.



[Fig. Bit condition]

(2) Word condition

Lamps are displayed according to the data of the word address set in the [Display] page. Using word conditions, lamps can be displayed by range. Alternatively, lamps can be displayed when the data has a certain value.



[Fig. Word condition]

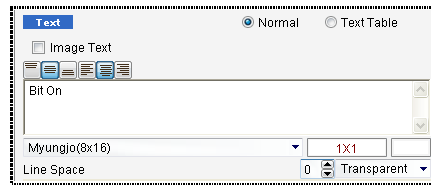
Word condition	Description
Range setting address	<p>[a] is the minimum value, [X] is the word address set in the display page, and [b] is the maximum value.</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>a < X X < b a < X < b</p> </div> <p>[a<X] is the condition where the data is greater than the minimum value. [X<b] is the condition where the data is smaller than the maximum value. [a<X<b] is the condition where the data is between the minimum value and the maximum value. For the [<] operator, many comparison operators can be selected from.</p>
Operators	<p>Many comparison operators can be selected from.</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>< <= == !=</p> </div>

	[<] means the right operand is [Greater] than the left operand. Alternatively, it means the left operand is [Less] than the right operand. [<=] means the right operand is [Greater or equal to] the left operand. Alternatively, it means the left operand is [Less than or equal to] the right operand. [=] means the left operand and the right operand are [Equal]. [!=] means the left operand and the right operand are [Not equal].
Minimum value	This is the minimum value to compare in the word condition. Set the constant value.
Maximum value	This is the maximum value to compare in the word condition. Set the constant value.

11.4.3 Caption and lamp shape setting

(1) Caption setting

Caption is a function used to write text on lamps. Each lamp can be set with a different caption.




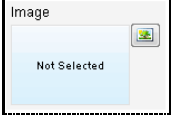

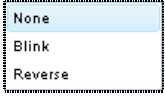
[Fig. Caption settings]

The text input method is the same as the method for entering [Shape]-[String].

(☞ See [8.6] in [chapter 8] for instructions on how to enter text.)

(2) Lamp shape setting

Set the lamp shape for each case.

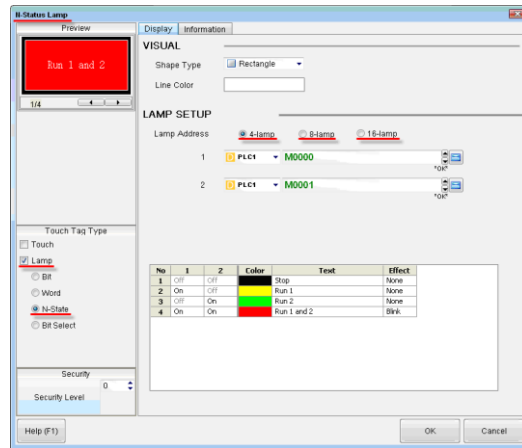
Lamp shape setting	Description
Shape lamp	Set the color of the lamp. 
Image lamp	Select the image of the lamp.  When the  button is clicked, the [Image Library] is displayed, and the image can be selected.
Effect	To emphasize the lamp, display effects such as blink or reverse can be applied.  In the [Blink] effect, the lamp appears and disappears in 0.5 second intervals. In the [Reverse] effect, the lamp and the base lamp set in the [Display] page is displayed alternately in 0.5 second intervals.

CHAPTER 12 N Lamp Tag

CHAPTER 12 - N Lamp Tag

12.1 N Lamp Tag Overview

The N lamp tag is a tag that indicates the state of ON/OFF combinations of [2/3/4] bit addresses using rectangular/circular color or image lamps. The N lamp tag is used to display the status of multiple bit addresses in one location. This is the properties screen for N lamp tags.



[Fig. N lamp properties screen]

In [Touch tag type] of the properties screen, the type is set depending on the use. To use the touch function only, check [Touch] only. To use the lamp function only, check [Lamp] only. To use both functions, check both [Touch] and [Lamp].

If the lamp function has been checked, the touch tag type becomes [Bit lamp/word lamp/N lamp/Bit select] according to the selections in [Bit, Word, N state, Bit select]. For N lamp tags, check [Lamp] only, and select [N-State].

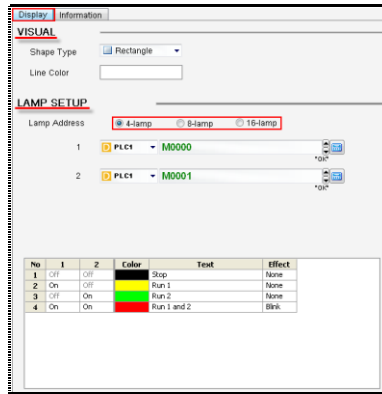
12.2 Page composition of the N lamp properties screen

The N lamp tag properties screen comprises the [Display] and [Information] pages.

Property page	Description
Displays	On this page, the shape and the captions to be displayed depending on bit address combination are set.
Information	On this page, N lamp tag info is displayed. The number of the registered screen, tag ID, time created and time modified, location and size are shown. Location and size info can be edited.

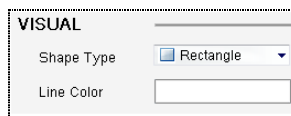
12.3 Display page

On this page, the shape and the captions to be displayed depending on the [2/3/4] bit address combinations are set.



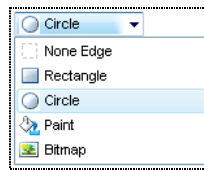
[Fig. N lamp display page]

12.3.1 Display settings (VISUAL)



[Fig. Display setting]

Select the shape type and set the shape of the lamp. Shape types are: [None Edge], [Rectangle], [Circle], [Paint], and [Bitmap].



[Fig. Shape Types]



Shape Types	Description
None Edge	This is a rectangular lamp without edges.
Rectangle	This is a rectangular lamp with edges.
Circle	This is a circular lamp.
Paint	With this lamp, a closed shape that has already been drawn is filled with color.
Bitmap	Image lamp.

(1) Shape lamp

[None Edge], [Rectangle], [Circle] and [Paint] shape types are called shape lamps.

The color of the line is the color of the boundaries of the outlines of the shape. Among shape lamps, the line color is designated for [Rectangle] and [Circle]. Among shape lamps, [None Edge] and [Paint] do not have edges. Therefore, no line color is designated. Therefore, when [None Edge] or [Paint] is selected in shape type, the part for setting the [Line Color] is disabled.

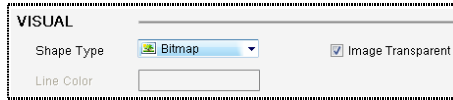
The color of shape lamps is entered when setting the lamp shape depending on the ON/OFF combination in the bottom.

No	1	2	Color	Text	Effect
1	Off	Off		Input lamp color	None
2	On	Off			
3	Off	On			
4	On	On			

[Fig. Lamp color input]


(2) Image lamp

When the shape type has been set as [Bitmap], the lamp is called an image lamp.



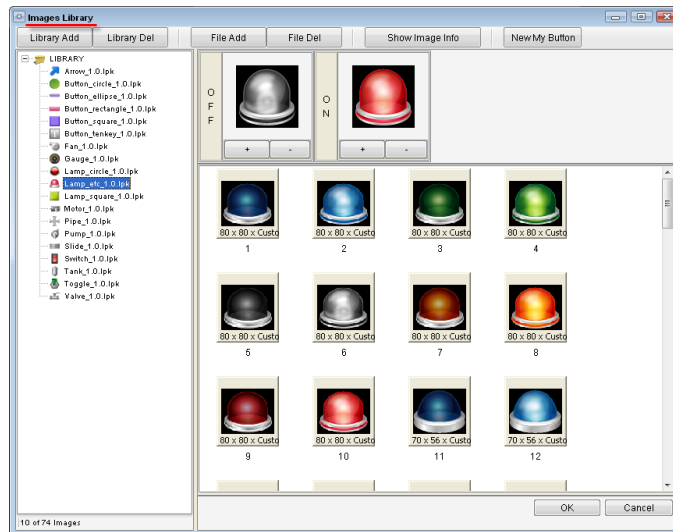
[Fig. Bitmap(image) lamp]

When [Bitmap(bitmap image)] is selected as the shape type, the  button is shown on the right side.

When the  button is clicked, the [Image Library] is displayed, and the image can be selected.

In the [Image Library], the images provided by default in the XDesignerPlus program, and images added by the user (*.bmp), (*.jpg), (*.jpeg)) can be registered as the images for lamps.

(☞ See [9.4] of [chapter 9] for info on the image library.)



[Fig. Image library]

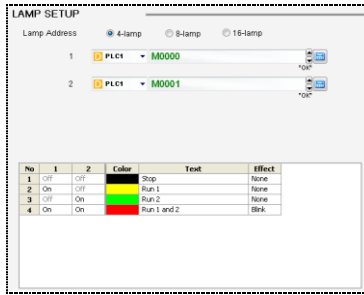
[Image Transparency] is a function that makes the black background of a registered image transparent, if the background color of the screen to register is not black. The image for image lamps is entered when setting the lamp shape depending on the ON/OFF combination in the bottom.

No	1	2	Image	Text	Effect
1	Off	Off	Selected	select lamp image	None
2	On	Off	Selected		
3	Off	On	Selected		
4	On	On	Selected		

[Fig. Lamp image selection]

12.3.2 Range setup

The lamp shape is set according to the lamp address combination.



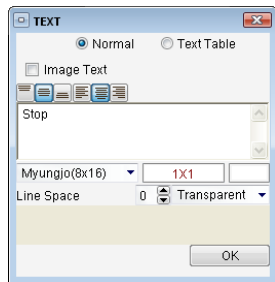
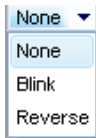
[Fig. Range setup]

(1) 4-lamp (4 phase lamp)

This lamp uses two lamp addresses. The 2 lamp addresses create 4 combinations, and 4 lamps are registered, making this a 4 phase lamp. When [4-lamp] is selected, two address input parts are shown : [1] and [2]. After setting the address, set the shape of the lamp according to the ON/OFF data combination of the bit address set below.

No	1	2	Color	Text	Effect
1	Off	Off	Black	Stop	None
2	On	Off	Yellow	Run 1	None
3	Off	On	Green	Run 2	None
4	On	On	Red	Run 1 and 2	Blink

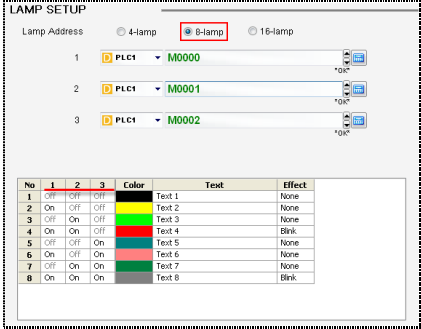
[Fig. 4-lamp shape setting]

4-lamp	Description
Number	This number is assigned sequentially, depending on the number of lamps.
1	Is matched with data for address [1].
2	Is matched with data for address [2].
Color/image	Set the lamp color or image depending on the ON/OFF data combination of [1] and [2]. Set the color in the [Color palette] that pops up when clicked.
Text	Write the text over the lamp. Enter the text in the [Text input screen] which pops up when double clicked.  The text input method is the same as the method for entering [Shape]-[String]. (☞ See [8.6] in [chapter 8] for instructions on how to enter text.)
Effect	Set a blink/reverse effect to emphasize the lamp. Double clicking brings up an arrow. Click again to bring up the list. 

In the [Blink] effect, the lamp appears and disappears in 0.5 second intervals. In the [Reverse] effect, the lamp and the base lamp set in the [Display] page is displayed alternately in 0.5 second intervals.

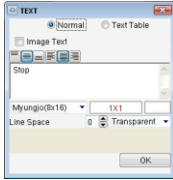

(2) 8-lamp (8 phase lamp)

This lamp uses 3 lamp addresses. The 3 lamp addresses create 8 combinations, and 8 lamps are registered, making this an 8 phase lamp.



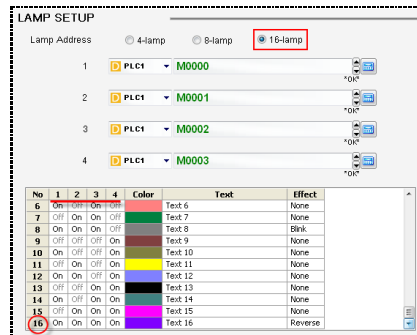
[Fig. 8-lamp (8 phase lamp)]

When [8-lamp] is selected, three address input parts are shown : [1], [2] and [3]. After setting the address, set the shape of the lamp according to the ON/OFF data combination of the bit address set below.

8-lamp	Description
Number	This number is assigned sequentially, depending on the number of lamps.
1	Is matched with data for address [1].
2	Is matched with data for address [2].
3	Is matched with data for address [3].
Color/image	Set the lamp color or image depending on the ON/OFF data combination of [1], [2] and [3]. Set the color in the [Color palette] that pops up when clicked.
Text	Write the text over the lamp. Enter the text in the [Text input screen] which pops up when double clicked.  The text input method is the same as the method for entering [Shape]-[String]. (See [8.6] in [chapter 8] for instructions on how to enter text.)
Effect	Set a blink/reverse effect to emphasize the lamp. Double clicking brings up an arrow. Click again to bring up the list.  In the [Blink] effect, the lamp appears and disappears in 0.5 second intervals. In the [Reverse] effect, the lamp and the base lamp set in the [Display] page is displayed alternately in 0.5 second intervals.

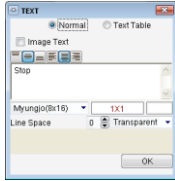

(3) 16-lamp (6 phase lamp)

This lamp uses 4 lamp addresses. The 4 lamp addresses create 16 combinations, and 16 lamps are registered, making this a 16 phase lamp.



[Fig. 16-lamp (16 phase lamp)]

When [16-lamp] is selected, four address input parts are shown: [1], [2], [3] and [4]. After setting the address, set the shape of the lamp according to the ON/OFF data combination of the bit address set below.

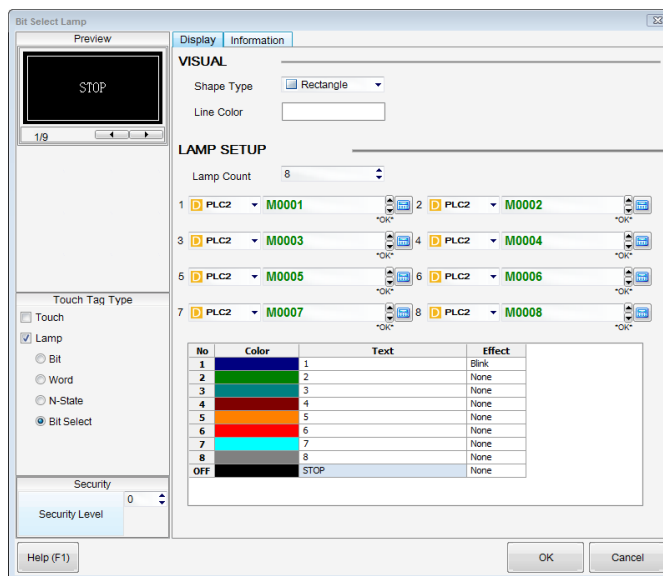
16-lamp	Description
Number	This number is assigned sequentially, depending on the number of lamps.
1	Is matched with data for address [1].
2	Is matched with data for address [2].
3	Is matched with data for address [3].
4	Is matched with data for address [4].
Color/image	Set the lamp color or image depending on the ON/OFF data combination of [1], [2], [3] and [4]. Set the color in the [Color palette] that pops up when clicked.
Text	Write the text over the lamp. Enter the text in the [Text input screen] which pops up when double clicked.  The text input method is the same as the method for entering [Shape]-[String]. (See [8.6] in [chapter 8] for instructions on how to enter text.)
Effect	Set a blink/reverse effect to emphasize the lamp. Double clicking brings up an arrow. Click again to bring up the list.  In the [Blink] effect, the lamp appears and disappears in 0.5 second intervals. In the [Reverse] effect, the lamp and the base lamp set in the [Display] page is displayed alternately in 0.5 second intervals.

CHAPTER 13 Bit Select Lamp Tag

CHAPTER 13 - Bit Select Lamp Tag

13.1 Bit Select Lamp Tag Overview

The bit select lamp tag is illuminated according to the ON/OFF state of multiple bit addresses. Up to 8 bit addresses can be set.



[Fig. Bit lamp properties screen]

In [Touch tag type] of the properties screen, the type is set depending on the use. To use the touch function only, check [Touch] only. To use the lamp function only, check [Lamp] only. To use both functions, check both [Touch] and [Lamp].

If the lamp function has been checked, the touch tag type becomes [Bit lamp/word lamp/N lamp/Bit select] according to the selections in [Bit, Word, N state, Bit select]. For bit select lamp tags, check [Lamp] only, and select [Bit Select].

13.2 Page composition of the bit lamp properties screen

The bit select lamp tag properties screen comprises the [Display] and [Information] pages.

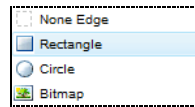
Property page	Description
Displays	On this page, the shape and address of the lamp, and the caption are set.
Information	On this page, bit select lamp tag info is displayed. The number of the registered screen, tag ID, time created and time modified, location and size are shown. Location and size info can be edited.

13.3 Display page

On this page, the shape and address of the lamp, and the caption are set.

13.3.1 Display settings (VISUAL)

Select the shape type and set the shape of the lamp. Shape types are : [None Edge], [Rectangle], [Circle], and [Bitmap].



[Fig. Shape Types]

Shape Types	Description
None Edge	This is a rectangular lamp without edges.
Rectangle	This is a rectangular lamp with edges.
Circle	This is a circular lamp.
Bitmap	Image lamp.

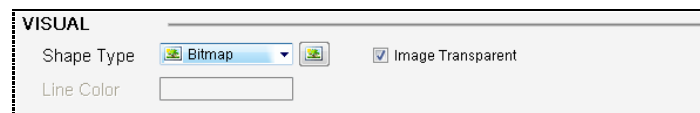
(1) Shape lamp

[None Edge], [Rectangle], and [Circle] shape types are called shape lamps. The color of the line is the color of the boundaries of the outlines of the shape.


Among shape lamps, the line color is designated for [Rectangle] and [Circle]. Among shape lamps, [None Edge] does not have edges. Therefore, no line color is designated.


(2) Image lamp

When the shape type has been set as [Bitmap], the lamp is called an image lamp.



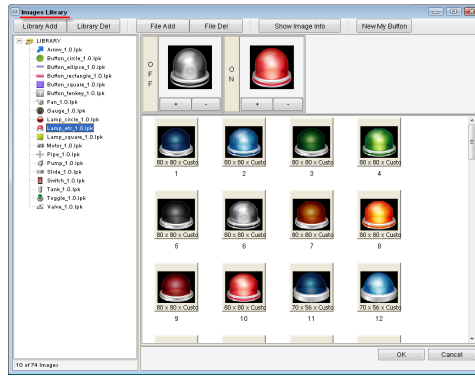
[Fig. Bitmap lamp]

When [Bitmap(bitmap image)] is selected as the shape type, the  button is shown on the right side.

When the  button is clicked, the [Image Library] is displayed, and the image can be selected.

In the [Image Library], the images provided by default in the XDesignerPlus program, and images added by the user ([*.bmp], [*.jpg], [*.jpeg]) can be registered.

(☞ See [9.4] of [chapter 9] for info on the image library.)



[Fig. Image library]

[Image Transparency] is a function that makes the black background of a registered image transparent, if the background color of the screen to register is not black.

13.3.2 Range setup

Set the number of lamps, and set a number of bit addresses equal to the number of lamps.

Set the lamp shape, text, and reverse/blink/hide display effects for each bit address.



Menu	Description
Lamp count	The lamp count is the number of bit addresses. Up to 8 can be set.
Bit address	Boxes for entering bit addresses are created. The number of boxes is equal to the lamp count.

Set the lamp shape for each of the address numbers.

No	Color	Text	Effect
1	Blue		Blink
2	Green		None
3	Yellow		None
4	Red		None
5	Orange		None
6	Light Blue		None
7	Light Green		None
8	Light Yellow		None
OFF	Black	STOP	None

Menu	Description	
No	This is the number of the lamp.	
Color/Image	If shape lamp has been selected in shape type, set the color of the lamp. If bitmap has been set, select the image.	
Text	Enter the text to register over the lamp.	
Effect (Effect)	This function applies a highlight effect to the lamp that is displayed. [Blink] and [Reverse] effects are available.	
	None	No effect function is used.
	Blink	The lamp appears and disappears (turns on/turns off) at 0.5 second intervals.
	Reverse	The lamp and the OFF lamp are displayed alternately in 0.5 second intervals.

CHAPTER 14 Touch Tag

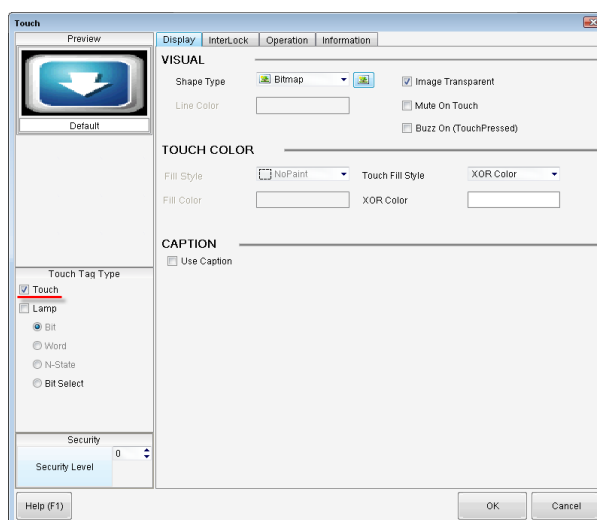
14.1 Touch tag overview

A touch tag is a button where a touch area is set, and the set action is performed when that area is touched.

The actions performed by the touch tag are as follow.

1. Changes the ON/OFF data of bit addresses.
2. Word address data is changed.
3. Allows input of numbers or letters using number and letter keys.
4. Performs special functions such as screen transitions or moving to the menu screen.

This is the properties screen for touch tags.



[Fig. Touch tag properties screen]

The touch tag type can be set freely. In [Touch tag type] of the properties screen, the type is set depending on the use. To use the touch function only, check [Touch] only. To use the lamp function only, check [Lamp] only. To use both functions, check both [Touch] and [Lamp]. If the lamp function has been checked, the touch tag type becomes [Bit lamp/word lamp/N lamp/Bit select] according to the selections in [Bit, Word, N state, Bit select]. For touch tags, check only [Touch].

14.2 Page composition of the touch tag properties screen

The bit lamp tag properties screen comprises the [Display] and [Information] pages.

Property page	Description
Displays	This page is the touch button shape and caption setting page.
Interlock	This page is the page for setting conditions for touch button action.

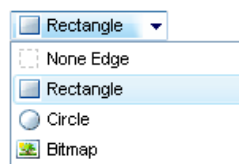
Calculation	This page is the page for setting the action to be performed by touch buttons.
Information	On this page, touch tag info is displayed. The number of the registered screen, tag ID, time created and time modified, location and size are shown. Location and size info can be edited.

14.3 Display page

This page is the touch button shape and caption setting page.

14.3.1 Display settings (VISUAL)

Select the shape type and set the shape of the touch button. Shape types are : [None Edge], [Rectangle], [Circle], and [Bitmap].

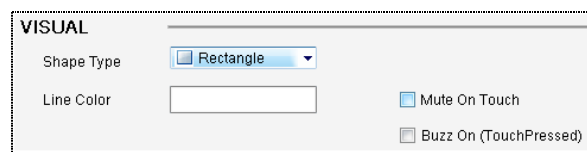


[Fig. Shape Types]

Shape Types	Description
None edge	This is a rectangular touch button without edges.
Rectangle	This is a rectangular touch button with edges.
Circle	This is a circular touch button.
Bitmap	This is an image touch button.

(1) Shape touch button

[None Edge], [Rectangle], and [Circle] shape types are called shape touch buttons.

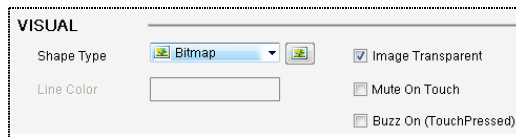


[Fig. Shape touch button]



The color of the line is the color of the boundaries of the outlines of the shape. Among shape touch buttons, the line color is designated for [Rectangle] and [Circle]. Among shape touch buttons, [None Edge] does not have edges. Therefore, no line color is designated. Therefore, when [None Edge] is selected in shape type, the part for setting the [Line Color] is disabled.

(2) Image touch button

When the shape type has been set as [Bitmap], the touch button is called an image touch button.

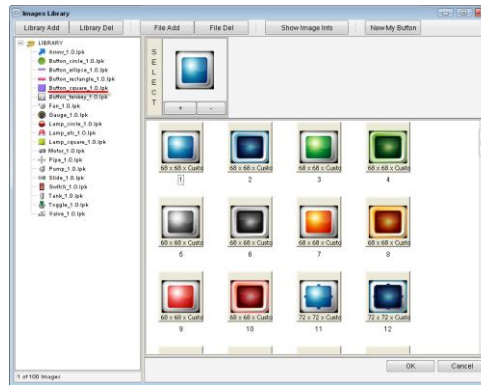


[Fig. Bitmap(image) touch button]

When [Bitmap(bitmap image)] is selected as the shape type, the  button is shown on the right side. When the  button is clicked, the [Image Library] is displayed, and the image can be selected.

In the [Image Library], the images provided by default in the XDesignerPlus program, and images added by the user ([*.bmp], [*.jpg], [*.jpeg]) can be registered as the images for lamps.

(☞ See [9.4] of [chapter 9] for info on the image library.)



[Fig. Image library]

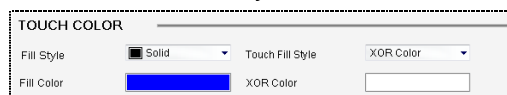
[Image Transparency] is a function that makes the black background of a registered image transparent, if the background color of the screen to register is not black.

(3) Mute on touch/Buzz on (TouchPressed)

Touch sound	Description
Mute on touch	When the touch button is touched, a short "beep" is sounded. To remove this sound, check "Mute on Touch".
Buzz On (TouchPressed)	When a touch button is selected, a long "Beep~" is sounded until another touch button is touched.

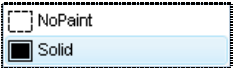
14.3.2 Touch color

For shape touch buttons, set the fill color and fill style.



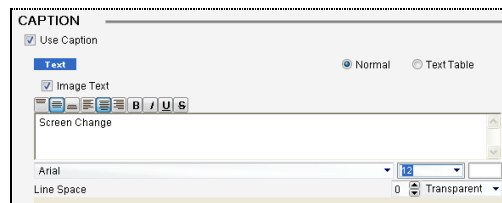
[Fig. Touch color]

Touch color	Description
Fill style	Select between [NoPaint] and [Solid].

	 <p>In [NoPaint], the inner color of the touch button is empty. When this is selected, [Fill Color] is disabled. In [Solid], the touch button is filled with a color.</p>
Fill Color	Set the inner color of the touch button.
Touch Fill Style	Set whether to show the fill color when a touch button is touched. In NoPaint, no color is shown when touched. In XOR Color, the touch color and the color set in XOR color are 'XOR'ed and displayed when touched. In Image, the set image is displayed when touched.
XOR Color	This is the color that is 'XOR'ed with the color of the button when a touch button is touched.

14.3.3 Caption

Caption is a function used to write text on touch buttons.



[Fig. Caption]

The text input method is the same as the method for entering [Shape]-[String].

(☞ See [8.6] in [chapter 8] for instructions on how to enter text.)

14.4 Interlock page

This page is the page for setting conditions for touch button action. If no conditions are set, the set action is performed each time a touch button is touched. When conditions are touched, the set action is performed only if conditions are satisfied when a touch button is touched. [Bit state] and [Word value] conditions are provided.



[Fig. Touch tag interlock page]

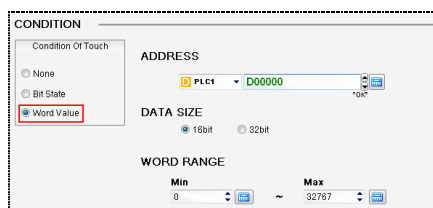
14.4.1 Bit state condition

When a bit address has been designated, and the designated bit address satisfied the [Operation Bit] conditions, the designated action is performed when a touch button is touched.

Bit state condition	Description
Address	Set the bit address to set as the condition.
When the operation bit is 'OFF',	The designated action is performed only when a touch button is touched when the data of the designated bit address is OFF. If the data of the bit address is ON, the touch button does not operate.
When the operation bit is 'ON',	the designated action is performed only when a touch button is touched when the data of the designated bit address is ON. If the data of the bit address is OFF, the touch button does not operate.

14.4.2 Word value condition

When a word address has been designated, and the designated bit address satisfied the [Word value] condition, the designated action is performed when a touch button is touched.

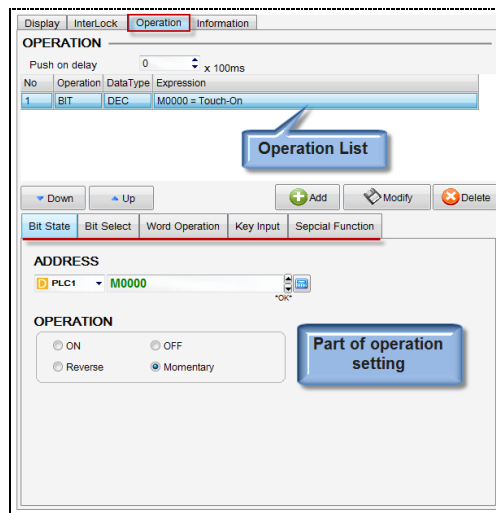


[Fig. Word value condition]

Word value condition	Description
Address	Set the word address to set as the condition.
Word range	Enter the minimum and maximum values. If the word address data is within the range between the minimum and maximum value, the designated action is performed when the touch button is touched. If the word address data is not in the range between the minimum and maximum values, the touch button does not operate.

14.5 Operation page

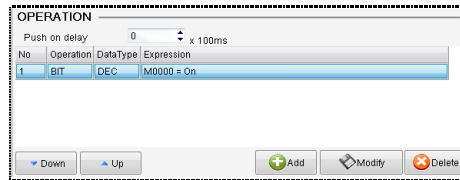
This page is the page for setting the action to be performed by touch buttons. The top of the operation page is the [Operation list], and the bottom of the [Operation setting] part. In the operation setting part, the action to be performed by the touch button is set, and added to the operation list. Up to 10 actions can be performed at once by a touch button. Therefore, up to 10 items can be added to the [Operation list].





[Fig. Touch tag operation page]

14.5.1 Operation list




A list of the operations to be performed by a touch button is shown.



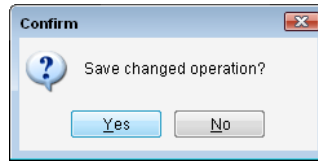
[Fig. Operation list]

Operation list	Description
No (Number)	This number is assigned sequentially whenever an operation is added. When a touch button is touched, operations are performed according to this number. The number can be changed using the   button.
Operation (Operation)	Operations are shown in [BIT], [WORD], [KEY], and [SPECIAL] categories.
Data Type (Date Type)	The set data type is shown. [DEC] is signed decimal, [UDEC] is unsigned decimal, [HEX] is hexademical, and [BCD] is a hexadecimal data type that acts like decimal data.
Expression (Expression)	The set operation is displayed as an expression.

After setting the operation to be performed by a touch button in the lower [Operation settings] part, the [Add], [Modify] and [Delete] buttons must be used to register the operation in the [Operation list].

Button	Description
	Registers the set operation.
	Modifies the content of a registered operation.
	Deletes a registered operation.

When settings have been changed in operation settings, but not reflected in the [Operation List], the following confirmation message is shown when the touch tag properties screen is closed.



[Fig. Confirmation message]

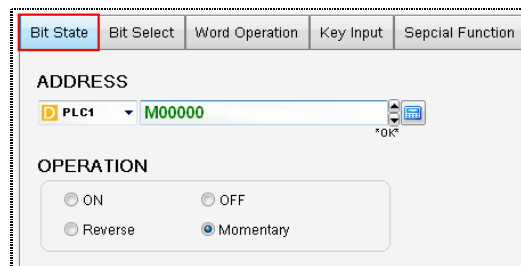
Click the [Yes] button to reflect settings. The registered details are changed, and the properties screen is closed. If the [No] button is pressed, the properties screen is closed without reflecting settings.

14.5.2 Operation settings

There are four type of touch button action: [Bit operation], [Word operation], [Key input], and [Special function].

(1) Bit operation

Bit operations are operations that turn bit address data ON/OFF. Bit address data only has [0] and [1] data. [0] is [OFF] and [1] is [ON].



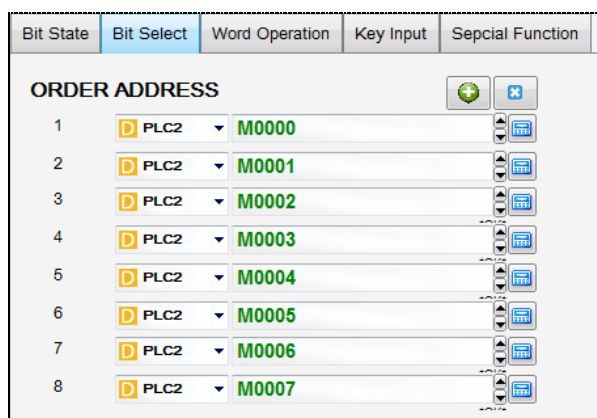
[Fig. Bit operation]

Bit operation		Description
ADDRESS		Enter the bit address to operate.
OPERATION	ON	Press the touch button to turn the data of the bit address [ON].
	OFF	Press the touch button to turn the data of the bit address [OFF].
	Reverse	Press the touch button to turn the data of the bit address [OFF] if the data is currently [ON], and [ON] if the data is currently [OFF].
	ON when pressed only	When the touch button is pressed, the data of the bit address is turned [ON]. The data is turned [OFF] when touch is ended.

(2) Bit selection

Select and turn ON the multiple bit addresses set using the touch tag in sequence.

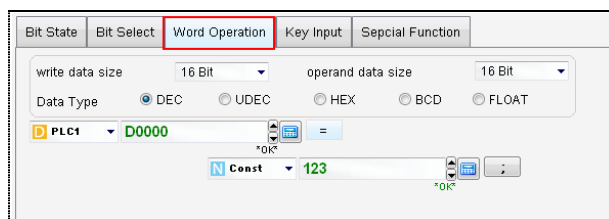
Up to 8 bit addresses can be set. Whenever touched, they are turned ON in sequence, beginning with number 1. All bit addresses other than the selected bit address are turned OFF.



(3) Word operation

Word operation refers to a calculation between word addresses. In this action, word addresses are substituted with data, or operations are performed with word addresses only, then the result is substituted in place of a word address.

Word addresses are 16-bit address areas. When the 16 bits of a word address are all 0, changing this to a decimal number gives [0]. When the 16 bits of a word address are all 1, changing this to a decimal number gives [65535]. Therefore, the data of the word address has a range of [0 ~ 65535]. In the case of signed decimals, the range is [-32767 ~ 32768].



[Fig. Word operation]

Word operation	Description
Write data size	Write data size is the size of the address where the result of the operation is saved. Select between [16 bit] and [32 bit]. [32 bit] also uses the station next to the designated address, and is used when saving values greater than [16 bit]. The station of the designated word address becomes the top word, and the next station of that address becomes the bottom word.
Operand data size	Operand data size is the size of the address used in the operation formula. Select between [16 bit] and [32 bit]. [32 bit] also uses the station next to the designated address, and is used when saving values greater than [16 bit]. The station of the designated word address becomes the top word, and the next station of that address becomes the bottom word.
Const Data Type	Set the data type of the constant value. [DEC] is signed decimal. [UDEC] is unsigned decimal. [HEX] is hexadecimal. [BCD] is actually hexadecimal, but is used like decimal data, because numbers that include A~F are not shown.

The formula for word operations is set as follows.



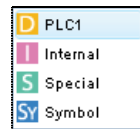
[Fig. Word operation formula]

= : Address to the left of this sign is the [Output operation address] where the result of the function is stored.

= : Addresses to the right of this sign are the [Operation addresses] used in the operation.

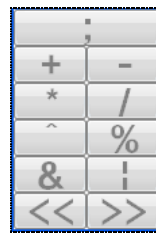
Enter constant values in [Output operation address] using the formula, or perform an operation among [Operation addresses] and enter the result into [Output operation address].

Up to four operation addresses can be set. Use **;** (semicolons) to indicate the end of the formula. As seen in the following figure, operation addresses can be set not only as addresses but also as constant values.



[Fig. Operation address types]

Set the operator between the operation addresses to complete the formula. Click the [Operator button] to the right of the operation address to bring up the operator list.



[Fig. Operator list]

Operators	Description
;	Denotes the end of the operation.
+	[Adds] the data of two operation addresses.
-	[Subtracts] the data of two operation addresses.
*	[Multiplies] the data of two operation addresses.
/	[Divides] the data of two operation addresses.
^	This is a bit operator. [Bit XOR] operation is performed with the data of two operation addresses.
%	This is the remainder operator. After dividing the data of two operation addresses, the remainder is calculated.

&	This is a bit operator. [Bit AND] operation is performed with the data of two operation addresses.
	This is a bit operator. [Bit OR] operation is performed with the data of two operation addresses.
<<	This is a bit operator that performs the [Bit left shift] operation. This operator performs a left bit shift operation on the data on the right of the operator. The size of the shift is equal to the data on the left of the operator.
>>	This is a bit operator that performs the [Bit right shift] operation. This operator performs a right bit shift operation on the data on the left of the operator. The size of the shift is equal to the data on the right of the operator.

(4) Key registration

Key registration is a function used to create [Numeric keys] or [Character keys] using touch buttons.

First, select whether to register a numeric key or a character key.

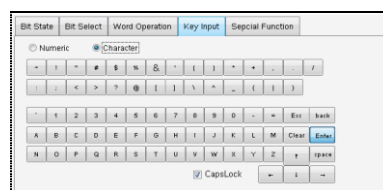


[Fig. Key registration]

Select the [Numeric] key to show the following numeric keys, as seen in the figure above.

Numeric key	Description
0 ~ 9	These are the 10 numeric keys.
A ~ F	These 6 keys are used to enter hexadecimal (HEX) data.
Direction keys	These are the direction keys used to change the position in input mode of the key display tag. (☞ See [19.4] of [chapter 19] for info on the the input mode of the key display tag.)
-	This is the negative number tag.
.	This is the decimal key.
Esc	This key is used to cancel input.
back	Among the entered key data, erase the key that was entered last.
Clear	Erase all entered key data.
Enter	Enter the input key data into the set address.

Select the [Character] key to show the following character keys, as seen in the figure below.

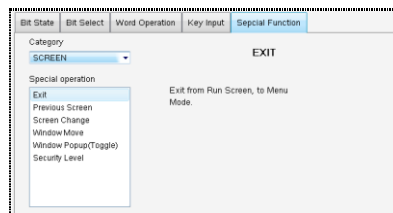


[Fig. Character keys]

Character keys	Description
Special characters	Various special character keys are provided from [~] to [=], as provided on the keyboard.
0 ~ 9	These are the 10 numeric keys.
A ~ Z	26 English alphabet characters are provided. Uncheck [CapsLock] in the bottom to register lower case letters.
Direction keys	These are the direction keys used to change the position in input mode of the key display tag. (☞ See [19.4] of [chapter 19] for info on the the input mode of the key display tag.)
Esc	This key is used to cancel input.
back	Among the entered key data, erase the key that was entered last.
Clear	Erase all entered key data.
Enter	Enter the input key data into the set address.
space	This key is used to enter spaces.

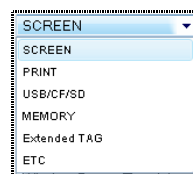
(5) Special functions

These are special functions required for touch operation.



[Fig. Special functions]

There are five major categories for the various special functions.

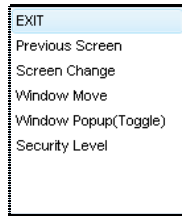


[Fig. Categories]


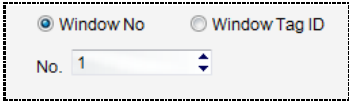
Categories	Description
SCREEN	These are special functions associated with the screen.
PRINT	These are special functions associated with printing.
USB/CF	These are special functions associated with USB memory storage devices or CF memory cards.
MEMORY	These are special functions associated with memory.
Extended TAG	These are special functions associated with tags.
ETC	These are special functions provided in addition to the categories above.

① [SCREEN] special functions

These are special functions associated with the screen.

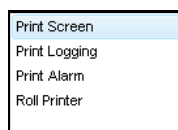


[Fig. Screen-related special functions]

Screen	Description
EXIT	Close the run screen and navigate to the main screen.
Previous Screen	Navigates to the screen that was open before the current screen.
Screen Change	When a screen number is designated, the screen transitions to the designated screen number. 
Window Move	Touch a touch button registered to the window screen, then touch the base screen. The window screen moves to the coordinates touched on the base screen.
Window Popup (Toggle)	Designate the [Window screen number] or the registered [Window tag ID]. The [Window tag ID] is shown on the [Properties] page of the registered window tag. The window tag must be designated as [Use touch tag] in properties. When [Window tag ID] has been selected and designated, the window screen set for the window tag is called. Touch once to pop-up the designated window screen, and touch again to dismiss the window screen.  (☞ See [chapter 23~24] for info on window tags.)
Security Level	Calls the password window screen. Passwords can be entered in the password window screen. The [Password window screen] is automatically generated when [Set password] is clicked from the [Project] menu. The screen can be manually created in the pop-up menu that appears when when [Window screen] is right-clicked in [Project manager]. (☞ See [7.10] in [chapter 7] for the password setting (security level setting) function.)

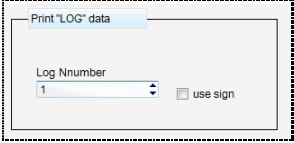
② [PRINT] special functions

These are special functions associated with printing. The touch can connect to normal printers or roll printers (mini printers) for printing.



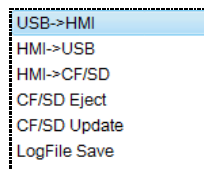
[Fig. PRINT-related special functions]

Print	Description
Print Screen	Print the current screen using the connected printer.

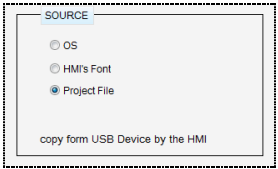
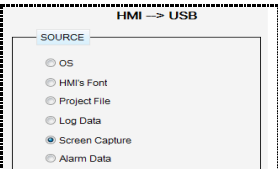
Print Logging	<p>Print logging data using the connected printer.</p>  <p>[Logging1] through [Logging8] can be set for logging. Enter the logging number to print.</p> <p>Check [Use sign] to show signs (-) when printing logging data, and output negative data.</p>
Print Alarm	Print alarm details using the connected printer.
Roll Printer	<p>A roll printer is a small mini computer which can print touch data through 232C communication.</p> <p>The printer connects to the COM1 port of the touch, and prints data from the editor where the output content has been edited. (☞ See [4.10] in [chapter 4] for roll printer usage info.)</p>

③ [USB/CF] special functions

These are special functions associated with USB memory storage devices or CF memory cards.



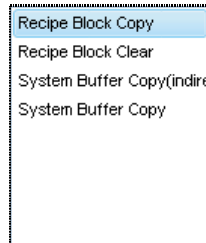
[Fig. USB/CF-related special functions

USB/CF	Description
USB->HMI	<p>Copy files in the USB memory storage device to the memory of the touch.</p>  <p>Select the files to copy among OS, font, and project files.</p>
HMI->USB	<p>Copy data in the touch to the USB memory storage device.</p>  <p>Select the files to copy among OS, font, project, logging data, and screen capture files. The [Screen capture] function captures the current screen and saves the captured image as a bitmap in the USB memory storage device.</p>
CF Eject	<p>By inserting a CF memory card behind the touch, logging or alarm data can be saved.</p> <p>Before removing this CF memory card, safely remove the card by clicking the [CF Eject] button.</p> <p>All logging or alarm data remaining in the touch memory is moved to the CF memory card, and the connection is removed.</p>
CF Update	<p>By inserting a CF memory card behind the touch, logging or alarm data can be saved.</p> <p>When logging or alarm data is saved using a CF memory card, logging or alarm data in the touch</p>

	memory is automatically moved to the CF memory card when a certain size has been exceeded. The [CF Update] function moves logging or alarm data to the CF memory card, even if a certain size has not been reached.
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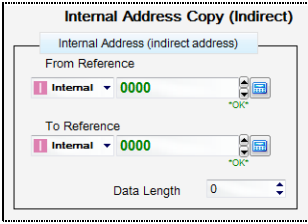
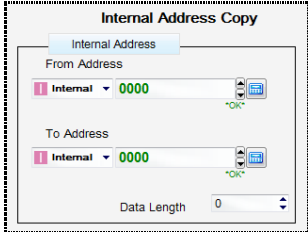
④ **[MEMORY] special functions**

These are special functions associated with memory.



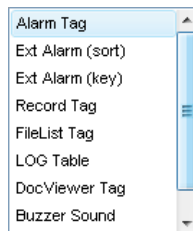
[Fig. Memory-related special functions]

Memory	Description
Recipe Block Copy	<p>This can only be used when using recipe settings into the project. The saved recipe data is copied to another block, in block units.</p> <div style="text-align: center;"> </div> <p>Only internal addresses can be set for [From Reference (reference address to copy)] and [To Reference (reference address to copy)]. The data of these addresses become the numbers for the blocks.</p> <p>Data length does not apply, and does not have to be entered. When the settings above are applied, with the data at internal address [Station 10] being [5] and the data at internal address [Station 20] being [3], the data in recipe block number 5 is copied to block number 3.</p>
Recipe Block clear	<p>Deletes recipe block data.</p> <div style="text-align: center;"> </div> <p>Only internal addresses can be set for the [Recipe Block Address]. The data of this address becomes the block number of the recipe to delete.</p>
System Buffer Copy (indirect)	<p>In this function, the data of an internal address is copied indirectly to another internal address. The length of the data is equal to [Data length]. Indirect copy refers to copying using a reference address.</p>

	<div style="text-align: center;">  </div> <p>Only internal addresses can be set for [From Reference (reference address to copy)] and [To Reference (reference address to copy)]. The data of the address becomes the station number of the internal address to copy.</p> <p>When the settings above are applied, with the data at internal address [Station 10] being [200] and the data at internal address [Station 20] being [300] with the data length set to [10], the 10 data in internal address stations [200~209] is copied to internal address stations [300~309].</p>
System Buffer Copy	<p>In this function, the data of an internal address is copied indirectly to another internal address. The length of the data is equal to [Data length].</p> <div style="text-align: center;">  </div> <p>Only internal addresses can be set for [From Address (address to copy)] and [To Address (address to be copied to)]. When the above settings are made, the 10 data in internal address stations [10~19] are copied to internal address stations [20~29].</p>

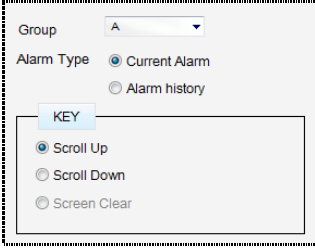

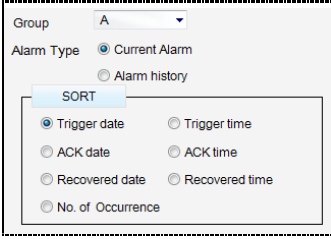

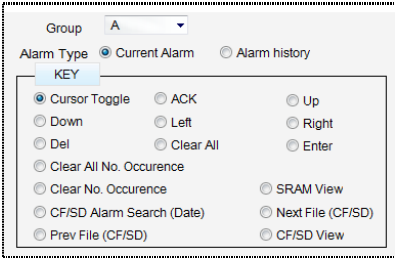
⑤ [Extended TAG] special functions

These are special functions associated with tags. This function is used when creating separate buttons included in tags, or creating associated keys in associated functions. Functions provided are alarm, extended alarm, record, file list, log table, and docviewer tags, buzzer sound and system reset functions.

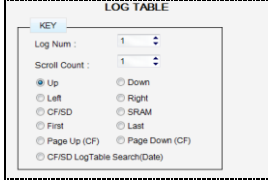
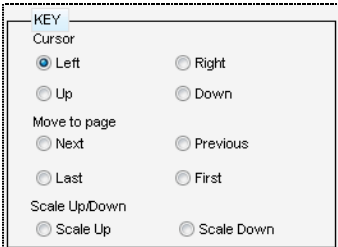


[Fig. Tag-related special functions]

Extended TAG	Description
Alarm Tag	This is a touch button used as the key in alarm tags. When [Use base frame] is enabled in the alarm tag, the key is included in the created alarm tag by default. This is used when creating a separate button.

	 <p>Set the same group and alarm type set in the alarm tag. Currently, [UP/DOWN] keys can be made for alarms, and [UP/DOWN/CLEAR] keys can be made for alarm histories. ( See [chapter 27] for alarm tags.)</p>
Ext Alarm (sort)	<p>This is a touch button used for alignment in extended alarm tags. The current alarm list can be aligned according to various criteria.</p>  <p>Set the same group and alarm type set in the extended alarm tag, and select the alignment criteria.</p> <p>[Trigger date] is the date of occurrence, [Trigger time] is the time of occurrence, [ACK date] is the date confirmed by the worker, [ACK time] is the time confirmed by the worker, [Recovered date] is the date recovered, [Recovered Time] is the time recovered, and [No. of Occurrence] is the frequency of occurrence. ( See [chapter 28] for extended alarm tags.)</p>
Ext Alarm (key)	<p>This is a touch button used as the key in extended alarm tags. Buttons included in an extended alarm tag can be made by registering keys in the extended alarm tag. This function is used when making separate buttons.</p>  <p>Set the same group and alarm type set in the extended alarm tag, and select the key to register.</p> <p>[Cursor Toggle] is the cursor key, [ACK] is the key that shows the confirmation date/time by the workers, [UP/DOWN] is the key used to move the alarm list or cursor up and time, [Left/Right] is the key used to move the alarm list left and right, [Del] is the key used to delete the alarm selected with the cursor, [Clear All] is the key used to delete all disabled alarms, [Enter] is the key used to perform an action, [Clear No. Occurrence] is the key that</p>

	<p>resets the number of occurrences of the alarm selected with the cursor to 0, and [Clear All No. Occurrence] is the key that resets all numbers of occurrences to 0.</p> <p>[CF Alarm Search(Date)] sets the year/month/day for the special address (_CF_ALARM_SRCH_YEAR/_CF_ALARM_SRCH_MONTH, _CF_ALARM_SRCH_DAY). When this button is pressed, the alarm data stored in the CF memory card is searched using the set year/month/day, and results are displayed.</p> <p>The function of the [CF View] key is to pop up the file manager window screen, import the alarm file to be displayed, and showing the file in extended alarms. Alarm files are stored by date/month in the CF card.</p> <p>The [Next File(CF)] key is a button used when displaying alarms saved on the CF memory card. The file for the date following the currently displayed alarm file is imported and displayed. The [Prev File(CF)] key is a button used when displaying alarms saved on the CF memory card. The file for the date previous to the currently displayed alarm file is imported and displayed. (See [chapter 28] for extended alarm tags.)</p>
Record Tag	<p>This is a touch button used as the cursor key and the screen navigation key in record tags.</p> <div> <p>A screenshot of a 'KEY' menu. Under 'Cursor', there are four radio buttons: Left (selected), Right, Up, and Down. Under 'Move to page', there are four radio buttons: Next, Previous, First, and Last.</p> </div> <ul style="list-style-type: none"> • Cursor movement key <p>[LEFT] moves the cursor left by 1 data, and [RIGHT] moves the cursor right by one data. When multiple graphs are displayed, the cursor meets multiple graphs. Using the [UP] button, a cursor touching the bottom graph is moved up by 1 graph to touch the top graph. When multiple graphs are displayed, the cursor meets multiple graphs. Using the [DOWN] button, a cursor touching the top graph is moved down by 1 graph to touch the bottom graph.</p> <ul style="list-style-type: none"> • Page navigation key <p>[NEXT] navigates to the next page, [PREV] navigates to the previous page, [FIRST] navigates to the last page, and [LAST] navigates to the last page (See [chapter 34] for record tags.)</p>
FileList Tag	<p>This is a touch button used as the key in filelist tags. From the pop-up menu that appears when the mouse is right clicked in the [Window screen], select [Add file manager window] to automatically create a screen with the following buttons registered.</p> <div> <p>A screenshot of a 'KEY' menu. It contains seven radio buttons: Scroll Up (selected), Scroll Down, Copy to Left, Copy to Right, PopUp(Toggle), Enter, and Delete.</p> </div>

	<p>[Scroll Up] moves the files in the file list up by 1 position.</p> <p>[Scroll Down] moves the files in the file list down by 1 position.</p> <p>[Copy to Left] is used when two file lists are registered. This copies the selected files in the left file list to the selected memory in the right file list.</p> <p>[Copy to right] is used when two file lists are registered. This copies the selected files in the right file list to the selected memory in the left file list.</p> <p>[Pop Up(Toggle)] causes the [File manager] registered to the window screen in the base screen. Touch once to pop-up, and touch again to dismiss.</p> <p>[Enter] is used when using the [CF-recipe] function. Select a recipe file saved on the CF memory card, then press the [ENTER] button to move the recipe data to the [Save address for recipe move]. [Delete] deletes the selected files.</p> <p>(☞ See [chapter 40] for filelist tags.)</p>
LOG Table	<p>This is a touch button used as the key in LOG table tags.</p>  <p>Set the same logging numbers that are set for the LOG table. The scroll count represents the interval to scroll by when the [Up/Down/Left/Right] buttons are touched.</p> <p>[Up] moves the logging block list up, [Down] moves the logging block list down, [Left] moves the logging block list to the left, [Right] moves the logging block list to the right, and [CF] imports and displays logging data saved in the CF memory card. [SRAM] imports and displays logging data saved in the internal memory of the touch. [First] moves to the first item in the log table, and [Last] navigates to the last item in the log table.</p> <p>* Note) When importing logging data saved on the CF card, the First and Last keys cannot be used.</p> <p>The [Up/Down/Left/Right] keys operate normally.</p> <p>(☞ See [chapter 29] for LOG table tags.)</p>
DocViewer Tag	<p>This is a touch button used as the key in DocViewer tags.</p>  <p>[Left] moves the screen left, [Right] moves the screen right, [Up] moves the screen up, [Down] moves the screen down, [Next] brings up the next page on the screen, [Previous] brings up the previous page on the screen, [Last] moves the screen to the last page, [First] moves the screen to the first page, [Scale Up] zooms in on the document, and [Scale Down]</p>

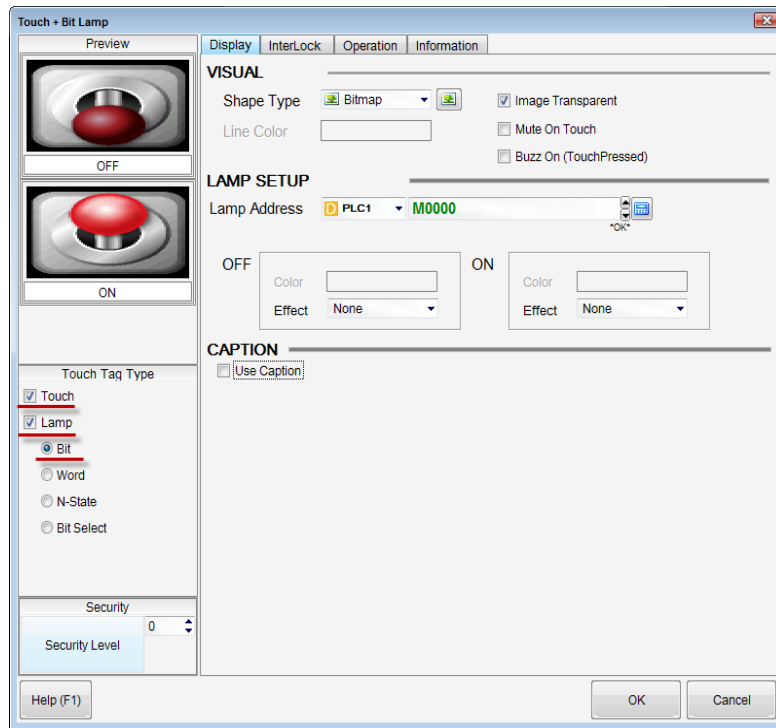
	zooms out of the document. (☞ See [chapter 41] for DocViewer tags.)
Buzzer Sound	A short [Beep] buzzer is sounded.
System Reset	If the PLC screen transition function is used, when a different screen is displayed because communication cannot be established with the controller, then communication is restored, pressing this button restores the screen to the screen set in the PLC screen transition address.
EventLogView	<p>This is a touch button used as the key in EventLogViewer tags.</p> <div> </div> <p>[Scroll Up] moves the list up, [Scroll Down] moves the list down, [Right] moves the list to the right, and [Left] moves the list to the left.</p> <p>[CF EventLog Search(Date)] uses the special addresses (_CF_EVENTVIEW_SRCH_YEAR, _CF_EVENTVIEW_SRCH_MONTH, _CF_EVENTVIEW_SRCH_DAY) to set the year/month/date. When this button is pressed, the event log files saved in the CF card are searched by the corresponding year/month/date, and results are displayed.</p>

CHAPTER 15 Touch + Bit Lamp Tag

CHAPTER 15 - Touch + Bit Lamp Tag

15.1 Touch + bit lamp overview

This tag combines the functions of touch tags and bit lamp tags. The properties screen comprises a [Interlock] and [Operation] pages identical to touch tags, and a [Display] page identical to bit lamp tags. Therefore, for touch + bit lamp tags, please refer to the sections for touch tags and bit lamp tags.



[Fig. Touch + Bit Lamp]

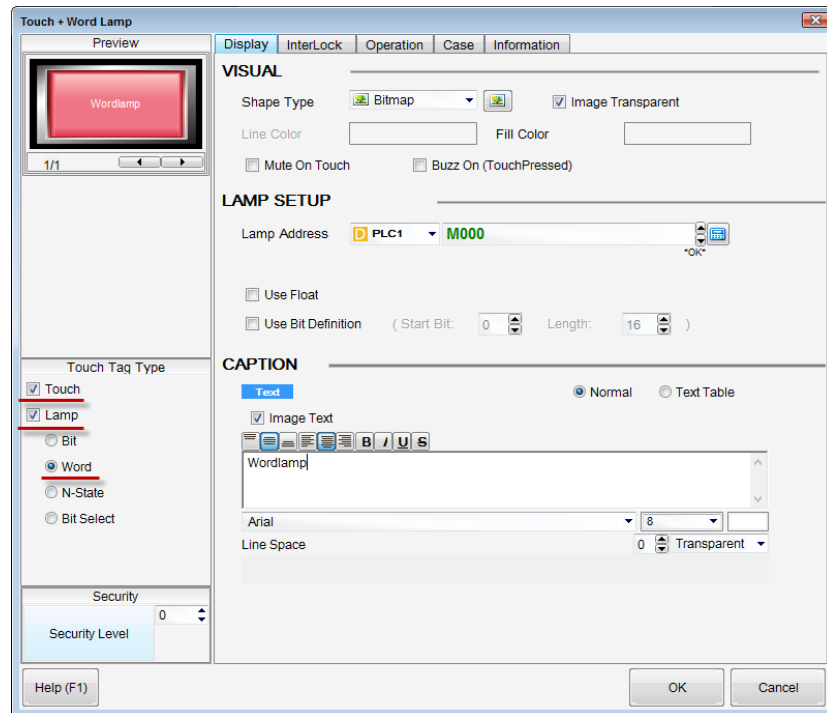
In [Touch tag type], [Touch] and [Lamp] are both checked, with [Bit] selected.

CHAPTER 16 Touch + Word Lamp Tag

CHAPTER 16 - Touch + Word Lamp Tag

16.1 Touch + word lamp tag overview

This tag combines the functions of touch tags and word tags. The properties screen comprises a [Interlock] and [Operation] pages identical to touch tags, and [Display] and [Case] pages identical to word tags. Therefore, for touch + word lamp tags, please refer to the sections for touch tags and word lamp tags.



[Fig. Touch + Word Lamp]

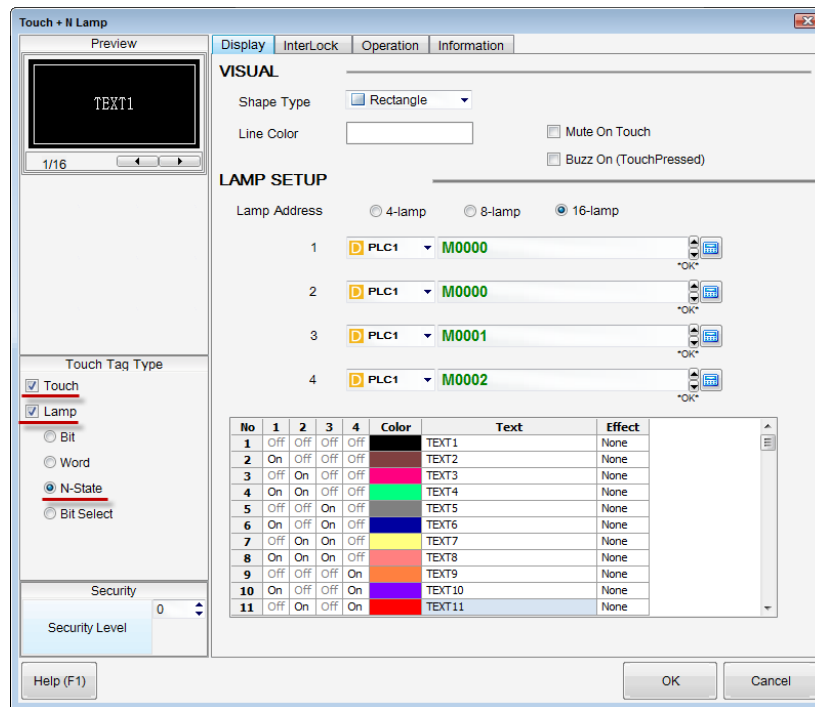
In [Touch tag type], [Touch] and [Lamp] are both checked, with [Word] selected.

CHAPTER 17 Touch + N Lamp Tag

CHAPTER 17 - Touch + N Lamp Tag

17.1 Touch + N lamp overview

This tag combines the functions of touch tags and N lamp tags. The properties screen comprises a [Interlock] and [Operation] pages identical to touch tags, and a [Display] page identical to N lamp tags. Therefore, for touch + N lamp tags, please refer to the sections for touch tags and N lamp tags.



[Fig. Touch + N lamp]

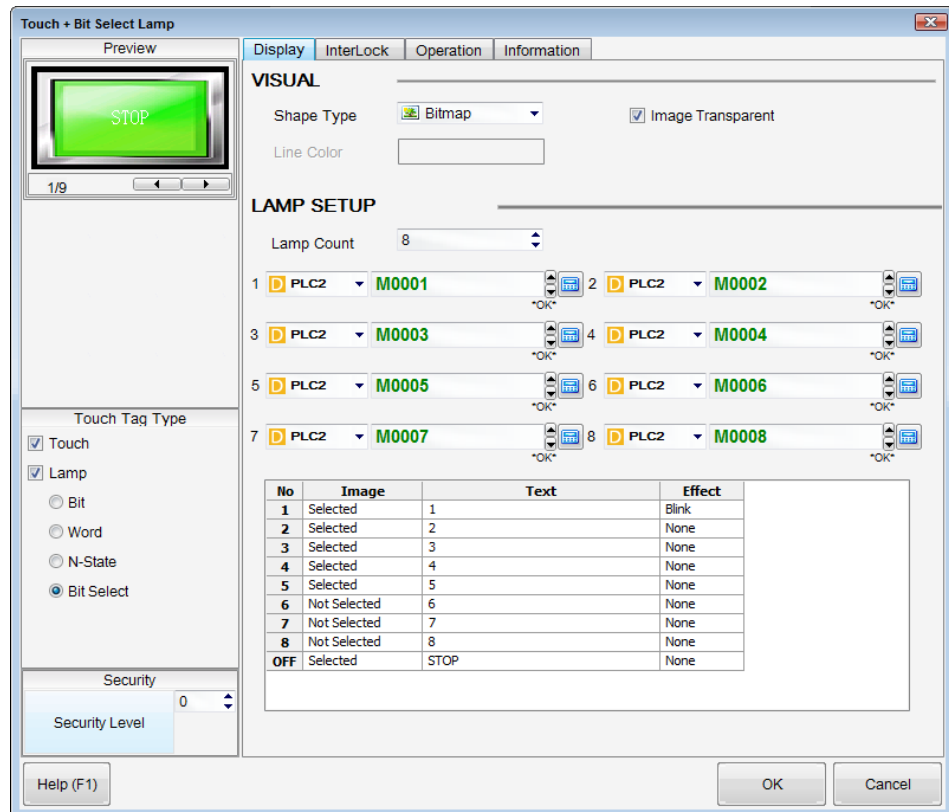
In [Touch tag type], [Touch] and [Lamp] are both checked, with [N state] selected.

CHAPTER 18 Touch+Bit Select LampTag

CHAPTER 18 - Touch + Bit Select Lamp Tag

18.1 Touch + bit select lamp overview

This tag combines the functions of touch tags and bit select lamp tags. The properties screen comprises a [Interlock] and [Operation] pages identical to touch tags, and a [Display] page identical to bit select lamp tags. Therefore, for touch + bit select lamp tags, please refer to the sections for touch tags and bit select lamp tags.



[Fig. Touch + bit select lamp tag]

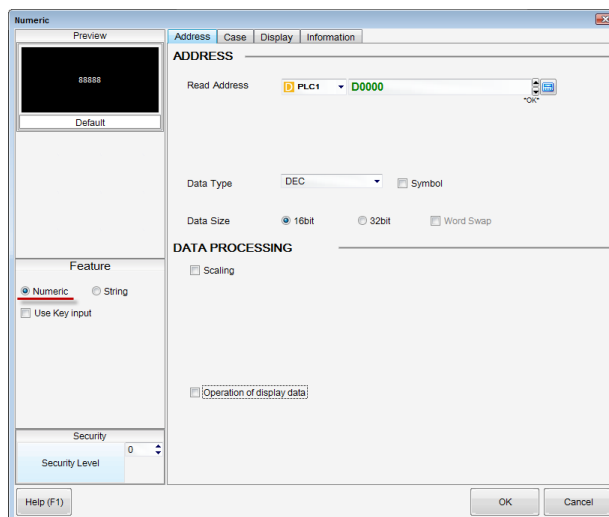
In [Touch tag type], [Touch] and [Lamp] are both checked, with [Bit select] selected.

