# 13. Objects

This chapter explains how to use different objects.

13.1.	Bit Lamp13-	3
13.2.	Word Lamp	5
13.3.	Set Bit	0
13.4.	Set Word	3
13.5.	Function Key	3
13.6.	Toggle Switch	0
13.7.	Multi-State Switch	3
13.8.	Slider	7
13.9.	Numeric	4
13.10.	ASCII	3
13.11.	Indirect Window	7
13.12.	Direct Window	5
13.13.	Moving / Rotating Shape	1
13.14.	Animation	7
13.15.	Bar Graph13-9	1
13.16.	Meter Display13-10	0
13.17.	Trend Display	8
13.18.	History Data Display13-13	1
13.19.	Data Block Display	0
13.20.	XY Plot	9
13.21.	Alarm Bar and Alarm Display	6
13.22.	Event Display	5
13.23.	Data Transfer	9
13.24.	Backup	7
13.25.	Media Player	5
13.26.	BACnet Schedule	1
13.27.	PLC Control	5
13.28.	Scheduler	2
13.29.	Option List	2
13.30.	Timer	0
13.31.	Video In	5
13.32.	System Message	2



13.33.	Recipe View	13-244
13.34.	Flow Block	13-252
13.35.	Operation Log	13-257
13.36.	Combo Button	13-271
13.37.	Circular Trend Display	13-279
13.38.	Picture View	13-289
13.39.	File Browser	13-292
13.40.	Import/Export	13-296
13.41.	Pie Chart	13-301
13.42.	Barcode	13-306
13.43.	String Table	13-316
13.44.	Database	13-318
13.45.	Dynamic Scale	13-336
13.46.	Dynamic Drawing	13-339
13.47.	PDF Reader	13-345
13.48.	Table	13-347
13.49.	VNC Viewer	13-349
13.50.	Contacts Editor	13-354
13.51.	Event Bar Chart	13-357
13.52.	Action Trigger	13-363
13.53.	Calendar	13-370
13.54.	Touch Gesture	13-372
13.55.	PLC Web Browser	13-374
13.56.	Condition	13-378
13.57.	FTP Server	13-382
13.58.	Date/Time	13-385
13.59.	Template	13-387





### 13.1. Bit Lamp

### 13.1.1. Overview

Bit Lamp object displays the state of a designated bit address. If the bit state is OFF, the State 0 shape will be displayed. If the bit state is ON, the State 1 shape will be displayed.



### 13.1.2. Configuration



Click [Object] » [Bit Lamp] icon on the toolbar to open a Bit Lamp object property dialog box. Set up the properties, press OK button, and a new Bit Lamp object will be created.

### **General Tab**

eneral Secu	urity Shape Label		
Con	nment :		
	💿 Bit Lamp	🔵 Toggle Switch	
Read addre:			
	Local HMI		ttings
Address	: LB	• 0	
	🕅 Invert signal		
Blinking			
Blinking			
	Mede (News		
	Mode : None		•
	2.4 800 V0000	nding picture for current state	•
	2.4 800 V0000	nding picture for current state	
	2.4 800 V0000	nding picture for current state	•
	2.4 800 V0000	nding picture for current state	•
	2.4 800 V0000	nding picture for current state	Ţ
	2.4 800 V0000	nding picture for current state	Ţ
	2.4 800 V0000	nding picture for current state	Ţ
	2.4 800 V0000	nding picture for current state	•





Setting	Description			
Comment	User can describe the information of the object.			
	Bit Lamp / Toggle Switch			
	Switch between Bit Lamp and Toggle Switch features.			
Read address	Click [Setting] to select the [PLC name], [Address], [Device type],			
	[System tag], [Index register] of the bit device that controls the [Bit			
	Lamp] object. Users can also set address in [General] tab while			
	adding a new object.			
	Invert signal			
	Reverses the display of ON / OFF states. For example, if [Invert			
	signal] check box is selected, when the designated bit is OFF, the			
	object displays ON state.			
Blinking	The appearance of the object may alternate between states when			
	the bit is ON or OFF.			
	Mode:			
	None			
	No blinking.			
	Alternating image on state 0			
	The appearance of the object alternates between State 0 and 1			
	when the bit is OFF.			
	Alternating image on state 1			
	The appearance of the object alternates between State 0 and 1			
	when the bit is ON.			
	Blinking on state 0			
	The State 0 appearance of the object will blink when the bit is OFF.			
	Blinking on state 1			
	The State 1 appearance of the object will blink when the bit is ON.			
	Hide picture/shape if no corresponding picture for current state			
	If selected, when there are not enough pictures to represent all the			
	states, hides the picture. Otherwise, displays the last state.			

# Note

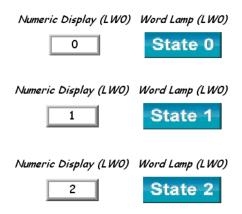
In [Label] tab, if select [ON=OFF (use state 0)] check box, both state 0 and 1 follow the settings of state 0.



### 13.2. Word Lamp

### 13.2.1. Overview

Word Lamp object displays the state according to the value of a designated word register. Up to 256 states are available. When the value of the register is 0, State 0 appearance of the object is displayed, and with the register value being 1 the object displays State 1, and so on.



### **13.2.2.** Configuration



Click [Object] » [Word Lamp] icon on the toolbar to open a Word Lamp object property dialog box. Set up the properties, press OK button, and a new Word Lamp object will be created.



### **General Tab**

Jeneral	Security S	hape 🗄	Label					
	Comment :	ake ak T						
		💿 Word	Lamp		🔘 Mult	i-State Swite	h	
(1) (1)	¥. 1.			1	20	1.175		
	Mode :	Value		•	Of	fîset: 0		
Read	address							
PLC	name : Local	HMI					Settings	i
	ddress : LW			• 0			16-bit Unsi	igned
Attrit	ute ]Hide picture/	shape if r	10 corresp	oonding pic	No. of st ture for cu			T
- Attrib		shape if r	10 corresp	conding pic				•

Description
Lloss can describe the information of the chiest
User can describe the information of the object.
Word Lamp / Multi-State Switch
Switch between Word Lamp and Multi-State Switch features.
Word Lamp object offers the following three modes:
Value
The state is displayed according to the value in the designated word
address and plus the [Offset].
As shown below, if the value within LW-200 is 3, since the offset is
set to 3, the shape of state 0 is displayed. (value 3 - offset 3)



lew Wor	d Lamp/I	Multi-State Switch	Object		×
General	Security	Shape Label			
	Comment	:			
		Word Lamp	C	) Multi-State Sv	witch
	Mode Offset	Value 3		•	
-Read au	ldress —				
P	LC : Loc	al HMI			▼ Settings
Add	ress : LW		<b>v</b> 200		16-bit Unsigned

### LSB

Convert the value from decimal to binary. The least significant active bit in a binary data word selects the state displayed.

Decimal	Binary	Displayed state		
0	000000000000000000000000000000000000000	State = 0 when all bits are 0.		
1	000000000000000000000000000000000000000	The lowest non-zero bit is bit 0, state = 1.		
2	000000000000000000000000000000000000000	The lowest non-zero bit is bit 1, state = 2.		
3	000000000000011	The lowest non-zero bit is bit 0, state = 1.		
4	000000000000100	The lowest non-zero bit is bit 2, state = 3.		
7	000000000000111	The lowest non-zero bit is bit 0, state = 1.		
8	000000000001000	The lowest non-zero bit is bit 3, state = 4.		
16	000000000010000	The lowest non-zero bit is bit 4, state = 5.		
32	000000000100000	The lowest non-zero bit is bit 5, state = 6.		
64	000000001000000	The lowest non-zero bit is bit 6, state = 7.		
128	00000001000000	The lowest non-zero bit is bit 7, state = 8.		
256	00000010000000	The lowest non-zero bit is bit 8, state = 9.		
512	000000100000000	The lowest non-zero bit is bit 9, state = 10.		
1024	000001000000000	The lowest non-zero bit is bit 10, state = 11.		
2048	0000100000000000	The lowest non-zero bit is bit 11, state = 12.		
4096	0001000000000000	The lowest non-zero bit is bit 12, state = 13.		
8192	0010000000000000	The lowest non-zero bit is bit 13, state = 14.		
16384	01000000000000000	The lowest non-zero bit is bit 14, state = 15.		
32768	10000000000000000	The lowest non-zero bit is bit 15, state = 16.		

#### **Bit combination**

Lamp state depends on the states of bit combinations, where PLC 1





represents the least significant bit (LSB), PLC 2 represents the next LSB, and so on. Maximum number of bit is 4, for a total of 16 states. Changing [No. of states] in Attribute group box changes the number of read addresses.

	Mode : Bit combination
	□ Read address
	PLC 1:         Local HMI         V         Settings           Address 1:         LB         V         0
	PLC 2 : Local HMI V Settings
	PLC 3: Local HMI v Settings
	Address 3 : LB 2 PLC 4 : Local HMI V Settings Address 4 : LB V 3
	Attribute No. of states : 16 v
	<b>Change state by time</b> The state displayed changes on a time basis. The frequency can be set.
Read address	<ul> <li>The state displayed changes on a time basis. The frequency can be set.</li> <li>Click [Setting] to select the [PLC name], [Address], [Device type], [System tag], [Index register] of the word device that controls the [Word Lamp] object. Users can also set address in [General] tab</li> </ul>
Read address Attribute	<ul> <li>The state displayed changes on a time basis. The frequency can be set.</li> <li>Click [Setting] to select the [PLC name], [Address], [Device type], [System tag], [Index register] of the word device that controls the</li> </ul>
	<ul> <li>The state displayed changes on a time basis. The frequency can be set.</li> <li>Click [Setting] to select the [PLC name], [Address], [Device type], [System tag], [Index register] of the word device that controls the [Word Lamp] object. Users can also set address in [General] tab while adding a new object.</li> </ul>
	<ul> <li>The state displayed changes on a time basis. The frequency can be set.</li> <li>Click [Setting] to select the [PLC name], [Address], [Device type], [System tag], [Index register] of the word device that controls the [Word Lamp] object. Users can also set address in [General] tab while adding a new object.</li> <li>No. of states</li> <li>The number of states is utilized by the object. The state is numbered from 0, so the number of states minus 1 will be the state number. If the value within the word register is ≥ [No. of states]</li> </ul>
	<ul> <li>The state displayed changes on a time basis. The frequency can be set.</li> <li>Click [Setting] to select the [PLC name], [Address], [Device type], [System tag], [Index register] of the word device that controls the [Word Lamp] object. Users can also set address in [General] tab while adding a new object.</li> <li>No. of states</li> <li>The number of states is utilized by the object. The state is numbered from 0, so the number of states minus 1 will be the state number. If the value within the word register is ≥ [No. of states] defined in Attribute, the highest state will be displayed.</li> <li>If the number of states is set to 8, the valid states will be 0, 1, 2,, 7. In this case if the word value is 8 or higher, the system will</li> </ul>
	<ul> <li>The state displayed changes on a time basis. The frequency can be set.</li> <li>Click [Setting] to select the [PLC name], [Address], [Device type], [System tag], [Index register] of the word device that controls the [Word Lamp] object. Users can also set address in [General] tab while adding a new object.</li> <li>No. of states</li> <li>The number of states is utilized by the object. The state is numbered from 0, so the number of states minus 1 will be the state number. If the value within the word register is ≥ [No. of states] defined in Attribute, the highest state will be displayed.</li> <li>If the number of states is set to 8, the valid states will be 0, 1, 2,, 7. In this case if the word value is 8 or higher, the system will display the state 7 shape.</li> </ul>
	<ul> <li>The state displayed changes on a time basis. The frequency can be set.</li> <li>Click [Setting] to select the [PLC name], [Address], [Device type], [System tag], [Index register] of the word device that controls the [Word Lamp] object. Users can also set address in [General] tab while adding a new object.</li> <li>No. of states</li> <li>The number of states is utilized by the object. The state is numbered from 0, so the number of states minus 1 will be the state number. If the value within the word register is ≥ [No. of states] defined in Attribute, the highest state will be displayed.</li> <li>If the number of states is set to 8, the valid states will be 0, 1, 2,, 7. In this case if the word value is 8 or higher, the system will</li> </ul>

# Note

In [Label] tab, Language 1 determines the relevant settings of the font. For Language 2~8, only the font size can be changed and other settings follow Language 1.



### Objects

New Word Lamp Object	New Word Lamp Object
General Security Shape Label	General Security Shape Label
Use label Use label library Label tag : Label_0 Label Library Language : 1 State : 0 Attribute Font : Arial Color : Size : 16	Use label Use label library Label tag : Label_0 Label Library Language : 2 State : 0 • • • 0 1 Attribute Font : Arial Color : • • • • • • • • • • • • • • • • • •
Align : Left  Blink : None	Align : Left V Blink : None V
Italic Duplicate these attributes to Every state Every language All	Italic         Duplicate these attributes to         Every state       Every language         All
Movement Direction : No movement	Movement Direction : No movement
Content	Content
text	
Tracking Duplicate this label to every state	Tracking Duplicate this label to every state
OK Cancel Help	OK Cancel Help





### **13.3.** Set Bit

### 13.3.1. Overview

The Set Bit object provides two operation modes: manual or automatic. Manual mode can trigger a designated bit address to change the state between ON and OFF when the object is touched. In automatic mode, the bit is automatically activated when a pre-defined condition occurs; touching the button will not be effective.

### 13.3.2. Configuration



Click [Object] » [Set Bit] icon on the toolbar to open a Set Bit object property dialog box. Set up the properties, press OK button, and a new Set Bit object will be created.

### **General Tab**

General Security Shape Label
Comment :
Write address
PLC name : Local HMI
Address : LB 🗸 0
Write after button is released
Attribute
Set style : Set ON Set ON Set OFF Toggle Macro Momentary Periodic toggle Execute mag Set ON when window opens Set OFF when window opens Set OFF when window doses Set OFF when window doses Set OFF when backlight on Set OFF when backlight on Set OFF when backlight off Set OFF when backlight off
OK Cancel Help

SettingDescriptionWrite addressClick [Setting] to select the [PLC name], [Address], [Device type],<br/>[System tag], [Index register] of the bit device that controls the Set<br/>Bit object. Users can also set address in [General] tab while adding<br/>a new object.<br/>Write after button is released



		ion does not work with momentary buttons.
Mode / Offset	Set style Set ON	Description Set ON the designated bit of the device.
	Set OFF	Set OFF the designated bit of the device.
	Toggle	Alternates the bit state each time pressed.
	Momentary	Holds the bit ON only while button is pressed.
	Periodical toggle	Set a designated bit ON and OFF at a set time
		interval. Time interval can be selected; the
		range is from 0.1 to 25.5 seconds.
	Set ON when	Set ON the bit within the window when the
	window opens	window opens.
	Set OFF when	Set OFF the bit within the window when the
	window opens	window opens.
	Set ON when	Set ON the bit within the window when the
	window closes	window closes.
	Set OFF when	Set OFF the bit within the window when the
	window closes	window closes.
	Set ON when	Set the bit ON when the backlight is turned
	backlight on	ON.
	(N/A for	
	cMT-SVR)	
	Set OFF when	Set the bit OFF when the backlight is turned
	backlight on	ON.
	(N/A for	
	cMT-SVR)	
	Set ON when	Set the bit ON when the backlight is turned
	backlight off	OFF.
	(N/A for	
	cMT-SVR)	
	Set OFF when	Set the bit OFF when the backlight is turned
	backlight off	OFF.
	(N/A for	
	cMT-SVR)	
Macro	-	rigger the start of a Macro routine when the
	Macro has been cre	
	🖙 For more infor	mation, see "18 Macro References".
Trigger mode	If [Set style] is set t	o [Toggle], there is a further selection to make o
	whether the macro	operates after Off to ON, ON to OFF transition,
		anges of state.

# Note

In [Label] tab, if select [ON=OFF (use state 0)] check box, both state 0 and 1 follow the settings of state 0.



- Using address types other than PLB or PLW\_Bit for Set Bit objects with [Periodic Toggle] attribute is not supported by cMT-SVR.
- The Set Style setting in the General tab determines which settings are available in the Security tab. When the Set Style is [Set ON / OFF when window opens], there will be no settings available in the Security tab.
- When [Execute macro] is selected, the sequence in which the object's write operation and the macro execution is determined by the HMI runtime. In order to exactly arrange the write operation and the macro execution in the desired way, specify the sequence by configuring a Combo Button instead.



### 13.4. Set Word

### 13.4.1. Overview

The Set Word object provides two operation modes: manual or automatic. Manual mode can change the value in a designated word address when the object is touched. In automatic mode, the word register is automatically activated when a pre-defined condition occurs; touching the button will not be effective.

### 13.4.2. Configuration



Click [Object] » [Set Word] icon on the toolbar to open a Set Word object property dialog box. Set up the properties, press OK button, and a new Set Word object will be created.

### **General Tab**

New Set Word Object	×
General Security Shape Label	
Comment :	
Write address	
PLC name : Local HMI	Setting
Address : LW 👻 0	16-bit Unsigned
Write after button is released	
Notification	
🖉 Enable 🛛 🔘 Set ON 👘 Se	et OFF
Before writing After writing	
PLC name : Local HMI	Setting
Address : LB 🗾 0	
Attribute	]
Set Style : Write constant value	•
Set value: 0	
OK Cancel	Help



Setting	Description
Write address	Click [Setting] to select the [PLC name], [Address], [Device type],
	[System tag], [Index register] of the word device that controls the
	Set Word object. Users can also set address in [General] tab while
	adding a new object.
	Write after button is released
	If this function is selected, the action is delayed till button is
	released; otherwise, the action is executed once the button is
	pressed.
Notification	If this check box is selected, it will notify a designated bit address
	(setting ON or OFF).
	Before writing / After writing
	Set the state of the designated bit address before or after the
	manual operation.
Attribute	Set Style
	Select the button action from the drop down list, see Example 2.
	Dynamic limits
	Set the [Bottom limit] and [Upper limit] by a designated register,
	see Example 1.