CHAPTER 19 Numeric Tags

CHAPTER 19 - Numeric Tag

19.1 Numeric Tag Overview

Numeric tags display data stored in an address using numbers. Additional operations can be performed on data and results can be displayed. Also, by setting cases, the font color and background colors of the numbers can be set differently.



[Fig. Numeric tag properties screen]

In [Feature], on the left middle side of the screen, the tag type can be changed.

Select [Numeric] for a numeric tag, and [String] for a string tag. With [Numeric] selected, check [Use key input] for a show numeric key tag. With [String] selected, check [Use key input] for a show string key tag.

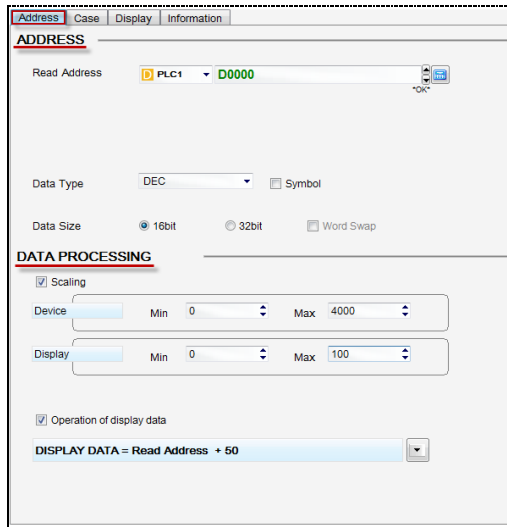
19.2 Page composition of the numeric tag properties screen

The numeric tag properties screen comprises the [Address], [Case], [Display], and [Information] pages.

Property page	Description
Address page	Enter the address to display, and set the data type and size. Additional operations can be performed on the data of the address, and the results can be displayed.
Case page	Using the bit/word address state as conditions, the color and background color of the numbers can be set differently according to the condition.
Display page	On this page, the font and color of the numbers displayed are designated, and the format is set.
Information page	On this page, numeric tag info is displayed. The number of the registered screen, tag ID, time created and time modified, location and size are shown. Location and size info can be edited.

19.3 Address page

Enter the address to display, and set the data type and size. Additional operations can be performed on the data of the address, and the results can be displayed.



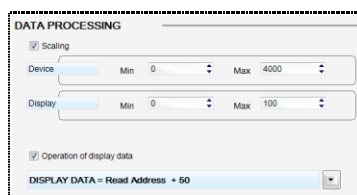
[Fig. Address page]

19.3.1 Address setting

Address setting		Description
Read address		Enter the address to read.
Data type		<p>Select the type of data from the list below.</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> DEC HEX BCD FLOAT BIN </div> <p>[DEC] is decimal. [HEX] is hexadecimal. [BCD] binary-coded decimal. Four binary places are grouped and use one decimal place. It is actually hexadecimal, but is used like decimal data, because numbers that include A~F are not shown. [FLOAT] is data that can use decimal points, and [BIN] is binary.</p>
Use symbols		<p>This displays symbols on the data that is shown. If symbols are not shown, data is shown only as positive numbers.</p> <p>If symbols are used, data is shown as positive/negative numbers. To display negative (-) data, [Symbol] must be checked.</p>
Data size	16 bit	Use 16 bit as the size of data shown.
	32 bit	<p>Use 32 bit as the size of data shown.</p> <p>This is used to show data greater than 16 bit, or for double word addresses.</p>
Word Swap		When [Data size] is 32 bit, the display positions of the [Top word (16 bit)] and [Bottom word (16 bit)] are swapped.

19.3.2 Data processing

[Data processing] is used when the data in the [Read address] is not displayed as is, but additional operations are performed on the data, and the modified data is displayed. The actual [Read address] data is not modified. Only the displayed data is modified.



[Fig. Data processing]

(1) Scaling

[Scaling] is a function that zooms in/out on data proportionally. The function displays data exceeding the minimum/maximum values as the minimum/maximum values.


Scaling	Description
Device	This is the actual data of the address set in [Read address]. Set the minimum value (Min) and maximum value (Max) appropriate to the data range of the address.
Display	Set the minimum value (Min) and maximum value (Max) of the data to be displayed, proportionally to the [Read address].

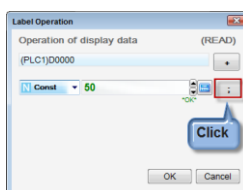
The display value is calculated as follows. Display value = [(Max. display value – Min. display value)/(Max. device value – Device value)] x Device value

For example, if, as in the figure above, the minimum value for [Device] is [0] and the maximum value is [4000], and the minimum value and maximum value for [Display] are [0] and [100], respectively [(Max. display value – Min. display value)/(Max. device value – Device value)] = (100-0)/(4000-0) = 1/40. Therefore, if [Device] is [4000], [Display] is 4000x(1/40), therefore [100], and if [Device] is [1000], [Display] is 1000x(1/40), therefore [25]. Also, if Device is a value of [0] or less, [0] is shown. If [Device] is [4000] or greater, [4000] is displayed.


(2) Display data operation

This function performs additional operations on the data of the [Read address] and displays the results.

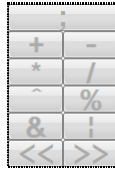
Check [Operation of display data] and press the  button to show a [Operation of display data] screen as seen in the figure below.



[Fig. Operation of display data screen]

The address set in [Read address] is displayed on the first line.  Click the buttons to select operators

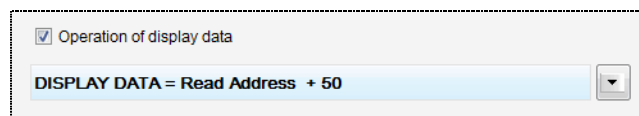
and add operations in the following lines.



[Fig. Operator list]

Operators	Description
;	Denotes the end of the operation.
+	[Adds] the data of two operation addresses.
-	[Subtracts] the data of two operation addresses.
*	[Multiplies] the data of two operation addresses.
/	[Divides] the data of two operation addresses.
^	This is a bit operator. [Bit XOR] operation is performed with the data of two operation addresses.
%	This is the remainder operator. After dividing the data of two operation addresses, the remainder is calculated.
&	This is a bit operator. [Bit AND] operation is performed with the data of two operation addresses.
	This is a bit operator. [Bit OR] operation is performed with the data of two operation addresses.
<<	This is a bit operator that performs the [Bit left shift] operation. This operator performs a left bit shift operation on the data on the right of the operator. The size of the shift is equal to the data on the left of the operator.
>>	This is a bit operator that performs the [Bit right shift] operation. This operator performs a right bit shift operation on the data on the left of the operator. The size of the shift is equal to the data on the right of the operator.

In the [Operation of display data] screen, add operations and press the [OK] button. The operation formula is shown under Operation of display data.

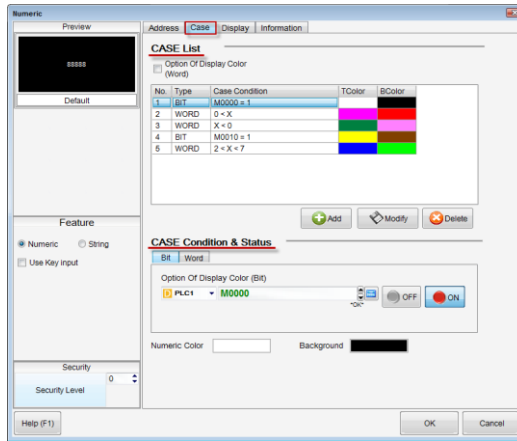


[Fig. Display data operation]

When the above settings are made, data adding [50] to the data at [Read address] [D0010] is always shown.

19.4 Case page

Using the bit/word address state as conditions, the color and background color of the numbers can be set differently according to the condition. If the conditions for the case set in the [CASE List] are satisfied, the data of the [Read address] is displayed with the number color and background color set for the corresponding case.



[Fig. Case page]

19.4.1 CASE List

This is a list of set cases. Up to 64 [Cases] can be set. If 2 or more of the set cases are satisfied, the case that was registered first is applied.

(1) Case list

Set a [Case] and register to the case list.

No.	Type	Case Condition	TColor	BColor
1	BIT	M0000 = 1		
2	WORD	0 < X		
3	WORD	X < 0		
4	BIT	M0010 = 1		
5	WORD	2 < X < 7		

[Fig. Case list]

Case	Description
No	This is the registration number of the case.
Type	Indicates whether the case is a [Bit condition] or [Word condition] case.
Case Condition	The operating conditions of the case are displayed. If an address other than the [Read address] is used, that address is also displayed.
TColor	The color for the numbers in the case is shown.
BColor	The background color for the case is shown.

(2) Adding/modifying/deleting cases

[Add/modify/delete] cases

Case	Description
	Add a case set in [CASE Condition & Status] to the [Case list].
	Modify the selected case. Change settings and press the [Modify] button to modify the case.
	Delete the selected case.

(3) Option of display color

When using a [Word condition in a case, this function allows the use of data from an address other than the [Read address] as a condition. Check [Option of display color] to bring up an address input box. Set the address to use as the condition for the [Word condition].



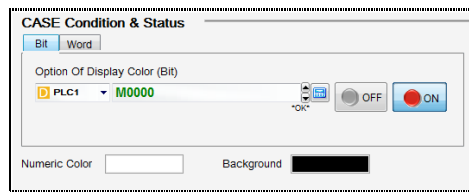
[Fig. Option of display color]

19.4.2 CASE Condition & Status

Set the [Case]. [Bit] and [Word] condition cases are provided.

(1) Bit case setting

Colors and background colors are applied to numbers according to the [ON/OFF] status of the bit address.

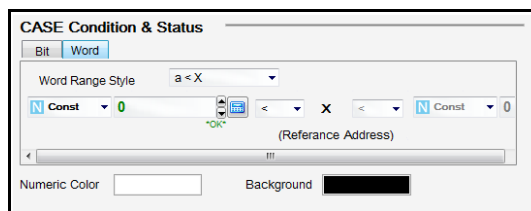


[Fig. Bit condition case]

Bit condition	Description
Option of display color (Bit)	Enter the address to use as the bit condition in the case.
OFF	The case is applied when the data of the set address is OFF.
ON	The case is applied when the data of the set address is ON.
Numeric Color	Set the color to apply to numbers when the case operates.
Background Color	Set the color to apply to the background when the case operates.

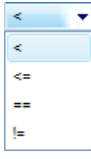
(2) Word case setting

Change the number color and background color depending on the word address data condition.

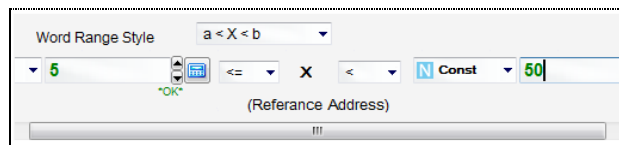


[Fig. Word condition case]

Word condition	Description
Word range type	<p>Select the word range type from the list below. [a] is the min., and [b] is the max. value.</p> <ul style="list-style-type: none"> $a < X$ — The data of the address is greater than the minimum value. $X < b$ — The data of the address is less than the maximum value. $a < X < b$ — The data of the address is between the minimum value and maximum value. The [$<$] operator can be changed.

X (Reference address)	This refers to the address entered in [Read address]. Here, if a number display color option (word) has been set for [CASE List], X (Reference address) becomes the address set in the number display color option.
Minimum value	Enter the minimum value to use as the condition.
Maximum value	Enter the maximum value to use as the condition.
Operators	Set the operator of the condition.  <ul style="list-style-type: none"> [<] – Greater than or less than, [<=] – Greater than or equal to, or less than or equal to, [=] – same, [!=] – not the same
Numeric Color	Set the color to apply to the number when the case operates.
Background Color	Set the color to apply to the background when the case operates.

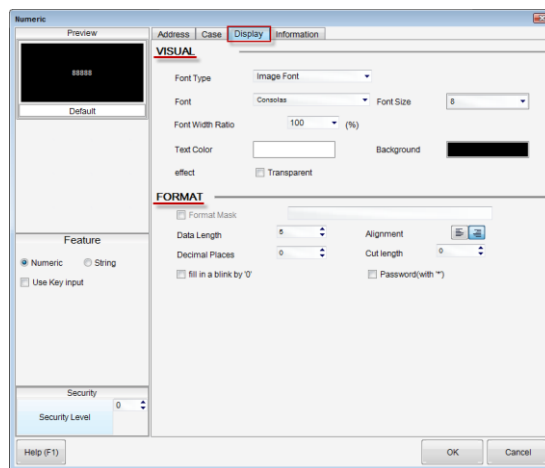
For example, if the word case is set as in the following, if the reference address data is greater than or equal to [5], and less than [50], the case is applied, and the numeric tag is displayed with the set number color and background color.



[Fig. Example of word condition case operation]

19.5 Display page

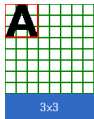
From this page, the font and color of the number is set, and the display format is set.



[Fig. Display page]

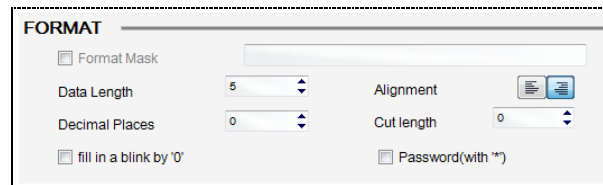
19.5.1 Display settings (VISUAL)

Set the font and color of the numbers

Display setting	Description
Font type (pixel)	Designate the font of the numbers displayed.
Font width ratio	The width/height of the font selected under font is magnified by the font width ratio 
Text color	Set the color of numbers used to display numeric values.
Background color	Set the background color of numbers used to display numeric values.
Effect	When [Transparent] is checked, the background of numbers used to display numeric values is made transparent.

19.5.2 Format setting (FORMAT)

Set the display format for numbers.



[Fig. Format setting]

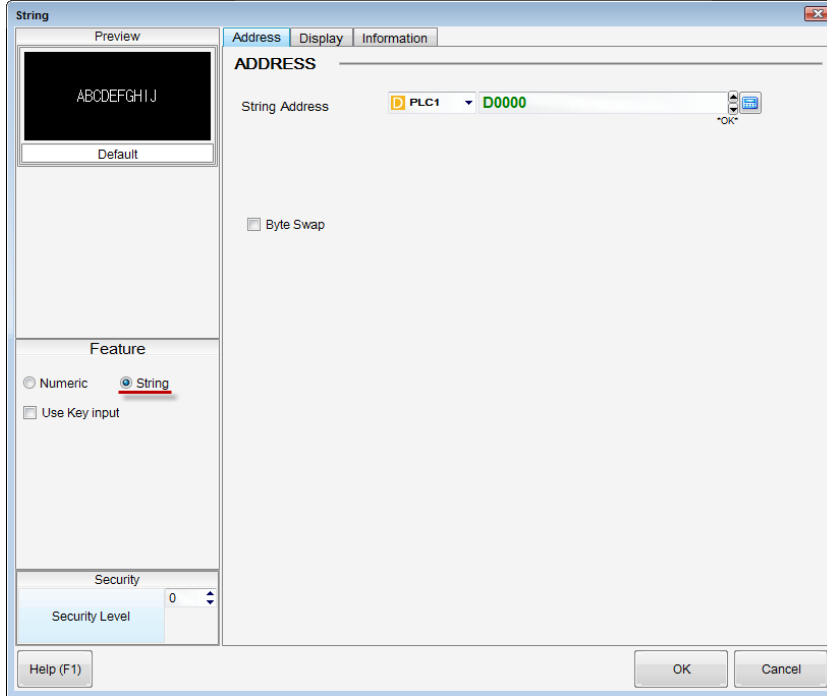
Format setting	Description
Designate display format	Designate the format of the numbers displayed. Strings can be inserted in between numbers. Enter data as [*], and enter the text to display. For example, if [*/** version] has been entered and the data is 12345, the number tag displays [12/345 version].
Data length	Set the length of the data to display.
Align	Select between left align and right align.
Decimal places	Set the number of decimal places to display. For example, if [Decimal places] is [3] and the data is [12345], the number tag displays [12.345].
Cut length	The displayed number is cut from the lower end by the length designated here. For example, if [Cut length] is 2 and the data is [12345], [123] is displayed.
Fill with '0'	Blanks are filled with 0. For example, if [Data length] is [3] and the data is [3], [003] is displayed.
Password (with '*')	Data is displayed with *.

CHAPTER 20 String Tags

CHAPTER 20 - String Tag

20.1 String tag overview

String tags perform the function of displaying data in string form (ASCII) on the screen.



[Fig. String tag properties screen]

In [Feature], on the left middle side of the screen, the tag type can be changed.

Select [Numeric] for a numeric tag, and [String] for a string tag.

With [Numeric] selected, check [Use key input] for a show numeric key tag. With [String] selected, check [Use key input] for a show string key tag.

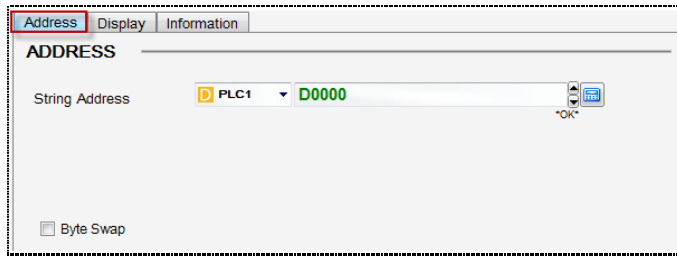
20.2 Page composition of the string tag properties screen

The numeric tag properties screen comprises the [Address], [Display], and [Information] pages.

Property page	Description
Address page	The address of the string to read is set from this page.
Display page	The font and color of the string is set from this page.
Information page	On this page, string tag info is displayed. The number of the registered screen, tag ID, time created and time modified, location and size are shown. Location and size info can edited.

20.3 Address page

Set the address of the string to read.

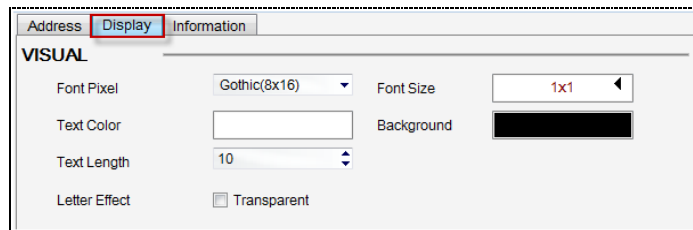


[Fig. Address page]

Address page	Description
String start address	Set the start address of the address to display the string for. Two English letters can be saved in one word address. To read strings with two letters or more, the address following the address set in [String start address] must also be read.
Byte swap	The positions of the letters saved in the address are switched. When [Byte swap] is checked, data saved as [AB] is displayed as [BA], and [ABCDEF] is displayed as [BADCFE].

20.4 Display page

Designate the number of letters in the string, the font, and the color.



[Fig. Display page]

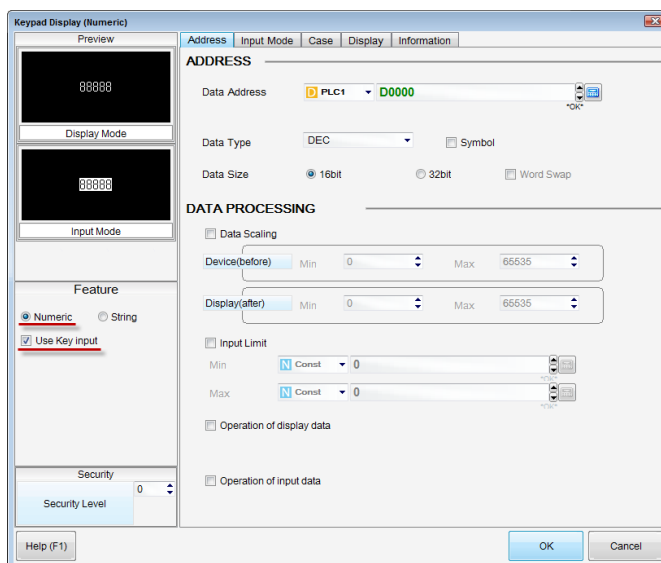
Display page	Description
Font	Select the font of the string.
Font size	The width/height of the font selected under font is magnified by the font size
Text color	Designate the font color of the string.
background color	Designate the background color of the string.
Text length	Set the length of the string to display
Letter effect	Display a transparent background for the string displayed.

CHAPTER21 Keypad Display(Numeric)Tag

21.1 Keypad display (numeric) overview

In [Keypad display (numeric) tag], data is entered in the set address, the the address entered is displayed in numbers.

Data is entered using a keypad (tenkey). When the [ENTER] key is pressed, the entered data is recorded in the applicable address.



[Fig. Keypad display (numeric) tag properties screen]

In [Feature], on the bottom left of the screen, the tag type can be changed.

Select [Numeric] for a numeric tag, and [String] for a string tag.

With [Numeric] selected, check [Use key input] for a show numeric key tag. With [String] selected, check [Use key input] for a show string key tag.

21.2 Page composition of the keypad display (numeric) tag properties screen

The keypad display (numeric) tag properties screen comprises the [Address], [Input mode], [Case], [Display], and [Information] pages.

Property page	Description
Address page	The address and data operation is set from this page.
Input mode page	This page is the page where the conditions for the [Input mode] where data can be entered using the keypad are set.
Case page	The color and background color of the numbers are set depending on the bit/word address data.

Display page	On this page, the font and color of the numbers displayed are designated, and the format is set.
Information page	On this page, keypad display (numeric) tag info is displayed. The number of the registered screen, tag ID, time created and time modified, location and size are shown. Location and size info can edit.

21.3 Address page

The address and data operation is set from this page.

[Fig. Address page]

21.3.1 Address setting

Set the address to enter and display data for.

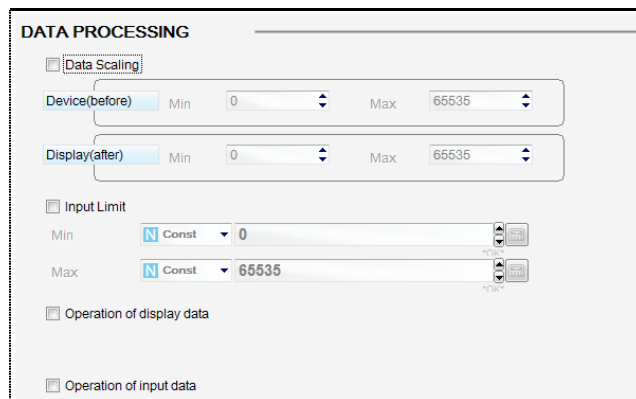
Address setting	Description
Read address	Set the address to enter data for.
Data type	Select the type of data from the list below. [DEC] is decimal. [HEX] is hexadecimal. [BCD] is actually hexadecimal, but is used like decimal data, because numbers that include A~F are not shown. [FLOAT] is data that can use decimal points, and [BIN] is binary.
Use symbols	This displays symbols on the data. If symbols are not used, data can only be entered as positive numbers. If symbols are used, both positive/negative number data can be entered. To display negative (-) data, [Symbol] must be checked.
Data	16 bit Use 16 bit as the size of data.

size	32 bit	Use 32 bit as the size of data. This is used to enter data greater than 16 bit, or for double word addresses.
Word Swap		When [Data size] is 32 bit, the display positions of the [Top word (16 bit)] and [Bottom word (16 bit)] are swapped.

21.3.2 Data processing

[Data processing] is used to add operations when entering input data.

The options available under data processing are [Input limit], [Data scaling], [Operation of display data], and [Operation of input data].

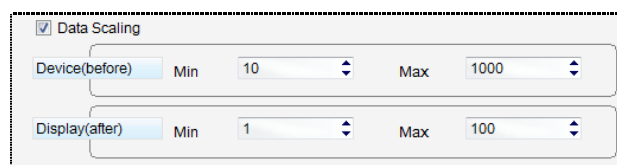


[Fig. Display and input data operation]

(1) Data scaling

[Scaling] is a function that proportionally magnifies/reduces data input using the keypad display (numeric) tag and saves the data to the corresponding address. The proportional values are calculated with the ranges entered in [Device] and [Display].

If the value to be entered exceeds the range of [Display], the value cannot be entered.



[Fig. Scaling]

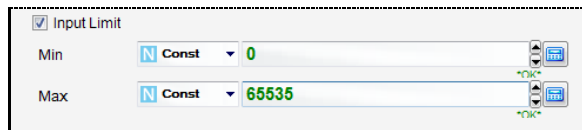
When data is entered, the [Input data] is the [Display] value displayed by the keypad display (numeric) tag. When the settings are made as seen in the figure above, the range of data that can be entered with the keypad display (numeric) tag is [Display], [1~100]. Outside this data range, data cannot be entered. However, the [Device] value that is actually saved at the address is scaled before saving. The Device value is calculated as follows.

[Device = (Max. Device value – Min. Device value)/(Max. Display value - Min. Display value) x data entered]
 If [Device] is [10 ~ 1000] and [Display] is [1 ~ 100], and [50] is entered, the keyboard display (numeric) tag displays [50], and [(1000-10)/(100-1)x50 = 500] is saved at the corresponding address.

Scaling	Description
Device	This is the actual data that is proportional to the [Display] value, and is saved to the address set in [Data address]. Set the minimum value (Min) and maximum value (Max) appropriate to the range of the data to be saved at the address.
Display	Set the minimum value (Min) and maximum value (Max) for data entered from the touch.

(2) Input limit

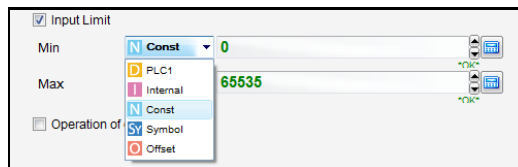
Set the range of data that can be entered using the keypad. If the input value exceeds the set range, the value is not saved at the set address.



[Fig. Min/Max limit setting]


Part	Description
Min (minimum value)	Set the minimum value of the data that can be entered.
Max (maximum value)	Set the maximum value of the data that can be entered.

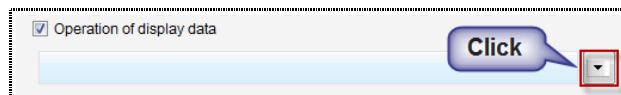
The min/max values can be set using not only [Constant] values, but also as addresses.



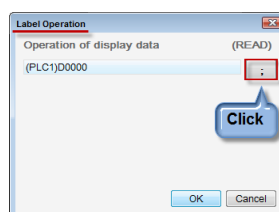
[Fig. Min/max limits set using addresses]

(3) Display data operation

[Display data operation] performs additional operations on the data of the [Data address] and displays the results. Check [Operation of display data] and press the  button to show a [Operation of display data] screen as seen in the figure below.




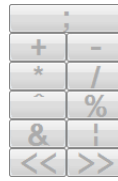
[Fig. Display data operation]



[Fig. Operation of display data screen]

The address set in [Data address] is displayed on the first line.

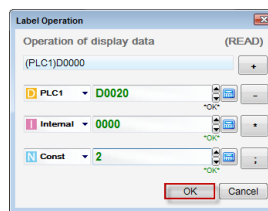
 Click the buttons to select operators and add operations in the following lines.



[Fig. Operator list]

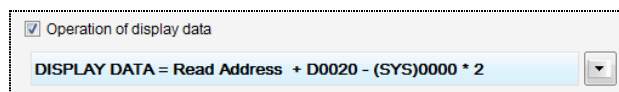
Operators	Description
;	Denotes the end of the operation.
+	[Adds] the data of two operation addresses.
-	[Subtracts] the data of two operation addresses.
*	[Multiplies] the data of two operation addresses.
/	[Divides] the data of two operation addresses.
^	This is a bit operator. [Bit XOR] operation is performed with the data of two operation addresses.
%	This is the remainder operator. After dividing the data of two operation addresses, the remainder is calculated.
&	This is a bit operator. [Bit AND] operation is performed with the data of two operation addresses.
	This is a bit operator. [Bit OR] operation is performed with the data of two operation addresses.
<<	This is a bit operator that performs the [Bit left shift] operation. This operator performs a left bit shift operation on the data on the right of the operator. The size of the shift is equal to the data on the left of the operator.
>>	This is a bit operator that performs the [Bit right shift] operation. This operator performs a right bit shift operation on the data on the left of the operator. The size of the shift is equal to the data on the right of the operator.

Complete the operation in the [Operation of display data] screen using operators and addresses.



[Fig. Display data operation]

In the [Operation of display data] screen, add operations and press the [OK] button. The operation formula is shown under Operation of display data.




[Fig. Display data operation]

When set as shown above, the data in [D0020] is always added to the data at [Data address] [D0010]. The data at internal address station [0000] is subtracted from the result, and the product of multiplying this result by [2] is displayed.

Calculations are performed in order of input, regardless of the priorities of arithmetic operations.

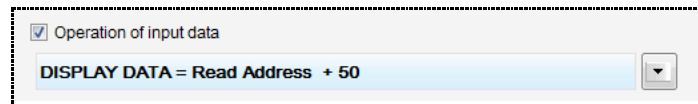
(4) Operation of input data

[Operation of input data] is a function that performs additional operations on input data, and saves the results in the corresponding address. Check [Operation of input data] and press the  button. Set the operation in the [Numeric display operation] screen that appears.



[Fig. Input data operation]

The method of adding operations is the same as in the [Operation of display data] process.



[Fig. Input data operation]

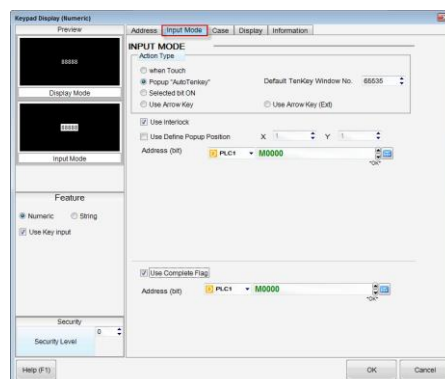
When the above setting is made, [50] is always added to the input data and saved at the [Data address].

Calculations are performed in order of input, regardless of the priorities of arithmetic operations.

21.4 Input mode page

The keyboard display (numeric) tag has [Input mode] and [Display mode] states. [Display mode] displays the data of the set address, and [Input mode] can receive data from the keypad (tenkey). In one screen only one keyboard display tag is in [Input mode] state. When one keyboard display tag is transitioned to [Input mode], the keyboard display tag that was originally in [Input mode] changes to [Display mode].

In the [Input mode] page, the conditions for changing a keyboard display (numeric) tag in [Display mode] to [Input mode] are set.



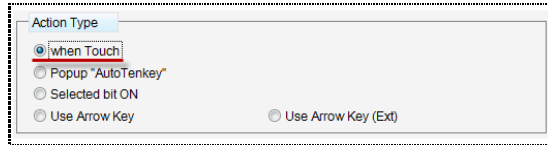
[Fig. Input mode page]

21.4.1 Input mode settings

[Input mode] operation settings provide the [when Touch], [Popup AutoTenKey], [Selected bit ON], [Use arrow key], and [Use arrow key (ext)] action types.

(1) During Touch

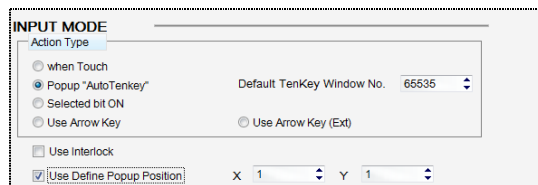
Transitions to [Input mode] when the keyboard display (numeric) tag is touched.



[Fig. when Touch]

(2) Popup AutoTenKey

Transitions to [Input mode] when the keyboard display (numeric) tag is touched, and a tenkey automatically pops up.



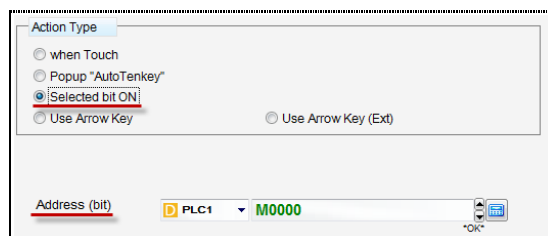
[Fig. Popup AutoTenKey]

The [Default TenKey window number] is set to [65535] by default. Window screen [65535] is a screen that is automatically created when a project is created. To have a different window screen popup, create a new window screen, and enter the new window screen number in [Default TenKey window number].

By using Use Define Popup Position, the position where the tenkey pops up can be designated. (X,Y) denotes the position of the top left corner of the popup tenkey.

(3) Selected bit ON

[Input mode] transition occurs when the data of the set bit address becomes [ON]. If data has been input and the [ENTER] key is pressed, or the data of the bit address becomes [OFF], [Display mode] transition occurs.



[Fig. Selected bit ON]

(4) Use arrow key

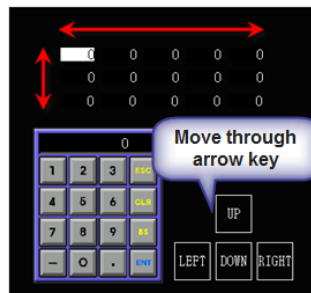
When using multiple keyboard display (numeric) tags on a single screen, move the [Input] mode using up,

down, left and right arrow keys.

To apply the up, down, left and right arrow keys, the same condition bit address must be set for the multiple keyboard display (numeric) tags, and this address must be [ON].

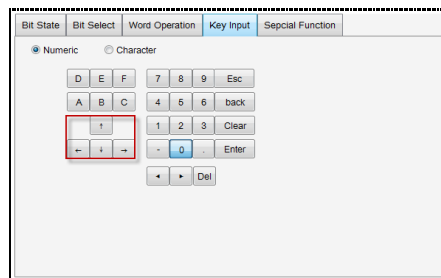
When the address becomes [ON], as seen in the figure below, the keyboard display (numeric) tag with the fastest [Key input order] is transitioned to [Input mode]. When the address becomes [OFF], or the [ESC] key is pressed, the keyboard display (numeric) tag that was in [Input mode] is changed to [Display mode]. Also, when the condition bit address of a keyboard display (numeric) tag set using the [Arrow keys] is [ON], touching the keyboard display (numeric) tag once transitions the tag to [Input mode]. Touching the tag again changes the tag to [Display mode].

[Input mode] is moved by pressing the up, down, left and right arrow keys.



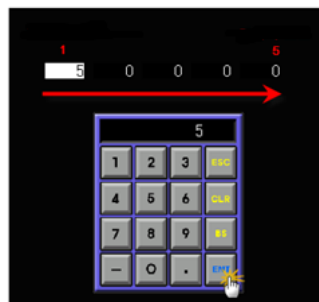
[Fig. Use arrow key]

Arrow keys are registered using touch tags. Register in [Register key] of the [Operation] page.



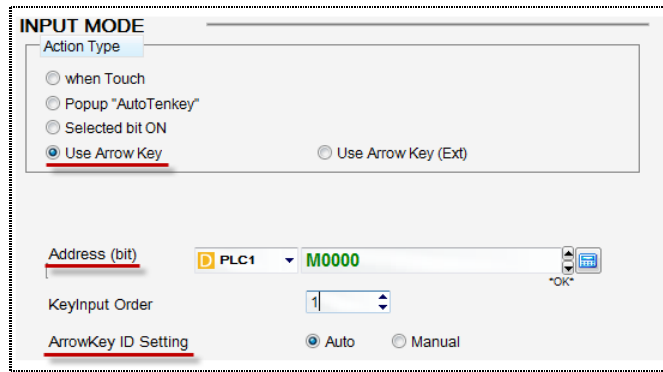
[Fig. Arrow key registration]

When input is completed and the [ENTER] key is pressed, the input data is saved at the corresponding address. [Input mode] moves to the next tag, depending on the [Key input order].

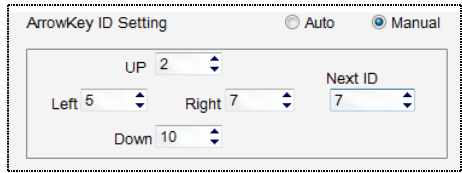


[Fig. When the ENTER key is pressed]

The arrow keys are set as follows.



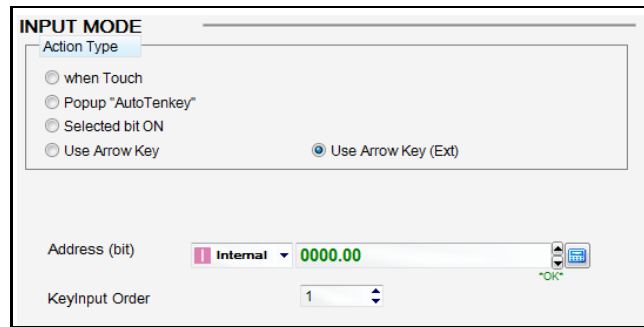
[Fig. Selected bit ON]

Use arrow key		Detailed description
Address (bit)		Set the bit address to use as the arrow key condition. In one screen, the same settings are applied to all keyboard display (numeric) tags to use as arrow keys.
Mute on touch		When [Address(Bit)] is in [ON] state, touching the keyboard display (numeric) tag transitions between the [Input mode] and [Display mode]. The [Beep] touch sound is muted when this option is selected
Key input order		When the [ENTER] key is entered, the input mode moves according to the key input order. When [Address(Bit)] becomes [ON], the keyboard display (numeric) tag with the fastest [Key input order] changes to input mode.
Arrow key ID setting	Auto	When the arrow keys are pressed to move [Input mode], input mode moves according to the position of the keyboard display (numeric) tag. That is, when the up arrow key is pressed, input mode moves to the keyboard display (numeric) tag that is located above the current keyboard display (numeric) tag. When the [ENTER] key is entered, the input mode moves according to the key input order.
	Manual	When the up, down, left and right direction keys and the [ENTER] key are pressed, the order of the keyboard display (numeric) tag to transition to [Input mode] next is set.  The arrow key ID is the ID of each keyboard display (numeric) tag. The ID is a number assigned according to the order registered to the screen, and is shown in information.

(5) Use arrow key (Ext)

[Use arrow key (ext)] operates identically to [Use arrow key]. However, the scope of application for arrow keys has been extended. While in [Use arrow key], the arrow keys are only used for keyboard display

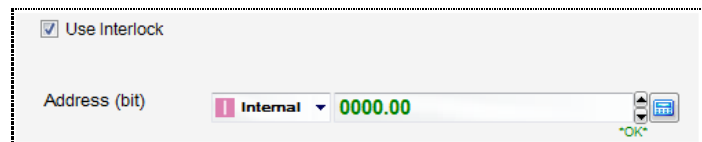
(numeric) tags using the same bit address, in [Use arrow key (ext)], the arrow keys apply even if the bit address is different, if the tag is in [ON] state.



[Fig. Use arrow key (ext)]

(6) Use interlock and use complete flag

[Use interlock] can only be used in [when Touch] and [Popup AutoTenkey]. Interlock is a function where input mode for the keyboard display (numeric) tag does not operate if the bit address data is [OFF], and operates if the data is [ON].



[Fig. Use interlock]

[Use complete flag] is used when confirming that data input has been completed. When the input data is entered in the corresponding address, the data of the address (bit) becomes [ON].



[Fig. Use complete flag]

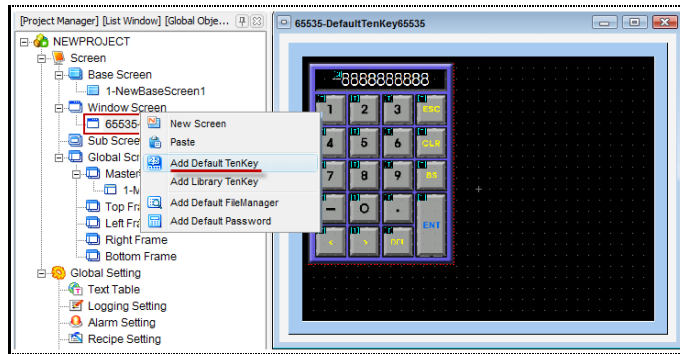
Data that has been turned [ON] is not turned [OFF] automatically.

21.4.2 Registering keypad (tenkey)

The method of registering the keypad used in keyboard display (numeric) and keyboard display (string) tags is explained.

(1) 65535 default tenkey

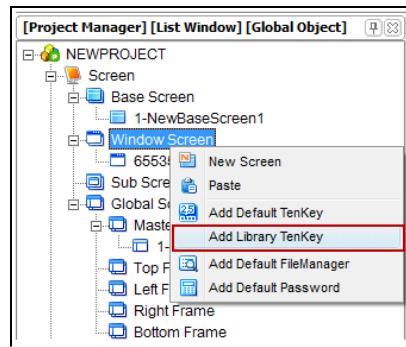
When a new project is created, the 65535 window screen called [Default TenKey65535] is created by default in [Window screen]. If this window screen has been deleted, it can be created again using the [Add autotenkey] menu in the [Window screen] popup menu.



[Fig. Default tenkey window]

(2) Adding to the window screen using the tenkey library

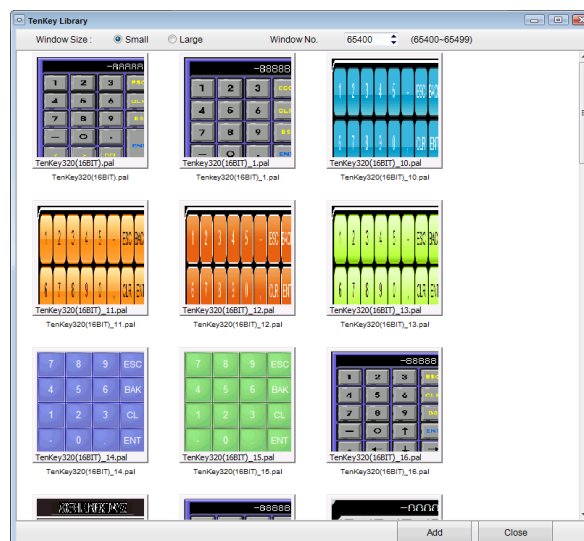
Tenkeys can be added in [Project manager]. When the [Window screen] in [Project manager] is right clicked with the mouse, the popup menu shown in the figure below appears.



[Fig. Add library tenkey]

Press [Add library tenkey] in the popup menu to bring up the [TenKey Library].

Select the desired tenkey and enter the window number, then click the [Add] button to add the tenkey to the [Window screen].

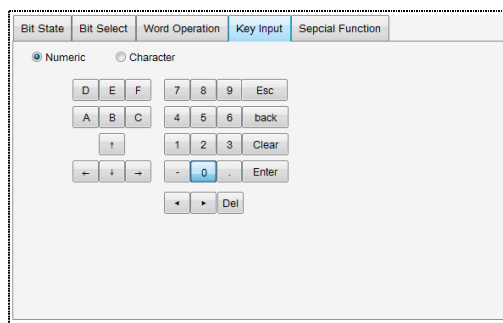


[Fig. Tenkey library]

Part		Description
Window size	Small	Shows a list of small size tenkeys.
	Large	Shows a list of large size tenkeys.
Window number		Select the number of the window screen where the tenkey will be registered and created. 65400 ~ 65499 is used as the number of the tenkey window screen.
Add		Add the selected tenkey to the window screen.
Close		Close the tenkey library.

(3) Registering keypads in the base screen

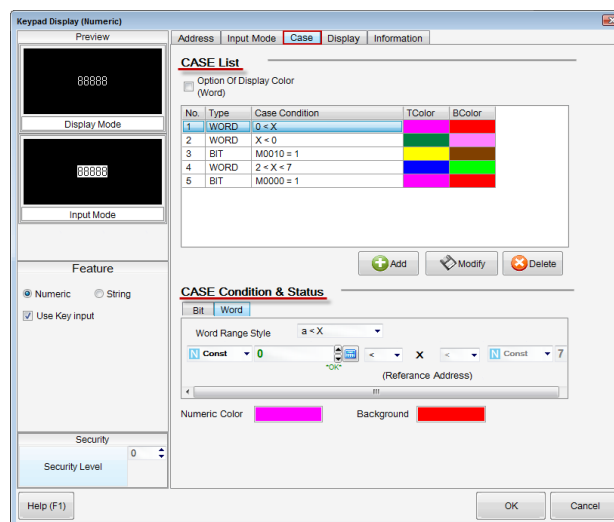
To register keypads in the base screen, copy the tenkey in the window screen registered using the tenkey library and paste in the base screen. Alternatively, the keypad can be made manually using touch tags. (See [13.5.2] of [chapter 13] for a description of each key.)



[Fig. Touch tag operation key registration]

21.5 Case page

Using the bit/word address state as conditions, the color and background color of the numbers can be set differently according to the condition. If the conditions for the case set in the [CASE List] are satisfied, the data of the [Data address] is displayed with the number color and background color set for the corresponding case.



[Fig. Case page]

21.5.1 CASE List

This is a list of set cases. Up to 64 [Cases] can be set. If 2 or more of the set cases are satisfied, the case that was registered first is applied.

(1) Case list




No.	Type	Case Condition	TColor	BColor
1	WORD	0 < X	Yellow	Red
2	WORD	X < 0	Green	Brown
3	BIT	M0010 = 1	Yellow	Brown
4	WORD	2 < X < 7	Blue	Green
5	BIT	M0000 = 1	Yellow	Red

[Fig. Case list]

Case	Description
Number	This is the registration number of the case.
Category	Indicates whether the case is a [Bit condition] or [Word condition] case.
Condition	The operating conditions of the case are displayed. If an address other than the [Data address] is used, that address is also displayed.
TColor	The color for the numbers in the case is shown.
B.G. color	The background color for the case is shown.

(2) Adding/modifying/deleting cases

[Add/modify/delete] cases.

Case	Description
 Add	Ad a case set in [CASE Condition & Status] to the [Case list].
 Modify	Modify the selected case. Change settings and press the [Modify] button to modify the case.
 Delete	Delete the selected case.

(3) Number display color options

When using a [Word condition] in a case, this function allows the use of data from an address other than the [Data address] as a condition. Check [Option of display color] to bring up an address input box. Set the address to use as the condition for the [Word condition].



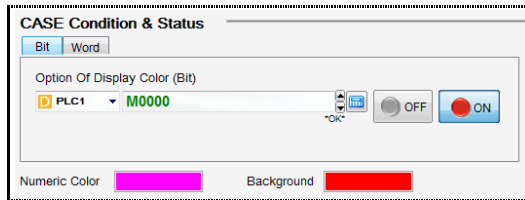
[Fig. Option of display color]

21.5.2 CASE Condition & Status

Set the [Case]. [Bit] and [Word] condition cases are provided.

(1) Bit operation case setting

Colors and background colors are applied to numbers according to the [ON/OFF] status of the bit address.

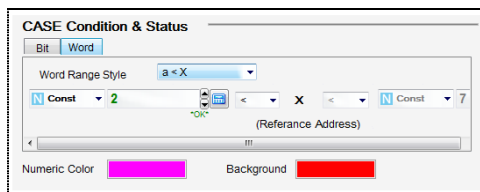


[Fig. Bit condition case]







Bit condition	Description
Option of display color (Bit)	Enter the address to use as the bit condition in the case.
OFF	The case is applied when the data of the set address is OFF.
ON	The case is applied when the data of the set address is ON.
TColor	Set the color to apply to numbers when the case operates.
B.G. color	Set the color to apply to the background when the case operates.

(2) Word operation case setting

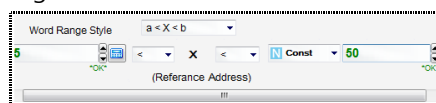
Change the number color and background color depending on the word address data condition.



[Fig. Word condition case]

Word condition	Description
Word range type	<p>Select the word range type from the list below.</p> <ul style="list-style-type: none">  [a < X] — The data of the address is greater than the minimum value.  [X < b] — The data of the address is less than the maximum value.  [a < X < b] — The data of the address is between the minimum value and maximum value. The [<] operator can be changed.
X (Reference address)	<p>This refers to the address entered in [Data address].</p> <p>Here, if a number display color option (word) has been set for [CASE List], X (Reference address) becomes the address set in the number display color option.</p>
Minimum value	Enter the minimum value to use as the condition.
Maximum value	Enter the maximum value to use as the condition.
Operators	<p>Set the operator of the condition.</p> <ul style="list-style-type: none">  [<] — Greater than or less than,  [<=] — Greater than or equal to, or less than or equal to,  [!=] — same, [!]=] - not the same
TColor	Set the color to apply to the number when the case operates.
B.G. color	Set the color to apply to the background when the case operates.

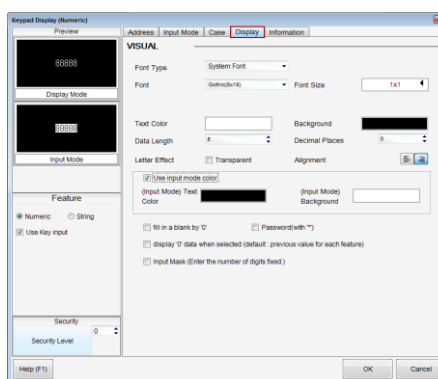
For example, if the word case is set as in the following, if the reference address data is greater than or equal to [5], and less than [50], the case is applied, and the keyboard display (numeric) tag is displayed with the set number color and background color.



[Fig. Word condition case operation]

21.6 Display page

From this page, the font and color of the number is set, and the display format is set.



[Fig. Display page]

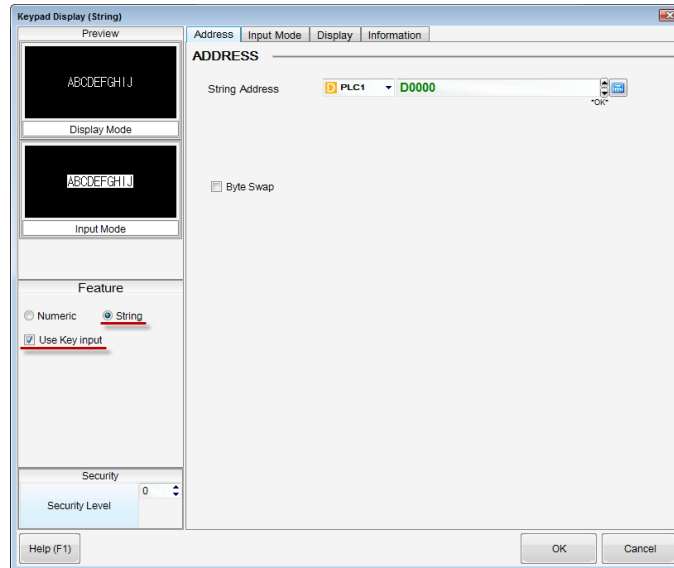
Display setting	Description
Font type (pixel)	Select the font of the numbers.
Font size	The width/height of the font selected under font is magnified by the font width ratio
Hint font color	Set the color of numbers used to display numeric values.
B.G. color	Set the background color of numbers used to display numeric values.
Number length	Set the total number of places to display for the number.
Decimal places	Set the number of decimal places to display. If [Decimal places] is 3 and the word value is 12345, 12.345 is shown on the screen.
Letter effect	The background of numbers used to display numeric values is made transparent.
Align	Select between left align and right align.
Designate input mode color	Set the font color and background color of numbers in input mode state.
(Input mode) font color	Set the font color when transitioned to input mode.
(Input mode) background color	Set the background color when transitioned to input mode.
Fill with '0'	Blanks are filled with 0. If the data is [3], [00003] is displayed.
Password (with '*')	Data is displayed with *.
Display '0' data when selected	[0] is displayed when input mode is transitioned to.

CHAPTER 22 Keypad Display (String) Tag

CHAPTER 22 - Keypad Display (String) Tag

22.1 Keypad display (string) overview

Keypad display (string) tags enter strings (ASCII) in addresses, and display the input strings on the screen.



[Fig. Keypad display (string) tag properties screen]

In [Feature], on the left middle side of the screen, the tag type can be changed.

Select [Numeric] for a numeric tag, and [String] for a string tag. With [Numeric] selected, check [Use key input] for a show numeric key tag. With [String] selected, check [Use key input] for a show string key tag.

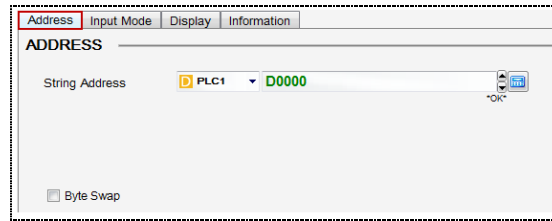
22.2 Page composition of the keypad display (string) tag properties screen

The keypad display (string) tag properties screen comprises the [Address], [Input mode], [Display], and [Information] pages.

Property page	Description
Address page	Set the address to enter the string from this page.
Input mode page	This page is the page where the conditions for the [Input mode] where data can be entered using the keypad are set.
Display page	From this page, the font and color of the string displayed is set, and the display options are set.
Information page	On this page, keypad display (string) tag info is displayed. The number of the registered screen, tag ID, time created and time modified, location and size are shown. Location and size info can be edited.

22.3 Address page

Set the address to enter the string from this page.

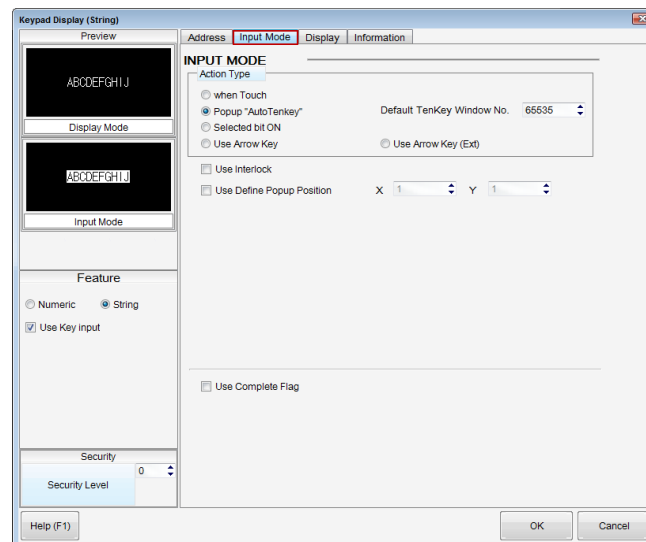


[Fig. Address page]

Address page	Description
String start address	Set the start address of the address to enter the string for. Two English letters can be saved in one-word address. To input strings with two letters or more, the address following the address set in [String start address] must also be entered.
Byte swap	The positions of the strings entered are swapped. When [Byte swap] is checked, data entered as [AB] is saved as [BA], and [ABCDEF] is saved as [BADCFE].

22.4 Input mode page

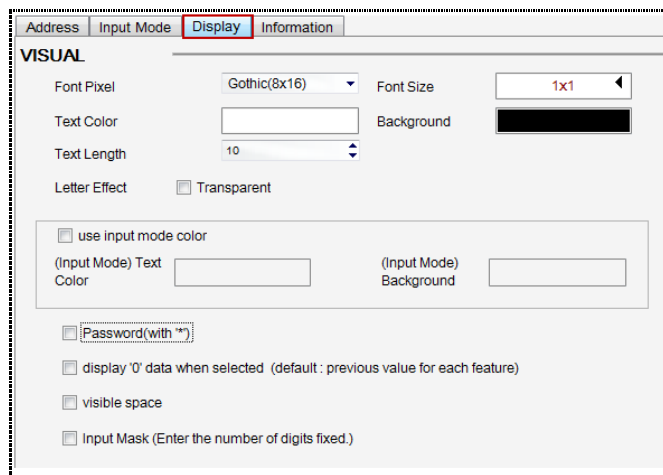
In the [Input mode] page, the conditions for changing a keyboard display (string) tag in [Display mode] to [Input mode] are set. This part is identical to the [Input mode page] for the keypad display (numeric) tag. (See [19.4] of [chapter 19] for info on the input mode page.)



[Fig. Input mode page]

22.5 Display page

Designate the number of letters in the string, the font, and the color.



[Fig. Display page]

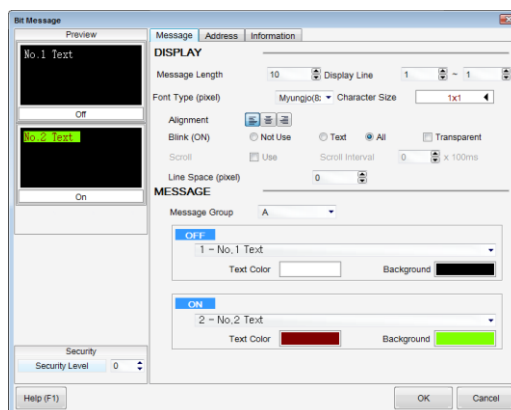
Display setting	Description
Font type (pixel)	Select the font of the string.
Font size	The width/height of the font selected under font is magnified by the font size
Hint font color	Designate the font color of the string.
B.G. color	Designate the background color of the string.
Text length	Set the length of the string to display
Letter effect	When [Transparent] is checked, the background of string displayed is made transparent.
Designate input mode color	Designate the font color and background color in [Input mode].
(Input mode) font color	Set the font color when transitioned to input mode.
(Input mode) background color	Set the background color when transitioned to input mode.
Password (with '*')	The string is displayed with *.
Display '0' data when selected	When [Input mode] is entered, existing data is not displayed in the keypad display (string) tag.
Visible space	Spaces are automatically entered into spaces other than the letters entered. If [Text length] is 5 and [AB] is entered, [AB](4142) is saved in the corresponding word address. Using this function the data is saved including 3 spaces, as [AB](4142202020). In ASCII code, [AB] is [4142] and, [AB] is [4142202020].

CHAPTER 23 Bit Message Tag

CHAPTER 23 - Bit Message Tag

23.1 Bit message tag overview

A bit message tag calls and displays messages registered in the [Message table], depending on the ON/OFF state of a bit address. (☞ See [7.8] in [chapter 7] for [Message table].)



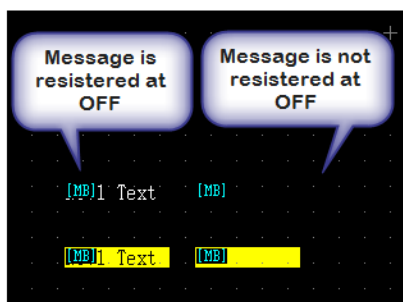
[Fig. Bit message tag properties screen]

23.2 Page composition of the bit message tag properties screen

The bit message tag properties screen comprises the [Message], [Address] and [Information] pages.

Property page	Description
Message page	Set display settings for the message shown, and the group and number of the message to be shown depending on the ON/OFF state.
Address page	Set the bit address to use as the condition for calling messages.
Information page	On this page, bit message tag info is displayed. The number of the registered screen, tag ID, time created and time modified, location and size are shown. Location info can be edited.

This is the bit message tag registered to the screen. When a message tag is registered to the edit screen, the message registered to the OFF action is displayed. If there is no message registered to the OFF action, only a background color is displayed, as seen in the figure below.



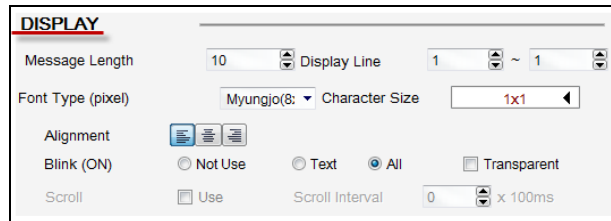
[Fig. Bit message tag registered to the edit screen]

23.3 Message page

Set display settings for the message shown, and the group and number of the message to be shown depending on the ON/OFF state.

23.3.1 Display settings (DISPLAY)

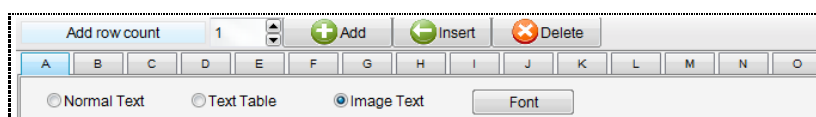
Make settings relating to the display of messages.



[Fig. Display setting]

Display setting	Description	
Message length	Set the length of the message to display The length of each message is shown in the [Message table]. Enter the length of the longest of the messages used. For English, one letter is counted as [1]. Korea is counted as [2] per letter.	
Display line	Set the number of lines to display the message. Set the number of lines for the longest message to be shown.	
Font type (pixel)	Select the font of the message from the list.	
Character size	The width/height of the font selected under font is magnified by this size	
Align	Select from [Left], [Center], and [Right] align.	
Blink	Blink	In Blink, an [ON state] message emphasizing effect, the message appears and disappears in 0.5 second intervals.
	Not use	The blink function is not used.
	Text	Only the text blinks, and the set background does not blink.
	All	Both the letters and background color blink.
Scroll	The message scrolls one letter at a time from right to left. This cannot be used together with the blink function.	
Scroll interval	When using the [Scroll] function, set the interval of movement in 100ms (0.1 second) units.	

When [Image text] is set for use in the [Message table], the display settings are changed.



[Fig. Message table set as image text]

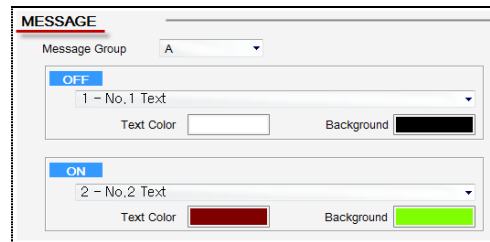


[Fig. Display setting]

Display setting	Description
Use define size	Set an arbitrary size for the area where the message is displayed.
Width	Set the width for the area where the message is displayed.
Height	Set the height for the area where the message is displayed.
Blink/Scroll	These cannot be used when using image text.

23.3.2 Message settings

Select the group of the message registered in the [Message table], and register the messages to be shown in the OFF and ON states.

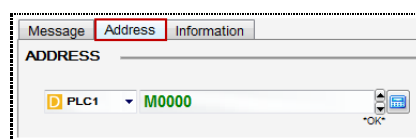


[Fig. Message settings]

Message	Description
Message group	Select among the A ~ Z groups registered in the [Message Table].
OFF	Select the message to be displayed when the bit address is in OFF state, from the message list.
Font color	Choose the font color of the message displayed in OFF state.
B.G. color	Choose the background color of the message displayed in OFF state.
ON	Select the message to be displayed when the bit address is in ON state, from the message list.
Font color	Choose the font color of the message displayed in ON state.
B.G. color	Choose the background color of the message displayed in ON state.

23.4 Address page

Set the bit address to use as the condition for calling messages.



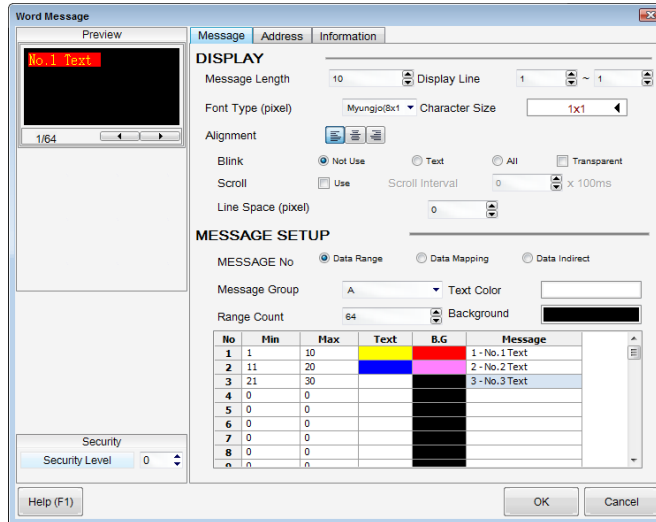
[Fig. Address page]

CHAPTER 24 Word Message Tag

CHAPTER 24 - Word Message Tag

24.1 Word message tag overview

A word message tag calls and displays messages registered in the [Message table], depending on the ON/OFF state of a word address. It is used when calling multiple messages according to set conditions. (See [7.8] in [chapter 7] for [Message table].)



[Fig. Word message tag properties screen]

24.2 Page composition of the word message tag properties screen

The word message tag properties screen comprises the [Message], [Address] and [Information] pages.

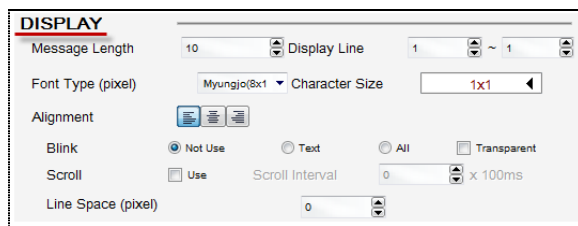
Property page	Description
Message page	Set display settings for the message shown, and the group and number of the message to be shown depending on the data.
Address page	Set the word address to use as the condition for calling messages.
Information page	On this page, message message tag info is displayed. The number of the registered screen, tag ID, time created and time modified, location and size are shown. Location info can be edited.

24.3 Message page

Set display settings for the message shown, and the group and number of the message to be shown depending on the data.

24.3.1 Display settings (DISPLAY)

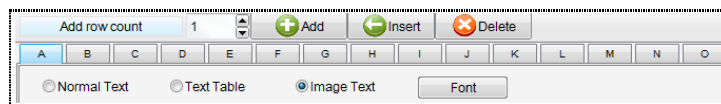
Make settings relating to the display of messages.



[Fig. Display setting]

Display setting	Description	
Message length	Set the length of the message to display The length of each message is shown in the [Message table]. Enter the length of the longest of the messages used. For English, one letter is counted as [1]. Korea is counted as [2] per letter.	
Display line	Set the number of lines to display the message. Set the number of lines for the longest message to be shown.	
Font type (pixel)	Select the font of the message.	
Character size	The width/height of the font selected under font is magnified by this size	
Align	Select from [Left], [Center], and [Right] align.	
Blink	Blink	In Blink, an [ON state] message emphasizing effect, the message appears and disappears in 0.5 second intervals.
	Not use	The blink function is not used.
	Text	Only the text blinks, and the set background does not blink.
	All	Both the letters and background color blink.
Scroll	The message scrolls one letter at a time from right to left. This cannot be used together with the blink function.	
Scroll interval	When using the [Scroll] function, set the interval of movement in 100ms (0.1 second) units.	

When [Image text] is set for use in the [Message table], the display settings are changed.



[Fig. Message table set as image text]



[Fig. Display setting]

Display setting	Description
Use define size	Set an arbitrary size for the area where the message is displayed.
Width	Set the width for the area where the message is displayed.
Height	Set the height for the area where the message is displayed.
Blink/Scroll	These cannot be used when using image text.

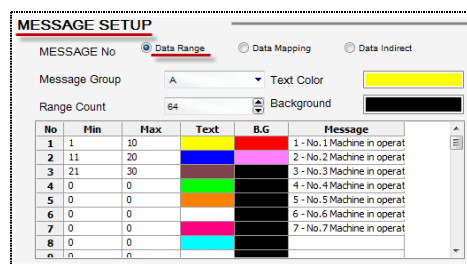
24.3.2 Message settings

Select the message number calling method. Message number calling methods include [Data Range], [Data Mapping], and [Data indirect]. Set the message group and message number to be used depending on the message number calling method.

(1) Data range

The designated message is called according to the data range of the word address. The greatest number of range counts that can be set in [Data range settings] is 64.

First, set the message group, and set the font and background color of the message to be displayed. Next, enter the range count, and then set the [Font color/background color/message number] according to the minimum and maximum values of each range.



[Fig. Data range]

With the above settings, if the word address data is [0~10], message number 1 is shown. For [11~20] and [21~30], message 2 and message 3 are displayed, respectively. If the word address data has a value outside the range, nothing is displayed.

Data range	Description
Message group	Select among the A ~ Z message groups registered in the [Message Table].
Font color	Set the font color when the value is outside the set range.
B.G. color	Set the background color when the value is outside the set range.
Range count	Set the number of messages to call according to the range.
Number	These numbers are assigned to the set ranges.
Minimum value	The minimum value of the range. Set so that the ranges do not overlap.
Maximum value	The maximum value of the range. Set so that the ranges do not overlap.
Font color	Set the font color of the message.
B.G. color	Set the background color of the message.

Depending on the set group, select among the messages registered in the [Message table]. When a message is clicked, a list is displayed.

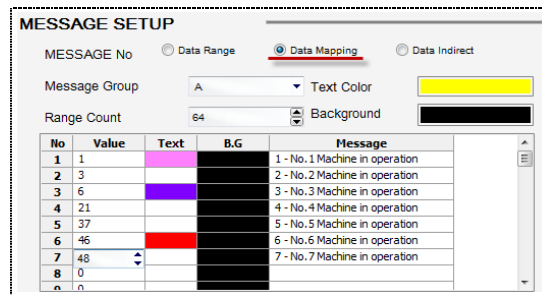
Message

No	Min	Max	Text	B.G	Message
1	1	10			NO DATA
2	11	20			NO DATA
3	21	30			1 - No.1 Machi
4	0	0			2 - No.2 Machi
5	0	0			3 - No.3 Machi
6	0	0			4 - No.4 Machi
7	0	0			5 - No.5 Machi
8	0	0			6 - No.6 Machi
9	0	0			7 - No.7 Machi

(2) Data mapping

Messages are called according to designated data. A [Value] is set, and the corresponding message is called when the data becomes that value. First, set the message group, and set the font and background color of the message to be displayed.

Next, enter the range count, and then set the [Font color/background color/message number] according to each value.

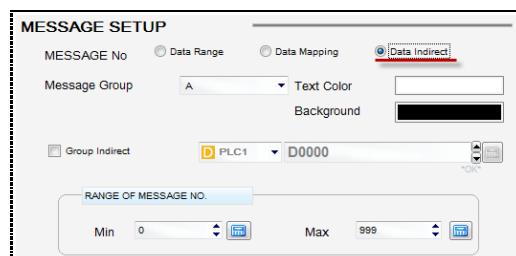


[Fig. Data mapping]

If the word address data is [1], message number 1 is shown. For [3] and [6], message 2 and message 3 are displayed, respectively. For values other than the word address data, nothing is displayed.

(3) Data indirect

Messages with the same number as the word address data are called. The greatest number messages that can be called in [Data indirect] is 32767. First, set the message group, and set the font and background color of the message to be displayed. Next, set the message number range.



[Fig. Data indirect]

If the word address data is between 1 and 999, the message with the same number as the word address is called.

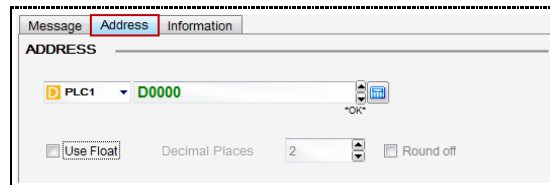
If the word address data is not between 1 and 999, no message is called.

[Group number indirect] is a function where a word address can be set, and the message group can be changed depending on the data of the word address. Word address data [0~25] are matched with groups [A~Z].

To call an A group message, enter [0] in the word address data. To call a C group message, enter [2] in the word address data.

24.4 Address page

Set the word address to use as the condition in a word message tag. If [Use float] is checked, the data type of the word address entered is change to flat, and decimals can be used.



[Fig. Address page]

CHAPTER 25 Bit Window Tag

CHAPTER 25 - Bit Window Tag

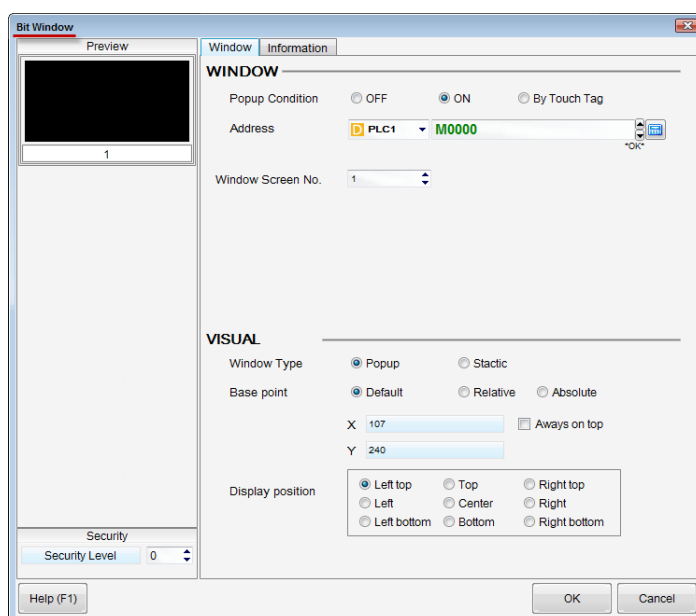
25.1 Bit window tag overview

A bit window tag is a tag that calls window screens depending on the ON/OFF state of bit addresses.

While the number of window tags that can be registered to the base screen is unlimited, a maximum of 8 window screens can popup simultaneously: 4 popups and 4 fixed. That is, if there are 8 popup windows screens on the screen, the 9th popup window screen pops up only when one of the existing popup window screens is closed.

25.2 Page composition of the bit window tag properties screen

The bit window tag properties screen comprises the [Window] and [Information] pages.

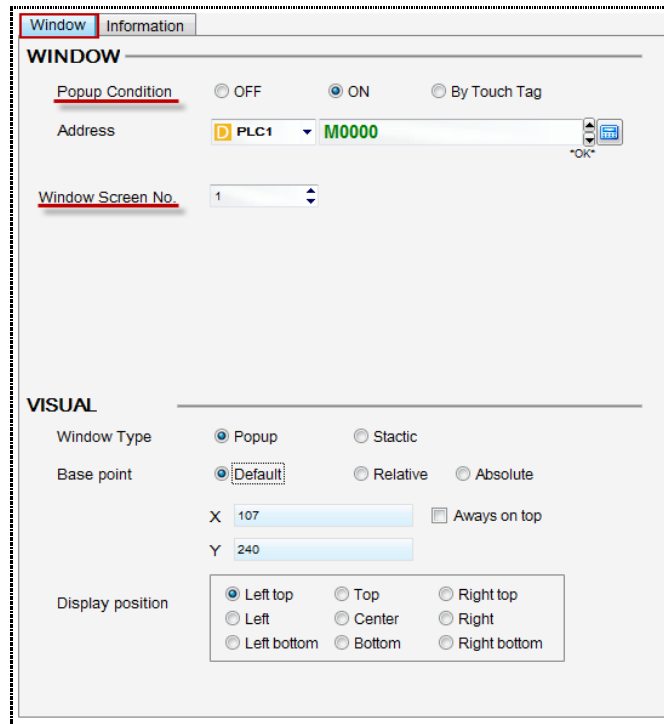


[Fig. Bit window tag properties screen]

Property page	Description
Window page	The popup conditions, screen number, and popup position of the window screens is set on this page.
Information page	On this page, bit window tag info is displayed. The number of the registered screen, tag ID, time created and time modified, location and size are shown. Location info can be edited.

25.3 Window page

The popup conditions, screen number, and popup position of the window screens is set on this page.



[Fig. Bit window tag window page]

25.3.1 Window

Set the popup conditions and window screen number.

Properties	Description	
Popup condition	OFF	The window screen stays visible when the designated bit address is in OFF state.
	ON	The window screen stays visible when the designated bit address is in ON state.
	Use touch tag	Operate a window tag by registering touch tags. <div> </div>

[Fig. [Window popup] function for touch tag]

Select [Special functions] in the [Operation] page of the touch tag. Set the category to [SCREEN], and use the [Window Popup(Toggle)] function. Select window tag ID, and enter the ID of the corresponding window tag. (Tag ID is shown in information, and is a number assigned according to the order of registration to the screen.

		When a touch tag has been set as seen in the figure above, and registered to the screen together with a window tag, the touch tag, which has a toggle conditions, causes the window screen to popup when touched once. The window screen disappears when touched again.
Address		Set the bit address to use as the condition for calling window screens.
Window screen number		Set the window screen number to call.

25.3.2 Popup position (VISUAL)

(1) Window type

There are two types of window type, [Popup] and [Fixed], depending on the method the window screen is handled when called to the base screen.

Window type	Description
Pop-up	This option is used when the window screen momentarily pops up and then disappears. When the window screen pops up then disappear, the base screen that was in the popup position of the window before it popped up is restored.
Fixed	This option is used to fix a window screen to a certain position on the base screen. When the window screen pops up then disappear, the base screen that was in the popup position of the window before it popped up is not restored. The area covered by the window screen is erased, and appears black. The area appears black because the touch colors the area covered by the popup window screen black.

(2) Window coordinates

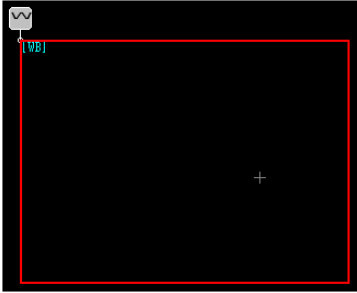
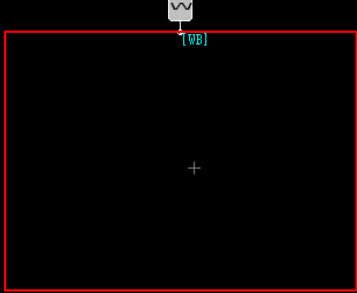

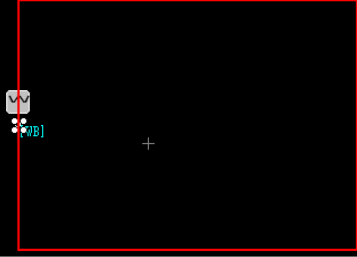
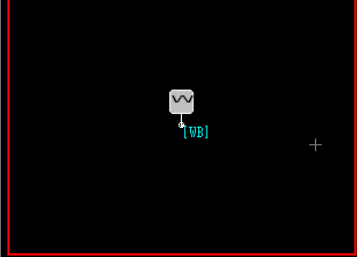
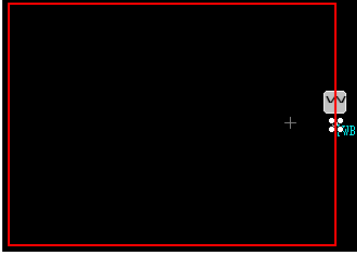
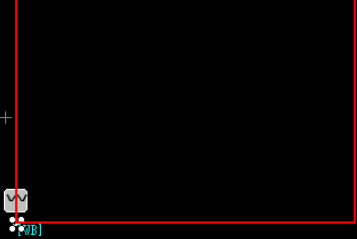
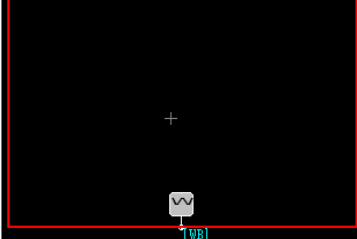
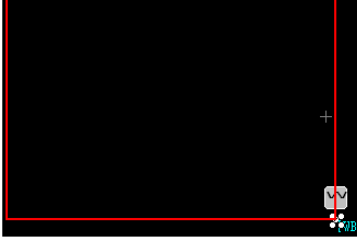
[Base position], [Relative coordinates], and [Absolute coordinates] can be selected as methods to set the popup position of windows. Because only 1 window screen is called by a bit window tag, only the [Base position] function is provided.

For word window tags, which call multiple window screens, all three [Base position], [Relative coordinates], and [Absolute coordinates] options are available.

(3) Display direction

Display direction is used to set the position of the window screen relative to the point where the window tag has been registered. The point where the [Window tag] has been registered to the screen becomes the [Display direction] of the window screen that is called and pops up.

The following table shows the window screen popup positions depending on the 9 display directions. [W] is the point where the window tag was registered, and the red rectangle denotes the window screen.

Left top	Center top	Right top
		
Left center	Center	Right center
		
Left bottom	Center bottom	Right center
		

CHAPTER 26 Word Window Tag

CHAPTER 26 - Word Window Tag

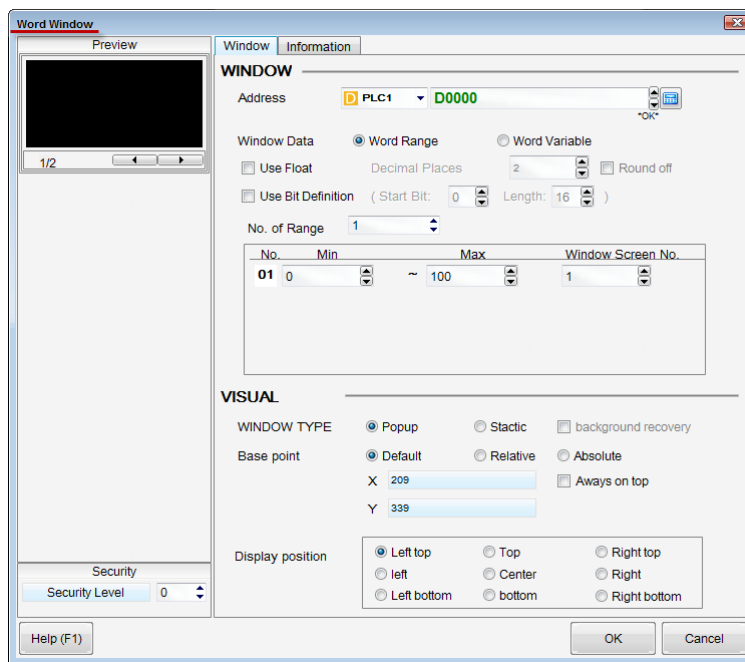
26.1 Word window tag overview

A word window tag calls window screens depending on the data of a word address. It is used when calling multiple window screen according to set conditions.

While the number of window tags that can be registered to the base screen is unlimited, a maximum of 8 window screens can popup simultaneously: 4 popups and 4 fixed. That is, if there are 8 popup windows screens on the screen, the 9th popup window screen pops up only when one of the existing popup window screens is closed.

26.2 Page composition of the word window tag properties screen

The word window tag properties screen comprises the [Window] and [Information] pages.

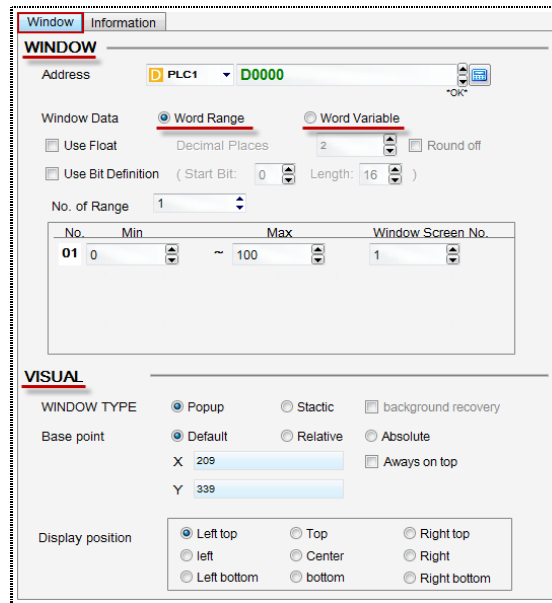


[Fig. Word window tag properties screen]

Property page	Description
Window	The screen number and popup position of the window screens depending on the window screen popup conditions are set on this page.
Information	On this page, word window tag info is displayed. The number of the registered screen, tag ID, time created and time modified, location and size are shown. Location info can be edited.

26.3 Window page

The screen number and popup position of the window screens depending on the window screen popup conditions are set on this page.



[Fig. Word window tag window page]

26.3.1 Window

(1) Address

Set the word address as the condition address to call the corresponding window screen.

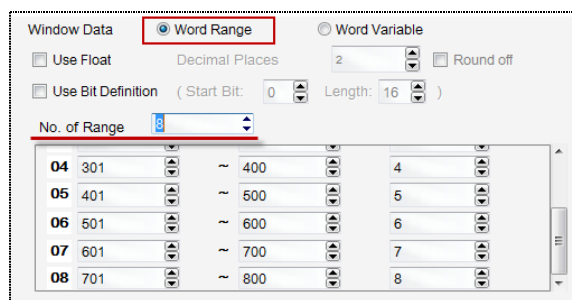
(2) Number designation method

Select the window screen number designation method depending on the word address data. Number designation methods include [Word Range], and [Word variable].

① Word range setting

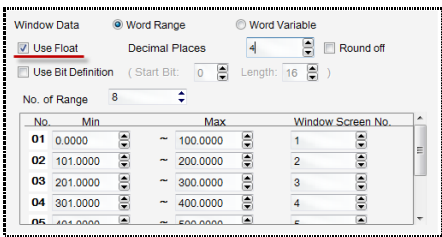
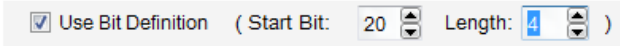
The designated window screen is called according to the data range of the word address.

The greatest number of window screens that can be called for each range in [Word range] is 8.



[Fig. Word range setting]

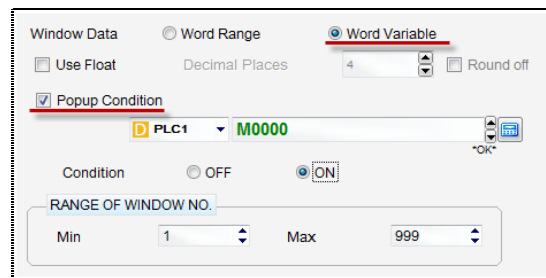
If the data of the set word address has a value between 0 and 100, window screen 1 pops up. If the value is between 101 and 200, window screen 2 pops up. If the data of the set word address has a value outside the 8 ranges, no window screen pops up.

Word range setting	Description
Range count	Set the number of window screens to call according to the range.
No. (Number)	These numbers are assigned to the set ranges.
Min (minimum value)	The minimum value of the range. Set so that the ranges do not overlap.
Max (maximum value)	The maximum value of the range. Set so that the ranges do not overlap.
Window Screen No.	Set the window screen number to call.
Use float	<p>The data type for the minimum and maximum values for range input becomes [Float], and decimals can be entered.</p>  <p>This cannot be used together with [Use bit definition].</p>
Use bit definition	<p>In use bit definition, the [Word Address] which is the window tag condition address is changed to binary.</p> <p>For example, if the case address is [D0000] and the data at station [D0000] is [2000], [2000] is changed to binary : [0000/0111/1101/0000].</p>  <p>When the start bit is set to [2] and the length is set to [4], only 4 bits from the second bit of [0000/0111/11[01/00]00] are used. [0100] changed to a decimal number becomes [4].</p> <p>This cannot be used together with [Use float].</p>

② Word variable

The window screen with the same number as the word address data is called.

The greatest number window screens that can be called in [Word variable] is 65535.



[Fig. Data indirect]

If the data at bit address [M0000] is on, and the data of the word window tag condition address is between 1 and 999, the windows screen with the same number as the word address data is called.

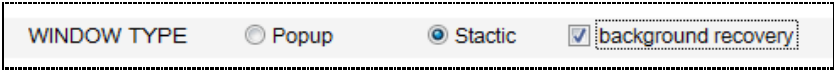
If the data at bit address [M0000] is OFF, or the data of the word window tag condition address is not between 1 and 999, the windows screen is not called.

Word variable	Description
Popup condition	When popup condition is used, the window screen is called only when the data of the set [Bit address] satisfies the set condition (OFF/ON). * Note) When not using popup conditions, the window screen is always called when the word address data is within the [Range of window numbers].
Range of window no.	Designated the range of window screen numbers to call using minimum and maximum values.

26.3.2 Popup position (VISUAL)

(1) Window type

There are two types of window type, [Popup] and [Fixed], depending on the method the window screen is handled when called to the base screen.

Window type	Description
Pop-up	This option is used when the window screen momentarily pops up and then disappears. When the window screen pops up then disappear, the base screen that was in the popup position of the window before it popped up is restored.
Fixed	This option is used to fix a window screen to a certain position on the base screen and use windows screens of the same size. When the window screen pops up then disappear, the base screen that was in the popup position of the window before it popped up is not restored. The area covered by the window screen is erased, and appears black. The area appears black because the touch colors the area covered by the popup window screen black.
Background recovery on window transition	This option can only be set for [Fixed] windows. When this option is checked, when a window screen pops up and disappears, the area that was covered by the popup window screen is not painted black. 

(2) Window coordinates

[Base position], [Relative coordinates], and [Absolute coordinates] options can be selected for the method of setting the window popup position.

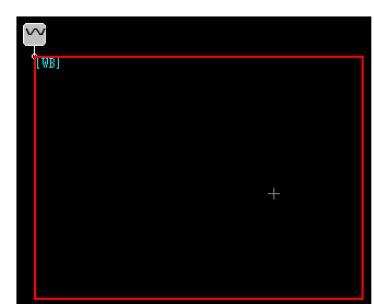
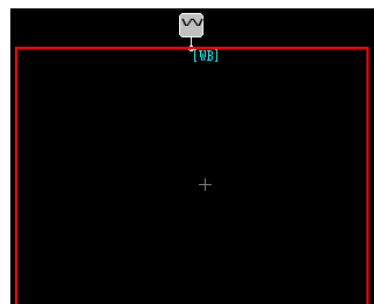
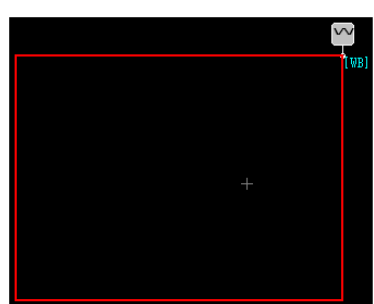
Window coordinates	Description
Base position	The window screen is called to the (X,Y) position where the window tag is registered.
Relative coordinates	<p>The window screen is called to the position indicated by the (X,Y) coordinates gained by adding the data from the two addresses following the [Word address] set as the condition address for the (X,Y) position where the window tag was registered.</p> <p>Using relative coordinates, the window screen can be called to the desired position by adjusting the [D0001] and [D0002] data whenever a window screen is called.</p> <p>* Note) If the word address set for the window tag is [D0000], and the position the window tag is registered is (50,100), the position where the window screen is called becomes (50+[D0001] data, 100+[D0002] data).</p>
Absolute coordinates	<p>Regardless of the (X,Y) position where the window tag is registered, the data in the two addresses following the [Word address] set as the condition address becomes the position where the window screen is called.</p> <p>Using absolute coordinates, the window screen can be called to the desired position by adjusting the [D0001] and [D0002] data whenever a window screen is called.</p> <p>* Note) If the word address set for the window tag is [D0000], the position where the window screen is called becomes ([D0001] data, [D0002] data).</p>

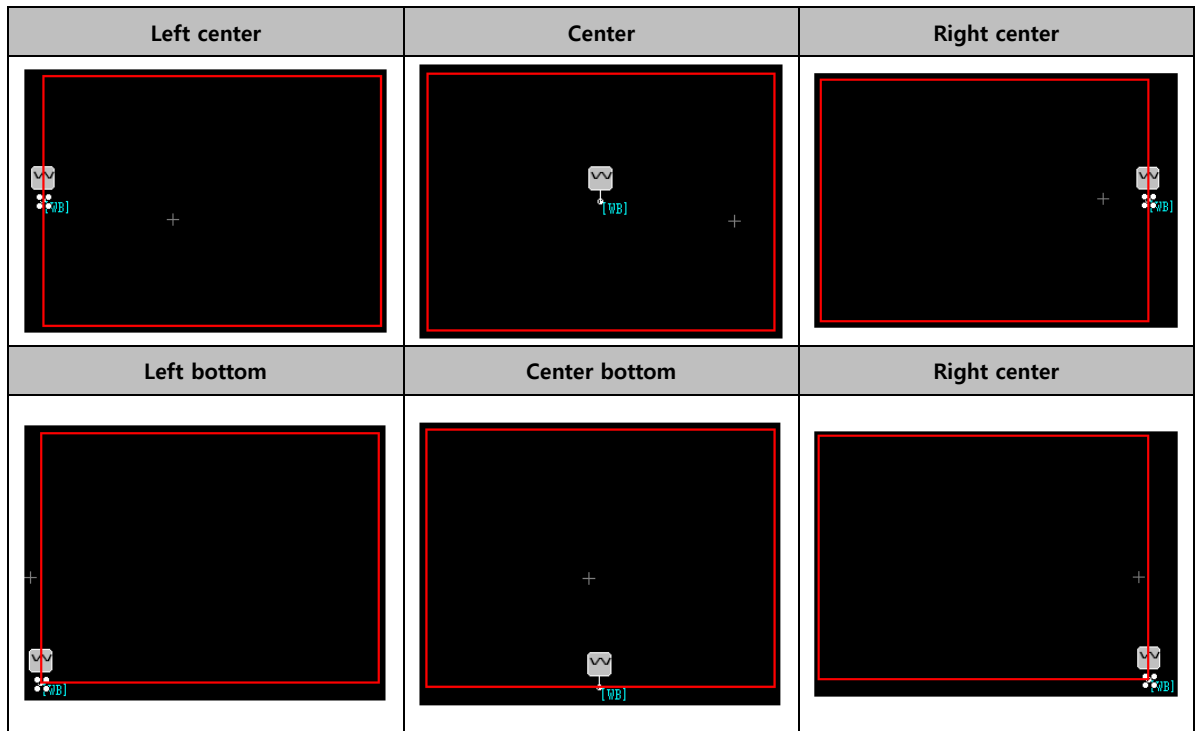
(3) Display direction

Display direction is used to set the position of the window screen relative to the point where the window tag has been registered.

The point where the [Window tag] has been registered to the screen becomes the [Display direction] of the window screen that is called and pops up.

The following table shows the window screen popup positions depending on the 9 display directions. [W] is the point where the window tag was registered, and the red rectangle denotes the window screen.

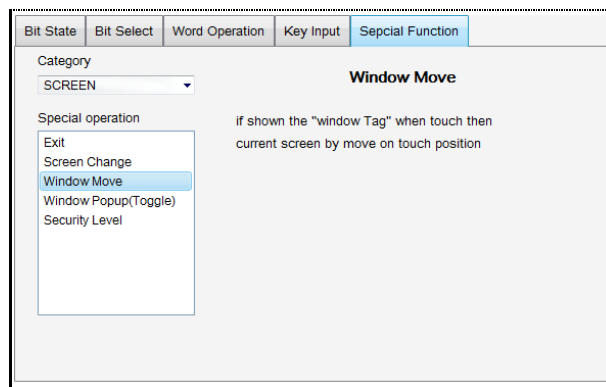
Left top	Center top	Right top
		



26.4 Moving the window screen position during operation

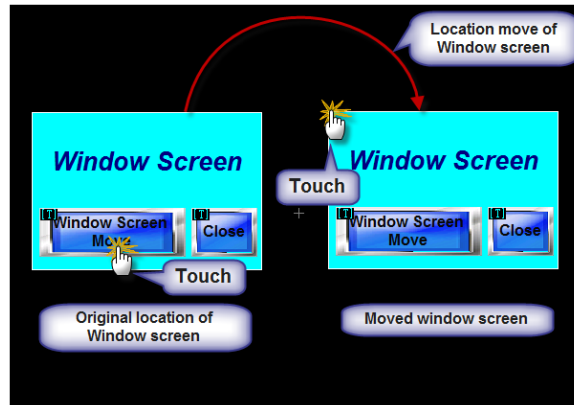
The position of the window screen can be moved during operation. When a set [Touch tag] is registered to the window screen as seen in the following figure, touching the touch button once and touching the position to move the screen moves the window screen to that position.

The window screen move function can be found under special functions of the [Operation] page for touch tags. Set the category to [SCREEN], and select the [Window Move] function.



[Fig. [Window screen move function for touch tag]

Register the touch tag set with the window screen move function (Window Move) to the window screen.



[Fig. Moving the window screen position during operation]

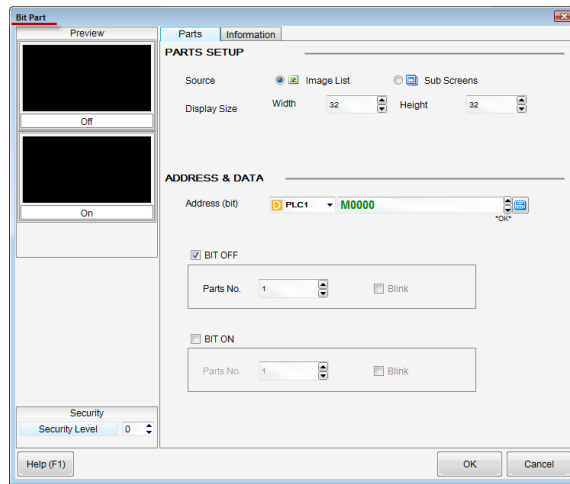
When a window screen has been called to the base screen as seen in the figure above, first touch the [Move window screen] touch tag registered to the window screen first in order to move the window screen. Next, touch the position to move to, and the window screen moves to the touched position.

CHAPTER 27 Bit Parts Tag

CHAPTER 27 - Bit Parts Tag

27.1 Bit parts tag overview

The bit parts tag is a function that calls an image registered in the image list or a sub screen depending on the ON/OFF state of a bit address. If the designated bit address state is ON, the registered image or sub screen is shown, and when the state is OFF, the image or sub screen registered to the OFF state is displayed. Alternatively, images or screens can be displayed for either the ON state only or the OFF state only. Using this function, two different images can be expressed, or an animation effect can be given.



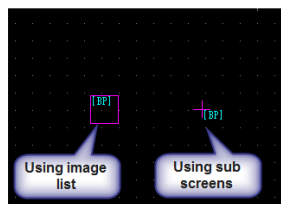
[Fig. Bit parts tag properties screen]

27.2 Page composition of the bit parts properties screen

The bit parts tag properties screen comprises the [Parts] and [Information] pages.

Property page	Description
Parts page	Select the part type, and set the bit address and the number of the parts to display in ON/OFF state.
Information page	On this page, bit parts tag info is displayed. The number of the registered screen, tag ID, time created and time modified, location and size are shown. Location info can be edited.

This is the bit parts tag registered to the screen. Parts tags using the image list and parts tags using sub screens are shown differently, as seen in the figure below.



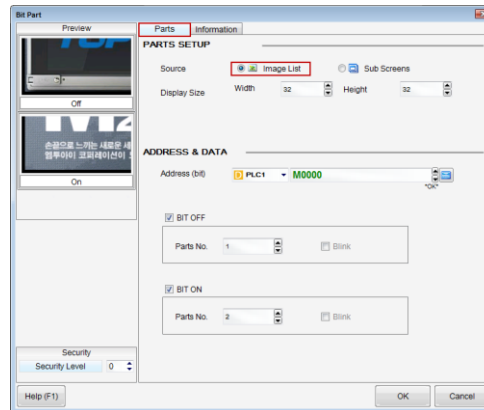
[Fig. Bit parts tag registered to the edit screen]

27.3 Parts page

This page is the page for setting the display screen type used in the bit parts tag, and the bit address.

27.3.1 Action when image list is set

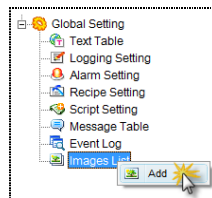
The images registered in [General settings]-[Image list] of the project manager are called depending on the ON/OFF state of the bit address.



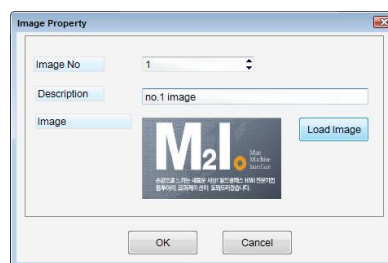
[Fig. When image list is set]

(1) Registering images in the image list

The image list is located in general settings of the project manager. Up to 32767 images can be registered. After selecting the image list, right click with the mouse and click [Add]. This brings up the [Image properties] screen. In the [Image properties] screen, add images.



[Fig. Add image]



[Fig. Image properties]

Image property	Description
Image number	Set the image number. 0 ~ 32767 can be entered.
Description	Enter a description of the image.

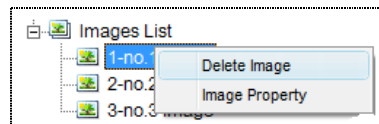
Image	<div style="border: 1px solid gray; padding: 2px; display: inline-block; margin-bottom: 5px;">Load Image</div> Click the button to load the image to register. The loaded image can be seen in [Image].
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After image loading is complete, press the [OK] button to add the image to the image list, as seen in the figure below.



[Fig. Image registered]

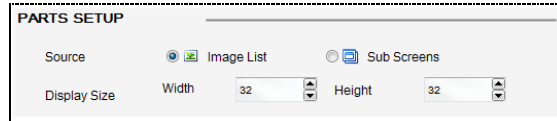
When the registered image is right clicked with the mouse, a popup menu appears as seen in the following figure. Through the popup menu, images can be deleted, or properties can be changed.



[Fig. Popup menu of registered images]

(2) PARTS SETUP

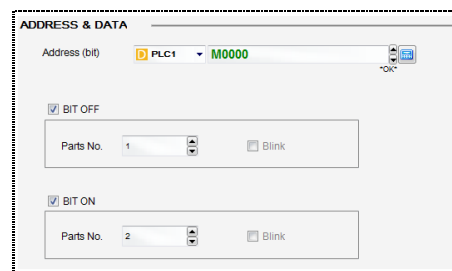
Select the display screen type as [Image list], and set the [Display size].



[Fig. Parts setup]

Even if the width and height of the display area do not match the size of the image to be displayed, the full registered image is displayed on the screen. However, when the image disappears, on the part covered by the display area disappears, and the rest remains on screen. Also, if the size of ON image and OFF image is different, a ghost of the larger image remains on the screen. Therefore, the display area should be set to be the same as or larger than the size of the larger image.

(3) Address and parts number setting

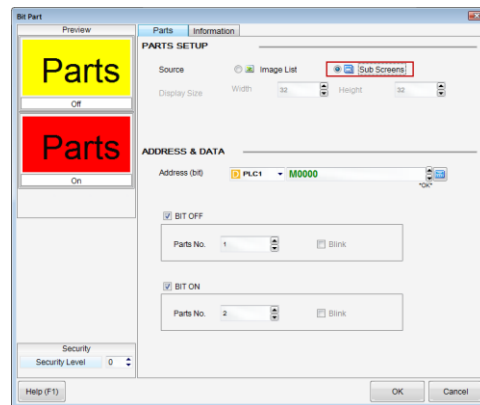


[Fig. Address and parts number setting]

Address and parts number setting	Description
Address (bit)	Set the bit address for calling parts.
OFF state	Set the image to display when the bit address state is OFF. Enter the image number registered in the [Image list] as the [Parts number]. For [Image list], the [Blink] function is not supported.
ON state	Set the image to display when the bit address state is On. Enter the image number registered in the [Image list] as the [Parts number]. For [Image list], the [Blink] function is not supported.

27.3.2 Action when sub screen is set

The screen registered to the [Sub screen] is called depending on the ON/OFF state of the bit address. Only shapes can be registered to the sub screen. Tags cannot be registered. (See [3.4.3] in [chapter 3] for [Sub screen].)



[Fig. When sub screen is set]

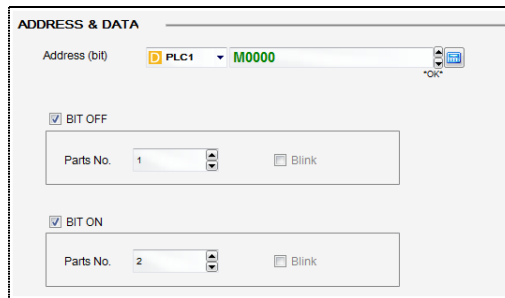
(1) PARTS SETUP

Set the display screen type as [Sub screen]. As the whole screen is called for sub screens, there is no need to set the [Display size].

(2) Address and parts number setting

Address and parts number setting	Description
Address (bit)	Set the bit address for calling parts.
OFF state	Set the sub screen to display when the bit address state is OFF. Enter the screen number of the sub screen to call as the [Parts number]. The [Blink] function can be used when either the [OFF state] or the [ON state] is set. In the blink function, the sub screen appears and disappears in 0.5 second intervals.
ON state	Set the sub screen to display when the bit address state is ON. Enter the screen number of the sub screen to call as the [Parts number].

The [Blink] function can be used when either the [OFF state] or the [ON state] is set.
In the blink function, the sub screen appears and disappears in 0.5 second intervals.



[Fig. Address and parts number setting]

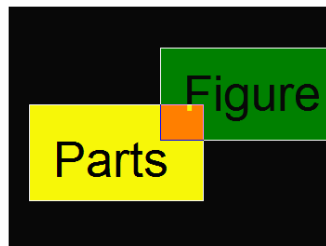
To display shape registered to a sub screen in the same position on the base screen, the parts tag must be located accurately on the center point of the base screen.



[Fig. Position identical to the center point]



Note This precaution applies when using and selecting either the OFF state or ON state when using parts tags calling sub screens. If a background color has been set for the base screen, or if a shape with a different color exists in the position where the parts tag part (shape of the sub screen) is displayed, the color of the parts is reversed (XOR).

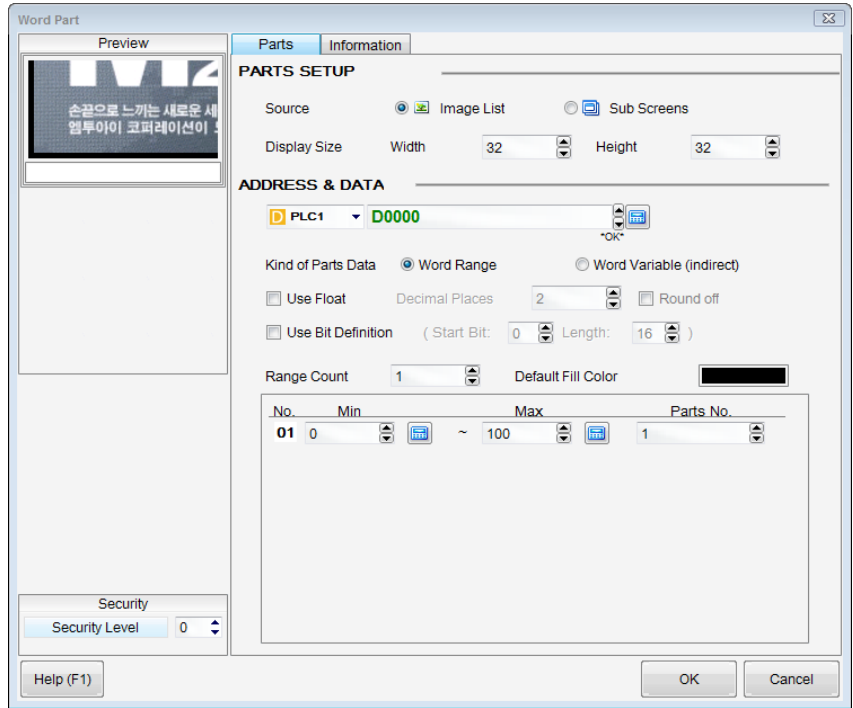


CHAPTER 28 Word Parts Tag

CHAPTER 28 - Word Parts Tag

28.1 Word parts tag overview

The word parts tag is a function that calls an image registered in the image list or a sub screen depending on the ON/OFF state of a word address. It is used when calling multiple images or sub screens according to set conditions.



[Fig. Word parts tag properties screen]

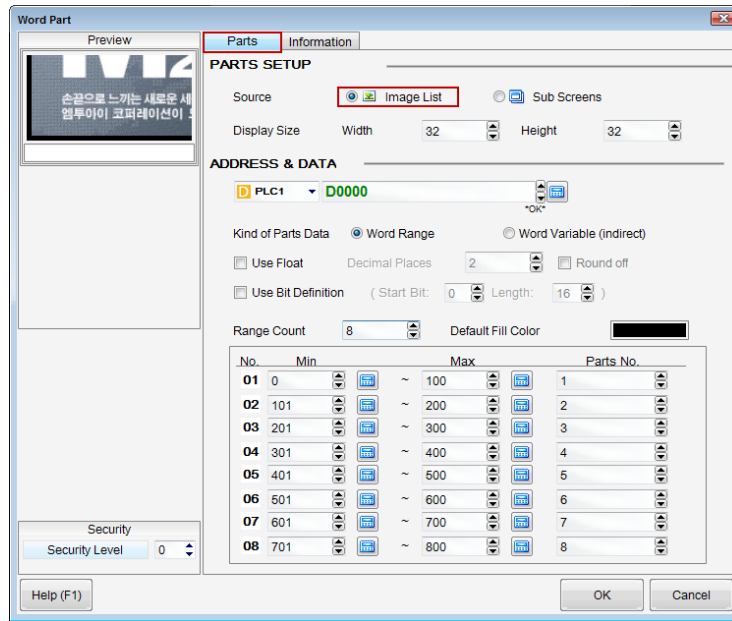
28.2 Page composition of the word parts properties screen

The word parts tag properties screen comprises the [Parts] and [Information] pages.

Property page	Description
Parts page	From this page, the display screen type is selected, and the word address and parts to call are set.
Information page	On this page, word parts tag info is displayed. The number of the registered screen, tag ID, time created and time modified, location and size are shown. Location info can be edited.

28.3 Parts page

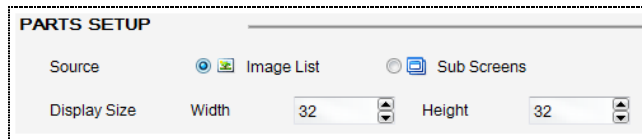
From this page, the display screen type is selected, and the word address and parts to call are set.



[Fig. Parts page]

28.3.1 Parts settings

Select the display screen type between [Image list] and [Sub screen]. In [Image list], images registered in the [Image list] are called according to the data of the word address. In [Sub screen], the sub screens registered in [Sub screens] are called according to the data of the word address.



[Fig. Parts setup]

(1) Image list

Select the [Display size] if the display screen type has been selected as [Image list].

Even if the width and height of the display area do not match the size of the image to be displayed, the full registered image is displayed on the screen. However, when the image disappears, on the part covered by the display area disappears, and the rest remains on screen. Also, if the sizes of the images called are different, a ghost of the larger image remains on the screen.

Therefore, the display area should be set to be the same as or larger than the size of the larger image.

The method of registering images to the image & list is the same as for bit parts tags. (☞ See [25.3.1] in [chapter 25] for instructions on how to add images.)

(2) Sub screen

If the display screen type is selected as [Sub screen], as the whole screen is called for sub screens, there is no need to set the [Display size]. To display shape registered to a sub screen in the same position on the base screen, the parts tag must be located accurately on the center point of the base screen.



[Fig. Position identical to the center point]

28.3.2 Address and parts number setting

Set the word address for calling parts, then set the parts number according to the number designation method.

Number designation methods include [Word Range], and [Word variable].

In [Word Range], parts are called according to the data range of the word address.

In [Word Variable], parts with the same number as the word address data are called.

No.	Min	Max	Parts No.
01	0	~ 100	1
02	101	~ 200	2
03	201	~ 300	3
04	301	~ 400	4
05	401	~ 500	5
06	501	~ 600	6
07	601	~ 700	7
08	701	~ 800	8

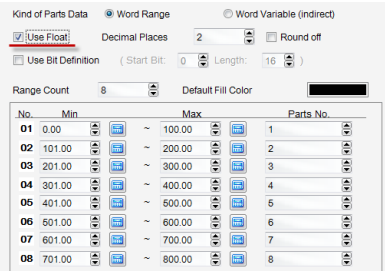
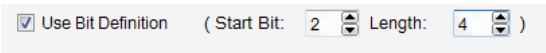
[Fig. Address and action setting]

(1) Word range

When [Word range] has been selected, first set the range count. A maximum of 8 ranges can be set. Next, enter the [Min value] and [Max value] to define each range, and set the [Parts numbers] to call for each range.

The [Parts number] of the image list is the image number, and the [Parts number] of the sub screen is the sub screen number. With the above settings, if the word address data is [0~100], image or sub screen number 1 is called. For [101~200], image or sub screen number 2 is called. If the data of the set word address has a value outside the 8 ranges, no part is called.

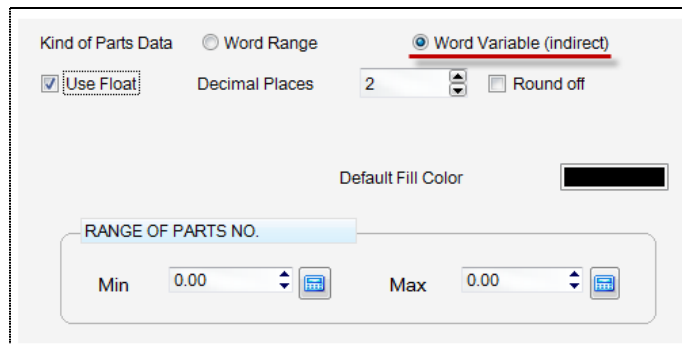
Use float and use bit definition settings are as follow.

Option	Description
Use float	<p>The data type for the minimum and maximum values for range input becomes [Float], and decimals can be entered.</p>  <p>This cannot be used together with [Use bit definition].</p>
Use bit definition	<p>In use bit definition, the [Word Address] which is the word parts tag condition address is changed to binary. For example, if the case address is [D0000] and the data at station [D0000] is [2000], [2000] is changed to binary : [0000/0111/1101/0000].</p>  <p>When the start bit is set to [2] and the length is set to [4], only 4 bits from the second bit of [0000/0111/11[01/00]00] are used. [0100] changed to a decimal number becomes [4]. This cannot be used together with [Use float].</p>

(2) Word variable

When [Word variable] has been selected, set the range of parts numbers.

The greatest number parts that can be called in [Word variable] is 32767.



[Fig. Data indirect]

If the word parts tag data is between 1 and 30, the part with the same number as the word address data is called. If the word parts tag word address data is not between 1 and 30, no part is called.

CHAPTER 29 Alarm Tags

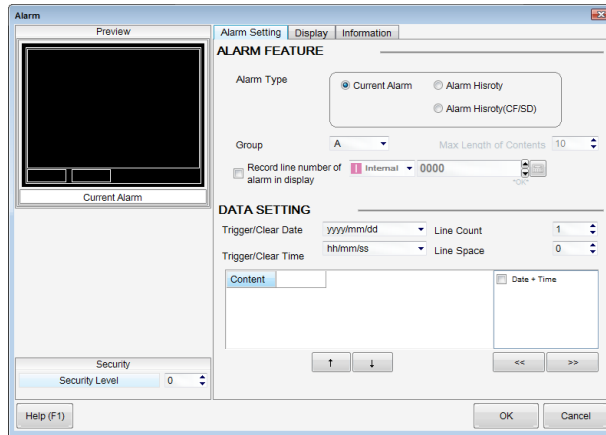
CHAPTER 29 - Alarm Tag

An alarm tag shows a list of triggered alarms.

Alarms refer to errors or problems that occur in the system. Each alarm is registered under [Alarm settings] together with the bit address. To see the alarm settings screen, select [Alarm settings] in [General settings] of the [Project manager], or select [Alarm settings] in the [Project] menu.

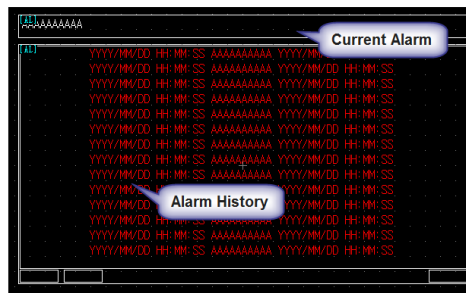
(☞ See [7.5] of [chapter 7] for the alarm setting method.)

Alarm tag types include [Alarm tag] and [Extended alarm tag]. The alarm tag and extended alarm tag perform the same function, but the extended alarm tag includes more functions than the alarm tag. This is the properties screen for alarm tags.



[Fig. Alarm tag properties screen]

This is an alarm tag registered to the screen.



[Fig. Alarm tag registered to the edit screen]

29.1 Page composition of the alarm tag properties screen

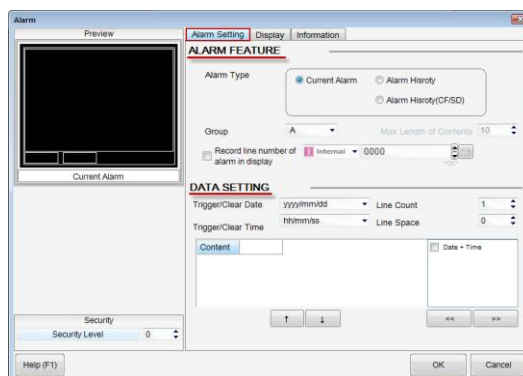
Alarm tag properties has 3 pages : [Alarm setting], [Display], and [Information].

Properties	Description
Alarm setting page	The details of the alarm tag are set from this page. Set the type of data displayed, and the alarm type.

Display page	The design of the alarm tag is set from this page. Set the frame, screen options, font, and color of the alarm tag.
Information page	On this page, alarm tag info is displayed. The number of the registered screen, tag ID, time created and time modified, location and size are shown. Location and size info can be edited.

29.2 Alarm settings page

Alarm features and data settings are set.



[Fig. Alarm settings page]

Alarm types include [Current alarm], [Alarm history], and [Alarm history (CF)].

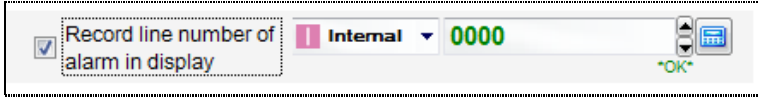
Alarm type	Description
Current alarm	Only currently triggered alarms are shown. When an alarm is triggered, it is shown. If the alarm is disengaged, it automatically disappears from the alarm tag.
Alarm history	Displays not only currently triggered alarms, but also disengaged alarms in a history sorted by order of occurrence.
Alarm history (CF)	Displays alarm history data saved on a CF memory card

29.2.1 Current alarm settings

In Current alarm, only a list of currently triggered alarms is displayed.

(1) ALARM FEATURE

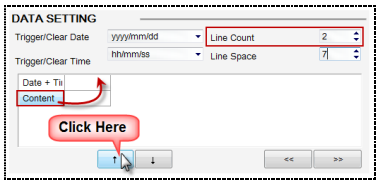


Alarm feature	Description
Alarm type	Select the current alarm.
Group	Among the groups A~Z, select the group to show triggered alarm for.
Max. length of contents	In the case of current alarms, all content is displayed to the end, even if a max. length is not set. Therefore, the setting is disabled.
Record line number of alarm in display	Used only for current alarms. Saves the line number of the alarm displayed in the first line of the alarm list

	<p>shown in the alarm tag, in the designated address.</p> <p>Only internal touch addresses can be used.</p>  <p>Therefore, when this address is displayed as a [Numeric tag] on the screen, the line number of the currently displayed alarm can be shown on screen.</p>
--	--

(2) Data setting

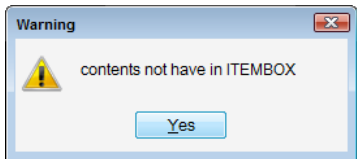
Set the data to be displayed as the current alarm.

Set the [Date format], [Time format], [Line count], and [Line space] of the data to be shown

Properties	Description
Date format	This format is used to display the trigger/disable date of alarms. y is year, m is month, and d is day. Select from the formats provided.
Time format	This format is used to display the trigger/disable time of alarms. H is hour, m is minute, and s is second. Select from the formats provided.
Line count	<p>Used only for current alarms. This is the number of lines that are used to show one alarm. An alarm can be shown across multiple lines. The first line can show time and date, and the second line can show alarm details.</p>  <p>[Fig. Changing alarm data position]</p> <p>Select the data to change the position for, then click the   button to change the vertical position of the data.</p>
Line space	Used only for current alarms. Set the spacing between alarms displayed.


① Setting the type of data to display

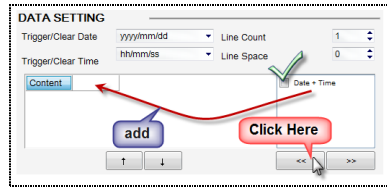
Two types of data: [Trigger date and time] and [Alarm content] are shown for current alarms.

Data type	Description
Trigger date + time	This is the date and time when the alarm occurred. This data can be set to be shown or not shown, as desired by the user.
Alarm content	<p>This is the content of a triggered alarm. This is a mandatory item that must be shown.</p> <p>If this data is excluded, the following error message is shown when the [OK] button is pressed.</p> 

② Adding or deleting display data for the current alarm


<How to add alarm data>

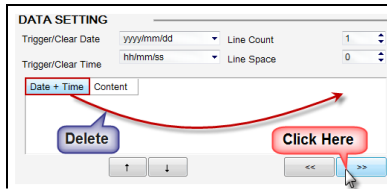
After selecting date + time data from the list on the right, click the  button on the bottom to add to the alarm table.



[Fig. Adding alarm data]

<How to delete alarm data>

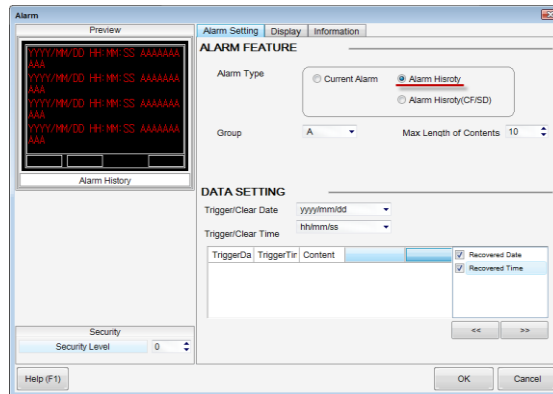
After selecting date + time data from the list on the right, click the  button on the bottom to delete from the alarm table.



[Fig. Deleting alarm data]

29.2.2 Setting alarm history

In alarm history, not only current alarms, but also cleared alarms are shown in order of occurrence. Alarm history (CF) is set using the same method as alarm history.



[Fig. Alarm history]

(1) ALARM FEATURE

Alarm feature	Description
Alarm type	Select the alarm history.
Group	Among the groups A~Z, select the group to display.
Max. length of contents	Enter the length of the longest alarm in the alarm list for the same group. If the max. length of contents is not sufficiently long, the alarm content may not be fully displayed, and may be cropped.

(2) Data setting

Set the data to be displayed alarm history.

① Setting the [Date format] and [Time format] of the data to show

Properties	Description
Date format	The format is used to display the trigger/clear data of the alarm. Y is year, m is month, and d is day. Select from the formats provided.
Time format	This format is used to display the trigger/disable time of alarms. H is hour, m is minute, and s is second. Select from the formats provided.


② Setting the type of data to display

5 types of data are displayed in alarm history : [Trigger date], [Trigger time], [Alarm content], [Clear date], and [Clear time].

Data type	Description
Trigger date	This is the date the alarm was triggered.
Trigger time	This is the time when the alarm was triggered.
Alarm content	This is the content of a triggered alarm. This is a mandatory item that must be shown. If this data is excluded, the following error message is shown when the [OK] button is pressed. <div style="border: 1px solid gray; padding: 5px; margin: 10px auto; width: fit-content;"> <p style="text-align: center;">Warning</p> <p style="text-align: center;">⚠ contents not have in ITEMBOX</p> <p style="text-align: center;">Yes</p> </div>
Clear date	This is the date the alarm was cleared.
Clear time	This is the time the alarm was cleared.

③ Adding or deleting display data in alarm history


<How to add alarm data>

After selecting data to add from the list on the right, click the  button on the bottom to add to the alarm table.



[Fig. Adding alarm data]

<How to delete alarm data>

After selecting the data to delete from the left alarm table by dragging with the mouse, click the selecting date + time data from the list on the right, then click the  button on the

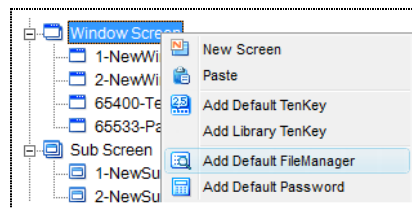
bottom to delete from the alarm table.



[Fig. Deleting alarm data]

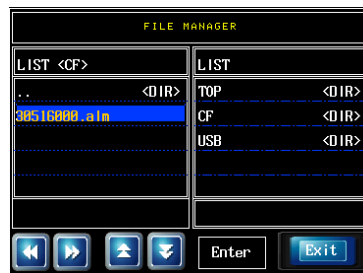
29.2.3 Alarm history (CF) settings

Displays alarm data saved on a CF memory card. In the CF card, alarms are saved as individual files organized by date and month in the [-HMI-]-[ALM] folder. The alarm file to display is selected using the file manager. The file manger window is registered by selecting [Window screen] in [Project manager], then running [Add file manager window] in the right mouse click popup menu. Window screen number 65530 is added.



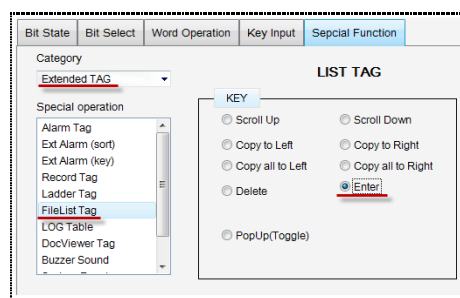
[Fig. Add file manager window]

The created file manager looks like the following figure. The figure below shows the file manager in actual operation. For CF card data to be loaded in the file manager window screen, the ENTER key to perform the load command must be added.



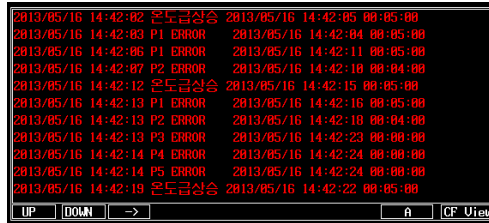
[Fig. File manager]

The ENTER key above is set as follows by registering a touch tag.



[Fig. Adding an "Enter" button in touch tag special functions]

Alarm tags set as alarm history (CF) operate as follow in the actual tag.



[Fig. Alarm history CF]

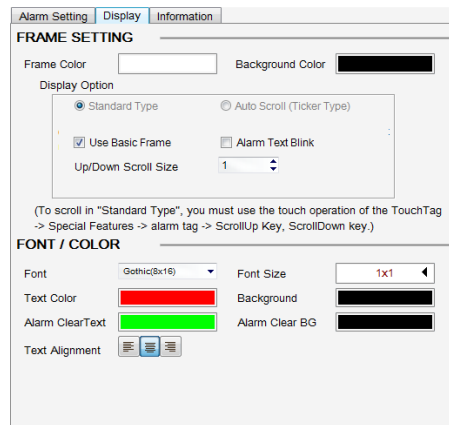
First, touch the [Group] button to set the date of the alarm to be displayed. In the figure above, Group A has been set. Next, press the [CF View] button to pop up the file manager window.

In the list, select CF. Then select the (*.alm) alarm file in the [-HMI-]-[ALM] folder, then press the [Enter] key. File manager will be disappear, then a list of alarms saved in the selected file is displayed, as seen above.

The UP/DOWN keys can be used to move the list up and down, and the [->] keys can be used to move the list left and right. In alarm history (CF), the trigger date, trigger time, alarm content, clear date, and trigger time of the alarm are shown.

29.3 Display page

Set the frame, font, and color of the alarm tag.



[Fig. Display page]

29.3.1 Frame setting

Set the frame of the alarm frame, and the alarm background color.

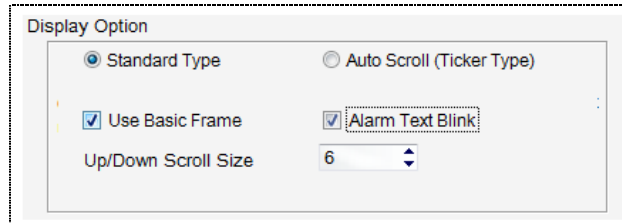
(1) Frame color / background color

Frame color	Description
Frame color	Set the frame color of the alarm tag frame.
B.G. color	Set the background color of the alarm tag frame.

(2) Screen options

In screen options, basic and scroll options are provided. The scroll option is an option that currently applies only to alarms.

① Standard type

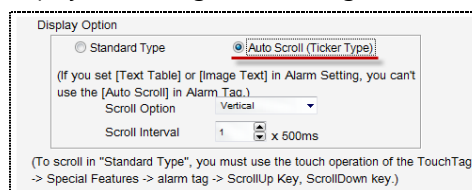


[Fig. Standard type screen option]

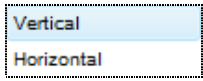
Standard type	Description
Use basic frame	When use basic frame is checked, default buttons are created on the bottom of the alarm tag. For current alarms, [UP/DOWN] keys are created. For alarm history, [UP/DOWN/CLEAR] buttons are created.
	* Note) To register separately designed UP/DOWN/CLEAR buttons without using the basic frame, register [Touch tags].
	[Fig. [Special functions] in the [Operation] page of the touch tag]
[UP] button	Move the triggered alarms up by the [Up/Down scroll size].
[DOWN] button	Move the triggered alarms down by the [Up/Down scroll size].
[CLEAR] button	Excluding currently triggered alarms, all already cleared alarms are deleted.
Alarm text blink	The text of the alarm can be blinked to create an emphasizing effect.
Up/Down scroll size	Set the scroll size for the UP/DOWN buttons.

② Scroll option


This option currently applies to alarms only, and is disabled when alarm history has been set. The content of triggered alarms is displayed scrolling across a single line, at the designated time interval.



[Fig. Scroll option among screen options]

Scroll option	Description
Scroll option	<p>Set the scrolling direction.</p> <div style="text-align: center;">  </div> <p>In [Vertical], the list of triggered alarms is shown, alternating lines. In [Horizontal], the list of triggered alarms is displayed, scrolling letters from right to left one letter at a time.</p>
Scroll interval	Set the scrolling interval. The [0] interval is the touch computing speed, and is the fastest speed. [1 x 500ms] is 0.5 seconds.

29.3.2 Font/color setting

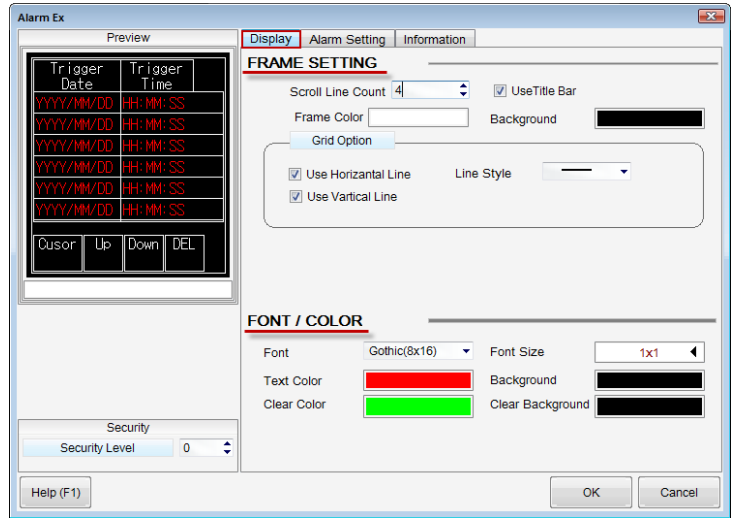
Font/color setting	Description
Font	Designate the font of the letters displaying alarms. * Note) If the alarm list entered in [Alarm setting] of the [Project menu] consists of image text or multilanguage tables, image text or multilanguage tables are displayed.
Font size	Designate the font size to designate the size of the letters. The size of the font selected under font is magnified by the font size.
Trigger text color	The font color for currently triggered alarms.
Trigger background color	The background color for currently triggered alarms.
Clear text color	The font color for cleared alarms.
Clear background color	The background color for cleared alarms.
Text align 	Data shown for alarms is aligned to the [Left], [Center] or [Right].

CHAPTER 30 Alarm Ext Tags

Information page	On this page, alarm ext tag info is displayed. The number of the registered screen, tag ID, time created and time modified, location and size are shown. Location and size info can be edited.
------------------	--

30.2 Display page

The design of the alarm ext tag is set from this page.



[Fig. Alarm ext tag display page]

30.2.1 Frame setting

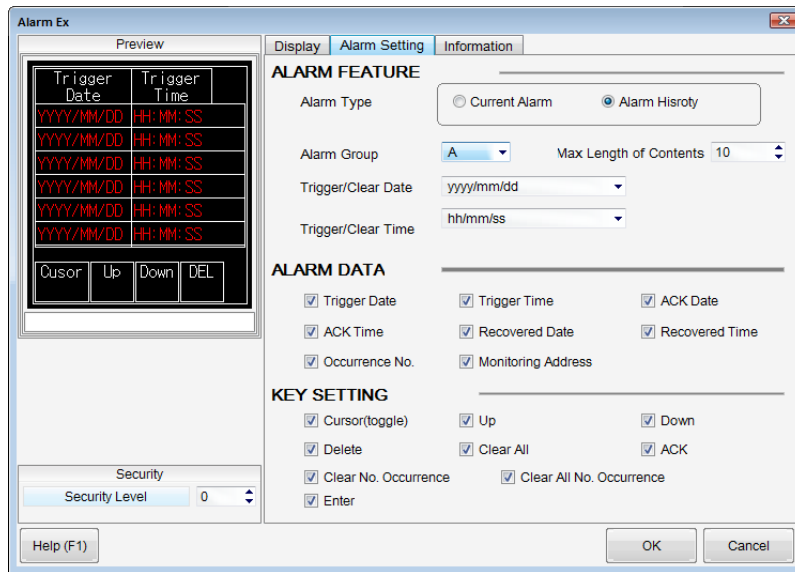
Frame setting	Description	
Scroll line count	This is the number of lines scrolled by the UP/DOWN buttons. The UP/DOWN buttons move alarm data up/down according to the scroll line count.	
Use title bar	Set whether to display titles. When this is checked, the title is displayed above the alarm data displayed. Touch the title to align alarm data.	
Frame color	Set the frame color.	
Hint B.G. color	Set the background color of the frame.	
Grid options	Description	When grid is selected, vertical/horizontal lines are displayed between alarm data.
	Use horizontal line	Horizontal lines are displayed.
	Use vertical line	Vertical lines are displayed.
	Line style	Select the line style to be used to display the grid.