### Example 1

Set the [Bottom limit] and [Upper limit] by a designated register. When Dynamic Address is LW-n, where n is an arbitrary number, the rule of setting Upper / Bottom limit is:

Content	16-bit	32-bit	<b>64-bit</b> (cMT / cMT X only)
Dynamic address	LW-n	LW-n	LW-n
Bottom limit	LW-n	LW-n	LW-n
Upper limit	LW-n+1	LW-n+2	LW-n+4
When Dynamic Address is	LW-100, the rule	e of setting Uppe	r / Bottom limit is:
Content	16-bit	32-bit	<b>64-bit</b> (cMT / cMT X only)
Dynamic address	LW-100	LW-100	LW-100
Bottom limit	LW-100	LW-100	LW-100
Upper limit	LW-101	LW-102	LW-104

### Example 2

The available button actions are:

• Write constant value

Write a preset value. Each time the button is pressed, the value in [Set value] is written to the designated register. Data format is as set by the [Write address] above; it can be 16-bit BCD, 32-bit BCD, ...64-bit Double. In the following figure, when the button is pressed, the number 12 is written to the designated register.



Attribute			
Set Style :	Write constant value	•	
Set value :	12		

• Write constant string (cMT / cMT X only)

Write a preset string. Each time the button is pressed, the string in [Set string] is written to the designated register. The string format can be: UTF-8, Unicode, Latin-1...etc. In the following figure, when the button is pressed, the string "abcd" is written to the designated register.

Attribute	
Set Style :	Write constant string 🗸
Set string :	abcd
String format :	UTF-8 (Default)

### Increment value (JOG+)

Increase value in register by a set amount in [Inc. value], each time when the button is pressed, up to the [Upper limit]. As shown below, each button press increases the value in the register by 1 until the value is 10.

Attribute			
Set Style :	Increment value (JOG+	)	▼
Inc. value :	1	Upper limit :	10

• Decrement Value (JOG-)

Decrease value in register by a set amount in [Dec. value], each time when the button is pressed, down to the [Bottom limit]. As shown below, each button press decreases the value in the register by 1 until the value is 0.

At	tribute			
	Set Style :	Decrement value (JOG-)		-
	Dec. value :	1	Bottom limit :	0

Bounce (up->down->up) (cMT / cMT X only)

Each time when the button is pressed, the value in the register is increased by the [Inc. value] until the [High limit] is reached, and then the value is decreased by the [Inc. value], each time when the button is pressed, down to the [Low limit]. As shown below, the system will increase the value in the register by 1 each time when the button is pressed, until the value is 10, and then decrease the value by 1 each time when the button is pressed, until the value is 0, and then increase the value again.



Attribute			
Set style :	Bounce (up->down->up	->)	•
Low limit :	0	High limit : 10	
Inc. value :	1		

• Press and hold increment (JOG++)

When the button is held longer than a set time in [JOG delay], it will increase the value in a register by a set amount :[Inc. value] at a set rate :[JOG speed], to the [Upper limit]. As shown below, when the button is pressed, it increases the value in the designated register by 1. When the button is held longer than 1 second, it increases the value in register by 1 every 0.5 second, till the value is 10.

Attribute		
Set Style :	Press and hold increment (	(JOG++) 🔻
Inc. value :	1	Upper limit : 10
JOG delay :	1.0 second(s)	JOG speed : 0.5 second(s)

Press and hold increment (JOG--)

When the button is held longer than a set time in [JOG delay], it will decrease the value in a register by a set amount: [Dec. value] at a set rate: [JOG speed], to the [Bottom limit]. As shown below, when the button is pressed, it decreases the value in the designated register by 1. When the button is held longer than 1 second, it decreases the value in register by 1 every 0.5 second, till the value is 0.

Attribute			
Set Style :	Press and hold decreme	nt (JOG)	•
Dec. value :	1	Bottom limit :	0
JOG delay :	1.0 second(s)	JOG speed :	0.5 second(s)

Periodic JOG++

This automatic function increases the value in the register by a set amount: [Inc. value], at a set rate: [Time interval], to the [Upper limit]. As shown below, the system will automatically increase the value in the register by 1 every 0.5 second, till the value is 10. Then the value returns to 0 and add 1 every 0.5 second again.



up->) Upper limit : 10
Upper limit : 10

### Automatic JOG++

This automatic function increases the value in the register by a set amount: [Inc. value], at a set rate: [Time interval], to the [Upper limit].then holds this value. As shown below, the system will automatically increase the value in the register by 1 every 0.5 second, till the value is 10, and then stop.

Attribute			
Set Style :	Automatic JOG++ (up t	o high limit)	•
Inc. value :	1	Upper limit :	10
Time interval :	0.5 second(s) 🔹		

### Automatic JOG--

This automatic function decreases the value in the register by a set amount: [Dec. value], at a set rate: [Time interval], to the [Bottom limit].then holds this value. As shown below, the system will automatically increase the value in the register by 1 every 0.5 second, till the value is 10, and then stop.

Attribute Set Style :	Automatic JOG (dowr	n to low limit)	
Dec. value :	1	Bottom limit :	10
Time interval :	0.5 second(s)		

### Periodic bounce

Increases the word address value to the [Upper limit] by a [Inc. value] at a set rate in [Time interval], then decreases to the [Bottom limit] by the same value at the same rate. As shown below, the system will increase the value in the designated register by 1 every 0.5 second, till the value is 10, and then decrease the value by 1 every 0.5 second till the value is 0 whenever the screen is active.



Attribute	
Set Style : Periodic bounce (up	->down->up->) 🔻
Bottom limit : 0	Upper limit : 10
Inc. value : 1	
Time interval : 0.5 second(s)	•

Periodic step up

Step up to the [High limit] by [Inc. value] at a set rate in [Time interval], then reset immediately to the [Low limit]. The action repeats whenever the screen is active. As shown below, the system will increase the value in the designated register by 1 every 0.5 second, till the value is 10, and then reset to 0 and increase again, and the action repeats.

Attribute		
Set Style :	Periodic step up (low to	high) 👻
Low limit :	0	High limit : 10
Inc. value :	1	
Time interval :	0.5 second(s)	

Periodic step down

Step down to the [Low limit] by [Dec. value] at a set rate in [Time interval], then reset immediately to the [High limit]. The action repeats whenever the screen is active. As shown below, the system will decrease the value in the designated register by 1 every 0.5 second, till the value is 0, and then reset to 10 and decrease again, and the action repeats.

Attribute	
Set Style : Periodic step do	own (high to low) 🔹
Low limit : 0	High limit : 10
Dec. value : 1	
Time interval : 0.5 second(s)	•

• Set when window opens / Set when window closes

Automatic function occurs whenever the screen is active. The value entered in [Set value] is set into the word address when the action occurs. If [Set value] is set to 5, when the window opens / closes, the system enters 5 into the designated register.

• Set when backlight on / Set when backlight off (Not supported on cMT-SVR) Automatic function occurs whenever the backlight is active. The value entered in [Set value] is set into the word address when the action occurs. If [Set value] is set to 5, when the backlight turns ON / OFF, the system sets 5 into the designated register.

• Cyclic JOG+

Each time when the button is pressed, increases the word address value to the [Upper limit] by





[Inc. value] then reset to the [Bottom limit]. As shown below, each time when pressing the button, the system will increase the value in the designated register by 1, till the value is 10, and then reset to 0 and increase again by pressing the button.

Attribute			
Set Style : C	yclic JOG+		-
Bottom limit : 0	l	Upper limit :	10
Inc. value : 1			

### Cyclic JOG-

Each time when the button is pressed, decrease the word address value to the [Bottom limit] by [Dec. value] then reset to the [Upper limit]. As shown below, each time when pressing the button, the system will decrease the value in the designated register by 1, till the value is 0, and then reset to 10 and decrease again by pressing the button.

Attribute			
Set Style :	Cyclic JOG-		•
Bottom limit :	0	Upper limit :	10
Dec. value :	1		

Cyclic JOG++

When the button is held longer than a set time in [JOG delay], it increases the value in a register by a set amount in [Inc. value] at a set rate in [JOG speed], to the [Upper limit], then reset to the [Bottom limit]. As shown below, when the button is held longer than 0.5 second, increase the value in the designated register by 1 every 0.1 second, till the value is 10, and then reset to 0 and increase again by holding the button.

Attribute	
Set Style : Cyclic JOG++	-
Bottom limit : 0	Upper limit : 10
Inc. value : 1	
JOG delay : 0.5 second(s)	JOG speed : 0.1 second(s)

Cyclic JOG
0,010000

When the button is held longer than a set time in [JOG delay], decrease the value in a register by a set amount in [Dec. value] at a set rate in [JOG speed], to the [Bottom limit], then reset to the [Upper limit]. As shown below, when the button is held longer than 0.5 second, decrease the value in the designated register by 1 every 0.1 second, till the value is 0, and then reset to 10 and decrease again by holding the button.



Attribute		
Set Style :	Cyclic JOG	▼
Bottom limit :	0	Upper limit : 10
Dec. value :	1	
JOG delay :	0.5 second(s)	JOG speed : 0.1 second(s)

• Object Control Command (cMT / cMT X only)

Listed for selection are commands (with their corresponding command values) available for the control address of various functions. For a given function, with write address set to its control address, Set Word writes the command value and achieves function control.

Attribute	
Set Style :	Object Control Command 🗸
Object Type :	Database Server 🗸
Command :	[1] Start 🗸

System Tag Command (cMT / cMT X only)

When a system tag is set as write address, for example, LW-9134: Language Mode, the commands relating to the system tag can be selected.

Attribute	
Set Style :	System Tag Command 🗸
Language :	Language 1





# Security Tab

eneral Security Shape Label Profile	
Safety control	
	Min. press time (sec) : 0 🔻
Display confirmation request	Max. waiting time (sec) : 10
Interlock	
☑ Use interlock function	🔘 Bit 💿 Word
Hide when disabled	
Graved label when disabled	
Trigger if value is : >	▼ 1
PLC : Local HMI	▼ Settings
Address : LW 🔹 1	16-bit Unsigned
User restriction	
Object class : None	▼





Setting	Description
Interlock	Use interlock function
	When this option is enabled and [Word] is selected, whether
	the object is operable depends on the condition of a word
	address specified in [Trigger if value is:]. In the settings above,
	the object is operable only when the value in LW-1 is greater
	than 1.
	Hide when disabled
	The object is hidden when the specified condition does not
	occur in the specified word address.
	Grayed label when disabled
	The label of the object turns gray when the specified conditio
	does not occur in the specified word address.
	button
	Trigger if value is:
	This setting is for specifying a trigger condition. The available
	options are: >, <, ==, <>, >=, and <=. A tolerance value can be
	set for conditions == and <>.
	For example:
	Hide when disabled
	Grayed label when disabled
	Trigger if value is : == ~ 10
	Tolerance : 1
	When the value is the specified word address is greater than
	or equal to 11, or smaller than or equal to 9, the object will be

hidden and is not operable.

# Note

Using address types other than PLW for Set Word objects with automatic attributes such as [Periodic set up], [Periodic set down], [Automatic JOG++], [Automatic JOG--], and [Periodic JOG++]...etc, is not supported by cMT-SVR.



### 13.5. Function Key

### 13.5.1. Overview

The Function Key object can be used for several tasks, such as switching between windows, keypad design, Macro execution, screen hardcopy, and setting USB security key. Function Keys with [Screen hardcopy] or [Import user data/Use [USB Security Key]] selected do not work remotely on cMT Viewer.

### 13.5.2. Configuration



Click [Object] » [Function Key] icon on the toolbar to open a Function Key object property dialog box. Set up the properties, press OK button, and a new Function Key object will be created.

### **General Tab**

### cMT / cMT X Series

### eMT, iE, XE, mTV Series

New Function Key Obje	ct 💌	New Function Key Object
General Security Shap	e Label	General Security Shape Label
Comment :		Comment :
Attribute		Activate after button is released
Туре :		
	Activate after button is released	Change full-screen window
Window		
Function :	Change full-screen window	Window no. : 50. Keypad 1 - Integer 🗸
Window no. :	50. Keypad 1 - Integer 🔹	Keyboard input
Animation :	Settings [None]	© [Enter] -
Notification		
Enable		© Execute macro
		🔘 Window title bar
		Hard copy screen to USB disk, SD card or printer
		Screen hardcopy
		💮 Import user data/Use [USB Security Key]
		Notification
		Enable
	OK Cancel Help	OK Cancel Help



Setting	Description		
Activate	If this function is selected, the action is delayed till button is		
after button	released; otherwise, the action is executed once the button is		
is released	pressed.		
Change	Change full-screen window: Change to another base window.		
window	Change common window: Change common window.		
	Display popup window: A pop-up window displays in the base		
	window. If [Close this popup window when parent window is closed]		
	check box is selected, the pop up window will be closed when		
	change the base window to another window. Otherwise, a function		
	key in the pop up window is needed to close it.		
	Window		
	Function : Display popup window		
	Window no. : 50. Keypad 1 - Integer 🔹		
	Title ber/Position		

Animation : Settings... [None, None]

Show close button

(cMT / cMT X Series) Animation Setting: cMT / cMT X Series allows using transition effects for opening popup windows using Function Keys. The settings can be opened by clicking [Animation Setting].

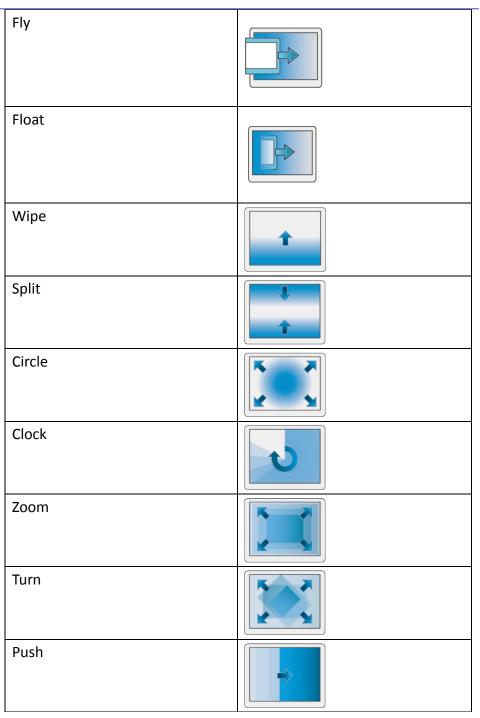
🔽 Close this popup window when parent window is closed.

	Effect	Dura	tion	Direction	
Start : [	ade	▼ 100	ms ms		
End :	Nipe	• 100	🛓 ms	To Left	
	1100	•	Ī	1	

The effects are shown below. Different effects may be used for Start (window appears) and End (window disappears).

· · · · · · · · · · · · · · · · · · ·	, ,
Effect Name	Transition
Fade	





[Duration] specifies how many milliseconds (ms) a transition effect takes to complete.

[Direction] The direction of the transition.

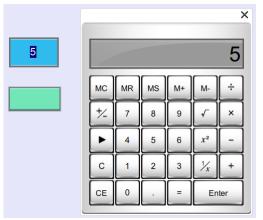
**Return to previous window:** If this is selected, the Function Key will change from the current screen to the previous one displayed. For example, when window no. 10 is changed to window no. 20, press the function key to return to window no. 10. This function is only available for base window.

Close window: Close any active pop-up windows, message windows



### included.

**Display calculator window(cMT / cMT X Series):** If this option is selected, clicking this Function Key can open a calculator with an unchangeable appearance. This calculator allows operators to do simple calculation and enter the result to a destination object by pressing the Enter key.



Selecting this option opens [Keep calculation open after paste] checkbox, which keeps the calculator displayed after the value is entered to the object.

Function :	Display calculator	
Animation :	Settings	[Fade, Wipe]
	Keep calculato:	r open after paste

Click the icon to watch the demonstration film. Please confirm your internet connection before playing the film.

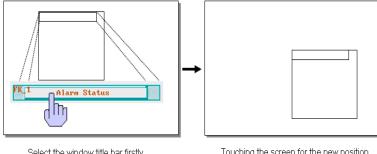
	your internet connection before playing the initi.
Keyboard	Configures the button as a keypad key, and the character it enters,
Input	via [Numeric] or [ASCII] objects.
	Enter: Same as the keyboard's "Enter" function.
	Backspace: Same as the keyboard's "Backspace" function.
	<b>Clear</b> : Clear the value in the word register.
	Esc: Same as the [Close window] function; it is used to close the
	keyboard window.
	<b>Delete:</b> Same as the keyboard's "Delete" function, deletes the
	number or character on the right side of the text cursor.
	<b>Left:</b> Same as the keyboard's " $\leftarrow$ " key moves the text cursor to the
	left side of the previous number or character.
	<b>Right:</b> Same as the keyboard's " $ ightarrow$ " key moves the text cursor to the
	left side of the next number or character.
	Line feed: Move the cursor down to the next line.



	Inc: Increment by 1.
	Dec: Decrement by 1.
	ASCII/UNICODE: Specify the character to be entered by this key.
Execute	Select this check box to execute one of the Macros from the drop
Macro	down list that has already been configured by users.
Window title	Function Key defined can be used to move a pop-up window which

bar

has no [window title bar] to a preferred position on screen. Select the pop-up window and then click on a preferred position, the window will be moved.



Select the window title bar firstly.

Touching the screen for the new position the popup window will be moved.

Lick the icon to download the demo project. Please confirm

your internet connection before downloading the demo project.