(1) Sort function

When [Use title bar] is used in the alarm ext tag, touching the title portion aligns the alarms displayed.

30.3 Alarm settings page

The data and buttons to be displayed in the alarm ext tag are set in this page.



[Fig. Alarm tag alarm settings page]

30.3.1 ALARM FEATURE

Alarm feature	Description
Alarm type	Select between current alarm and alarm history. In Current alarm, only a list of currently triggered alarms is displayed. In alarm history, not only current alarms, but also cleared alarms are shown.
Alarm group	Among the groups A~Z, select the group to display.
Mx length of contents	Enter the length of the longest alarm in the alarm list for the same group. If the max. Length of contents is not sufficiently long, the alarm content may not be fully displayed, and may be cropped.
Date display format	This format is used to display the trigger/disable date of alarms. y is year, m is month, and d is day. Select from the formats provided.
Time display format	This format is used to display the trigger/disable time of alarms. H is hour, m is minute, and s is second. Select from the formats provided.

30.3.2 Alarm data

Select the data to display. Alarm content display is mandatory. The items in the list below can be set as options.

Alarm data	Description
Trigger date	This is the date when the alarm occurred.
Trigger time	This is the time when the alarm occurred.
ACK Date	The date when the worker has acknowledged the alarm is displayed.

	Select a triggered alarm and press the [ACK] button to display.
ACK Time	The time when the worker has acknowledged the alarm is displayed. Select a triggered alarm and press the [ACK] button to display.
Recovered date	This is the date when the alarm was cleared. This is only displayed if alarm history has been selected.
Recovered time	This is the time when the alarm was cleared. This is only displayed if alarm history has been selected.
Occurrence No.	The number of times the alarm has occurred is displayed.
Monitoring address	If [Use address monitoring] under [Alarm settings] has been enabled, address values are displayed. The number of values displayed is equal to [Address count].

30.3.3 Key setting

Select the buttons to display.

Alarm button	Description
Cursor	The alarm at the top of the list of alarms displayed is selected. Alarms can also be selected by touching the alarm ext tag list.
Top	When cursor has been selected, the position of the cursor is moved up. If cursor has not been selected, alarm data is moved up by the [Scroll line count] on the [Display page].
Bottom	When cursor has been selected, the position of the cursor is moved down. If cursor has not been selected, alarm data is moved down by the [Scroll line count] on the [Display page].
Del	Delete one [Cleared alarm] selected with the cursor. Because cleared alarms are only displayed in alarm history, this is only used when alarm history has been enabled.
Delete all	Delete all [Cleared alarms]. Because cleared alarms are only displayed in alarm history, this is only used when alarm history has been enabled.
ACK	When pressed by the worker when an alarm is selected with the cursor, the ACK date and ACK time are displayed.
Clear No. Occurrence	The No. Occurrence for the alarm selected with the cursor is changed to [0].
Clear All No. Occurrence	The No. Occurrence for all alarms is changed to [0].
Enter	This is necessary when Use solution tip is checked in [Alarm settings]. If Use solution tip has been enabled for the alarm selected with the cursor, the set action is performed. (☞ See [7.5.7] in [chapter 3] for solution tips.)

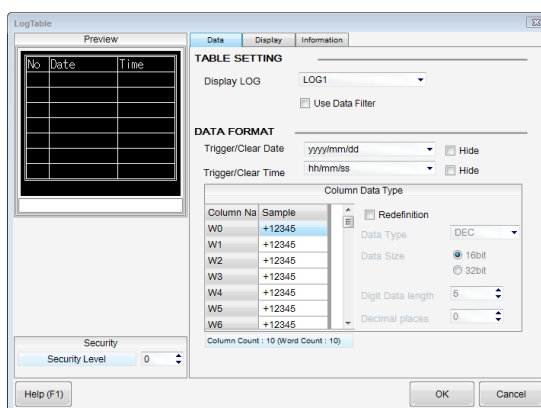
CHAPTER 31 Log Table

CHAPTER 31 - Log Table

31.1 Log table overview

The log table displays logging data saved in the internal memory of the touch in table format.

This is the properties screen for the log table.



[Fig. Log table properties screen]

The log table in actual operation is shown.

No	Date	Time	Temp	W1	W2	W3	W4
1	2015/07/03	16:51:59	10	20	20	50	130
2	2015/07/03	16:52:20	50	70	60	50	130
3	2015/07/03	16:52:34	30	20	10	50	130
4	2015/07/03	16:52:52	59	40	1800	50	130
5	2015/07/03	16:53:04	10	50	1800	50	130
6	2015/07/03	16:53:22	90	20	1800	50	130
7	2015/07/03	16:53:34	80	40	1800	50	130

[Fig. Touch screen log table]

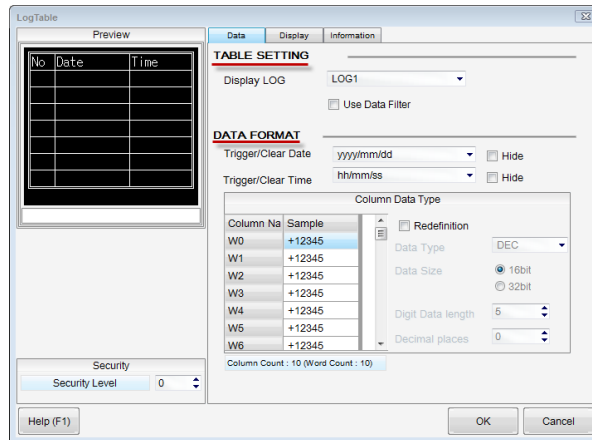
31.2 Page composition of the log table properties screen

The log table properties screen comprises the [Data], [Display], and [Information] pages.

Property page	Description
Data	Logging data is set from this page. Set the logging number and the format for date/time/column to be displayed on the table.
Displays	The design of the log table is set from this page. Set the frame, column width, and font of the log table.
Information	On this page, log table info is displayed. The number of the registered screen, tag ID, time created and time modified, location and size are shown. Location and size info can be edited.

31.3 Data page

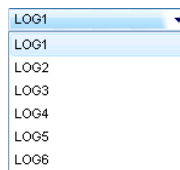
Select the logging data to display, and set the format.



[Fig. Log table data page]

31.3.1 Table setting

In table setting, select the log number to display. Among the [LOG1~LOG8] logging numbers, only the numbers selected in [Logging settings] in the [Project] menu is displayed. Note that if two or more log tables with the same logging number are registered to the same screen, they will not operate properly.



[Fig. Logging number]

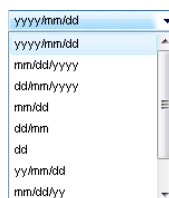
31.3.2 Data format

Set the format of data displayed in the log table.

(1) Date format

The date at the time when the log was saved is set here. Select among various date formats.

When [Hide] is selected, the date column is not displayed.

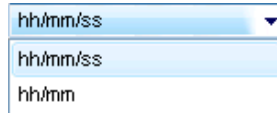


[Fig. Date format]

(2) Time format

The time at the time when the log was saved is set here. Select among various time formats.

When [Hide] is selected, the time column is not displayed.

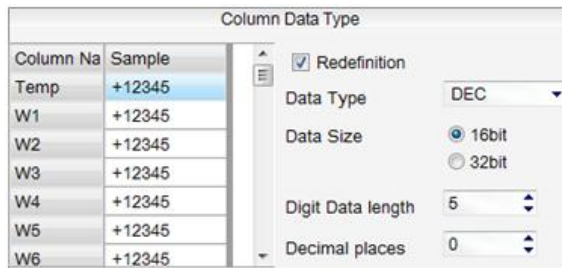


[Fig. Time format]

(3) Column data type

Individual formats can be set; the number of formats is equal to the [Column count] set for the selected logging.

To designate a new format, check [Redefinition], select the [Columns] on the left one by one, and set the format.



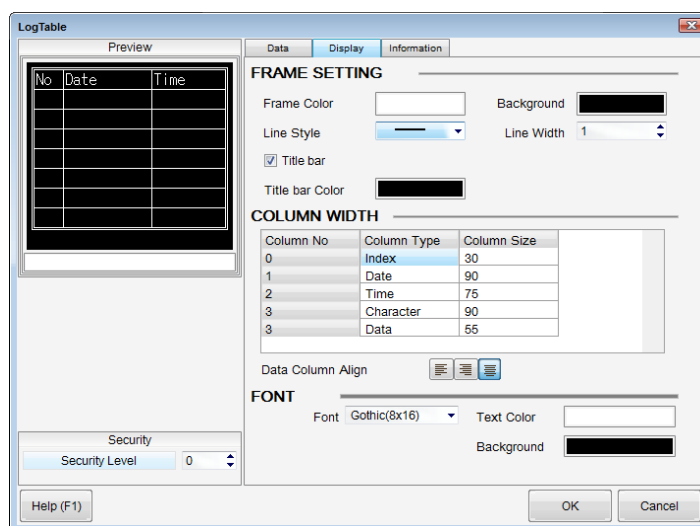
[Fig. Column data type settings]

The column name is set in the [Column name & data type] page of the [Project]-[Logging settings] menu.

Column type	Description
Data type	<p>Select the column data type among the types shown in the figure below.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> DEC UDEC HEX BCD FLOAT </div> <p>[DEC] is signed decimal, [UDEC] is unsigned decimal, and [HEX] is hexadecimal. [BCD] is actually hexadecimal, but is used like decimal data, because numbers that include A~F are not shown. [FLOAT] indicates numbers including decimal places.</p>
Data size	Select between [16 bit] and [32 bit].
Digital Data length	This is the total number of places for the selected column.
Float data when input the default number of ___ decimal places.	This is the number of decimal places for the selected column.

31.4 Display page

Set the design of the log table.



[Fig. Log table display page]

31.4.1 Frame setting

Frame	Description
Frame color	Set the frame color.
Background color	Designate the general background color.
Line style	Select the line style to be used to display the grid. 4 types of line style are provided.
Line width	Select the line width, from 1~2dot.
Use title bar	Set whether to display titles.
Title bar color	Set the background color for the title.

31.4.2 Default column width

Set the column width for data displayed in the log table.

Column No	Column Type	Column Size
0	Index	30
1	Date	90
2	Time	75
3	Character	90

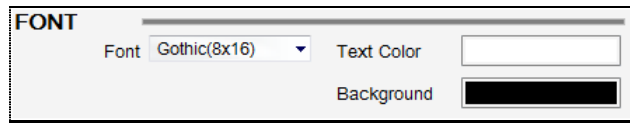
[Fig. Default column width setting]

Column type	Description
No	This number is the log table number, assigned sequentially.
Date	This is the logging date.
Time	This is the logging time.
Data	Data is displayed in this column.

The column size is set according to the column type. The column size is set in dot (pixel) units.

31.4.3 Font

Set the font to display log table data.



The image shows a dialog box titled "FONT". It contains three settings: "Font" is a dropdown menu currently showing "Gothic(8x16)"; "Text Color" is a white rectangular input field; and "Background" is a black rectangular color selection box.

[Fig. Font setting]

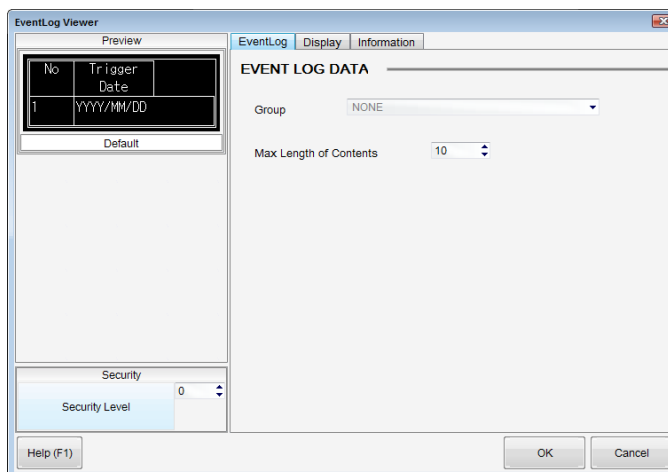
Font	Description
Font	Select the font type.
Hint font color	Set the color for the text used in the log table.
Background color	Set the background color for the text used in the log table.

CHAPTER 32 Event Log Viewer Tag

CHAPTER 32 - Event Log Viewer Tag

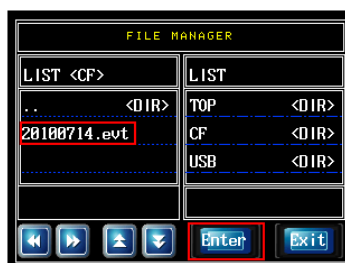
32.1 Event log viewer tag overview

Events set in [Event log] of the [Project menu] are saved to the CF memory card if conditions are satisfied. The [Event log viewer tag] displayed event log data recorded on the CF memory card on the screen. (See [7.9] of [chapter 7] for the [Event log] setting method.)



[Fig. Event log viewer tag information screen]

Select an event log file [*.evt] saved to the CF memory card in [File manager] then press [Enter] to display event log data in the event log viewer tag. (See [40.6] in [chapter 40] for the file manager.)



[Fig. Selecting an event log file using file manager]

This is the event log viewer tag registered to the screen.

Event No	Trigger Date	Trigger Time	Event Message	Previous Value	Changed Value
1	YYYY/MM/DD	HH:MM:SS	AAAAAAAAAA +	0	0
2	YYYY/MM/DD	HH:MM:SS	AAAAAAAAAA	0	0
3	YYYY/MM/DD	HH:MM:SS	AAAAAAAAAA	0	0
4	YYYY/MM/DD	HH:MM:SS	AAAAAAAAAA	0	0
5	YYYY/MM/DD	HH:MM:SS	AAAAAAAAAA	0	0
6	YYYY/MM/DD	HH:MM:SS	AAAAAAAAAA	0	0
7	YYYY/MM/DD	HH:MM:SS	AAAAAAAAAA	0	0
8	YYYY/MM/DD	HH:MM:SS	AAAAAAAAAA	0	0
9	YYYY/MM/DD	HH:MM:SS	AAAAAAAAAA	0	0
10	YYYY/MM/DD	HH:MM:SS	AAAAAAAAAA	0	0
11	YYYY/MM/DD	HH:MM:SS	AAAAAAAAAA	0	0
12	YYYY/MM/DD	HH:MM:SS	AAAAAAAAAA	0	0

Navigation buttons: LP, DOWN, >>, <<

[Fig. Event log viewer tag registered to the edit screen]

Event log viewer	Description
No	The event occurrence number is displayed.
Trigger date	The date the event occurred is displayed.
Trigger time	The time the event occurred is displayed.
Event message	The event message is displayed.
Previous value	The data value before event occurrence is displayed.
Changed Value.	The change data value that triggered the event is displayed.
UP	Scrolls up.
DOWN	Scrolls down.
>>	Scrolls to the right.
<<	Scrolls to the left.

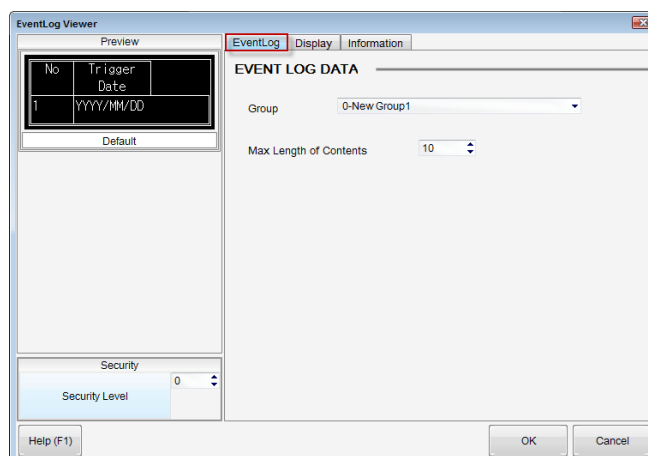
32.2 Page composition of the event log viewer tag properties screen

The event log viewer tag properties screen comprises the [Event log], [Display], and [Information] pages.

Property page	Description
Event log page	The group and the maximum length of the content of the event log to be displayed is set on this page.
Display page	The frame and text font is set on this page.
Information page	On this page, event log viewer tag info is displayed. The number of the registered screen, tag ID, time created and time modified, location and size are shown. Location and size in can be edited.

32.3 Event log page

The group and the maximum length of the content of the event log to be displayed is set on this page.



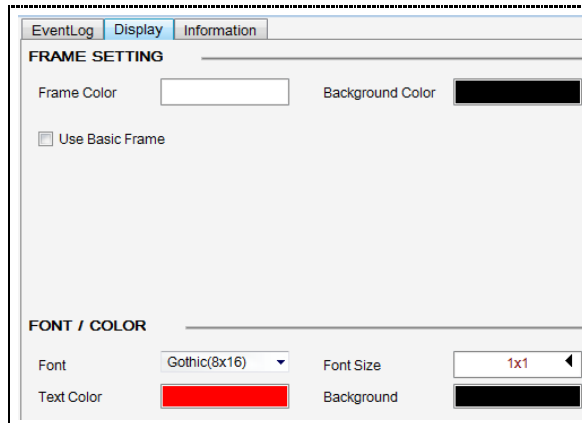
[Fig. Event log page]

Event log page	Description
Group	Select the group to display among the groups set in [Event log].

Max. length of contents	Set the max length of the content to display. The max. setting is 80. The length of the longest event in the selected group is set.
-------------------------	--

32.4 Display page

The frame and text font is set on this page.



[Fig. Display page]

32.4.1 Frame setting

Set the frame for the event log viewer tag displayed on the screen.

Frame setting	Description
Outer frame color	Set the color of the event log viewer tag frame.
Background color	Set the background color of the event log viewer tag frame.
Use basic frame	When use basic frame is checked, default buttons are created on the bottom of the event log viewer tag.

32.4.2 Font/color

Set the font, size, and color of the text displayed in the event log viewer tag.

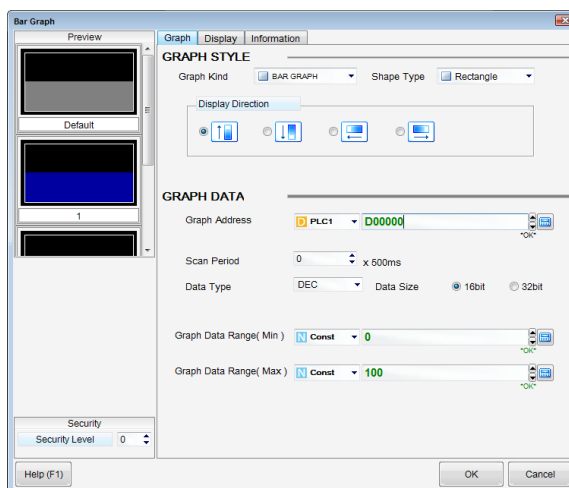
Font/color	Description
Font	Select the font of the displayed font from the list below.
Font size	The width/height of the font selected under font is magnified by the font size.
Hint font color	Set the color of the text displayed.
Text background color	Set the background color of the text displayed.

CHAPTER 33 Bar Graph Tag

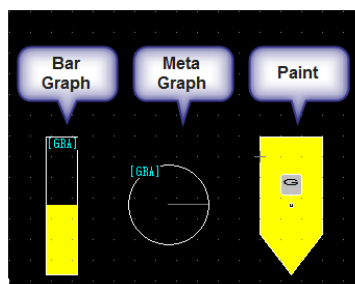
CHAPTER 33 - Bar Graph Tag

33.1 Bar graph tag overview

The bar graph tag displays word address data as a graph. Bar graph types are [Bar graph], [Meta graph], and [Paint].



[Fig. Bar graph tag properties screen]



[Fig. Bar graph types]

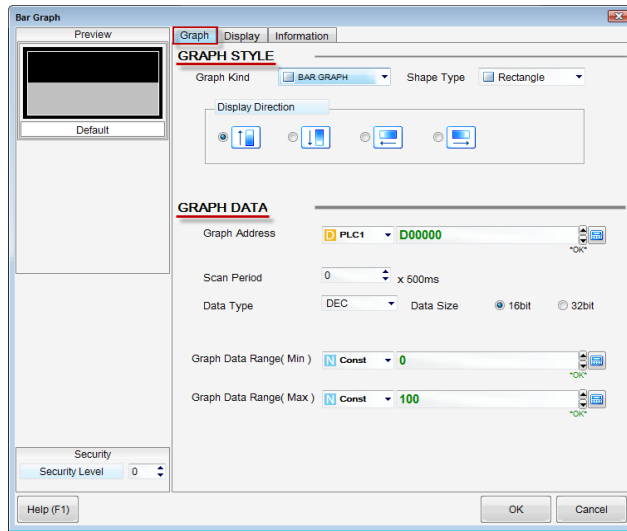
33.2 Page composition of the bar graph tag properties screen

The bar graph tag properties screen comprises the [Graph], [Display], and [Information] pages.

Property page	Description
Graph page	On this page, the graph type is selected, the word address to read data from is entered, and the min. and max. values of the word values to be expressed using graphs are set.
Display page	The colors of the graph displayed are set in this page. Word value sections can be set, and various colors can be applied to each section.
Information page	On this page, bar graph tag info is displayed. The number of the registered screen, tag ID, time created and time modified, location and size are shown. Location and size info can be edited.

33.3 Graph page

Select the graph type, and set the graph address and min/max values.

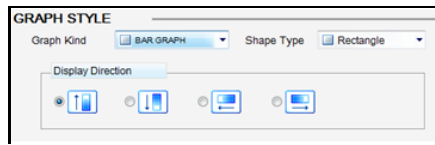


[Fig. Address page]

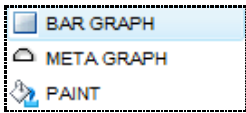
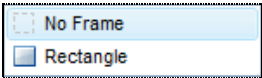

33.3.1 Graph style

(1) Bar graph

Data is expressed in a bar type graph. Set the graph direction to decide the direction the bars grow as data increases.

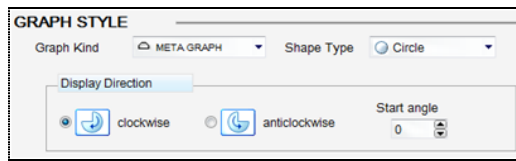


[Fig. Bar graph]

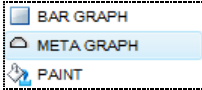
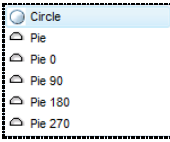

Bar graph	Description
Graph kind	Select bar graph. 
Shape type	Set whether to show frames for the bar graph. [No Frame] — No frames are used in the bar graph. [Rectangle] — Frames are used in the bar graph. 
Graph direction	Set the graph direction to decide the direction the bars grow as data increases, from up, down, left and right. 

(2) Meta graph

Data is shown as a circular graph. The direction the needle moves, and the shape of the circle can be set.

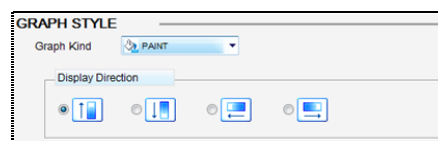


[Fig. Meta graph]

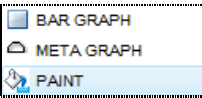
Meta graph	Description
Graph kind	Select meta graph. 
Shape type	Select the shape of the meta graph  [Circle] – Circle [Pie] – Semicircle, [Pie 0, 90, 180, 270] – Fan shape.
Graph direction	Set the direction of movement for the needle in the meta graph.  [Start angle] – The initial position of the needle changes according to the angle set here. Start angle can only be used when the frame shape is [Circle].

(3) Paint

Data is shown as a graph using filled shapes. After registering a closed shape first, register a [Paint] graph in the closed shape. The closed shape is painted according to the data displayed.



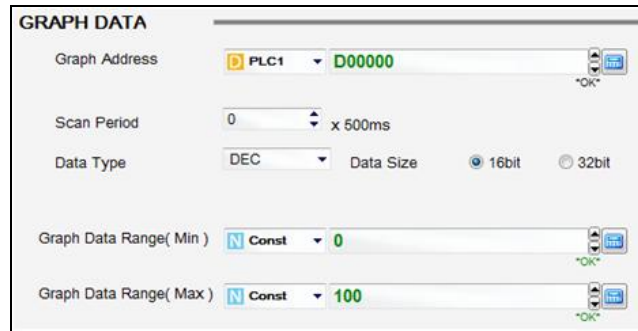
[Fig. Paint]

Paint	Description
Graph kind	Select paint. 
Graph direction	Set the graph direction to decide the direction the color is filled as data increases, from up, down, left and right.

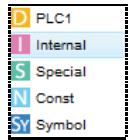


33.3.2 Graph data setting

Set the address and min/max values for the graph.

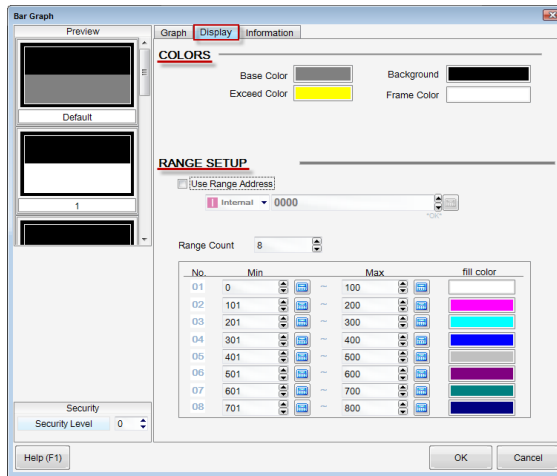


[Fig. Graph data settings]

Graph data settings	Description
Graph address	Set the word address to express as a graph.
Scan period	Set the scan period for reading word address data in 500ms (0.5 second) units.
Data type	Select the data type to be used from the list. [DEC] - signed decimal, [UDEC] - unsigned decimal, [BCD] - Is actually hexadecimal, but is displayed as decimal because data including A~F is not used. [FLOAT] - This type of data uses decimal places.
Data size	Select between 16 bit and 32 bit. 32 bit is used when values larger than 16 bit are used.
Minimum value	Enter the minimum value of the graph. A fixed min value may be used by entering a constant. Alternatively, an address may be set to use a variable min value according to address data. 
Maximum value	Enter the maximum value of the graph. A fixed max value may be used by entering a constant. Alternatively, an address may be set to use a variable max value according to address data.

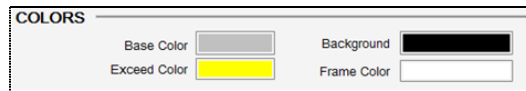
33.4 Display page

On this page, the fill color, background color, and frame color of the graph are set. Different fill colors may be used depending on the data section.



[Fig. Display page]

33.4.1 Color setting

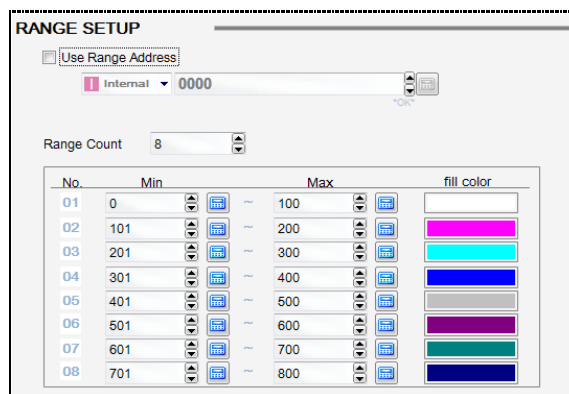


[Fig. Color setting]

Graph color setting	Description
Base color	Set the color used to fill the graph when data is between the min and max values.
Exceed color	Set the color used to fill the graph when data exceeds the max. value.
Background color	Designate the background color of the graph. The background of the graph refers to the parts other than the parts displaying data in the graph.
Frame color	Set the frame color for the graph.

33.4.2 Range setup

This is used when assigning different graph fill colors depending on word address data ranges. The graph is filled with a single color.



[Fig. Range setup]

Range setup	Description
Use range address	This is used when using a word address other than the [Graph address] in the [Graph page] for the word address to be referenced in a range.
Range count	Set the number of ranges to designate colors for. Up to 8 ranges can be used.
No.	This is the number of the set range.
Minimum value	Enter the minimum value of the range.
Maximum value	Enter the maximum value of the range.
Fill Color	Set the fill color of the graph to be used in the range.

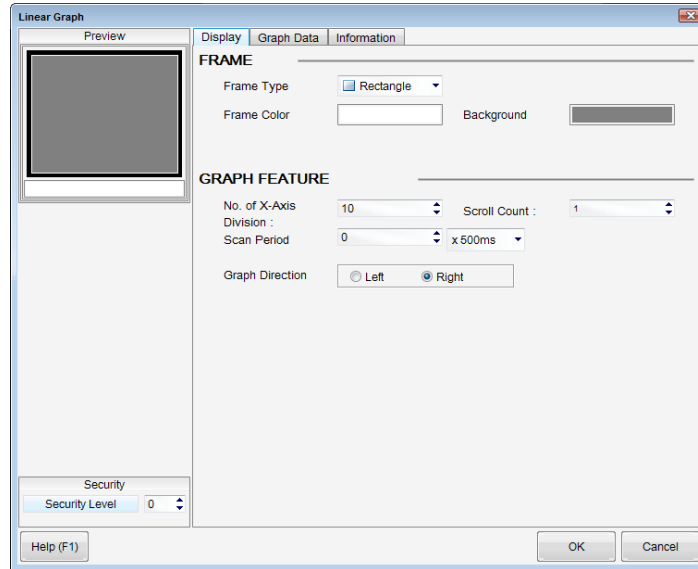
CHAPTER 34 Linear Graph Tag

CHAPTER 34 - Linear Graph Tag

34.1 Linear graph tag overview

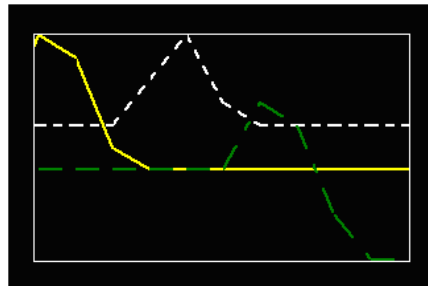
A linear graph tag displays word address data change over time in the form of a linear graph.

Up to 20 linear graphs can be displayed in a single linear graph tag.



[Fig. Linear graph tag properties screen]

This is an actual linear graph tag that operates on the touch screen.



[Fig. Linear graph tag operation screen]

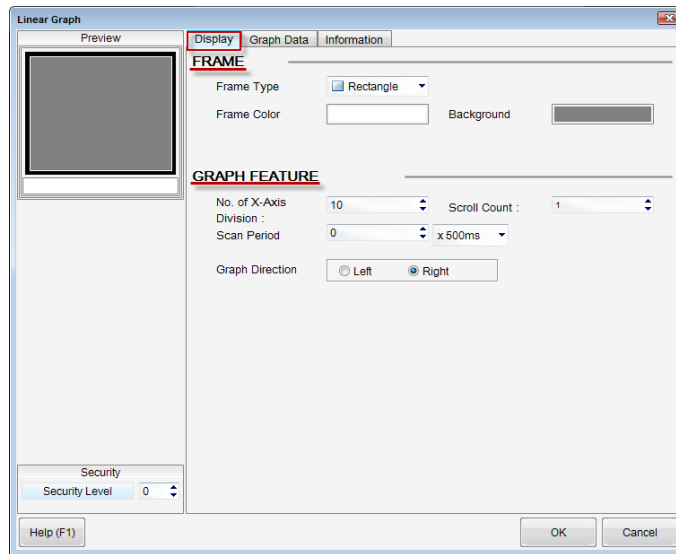
34.2 Page composition of the linear graph tag properties screen

The linear graph tag properties screen comprises the [Display], [Graph], and [Information] pages.

Property page	Description
Display page	On this page the frame and graph features of the linear graph are set.
Graph page	On this page, the word address, min/max values, and line style are set to register a linear graph.
Information page	On this page, linear graph tag info is displayed. The number of the registered screen, tag ID, time created and time modified, location and size are shown. Location and size information can be edited.

34.3 Display page

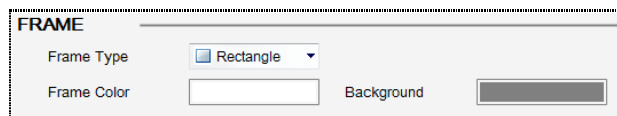
On this page the frame and graph features of the linear graph are set.



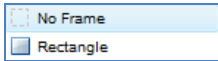
[Fig. Display page]

34.3.1 Frame setting

Set the frame and background color for the graph.

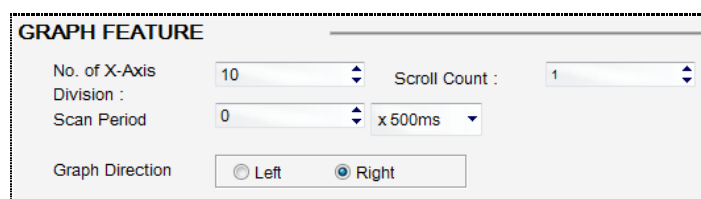


[Fig. Frame setting]

Frame setting	Description
Frame type	Select whether to show the frame from the list below. 
Frame color	Set the frame color.
Background color	Set the background color within the graph.

34.3.2 Graph feature

Set the number of x-axis divisions, scroll count, scan period and graph direction of the graph.

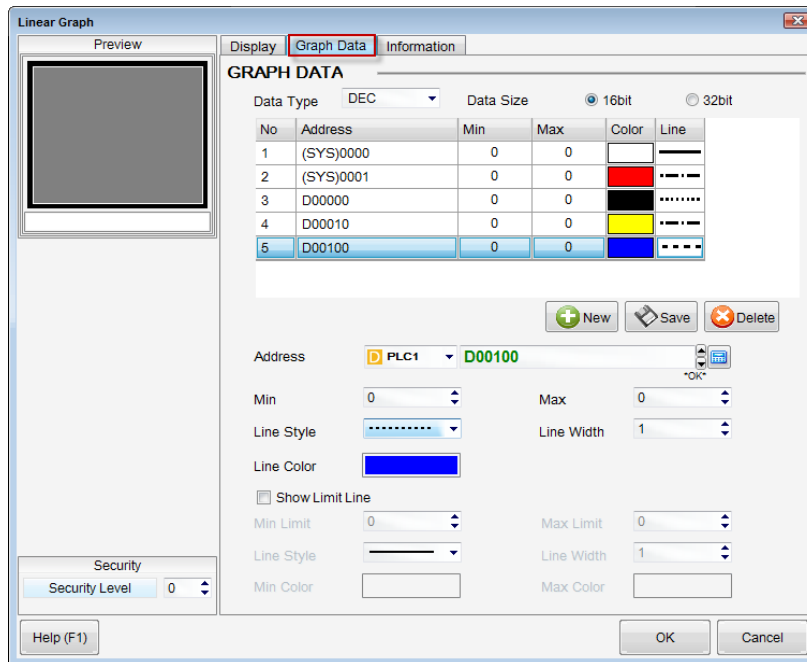


[Fig. Graph feature settings]

Graph feature settings		Description
Number of x-axis divisions		Set the number of x-axis divisions. The number of data changes displayed is equal to the number of x-axis divisions. The maximum setting is the [Horizontal resolution] of the touch.
Scroll count		When the graph has filled the screen, the screen scrolls and continues to draw the graph. Here, the graph is moved forward according to the value in [Scroll count].
Scan period		This is the time taken to draw one piece of data in the graph. Set the scan period in 500ms (0.5 second) units. Data is read each time the scan period elapses, and the graph progresses by one x-axis division each time.
Graph direction	Left	The linear graph is drawn from right to left.
	Right	The linear graph is drawn from left to right.

34.4 Graph page

On this page, the word address, min/max values, and line style are set to register a linear graph. Up to 20 graphs can be registered.






[Fig. Graph page]

Part	Description
Data type	Select the data type to be used from the list. [DEC] - signed decimal, [UDEC] - unsigned decimal, [BCD] - Is actually hexadecimal, but is displayed as decimal because data including A~F is not used. [FLOAT] – This type of data uses decimal places.
Data size	Select between 16 bit and 32 bit. 32 bit is used when values larger than 16 bit are used.




Address	Set the word address to express as a linear graph.
Minimum value	Designate the min value of the graph.
Maximum value	Designate the max value of the graph.
Line style	Select the line style for the linear graph from the list.
Line width	Set the line width for the linear graph. Up to 2 can be set.
Line color	Set the line color for the linear graph.

Up to 20 linear graphs can be displayed in a single linear graph tag. Use the [New/Save/Delete] buttons to register graphs.


Button	Description
 New	Registers a new graph.
 Save	Saves the settings to the selected graph list.
 Delete	Deletes the selected graph.

First, press the  button and register a linear graph with default values.

No	Address	Min	Max	Color	Line
1	D00000	0	0		—
2	D00000	0	0		—
3	D00000	0	0		—
4	D00000	0	0		—
5	D00000	0	0		—

 New
  Save
  Delete

[Fig. Graph registration]

Add the number of graphs to be used, and use the mouse to select the graph to change settings for. Set the address/min value/max value/line style in the bottom, then press the  button to save settings.

No	Address	Min	Max	Color	Line
1	(SYS)0000	0	0		—
2	(SYS)0001	0	0	Red	- - -
3	D00000	0	0	Black
4	D00010	0	0	Yellow	- - -
5	D00100	0	0	Blue	- - -

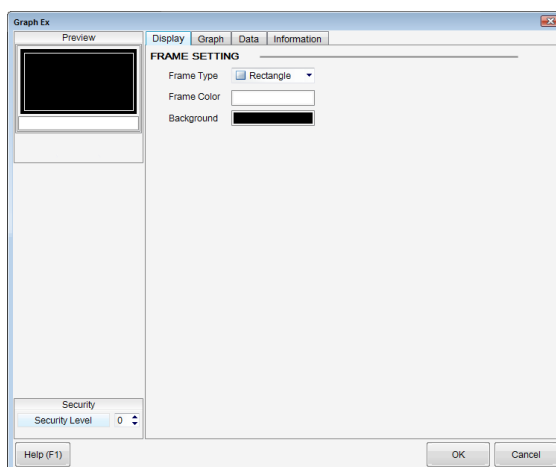
[Fig. Graph registration]

CHAPTER 35 Graph Ex Tags

CHAPTER 35 - Graph Ex Tag

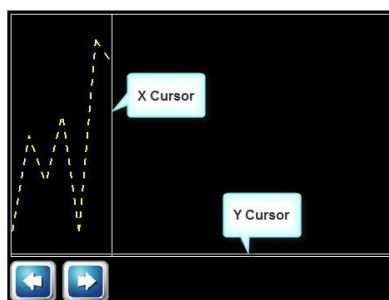
35.1 Graph Ex Tag overview

This tag displays logging or recipe data as a graph. Multiple data can be displayed in a single graph, differentiated by line color and width. This is the properties screen for graph Ex tags.



[Fig. Graph Ex tag properties screen]

This is an ext graph operating on an actual touch screen.



[Fig. Touch screen ext graph]

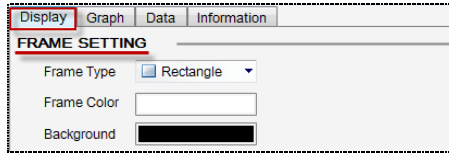
35.2 Composition of the graph Ex tag properties screen

The graph Ex tag properties screen comprises the [Display], [Graph], [Data], and [Information] pages.

Page	Description
Displays	The design of the graph is set from this page. Set the frame type, color, and background color.
Graph	The features of the graph are set from this page. The graph scale, data type, x axis starts address, cursor, and scale, etc., are set.
Data	Data to be displayed on the graph is set from this page. Set the logging/recipe data to display, min value, and max value, etc.
Information	On this page, graph Ex tag info is displayed. The number of the registered screen, tag ID, time created and time modified, location and size are shown. Location and size info can be edited.

35.3 Display page

The design of the graph Ex tag is set from this page. Set the frame type, color, and background color.



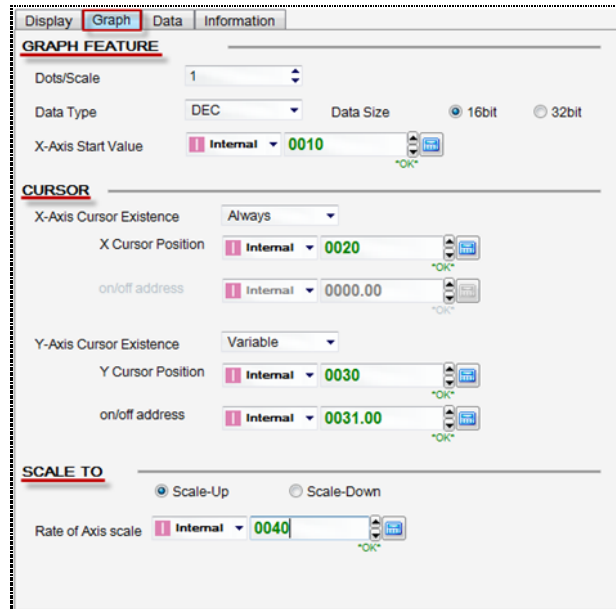
[Fig. Graph Ex display page]

35.3.1 Frame setting

Displays	Description
Frame type	Select the frame type of the ext graph between [No Frame Edge] and [Rectangle].
Frame color	Set the frame color for the ext graph.
Background color	Designate the background color of the ext graph.

35.4 Graph page

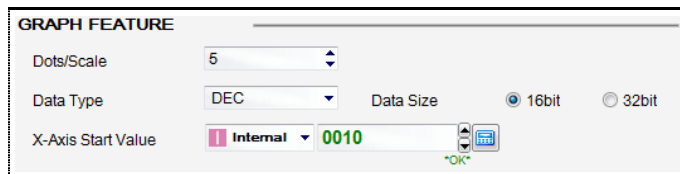
The features of the graph are set from this page. The graph scale, data type, x axis starts address, cursor, and scale, etc., are set.



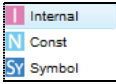
[Fig. Graph Ex graph page]

35.4.1 Graph feature

The graph features for the ext graph are set here. The dots/scale, data type, and X-axis start value are set.

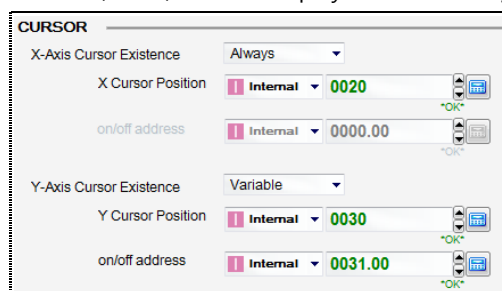


[Fig. Graph feature]

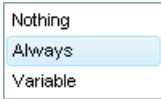
Graph feature	Description
Dots/scale	This is the scale used to display a single piece of data in the graph. Dot (pixel) units are used.
Data type	Select among [DEC], [UDEC], and [BCD]. [DEC] is signed decimal, [UDEC] unsigned decimal, and [BCD] is actually hexadecimal, but is used like decimal data, because numbers that include A~F are not shown.
Data size	Select between [16 bit] and [32 bit].
X-axis start value	X-axis start value designates the data at point [0] on the x axis, that is, the data at the start point. <div style="text-align: center;">  </div> <p>The address can be selected from various types, as seen in the figure above. [Constant] is used when fixing the data at the start position. If [10] is designated as the [Constant], the 10th logging/recipe data becomes the data at the start position. When using [Internal] addresses, or [Logging] or [Recipe] data, the data changes in some cases. The graph can be viewed by changing the data of the start position.</p>

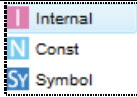
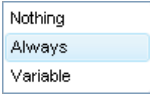
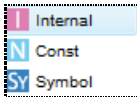
35.4.2 Cursor

Set the horizontal (y-axis) and vertical (x-axis) cursors displayed on the ext graph.



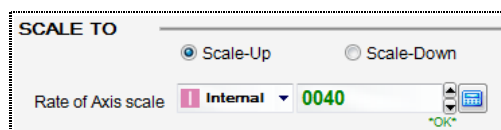
[Fig. Cursor]

Cursor	Description
X axis cursor	Select view/hide <p>Set whether the x-axis cursor is displayed. In [Nothing], the cursor is not shown. In [Always], the cursor is always shown. In [Variable], the cursor may or may not be shown, depending on the ON/OFF state of the bit condition address.</p> <div style="text-align: center;">  </div>
	Cursor position <p>Select between [Internal address] and [Constant].</p>

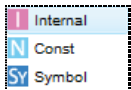
	address	 <p>When [Constant] is selected, the position of the cursor is fixed. If [20] is designated as the constant, the cursor is shown at the 20th data. If [Internal] address is set, the data can be changed, and the position of the cursor can be varied.</p>
	Bit condition address	This can be set only if [Variable] has been selected. If the bit condition address data is [ON], the cursor is shown. If [OFF], the cursor is not shown.
Y axis cursor	Select view/hide	<p>Set whether the Y-axis cursor is displayed.</p>  <p>In [Nothing], the cursor is not shown. In [Always], the cursor is always shown. In [Variable], the cursor may or may not be shown, depending on the ON/OFF state of the bit condition address.</p>
	Cursor position address	<p>Select between [Internal address] and [Constant].</p>  <p>When [Constant] is selected, the position of the cursor is fixed. If [20] is designated as the constant, the cursor is shown at the 20th data. If [Internal] address is set, the data can be changed, and the position of the cursor can be varied.</p>
	Bit condition address	This can be set only if [Variable] has been selected. If the bit condition address data is [ON], the cursor is shown. If [OFF], the cursor is not shown.

35.4.3 Scale to

The graph can be zoomed in or zoomed out. First select whether to scale up or scale down the graph. In ext graph, scale up and scale down cannot be set simultaneously. Only one or the other can be set. Next, enter the graph scale address to set the rate of scale-up/scale-down.



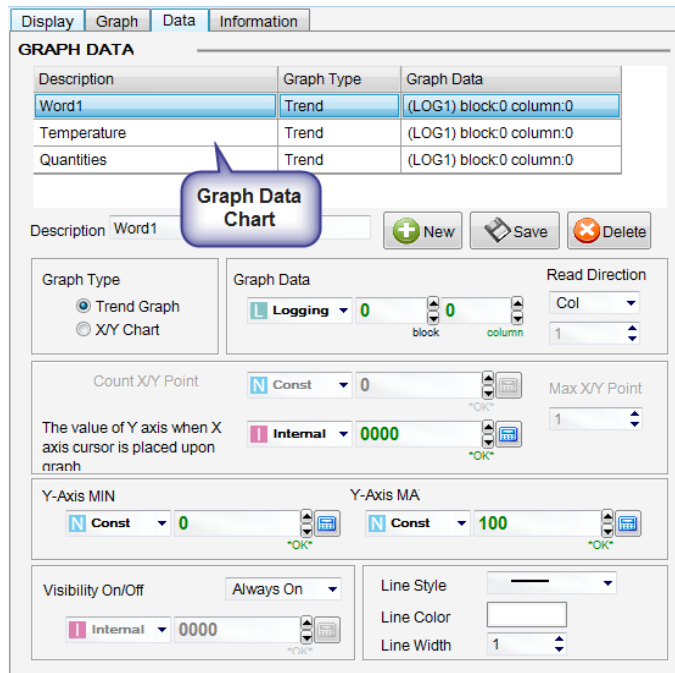
[Fig. Scale to]

Scale to	Description
Scale-up	Scales the graph up by the set rate.
Scale-down	Scales the graph down by the set rate.
Rate of Axis scale	<p>If the graph scale address is [Constant], the scale rate is fixed. For internal addresses or logging/recipe data, the scale rate can be adjusted.</p> 

	If [Scale-up] has been set and the data is [2] or [3], the graph is scaled up by a factor of 2 and 3, respectively. If [Scale-down] has been set and the data is [2] or [3], the graph is scaled down to 1/2 and 1/3, respectively. If the data is [0] or [1], the graph is displayed in the original size.
--	---

35.5 Data page

Data to be displayed on the graph is set from this page. Set the logging/recipe data to display, min value, and max value, etc. Up to 20 data can be expressed as graphs in a single ext graph.



[Fig. Graph Ex data page]

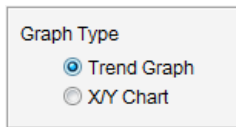
35.5.1 Adding data to display in the graph

On the top of the data page, there is a list of data to show in the graph. On the bottom, the properties of each graph data can be set. Create [Graph data] by pressing the [New] button. After setting detailed graph features in the bottom section, press the [Save] button to save settings.

Properties	Description
Description	A description of the graph data is provided.
	Creates new graph data.
	Save detailed properties for the set graph data.
	Deletes registered graph data.

35.5.2 Graph kind

There are two kinds of graph : [Trend graph] and [X/Y chart].

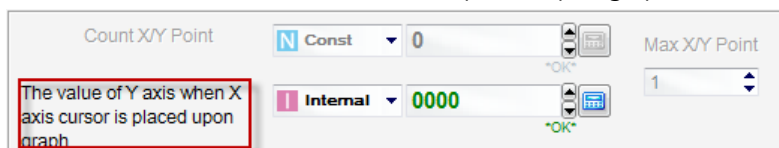


[Fig. Graph kind]

Graph kind	Description
Linear graph	A 2D graph that shows logging/recipe data change over time, with time in the X axis and data on the Y axis.
X/Y chart	In this graph, logging/recipe data are plotted using (X,Y) coordinates.

(1) When trend graph has been selected

In a trend graph, [The value of Y axis when X axis cursor is placed upon graph] is set.

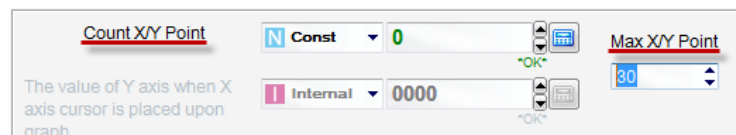


[Fig. When trend graph has been selected]

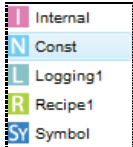
[The value of Y axis when X axis cursor is placed upon graph] saves the value of the graph when the X axis is placed upon the graph, that is, the Y axis value, in the designated [Internal] address.

(2) When X/Y chart has been selected

In the X/Y chart, the [Count X/Y point] and [Max X/Y point] are set.

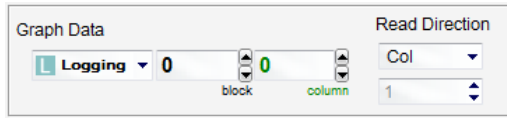


[Fig. When X/Y chart has been selected]

X/Y chart	Description
Count X/Y point	This is the number of points plotted with (X,Y) coordinates. The number of points can be set using various types of addresses. When [Constant] is set, the number of points is fixed. If [Internal] address or [Logging/Recipe] data is set, the number of points can be varied. 
Max X/Y point	This is the maximum number of points plotted with (X,Y) coordinates.

35.5.3 Graph data/read direction

Set the graph data to display. Graph data is set depending on the read direction.



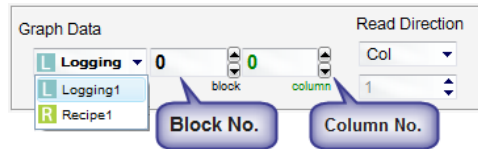
[Fig. Graph data/read direction]

(1) Graph data

First, the logging/recipe data to display as a graph is selected. Next, the [Block number] and [Word number] are entered to select the data to display from the select logging/recipe data.

[Block] refers to the data when logging data is saved once. Numbers start from block [0].

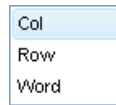
[Word(column)] refers to the number of data logged at once. Numbers start from [0] words.



[Fig. Graph data]

(2) Read direction

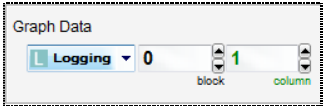
Select the read direction. Options are [Col(column)], [Row(block)], and [Word].

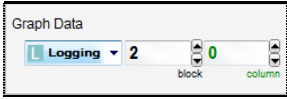
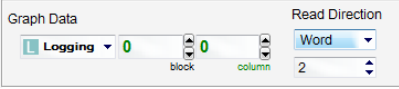


[Fig. Read direction]

Logging data is saved as shown in the table below. Assume a logging setting with 5 columns (logging targets). The [Read address] can be described as follows using this table.

	Date	Time	Column0	Column1	Column2	Column3	Column4
Block0	Year/Month/Date	Hour/Minute/Second	Data1	Data2	Data3	Data4	Data5
Block1	Year/Month/Date	Hour/Minute/Second	Data6	Data7	Data8	Data9	Data10
Block2	Year/Month/Date	Hour/Minute/Second	Data11	Data12	Data13	Data14	Data15
Block3	Year/Month/Date	Hour/Minute/Second	Data16	Data17	Data18	Data19	Data20
...	Year/Month/Date	Hour/Minute/Second	Data21	Data22	Data23	Data24	Data25

Read direction	Description
Col(column)	<p>Data in one column is displayed as a graph according to time. In [Col], [Block number] is not used, only [Word number] requires setting.</p>  <p>When graph data is set as shown in the figure above, the [Word number] is [1], therefore [Data2,</p>

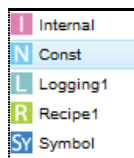
	Data7, Data12, Data17, Data22, ...] are displayed in the graph in order, according to time.
Row(block)	<p>Data in a single block is displayed in a graph. In [Row], [Word number] is not used, only [Block number] requires setting.</p>  <p>When graph data is set as shown in the figure above, the [Block number] is [2], therefore [Data11, Data12, Data13, Data14, Data15] are displayed in the graph in order.</p>
Word	<p>An interval is set, and data is selected at the designated interval to display selected data as a graph.</p>  <p>When the interval is set to [2] as shown in the figure above, [Data1, Data3, Data5, Data7, Data9, Data11, ...] are displayed in the graph in order.</p>

35.5.4 Min value/Max value

Set the min value/max value of the y axis of the graph to display the data.



[Fig. Min value/Max value setting]

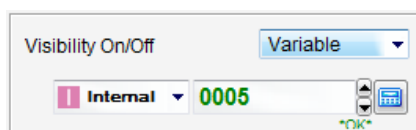


[Fig. Address types]

As seen in the figure above, the Y axis range can be set using [Internal] addresses, [Constants], and [Logging/recipe data]. When [Constant] is set, the range of the Y axis is fixed. When address is set, the Y axis range can be varied according to the address data.

35.5.5 Visibility on/off address

The graph showing each data can be set to be visible at all times, or to be visible or invisible depending on conditions.

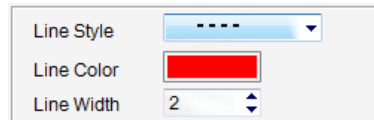


[Fig. Visibility on/off address]

Visibility on/off	Description
Always On	The graph is always visible.
Variable	The graph is made visible or invisible depending on the state of the condition address. Only [Internal] addresses can be set as the [Condition address]. If the data of the [Condition address] is not [0], the graph is visible. If the data is [0], the graph is made invisible.

35.5.6 Line setting

Set the properties of the lines of the graphs displaying each data.



[Fig. Line setting]

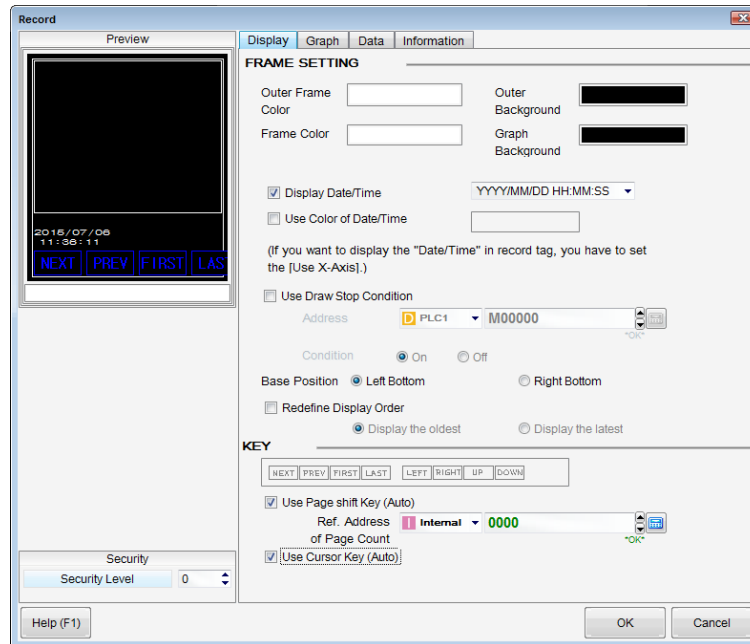
Line setting	Description
Line style	Select the style of the line. 4 options are provided.
Line color	Set the line color.
Line width	Select the line width, from 1~2dot.

CHAPTER 36 Record Tag

CHAPTER 36 - Record Tag

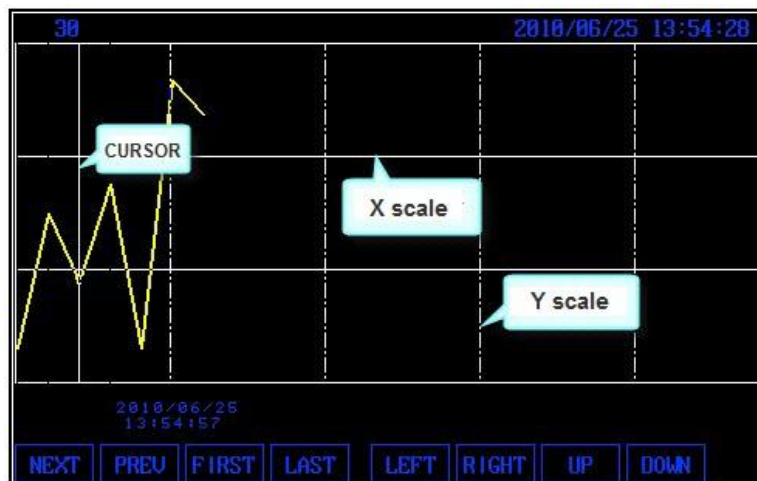
36.1 Record tag overview

The record tag displays logging or recipe data as a graph. The function is the same as ext graph, but more functions are included. Multiple data can be displayed in a single graph, differentiated by line color and width. This is the properties screen for record tags.



[Fig. Record tag properties screen]

This is an actual operating record tag graph.



[Fig. Touch screen record tag]

36.2 Page composition of the record tag properties screen

The record tag properties screen comprises the [Display], [Graph], [Data], and [Information] pages.

Page	Description
Displays	The design of the graph is set from this page. Set the frame, date/time display format, and keys, etc.
Graph	The features of the graph are set from this page. Set the graph display interval, bit condition for using page navigation keys, grids, and cursors, etc.
Data	Data to be displayed on the graph is set from this page. Set the logging/recipe data to display, min value, and max value, etc.
Information	On this page, record tag info is displayed. The number of the registered screen, tag ID, time created and time modified, location and size are shown. Location and size info can be edited.

36.3 Display page

The design of the graph is set from this page.

Set the frame, date/time display format, and keys, etc.

[Fig. Record tag display page]

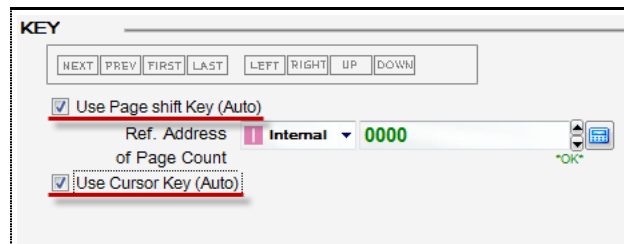
36.3.1 Frame setting

In record tags, there are two frames : the outer frame and the inner frame. Therefore, their respective frame colors and background color are set.

Frame setting	Description
Outer frame color	Set the frame color of the outer frame.
Outer background	Set the background color of the outer frame.
Frame color	Set the frame color of the inner frame.
Graph background	Set the background color of the inner frame.
Display date/time	The date/time of the logging data is displayed at the bottom of the x axis.

	The date/time is displayed at the point where the x axis grid meets the graph. This is displayed only "Use X-axis", that is, the x-axis grid, is enabled in the display page.
Use color of date/time	Set the color for date/time.
Use draw stop condition	As new data is drawn in the graph whenever logging occurs, the graph continuously changes. This option is used to view the graph in stationary state. When a bit address is set and ON/OFF conditions are set, the graph stops when the conditions are satisfied.

36.3.2 Key setting



[Fig. Key setting]

[Page shift keys] and [Cursor keys] are provided.

(1) Page shift key

[Page shift keys] are used to shift among graph screens. Check to create 4 buttons on the bottom.

Page shift key	Description
NEXT	Shifts to the next page.
PREV	Shifts to the previous page.
FIRST	Shifts to the first page.
LAST	Shifts to the last page.

Page shift works when the graph screen is filled with data.

Also, page shift works when the [Page shift key use bit condition] in the [Graph page] is satisfied.

(2) Cursor key

[Cursor keys] are used to move the cursors displayed on the graph.

The cursor is a straight line perpendicular to the X axis, indicating the point where the graph is met.

Check to create 4 buttons on the bottom.

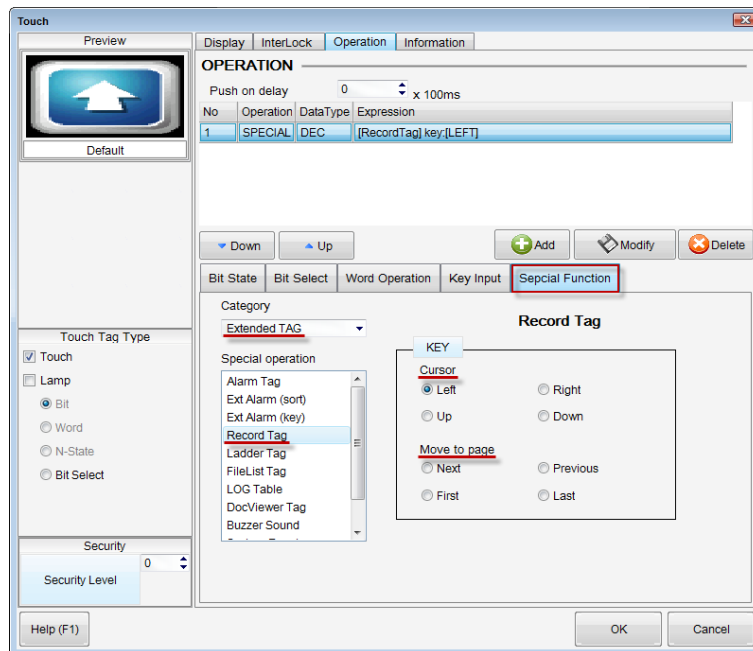
Page shift key	Description
LEFT	Moves the cursor left by one page.

RIGHT	Moves the cursor right by one page.
UP	When multiple graphs are displayed, the cursor meets multiple graphs. Using the [UP] button, a cursor touching the bottom graph is moved up by 1 graph to touch the top graph.
DOWN	When multiple graphs are displayed, the cursor meets multiple graphs. Using the [DOWN] button, a cursor touching the top graph is moved down by 1 graph to touch the bottom graph.

(3) Key registration using touch tags

To change the design of a key, or the register a key in a separately registered position, touch tags can be used to register page shift keys. Select [Special functions] in the [Operation] page of the touch tag.

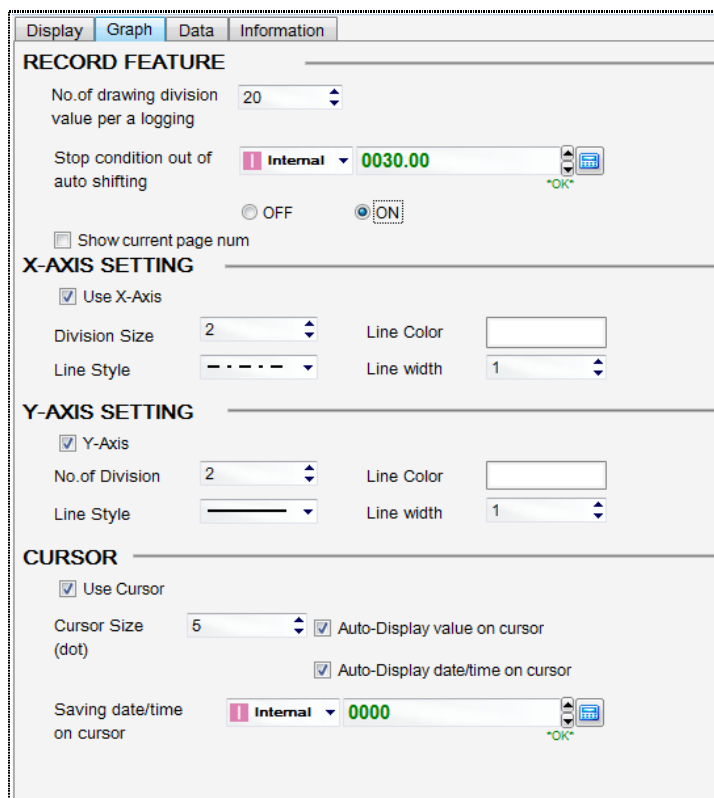
Set the category to [Extended TAG] and select [Record Tag] for the special operation. This brings up the record tag cursor keys and page shift keys. Designate each of the 8 keys separately as needed, and register to the screen.



[Fig. Key registration using touch tags]

36.4 Graph page

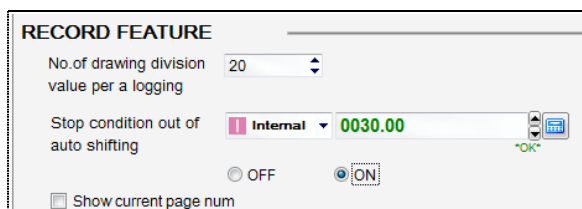
The features of the graph are set from this page. Set the graph display interval, bit condition for using page navigation keys, grids, and cursors, etc.



[Fig. Record tag graph page]

36.4.1 Record feature

Set the graph display interval and the bit condition used for page shifts.

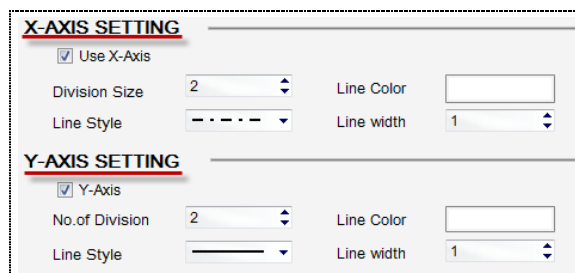


[Fig. Record feature]

Record feature	Description
Dots/scale	This is the scale used to display a single piece of data in the graph. Dot (pixel) units are used.
Use page shift key Bit condition	When the graph is drawn to the end of the screen, the record tag automatically shifts to the next screen and continues drawing data. That is, the latest data is displayed automatically. To see data on previous pages, shift pages using the [Page shift keys]. Here, to enable the [Page shift keys], the conditions set in the [Bit condition used for page shifts] must be satisfied

36.4.2 Show X-axis/Y-axis grid

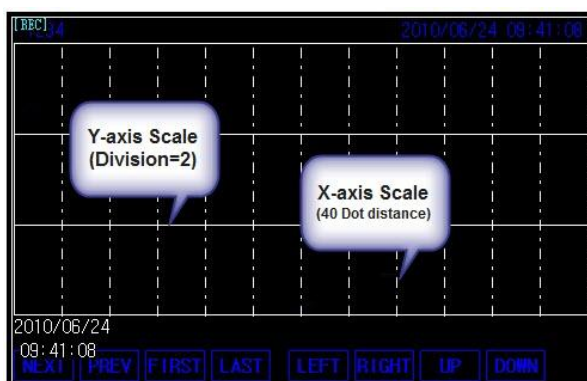
Grids are displayed on the X axis and Y axis.



[Fig. Show X-axis/Y-axis grid]

Ruler	Description
Use X-axis	When checked, vertical lines (rulers) dividing the x axis in the graph are displayed.
Division size	Set the interval to show rulers. A grid is displayed with the data interval set in [Division size]. As the [Graph display interval] is the interval for displaying one data, if [Graph display interval] is [20(Dot)] and [Division size] is [2], the grid becomes [20(Dot)] X[2] and is shown every [40(Dot)].
Line color	Set the color for the grid.
Line style	Select the style of the grid. Select from 4 types.
Line width	Select the grid line width, from 1~2dot.
Use Y-axis	When checked, horizontal lines (rulers) dividing the y axis in the graph are displayed.
No of division	This is the number of divisions in the Y axis. If this value is [2], the y axis is divided into two equal parts.

When the X axis and Y axis grid are set as shown in the figure above, the following is displayed in the record tag.

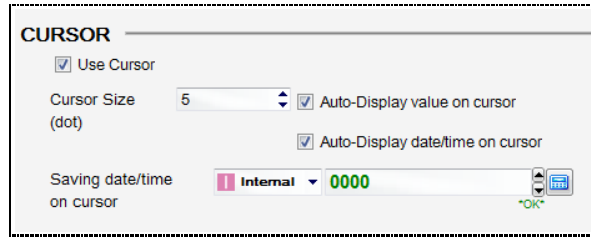


[Fig. Record tag with grid shown]

36.4.3 Cursor

A cursor is a vertical standard line drawn perpendicularly to the x axis. The [Cursor keys] can be used to move up, down, left and right, and data at the point the graph is met can be displayed at the top of the

record tag.

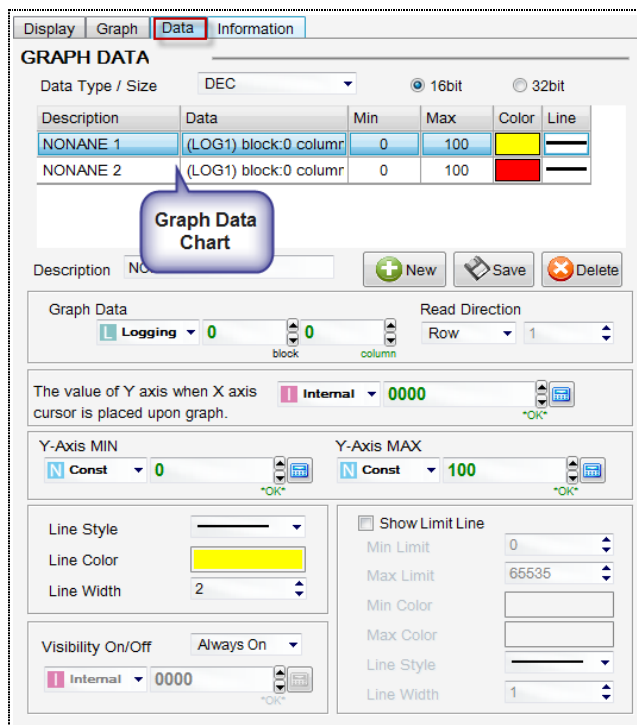


[Fig. Cursor]

Cursor	Description
Use cursor	Check to use cursors
Cursor size	The point where the cursor meets the graph is indicated by a rectangular dot. The cursor size is the size of this rectangular dot. Enter in dot(pixel) units.
Auto-display value on cursor.	When checked, the data at the point the cursor meets the graph (y axis value) is automatically displayed on the top left corner of the graph.
Auto-display date/time on cursor.	When checked, the date and time (x axis value) at the point the cursor meets the graph is automatically displayed on the top right corner of the graph.
Saving date/time on cursor	By designating an [Internal] address, the date and time data at the cursor position can be saved.

36.5 Data page

Data to be displayed on the graph is set from this page. Set and register detailed properties of the logging/recipe data to be displayed.



[Fig. Record tag data page]




36.5.1 Data type/size

Set the type and size of data to be displayed as a graph.

Data	Description
Data type	Select among [DEC], [UDEC], and [BCD]. [DEC] is signed decimal, [UDEC] is unsigned decimal, and [BCD] is a hexadecimal data type that acts like decimal data.
Data size	Select between [16 bit] and [32 bit].

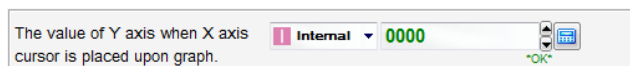
36.5.2 Adding data to display in the graph

On the top of the data page, there is a list of data to show in the graph. On the bottom, the properties of each graph data can be set. Create [Graph data] by pressing the [New] button. After setting detailed graph features in the bottom section, press the [Save] button to save settings.

Properties	Description
Description	A description of the graph data is provided.
 New	Creates new graph data.
 Save	Save detailed properties for the set graph data.
 Delete	Deletes registered graph data.

36.5.3 [The value of Y axis when X axis cursor is placed upon graph] (internal address)

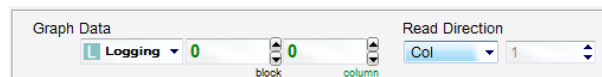
[The value of Y axis when X axis cursor is placed upon graph] saves the value of the graph when the X axis is placed upon the graph, that is, the Y axis value, in the designated [Internal] address.



[Fig. The value of Y axis when X axis cursor is placed upon graph (internal address)]

36.5.4 Graph data/read direction

Set the graph data to display. Graph data is set depending on the read direction.



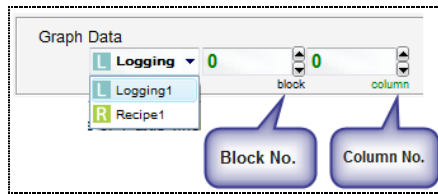
[Fig. Graph data/read direction]

(1) Graph data

First, the logging/recipe data to display as a graph is selected. Next, the [Block number] and [Word number] are entered to select the data to display from the select logging/recipe data.

[Block] refers to the data when logging data is saved once. Numbers start from block [0].

[Word(column)] refers to the number of data logged at once. Numbers start from [0] words.



[Fig. Graph data]


(2) Read direction

Only [Col(column)] can be used as the [Read direction]. That is, data change over time is displayed as a graph.

Logging data is saved as shown in the table below. Assume a logging setting with 5 columns (logging targets).

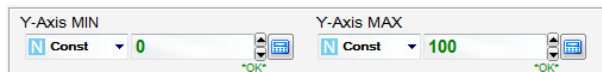
The [Read address] can be described as follows using this table.

	Date	Time	Column0	Column1	Column2	Column3	Column4
Block0	Year/Month/Date	Hour/Minute/Second	Data1	Data2	Data3	Data4	Data5
Block1	Year/Month/Date	Hour/Minute/Second	Data6	Data7	Data8	Data9	Data10
Block2	Year/Month/Date	Hour/Minute/Second	Data11	Data12	Data13	Data14	Data15
Block3	Year/Month/Date	Hour/Minute/Second	Data16	Data17	Data18	Data19	Data20
...	Year/Month/Date	Hour/Minute/Second	Data21	Data22	Data23	Data24	Data25

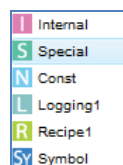
Read direction	Description
Col(column)	<p>Data in one column is displayed as a graph according to time. In [Col], [Block number] is not used, only [Word number] requires setting.</p>  <p>When graph data is set as shown in the figure above, the [Word number] is [1], therefore [Data2, Data7, Data12, Data17, Data22, ...] are displayed in the graph in order, according to time.</p>

36.5.5 Min value/Max value

Set the min value/max value of the y axis of the graph to display the data.



[Fig. Min value/Max value setting]

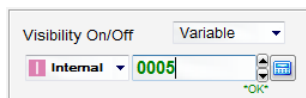


[Fig. Address types]

As seen in the figure above, the Y axis range can be set using [Internal] addresses, [Constants], and [Logging/recipe data]. When [Constant] is set, the range of the Y axis is fixed. When address is set, the Y axis range can be varied according to the address data.

36.5.6 Visibility on/off address

The graph showing each data can be set to be visible at all times, or to be visible or invisible depending on conditions.

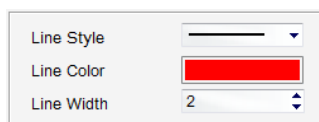


[Fig. Visibility on/off address]

Visibility on/off	Description
Always On	The graph is always visible.
Variable	The graph is made visible or invisible depending on the state of the condition address. Only [Internal] addresses can be set as the [Condition address]. If the data of the [Condition address] is not [0], the graph is visible. If the data is [0], the graph is made invisible.

36.5.7 Line setting

Set the properties of the lines of the graphs displaying each data.



[Fig. Line setting]

Line setting	Description
Line style	Select the style of the line. 4 options are provided.
Line color	Set the line color.
Line width	Select the line width, from 1~2dot.

CHAPTER 37 X/Y Chart A Tag

CHAPTER 37 - X/Y Chart A Tag

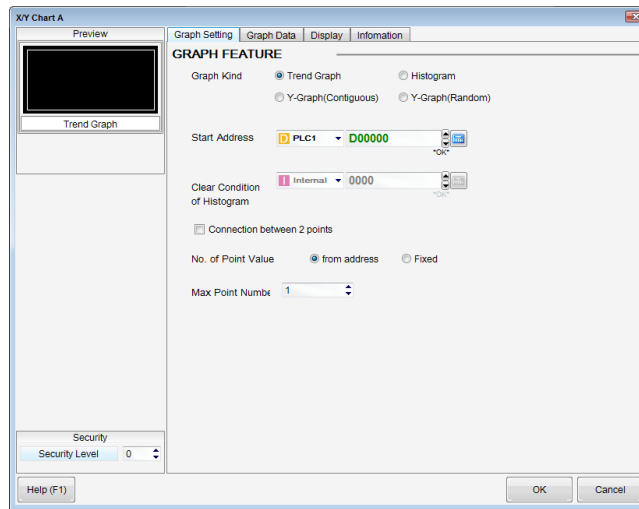
37.1 X/Y chart A tag overview

The X/Y chart A tag is a tag that reads the word values for the X axis and the word values for the Y axis, then plots the intersection of the two values in a 2D graph to display the change of the value. Data change can be expressed using a trend graph, histogram, continuous y-graph, or random y-graph. To express graphs, consecutive word addresses are required.

If word addresses are used beginning with [D0000] as shown in the figure below, 2 addresses are needed to express one point (X/Y). Therefore addresses are used in the following manner : [D0000]/[D0001](X0/Y0), [D0002]/[D0003](X1/Y1), [D0004]/[D0005](X2/Y2),

If the [No. of point value] in the figure below is used as an address value, the first address becomes the value that sets the number of points. Therefore the data is changed to [D0000](number of points), [D0001]/[D0002](X0/Y0), [D0003]/[D0004](X1/Y1), [D0005]/[D0006] (X2/Y2),

Here, one address is used per point in the Y-graph.



[Fig. X/Y chart A tag properties screen]

37.2 Composition of the X/Y chart A tag properties screen

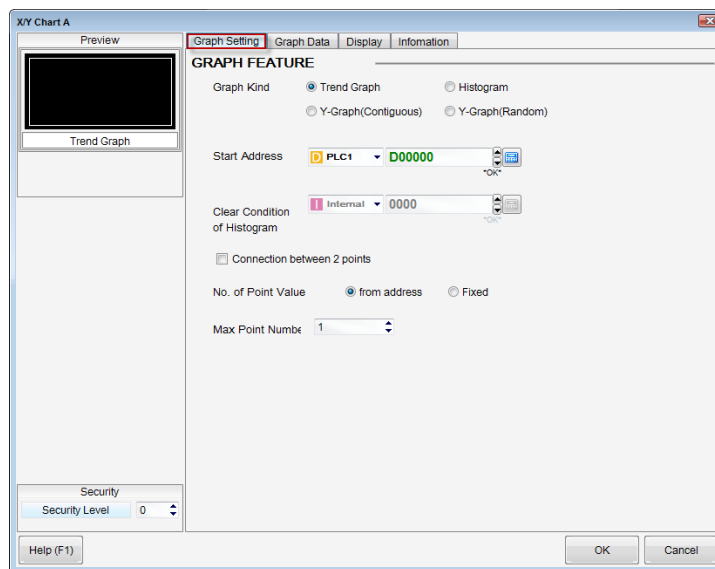
The X/Y chart A tag properties screen comprises the [Graph setting], [Graph data], [Display], and [Information] pages.

Property page	Description
Graph setting page	This page is used to set the graph type, start address of the word addresses to use, and the number of dots to display.

Graph data page	From this page, the data type of the graph shown on the screen, the number of graphs, and the minimum and maximum values for each data are set.
Display page	Set whether to show frames and their color, and the graph refresh conditions.
Information page	On this page, X/Y chart A tag info is displayed. The number of the registered screen, tag ID, time created and time modified, location and size are shown. Location and size info can be edited.

37.3 Graph setting page

This page is used to set the graph type, start address of the consecutive word addresses to use in the graph, and the number of dots to display. Depending on the number of points to show on the graph, the number of addresses varies.

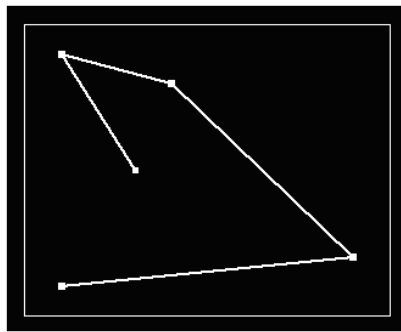


[Fig. Graph setting page]

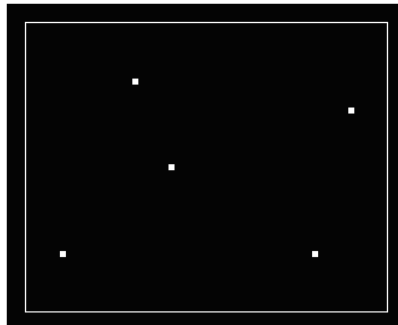
Graph setting		Description
Graph Type	Trend Graph	The intersection points between X axis word address values and Y axis word address values are displayed on the screen, and data is expressed by connecting points using lines.
	Histogram	The intersection points between X axis word address values and Y axis word address values are displayed on the screen. In histograms, even if the data value changes, the dots used to display past data remain on the screen. If the [Clear condition of histogram] is triggered, all points remaining on the screen are erased.
	Y-graph (contiguous)	Consecutive Y axis data is listed, and data change is displayed continuously.
	Y-graph (random)	Non-consecutive Y axis data is listed, and data change is displayed continuously. Separate addresses can be set in the [Graph data] page.
Start address		Enter the start address for the consecutive word addresses to read values from.

Clear condition of histogram		Enter the word address to use as the condition for erasing the points displayed in the [Histogram] graph. If the word address has a value other than 0, points for new data values are displayed, erasing points on the histogram.
Connection between two points		Set whether to connect the dots displayed in the [Trend graph].
No of point value	From address	Use the word address value entered in [Start address] as the number of points to use in the graph.
	Fixed	Set a fixed number of points to be used in the graph.
Max. point number		Set the max number of points shown on the graph. When [Fixed] is selected in [No. of point value], [No. of points] is displayed.

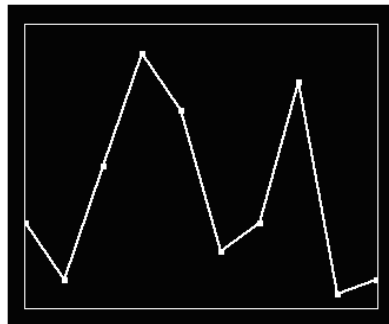
The following is displayed, depending on the graph type.



[Fig. Trend graph]



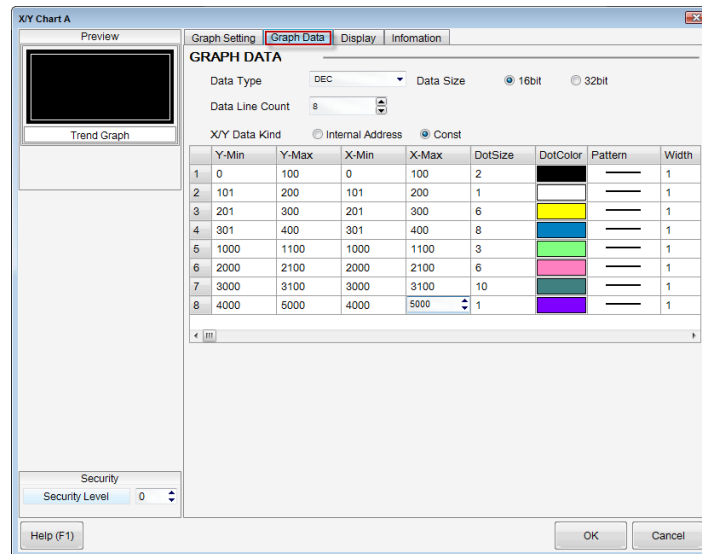
[Fig. Histogram]



[Fig. Y-graph]

37.4 Graph data page

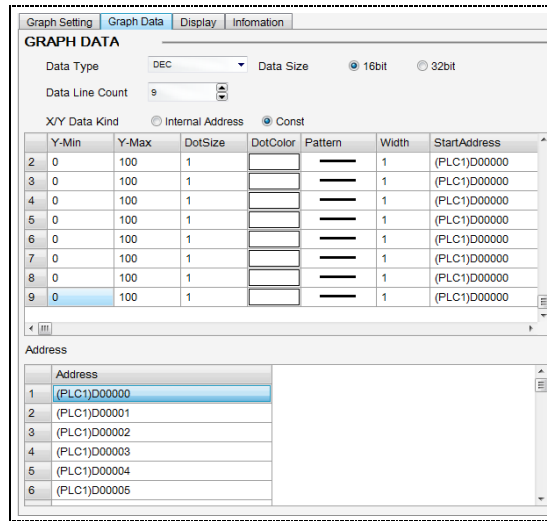
From this page the data values for the graph displayed on the screen are set for each range, so that different graphs are displayed.



[Fig. Graph data page]

Part		Description
Data type		Select the type of data to use from the list below. [DEC] - signed decimal, [UDEC] - unsigned decimal, [BCD] - It is actually hexadecimal, but is used like decimal data, because data that includes A~F is not shown. [FLOAT] – This type of data uses decimal places.
Data size		Select between 16 bit and 32 bit. 32 bit is used when values are larger than 16 bit.
Data line count		Set the number of data lines for the data value range to be used.
X/Y Data type	Internal address	Use variable min/max values by setting the min value/max value using an internal address.
	Constant	Min/max values are fixed as a constant and used.
Y axis - Min value		Enter the min value of the Y axis word address for the applicable range.
Y axis - Max value		Enter the max value of the Y axis word address for the applicable range.
X- axis - Min value		Enter the min value of the X axis word address for the applicable range.
X axis - Max value		Enter the max value of the X axis word address for the applicable range.
Dot size		Set the size of the dots displayed on the screen.
Dot color		Set the color of the dots displayed on the screen.
Line style		Select the style of the line displayed on the screen.
Line width		Set the width (1~2dot) of the lines displayed on screen.

When [Graph type] is set the [Y-graph(random)] in [Graph settings], the following list for [Address type] and address entry appears, as seen in the following figure.

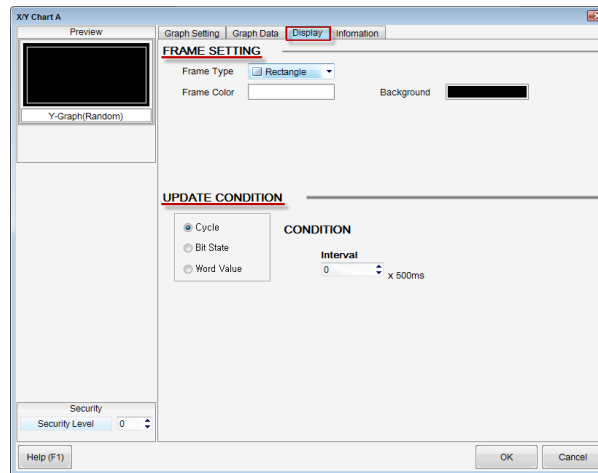


[Fig. Address type]

When [Random] is selected, non-consecutive addresses can be used. Set addresses by double clicking each item with the mouse.

37.5 Display page

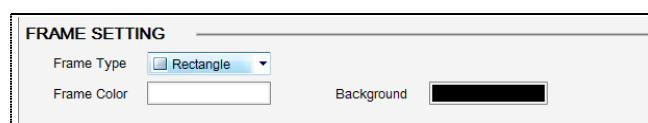
Set whether to show frames and their color, and the graph refresh conditions.



[Fig. Display page]

37.5.1 Frame setting

Set the frame of the graph.



[Fig. Frame setting]

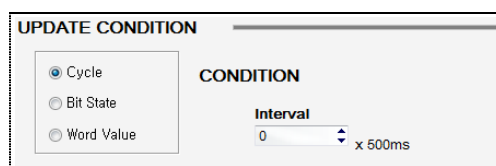
Frame setting	Description
Frame type	Set whether to show the frame.
Frame color	Set the frame color.
Background color	Set the background color within the graph.

37.5.2 Update condition

Set the condition for updating the graph data in the X/Y chart displayed on the screen.

(1) Cycle

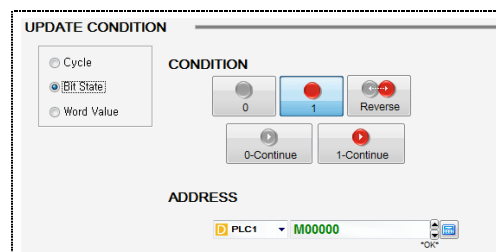
Update according to the time interval set in Interval. The interval is set using 500ms (0.5 second) units. When 0 is set, data is updated as a very fast rate, using the scan time (each scan) of the touch as the cycle.



[Fig. Cycle]

(2) Bit state

Data is updated depending on the state of the user designated bit address.

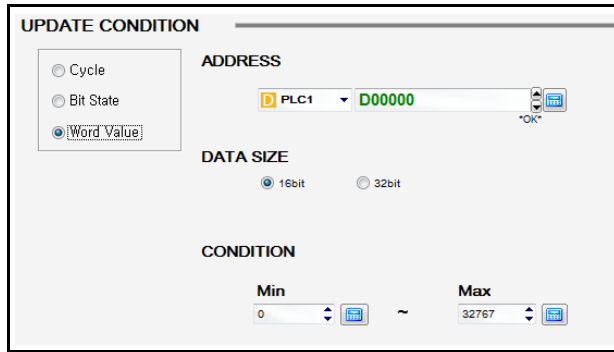


[Fig. Bit state]

Bit state		Detailed description
Address		Set the bit address to use as the condition.
CONDITION	When 0	Update is performed once, when the set bit address becomes OFF.
	When 1	Update is performed once, when the set bit address becomes ON.
	Bit reverse	Updates once each time the set bit address is reversed.
	0 _ maintain state	Updated with each scan while the set bit address is OFF.
	1 _ maintain state	Updated with each scan while the set bit address is ON.

(3) Word value

When word address data is changed, data is updated if the changed data satisfies the set max value and min value ranges.



[Fig. Word value]

Word value		Detailed description
CONDITION	Min (minimum value)	Enter the minimum value of the word address used as the condition.
	Max (maximum value)	Enter the maximum value of the word address used as the condition.
Address		Set the word address.

CHAPTER 38 X/Y Chart B Tag

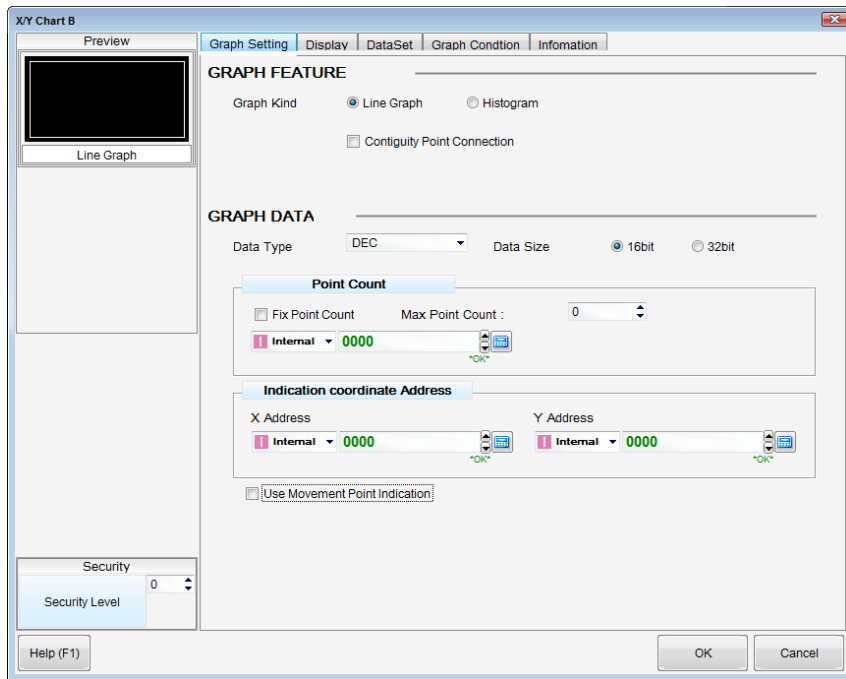
CHAPTER 38 - X/Y Chart B Tag

38.1 X/Y chart B tag overview

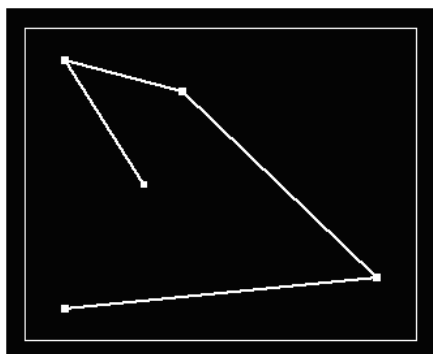
The X/Y chart B tag is a tag that has the same action as the X/Y chart A tag, but includes more functions.

The X/Y chart B tag is a tag that reads the word values for the X axis and the word values for the Y axis, then plots the intersection of the two values in a 2D graph to display the change of the value.

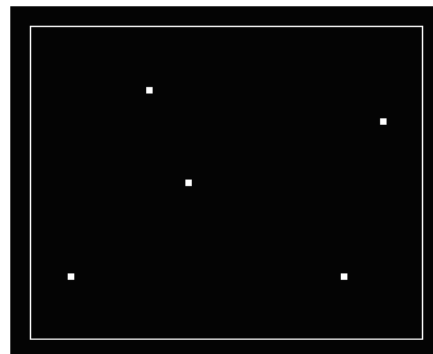
While in the X/Y chart A tag, a single word address is entered, and consecutive addresses beginning with that address are used, in X/Y chart B tag, the address for designating the [Fix point count], the X coordinate start address, and the Y coordinate start address can be set individually.



[Fig. X/Y chart B tag properties screen]



[Fig. Line graph]



[Fig. Histogram]

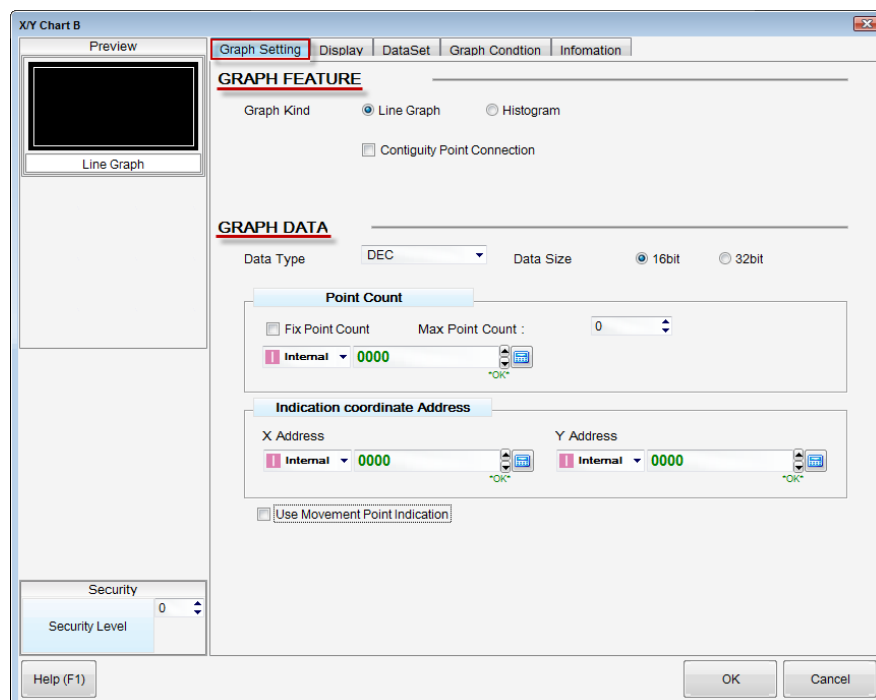
38.2 Composition of the X/Y chart B tag properties screen

The X/Y chart B tag properties screen comprises the [Graph setting], [Display], [Data set], [Graph conditions], and [Information] pages.

Property page	Description
Graph setting page	On this page, the graph type, the word address designating the number of points, the X coordinate start address, and the Y coordinate start address are set.
Display page	On this page, the graph frame setting, in-graph grid setting, and update conditions for the graphs displayed are set.
Data set page	From this page, the number of the graphs shown on the screen, the ranges for the min and max values of each data, and the graph display are set.
Graph condition page	On this page, the conditions for displaying images registered in the [Image list] as points on the graph are set.
Information page	On this page, X/Y chart B tag info is displayed. The number of the registered screen, tag ID, time created and time modified, location and size are shown. Location and size info can be edited.

38.3 Graph setting page

On this page, the graph type, the word address designating the number of points, the X coordinate start address, and the Y coordinate start address are set. Depending on the number of points to show on the graph, the number of addresses varies.

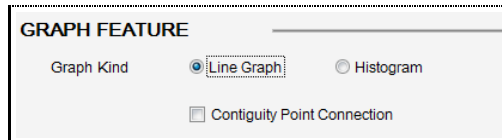


[Fig. Graph setting page]

38.3.1 Graph feature

(1) Line graph

The intersection points between X axis word address values and Y axis word address values are displayed on the screen, and data is expressed by connecting points using lines. When [Continuity point connection] is used, the lines are connected. If not used, only points are shown.



[Fig. Line graph]

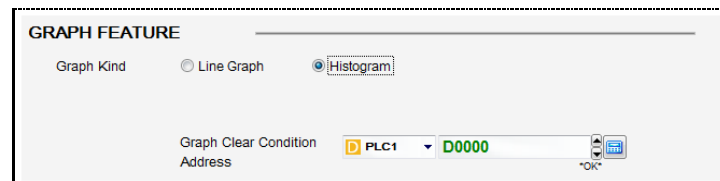
(2) Histogram

The intersection points between X axis word address values and Y axis word address values are displayed on the screen.

In histograms, even if the data value changes, the dots used to display past data remain on the screen.

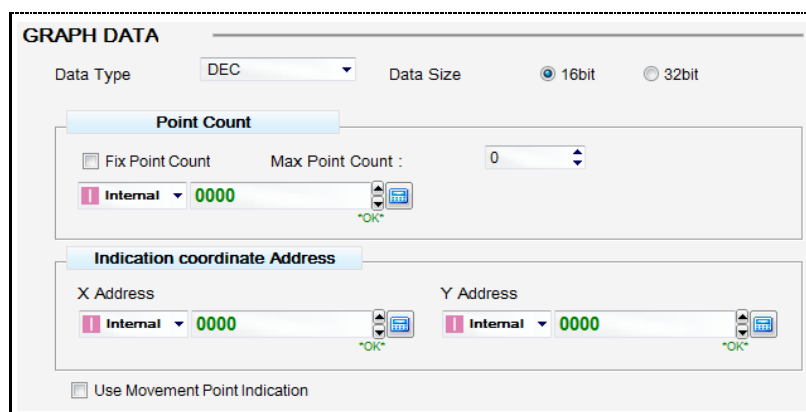
If the [Clear condition of histogram] is triggered, all points remaining on the screen are erased.

If the data of the word address in [Graph clear condition address] has a value other than 0, points for new data values are displayed, erasing points on the histogram.



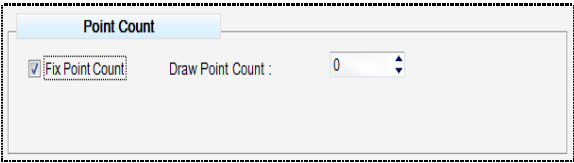
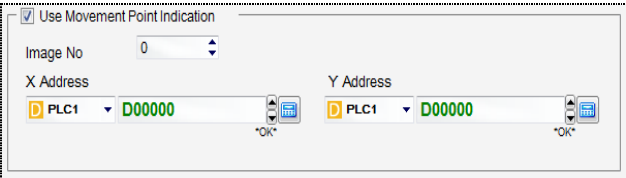
[Fig. Histogram]

38.3.2 Graph data setting



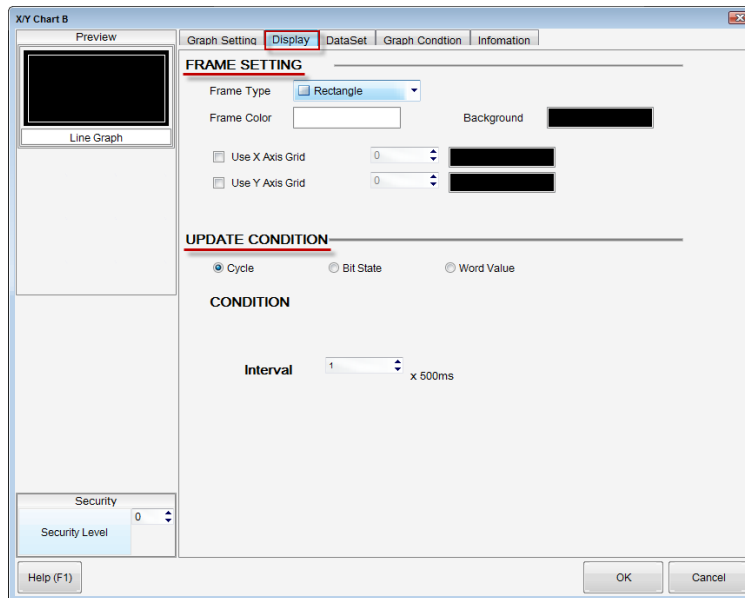
[Fig. Graph data settings]

Graph data settings	Description
Data type	Select the data type to be used.

		[DEC] - signed decimal, [UDEC] - unsigned decimal, [BCD] - It is actually hexadecimal, but is used like decimal data, because data that includes A~F is not shown. [FLOAT] — This type of data uses decimal places.
	Data size	Select between 16 bit and 32 bit. 32 bit is used when values larger than 16 bit are used.
No of point value	Fix point count	Use a fixed number of points in the graph. If fix point count is not enabled, the number of points varies according to the values of word addresses entered. When the checkbox is checked, the point count part is changed as shown in the figure below. 
	Max point count	Enter the maximum number of points to use
	Enter address	Enter the word address to use as the point count.
Show coordinates address	X axis start address	Enter the start address for the word addresses to use as x coordinates.
	Y axis start address	Enter the start address for the word addresses to use as y coordinates.
	Use movement point indication	This is used when displaying images on the screen, independently from X/Y coordinates. This is used when emphasizing dots with particular coordinates. When the checkbox is checked, the point count part is changed as shown in the figure below. 
	Image number	Enter the image number registered in the [Image list].
	X coordinate address	Enter the word address to read the X coordinate value use for Use Movement Point Indication.
	Y coordinate address	Enter the word address to read the X coordinate value use for Use Movement Point Indication.

38.4 Display page

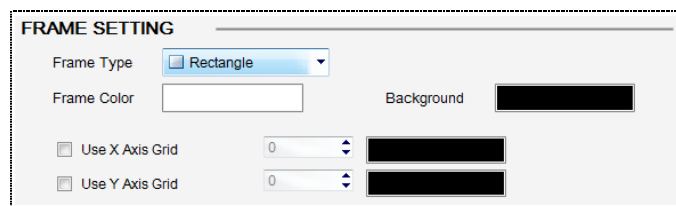
On this page, the graph frame setting, in-graph grid setting, and update conditions for the graphs displayed are set.



[Fig. Display page]

38.4.1 Frame setting

Set the frame of the graph.



[Fig. Frame setting]

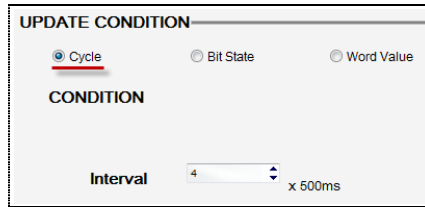
Frame setting	Description
Frame type	Set whether to show the frame.
Frame color	Set the frame color for the graph.
Background color	Designate the background color of the graph.
Use X-axis grid	Set the number of rulers to use on the X axis, and the line color.
Use Y-axis grid	Set the number of rulers to use on the Y axis, and the line color.

38.4.2 Update condition

Set the condition for updating the graph data in the X/Y chart displayed on the screen.

(1) Cycle

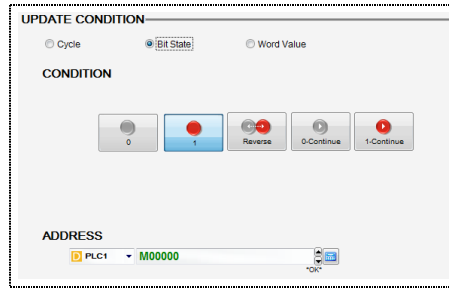
Update according to the time interval set in Interval. The interval is set using 500ms (0.5 second) units. When 0 is set, data is updated as a very fast rate, using the scan time (each scan) of the touch as the cycle.



[Fig. Cycle]

(2) Bit state

Data is updated depending on the state of the user designated bit address.

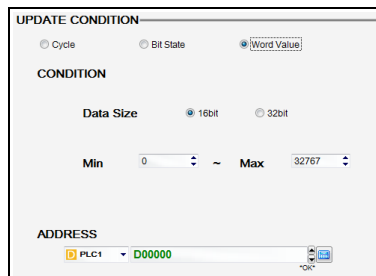


[Fig. Bit state]

Bit state		Detailed description
Address		Set the bit address to use as the condition.
CONDITION	When 0	Update is performed once, when the set bit address becomes OFF.
	When 1	Update is performed once, when the set bit address becomes ON.
	Bit reverse	Updates once each time the set bit address is reversed.
	0 _ maintain state	Updated with each scan while the set bit address is OFF.
	1 _ maintain state	Updated with each scan while the set bit address is ON.

(3) Word value

When word address data is changed, data is updated if the changed data satisfies the set max value and min value ranges.

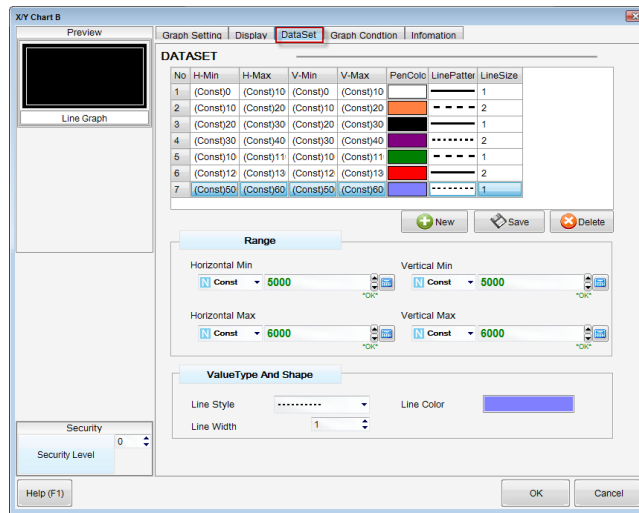


[Fig. Word value]

Word value		Detailed description
CONDITION	Minimum value	Enter the minimum value of the word address used as the condition.
	Maximum value	Enter the maximum value of the word address used as the condition.
Address		Set the word address.

38.5 Data set page

From this page, the graphs to be displayed on the screen are registered, and the min/max values and graph shape for each graph are set.



[Fig. Data set page]

Data set		Description
Boundary	Constant	Fix and use the min/max values entered as constants.
	Internal address	Use variable min/max values by setting the min value/max value entered with internal addresses.
	Horizontal minimum	Enter the minimum value of the X axis range.
	Horizontal maximum	Enter the maximum value of the X axis range.
	Vertical minimum	Enter the minimum value of the Y axis range.
	Vertical maximum	Enter the maximum value of the Y axis range.
Value type and shape	Line style	Select the style of the line displayed on the screen.
	Line color	Set the color of the lines displayed on the screen.
	Line width	Set the width of the line displayed on the screen.
	Dot size	Set the size of the dots displayed on the screen.

In a single X/Y chart B tag, up to 21 data value ranges can be registered.


Use the [New/Save/Delete] buttons to register graphs.

Button	Description
	Registers a new dataset.
	Saves the settings to the selected graph list.
	Deletes the selected dataset.

When the button is clicked, a graph is registered, as seen in the figure below.

No	H-Min	H-Max	V-Min	V-Max	PenColo	LinePatter	LineSize
1	(Const)0	(Const)10	(Const)0	(Const)10		————	1
2	(Const)0	(Const)10	(Const)0	(Const)10		————	1
3	(Const)0	(Const)10	(Const)0	(Const)10		————	1
4	(Const)0	(Const)10	(Const)0	(Const)10		————	1
5	(Const)0	(Const)10	(Const)0	(Const)10		————	1
6	(Const)0	(Const)10	(Const)0	(Const)10		————	1
7	(Const)0	(Const)10	(Const)0	(Const)10		————	1

[Fig. Newly registered data range]

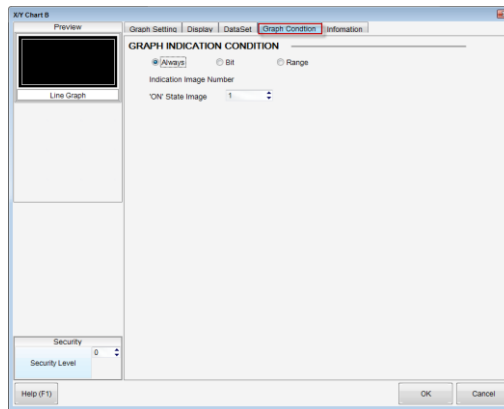
Create rows according to the number of graphs to be displayed. Then select items using the mouse to change settings for the selected graph. Save the changed settings using the  button.

No	H-Min	H-Max	V-Min	V-Max	PenColo	LinePatter	LineSize
1	(Const)0	(Const)10	(Const)0	(Const)10		————	1
2	(Const)10	(Const)20	(Const)10	(Const)20	■	- - - -	2
3	(Const)20	(Const)30	(Const)20	(Const)30	■	————	1
4	(Const)30	(Const)40	(Const)30	(Const)40	■	* * * * *	2
5	(Const)10	(Const)11	(Const)10	(Const)11	■	- - - -	1
6	(Const)12	(Const)13	(Const)12	(Const)13	■	————	2
7	(Const)50	(Const)60	(Const)50	(Const)60	■	- - - - -	1

[Fig. Data range with settings saved]

38.6 Graph condition page

On this page, the conditions for displaying images registered in the [Image list] as points on the graph are set.

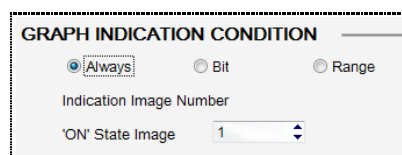


[Fig. Graph condition page]

(1) Always

Points displayed on the graph screen are always displayed as images.

Enter the image number registered in the [Image list] in [Indication image number].



[Fig. Always]

(2) Bit

The points shown on the graph screen are displayed as different images depending on the bit address state. Enter the number of the image to display when the bit address is ON, and the number of the image to display when the bit address is OFF.

GRAPH INDICATION CONDITION

Always Bit Range

Indication Image Number

'ON' State Image: 1 'OFF' State Image: 1

Condition Address: Internal 0000

[Fig. Bit]

(3) Range

Points are displayed as different images, according to the data range of the word address.

GRAPH INDICATION CONDITION

Always Bit Range

Condition Address: Internal 0000

Range Count: 8

No	ImageNo	Min	Max
1	1	1	100
2	2	101	200
3	3	201	300
4	4	301	400
5	5	401	500
6	6	501	600
7	7	601	700
8	8	701	800
Def	9	Other Range	Other Range

[Fig. Range]

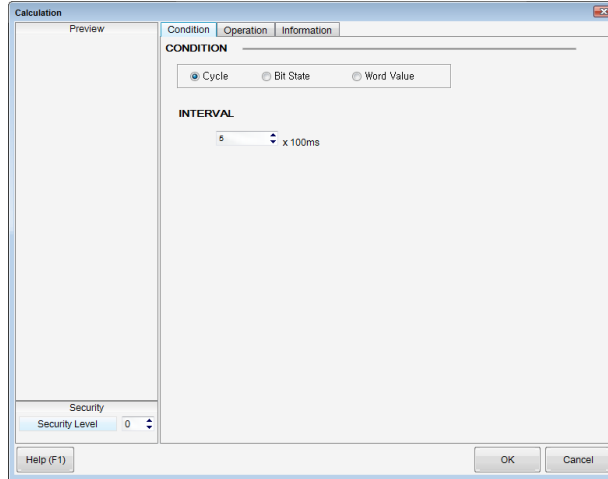
Range	Description
Condition address	Set the word address.
Range count	Enter the number of ranges to be used.
Number	This is the number of the registered range.
Image number	Enter the image number registered in the [Image list].
Maximum value	Set the minimum value of the word value to be used in the range.
Minimum value	Set the maximum value of the word value to be used in the range.

CHAPTER 39 Calculation Tag

CHAPTER 39 - Calculation Tag

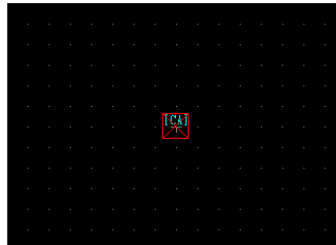
39.1 Calculation tag overview

Depending on the action condition, bit action, word operation, key registration, and special functions are performed.



[Fig. Calculation tag properties screen]

This is a calculation tag registered to the screen. The calculation tag may be located at any part of the edit screen. When transmitted to the touch, the tag is not displayed on the screen.



[Fig. Calculation tag registered to the edit screen]

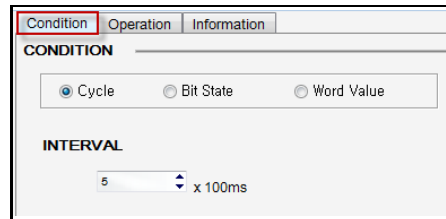
39.2 Page composition of the calculation tag properties screen

The calculation tag properties screen comprises the [Condition], [Operation], and [Information] pages.

Property page	Description
Condition page	This page is the page for setting conditions for calculation tag operation. Set cycle, bit state or word value conditions.
Operation page	Set the action performed when the calculation tag conditions are satisfied. Register bit operation, word operation, key registration, and special functions.
Information page	On this page, calculation tag info is displayed. The number of the registered screen, tag ID, time created and time modified, and location and size are shown. Location info can be edited.

39.3 Condition page

Set conditions for conditions for calculation tag operation.



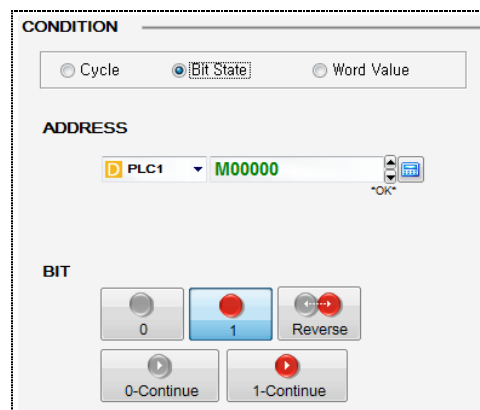
[Fig. Condition page]

39.3.1 Cycle conditions

Calculations are performed at the given time interval. 100ms (0.1 seconds) are used as the time interval unit. When this is set to [0]x100ms, calculations are performed at very short intervals, because the scan time of the touch is used as the interval.

39.3.2 Bit state condition

Calculations are performed according to the state of the bit address.

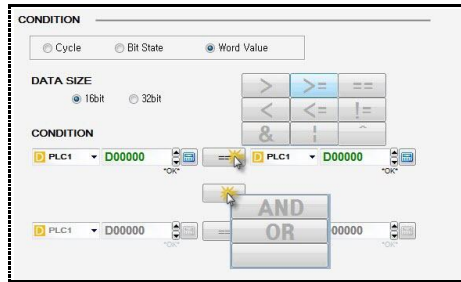


[Fig. Operation according to bit state]

Bit state		Description
Address		Set the bit address.
Bit	When 0	Operates once, when the set bit address becomes OFF.
	When 1	Operates once, when the set bit address becomes ON.
	Bit reverse	Operates once, when the set bit address is reversed.
	0 _ maintain state	Updated with each scan of the touch while the set bit address is OFF.
	1 _ maintain state	Updated with each scan of the touch while the set bit address is ON.

39.3.3 Word value condition

The calculation is performed when the comparative calculation formula is TRUE.



[Fig. Operation according to word value]

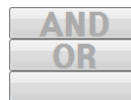
Firstly, select the data size between 16 bit and 32 bit. Enter the word address to be used in the first item. In the second item, enter a word address to compare with the first item, of a constant value. After entering, press the **==** button to select the comparative operator.



[Fig. Comparative operators]

Operators	Description
	Value is greater than
	Value is greater than or equal to
	Value is equal to
	Value is smaller than
	Value is smaller than or equal to
	Value is not the same
	AND operator
	OR operator
	XOR operator

When using two calculation formulas, press the button in the following line and select between the operators [AND, OR] in the figure below. This enables the following calculation formulas below.

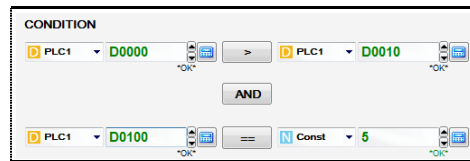


[Fig. Operators]

Operators	Description
	Operates if both calculation formulas are satisfied.
	Operates if either one of the two calculation formulas are satisfied.
	Calculation formulas are not used.

For example, if settings are performed as shown below, if word address [MW0000] is greater than

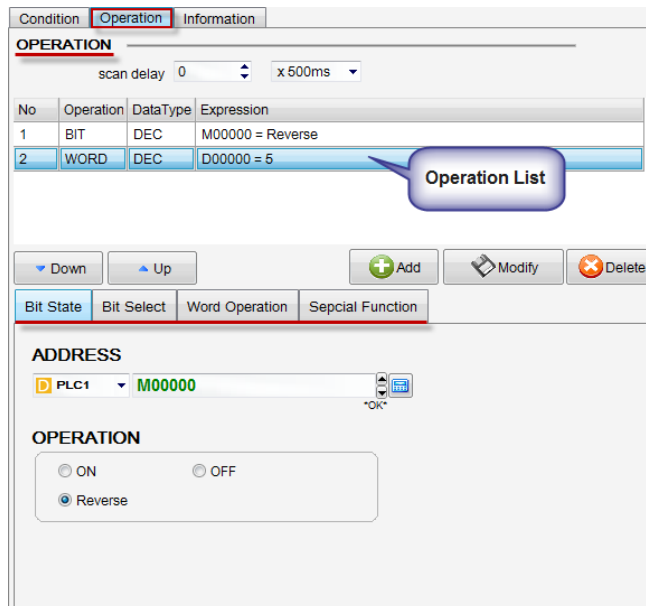
[MW0010] and the [MW0100] value is [5], the calculation tag operates, becomes both calculation formulas are TRUE (AND).



[Fig. Word value condition]

39.4 Operation page

Set the calculation to be performed when the operation condition is satisfied. The types of calculations are : [Bit operation], [Word operation], [Key registration], and [Special function]. Up to 10 operations can be set. If conditions are satisfied, the operations are run in sequence, beginning with the operation registered on top.



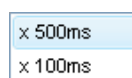
[Fig. Operation page]

39.4.1 Composition of the operation page

The operation page comprises a operation list part on the top, and the operation setting part on the bottom. [Bit operation], [Word operation], [Key registration], and [Special function] in the operation setting part are explained in the following paragraph.

(1) Scan delay

The operation is delayed by the set time.



[Fig. Time units]

(2) Operation list

When an operation is registered, it is saved to the operation list. The operation list is composed as follows.

Calculation	Description
No	This is the number of the registered operation. Operations are carried out according to this number.
Operation	The type of operation is indicated as [BIT], [WORD], [KEY], or [SPECIAL].
Data Type	The data type (DEC, UDEC, HEX, BCD, ASCII) of the address used in the operation is displayed.
Expression	The operation is expressed in simplified form.

The buttons for editing the operation list are as follow.

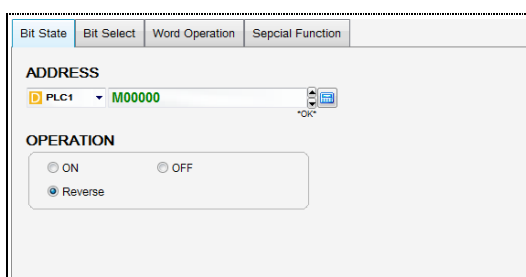
Part	Description
Down	Moves the selected operation down in the order.
Up	Moves the selected operation up in the order.
Add	Adds and registers a new operation.
Modify	The content of the selected operation is modified.
Del	Deletes the selected operation.

39.4.2 Operation settings

The types of calculation are : [Bit operation], [Word operation], [Key registration], and [Special function].


(1) Bit operation

Bit operations are operations that turn bit address data ON/OFF. Bit address data only has [0] and [1] data. [0] is [OFF] and [1] is [ON].



[Fig. Bit operation]

Bit operation	Description	
Address	Set the bit address.	
Operation	ON	Turns the set bit address ON.
	OFF	Turns the set bit address OFF.
	Reverse	If the bit address is in ON state, it is turned OFF, and is turned ON if in OFF state.

After setting the bit address and the action, press the  button to register the bit action in the [Operation list].

No	Operation	Data Type	Expression
1	BIT	DEC	M0000 = On
2	BIT	DEC	(SYS)0000.00 = Off
3	BIT	DEC	(SPEC)_10FF.00 = Reverse

[Fig. Registered bit action]

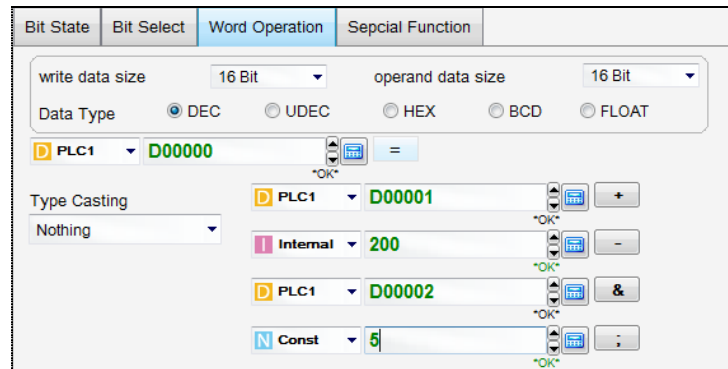
(2) Word operation

An operation is performed on a word address, and result data is set.

Word addresses are 16-bit address areas. When the 16 bits of a word address are all 0, changing this to a decimal number gives [0]. When the 16 bits of a word address are all 1, changing this to a decimal number gives [65535].

Therefore, the data of the word address has a range of [0 ~ 65535].

In the case of signed decimals, the range is [-32767 ~ 32768].



[Fig. Word operation]

Word operation	Description	
Write data size	Write data size is the size of the address where the result of the operation is saved. Select between [16 bit] and [32 bit]. [32 bit] also uses the station next to the designated address, and is used when saving values greater than [16 bit]. The station of the designated word address becomes the top word, and the next station of that address becomes the bottom word.	
Operand data size	Operand data size is the size of the address used in the operation formula. Select between [16 bit] and [32 bit]. [32 bit] also uses the station next to the designated address, and is used when saving values greater than [16 bit]. The station of the designated word address becomes the top word, and the next station of that address becomes the bottom word.	
Const Data Type	DEC	Signed decimal.
	UDEC	Unsigned decimal.
	HEX	Hexadecimal.
	BCD	Is actually hexadecimal, but is used like decimal data, because numbers that include A~F are not shown.

Type casting is a function that changes the data type. Type casting is initially set to [Nothing]. When type casting is set, only one operation formula line can be set. The data at the [Operation address] is read, converted into the set data type, and saved in the [Output operation address].

[BCD] is actually hexadecimal, but is used like decimal data, because numbers that include A~F are not shown.

[OBCD] is Omron BCD, which denotes the BCD type of Omron PLC.

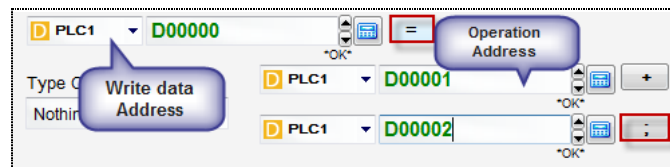
[HEX] is hexadecimal,

[DEC] is decimal, and

[Float] is a data type that includes decimal places.

Type casting	Description
Nothing	Data type casting is not performed.
BCD -> HEX	Operation address data is read as BCD then converted into HEX and saved at the output operation address.
HEX -> BCD	Operation address data is read as HEX then converted into BCD and saved at the output operation address.
OBCD -> DEC	Operation address data is read as OBCD then converted into DEC and saved at the output operation address.
DEC -> OBCD	Operation address data is read as DEC then converted into OBCD and saved at the output operation address.
DEC -> Float	Operation address data is read as DEC then converted into Float and saved at the output operation address.
Float -> DEC	Operation address data is read as Float then converted into DEC and saved at the output operation address.

The formula for word operations is set as follows.




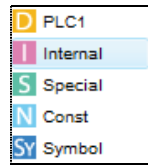
[Fig. Word operation formula]

= : the address to the left of this sign is the [Output operation address] where the result of the function is stored.

= : the addresses to the right of this sign are the [Operation addresses] used in the operation.

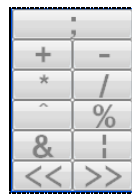
Enter constant values in [Output operation address] using the formula, or perform an operation among [Operation addresses] and enter the result into [Output operation address].

Up to four operation addresses can be set. Use  (semicolons) to indicate the end of the formula. As seen in the following figure, operation addresses can be set not only as addresses but also as constant values.



[Fig. Operation address types]

Set the operator between the operation addresses to complete the formula. Click the [Operator button] to the right of the operation address to bring up the operator list.

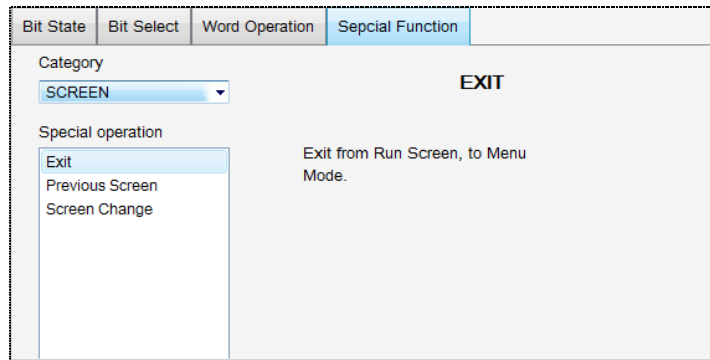


[Fig. Operator list]

Operators	Description
;	Denotes the end of the operation.
+	[Add] the data of two operation addresses.
-	[Subtract] the data of two operation addresses.
*	[Multiply] the data of two operation addresses.
/	[Divide] the data of two operation addresses.
^	This is a bit operator. [Bit XOR] operation is performed with the data of two operation addresses.
%	This is the remainder operator. After dividing the data of two operation addresses, the remainder is calculated.
&	This is a bit operator. [Bit AND] operation is performed with the data of two operation addresses.
	This is a bit operator. [Bit OR] operation is performed with the data of two operation addresses.
<<	This is a bit operator that performs the [Bit left shift] operation. This operator performs a left bit shift operation on the data on the right of the operator. The size of the shift is equal to the data on the left of the operator.
>>	This is a bit operator that performs the [Bit right shift] operation. This operator performs a right bit shift operation on the data on the left of the operator. The size of the shift is equal to the data on the right of the operator.

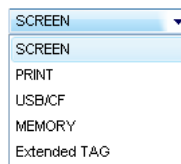
(1) Special functions

These are special functions required for touch operation. If the operation conditions are satisfied, the special function is performed.



[Fig. Special functions]

There are five major categories for the various special functions. In [Category], there are various types of [Special operation].

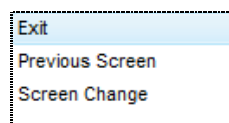


[Fig. Categories]

Categories	Description
SCREEN	These are special functions associated with the screen.
PRINT	These are special functions associated with printing.
USB/CF	These are special functions associated with USB memory storage devices or CF memory cards.
MEMORY	These are special functions associated with memory.
Extended TAG	These are special functions associated with tags.

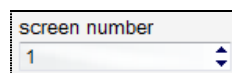
① [SCREEN] special functions

These are special functions associated with the screen.



[Fig. Screen-related special functions]

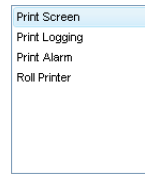
Screen	Description
EXIT	Closes the run screen and brings up the main screen.
Previous Screen	Navigates to the screen that was open before the current screen.
Screen Change	When a screen number is designated, the screen transitions to the designated screen number.



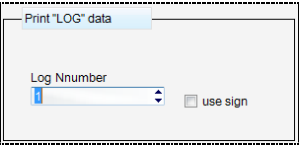
② [PRINT] special functions

These are special functions associated with printing.

XTOP can connect to normal printers or roll printers (mini printers) for printing.

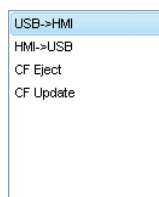


[Fig. PRINT-related special functions]

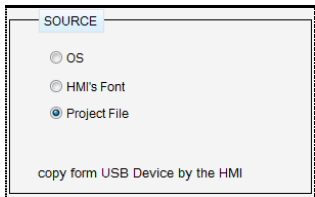
Print	Description
Print Screen	Print the current screen using the connected printer.
Print Logging	Print logging data using the connected printer. [Logging1] through [Logging8] can be set for logging. Enter the logging number to print. Check [Use sign] to show signs (-) when printing logging data, and output negative data. 
Print Alarm	Print alarm details using the connected printer.
Roll Printer	A roll printer is a small mini computer which can print touch data through 232C communication. The printer connects to the COM1 port of the touch, and prints data from the editor where the output content has been edited. (☞ See [4.10] in [chapter 4] for roll printer usage info.)

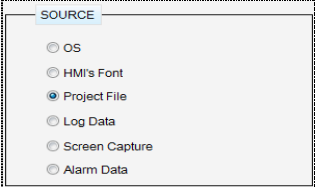
③ [USB/CF] special functions

These are special functions associated with USB memory storage devices or CF memory cards.



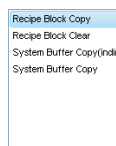
[Fig. USB/CF-related special functions]

USB/CF	Description
USB->HMI	Copy files in the USB memory storage device to the memory of the touch.  Select the files to copy among OS, font, and project files.

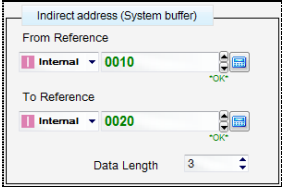
HMI->USB	<p>Copy data in the touch to the USB memory storage device.</p>  <p>Select the files to copy among OS, font, project, logging data, and screen capture files. The [Screen capture] function captures the current screen and saves the captured image as a bitmap in the USB memory storage device.</p>
CF Eject	<p>By inserting a CF memory card behind the touch, logging or alarm data can be saved.</p> <p>Before removing this CF memory card, safely remove the card by clicking the [CF Eject] button.</p> <p>All logging or alarm data remaining in the touch memory is moved to the CF memory card, and the connection is removed.</p>
CF Update	<p>By inserting a CF memory card behind the touch, logging or alarm data can be saved. When logging or alarm data is saved using a CF memory card, logging or alarm data in the touch memory is automatically moved to the CF memory card when a certain size has been exceeded. The [CF Update] function moves logging or alarm data to the CF memory card, even if a certain size has not been reached.</p>

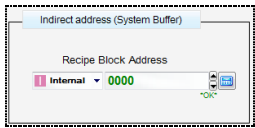
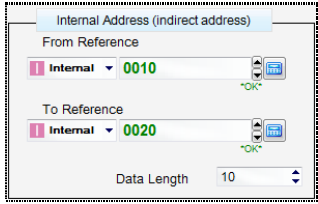
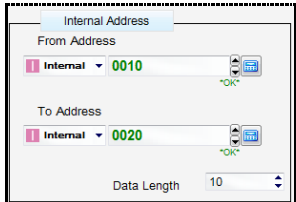
④ **[MEMORY] special functions**

These are special functions associated with memory.