Hard copy	Print the current window. Before using this function, choose a prin	ter
screen to USB disk, SD	model in [System Parameter Settings] » [Model] » [Printer].	
card or	If a monochrome printer is used, selecting [grayscale] can provide a	а
printer	better print result, but the text may not be clearly printed. To	
	improve text printing, avoid using [grayscale].	
	Hard copy screen to USB disk, SD card or printer	
	O Screen hard copy     Printer : HP PCL Series (USB)     ▼	
	Rotate image 90 degrees Mode : color 🔹	
	Crop window	

This option can be selected for taking a cropped screenshot.



10. WINDOW_010		
	Event bit	
	10:07:29 Event triggered! 10:07:29 Event triggered! 10:07:29 Event triggered!	
× 100	<b>5</b> Y: 165	
X: 429	↓         Y:         165           ↓         Height:         442	+

all events alarms)	Acknowledge all events once by pressing the Function Key.	
cMT / cMT X		
Series)		
Import user	A Function Key can be used to import the e-mail contacts or user	
data / Use	accounts set, also, to log in using USB Security Key.	
[USB Security Key]	Function mode  Import e-mail settings and contacts  Import user accounts  Use [USB Security Key] to Login  Data position  SD card  USB disk  Account import mode  Overwrite  Account import mode  Overwrite  OK  Cancel  Cancel Cancel  Cancel  Cancel Cancel  Cancel  Cancel  Cancel	

### **Data Position**

Select the external device to store data from [SD card] or [USB disk].

### Account import mode

If [Overwrite] is selected, the existing accounts will be overwritten with new accounts in the external device after importing. If [Append] is selected, HMI will append more accounts while the old accounts



	still exist.
	Please note that when [Append] is selected, the accounts that
	already exist in the project cannot be imported.
	Delete file after importing user accounts
	If select this check box, the system will delete the account data saved
	in the external device after importing, this can prevent the account
	data from leaking out.
Notification	If this selection is enabled, it will notify a designated bit address to
	set ON or OFF, each time the button is pressed.

# Note

[Overwrite] is the only option when importing the e-mail contacts. This means that all existing contacts will be removed first, and then the new contacts are added.

For more information, see "6 Window Operations", "12 Keypad Design and Usage", "36 Administrator Tools".



### 13.6. Toggle Switch

### 13.6.1. Overview

Toggle Switch object is a combination of Bit Lamp object and Set Bit object. The appearance of the object is controlled by the ON / OFF state of the read bit address. As well, pressing the button sets the value in the bit address according to the settings.

### 13.6.2. Configuration



Click [Object] » [Toggle Switch] icon on the toolbar to open a Toggle Switch object property dialog. Set up the properties, press OK button, and a new Toggle Switch object will be created.

### **General Tab**

	Security	Shape	Label				
	Commen	dt :	ale de				
		🔘 Bit	: Lamp	(	🧿 Toggle S	witch	
Read a	address	🕅 Rea	ad/Write use	different add	resses		
PLC	name : Lo	cal HMI				-	Settings
	dress : LE			<b>v</b> 0			
		144524	vert signal			1	
Write	address :						
		Wr	rite when but	ton is released	i		
Attrib	1998 - an			ton is released	1		
	ute Switch styl			ton is released	Ĩ		
S Macro	Switch styl	e : Set O		ton is released	1		
S Macro	Switch styl	e : Set O		ton is released	1		



Setting	Description			
Comment	User can describ	e the information of the object.		
	Bit Lamp / Toggl	e Switch		
	Switch between	Bit Lamp and Toggle Switch features.		
Read/Write				
use different	Different address	ses can be used to read data and write data.		
addresses				
Read address	Click [Setting] to select the [PLC name], [Address], [Device type],			
	[System tag], [Ind	dex register] of the bit device that controls the		
	[Toggle Switch] object. Users can also set address in [General] tab			
	while adding a new object.			
	Invert signal			
	Reverses the display of ON / OFF states. For example, if [Invert			
	signal] check box	is selected, when the designated bit is OFF, the		
	object displays ON state.			
	When [Read/Wr	ite use different addresses] option is not selected,		
	the title of this g	roup box will be "Read/Write address".		
Write address	Click [Setting] to	select the [PLC name], [Address], [Device type],		
	[System tag], [Ind	dex register] of the bit device that controls the		
	[Toggle Switch] c	bject. Users can also set address in [General] tab		
	while adding a n	ew object. The address can be the same or		
	different from [R	ead address].		
	Write after button is released			
	If this function is selected, the action is delayed till button is			
	released, otherwise, the action is executed once the button is			
	pressed. This fur	nction does not work with momentary buttons.		
Attribute	Set style Set ON	Description		
	Set OFF	Set ON the designated bit of the device.		
		Set OFF the designated bit of the device.		
	Toggle	Alternates the bit state each time pressed.		
	Momentary	Holds the bit ON only while button is		
		pressed.		
Macro	Toggle Switch ob	ject can trigger the start of a Macro routine when		
	the Macro has been created in advance.			



# Note

When [Execute macro] is selected, the sequence in which the object's write operation and the macro execution is determined by the HMI runtime. In order to exactly arrange the write operation and the macro execution in the desired way, specify the sequence by configuring a Combo Button instead.



# 13.7. Multi-State Switch

### **13.7.1.** Overview

Multi-state Switch object is a combination of Word Lamp object and Set Word object. The appearance of the object is controlled by the value of the read word address. As well, pressing the button sets the value in the word address according to the settings.

## 13.7.2. Configuration



Click [Object] » [Multi-State Switch] icon on the toolbar to open a Multi-State Switch object property dialog box. Set up the properties, press OK button, and a new Multi-State Switch object will be created.

### **General Tab**

### cMT / cMT X Series

neral Security Shape Label	General Security Shape Label
Comment :	Comment :
Word Lamp	🔘 Word Lamp 💿 Multi-State Switch
Mode : Value   Offset : 0	Mode : Value   Offset : 0
Read address	Read address Read address
PLC name : Local HMI	PLC name : Local HMI   Settings
Address : LW    0  16-bit Unsigned  Error handling	Address : LW
Write address :	Write address :
tribute	Write when button is released
ttribute Switch style : JOG+ Vo. of states : 2 V	Write when button is released  Attribute Switch style : JOG+ No. of states : 2
	Attribute
Switch style : JOG+ No. of states : 2	Attribute Switch style : JOG+ No. of states : 2 V
Switch style : [JOG+ • No. of states : 2 • Cyclical : Disable • User-defined mapping	Attribute Switch style : JOG+ Vo. of states : 2 V Cyclical : Disable V
Cyclical : Disable	Attribute Switch style : JOG+ Violates : 2 V Cyclical : Disable Violates : 2 Violat
Switch style : JOG+  Vo. of states : 2  Cyclical : Disable  User-defined mapping  end notification after writing successfully	Attribute Switch style : JOG+  No. of states : 2 Cyclical : Disable User-defined mapping Send notification after writing successfully

### eMT, iE, XE, mTV Series



Setting	Description			
Comment	User can describe the information of the object.			
	Word Lamp / Multi-State Switch			
	Switch between Word Lamp and Multi-State Switch features.			
Model /	Different modes can be selected: [Value], [LSB].			
Offset	🗇 For more information, see "13.2 Word Lamp".			
Read/Write				
use different	Different addresses can be used to read data and write data.			
addresses				
Read address	Click [Setting] to select the [PLC name], [Address], [Device type],			
	[System tag], [Index register] of the word device that controls the			
	Multi-state Switch object. Users can also set address in [General]			
	tab while adding a new object.			
	When [Read/Write use different addresses] option is not selected,			
	the title of this group box will be "Read/Write address".			
Write address	Click [Setting] to select the [PLC name], [Address], [Device type],			
	[System tag], [Index register] of the word device that controls the			
	Multi-state Switch object. Users can also set address in [General]			
	tab while adding a new object.			
	Write after button is released			
	If this function is selected, the action is delayed till button is			
	released; otherwise, the action is executed once the button is			
	pressed.			
Attribute	Switch style			
	Select the object's operation mode, see Example 1.			
	User-defined mapping			
	The value placed in the write register of each selection, the action			
	taken when an illegal value is entered, and error notification to a			
	designated bit address can be set.			



State	Value		
0	0		
1	1		
2 (error)			
			ОК
			OK Cancel
			Cancel
mutilenal			Cancel
nput illegal			Cancel
	t state 💿 Ju	ump to error state	Cancel
Remain current	t state 💿 Ju	imp to error state	Cancel
Remain current rror notification			Cancel
Remain current rror notification	t state 💿 Jk	Imp to error state	Cancel
Remain current rror notification	V Enable		Cancel

#### **Remain current state**

If an illegal value is entered, Multi-state Switch will remain at the current state.

### Jump to error state

If an illegal value is entered, Multi-state Switch will jump to the error state.

### **Error notification**

If an illegal value is entered, automatically set the value placed in the designated register.

Send	
notification	After the system successfully writes data to PLC, the designated bit
after writing	address will be set On/Off.
successfully	
Error handling	The action taken when an illegal value is entered or notify a
(cMT / cMT X	designated bit address. This is similar to [User-defined mapping];
Series)	the difference is the value corresponding to each state need not to
-	be preset.

### Example 1

JOG+

Increase the value of a designated register by 1 each time when pressing the button, till the value equals to [No. of states]. A cyclic action can be enabled. As shown below, each time when pressing the button, the state number will add 1 start from state 0, till state 4 ([no. of state]-1), and returns to 0 and step up again.



Attribute			
Switch style :	JOG+ 🔻	No. of states :	5 🔹
Cyclical :	Enable		•
User-defined	d mapping		

### JOG-

Decrease the value of the designated register by 1 each time when pressing the button, till the value equals to 0. A cyclic action can be enabled. As shown below, each time when pressing the button, the state number will minus 1 start from state 4 ([no. of state]-1), till state 0, and returns to state 4 and step down again.

Attribute			
Switch style :	JOG- 🔫	No. of states :	5 👻
Cyclical :	Enable		•
User-defined	mapping		





# 13.8. Slider

## 13.8.1. Overview

Slider object is used to change the value in a designated word register address by moving the slide on the screen.

## 13.8.2. Configuration



Click [Object] » [Slider] icon on the toolbar to open a Slider object property dialog box. Set up the properties, press OK button, and a new Slider object will be created.

## **General Tab**

cMT / cMT X

Slider		
<ul> <li>✓ Background</li> <li>✓ Sider</li> <li>✓ Dynamic Scale</li> </ul>	General Outline Security Shape Comment :	OK
	Attribute Direction : Right	Cancel Help
	Low/High limit :  Constant  Address  Low limit :  High limit :  100	
	Coarse increment	
	Write address PLC : Local HMI Settings Address : LW 0 16-bit Unsigned	
	Notification Enable	
	Watch address Enable	

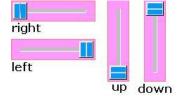


New Slider O	oject		×
General Out	ine Security Shape		
Com	nent :		
Attribute			
Dire	ction : Right 🔹	Resolution : 1	
Low/High	limit : 💿 Constant 🛛 🔿	Address	
Low	limit : 0	High limit : 100	1
0	Coarse increment		
- Write addre	8		
PLC :	Local HMI		- Settings
Address :	LW 🔹	0	16-bit Unsigned
Notification	📝 Enable	🔘 Set ON 💿 S	et OFF
	👿 Before writing	🔲 After writing	
PLC :	Local HMI		- Settings
Address :	LB •	0	
Watch addr	ss 📝 Enable		
PLC :	Local HMI	-	Settings
Address :	[LW •]	0	16-bit Unsigned
	OK	Cancel	Help

#### Attribute

## Direction

Select the direction of the slider. (Right, Up, Left, Down)



## Resolution

Sets the value change in the word register for each step of the Slider. For example, if set to 10, the register value changes by 10 points for each increment or decrement on the Slider.

## Constant

Sets the range of the Slider. For example, If set [Low limit] to 5, and [High limit] to 100, the Slider will enter values between 5 and 100.

## Address

Set the [Low/High limit] by a designated register, see Example 1.

## **Coarse increment**

Apart from moving the roller to change the value as in [Resolution],



	if this option is selected, the word value will increase / decrease by
	the [Increment] value each time the object is touched.
Write address	Click [Setting] to select the [Device], [Address], [Device type],
	[System tag], [Index register] of the word device that controls the
	Slider object. Users can also set address in [General] tab while
	adding a new object.
Notification	If enabled, the state of a designated bit address will be set to ON or
	OFF before or after writing.
	Click <b>[Setting]</b> to select the [Device], [Address], [Device type],
	[System tag], [Index register] of the bit device that controls the
	notification settings. Users can also set address in [General] tab
	while adding a new object.
	[Before writing] / [After writing]
	Change the state of a designated bit register before, or after the
	slider is slid.
Watch address	When moving the roller, the new value written to the word register
	address can be displayed in real time.

# Example 1

Set the low or high limit by a designated register. When write address is LW-n, where n is an arbitrary number, the rule of setting limits is:

Content	16-bit	32-bit	64-bit (cMT / cMT X only)
Address	LW-n	LW-n	LW-n
Low limit	LW-n	LW-n	LW-n
High limit	LW-n+1	LW-n+2	LW-n+4

When address is LW-100, the rule of setting limits is:

Content	16-bit	32-bit	64-bit (cMT / cMT X only)
Address	LW-100	LW-100	LW-100
Low limit	LW-100	LW-100	LW-100
High limit	LW-101	LW-102	LW-104

# **Outline Tab**

cMT / cMT X Seires



#### Objects

Slider	<b></b>
Slider     Style     Style     Style     Color:     Slider button type     Image: Style     Image: Style     Style     Image: Style     Style     Image: Style     Style     Image: Style <td>OK Cancel Help</td>	OK Cancel Help

# eMT, iE, XE, mTV Seires

Jeneral Outline	Security Sh	ape			
Slider button typ	e				
Г				-	
	<b></b>				
			Width :	20	
Frame	:		🔲 Transparent		
Frame Background	L		Transparent Transparent		

Setting	Description
Glider button Type (cMT / CMT X)	Select slider button type, by default, a picture selected from the Picture Library can be the slider button.
ilider button ype (eMT, iE, (E, mTV)	Four default styles are offered, and the width and color of the Frame, Background, Slot can be set. Slider button type Slot Slot Frame Background

## 13.8.3. Combo Setting

cMT / cMT X Series HMI support combo setting for Slider, which allows setting of multiple related objects at a time. Slider can be set with Background and Dynamic Scale.



# Objects

# Background

\_

Slider	
Background	General
♥ Sider ♥ Dynamic Scale	OK   O   Style:   Vertical   Cancel   Help     Tick Mark   Scale Label   Color:   Nain scale   Ticks:   Sub scale   Ticks:     Ticks:
Setting Margin	Description         Specify the space between the background edge and
	the objects.
Color/Style	Customize       Picture         Round : 10       Beckground :         Frame : Transparent : Beckground :       Pattern style :         Select a suitable background pattern and color.         Dicture         ColorStyle         ColorStyle         ColorStyle         Picture Library
	Use the default picture or choose a picture from

Picture Library.



Slider		
<ul> <li>✓ Background</li> <li>✓ Slider</li> <li>✓ Dynamic Scale</li> </ul>	General 0 50 100 Style : Vertical	ОК
	Alignment : Bottom	Help
	Color : Main scale Ticks : 3 Sub scale Ticks : 4	

Setting	Description
Style	The scale style will follow the Slider.
Alignment	The position of the scale bar along the Slider.
Tick Mark	Configure the number of tick marks for main and
	sub scales, and the color of tick marks.
Scale Label	Configure the font, font color, font size and other
	attributes of scale label.
	In Slider settings if [Address] is selected for
	Low/High limit, then Scale Label's [Dynamic limits]
	will be set automatically.
	In Slider settings if [Left] is selected for Direction,
	then Scale Label's [Reverse (Left/Right)] will be set
	automatically.



	Scale Label				
🔽 Use	scale label				
	Font :	Arial			•
	Color :			Size :	[10 <b>•</b> ]
	Left decimal Pt. :	4		Right decimal Pt. :	0
	Position :	Тор	•		
		🔽 Dynamic lin	nits		
		📝 Reverse (Le:	ft/Right)		
	Left :	LW-1		Right :	LW-O



# 13.9. Numeric

### 13.9.1. Overview

Numeric object can be used to input or display the value of a designated word register.

## **13.9.2.** Configuration

# 999

Click [Object] » [Numeric] icon on the toolbar to open a Numeric object property dialog box. Set up the properties, press OK button, and a new Numeric object will be created.

### **General Tab**

## cMT, cMT X Series

Shap General			Entry Format Secu	rity Shape Font	
-		urity Com	ment :		
Comm		Allow i	nput		
🔽 Allow in					
* Set value	after leaving focus can be set up in general system setting page	1			
<b>T D</b>	rite use different addresses	Read/W	Vrite use different addre	sses	
🔽 Kead/ W	rite use different addresses				
Read		Read			
	Local HMI	5 a.	Local HMI	<u></u> .	
Address :	LW V	Address	LW	▼ 0	
Write		Write	(		
		Address	Local HMI	• 0	[]
Address :	LW • 0		. [bm	•	1
Notification		Notification Enable			
🔽 Enable					
Set ON	Set OFF Set OFF Set OFF	Set ON	Set OFF	efore writing	After writing
Device :	Local HMI	Device	Local HMI		
Address :		Address	: [LB	• 0	
			m invalid input		
		Inable	Set ON	🔘 Set OFF	
			Local HMI		
		Address	LB	• 0	

Setting	Description
Allow input	If selected, the input features and relevant settings are enabled.
Read / Write	Different addresses can be used to read data and write data.

use different address	
Read address	Click [Setting] to select the [Device], [Address], [Device type],
	[System tag], [Index register] of the word device that displays the
	value. Users can also select a tag defined in Address Tag Library.
	When [Read/Write use different addresses] option is not selected,
	the title of this group box will be "Read/Write address".
Write address	Select the [Device], [Device type], [Address] of the word device
	that system writes to.
Notification	With notification enabled, the state of the designated bit address
	can be set on / off, before / after writing.
	Notification works differently comparing cMT / cMT X Series with
	eMT/iE/XE/mTV Series.
	cMT/cMT X Series: Trigger the object to open a keyboard window »
	Notification before writing » Enter a value and press ENTER » Start
	writing operation » Notification after writing.
	eMT/iE/XE/mTV Series:
	Trigger the object to open a keyboard window » Enter a value and
	press ENTER » Notification before writing » Start writing operation
	» Notification after writing.
Notification	If an illegal value is entered, automatically set the state of a
on invalid input	designated register.