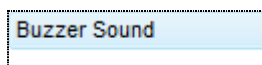
[Fig. Memory-related special functions]

Memory	Description
Recipe Block Copy	<p>This can only be used when using recipe settings in the project.</p> <p>The saved recipe data is copied to another block, in block units.</p>  <p>Only internal addresses can be set for [From Reference (reference address to copy)] and [To Reference (reference address to copy)]. The data of these addresses become the numbers for the blocks. Data length does not apply, and does not have to be entered. When the settings above are applied, with the data at internal address [Station 10] being [5] and the data at internal address [Station 20] being [3], the data in recipe block number 5 is copied to block number 3.</p>
Recipe Block clear	Deletes recipe block data.

	 <p>Only internal addresses can be set for the [Recipe Block Address]. The data of this address becomes the block number of the recipe to delete.</p>
<p>System Buffer Copy (indirect)</p>	<p>In this function, the data of an internal address is copied indirectly to another internal address. The length of the data is equal to [Data length]. Indirect copy refers to copying using a reference address.</p>  <p>Only internal addresses can be set for [From Reference (reference address to copy)] and [To Reference (reference address to copy)]. The data of the address becomes the station number of the internal address to copy. When the settings above are applied, with the data at internal address [Station 10] being [200] and the data at internal address [Station 20] being [300] with the data length set to [10], the 10 data in internal address stations [200~209] is copied to internal address stations [300~309].</p>
<p>System Buffer Copy</p>	<p>In this function, the data of an internal address is copied indirectly to another internal address. The length of the data is equal to [Data length].</p>  <p>Only internal addresses can be set for [From Address (address to copy)] and [To Address (address to be copied to)]. When the above settings are made, the 10 data in internal address stations [10~19] are copied to internal address stations [20~29].</p>

⑤ [Extended TAG] special functions

While this was used for making a separate touch button included in the tag for touch tags, because operation tags cannot be used with buttons, there are no tag-related functions. A buzzer function is provided.



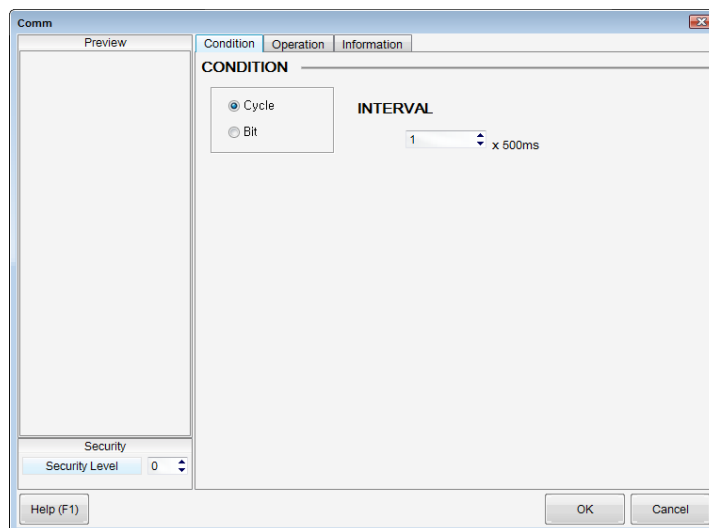
[Fig. Tag-related special functions]

Extended TAG	Description
Buzzer Sound	A short [Beep] buzzer is sounded.

CHAPTER 40 Comm Tags

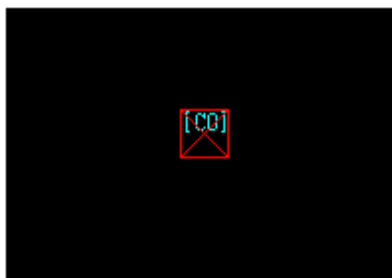
40.1 Comm tag overview

Depending on the conditions, the data of word addresses between the controller (PLC) and touch is read or written according to the set length.



[Fig. Comm tag properties screen]

This is a comm tag registered to the screen. The comm tag may be located at any part of the edit screen, and is not displayed on the touch screen.



[Fig. Comm tag registered to the edit screen]

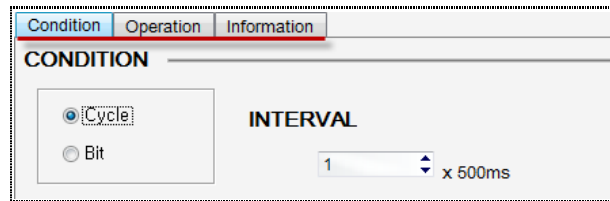
40.2 Page composition of the comm tag properties screen

Comm tag properties has 3 pages : [Condition], [Operation], and [Information].

Property page	Description
Condition page	This page is the page for setting conditions for comm tag operation. The bit state condition is set for each interval.
Operation page	Set the action performed when the comm tag conditions are satisfied.
Information page	On this page, comm tag info is displayed. The number of the registered screen, tag ID, time created and time modified, and location and size are shown. Location info can be edited.

40.3 Condition page

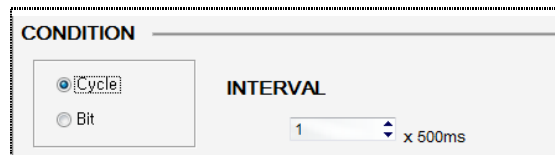
Set the operating conditions.



[Fig. Condition bit state page]

40.3.1 Cycle condition

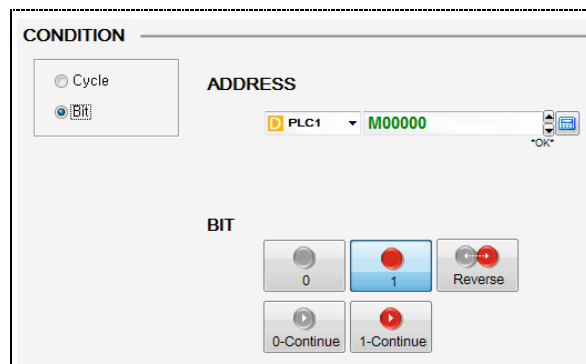
Operates at a fixed time as interval. 100ms (0.1 seconds) are used as the time interval unit. When this is set to [0], operation occurs at very short intervals, because the scan time of the touch is used as the interval.



[Fig. Cycle condition]

40.3.2 Bit state condition

Action is performed according to the state of the bit address.



[Fig. Bit state condition]

Bit state		Description
Address		Set the bit address.
Bit	When 0	Operates once, when the set bit address becomes OFF.
	When 1	Operates once, when the set bit address becomes ON.
	Bit reverse	Operates once, when the set bit address is reversed.
	0 _ maintain state	Updated with each scan of the touch while the set bit address is OFF.
	1 _ maintain state	Updated with each scan of the touch while the set bit address is ON.

40.4 Operation page

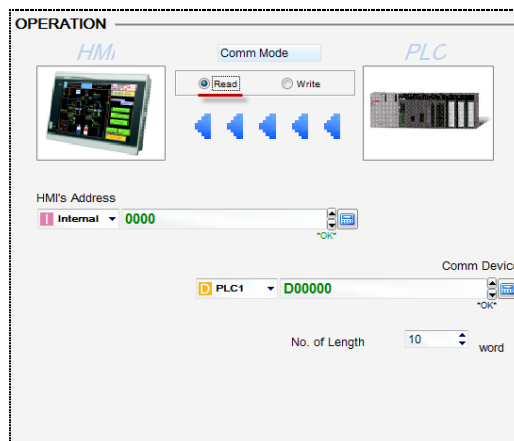
This page sets the action performed when the conditions set in the [Condition] page are satisfied. [Read] and [Write] communication methods are available.

40.4.1 [Read] communication method

[Read] is an action where data from consecutive PLC addresses is read to internal addresses of the touch. The amount of data read is equal to the [Comm data length].

The setting method is as follows.

1. Select [Read] as the comm mode.
2. Set the internal touch address to write the read data to.
3. Set the address of the PLC (external device) to read from.
4. Enter the comm data length.



[Fig. [Read] communication method]

As the comm data length is in [word] units, this is the number of 16 bit addresses.

When settings are made as shown in the figure above, if comm tag conditions are satisfied, the data in stations [D0000~D0009] of the PLC are read to internal touch address stations [0000~0009].

40.4.2 [Write] communication method

[Write] is an action where data from internal addresses of the touch are written to consecutive PLC addresses. The amount of data read is equal to the [Comm data length].

The setting method is as follows.

1. Select [Write] as the comm mode.
2. Set the internal touch address to read from.
3. Set the address of the PLC (external device) to write the read data to.
4. Enter the comm data length.



[Fig. [Write] communication method]

As the comm data length is in [word] units, this is the number of 16 bit addresses.

When the settings are made as shown in the figure above, if the comm tag conditions are satisfied, the data in internal touch address stations [0100~0109] is written to stations [D0010~D0019] of the PLC.

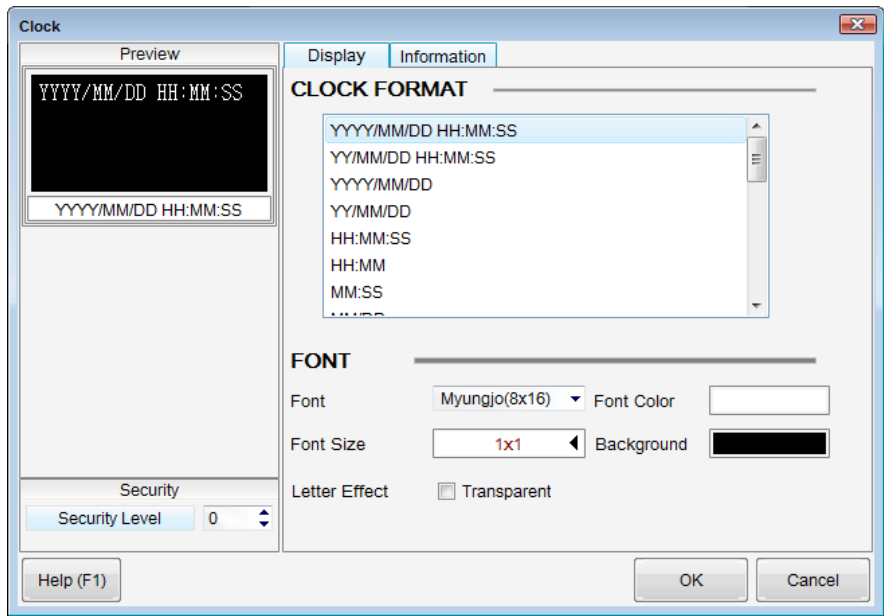
CHAPTER 41 Clock Tag

CHAPTER 41 - Clock Tag

41.1 Clock tag overview

The date and time are displayed. Date and time info is indicated on the bottom of the touch menu screen. Also, time data is saved in the special touch addresses [_RTC_YER(year)], [_RTC_MTH(month)], [_RTC_DAY(day)], [_RTC_HUR(hour)], [_RTC_MIN(minute)], [_RTC_SEC(second)], and [_RTC_DAYOFWEEK(day of week)].

Date and time can be changed in the menu screen. When special address data is changed, all date and time settings are changed.



[Fig. Clock tag properties screen]

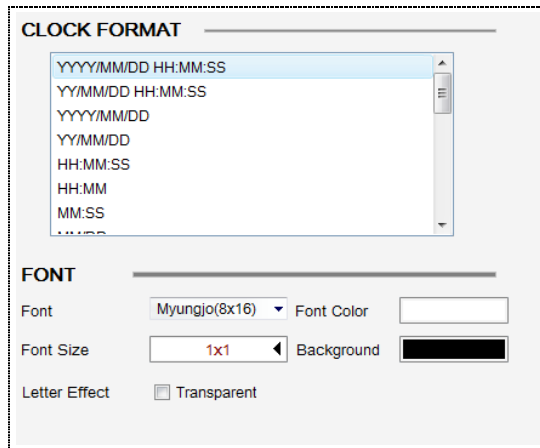
41.2 Page composition of the clock tag properties screen

Clock tag properties has 2 pages : [Display] and [Information].

Property page	Description
Displays	Set the format for date and time display, and set the font and color.
Information page	On this page, clock tag info is displayed. The number of the registered screen, tag ID, time created and time modified, and location and size are shown. Location info canbe edited.

41.3 Display page

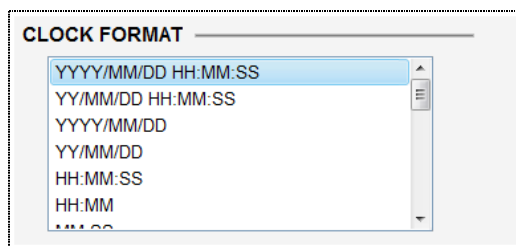
Set the format for date and time display, and set the font and color.



[Fig. Display page]

41.3.1 Clock format

Select the format for date and time display. Y-Year, M-Month, D-Day indicate the date, and H-HOUR, M-MINUTE, and S-SECOND indicate time.

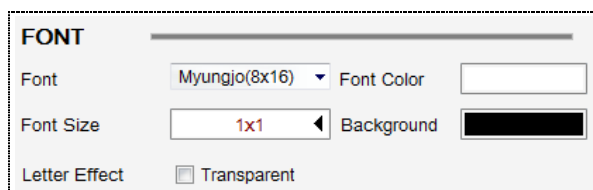


[Fig. Selecting the display format]

If [Year] is YYYY, [2010] is displayed. If this is YY, then [10] is displayed only.

41.3.2 Font

Set the text font, size, color, background color, and text effect for text displayed in the clock tag.



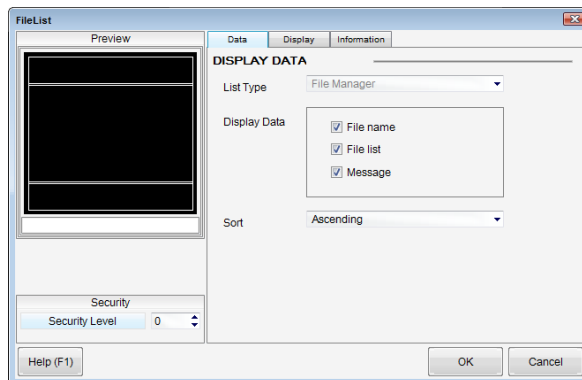
[Fig. Font setting]

Font setting	Description
Font	Select the font for text indicating date and time.
Font color	Select the color for text indicating date and time
Font size	The width/height of the font selected under font is magnified by the font size.
Background color	Select the background color for text indicating date and time
Letter effect	The background of text used to indicate date and time is made transparent.

CHAPTER 42 Filelist Tag

42.1 Filelist overview

The filelist tag is a tag that shows a list of files in the internal memory of the touch, the CF memory card, and USB memory storage device, and copies these files. After registering two file lists, by using the special functions button for touch tags, files in memory can be copied. This is the properties screen for the filelist.



[Fig. Filelist properties screen]

42.2 Page composition of the filelist tag properties screen

The filelist tag properties screen comprises the [Data], [Display], and [Information] pages.

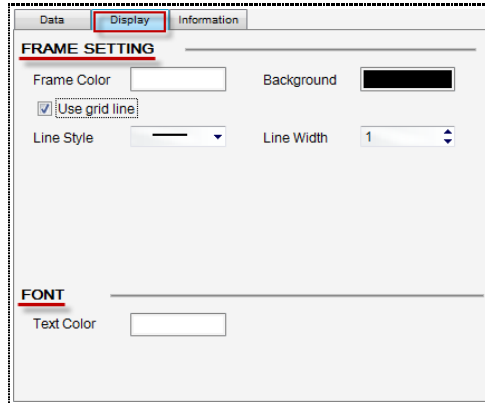
Property page	Description
Data	Data to be displayed on the filelist is set from this page.
Displays	The design of the filelist is set from this page.
Information	On this page, filelist info is displayed. The number of the registered screen, tag ID, time created and time modified, location and size are shown. Location and size info can be edited.

42.3 Data page

Data	Description
Display data	<p>Select the data to be displayed, from file name, file list, and message.</p> <div style="border: 1px solid gray; padding: 5px; width: fit-content; margin: 10px auto;"> <input checked="" type="checkbox"/> File name <input checked="" type="checkbox"/> File list <input checked="" type="checkbox"/> Message </div> <p>[File name] displays the folder name on top. [File list] shows a list of files contained in the selected memory.</p> <p>[Message] shows messages such as [Fail!/No File!/Copying!/Success!] when moving files.</p>
Align	<p>Select between ascending and descending alignment. [Ascending] aligns the file list in ascending order.</p> <p>[Descending] aligns the file list in descending order.</p>

	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> Ascending Descending </div>
--	--

42.4 Display page

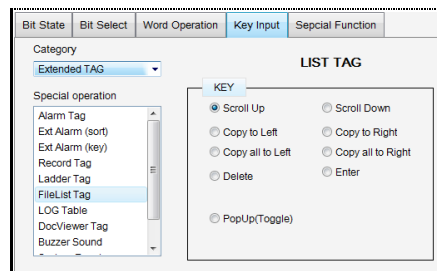


[Fig. Display page]

Displays	Description
Frame color	Set the frame color.
Background color	Designate the background color.
Use grid line	When checked, horizontal grid lines are drawn in the file list
Line style	Select the line style.
Line width	Select the line width, from 1~2dot.
Font color	Set the color of the text displayed.

42.5 Touch buttons used in the file list

As seen in the following figure, 7 touch buttons are used in the filelist.



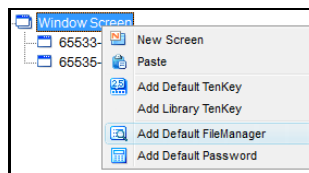
[Fig. Filelist touch buttons]

Touch button	Description
Scroll Up	[Scroll Up] moves the files in the file list up by 1 position.
Scroll Down	[Scroll Down] moves the files in the file list down by 1 position.
Copy to Left	Is used when two file lists are registered. This copies the selected files in the left file list to

	the selected memory in the right file list.
Copy to Right	Is used when two file lists are registered. This copies the selected files in the right file list to the selected memory in the left file list.
Pop Up (Toggle)	[Pop Up(Toggle)] causes the [File manager] registered to the window screen in the base screen to pop up. Touch once to pop-up, and touch again to dismiss.
Enter	[Enter] is used when using the [CF-recipe] function. Select a recipe file saved on the CF memory card, then press the [ENTER] button to move the recipe data to the [Save address for recipe move].
Delete	Deletes the selected files.

42.6 Searching/copying files using File manager

In file manager, two file lists are registered, allowing for searching and copying of files among the internal touch/CF/USB memory. The following can be added to the file manager in the popup menu that is brought up by clicking the right mouse button on [Window screen] in the [Project manager]. When [Add file manager window screen] is run, the screen is registered as window screen number [65530].



[Fig. Add file manager window]

When the file manager is run from the touch, the display is as shown in the figure below.



[Fig. File manager in operation]

There are two file lists, and the [File list] part of each file list shows the respective memory. Touch [TOP], [CF], or [USB], and a list of files contained in the selected memory is shown.



[Fig. Title created using the [Window Move] function touch tag]

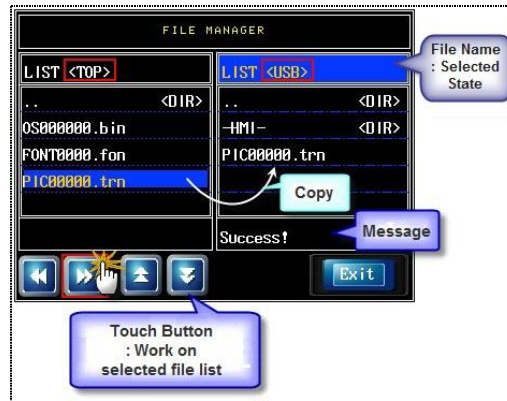
The part on top with the title [FILE MANAGER] is a touch tag containing the [Window Move] function.

Therefore, when this part is touched, and then the base screen part is touched, the [File Manager Window Screen] is moved to the position of the base screen that was touched.

On the bottom, the [Move file] and [Scroll up/down] touch buttons are registered.

(Note) The Up/Down buttons only work if the [LIST] part on top is touched to enable these buttons.


When the [Exit] button is pressed, the file manager window screen is closed. Next, the file manager is shown displaying a file list for the selected [TOP], [CF], or [USB] memory, and copying the files to other memory.



[Fig. File manager in operation]

The file list on the left shows a list of files in <Touch memory>, and the file list on the right shows a list of files in the <USB memory storage device>.

[OS000000.bin] is an OF file. [FONT0000.fon] is a FONT file. [PC000000.trn] is a project file.

In the file list on the left, select the files to copy by touching. Then touch the  (Copy to Right) button on the bottom. The files are copied from the left file list to the selected memory, and the copy status is indicated with a message on the bottom (Success!). Conversely, files in the right file list can be selected to the memory selected in the left file list.

(Note) Using file manager, project (*.TRZ), OS(*.bin), and Font(*.fon) files saved in the touch device can be saved to USB memory/CF cards. **However, project (*.TRZ), OS(*.bin), and Font(*.fon) files saved in USB memory/CF cards cannot be copied to the touch device.**

Logging/alarm/recipe data saved in the touch device is not stored in file form; therefore these cannot be copied to USB memory/CF cards using file manager. However, using [Interface]-[USB Storage]-[File Copy] in the menu screen of the touch device, project, OS, Font, internal address data, and logging data can be copied to USB memory.

Conversely, using [Interface]-[USB Storage]-[File Copy] in the menu screen of the touch device, project, OS, and font files in USB memory can be loaded into the touch device. See Chapter 45 for this function.

Using File Manager, files can be copied between USB memory and CF cards.

CHAPTER 43 DocViewer Tag

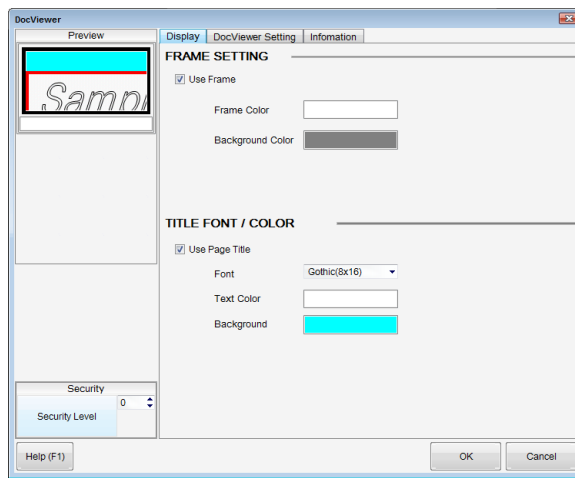
CHAPTER 43 - DocViewer Tag

43.1 DocViewer tag overview

PDF documents saved in the CF memory card are displayed on the screen.

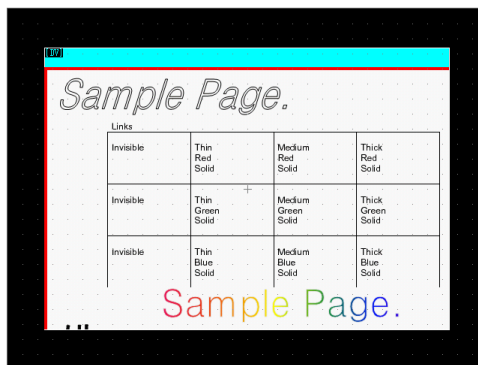
To use a DocViewer tag, [Tools]-[PDF Image Converter] in the menu must be used to convert PDF files into bitmap images which the touch can recognize. After creating an index file, the files must be saved on a CF memory card. (See [44.6] in [chapter 44] for [PDF image conversion].)

The entire [DOC] folder created after [PDF image conversion] is copied into the [-HMI-] folder of the CF memory card. When the CF memory card containing the [DOC] folder is inserted into the touch device, the DocViewer tag operates.



[Fig. DocViewer tag properties screen]

This is a DocViewer tag registered to the screen. In the edit screen, a [Sample page] is shown, as seen in the figure below.



[Fig. DocViewer tag registered to the edit screen]

A DocViewer tag in operation in the touch is shown. Through the DocViewer tag, images of the PDF files saved in the CF memory card are displayed. Underneath, buttons set with touch tag special functions are registered. These buttons can be used to navigate within a page of the document, shift pages, and zoom in/zoom out.



[Fig. DocViewer tag in operation]

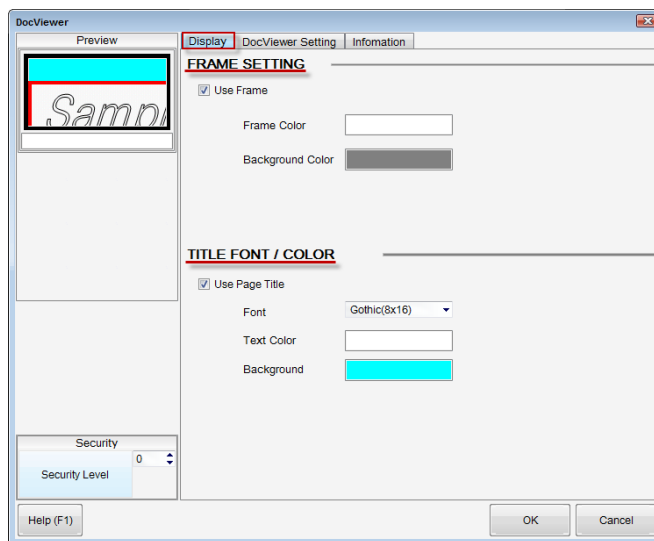
43.2 Page composition of the DocViewer tag properties screen

The DocViewer tag comprises three pages : [Display], [DocViewer setting], and [Information].

Property page	Description
Display page	Set the frame, and set the page title.
DocViewer setting page	The document ID, initial page number, page size, and scroll options are set.
Information page	On this page, DocViewer tag info is displayed. The registered screen number, tag ID, time created and modified, location and size, etc., are displayed.

43.3 Display page

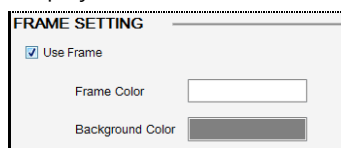
Set FRAME SETTING and TITLE FONT/COLOR.



[Fig. Display page]

43.3.1 Frame setting

Set the frame for the document to be displayed on the touch screen.

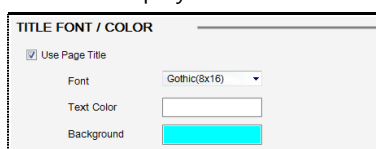


[Fig. Frame setting]

Frame setting	Description
Use frame	Select whether to use frames for the document displayed.
Frame color	Set the frame color.
Background color	Set the background color for the document display part.

43.3.2 TITLE FONT/COLOR

Perform settings for the document title to be displayed on the screen.

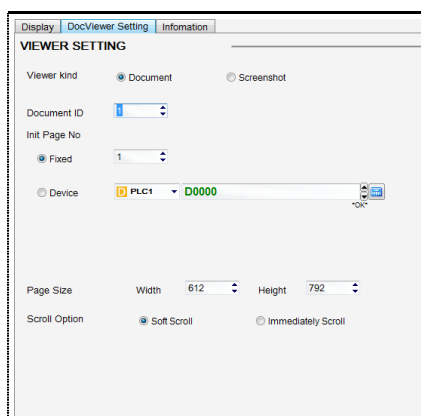


[Fig. Title font/color setting]

Title setting	Description
Use page title	Select whether to show the page title.
Font	Select the font for text indicating the title.
Hint font color	Set the color of the text indicating the title.
Background color	Set the background color of the text indicating the title.

43.4 DocViewer setting page

Select the document ID to be shown in the DocViewer tag, and set the number of the page to be shown initially.

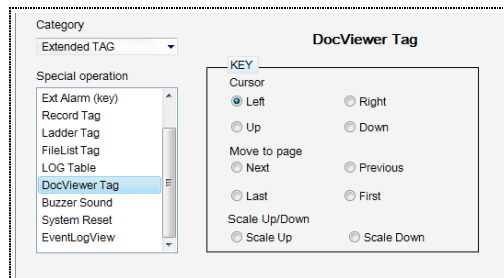


[Fig. DocViewer setting page]

DocViewer setting		Description
Document ID		Enter the number of the folder to use, among the folders contained in the CF memory card. (1~256) The folder where documents are contained is the [DOC] folder in the [HMI folder] of the CF memory card. The folder path when the document ID is entered as 1 is [CFW-HMI-WDOC#DOC1].
Initial page Number	Fixed	Enter the number of the page of the document to be displayed initially.
	Device	The data of the address entered becomes the number of the page to be displayed initially.
Page size	Width	Set the width of the page to display
	Height	Set the height of the page to display
Scroll option	Soft Scroll	Smooth scrolling when the page is scrolled
	Immediate scroll	Immediate scrolling when the page is scrolled

When a DocViewer tag is registered to the screen, buttons for moving the document, shifting pages, and zooming in/out are not generated automatically. When needed, touch tag special functions must be used to create separate buttons.

Set [Special functions] in the [Operations] page of the touch tag, as shown below. Select functions in [Extend TAG]-[DocViewer TAG], and register.



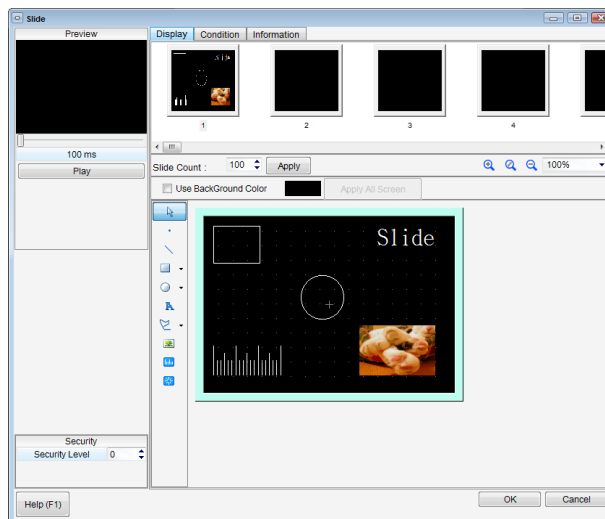
[Fig. DocViewer tag-related keys]

KEY		Description
Cursor	Left	Scrolls to the left.
	Right	Scrolls to the right.
	Up	Scrolls up.
	Down	Scrolls down.
Move to page	Next	Shifts to the next page.
	Previous	Shifts to the previous page.
	Last	Shifts to the first page.
	First	Shifts to the last page.
Scale Up/Down	Scale Up	Scales the document up.
	Scale Down	Scales the document down.

CHAPTER 44 Slide Tag

44.1 Slide tag overview

In this function, multiple screens are displayed on the screen in sequence with a certain time interval, giving an animation effect. 100 slides can be used, and only shapes can be registered. The slide can be set to operate and stop depending on the value of bit addresses or word addresses.



[Fig. Slide tag properties screen]

44.2 Page composition of the slide tag properties screen

The slide tag properties screen comprises the [Display], [Case], and [Information] pages.

Property page	Description
Display page	On this page, the number of slides is set, and each slide screen is edited.
Condition page	On this page, bit/word address value trigger conditions, the slide display interval, and the interval type are set.
Information page	On this page, slide tag info is displayed. The number of the registered screen, tag ID, time created and time modified, location and size are shown. Location and size info can be edited.

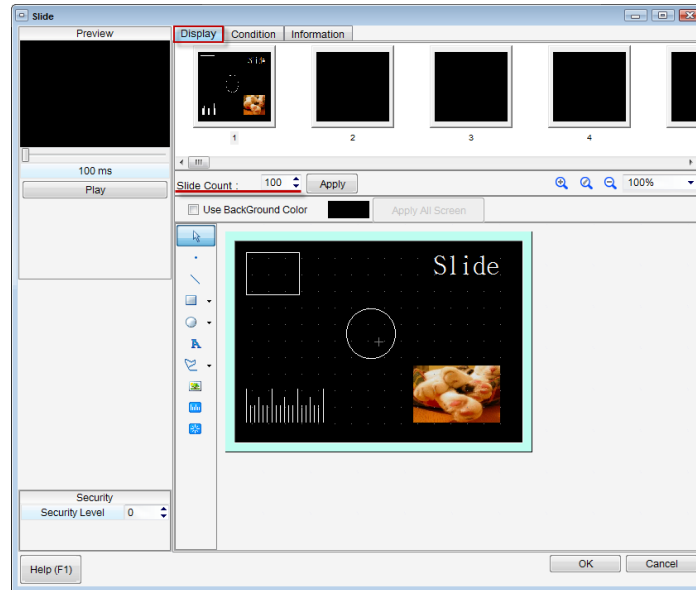
This is a slide tag registered to the screen. The screen of the first slide is displayed.




[Fig. Slide tag registered to the edit screen]

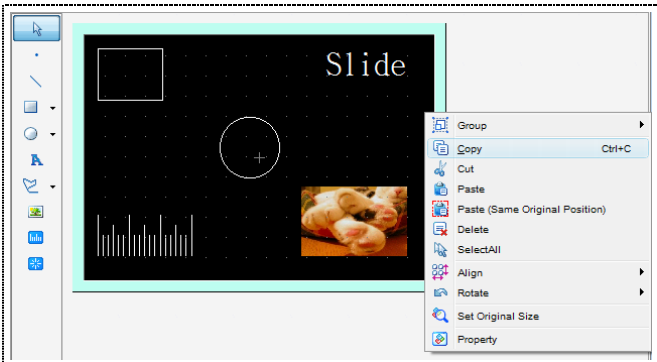
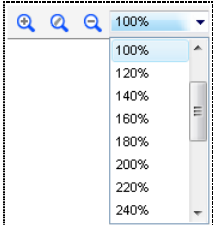
44.3 Display page

On this page, the number of slides is set, and shapes are registered on each slide screen and edited.



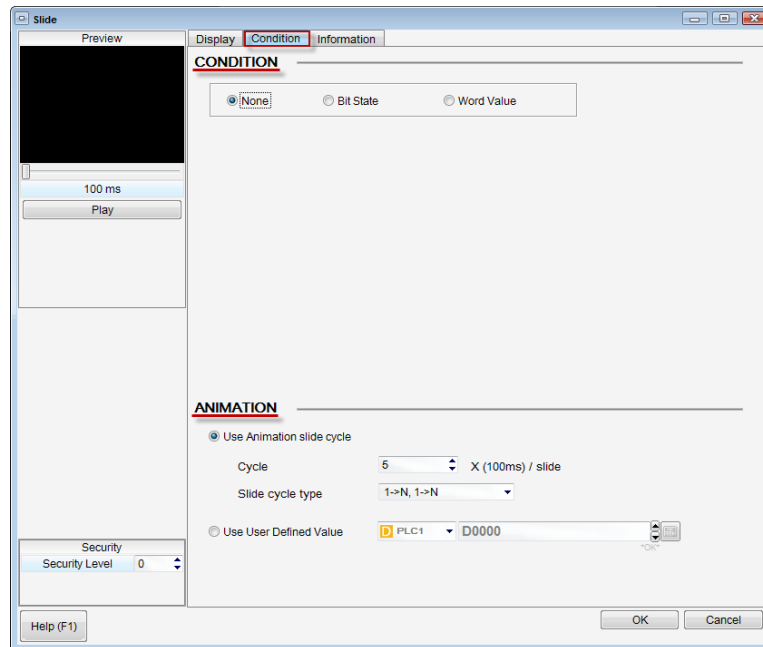
[Fig. Display page]

Slide	Description
Slide count	<p>Set the number of slides to be used. Up to 100 slides can be used, and thumbnails are provided for all screens. When a slide is clicked with the mouse, the edit screen is shown below, and shapes can be registered.</p> <p>As seen in the figure below, a number can be entered manually into [Slide count], or the number can be entered by pressing the arrow buttons. Press the Apply button to create the slides. Press the Apply button each time the number of slides changes, in order to apply the change.</p> 
Use background color	<p>Set a background color for the slide screen. Select the color to use, and press the Apply All Screen button to change the background color for all slides.</p>
Slide Edit screen	<p>Register shapes to each slide screen. Using the shape toolbar on the left, shapes can be drawn. By right clicking the mouse, the edit popup menu can be used. The size of the screen is the same as the size with which the slide tag has been registered to the base screen.</p>

	
Zoom in/Zoom out	<p>The slide edit screen can be zoomed in or out. This is useful when editing small slide tags. Zoom in or out by pressing the icons, or select the magnification ratio as seen in the figure below.</p> 

44.4 Condition page

On this page, bit/word address value trigger conditions for the slide tag, the slide display interval, and the interval type are set.



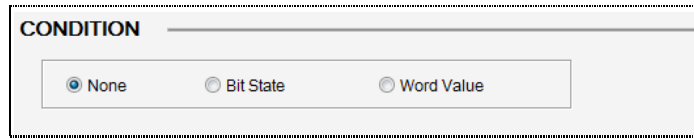
[Fig. Condition page]

44.4.1 Setting operating conditions

Set the slide tag to operate according to the ON/OFF state of a bit address, or the value of a word address.

(1) When set to [None]

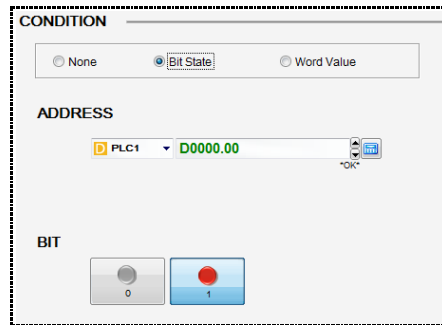
The slide tag operates at all times.



[Fig. When set to None]

(2) When set to [Bit state]

The slide tag is operated according to the state of the user designated bit address.

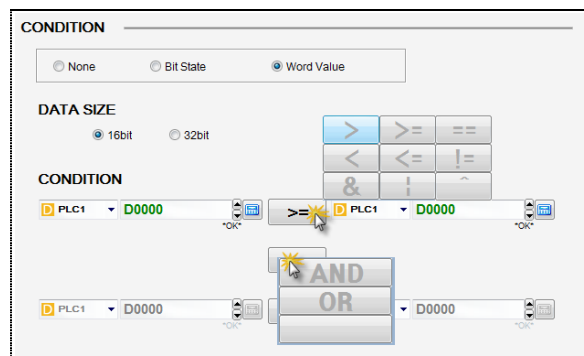


[Fig. When set to bit state]

Bit state		Description
Address		Set the bit address to use as the condition.
Bit	0	The slide operates when the designated bit address becomes OFF.
	1	The slide operates when the designated bit address becomes ON.

(3) When set to [Word value]

This function compares data, and operates the slide tag if the result is TRUE.



[Fig. When set to word value]

First, select the data size of the word address used as the condition between 16 bit and 32 bit.


Enter the word address to be used in the first item. In the second item, enter a word address to compare with the first item, or a constant value.

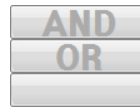
After entering, press the  button to select the comparative operator.



[Fig. Operators]

Operators	Description
>	Value is greater than
>=	Value is greater than or equal to
==	Value is equal to
<	Value is smaller than
<=	Value is smaller than or equal to
!=	Value is not the same
&	AND operator
	OR operator
^	XOR operator

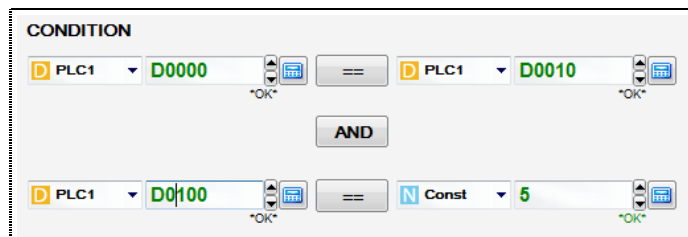
When using two calculation formulas, press the  button and select between the operators [AND, OR] in the figure below. This enables the address entry item in the bottom.



[Fig. Operators]

Operators	Description
AND	Operates if both calculation formulas are satisfied.
OR	Operates if either one of the two calculation formulas are satisfied.
	Calculation formulas are not used.

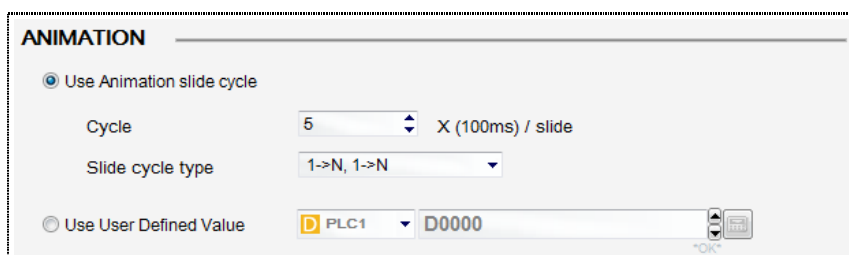
For example, if settings are performed as shown below, if word address [MW0000] is greater than [MW0010] and the [MW0100] value is [5], the slide tag operates, because both calculation formulas are TRUE (AND).



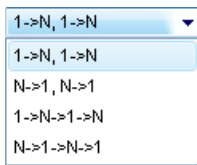
[Fig. Word value operation]

44.4.2 Animation setting

Set the animation cycle and cycle type, and set a word address to display slides depending on the value.



[Fig. Animation setting]

Animation	Description
Use animation slide cycle	The slides registered by the user are displayed in sequence on the screen, at a certain interval.
Cycle	Set the cycle in 100ms (0.1 second) units.
Slide cycle types	<p>Select the cycle type from the list below.</p>  <p>[1->N, 1->N] - Repeats displaying the slides in sequence, from slide 1 to the last slide. [N->1, N->1] - Repeats displaying the slides in sequence from the last slide to slide 1. [1->N->1->N] - Displays the slides in sequence, from slide 1 to the last slide, then reverses the order, displaying the slides in reverse sequence [N->1->N->1] - Displays the slides in sequence, from the last slide to slide 1, then reverses the order, displaying the slides in reverse sequence</p>
Use user defined value	Using a word address, the slide with a number matching the word value is displayed on the screen. If the word value is 1, slide number 1 is displayed, and if the value is 2, slide number 2 is displayed.

CHAPTER 45 Animation Function

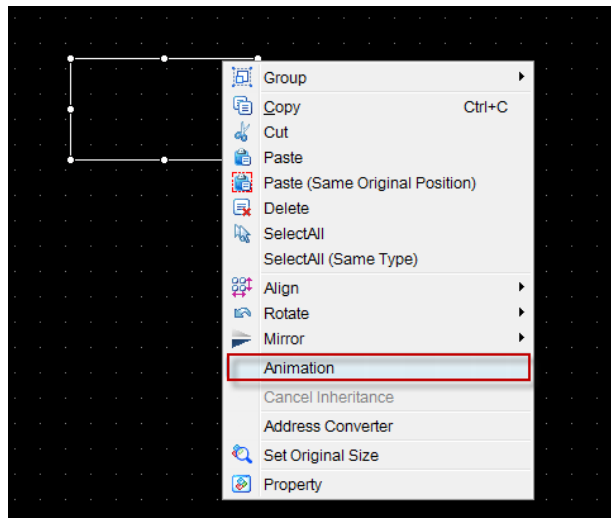
CHAPTER 45 - Animation Function

45.1 Animal function overview

This function applies animal effects to shapes and some tags registered to a screen, using simple settings.

The shapes and tags can move in sequence along preset coordinates, or rotated according to user defined angles. By setting the bit condition, the visible/invisible option where shapes and tags with animation settings are made visible or invisible can be set. The animation tag can be set to operate or stop according to the preset bit/word condition.

The animation tag can be run from the popup menu that appears when the right mouse button is clicked from the edit screen. With a shape or tag selected, right click the mouse to select [Animation] in the popup menu.



[Fig. Running the animation tag]

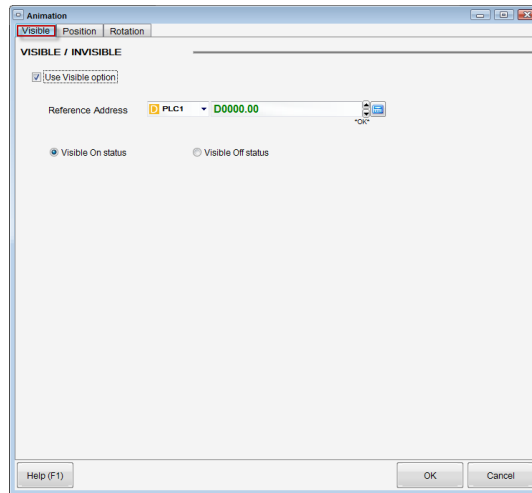
45.2 Page composition of the animal function properties screen

The animation tag properties screen comprises the [Visible], [Position], and [Rotation] pages.

Property page	Description
Visible page	On this page the [Visible/Invisible] function is set according to the ON/OFF state of a bit address.
Position page	On this page, movement along a track (X/Y coordinates) or movement range can be set for horizontal or vertical movement.
Rotation page	Depending on the angle, rotation in place can be set, or central coordinates can be set so that shapes and tags rotate around a center point.

45.3 Visible page

On this page the [Visible/Invisible] function is set according to the ON/OFF state of a bit address.

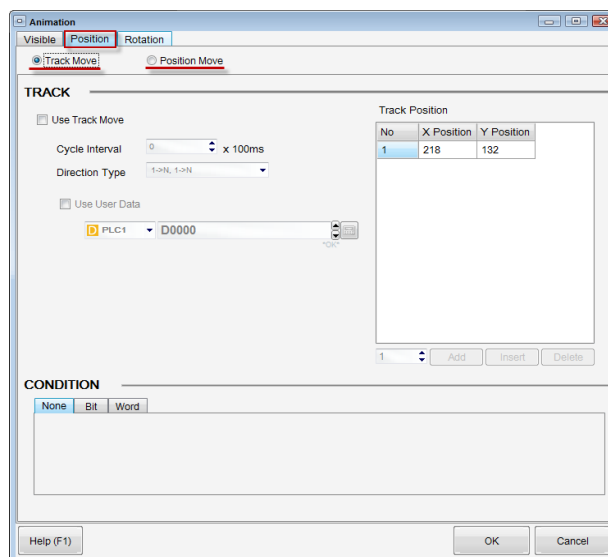


[Fig. Visible page]

Visible page	Description
Use visible option	Select whether to use the [Visible/Invisible] function for the shape or tag.
Reference address	Enter the bit address to be used in the [Visible/Invisible] function.
Visible ON status	The shapes and tags are visible when the bit address is ON.
Visible OFF status	The shapes and tags are visible when the bit address is OFF.

45.4 Position page

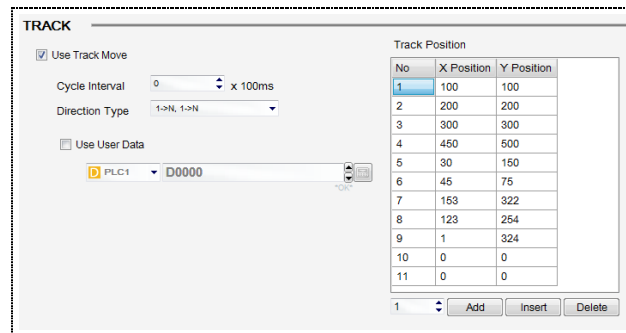
On this page, movement along a track (X/Y coordinates) or movement range can be set for horizontal or vertical movement.



[Fig. Position page]

45.4.1 Track move

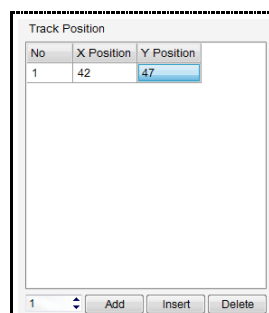
Shapes and tags move, following a sequence of X/Y coordinates.



[Fig. Track move]

Track	Description
Use track move	When the checkbox is selected, the track move animation effect is used.
Cycle interval	Set the time interval when shapes or tags move along the track.
Direction type	<p>Select the direction type from the list below.</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>1->N, 1->N</p> <p>N->1, N->1</p> <p>1->N->1->N</p> <p>N->1->N->1</p> </div> <p>[1->N,1->N] - Moves from track 1 to the track with the last number in sequence. This is repeated.</p> <p>[N->1, N->1] - Moves from the track with the last number to track 1, in sequence. This is repeated.</p> <p>[1->N->1->N] - Moves from track 1 to the last track, then moves again in the opposite direction. This is repeated.</p> <p>[N->1, N->1] - Moves from the track with the last number to track 1, then moves again in the opposite direction. This is repeated.</p>
Use user data	The value of the entered word address becomes [No] of the track. According to the data, shapes and tags are moved to the X/Y coordinates of the applicable track.

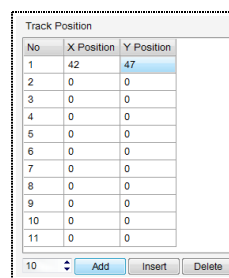
In [Track position], set the X/Y coordinates for the shape or tag to move to. The center of the shape/tag is the standard for X/Y coordinates.



[Fig. Track position]

Track position	Description
No	Displays the order of X/Y coordinates registered in the track.
X Position	Enter the value to use as the X coordinate. Enter the range of movement, not exceeding the resolution of the touch to be used. When double clicked, input can be entered.
Y Position	Enter the value to use as the Y coordinate. Enter the range of movement, not exceeding the resolution of the touch to be used. When double clicked, input can be entered.

The values of X and Y which were entered in [No 1] represent the current position of the shape or tag. Enter the number of tracks to use in the number entry box below, and press the **Add** button to add tracks as seen in the figure below.



[Fig. Track position]

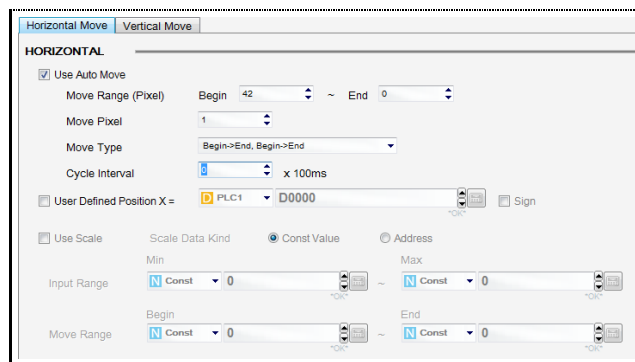
With a track selected, press the **Insert** button to add a new track above it. Pressing the **Delete** button deletes the selected track.

45.4.2 Position move

A move range is set, and the shape or tag moves horizontally or vertically. The shape or tag repeats moving by the set move range (pixel) within the move range. Also, the value of a user designated word address can be used as the horizontal or vertical move range.

(1) Horizontal move

A shape or tag is moved horizontally.

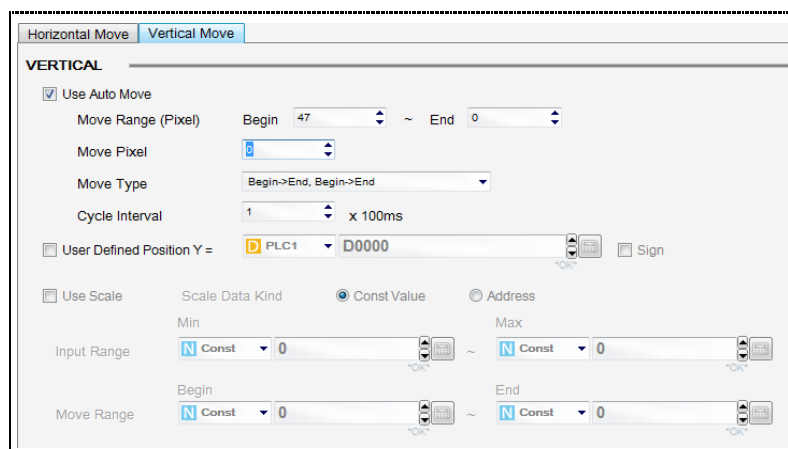


[Fig. Horizontal move]

Horizontal move	Description
Use auto move	The shape or tag repeats moving by the set move range (pixel) within the move range.
Move range (pixel)	Enter the start and end of the horizontal move range on the touch screen (X axis) in pixels. The default start value is the current position of the shape or tag. Enter the range of movement, not exceeding the resolution of the touch to be used.
Move pixel.	Enter the move units (pixel).
Move type	Select the move type from the list below. <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> 1->N, 1->N N->1, N->1 1->N->1->N N->1->N->1 </div> [1->N,1->N] - Moves from the [Start] coordinate to the [End] coordinate. This is repeated. [N->1,N->1] - Moves from the [End] coordinate to the [Start] coordinate. this is repeated. [1->N->1->N] - Moves from the [Start] coordinate to the [End] coordinate, then back to the [Start] coordinate again. This is repeated. [N->1->N->1] - Moves from the [End] coordinate to the [Start] coordinate, then back to the [End] coordinate again. This is repeated.
Cycle interval	Set the time interval when shapes or tags move according to the set move pixels.
User-defined horizontal position	By entering a word address, the value of the address can be used as the horizontal or vertical position for movement.
Use scale	The word address value and movement values used are scaled. The shape or tag is moved according to the proportion between the [Input range (word value)] and the [Move range (move value)]. If [Input range 0 ~ 2000] and [Move range 0 ~ 100], the proportion between the two ranges is 20:1. When the actual word address value is 800, the shape or tag is moved by 40 along the X axis.

(2) Vertical move

A shape or tag is moved vertically.

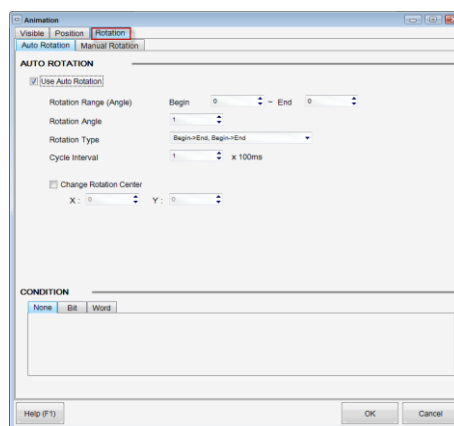


[Fig. Vertical move]

Vertical move	Description
Use auto move	The shape or tag repeats moving by the set move range (pixel) within the move range.
Move range (pixel)	Enter the start and end of the horizontal move range on the touch screen (Y axis) in pixels. The default start value is the current position of the shape or tag. Enter the range of movement, not exceeding the resolution of the touch to be used.
Move pixel.	Enter the move units (pixel).
Move type	Select the move type from the list below. <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> 1->N, 1->N N->1, N->1 1->N->1->N N->1->N->1 </div> <p>[1->N,1->N] -Moves from the [Start] coordinate to the [End] coordinate. This is repeated. [N->1,N->1] - Moves from the [End] coordinate to the [Start] coordinate. this is repeated [1->N->1->N] - Moves from the [Start] coordinate to the [End] coordinate, then back to the [Start] coordinate again. This is repeated. [N->1->N->1] - Moves from the [End] coordinate to the [Start] coordinate, then back to the [End] coordinate again. This is repeated.</p>
Cycle interval	Set the time interval when shapes or tags move according to the set move pixels.
User-defined vertical position	By entering a word address, the value of the address can be used as the horizontal or vertical position for movement.
Use scale	The word address value and movement values used are scaled. The shape or tag is moved according to the proportion between the [Input range (word value)] and the [Move range (move value)]. If [Input range 0 ~ 2000] and [Move range 0 ~ 100], the proportion between the two ranges is 20:1. When the actual word address value is 800, the shape or tag is moved by 40 along the Y axis.

45.5 Rotation page

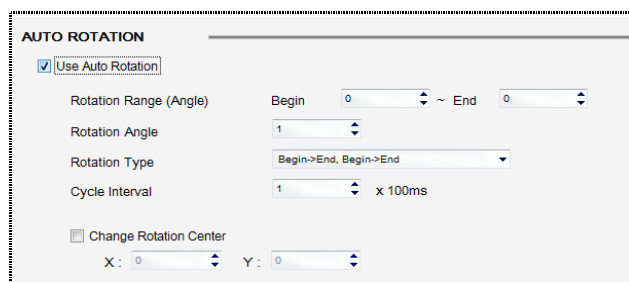
Depending on the angle, rotation in place can be set, or central coordinates can be set so that shapes and tags rotate around a center point.



[Fig. Rotation page]

45.5.1 Auto rotate

Automatic rotation according to the rotation range and angle.

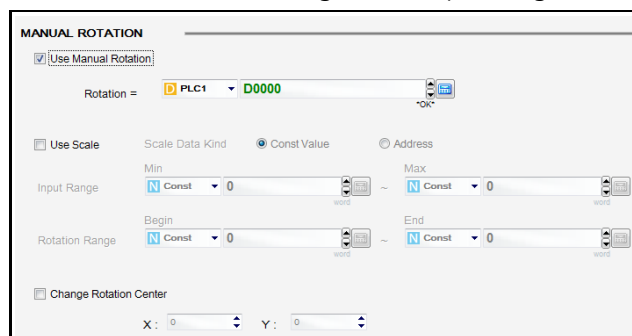


[Fig. Auto rotate]

Auto rotate	Description
Use auto rotate	Within the [Rotation range], rotation according to the set rotation angle is repeated.
Rotation range (angle)	Enter values between (1°~360°) for the [Start] angle and [End] angle for shape or tag rotation.
Rotation angle	Enter the rotation angle in 1° units.
Rotation type	<p>Select the rotation type from the list below.</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>1->N, 1->N</p> <p>N->1, N->1</p> <p>1->N->1->N</p> <p>N->1->N->1</p> </div> <p>[1->N,1->N] - Moves from the [Start] coordinate to the [End] coordinate. This is repeated. [N->1,N->1] - Moves from the [End] coordinate to the [Start] coordinate. this is repeated. [1->N->1->N] - Moves from the [Start] coordinate to the [End] coordinate, then back to the [Start] coordinate again. This is repeated. [N->1->N->1] - Moves from the [End] coordinate to the [Start] coordinate, then back to the [End] coordinate again. This is repeated.</p>
Cycle interval	Set the time interval when shapes or tags rotate according to the set rotation angle.
Change rotation center	When [Change rotation center] is used, the shape or tag does not rotate in place, but orbits around the point of intersection of the entered X/Y coordinates.

45.5.2 Manual rotate

Using the value of a word address as the rotation angle, the shape or tag is rotated.



[Fig. Manual rotate]

Manual rotate	Description
Use manual rotate	Rotate with the value of the word address entered as the angle.
Rotate	Enter the word value to use as the angle value.
Use scale	The word address value and rotation values used are scaled. The shape or tag is rotated according to the proportion between the [Input range (word value)] and the [Move range (rotation value)]. If [Input range 0 ~ 2000] and [Move range 0 ~ 100], the proportion between the two ranges is 20:1. When the actual word address value is 800, the shape or tag is rotated by 40°.
Change rotation center	When [Change rotation center] is used, the shape or tag does not rotate in place, but orbits around the point of intersection of the entered X/Y coordinates.

45.5.3 Operation conditions

All animation actions can be set to operate or stop by setting bit/word conditions.

(1) None

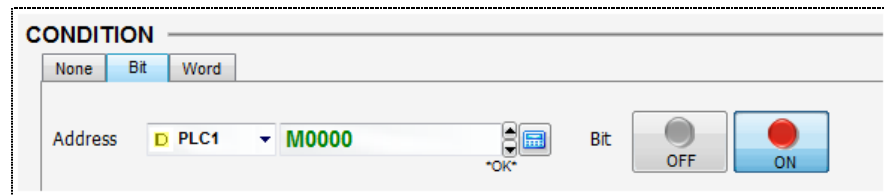
The animal tag is set to operate at all times, without using animal operation conditions.



[Fig. None condition]

(2) Bit condition (Bit)

The animation tag is operated according to the state of the user designated bit address.

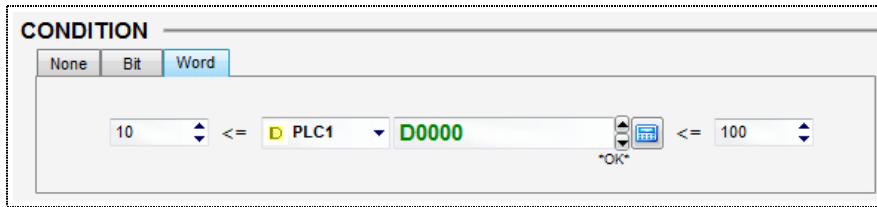


[Fig. Bit condition]

Bit condition		Description
Address		Enter the bit address to use in the operating condition.
Bit	0	If the state of the designated bit address is OFF, the animation tag operates.
	1	If the state of the designated bit address is ON, the animation tag operates.

(3) Word condition

When the value of the user designated word value is a value within the set range, the animation tag is operated.

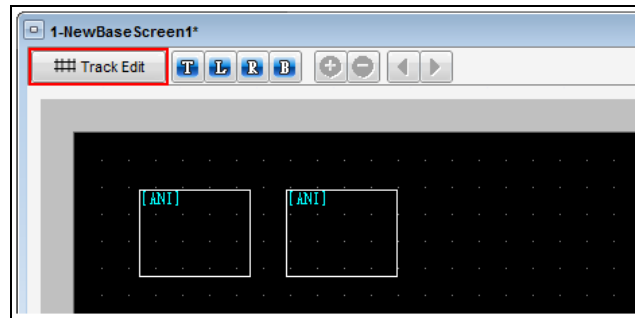


[Fig. Word condition]

If, as seen in the figure above, the value at station [D0000] is equal to or greater than 10, and smaller than or equal to 100, the animal tag operates.

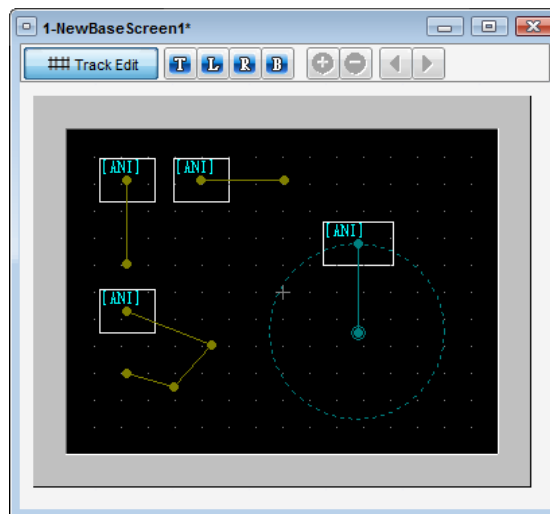
45.6 Track edit

The [Track], [Movement range] and [Rotation range] paths set in the animal tag can be changed manually in the edit screen. This function is located on the top of the edit screen, as shown in the figure below. Pressing the [Track Edit] button changes the edit screen.

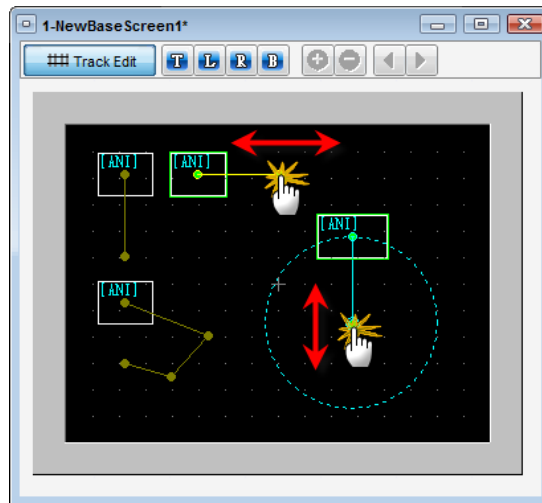


[Fig. Track edit]

When [Track Edit] is enabled as shown in the figure above, the path of each animal tag appears. By clicking and dragging dots connected to paths, the path can be changed.



[Fig. Edit screen set using Track Edit]



[Fig. Changing the path with the mouse]

CHAPTER 46 Tool Menu

CHAPTER 46 - Tool Menu

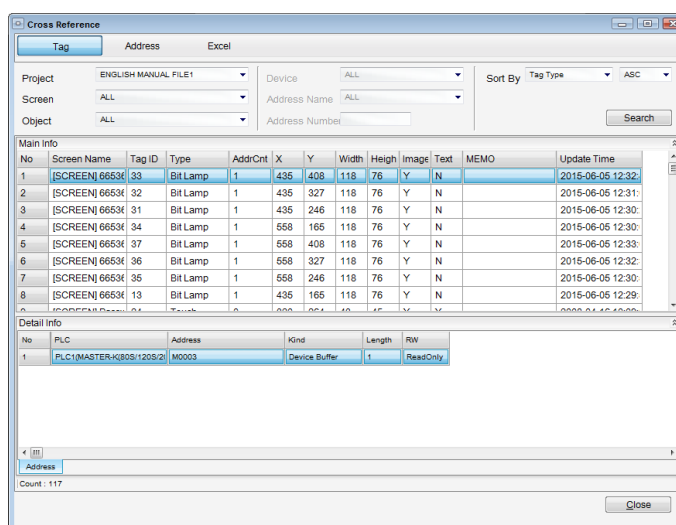
The tool menu includes additional functions for setting the editing options of the XDesignerPlus4 program, and effective project editing.

46.1 Cross reference

This function allows viewing of the PLC address used by the tags of the project, and the internal address of the touch body, according to screen, tag, or address. The viewed data can be converted into an Excel file and managed by the user. In [Address/tag cross reference], two major methods can be used for viewing. The address used can be viewed using the tag as the standard, or the registered tags can be viewed using the address used.

46.1.1 Searching addresses based on the tag

Select [Tag] from the [Tag]/[Address] button on top, then select the project, screen or object (tag type) to search, and click the [Search] button. Information corresponding to the search conditions is brought up on the screen.



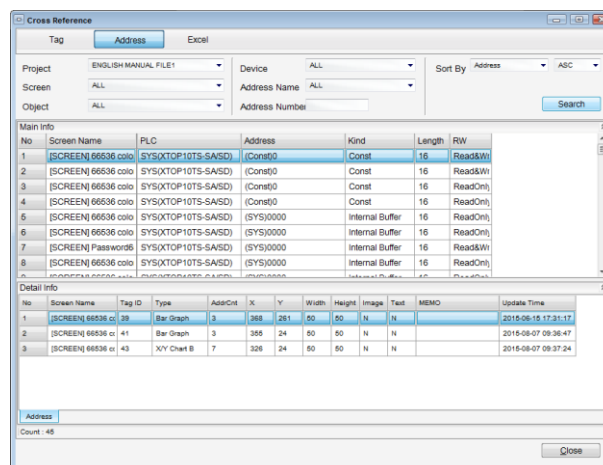
[Fig. Address/tag cross reference- Tag]

Tag	Description
Project	When using multiple projects, select the project to search
Screen	Select the desired screen from the screen list of the selected project.
Object	When searching for a particular tag, select the tag type.
Sort by	Searched information is sorted in ascending/descending order according to the selected criterion. Tag Type – Sort according to tag type. Tag ID – Sort according to the ID number of the tag. Screen Name – Sort according to the name of the screen. Screen Number – Sort according

		to screen number. ASC – Ascending order, DSC – Descending order
All info	No	Number of the searched info
	Screen Name	Name of the screen where the tag is located
	Tag ID	Unique ID of the tag
	Type	Type of the tag
	AddrCnt	The number of addresses set for the tag
	X	The X coordinate of the tag on the screen
	Y	The Y coordinate of the tag on the screen
	Width	Width of the screen
	Height	Height of the screen
	Image	Whether the tag uses images
	Text	Whether the tag uses text
	MEMO	Shows the content of memos under properties in tag attributes
Update	Date and time of last update	
Detailed info	No	Detailed info number
	PLC	The name of the PLC model or TOP model the address belongs to
	Address	The address being used in the tag
	Kind	The kind of address being used
	Length	The length of the data used by the address
	RW	Whether the address if ReadOnly or Read&Write
Count		Shows the total number of info items

46.1.2 Searching tags using addresses

Select [Address] from the [Tag]/[Address] button on top, then select the project, screen or object (tag type) to search, and click the [Search] button. Information corresponding to the search conditions is brought up on the screen.



[Fig. Address/tag cross reference- Address]

Address		Description
Project		When using multiple projects, select the project to search
Screen		Select the desired screen from the screen list of the selected project.
Object		When searching addresses for a particular tag, select the tag.
Device		Select the type of device to which the address to be searched belongs.
Address Name		Select the identifier of the address to be searched (applies only to PLC)
Address Number		Enter the number of the address to be searched.
Sort by		Searched information is sorted in ascending/descending order according to the selected criterion. Address – Sort by address. Screen Name – Sort according to the name of the screen. Address – Sort according to the type of address. ASC – Ascending order, DSC – Descending order
All info	No	Number of item
	Screen Name	Name of the screen where the address is located
	PLC	The name of the PLC model or TOP model the address belongs to
	Address	The address being used in the tag
	Kind	The kind of address being used
	Length	The length of the data used by the address
	RW	Whether the address if ReadOnly or Read&Write
Detailed info	No	Number of the searched info
	Screen Name	Name of the screen where the tag is located
	Tag ID	Unique ID of the tag
	Type	Type of the tag
	AddrCnt	The number of addresses set for the tag
	X	The X coordinate of the tag on the screen
	Y	The Y coordinate of the tag on the screen
	Width	Width of the screen
	Height	Height of the screen
	Image	Whether the tag uses images
	Text	Whether the tag uses text
	MEMO	Shows the content of memos under properties in tag attributes
Update	Date and time of last update	
Count		Shows the total number of info items

46.1.3 Convert to Excel

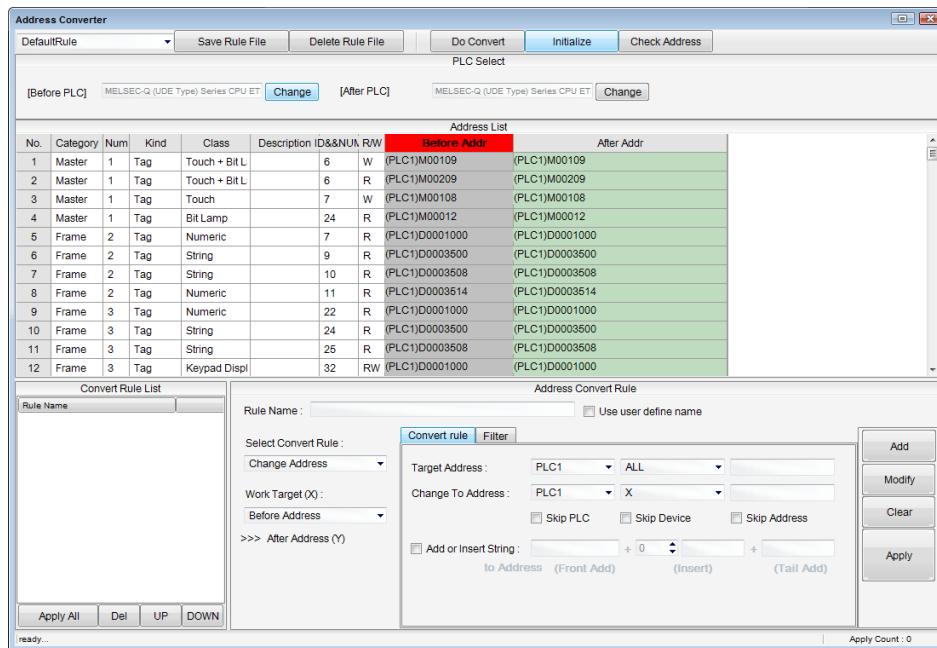
If the [Convert to Excel] button is clicked after [Tag]/[Address] search, the searched info is converted into an Excel file.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	No	Screen Name	Tag ID	Type	AddrCnt	X	Y	Width	Height	Image	Text	MEMO	Update Time	
2	1	[SCREEN] New	2	비트램프	1	141	19	79	63	N	Y		2010-06-07 9:26	
3	2	[SCREEN] New	3	워드램프	1	262	19	79	63	N	Y		2010-06-07 9:27	
4	3	[SCREEN] Defi	11	터치	0	85	249	53	53	N	N		2008-11-27 11:38	
5	4	[SCREEN] Defi	12	터치	0	24	249	53	53	N	N		2008-11-27 11:47	
6	5	[SCREEN] Defi	10	터치	0	146	189	53	53	N	N		2008-11-27 11:41	
7	6	[SCREEN] Defi	8	터치	0	24	189	53	53	N	N		2008-11-27 11:40	
8	7	[SCREEN] Defi	9	터치	0	85	189	53	53	N	N		2008-11-27 11:41	
9	8	[SCREEN] Defi	16	터치	0	207	189	53	53	N	N		2008-11-27 11:42	
10	9	[SCREEN] Defi	17	터치	0	207	249	53	53	N	N		2008-11-27 11:42	
11	10	[SCREEN] Defi	15	터치	0	207	129	53	53	N	N		2008-11-27 11:42	
12	11	[SCREEN] Defi	13	터치	0	146	249	53	53	N	N		2008-11-27 11:47	
13	12	[SCREEN] Defi	14	터치	0	207	69	53	53	N	N		2008-11-27 11:42	
14	13	[SCREEN] Defi	3	터치	0	85	69	53	53	N	N		2008-11-27 11:40	
15	14	[SCREEN] Defi	2	터치	0	24	69	53	53	N	N		2008-11-27 11:40	
16	15	[SCREEN] New	1	터치	1	18	19	82	63	N	N		2010-06-07 9:26	
17	16	[SCREEN] Defi	4	터치	0	146	69	53	53	N	N		2008-11-27 11:40	
18	17	[SCREEN] Defi	7	터치	0	146	129	53	53	N	N		2008-11-27 11:40	
19	18	[SCREEN] Defi	6	터치	0	85	129	53	53	N	N		2008-11-27 11:40	

[Fig. Convert to Excel file]

46.2 Address converter

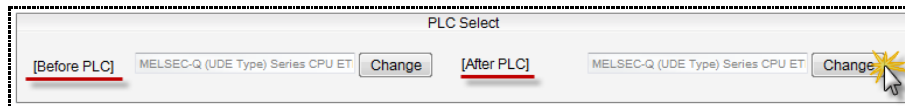
This function allows searching of all addresses registered to a project. Some addresses can be changed on the same PLC, and all addresses can be changed by changing the PLC model. The user can change addresses manually in the [Address List], but by using the [Address Convert Rule] function, it is possible to convert a large number of addresses in batch.



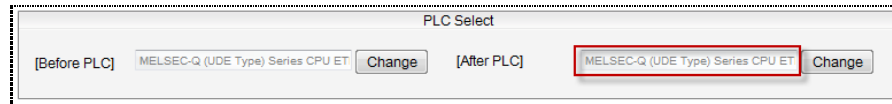
[Fig. Address Converter]

46.2.1 PLC Select

Different PLC models can be set for the PLC currently being used and the PLC after the change. When the [Address Converter] is run, the PLC model name set for the project at hand is displayed, as shown in the figure below. To change to the address of another PLC model, press the **Change** button of the [Before PLC] and select the model name of the applicable PLC.



[Fig. PLC Selection]



[Fig. PLC Change]

46.2.2 Address List

Info on all addresses registered to the project, and changed addresses can be viewed.

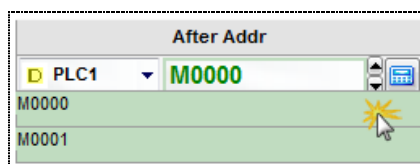
In the [After Addr] list, the user can change addresses manually.

Address List									
No.	Category	Num	Kind	Class	Description	ID&NUM	R/W	Before Addr	After Addr
1	Master	1	Tag	Touch + Bit L		6	W	(PLC1)M00109	(PLC1)M00109
2	Master	1	Tag	Touch + Bit L		6	R	(PLC1)M00209	(PLC1)M00209
3	Master	1	Tag	Touch		7	W	(PLC1)M00108	(PLC1)M00108
4	Master	1	Tag	Bit Lamp		24	R	(PLC1)M00012	(PLC1)M00012
5	Frame	2	Tag	Numeric		7	R	(PLC1)D0001000	(PLC1)D0001000
6	Frame	2	Tag	String		9	R	(PLC1)D0003500	(PLC1)D0003500
7	Frame	2	Tag	String		10	R	(PLC1)D0003508	(PLC1)D0003508
8	Frame	2	Tag	Numeric		11	R	(PLC1)D0003514	(PLC1)D0003514
9	Frame	3	Tag	Numeric		22	R	(PLC1)D0001000	(PLC1)D0001000
10	Frame	3	Tag	String		24	R	(PLC1)D0003500	(PLC1)D0003500
11	Frame	3	Tag	String		25	R	(PLC1)D0003508	(PLC1)D0003508
12	Frame	3	Tag	Keypad Displ		32	RW	(PLC1)D0001000	(PLC1)D0001000

[Fig. Address List]

Address List	Description
No.	The number of the address in the list.
Category	The type of screen where the address is located.
Num	The number of the screen where the address is located.
Kind	The parent category of the tag where the address is used.
Class	The child category of the tag where the address is used.
Description	The content of the memo registered in the properties of the tag.
ID&NUM	The ID of the tag.
R/W	The type of address. (READ/WRITE)
Before Addr	The address before conversion.
After Addr	The address after conversion.

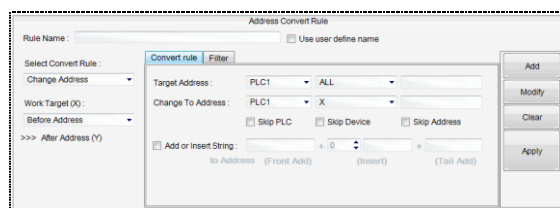
By double clicking an address shown in the [After Addr] list, the address can be entered manually.



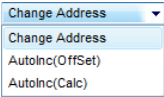
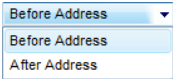
[Fig. Manual address entry]

46.2.3 Address Convert Rule

Batch conversion of all addresses can be performed using [Convert Rules] set by the user. Also, multiple rules can be added to the [Convert Rule List] and applied in batch. There are three types of [Convert Rule]: [Change Address], [AutoInc(OffSet)], and [AutoInc(Calc)].

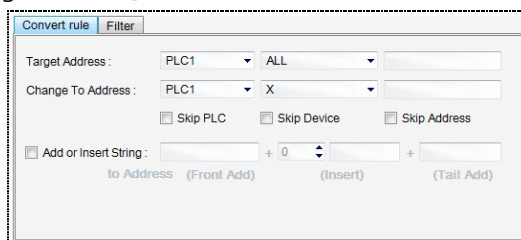


[Fig. Address Convert Rule]

Address Convert Rule	Description
Rule name	Set the name of the rule. Select [Use user define name] to apply the rule name.
Convert Rule	<p>Select the type of convert rule from the list below.</p>  <p>Change Address – Change the number of the address. AutoInc(OffSet) – Increase the address, using the OffSet method. AutoInc(Calc) – Increase the address, using the Calc method.</p>
Task target	<p>Select the address list to apply the set rule to.</p> 
Add	Add the set rule to the [Convert Rule List].
Modify	Modify the selected rule in the Rule List.
Erase	Erase the Rule List that has been entered.
Apply	Apply the set convert rule. The rule is applied to the [Address List] only, and not the actual addresses.

(1) Change Address (Address conversion)

The address entered into [Target Address] is converted into the address entered in [Change To Address].



[Fig. Address Convert]

Address Convert	Description
Target Address	Select the PLC number and name of the address to convert, and enter the address.

Change To Address	Modify the [Change To Address] and enter the address to apply.
Skip PLC	Change the Device and Address, skipping PLC.
Skip Device	Change the PLC number and Address, skipping Device.
Skip Address	Change the PLC number and Device, skipping Address.
Add or insert string	Add or insert a string into the address.

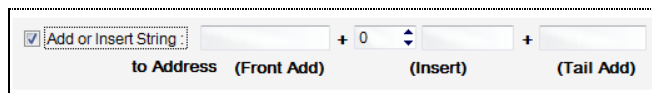
As shown in the figure above, if [ALL,100] is entered into [Target Address] and [M, 200] is entered into [Change To Address], the Device is changed to M and the 100 is changed to 200 for all addresses that include 100.

① Wildcards

Addresses can be changed using wildcards. With addresses [M0100, M0101, M0102...M0199], entering [M, 01**] in [Target Address] and enter [K, 02**] in [Change To Address] then converts the addresses to [K0200, K0201, K0202...K0299].

② Add or insert string

Add a string behind or in front of the address, or insert a string into the address.



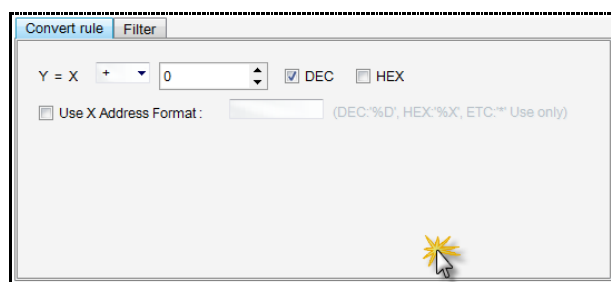
[Fig. Add or insert string]

Add or insert string	Description
Front Add	Enter the string to add to the front of the address.
Insert	Enter the string to add behind the address.
<input type="text" value="0"/>	Enter the place of the location to insert the string. (Counting from the front)
Tail Add	Enter the string to add behind the address.

With the above settings, when [M01000] is changed to [M0200], the string is added and the result of [MA02B00C] is returned.

(2) AutoInc OffSet (Automatic address increase, Offset method)

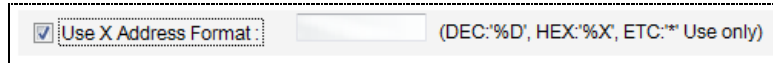
The address is automatically increased, using the Offset method. Operators such as [+ , - , * , /] can be used to increase or decrease the address: $Y(\text{Converted address}) = X(\text{Target address}) + N$



[Fig. Automatic address increase, Offset method]

① Use X address format

In the case that in a certain PLC, the address is composed of numbers and letters, an address format can be set and used so that only the number part is converted.

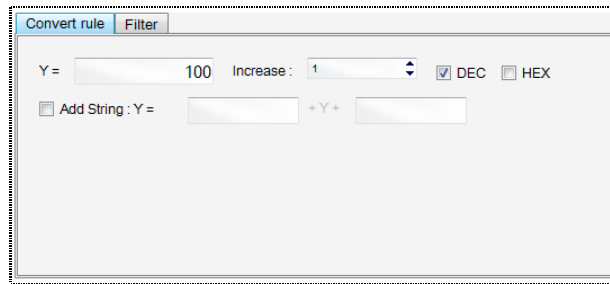


[Fig. Use X address format]

When the address is [INPUT100AB], enter [*****%03D**] into [Use X address format] to increase/decrease only the number part of the address.

(3) AutoInc Calc (Automatic address increase, Calc method)

A fixed user designated value to increase/decrease the value of the address is applied to all addresses :
 $Y(\text{converted address}) = \text{constant} + N$.

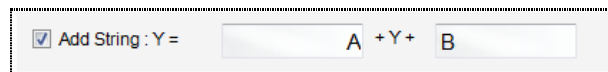


[Fig. Automatic address increase, Calc method]

With the settings above, a batch increase of 1 starting from 100 is applied to all addresses. If -1 is entered, the addresses decrease in increments of 1.

① Add string

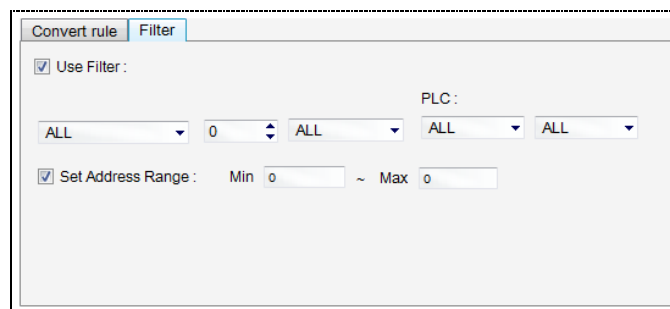
Add strings in front of or behind the converted address.



[Fig. Add string]

(4) Filter

Use to restrict the address conversion targets.

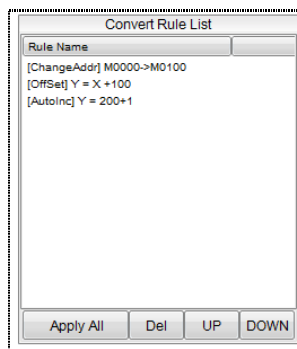


[Fig. Filter]

Filter	Description
Range	Select the screen type to restrict conversion for.
Number	Enter the number of the screen.
Class	Select the tag type to restrict conversion for.
Device	Select the device type to restrict conversion for.
Set address range	Set the address range to restrict conversion for.

46.2.4 Convert Rule List

Multiple rules can be added and applied in batch. Registered rules are applied in top-down order.



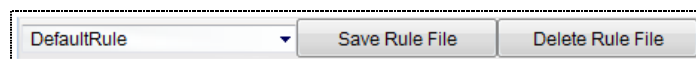
[Fig. Convert Rule List]

Convert Rule List	Description
Apply all	Convert addresses, applying the entire registered rule list.
Del	Delete the selected rule item.
UP	Move the selected rule item up.
DOWN	Move the selected rule item down.

46.2.5 Saving convert rules and converting addresses

(1) Saving convert rules

Save convert rules registered in the [Convert Rule List] to a file, or retrieve and delete previously saved rule files. The path where rule files are saved is [C:\Program Files\WM2I Corp\XDesignerPlus4\WRULE].

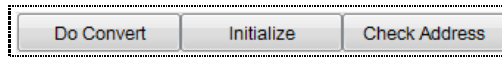


[Fig. Saving convert rules]

Saving convert rules	Description
Select rule file	Select a saved rule file.
Save Rule File	Save rules registered in the [Convert Rule List] as a file.
Delete Rule File	Delete the selected rule file.

(2) Address conversion

Convert actual addresses, applying the convert rules applied to the [Address List].

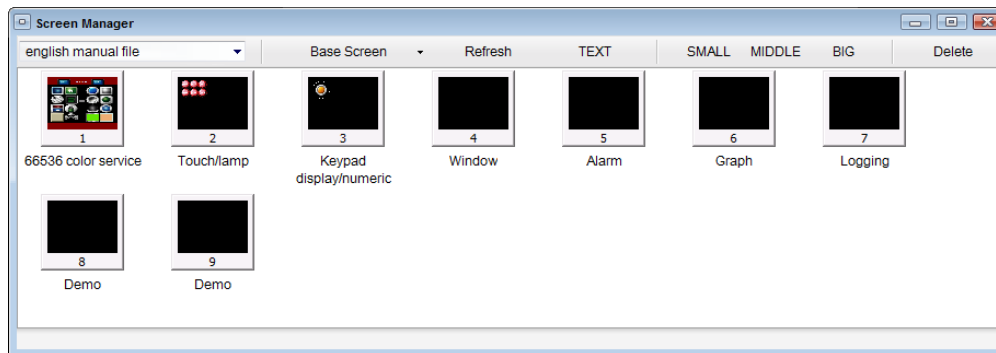


[Fig. Address Convert]

Address Convert	Description
Do Convert	Apply the converted addresses in the [Address List].
Initialize	Initialize the conversion applied to the [Address List].
Check Address.	Check the converted address for anomalies.

46.3 Screen Manager

All screens included in the project can be viewed and verified by type. Screens can be copied, deleted, or renamed.

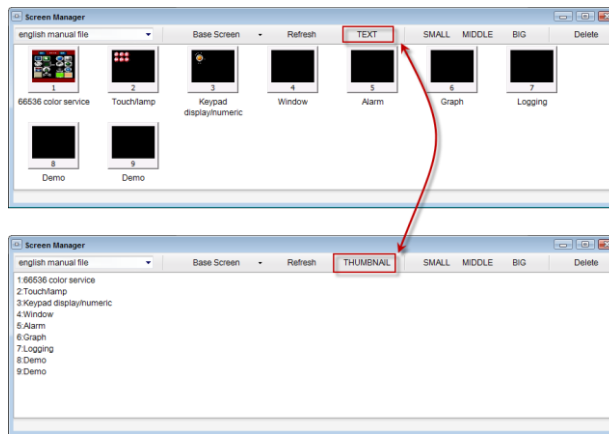


[Fig. Screen Manager]

Screen Manager	Description
Project	When using multiple projects, select the project to show in the screen list.
Base Screen	Select the type of screen to be shown in the screen list. Options are [Base Screen], [Window Screen], and [Sub Screen].
TEXT	Show a text list or thumbnails on the screen.
SMALL, MIDDLE, BIG	Adjust the size of the thumbnails.
Del	Delete the selected screen.

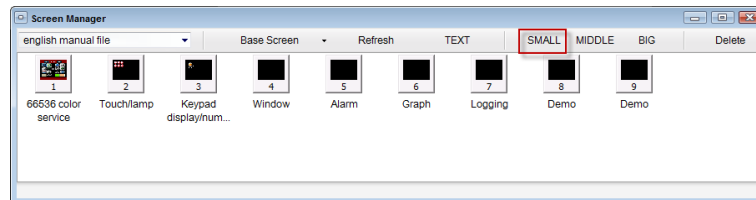
46.3.1 View

When using multiple projects, the project to be shown on the screen can be selected. Also, the screen type (base screen, window screen, sub screen) can be selected. The screens can be shown in a text list, or as small thumbnails.

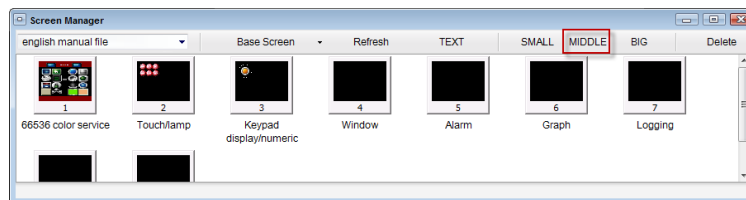


[Fig. Switching between text and thumbnail views]

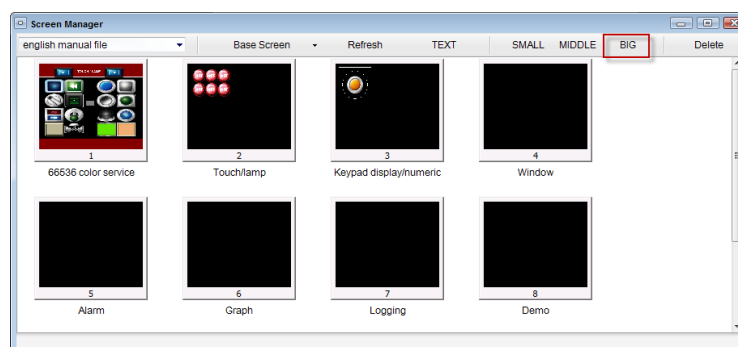
When displaying thumbnails, images can be adjusted among small, medium and big sizes, as shown in the following figures.



[Fig. Show small thumbnails]



[Fig. Show middle thumbnails]



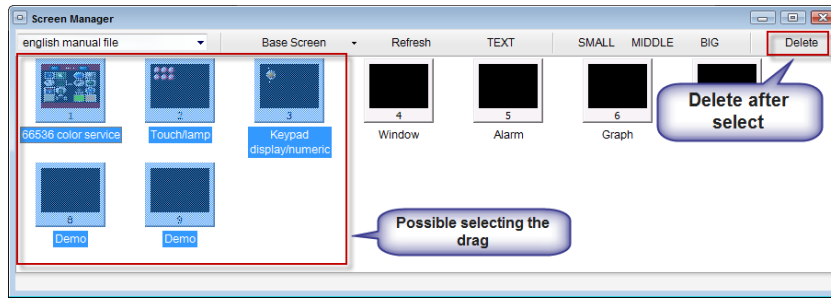
[Fig. Show big thumbnails]

46.3.2 Editing

(1) Deleting screens

Use the mouse to select the screen to delete in the screen list, and click Delete. Using Ctrl + Mouse click,

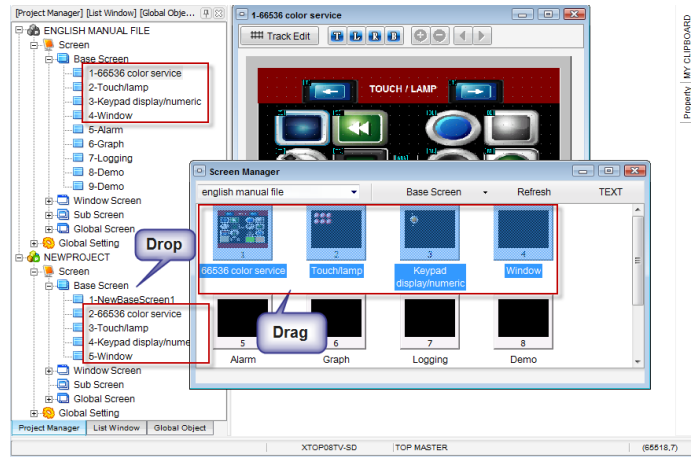
multiple screens can be selected or deselected. Alternatively, screens can be selected by dragging the mouse.



[Fig. Deleting screens]

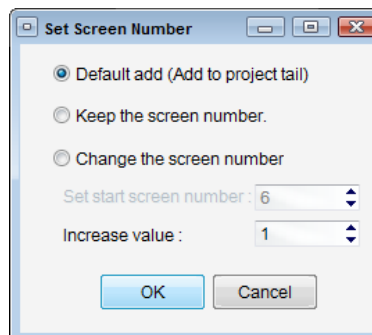
(2) Copying screens

In multiple projects, select the screens to copy. Drag them and drop them in [Screen type] of the desired project in the [Project Manager] to copy.



[Fig. Copying screens]

When [Drag & Drop] has been performed, a window for setting the number of the screen that was copied is shown.



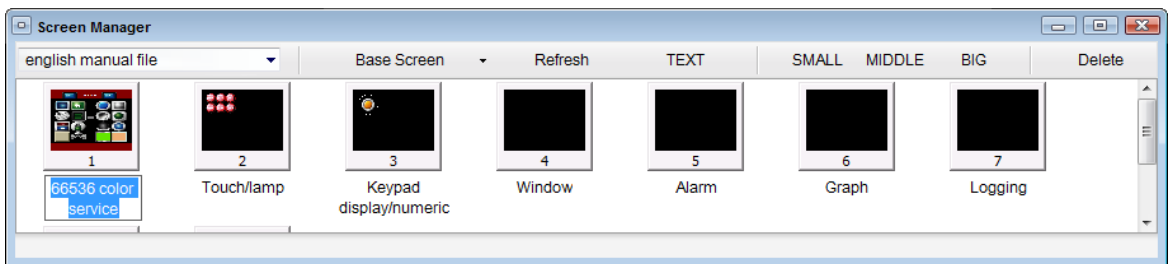
[Fig. Set screen number]

Set screen number	Description
Default add	Add following the largest number among the screen numbers in the project.
Keep the screen number	Keep the screen number from the project where the screen was copied.

Change the screen number	Designate the start screen number to use.
Set start screen number	Applies only when the [Change the screen number] menu is selected. The start screen number to be applied is set here.
Increase value	As multiple screens are copied, the value by which the numbers of the screens copied increases is set.

(3) Changing screen names

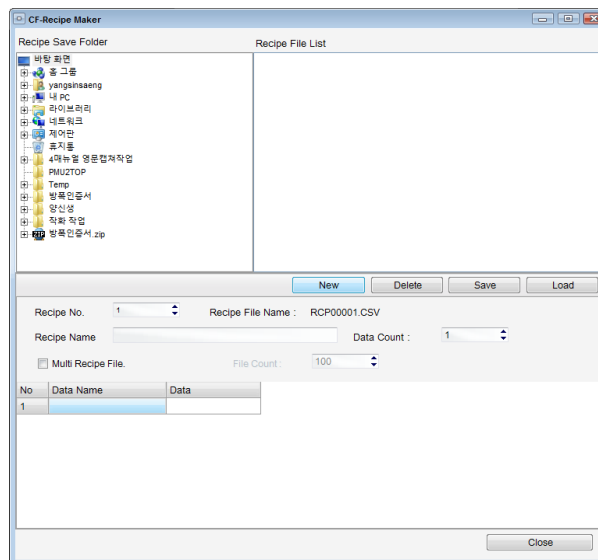
When a screen is selected, click the name of the screen again with the mouse to change the name of the screen.



[Fig. Changing screen names]

46.4 CF-Recipe Maker

This function allows for data to be stored and used in a CF card, instead of in the internal memory of the touch body. If recipe data is saved in a CF card, data capacity usage is not restricted to internal memory. The CF-Recipe Maker generates recipe data to be saved in a CF card.



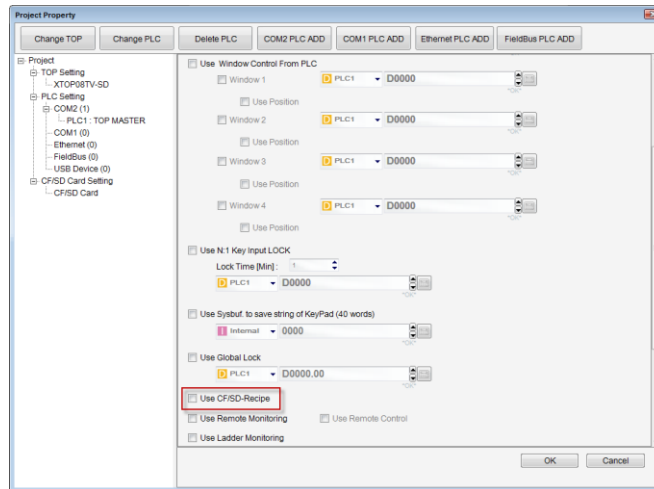
[Fig. CF-Recipe Maker]

46.4.1 Settings before using CF-Recipe

To use parameter blocks written in the [CF-Recipe Maker] in the touch body, the following settings must first be made.

(1) Project property

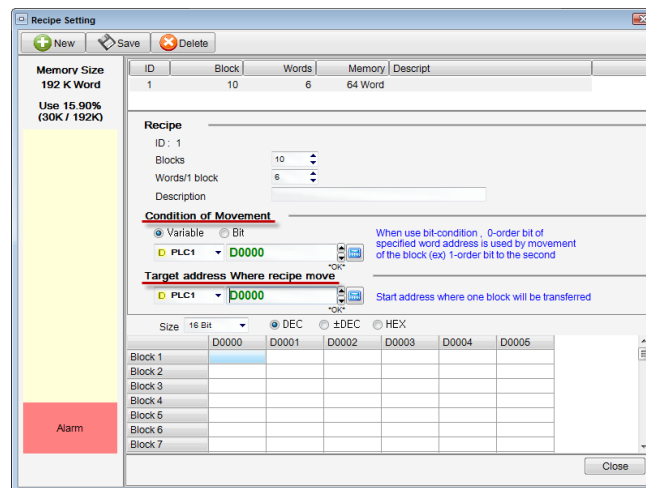
In order to use recipe data from a CF card, check [Use CF/SD-Recipe] in [Project]-[Project Property].



[Fig. Use CF/SD-Recipe]

(2) Recipe setting

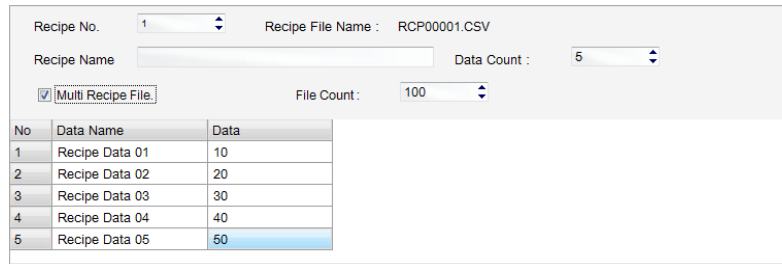
In the menu, select [Project]-[Recipe Setting] and set the [Condition of Movement] and the [Target address Where recipe move]. The number of recipe blocks and word count are determined by the number of files saved the CF card and the number of words saved in the file. Therefore the settings here are meaningless. After completing settings, save by clicking the [Save] button on top.



[Fig. Recipe setting]

46.4.2 Created CF-Recipe file

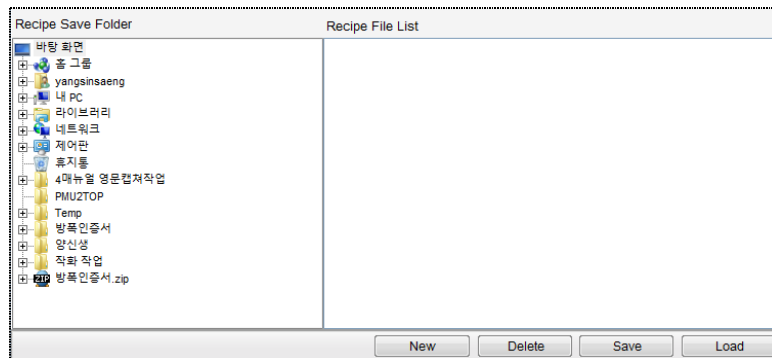
Recipe data is saved in the [-HMI-WRCF] folder of the CF card. Each block of recipe data is saved as a separate file. The file format is (*.CSV). That is, if 50 blocks are used, 50 files are needed.



[Fig. Write parameter block]

Parameter block	Description
Recipe no.	Enter the recipe number. Values between 1 and 65535 can be entered. The value entered is reflected in the file name. The number can be used later to retrieve the recipe.
Recipe file name	Displays the automatically generated recipe file name.
Recipe name	Enter the name of the recipe. Any name can be entered
Data count	Enter the number of words to be saved in the recipe file.
No.	This number is assigned sequentially.
Data Name	The name of each word in the recipe. Any name can be entered
Data	Actual recipe data. This data can be modified or set during operation.

After completing writing for a block, designated the recipe save folder as [-HMI-WRCP] in the CF card, and save by clicking the [Save] button.



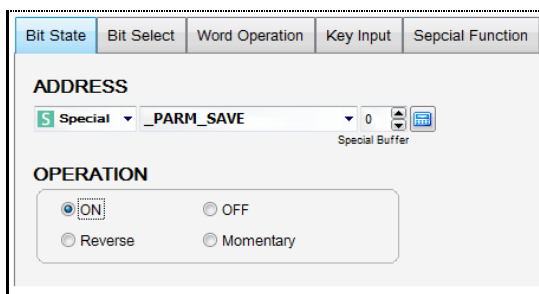
[Fig. Create recipe file]

File creation	Description
Recipe save folder	Select the folder to save the recipe file in. Set this to [-HMI-WRCP] in the CF card.
Recipe file list	Displays the existing recipe files saved in the folder.
New	Initialize all items written under [Write block].
Del	Delete the file selected in the [Recipe File List].
Save	Save the block written in [Write parameter block] as a file.
Load	Loads the file selected in the [Recipe file list] to the [Write block] part, and displays the file.

46.4.3 CF-Recipe load/save

The CF-Recipe load/save function is identical to when using internal memory. Therefore, for more detailed information, refer to Chapter 7.6.

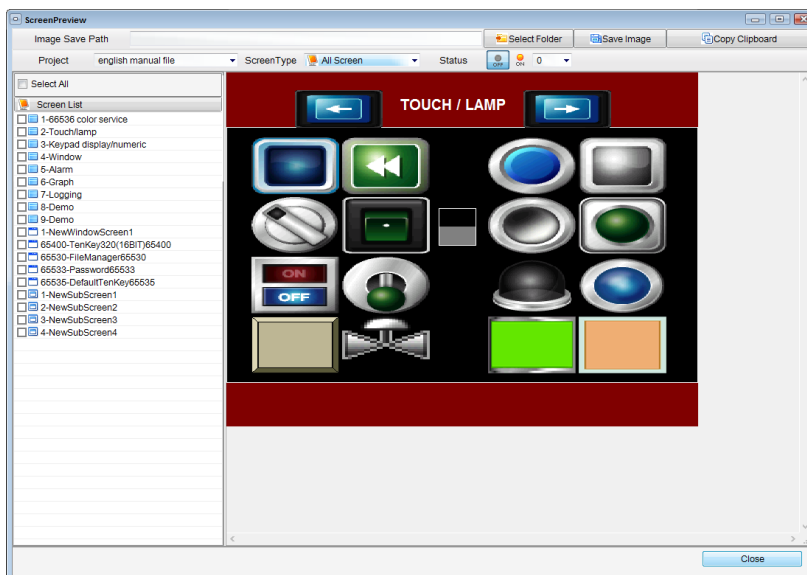
When the conditions for [Condition of Movement] in [Project]-[Recipe Setting] are satisfied, the recipe data of the block is loaded to the address set in [Target address Where recipe move]. To edit/add recipe data saved on a CF card, load the recipe block to edit, then edit the data in [Target address Where recipe move]. Then click the [_PARM_SAVE] button of the touch tag to save the new data.



[Fig. _PARM_SAVE save]

46.5 Screen preview

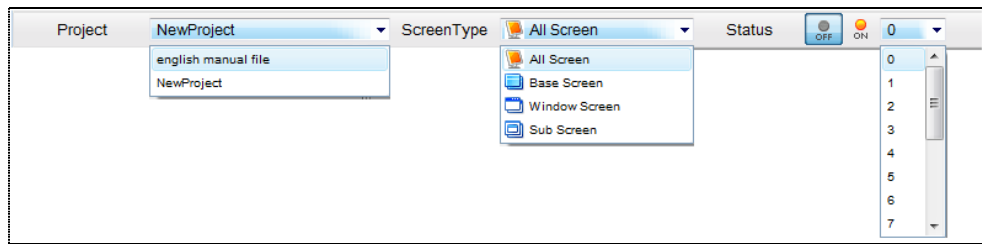
This function shows thumbnails of each screen included in the project, and allows saving of thumbnails as images.



[Fig. Screen preview]

46.5.1 Screen preview options

The screen selected from the list on the left is shown on the right. When using multiple projects, the project that the user wishes to view can be selected. All screens can be shown in the list, or base screens, window screens, and sub screens can be shown separately. Also, ON/OFF or word values 0~15 can be set for the address status of tags included in the screen, and displayed.



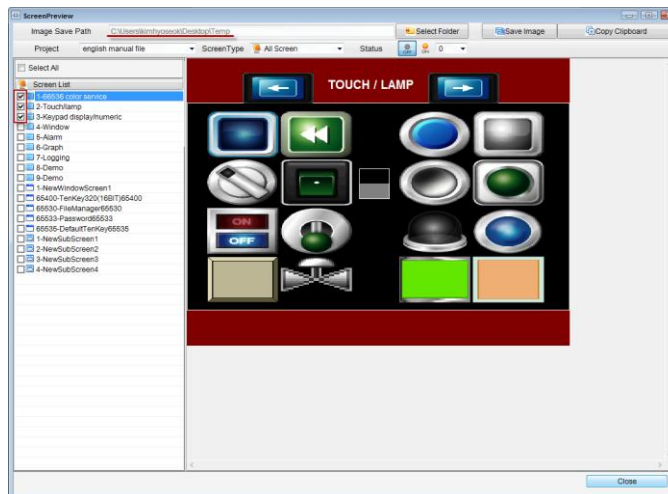
[Fig. Screen preview options]

46.5.2 Save screen as image file

The screen shown in the thumbnail is saved as a bitmap image to the path designated by the user. Check the screen to convert into an image, and the save path, then click the [Save image] button.

(1) Selecting screens

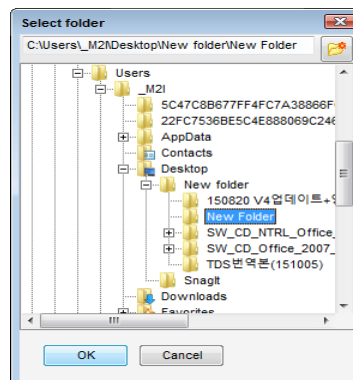
Select by checking the checkbox of the screen to save as an image from the screen list. Using the [Select All] checkbox, all items can be selected or deselected at once.



[Fig. Image selection]

(2) Folder selection

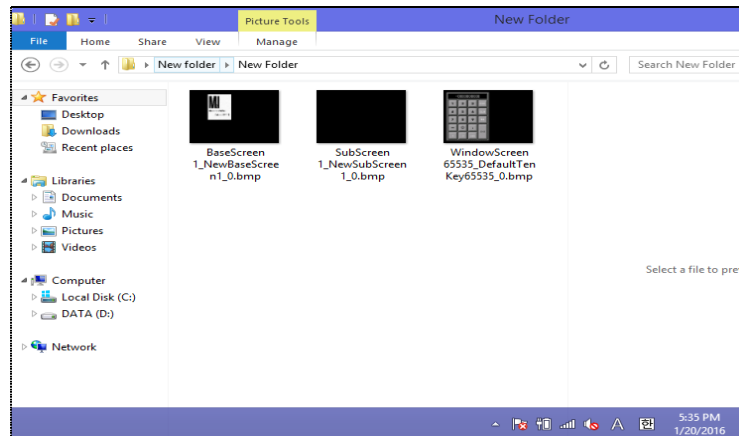
Set the path of the folder to save the image to. When the [Select folder] button is clicked, the following selection window is shown below. Select the folder to save, then click the [OK] button.



[Fig. Designate image save path]

(3) Saving the image and copying to the clipboard

After designating the image save path, click the [Save image] button to save the selected image.

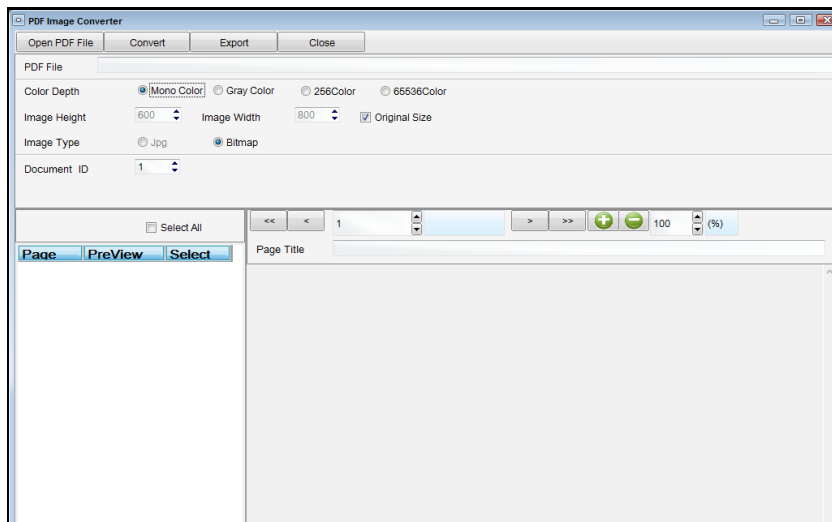


[Fig. Saved images]

If the [Save to clipboard] button is clicked, the selected image is copied to the clipboard. The image can be pasted into documents or image tools. Only one image can be selected for [Copy to clipboard].

46.6 PDF image converter

This function converts PDF files for use in the [Document viewer] of the tag, and creates index files. To use the [Document viewer], the converted bitmap image and index file must be saved in the CF memory card. The color level and size of the image can be adjusted. Select and run [Tools]-[PDF image converter] from the menu.



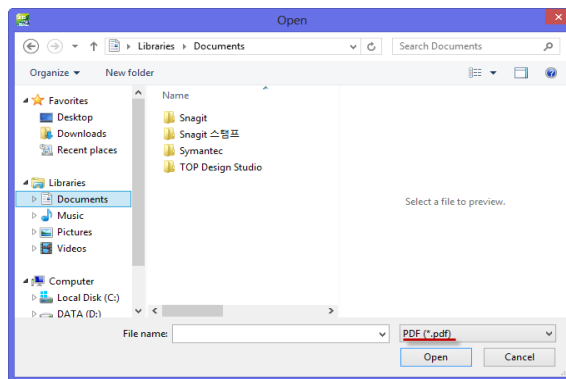
[Fig. PDF image converter]

Image converter	Description
Open PDF File	Select a PDF file saved in the PC.
Convert	Applies when color level or image size have been changed.
Export	After conversion is completed, save the selected image on the PC.

Close	Close the PDF image converter.
PDF file	Shows the path of the PDF file that is currently open
Color depth	Choose among Mono Color, Gray Color, 256Color, and 65536Color. The higher the color level, the larger the size of image file.
Image height	Enter the height of the image.
Image width	Enter the width of the image.
Image type	Select the format of the image to save. (Currently only Bitmap is supported)
Document ID	Enter the number of the folder that is created when the image is saved. (1~256)
Page title	Enter the title of the document to be saved to the index file.

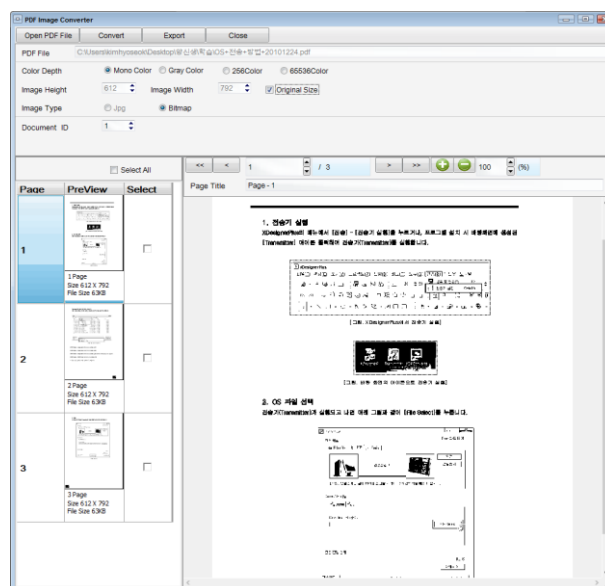
46.6.1 Converting PDF files

When [Open PDF file] is clicked, the file selection screen is brought up. Only folders and PDF files are shown in the list. Select the PDF file to convert, and click the [Open] button.



[Fig. Select PDF file]

Once PDF file selection is completed, the image is converted to match initial settings (Mono Color, original size) and displayed in the page list of the [PDF image converter] and the preview screen.



[Fig. Converting PDF files]

There are 4 kinds of color depth : Mono Color, Gray Color, 256Color, 65536Color. The higher the color depth level, the greater the size of the converted image file becomes. After entering the color type and image size to use, click the [Convert] button to convert. When viewing the converted images, click the image on the page list on the left, or click the next page button on top of the preview screen.



[Fig. Mono Color]



[Fig. Gray Color]



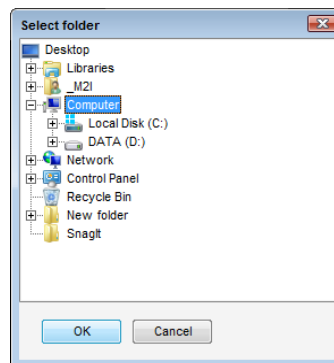
[Fig. 256 Color]



[Fig. 65536 Color]

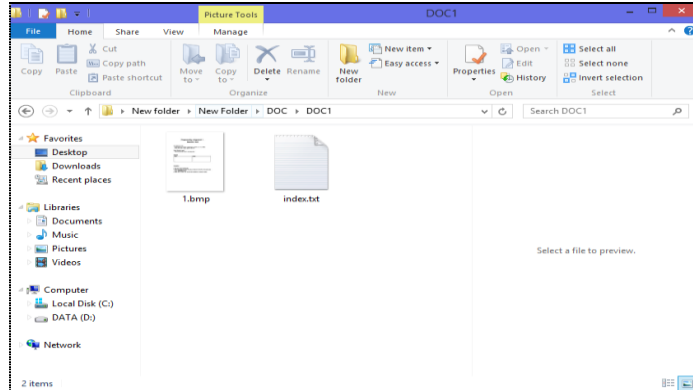
46.6.2 Exporting images

Before exporting the image, enter the document ID and the page title. 1~256 can be entered as the document ID. This is indicated in the name of the folder that is created when the image is saved. (Document ID: 1 -> Folder name: DOC1) In the page list on the left, select the checkbox of the image to save, then click the [Export] button to bring up the folder selection screen. Images can be selected /unselected in batch using the [Select all] checkbox.



[Fig. Select saving folder]

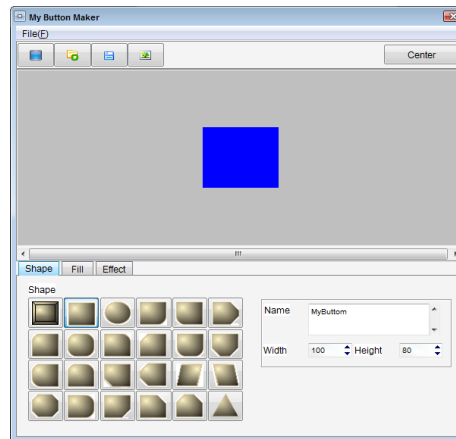
Select the folder to save to and click the [OK] button to create a DOC folder in that folder. The image and index files are saved in the folder. When a document ID of 1 has been entered, and files have been saved to [C:W], the path of the image and index files is [C:WDOCWDOC1]. The name of the saved folder is the code that connects the image saved to CF memory and the document viewer tag. Therefore, the name must not be changed, and should be used as-is.



[Fig. Saved image and index file]

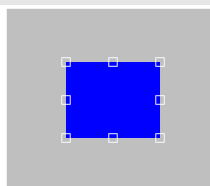
46.7 My button maker

[My button maker] is a function where users can select the desired shape and create customized button images by inserting shadow effects of patterns. Images created here are stored in the MBS (My Button Shape) format. They can be registered and used in the [Image Library]. MBS images can be resized without quality loss, unlike bitmap images. [My button maker] can also be run from the [Image library].



[Fig. My button maker]

46.7.1 MBS image editing

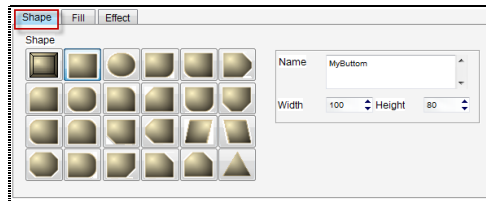


[Fig. MBS image editing screen]

By moving the shapes in the edit screen using the mouse, or using the tracker, size can be adjusted. When the [Center] button on top of [My button maker] is clicked, the shape is moved to the center of the edit screen. The image can be decorated using the [Shape], [Fill], and [Effect] pages on the bottom.

(1) Shape

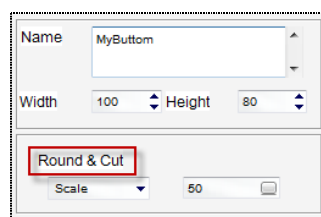
Select the size and shape of the button.



[Fig. Shape]

Shape page	Description
Shape	Select the shape of the button to be used.
Name	Enter the name of the MBS image.
Width	This shows the width of the shape that is currently being edited. This value can be designated manually.
Height	This shows the height of the shape that is currently being edited. This value can be designated manually.

Depending on the shape of the button, the [Round & Cut] item may be displayed. Options for Round & Cut are [Scale] and [Fixed]. In the [Scale] option, rounding and cutting of the outline of the button is scaled to the size of the entire button. In the [Fixed] option, the outline of the button is round and cut according to fixed pixels.



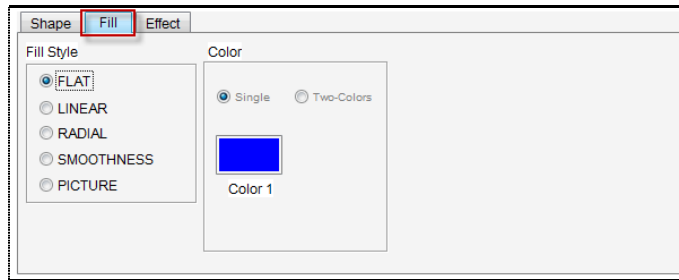
[Fig. Round & Cut]

(2) Fill

The inside of the button can be filled with color in a number of ways. In [Fill Style], select the fill style to bring up additional settings.

① Single color flat

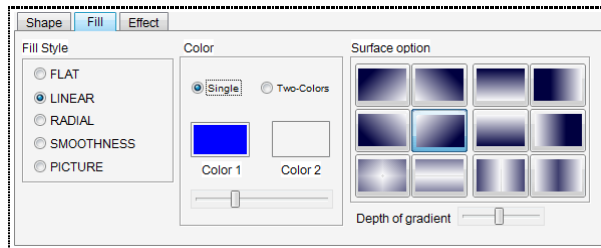
Fill the inside of the button with a single color. Click [Color1] to set the color to fill the button with.



[Fig. Single color flat]

② **Linear gradient**

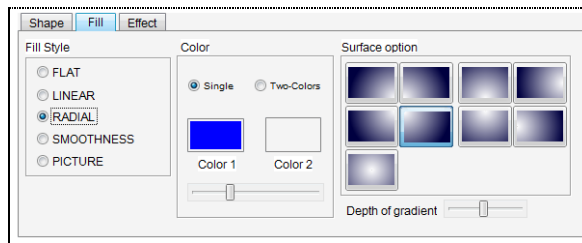
This effect causes the color to change along a linear gradient. Depth and contrast can be adjusted. By selecting [Two-Colors], [Color 2] can be set. Two colors are then used to fill the button.



[Fig. Linear gradient]

③ **Radial gradient**

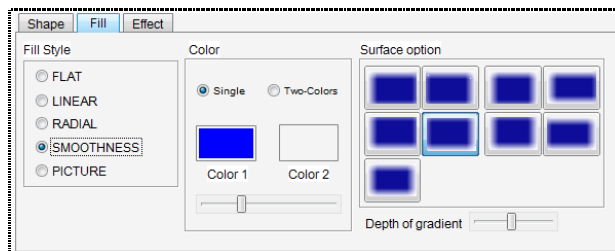
This effect causes the color to disperse. Depth and contrast can be adjusted. By selecting [Two-Colors], [Color 2] can be set. Two colors are then used to fill the button.



[Fig. Radial gradient]

④ **Smoothness**

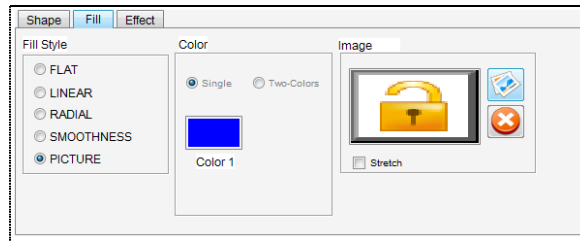
This effect causes the color disperse along the edges. Depth and contrast can be adjusted. By selecting [Two-Colors], [Color 2] can be set. Two colors are then used to fill the button.



[Fig. Smoothness]

⑤ Picture fill

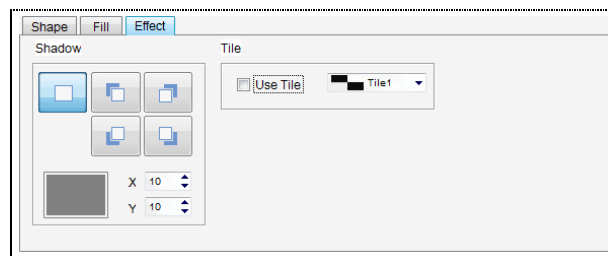
Images saved in the PC can be used to fill the button. Set the color for the image background by setting [Color 1], then click [Stretch] to fill the inside of the button with the image.



[Fig. Picture fill]

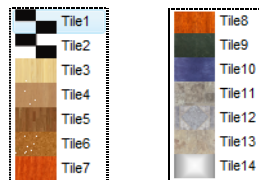
(2) Effect

The inside of the button can be tiled, or shadows can be used.



[Fig. Effect]

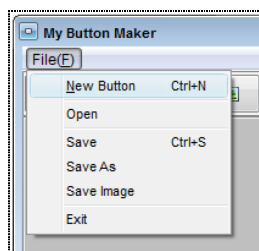
In the [Shadow] effect, the direction of the shadow can be selected in the list shown in the image above. X (width) and Y (height) can also be set. Check [Use Tile] under the [Tile] effect, and select an option to apply from the tile list shown below.



[Fig. Tile list]

46.7.2 File menu

Edited MBS images can be saved in the PC. Also, saved images can be retrieved. Click [Menu] on top of [My button maker] to bring up the list shown below.



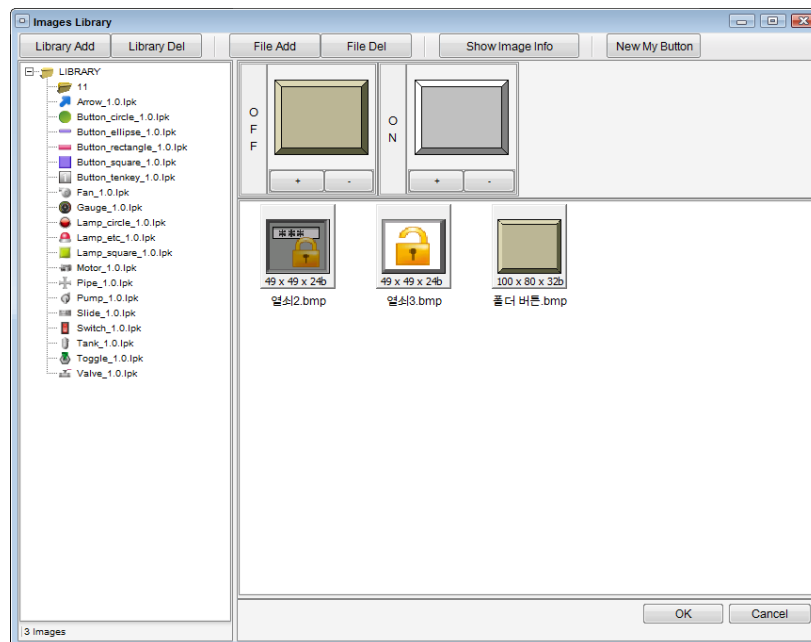
[Fig. File menu]

Menu	Description
New button	Initialize the button to pre-edit status.
Open	Open an MBS image.
Save	Save an MBS image.
Save as	Save an MBS image under a new name.
Save image	Save the edited button as an MBS image.
Exit	Close [My button maker]

46.8 Image library

[Image library] shows the bitmap images provided by default in the XDesignerPlus4 program. From here, images can be registered in projects. Users can also add new images, and newly added images can be registered in projects.

[Image library] is used when registering images in touch tags or lamp tags.



[Fig. Image library]

46.8.1 Composition of the image library

On the left, an explorer shows the image folders.

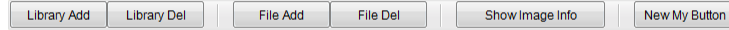
On the right, the selected images, and the images contained in the selected folder are shown.

On top, there are the [Library Add/Del], [File Add/Del], [Show Image info], and [New My Button] buttons.


(1) Folder structure

When the program is installed, the image folders are in the program path. The default path is [C:\Program Files\WM2I Corp\XDesignerPlus4\library].

(2) Top button

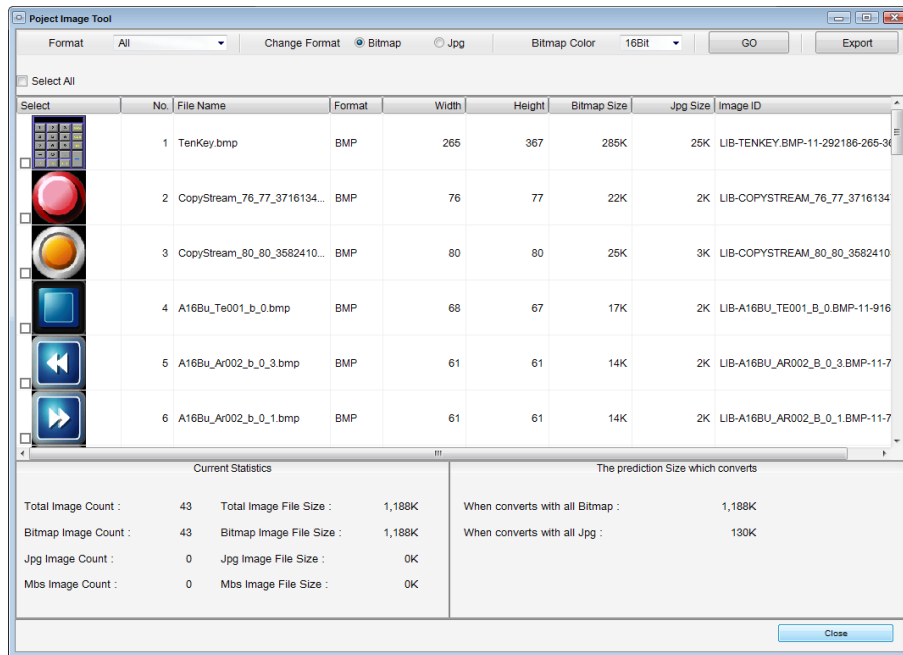


[Fig. Top button]

Button	Description
Library Add	Add a new folder to the selected folder.
Library del	Delete the selected folder. When a folder is deleted, child folders and images in the folder are also deleted. The following confirmation message is shown. <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Confirm</p> <p>It will be delete all sub-catatory and child.\r\nDo you want a continue?</p> <p><input type="button" value="Yes"/> <input type="button" value="No"/></p> </div>
Image add	Add a image to the selected folder. When the file add button is selected, the [Open picture] window where the image to add is selected is shown. The types of images that can be registered are [*.*bmp], [*.*jpg], [*.*jpeg], [*.*mbs]. <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Open picture</p> <p>Libraries > Pictures</p> <p>Organize New folder</p> <p>201201091035486 9363_2.jpg caption.jpg</p> <p>cbe9caa5_04443ddd_54d0_455a_a89b_fd3f04490cc0.jpg</p> <p>Man Machine Interface</p> <p>File name: cbe9caa5_04443ddd_54d0_455a_a89b_fd3f04490cc0.jpg All (*.bmp;*.jpg;*.jpeg;*.mbs)</p> <p><input type="button" value="Open"/> <input type="button" value="Cancel"/></p> </div>
Image del	Delete the selected image. When the file del button is clicked, the following confirmation message is shown. <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Confirm</p> <p>Delete image(MBS_53.mbs)?</p> <p><input type="button" value="Yes"/> <input type="button" value="No"/></p> </div>
Show image info	Image for the selected image is shown on the bottom right. <div style="border: 1px solid black; padding: 5px; margin: 10px 0;">  <p>File Name : C:\Program Files\M2I Corp\XDesignerPlus\Library\TrueColor\Lamp\ET</p> <p>Color : Custom</p> <p>Image Size : 70 X 64</p> <p>File Size : 8kbyte (9016byte)</p> </div> <p>The path, color, image size, and file size of the image is shown.</p>
New button	My button maker is opened for creation of a new button. This is equivalent to running [My button maker] in the [Tools] menu.

46.9 Project image tool

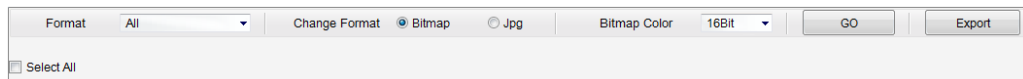
[Project image tool] show info on all image files registered to the project currently in use. Image formats can be converted, or images can be saved on the PC.



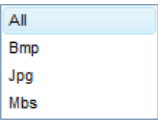
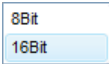
[Fig. Project image tool]

46.9.1 Convert and save images







Images selected from the list can be converted to the format set in the figure below, then saved.



[Fig. Convert and save images]

Top menu	Description
Format (Format)	Select the format of the images to show in the list. 
Image format	Select the format to convert the selected images to, between [Bitmap] and [Jpg].
Bitmap Color	Select the quality of the bitmap image from the list below. 
GO	Converts the selected image into the format set by the user.
Export	Saves the selected image to the PC.
Select all	Selects all images in the list.

46.9.2 Image list

Select	No.	File Name	Format	Width	Height	Bitmap Size	Jpg Size	Image ID
	1	TenKey640.bmp	BMP	265	307	159K	22K	LIB-TENKEY640.BMP-11-163390-265-307...
	2	A16BU_Te001_b_0.bmp	BMP	68	67	17K	2K	LIB-A16BU_TE001_B_0.BMP-11-9168-68...
	3	TenKey_5.bmp	BMP	688	340	456K	41K	LIB-TENKEY_5.BMP-11-467906-688-340_0
	4	회사로고.jpg	JPG	126	60	14K	3K	LIB-회사로고.JPG-11-3393-126-60_0
	5	A16In_Va001_g_3.bmp	BMP	28	28	3K	1K	LIB-A16IN_VA001_G_3.BMP-11-1624-28...
	6	A16In_Va001_g_4.bmp	BMP	28	28	3K	1K	LIB-A16IN_VA001_G_4.BMP-11-1624-28...

[Fig. Image list]

Part	Description
Select	Shows images for selection.
No.	The registration number of the image is shown.
File Name	The name of the image file is shown.
Format	The format of the image is shown.
Width	The width of the image is shown.
Height	The height of the image is shown.
Bitmap Size	The data size when the image is a bitmap format file is shown.
Jpg Size	The data size when the image is a Jpg format file is shown.
Image ID	Image ID info is shown.

46.9.3 Image statistics and info

Shows statistics for images registered in the project currently being used, and the expected data size when all images are converted.