# Data Entry Tab

Shape         Font         Profile           General         Date Entry         Format         Trigger Action Setting         Security           Mode :         Touch	General Data Entry Format Security Shape Font Mode : Touch
Input order	-Input order
Stop sequential input function after input	Stop sequential input function after input
Input order : 1 💼 Group	Input order : 1 🚖 🕅 Group
Keyboard	Keyboard
<ul> <li>✓ Use a popup keypad</li> <li>● System keypad</li> <li>● Custom keypad</li> </ul>	✓ Use a popup keyped Hide title bar Restart the keyped if input value is out of range
Window no. : 50. Keyped 1 - Integer  Animation : Settings [None, None] Hide title bar Popup position Relative to HMI screen	Window no. : 50. Keypad 1 - Integer Popup position : {relative to HMI screen} Hint : If the keyboard is an USE keyboard, on indirect/direct window, or on the sam window, please don't check "Use a popup keypad".
Hint : If the keyboard is an USB keyboard, on indirectilizet window, or on the same window, please don't check "Use a popup keyped".	
Other options	
Display lower and upper limits     Display current value	

# cMT, cMT X

Setting	Description				
Mode	Touch				
	Used when data entry is initiated by touching the screen object.				
	Bit control				
	Used when data entry is enabled by turning ON a designated bit,				
	and entry ends when the bit goes OFF.				
nput control	Specify a bit address that enables or ends data entry. The order of				
	data entry is specified in [Input order] and an external USB				
	keyboard is needed for data entry. For cMT-SVR, use cMT Viewer's				
	keyboard.				
nput order	Perform continuous input by setting [Input order] and [Group].				
	The criterion of searching the next input object:				
	The range of [Input order]: 1 ~ 511, range of [Group]: 1 ~ 15.				
	<ul> <li>If [Group] is not selected, its input order is 0.</li> </ul>				
	The system only searches for the objects within the same				



	Group.
	<ul> <li>The lower number of order is entered before the higher</li> </ul>
	number of order.
	For multiple objects within the same group and with the same
	input order, the object placed in the lower layer is entered first.
	Lick the icon to download the demo project. Please confirm
	your internet connection before downloading the demo project.
Keyboard	Use a popup keypad
···· <b>/</b> ·····	If selected: A pre-designed pop-up keypad can be chosen by
	selecting a check box and selecting the relative position on the HMI
	screen. When data entry is enabled, the pop-up keypad displays in
	the selected position, and closed when data entry ends.
	If not selected: When data entry is enabled, the pop-up keypad is
	not displayed. Users may:
	<ul> <li>Create a custom design on the same screen window.</li> </ul>
	<ul> <li>Use a USB keyboard.</li> </ul>
	System keypad
	cMT / cMT X Series model has its own system keypad, select this
	checkbox to use the system keypad, or select [Custom keypad] to
	set up a customized keypad.
	Animation Setting
	When using a cMT / cMT X Series model with [Custom keypad]
	selected, the transition effect of the keypad window can be
	selected.
	🖙 See Chapter 13.5 Function Key in this manual for the list of
	effects.
	Hide title bar
	Use a keypad without the title bar.
	Popup position
	When using a cMT / cMT X Series model with [Custom keypad]
	selected, the position where the keypad pops up can be selected.
	The position can either be relative to HMI screen or relative to
	object.
	Relative to HMI screen Relative to object



222	222	252
222	222	202

**Restart the keypad if input value is out of range** When entering data, if the value entered is not within the valid range, the system will automatically restart the keypad.

Other options	Display lower and upper limits		
(For cMT /	If selected, when entering a value, the range	1234	
cMT X Series)	is displayed near the object.		
	Display previous value	Range: 0 to 9999	
	If selected, when entering a value, the value	Current value: 5	
	before update is displayed near the object.		
0			

To create a keyboard in current window, see "12 Keypad Design and Usage".

Click the icon to watch the demonstration film. Please confirm your internet connection before playing the film.

# Example 1

This example demonstrates how to use [Input Order] and [Group] to perform continuous input in several Numeric objects. After entering data in one object, entry will be passed to the next input order object which is in the same group.

 Create three Numeric objects, and set [Input order] to 1, 2, and 3 respectively. Include the three objects in [Group 1] as shown in the following figure.

LW-0

LW-1

Stop sequential input	t function afte	er input	
Input order : 1	×	Group	1

Group

1

\*

\*

Input order: 2



# LW-2

	Input order     Imput order						
	Stop sequential input function after input						
	Input ord	er: 3 🌲	🔽 Group	1			
Gro	oup1						
	<u> </u>						
	0		0		0		
	LW-0	$\rightarrow$	LW-1	$\rightarrow$	LW-2		
	Order1		Order2		Order3		
	♠						

2. When finish entering data in the last object, to end data entry of all objects, please select [Stop sequential input function after input] check box.

Input order The second		
Stop sequential input function after	er input	
Input order : 3	📝 Group	1



## Objects

# Format Tab

eneral	Data Entry	Format	Trigger Action Setting	Security Shape F	ont
Display					
	Device data fo	ormat :	16-bit Unsigned	•	
	y format				
		Type :	Customized	•	- Mask
	Left of decim	al Pt. :	4		
				Truncated digits :	
				Truncated digits :	
	Fo	ormat :	****		Usage
Scaling	g				
	_	ethod : [	Interpolation	-	
		ſ	Test <= Previe	ew conversion result	
			Test	sw conversion result	
		[	Dynamic scales		
	Scalin	g low :	0	Scaling high :	0000
			·		
10100					
imits	8				
		<ul> <li>Dire</li> </ul>	ct 🔘 Dynai	mic limits	
	Device low :	0		Input low : 0	
		1.50			
	Device high :	9999		Input high : 9999	
In second			1 31 5 F		
~	Use alarm cold	r	Low limit :		Blink
			High limit : 🚺	Ţ	Blink

Setting	Description
Device Data	Set the data format of a designated word register. Options include:
Format	BCD, Binary, Unsigned, Signed, HEX, and Float. 16-bit uses 1 word
	where 32-bit uses two words.
	Mask
	If selected, any values entered will be hidden by displaying them as
	asterisks "*".
Display	Default
format	General Numeric formats.
	Customized
	Each "*" sign represents each integer digit, and each "#" sign
	represents each fraction digit that will be displayed in the Numeric
	object. Float and Double formats are only supported on cMT / cMT
	X models.



Apart from "\*" signs, extra texts can be entered in the [Format] field, for example: kg. The available alignment options are: [Left], [Center], [Right], [Leading zero].

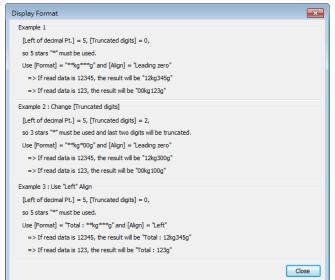
The numeric value represented by "\*" sign will be displayed from the highest digit to the lowest in the Numeric object.

## **Truncated digits**

Specify the number of digits to be truncated, from the lowest digit to the highest.

The number of "\*" signs = [Left of decimal Pt.] - [Truncated digits] - [Right of decimal Pt.].