Current Statistics			
Total Image Count :	43	Total Image File Size :	1,188K
Bitmap Image Count :	43	Bitmap Image File Size :	1,188K
Jpg Image Count :	0	Jpg Image File Size :	0K
Mbs Image Count :	0	Mbs Image File Size :	0K

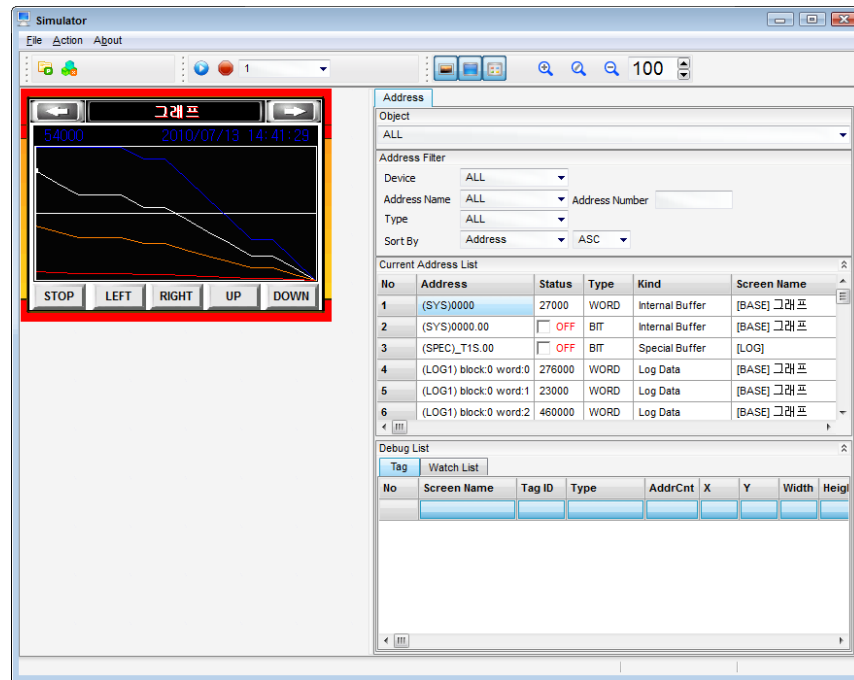
[Fig. Current statistics]

The prediction Size which converts	
When converts with all Bitmap :	1,188K
When converts with all Jpg :	130K

[Fig. The prediction size which converts]

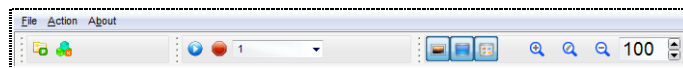
46.10 Run Simulator

The [Simulator] function allows the project to be operated on the PC, without sending to the touch. When the screen is clicked with the mouse cursor, the screen behaves as if a touch screen is pressed with the fingers. The address list on the right displays the status or value of addresses. Addresses can be set manually by the user.

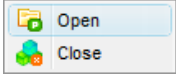

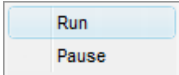

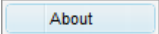



[Fig. Simulator]

46.10.1 Menu and toolbar composition

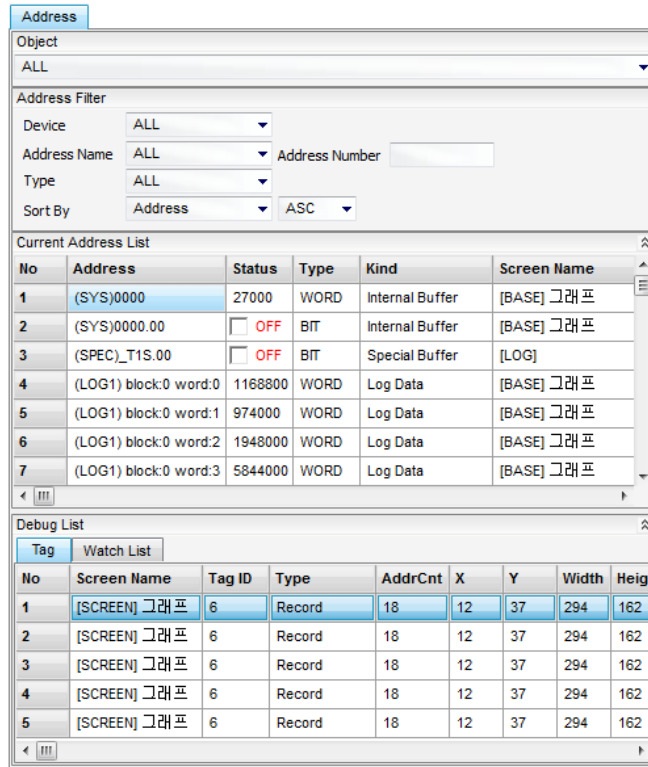


[Fig. Top menu]

Top menu	Description
File	[Open] opens the project file. [Close] closes the simulator.  
Action	[Run] starts the simulator, and [Pause] suspends the simulator. The number of the screen to be shown in the simulator can be selected.  
About	When [About] is pressed, the version of the simulator program can be viewed. 
Adjust screen	The buttons below are the [Show background], [Show shapes], and [Show tags] buttons, respectively. [Zoom in/Zoom out] can be used to adjust the screen size. 

46.10.2 Address List

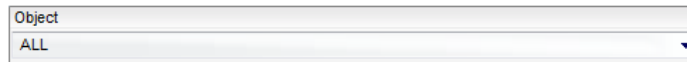
All addresses registered in the project currently running in the simulator are displayed. The status or value of addresses can be set, and reflected in the simulator.



[Fig. Address List]

(1) Object

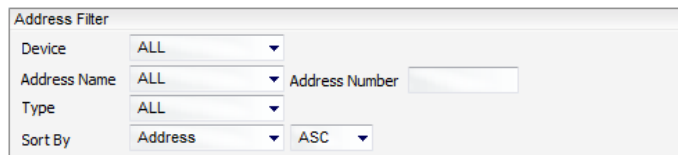
When the tag type is selected from the list, the addresses used in the tag are shown in the address list.



[Fig. Object]

(2) Address Filter

Set the scope of addresses shown in the address list.



[Fig. Filter]

Address Filter	Description
Device	Select the device of the address to show in the list.
Address Name	Select the name of the PLC address to show in the list.
Address number	Enter the number of the address to show in the list.

Type	Select the type of address (Bit, Word) to show in the list.
Sort by	Sort the addresses shown by type.

(3) Current Address List

Shows detailed address info in a list. The real-time status of the address is indicated under [Status]. The user can modify the value.

No	Address	Status	Type	Kind	Screen Name
1	(SYS)0000	27000	WORD	Internal Buffer	[BASE] 그래프
2	(SYS)0000.00	<input type="checkbox"/> OFF	BIT	Internal Buffer	[BASE] 그래프
3	(SPEC)_T1S.00	<input type="checkbox"/> OFF	BIT	Special Buffer	[LOG]
4	(LOG1) block:0 word:0	2010000	WORD	Log Data	[BASE] 그래프
5	(LOG1) block:0 word:1	1675000	WORD	Log Data	[BASE] 그래프
6	(LOG1) block:0 word:2	3350000	WORD	Log Data	[BASE] 그래프
7	(LOG1) block:0 word:3	1005000	WORD	Log Data	[BASE] 그래프

[Fig. Current Address List]

(4) Debug List

① Tag

In the [Current Address List], select an address using the mouse to show a list of tags where that address is used.

No	Screen Name	Tag ID	Type	AddrCnt	X	Y	Width	Height
1	[SCREEN] 그래프	6	Record	18	12	37	294	162
2	[SCREEN] 그래프	6	Record	18	12	37	294	162
3	[SCREEN] 그래프	6	Record	18	12	37	294	162
4	[SCREEN] 그래프	6	Record	18	12	37	294	162
5	[SCREEN] 그래프	6	Record	18	12	37	294	162

[Fig. Debug List]

② Watch List

Right click an address in the [Current Address List]. Register a watch list by clicking [Add Watch List]. The status of the address is continuously shown, even if the page is transitioned in the [Simulator].

No	Address	Status	Type	Kind	Screen Name
1	(SYS)3300	1932000	WORD	Internal Buffer	[LOG]
2	(SYS)3301	161000	WORD	Internal Buffer	[SCRIPT]

[Fig. Debug List]

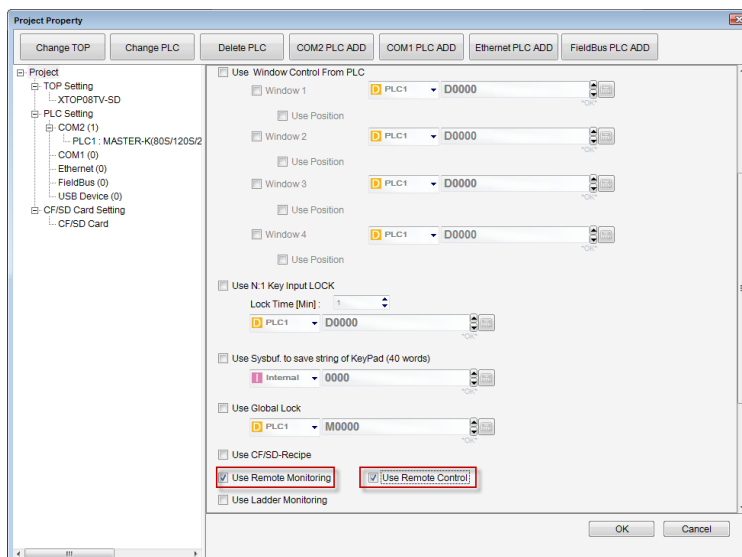
46.11 TopView client creation

Generates a [TopView Client] file. [TopView] is a function for monitoring or remote control of a remote touch from a PC, using [EtherNet] communications.

46.11.1 Creating a client file

(1) Project property

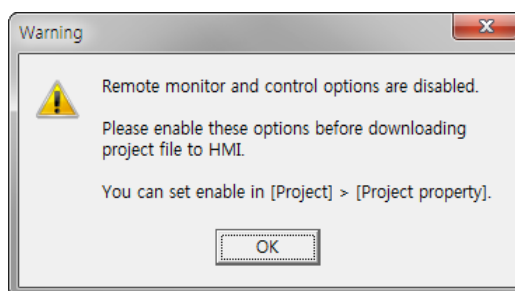
Before creating the [TopView Client], check [Use Remote Monitoring] under [Project]-[Project Property] as shown in the figure below.



[Fig. TopView client creation]

Part	Description
Use Remote Monitoring	Monitor a remote touch from the PC, using EtherNet communications.
Use Remote Control	In addition to remote monitoring, the touch can be controlled from the PC.

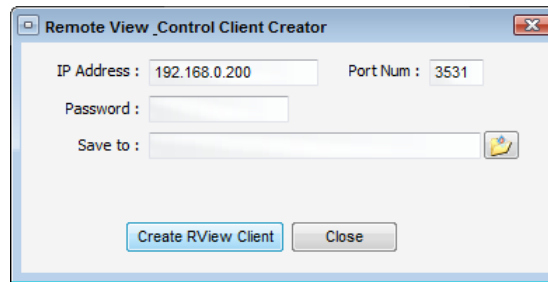
If [TopView Client] is run without making the above settings, the following message to change [Project Property] is shown.



[Fig. Message]

(2) TopView Client Creator

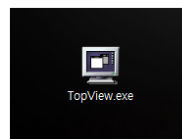
After [Project Property] has been changed, the [TopView Client] file is created.



[Fig. TopView client creation]

Creator	Description
IP Address	Enter the IP address of the TOP.
Port Num	This is the Ethernet communications port between the touch and TOPView. The default value is [3531].
Password	Enter the password of the touch body.
Save to	Set the path and file name to save the TopView executable file.
Create RView Client	Create a TopView client file according to the settings above.
Close	Close [TopView client creation].

Click the [Create RView Client] button to create an executable file, as shown in the figure below.

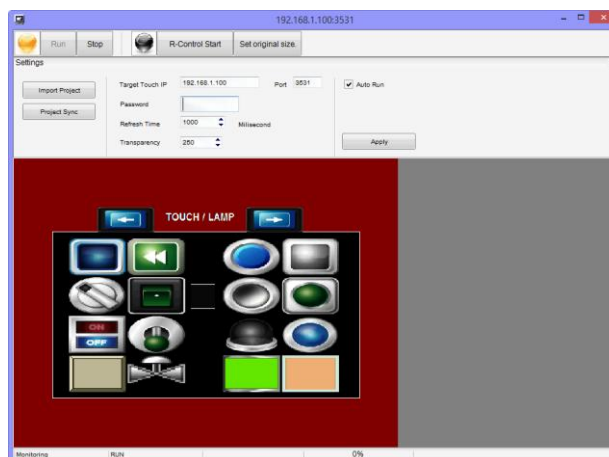


[Fig. TopView client executable file]

46.11.2 TopView screen

When the [TopView client] file is executed, [TopView] is shown, as in the figure below.

The operating screen of the touch is shown in real-time. When [R-Control Stop] is run, the mouse can be used to perform remote control. Settings for file creation in the [TopView client] can be changed in [TopView]. Change settings and click [Apply] to apply.



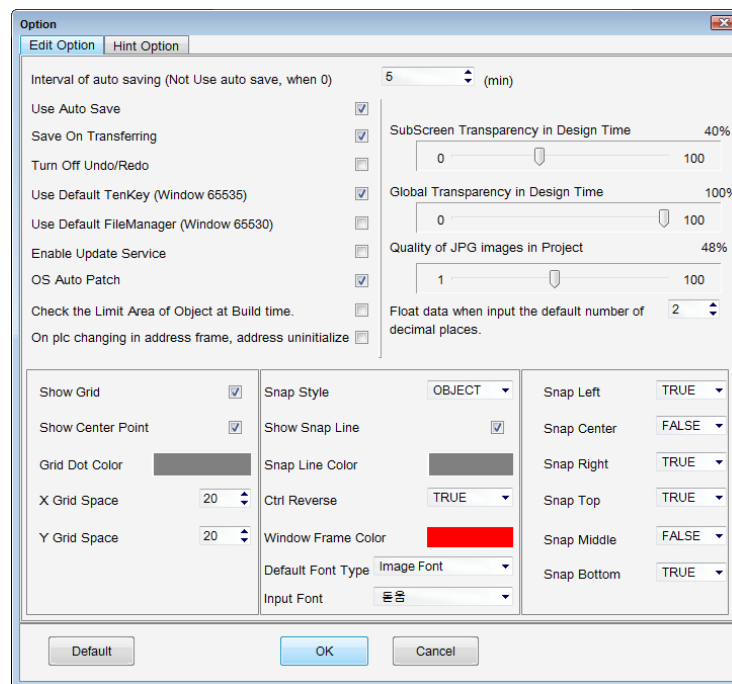
[Fig. TopView]

TopView	Description
Run	Begin real-time monitoring.
Stop	Stop real-time monitoring.
R-Control Start	In "R-Control Start" status, the mouse can be used to control the touch, instead of the fingers.
Import Project	Import a project file saved on the PC and apply to TOPView.
Project Sync	Upload a project file running in the touch, and apply to TOPView.
Target Touch IP	Show the IP address of the touch that is being remotely monitored/controlled.
Port	Show the number of the communications port. (Normally does not need to be changed.)
Password	Enter the password of the touch.
Refresh Time	Set the refresh cycle of the real-time monitoring screen.
Transparency	Set the transparency of [TopView]. Settings are between 0 and 250.
Auto Run	Automatically begin real-time monitoring when [TopView] is run.

46.12 Editing options

Set the program options for XDesignerPlus4.

When [Default] is clicked, all options are reset to the settings at the time of initial program installation.



[Fig. Editing options]

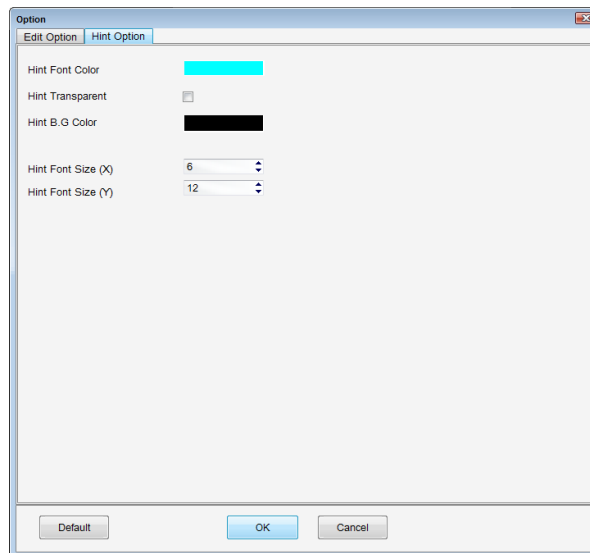
46.12.1 Editing options page

Editing options	Description
Interval of auto saving	Set the interval for auto saving of the project, in minutes.
Use auto save	Use the project auto save function.

Save on transferring	The project is automatically saved when [Transfer]-[Build and transfer] is run in the menu.
Turn off Undo / Redo	Do not use the [Undo] and [Redo] functions.
Use default TenKey	Use the default TenKey when creating a new project.
Use default FileManager	Use the default FileManager when creating a new project.
Enable Update Service	Set for automatic updates.
OS Auto Patch	If the OS installed in the connected touch has a lower version than the OS included in the current XDesignerPlus4, the OS is automatically patched when projects are transferred.
Check the limit area of object at build time	When building, shapes/tags that have exceeded the limit area are checked, and errors are indicated in the [Project builder] screen.
SubScreen transparency	Set the transparency of the subscreen when using the subscreen as the background of the base screen.
Global transparency in design time	Set the transparency of the master screen or frame when using the global screen as the background of the base screen.
Quality of JPG images in project	Set the quality of JPG images registered to the project.
Float data when input the default number of ___ decimal places.	Set the default number of decimal places for values where decimal places are input.
Show Grid	A grid is shown on the editing screen.
Show center point	A center point is shown on the editing screen.
Grid dot color	Set the color of the grid.
X grid space	Set the spacing of the dots forming the grid along the X axis.
Y grid space	Set the spacing of the dots forming the grid along the Y axis.
Snap style	Select between [Object snap] and [Grid snap].
Show snap line	Set to show a line when snap operates.
Snap line color	Set the color of the snap line.
Ctrl reverse	Use the Ctrl key when using the keyboard key buttons to move shapes or tags.
Window frame color	Set the color of the size adjusting frame in the window screen.
Input font	Set the font for input when editing properties
Snap left	Set to enable snap left.
Snap center	Set to enable snap center (horizontal axis).
Snap right	Set to enable snap right.
Snap top	Set to enable snap top.
Snap middle	Set to enable snap middle (vertical axis).
Snap bottom	Set to enable snap bottom.

46.12.2 Hint Option

Balloon hints are hints shown on the top left corner of tags registered to a screen. The name, ID, and address of the tag are shown.



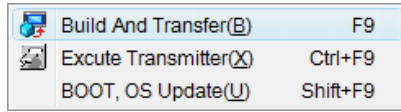
[Fig. Balloon hint]

Hint Option	Description
Hint font color	Set the hint font color.
Hit transparent	Set the background of the hint to transparent.
Hint B.G. color	Set the color of the background of the hint.
Hint font size (X)	Set the horizontal size of the hint font.
Hint font size (Y)	Set the vertical size of the hint font.

CHAPTER 47 Transfer Menu

CHAPTER 47 - Transfer Menu

The transfer menu performs the function of sending data between the touch and the PC. The transfer menu items are [Build and Transfer] and [Execute Transmitter].



[Fig. Transfer Menu]

In [Build and Transfer], a project file is built (compiled), and the the transmitter is executed to transfer the file. In [Execute transmitter], the transmitter is executed without building. Therefore, to transfer a project, run [Build and Transfer]. For other transmissions, select [Execute transmitter].



Note Before running the transfer menu, be sure to check that the transmission cable is connected properly. Also, confirm that the project file that is currently open has been [Saved]. Only saved files can be transmitted.

47.1 Transfer overview

The touch and the PC can communicate using [Serial], [USB], and [Ethernet].

Transfer method	Description
Serial	Communication with a serial cable connection to the COM1 port of the touch.
USB	Communication with a USB cable connection to the USB Device port of the touch.
Ethernet	Communication with an ethernet cable connection to the ethernet port of the touch.

Data that can be transmitted includes project files, touch OS files, and logging/recipe/alarm data files.

File transmitted	Description
Project file	Touch screen files written in the XDesignerPlus4 program.
OS file	Files used to operate the file; when a touch is purchased, the latest OS comes pre-installed. If the touch OS is not up to date, an OS file can be transmitted to update the OS.
Logging/recipe/alarm data files	These data files have been created and saved in the touch during operation. These data files can be uploaded to the PC.

Select [Download] or [Upload], depending on the transfer direction.

Transfer direction	Description
Download	Data is sent from the PC to the touch. Project, OS, and Font files can be downloaded.
Upload	Touch data is sent to the PC. Project and logging/recipe/alarm data files can be uploaded.

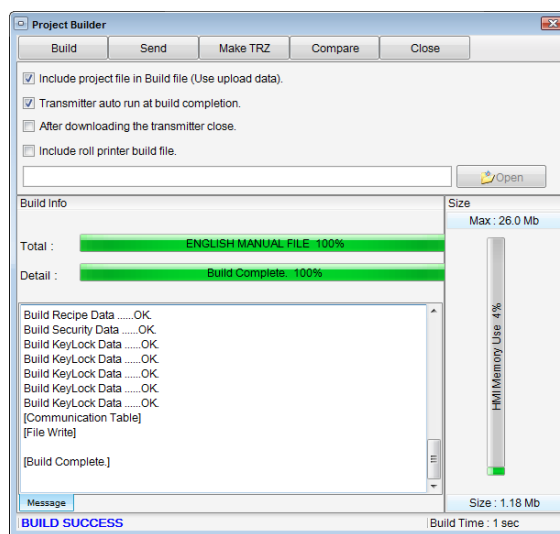
47.2 Build and transfer

A project file written in the XDesignerPlus4 program is built and transferred.

Building begins immediately when [Build and Transfer] is selected. The build process checks for errors in the currently open project, and creates a file for internal transfer. Here, if the project file does not have errors, the transmitter is run. The project file is automatically linked to the transmitter, facilitating transfer.

47.2.1 Project builder

When [Build and transfer] is selected, the first screen that is shown is [Project builder]. In [Project builder], the [*.DPX4] file currently open in the XDesignerPlus4 program is imported and built. Build options can be checked.



[Fig. Project builder]

(1) Building and the [*.TRZ] file transfer

Building is the same as compiling. The [*.DPX4] file open in the XDesignerPlus4 program is analyzed for errors, and a file for transfer is created.

As the [*.DPX4] file is large, and also includes info that the touch OS does not require, only the required info is selected from the content of the [*.DPX4] file to create a file for transfer.

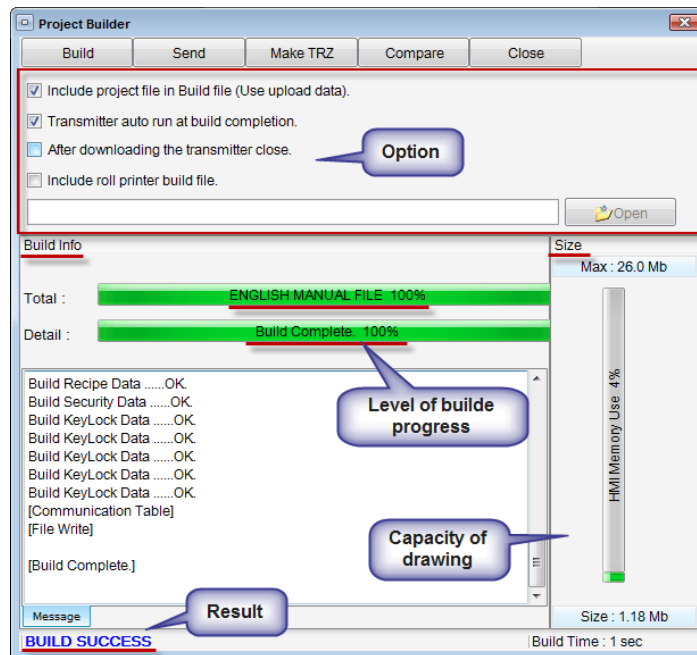
The extension of the transfer file is [*.TRZ]. This file is create internally. The transfer file [*.TRZ] cannot be opened and edited using the XDesignerPlus4 program. The file cannot be converted in to a [*.DPX4] file either.

(2) Composition of the project builder

When building is complete, progress is shown as in the figure below.

The top of the project builder includes buttons and options. Info and size is displayed on the bottom.

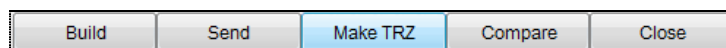
The very bottom indicates the build result.



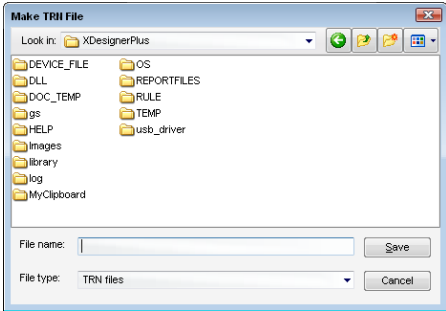
[Fig. Project builder]


① Buttons

The buttons of the project builder are as follow.



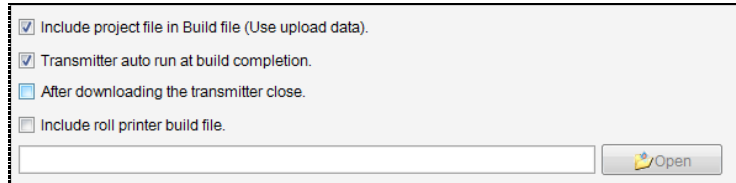
[Fig. Buttons]

Button	Description
Build	Builds the project file.
Send	Run the transmitter. If the build result is [Fail], the transmitter is not run.
Make TRZ	<p>A [*.TRZ] file is created for transfer. This file can be stored or used.</p> <p>By running the [Transfer]-[Run Transmitter] menu in XDesignerPlus4 and selecting [Transfer Project], a [*.TRZ] file that has already been built and converted into a transfer file can be imported and transferred. When the [Make TRZ] button is clicked, the [Make TRZ File] screen is shown. The path to save the [*.TRZ] file that is created after building can be designated.</p>  <p>Set the save path and file name, then click the [Save] button.</p>
Compare projects	<p>The items of the project file in the connected touch body and the project file opened in XDesignerPlus4 are compared for matches. The touch body and PC must be connected.</p> <p>When the [Transfer] button is pressed, the project is transferred.</p>

	
Close	Close [Project builder].

② Options

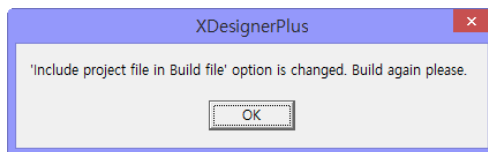
The options of the project builder are as follow.



[Fig. Options]

Option	Description
Include project file in build file (use upload data)	<p>There are two types of project file: DPX4 files and TRZ files.</p> <p>DPX4 files are used for editing and saving in XDesignerPlus4.</p> <p>TRZ files are files used for transfer, and are created when building in XDesignerPlus4.</p> <p>This file is the protocol file that is used for touch operation, and is always loaded into the touch when a project is transferred. This file cannot be converted into a DPX4 file, and cannot be edited manually.</p> <p>Upload files are compressed DPX4 files. These files can be uploaded and edited on the PC for later project modification.</p> <p>The [Include project file in build file (use upload data)] option determines whether to include the upload file when transmitting/</p> <p>If the project is transmitted to the touch without checking this option, the project file cannot be uploaded. It is recommended that [Include project file in build file (use upload data)] is checked for later editing/supplementation of the project.</p>
Transmitter auto run at build completion	<p>After building, if there are no errors, the transmitter is run automatically. This option determines whether the transmitter is run automatically.</p>
After downloading the transmitter close	<p>After the project has been transmitted to the touch body, the transmitter is closed.</p>
Include roll printer build file	<p>The roll printer build file [*.rbf] is included in the [TRZ] file.</p> <p>Click the [Open] button, select the roll printer build file, and designate the path.</p> <div style="border: 1px solid black; padding: 5px;"> <input checked="" type="checkbox"/> include roll printer build file <input type="text" value="C:\Program Files (x86)\M2I Corp\XDesignerPlus4\TEMP\roll"/> <input type="button" value="Open"/> </div> <p>(See [4.10] in [chapter 4] for roll printer usage info.)</p>

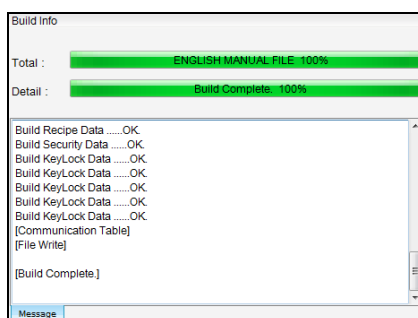
If the [Include project file in build file (use upload data)] or [Include roll printer build file] options are changed, compiling must be performed again to include or remove files. When the [Transfer] button is clicked after changing options, the following message is shown.



[Fig. Build again message]

③ Info

The info section indicates build progress, and indicates errors in individual items.

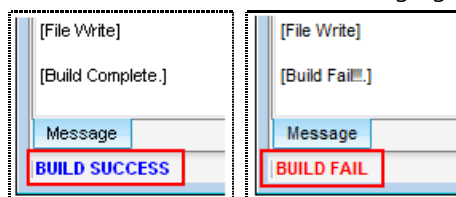


[Fig. Info]

Info	Description
Total	Displays the DPX4 file name and build progress in %.
Detail	Build progress is shown in %, and build results are shown in more detail. When the build is successful, [Build Complete] is shown. When the build fails, [Build Fail] is shown.
Message	Whether errors have been found in individual project items is shown. If there are no errors, [OK] is shown.

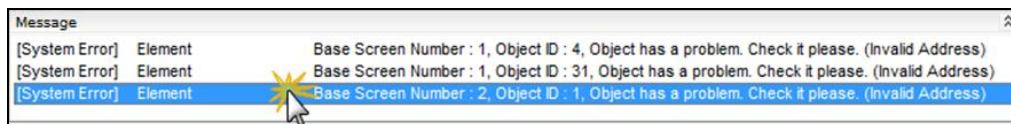
④ Build result display

The very bottom indicates the build result, as shown in the following figure.



[Fig. Build result]

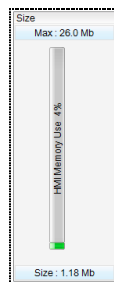
If the build has been completed without errors, and [Build Success] is shown, as in the figure to the left, the transmitter is run automatically. If there is an error in the project file and [Build Fail] is shown as in the figure to the right, the transmitter is not run. When the [Project builder] screen is closed, an error message is shown on the bottom of the XDesignerPlus4 program.



[Fig. Error Message]

The error message indicates the location in the project where the error has occurred. When the error message is double clicked, the location in the project where the error has occurred is brought up.

⑤ Project size display

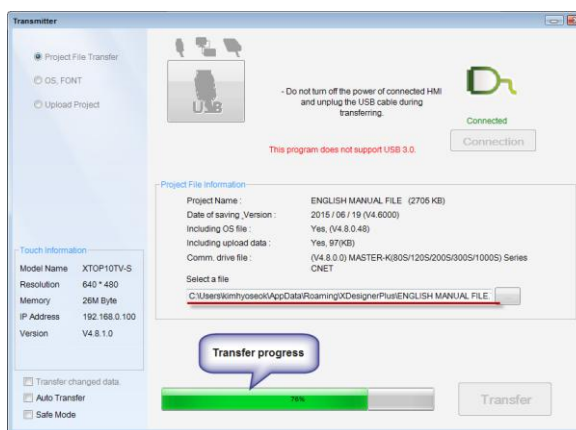


[Fig. Project size display]

Projects up to 26M can be written for the touch. The right side of the project builder shows the size of the project file being transmitted. In [Size], the size of the transmitted project file is shown in [Mb]. The graph indicates how much [%] of the touch memory is occupied.

47.2.2 Transmitter run after build

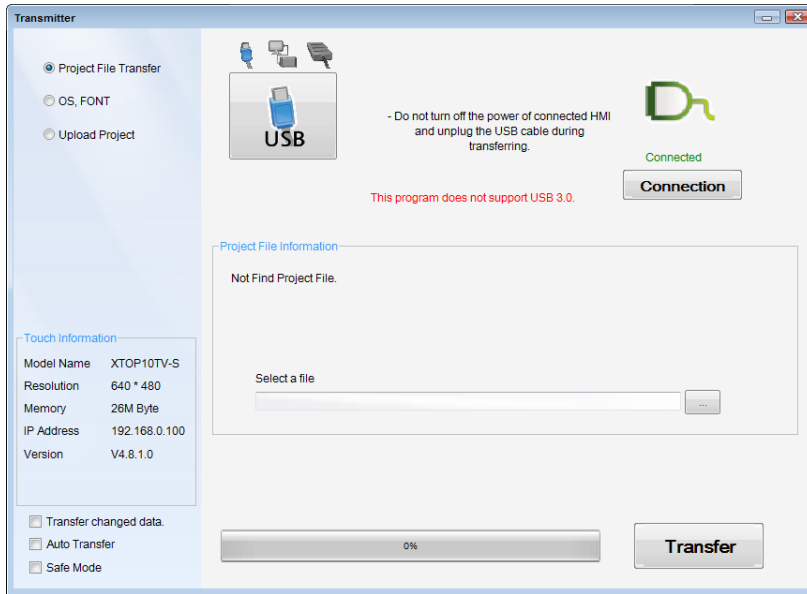
When a build is successfully completed, the transmitter is immediately run. In the transmitter, the [*].TRZ transfer file is automatically linked to [Select file] in project file info. When the transfer channel (Ethernet/USB/serial) is set and the [Transfer] button is pressed, transfer begins.



[Fig. Transmitter run after build]

47.3 Running the transmitter

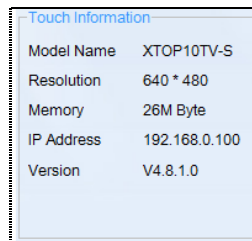
The [Run Transmitter] menu is the [Build and Transfer] menu without the build process. This menu is used to transfer or upload files other than project files.



[Fig. Transmitter]

47.3.1 Composition of the transmitter

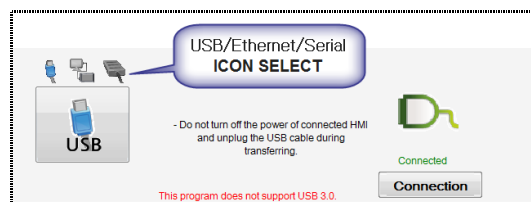
Using the transmitter, project transfers, OS transfers, and data uploads can be performed. To transfer, connect the touch and PC with a cable. Depending on the type of the cable, select among USB/Ethernet/Serial. If the PC and touch are connected properly, [Connected] is shown. Info on the connected touch is shown under [Touch information].



[Fig. Touch information]

(1) Transmitting channel

The touch and PC can connect through USB, EtherNet, and Serial transmitting channels.



[Fig. Select transmitting channel]

① USB transmission

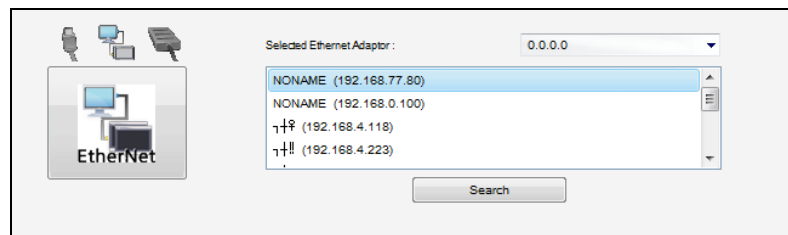
The touch communicates with the PC through a USB cable connected to its USB Device port (mini 5-pin). USB transmission can be used after installing the USB driver first. The USB driver is automatically installed when XDesignerPlus4 is installed. To install manually, navigate to the [C:\Program Files\WM2I

Corp\WXDesignerPlus4\usb_driver] folder and run the driver file (USB Driver Setup.exe).

When the USB cable is connected to the USB Device port and the transmitter is run, the [Connected] status is shown automatically, as in the figure above. If the touch body is off, or the cable has not been properly connected, a [Not Connected] status is shown. If the [Not Connected] status is shown, check the body, cable, and USB driver, then click the [Connection] button. The [Connected] status should be indicated. Transmitting is possible when the [Connected] status is indicated.

② EtherNet transmission

An ethernet cable is connected to the ethernet port of the touch. Use a cross cable to connect the PC and touch directly. Use a direct cable when using an ethernet hub. Using ethernet transmission, multiple touches can be connected to simultaneously.



[Fig. Ethernet transmission]

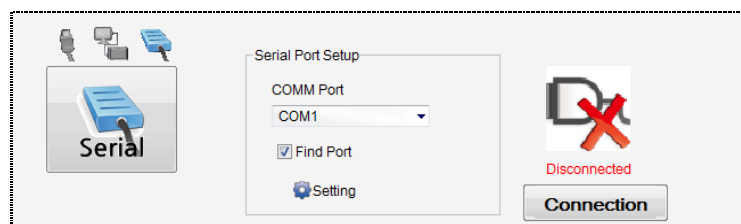
The setting method is as follows.

1. Connect the touch and PC with an ethernet cable.
2. Match the IP and subnet mask in [Menu Screen]-[Communication Settings] of the touch.
Set the same [Subnet Mask] for the PC and touch. As for [IP], set the same three leading numbers as the IP of the PC. The last number should be different.
3. Click the [Search] button to search for touches currently connected with the PC.
4. Among the touches shown, select the touch to transmit to. Multiple touches can be transmitted to.
5. Perform [Transfer].

③ Serial transmission

Here, the touch communicates with the PC through a serial cable attached to the COM1 port of the touch.

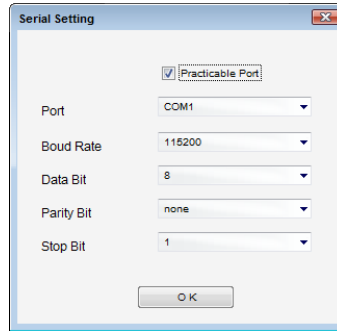
The transmission speed is slower than ethernet or USB transmission.



[Fig. Serial transmission]

The setting method is as follows.

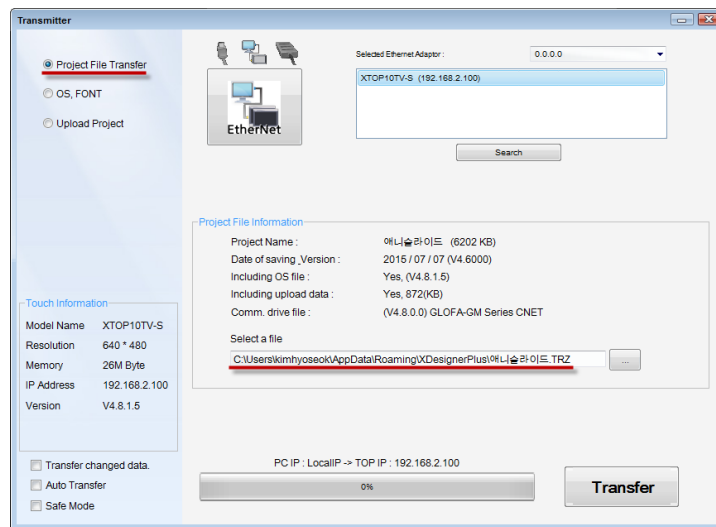
1. Connect the serial cable to the COM1 port of the touch.
2. In [Communication Port], set the COM port of the PC where the serial cable has been connected.
When using a [USB To Serial Converter], verify and set the port number of the [USB Converter] in [Control Panel]-[System]-[Hardware]-[Device Manager]-[Ports].
3. Communication settings [Baud rate (115200)/Data bits (8)/Parity bits (none)/stop bit(1)] are fixed. By clicking [Advanced], comm settings can be changed, as shown below.



[Fig. Advanced settings]


(2) Transmit file

Transmit an open project file. Run the [Transfer]-[Build and Transfer] menu to automatically link the file to transmit to the [Select a file], as shown in the figure below.



[Fig. Transmit file]

Project file info	Description
Project name	The project name, project size, XDesignerPlus4 version, and transmit date are shown.
Including OS file	Whether an OS file is included, and the version of the OS is shown. If [Auto OS Patch] is checked in [Tools]-[Edit options], and the OS in the installation path of XDesignerPlus4 [C:\Program Files\M2I Corp\XDesignerPlus4\OS\OS] is later than the OS in the connected touch, the latest OS is included when the project is transmitted.
Including upload data	Whether upload data is included, and the size of the upload file is shown. The upload file is the compressed (*.DPX4) file, and is included only when "Include upload data" is checked on the [Project builder] screen.

Comm. drive file	The PLC drive connected to the touch is displayed. The drive of the controller set under [PLC Settings] of [Project]-[Project property] is transmitted together when the project is transmitted. (Note) Before XDesignerPlus V4.0, the Os included all communication drives. However, from V4.0 onwards, only the drive of the set PLC is transmitted when the project is transmitted.
Select a file	When the Build & Transfer menu is run, the transfer project file (TRZ) file is automatically linked. To attach a separate TRZ file, use the  button.

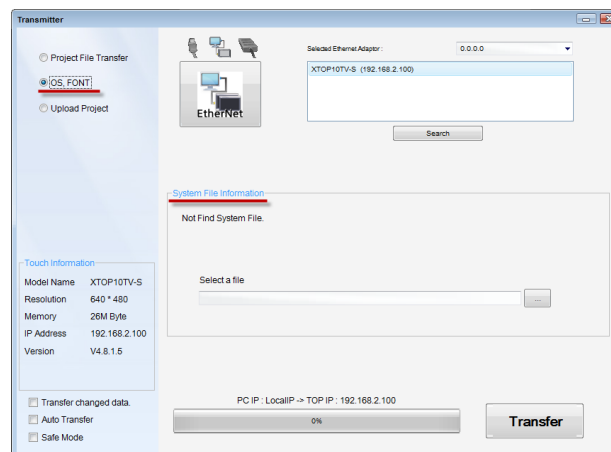
Click the [Transfer] button on the button to proceed with project transfer. Once the transfer is complete, the figure below is shown.




[Fig. Project transfer complete]

(3) OS transfer

This menu is used when transferring separate OS files. Run [Transfer]-[Transmitter menu]. Select [OS FONT], as shown in the figure below.

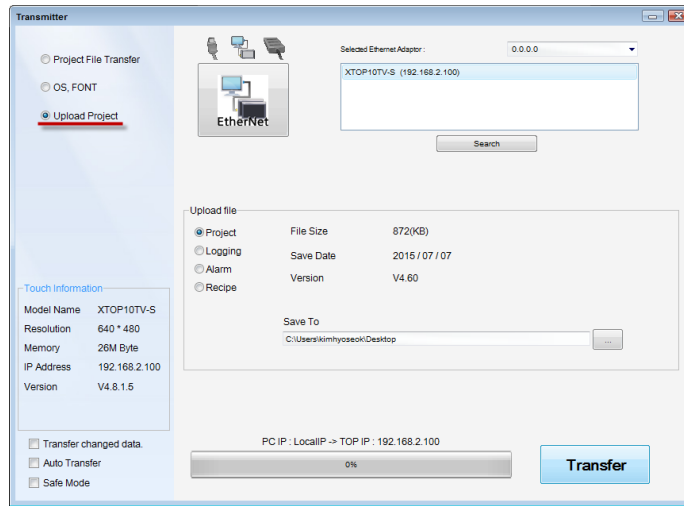


[Fig. OS FONT]

Under [System File Information], use the  button to select the OS file (*.bin) to transfer. Transfer to the touch using the [Transfer] button. If the XDesignerPlus4 software version is up to date, and "Auto OS Patch" is checked under [Tools]-[Editing options], the latest OS is transmitted together when the project is transmitted.

(4) Data upload


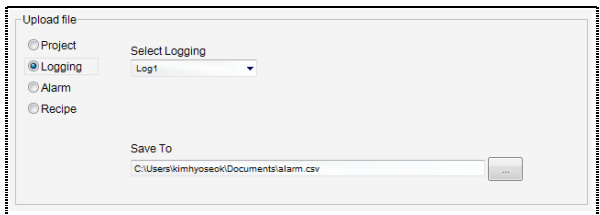
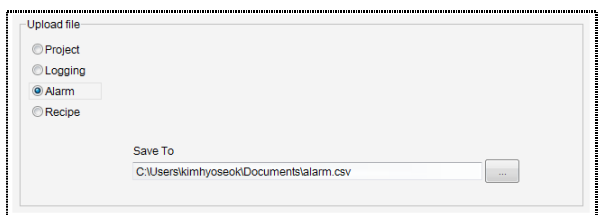
Data in the touch is uploaded to the PC. The process of sending data to the PC is called uploading. Uploadable data includes project, logging, alarm, and recipe data.

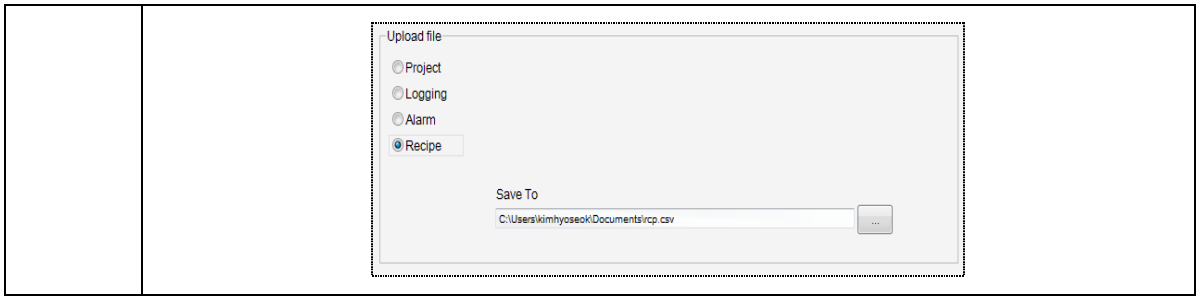


[Fig. Data upload]

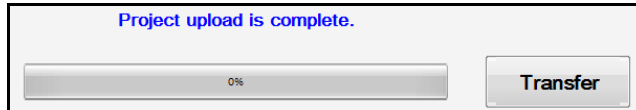
Select [Data project] as shown in the figure above.

Select the upload file. The types of upload file are as follow.

List	Description
Project	<p>Uploads upload files in the touch. The size of the upload file is displayed.</p> <p> This button is used to designate the save path. When upload is completed, a (*.DPX4) file is created in the designated path.</p>
Logging	<p>Uploads logging files in the touch. Under [Select Logging], select the logging number of the logging data to be uploaded, between log1 and log8.</p>  <p>Designate the save path. Logging data has an extension of (*.CSV), and can be viewed in Excel.</p>
Alarm	<p>Uploads alarm data in the touch. Designate the save path. Alarm data has an extension of (*.CSV), and can be viewed in Excel.</p> 
Recipe	<p>Uploads recipe data in the touch. Designate the save path.</p> <p>Alarm data has an extension of (*.CSV), and can be viewed in Excel.</p>

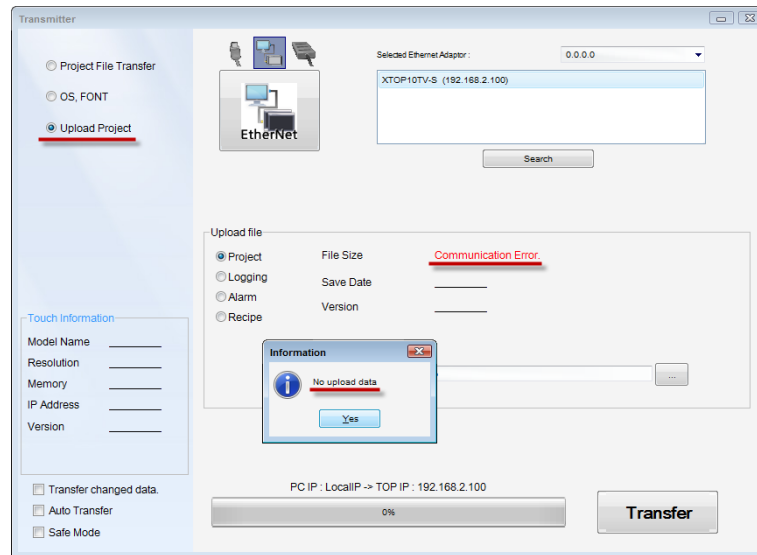


Select the type of file to upload, then press the [Transfer] button to proceed with the upload. If the upload is successfully completed, the following is shown.



[Fig. Upload completed]

If there is no data in the touch, the "No upload data" message is shown, as in the figure below.



[Fig. Upload data error]

(5) Option menu

On the bottom left corner of the transmitter, there are three options.

① Transfer changed data

The project file in the touch and the project file to be transmitted are compared, and only changed data is transmitted. If the project has been modified only by a little, the amount of data to be transmitted becomes small. This allows for faster project transmission.

② Auto transfer

Project transfer is performed immediately when the transmitter is run.

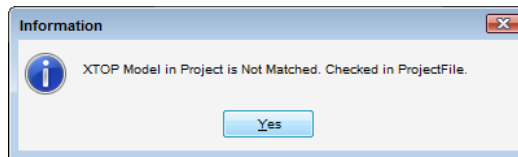
③ Safe mode

When transmitting by USB, the file is transmitted slowly to increase safety. This option is helpful when a [Transmit fail] occurs during USB transfer due to PC specifications.

47.4 Errors that occur during transfer

(1) Touch model mismatch

If the touch model set in the project and the touch model to transmit do not match, the file is not transmitted, and the following notification window is shown.



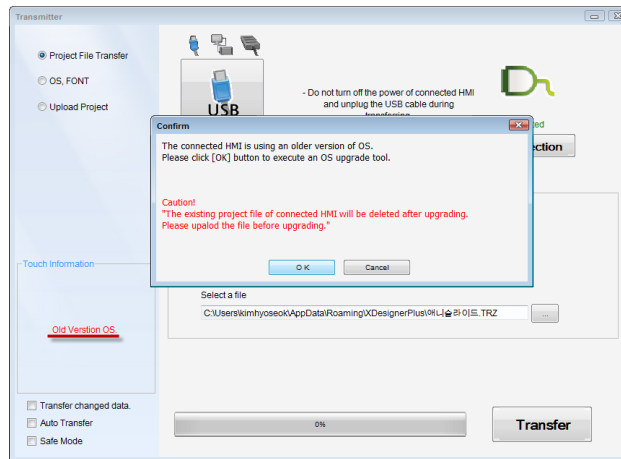
[Fig. Touch model mismatch error]

Change the touch model in [Project]-[Project property].

(☞ See [7.12.3] in [chapter 7] for instructions on how to change the model name.)

(2) OS version mismatch

If the OS of the touch is not V4.0, the following error message is shown when a project transfer is attempted, and the project is not transmitted.



[Fig. Error Message]

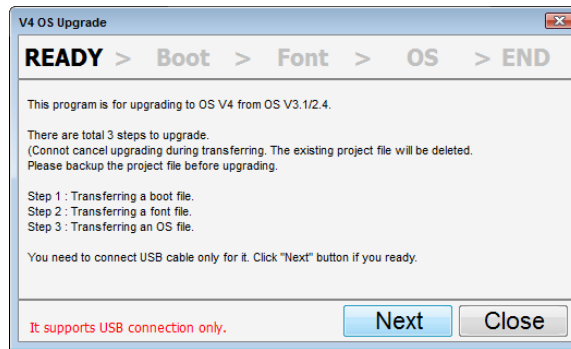
If the OS is not V4.0, run the [Transfer]-[OS Upgrade] menu to upgrade the touch.

47.5 V4.0 OS Upgrade

If the OS installed in the touch is V3.1, the following program can be used to upgrade to V4.0.

In order to upgrade to V4.0, the boot file/font file/OS file must be transmitted in sequence.

When the [Transfer]-[OS Upgrade] menu is run, the following screen is shown.



[Fig. V4.0 OS Upgrade]

This program is a program that uses a USB cable for transfer. Connect the USB cable and click to transmit the boot file. When transfer is completed, the touch resets. Once reset is completed, use the button again to transfer the font and OS files in sequence. When transfer of the three files has been completed, the touch enters "Touch Calibration Mode." When calibration is completed by touching the points, the V4.0 menu screen is shown.

47.6 USB driver installation

To connect the touch and PC and transfer files using a USB cable, the USB driver must be installed. The USB driver is automatically installed when XDesignerPlus4 is installed. If a driver issue occurs during use, and the driver must be installed again, navigate to the XDesignerPlus4 installation path [C:\Program Files\M2I Corp\XDesignerPlus4\usb_driver] and run [USB Driver Setup.exe] to install the driver again.

47.7 Transfer to USB memory storage device

This can be performed by using the [Interface]-[USB Storage]-[File Copy] menu from the menu screen of the touch body. Project files, OS files, or font files in the USB memory can be transmitted to the touch body, and project files, OS files, font files, system buffer data, and logging data in the touch body can be copied to USB memory.

(Warning) System Buffer Data and Logging Data in the USB memory cannot be sent to the touch body.

47.7.1 Copying and transmitting projects to USB memory

The function of saving project data to USB memory for loading in the touch is a function that is useful in the field, which does not require a PC or laptop. If there are two touches, the project from one touch can be copied and loaded on the other touch.

The project files copied and transmitted using USB memory are not DPX4 files for editing, but TRZ files for transfer. Therefore, project files copied using USB memory cannot be edited.

USB memory must be formatted in FAT if memory size is 2 gigabytes or less, and FAT32 is the size is in excess of 2 gigabytes.

When the USB memory is inserted into the touch body, a message is shown on the top left corner. When the memory is successfully recognized, the [USB Storage Insert!]-[USB Storage FAT Reading!]-[USB Storage Init OK!] messages are displayed in sequence. Some USB memory devices may not be recognized.

(1) Copy project to USB memory

Run the [Interface]-[USB Storage]-[File Copy] menu from the menu screen of the touch body.

Select Project File in the [File Copy] screen, then touch the [HMI->USB] button.

The project file is copied to the [-HMI-WPRJ] folder of the USB memory inserted in the touch.

The files copied are the build files used in the touch for actual operation. These cannot be edited on the PC.

This function is used to load the same project in another touch unit with the same specifications.

(2) Transfer project from USB memory

If a project has been copied to USB memory in a different touch body with the same specifications, the project can be loaded in the touch directly. From the menu screen of the touch body, run the [Interface]-[USB Storage]-[File Copy] menu. In the [File Copy] screen, select Project File, then click the [USB->HMI] button. The project file copied to USB memory is loaded in the touch body.

47.7.2 Copying and transmitting OS and font files to USB memory

Run the [Interface]-[USB Storage]-[File Copy] menu from the menu screen of the touch body.

In the [File Copy] screen, select OS File, then click the [HMI->USB] button to copy the OS file to the inserted USB memory. The file is saved as [S1000000.SYS] in the [-HMI-WSYS] folder of the USB memory. Remove the USB and insert into a different touch. In the [File Copy] screen, click the [USB->HMI] to load the copied OS file in the touch.

An OS file in the PC can be loaded in a touch by saving an OS file on the PC as [S1000000.SYS] in the [-HMI-WSYS] folder of the USB memory.

In the case of font files, select Font File in the [File Copy] screen and copy the file. The file is saved in the [-HMI-WSYS] folder of the USB memory with the file name [S2000000.SYS]. Only the file name is different. The method of copying and loading is the same as for OS files.

47.7.3 Copy internal address and logging data to USB memory

Internal address data and logging data can be transmitted to USB memory.

System Buffer Data and Logging Data in the USB memory cannot be sent to the touch body.

(1) Copy internal address to USB memory

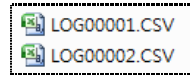
Run the [Interface]-[USB Storage]-[File Copy] menu from the menu screen of the touch body.

In the [File Copy] screen, select System buffer data, then click the [HMI->USB] button to copy the internal address file to the inserted USB memory. These files cannot be viewed from the PC, and can only be used to copy and load in the touch body.

(2) Copy logging data to USB memory

Run the [Interface]-[USB Storage]-[File Copy] menu from the menu screen of the touch body.

In the [File Copy] screen, select OS File, then click the [HMI->USB] button to copy the OS file to the inserted USB memory.



[Fig. Logging data copied to USB memory]

The LOG00001.CSV file represents logging1 data, and the LOG00002.CSV file is logging2 data.

The content of these files can be viewed on the PC using Excel.

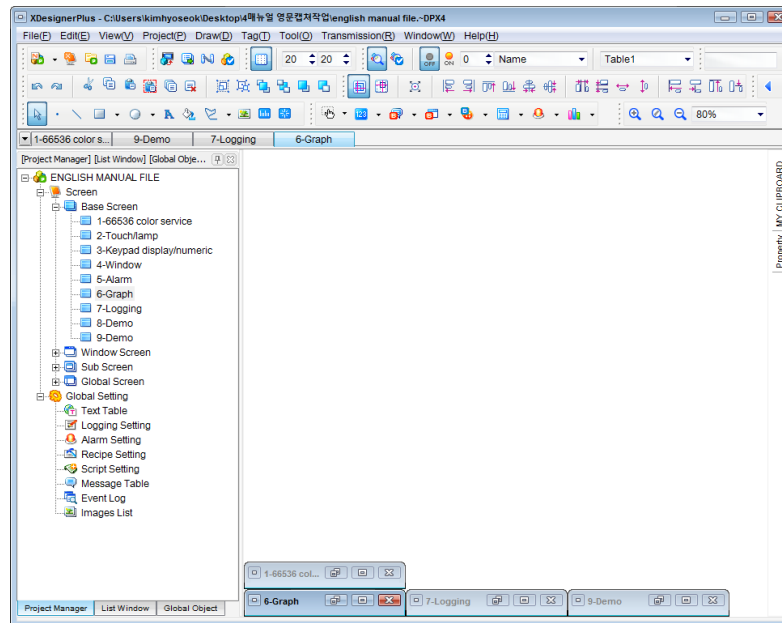
CHAPTER 48 Window Menu

CHAPTER 48 - Window Menu

The window menu is used to align or close the base screen, window screen, sub screen, and global screen. The menu allows more effective editing when multiple screens are active.

48.1 Minimize all

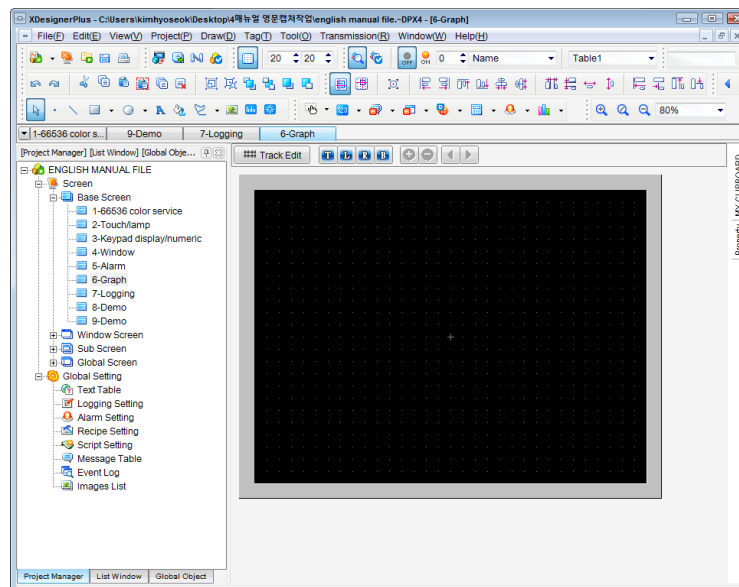
All screens open in the program are minimized, and aligned on the bottom of the screen.



[Fig. Minimize all]

48.2 Maximize all

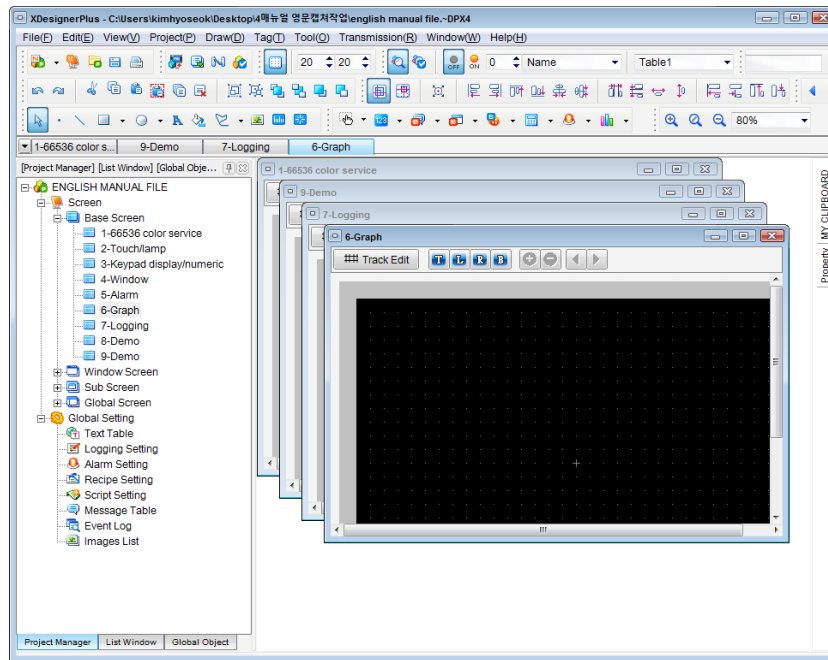
All screens open in the program are shown in the maximum size.



[Fig. Maximize all]

48.3 Cascade

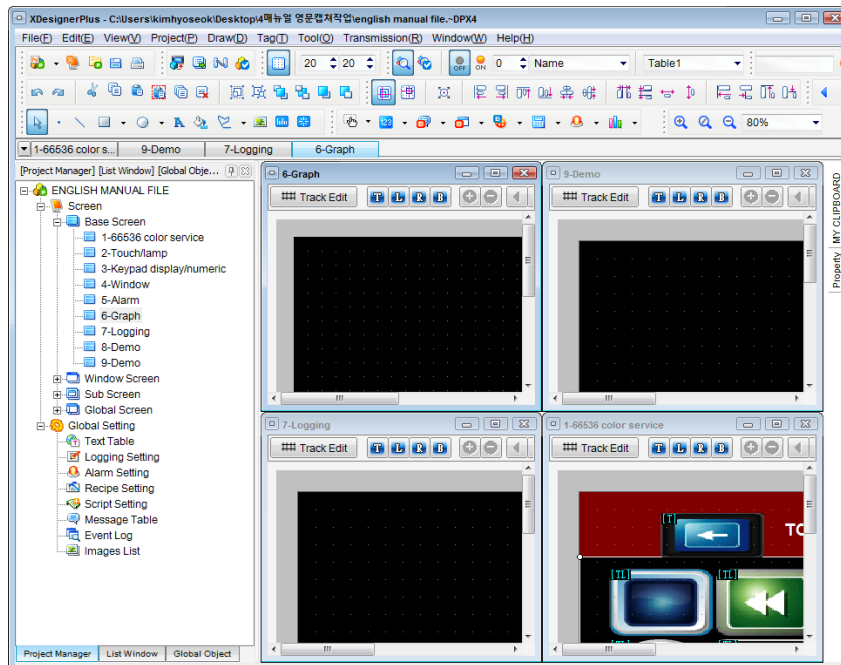
All screens open in the program are aligned in cascading order.



[Fig. Cascade]

48.4 Tile

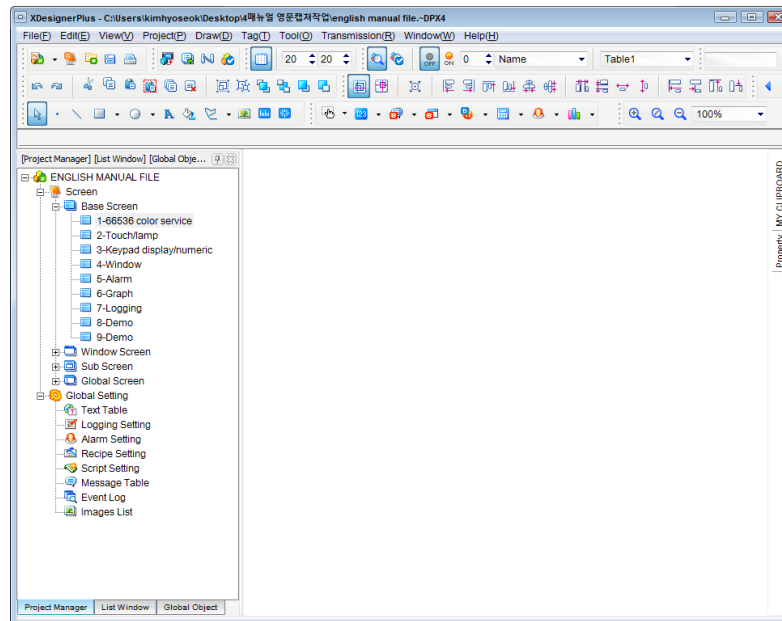
All screens open in the program are tiled.



[Fig. Tile]

48.5 Close all

All screens open in the program are closed.



[Fig. Close all]

CHAPTER 49 Help Menu

CHAPTER 49 - Help Menu

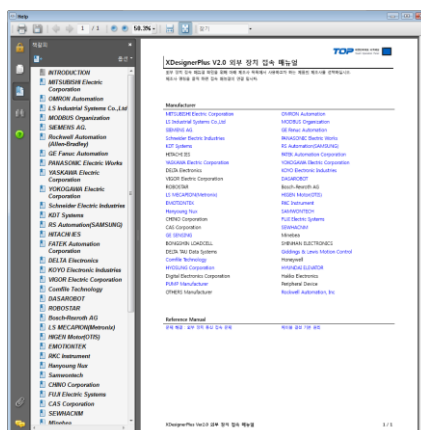
The help menu includes product info, communication manuals, and help files providing additional functions and info for use of XDesignerPlus4.

49.1 Help

A PDF version of the XDesignerPlus4 user manual is shown. This function requires that a PDF reader program is installed on the user PC.

49.2 Communication manual

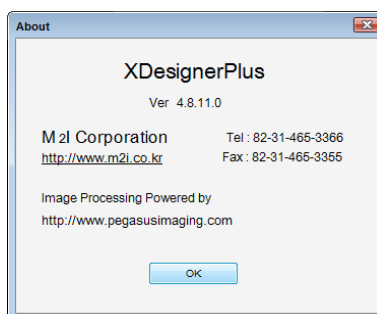
Communication manuals for different manufacturers can be viewed. The communication manuals also include descriptions of communication setting methods, and cabling diagrams between the touch and controller. Select the manufacturer of the controller from the list on the left, and select the manual depending on the CPU/Port.



[Fig. Communication manual]

49.3 Product info

The XDesignerPlus4 version can be viewed. Also indicated are the telephone number and address of the M2I Corporation.



[Fig. About]