The number of "#" signs = [Right of decimal Pt.] - [Truncated digits]. Please see the following examples:



Display Format
Example 1: common case
[Left of decimal Pt.] = 3, [Right of decimal Pt.] = 3, [Truncated digits] = 0,
so three "*" symbols and three "#" symbols must be used.
Suppose [Format] = "***kg###g" and [Align] = "Leading zero"
=> If the data is 123.456, the result shown will be "123kg456g"
=> If the data is 1.234, the result shown will be "001kg234g"
Example 2 : with truncated digits
[Left of decimal Pt.] = 3, [Right of decimal Pt.] = 3, [Truncated digits] = 4,
so two "*" symbols must be used and the last four digits will be truncated.
Suppose [Format] = "**0kg000g" and [Align] = "Leading zero"
=> If the data is 123.456, the result shown will be "120kg000g"
=> If the data is 12.3, the result shown will be "010kg000g"
Example 3 : using "Left" align
[Left of decimal Pt.] = 4, [Right of decimal Pt.] = 3, [Truncated digits] = 0,
so four "*" symbols and three "#" symbols must be used.
Suppose [Format] = "Total : *,***kg###g" and [Align] = "Left"
=> If the data is 1234.567, the result shown will be "Total : 1,234kg567g"
=> If the data is 123.456, the result shown will be "Total : 123kg456g"
Close

When leading zero is not used, the text enclosed in two "\*" signs



	will not show, for example:
	[Left of decimal Pt.] = 5, [Truncated digits] = 0, and Display Format is "Total=**kg***g"
	If the data read is 255, the result would be: "Total=255g"
	If the data read is 1000, the result would be: "Total=1kg000g"
	Scientific Notation (cMT / cMT X Series)
	Express numerical data using scientific notation; for example,
	number 100 is displayed as 1e+2. Scientific notation is not available
	for device data formats: BCD, HEX, or Binary.
Number of	Left of decimal Pt.
digits	The number of digits before the decimal point.
	Right of decimal Pt.
	The number of digits after the decimal point.
Scaling	Interpolation
	If this check box is selected, [Engineering low] and [Engineering
	high] boxes appear. Values entered in these boxes correspond to
	the display range required. The setting also requires [Input low]
	and [Input high] in the limits section. See Example 2.
	Test: Preview the result of Interpolation. See Example 2.
	Dynamic scales: Set the [Engineering low] and [Engineering high]
	by a designated register. See Example 4.
	Macro subroutine
	The value read from or written to the register can be computed by
	macro subroutines selected in [Read conversion] and [Write
	conversion]. The macro subroutines should be defined in Macro
	Function Library. To use this feature, see "13.9.2.1 The rule of using
	Macro subroutine".
Limits	This section enables users to apply display limits to the values in
	the input register and set the display color to be used when the
	register value falls outside the specified limits.
	Direct
	Set the limits by entering values in [Device low] and [Device high].
	If the value entered is outside the limits, the value in the register
	cannot be changed.
	Dynamic limits
	Set the limits by specifying a register.
	To use consecutive addresses, see Example 5.
	On a cMT / cMT X model with the [Use different addresses] option

	selected, it's possible to set the high and low limits by specifying
	different addresses. If the scaling method used is interpolation,
	both high and low limit addresses are required.
Use alarm	Low limit
color	When the value in the register is outside the [Low limit], the object
	displays digits by using the set color.
	High limit
	When the value in the register is outside the [High limit], the object
	displays digits by using the set color.
	Blink
	When the value in the register is outside either limit, the digits
	flash.

# Trigger Action Setting (cMT / cMT X)

Actions executed before/after writing can be classified into action groups. The groups are put in sequence. The actions within the same group are executed at the same time. When all the actions within the same group are completed, the actions in the next group are then executed. Compared to the Notification actions selected in General tab, Trigger Action Setting offers more flexible combination of actions. For more details about these settings, please also see Action Trigger in Chapter 13.



neral	l Data Entry Format Trigger	Action Setting Security Shape	Font
Actio	ons before writing		
			Ľ
	Action Group 1	Action Group 2	
-	Set Bit (Set ON, LB-0)	N	
	Delay (50 ms)	Set Word (Write constant v	alue : 0
	15052 03	0	
	0		
•	[	1	,
	In ons after writing	E.	Þ
∢ Actio	New York Control of Co	I.	•
1	New York Control of Co	Action Group 2	
1	Action Group 1	Action Group 2	CZ Action Gro
1	Action Group 1 Wait Until (LB-0 is on)	Action Group 2	C
1	Action Group 1	Action Group 2	CZ Action Gro
1	Action Group 1 Wait Until (LB-0 is on)	Action Group 2	CZ Action Gro
1	Action Group 1 Wait Until (LB-0 is on)	Action Group 2	CZ Action Gro
1	Action Group 1 Wait Until (LB-0 is on)	Action Group 2	CZ Action Gro
1	Action Group 1 Wait Until (LB-0 is on)	Action Group 2 Set Bit (Set ON, LB-1)	CZ Action Gro
1	Action Group 1 Wait Until (LB-0 is on)	Action Group 2 Set Bit (Set ON, LB-1)	CZ Action Gro
1	Action Group 1 Wait Until (LB-0 is on)	Action Group 2 Set Bit (Set ON, LB-1)	CZ Action Gro
Actio	Action Group 1 Wait Until (LB-0 is on)	Action Group 2 Set Bit (Set ON, LB-1)	∠ Action Gro
	Action Group 1 Wait Until (LB-0 is on)	Action Group 2 Set Bit (Set ON, LB-1)	CZ Action Gro

Setting	Description
Actions	The predefined action groups will be executed once the write
before writing	operation starts, and will not wait for it to be completed.
Actions after	The predefined action groups will be executed when the write
writing	operation is completed.

# 13.9.2.1. The rule of using Macro Subroutine

There must be a return value and exactly one parameter.
 Examples:
 sub char test (short a) // (Correct)
 sub test (char a) // (Incorrect, no return value.)
 sub char test (char a, char b) // (Incorrect, two parameters.)



Objects

• Use the Macro data type that corresponds to the object's data format.

The mapping is as follows:

Macro Data Type	Numeric Object Data Format
short	16-bit Signed
Int	32-bit Signed
unsigned short	16-bit BCD, 16-bit HEX, 16-bit Binary, 16-bit Unsigned
unsigned int	32-bit BCD, 32-bit HEX, 32-bit Binary, 32-bit Unsigned
float	32-bit Float
long	64-bit Signed (cMT / cMT X only)
unsigned long	64-bit Unsigned (cMT / cMT X only)
double	64-bit Double (cMT / cMT X only)

For example, if the data format of the numeric object is 16-bit Unsigned, only the corresponding Macro data type: unsigned short, is available.

```
Examples:
```

```
sub char test(unsigned short a) // (Correct)
sub char test(char a) // (Incorrect)
```

```
• Supports only the local HMI address.
```

Examples:

```
GetData(var, "Local HMI", LB, 0, 1) // (Correct)
GetData(var, "MODBUS RTU", 0x, 0, 1) // (Incorrect)
```

```
    The following system defined functions are unable to be invoked:
ASYNC_TRIG_MACRO, SYNC_TRIG_MACRO, DELAY, FindDataSamplingDate,
FindDataSamplingIndex, FindEventLogDate, FindEventLogIndex, INPORT, INPORT2, OUTPORT,
PURGE, TRACE
```

• The following statements are not supported:

```
For-Next, While-Wend
```

# Example 2

If [Interpolation] is selected, the scaling equation is as the following:

If A indicates the original data and B indicates the displayed data:

# B = [Engineering low] + (A - [PLC low]) × Ratio

where, Ratio = ([Engineering high] - [Engineering low]) / ([PLC high] - [PLC low]) As shown below, the original data is 15, after conversion, 40 will be displayed.



Scaling	
Method : Interpolation	•
Test <=	Preview conversion result
Dynamic scales	:
Engineering low : 10	Engineering high : 50
Limits	
O Direct O Dynamic limits	
PLC low : 0	PLC high : 20
Input low : 10	Input high : 50

Click [Test] button to preview the result of Interpolation. Enter a value in [PLC] field as shown in the following figure, for example, enter value 15, and the result, which is 40, will be displayed.

Conversion Test				<b>X</b>
Left of decimal Pt. : 4	1	Right of decimal Pt. :	0	
HMI Engineerin 40 = 10	ng low PLC + ( 15	PLC low - 0 ) x -	Engineering high	Engineering low - 10 - 0
40 Cilwrence	PI	15 LC	PLC high	PLC low
		C	Apply	OK Cancel

# Example 3

If the numeric format selected is not Float and decimal point is used, the decimal place of the converted result will not be adjusted automatically, please adjust [Engineering high] to correctly place the decimal point of the result gained in [Interpolation] mode. Please see the illustration below.

1. Create two Numeric objects, set [Right of decimal Pt.] to 1 and select [Interpolation] method for one of the objects as shown in the following figure.



General	Data Entry	Numeric Format	Security	Shape Font	
Display					
D	ata format : 1	6-bit Unsigned	•	Mask	
Numb	er of digits				
L	eft of decimal P	t.: 4	*	Right of decimal Pt. :	1
Scaling	]				
	Metho	d : Interpolation	n	-	
	Dynamic s	cales			
	Engineering lo	w · 0		Engineering high :	200
	Lingin Centrig to			2.19.102.119.19.1	
Limits					
	Direct	🔘 Dynamic lin	nits		
Limits	Direct     PLC low : 0		nits	PLC high : 100	

2. Enter value "123", the object set to [Interpolation] displays "246.0" instead of "24.6".

Original Value	123
Converted Value	246.0

**3.** To move the decimal point one place to the left, adjust [Engineering high] as shown in the following figure.

lew Numeric Object	Σ
General Data Entry Numeric Format Security Shape	e Font
Display	
Data format : 16-bit Unsigned 👻 🔲 Mas	sk
Number of digits Left of decimal Pt. : 4 Right o	of decimal Pt. : 1
Scaling	
Method : Interpolation	•
Dynamic scales	
Engineering low : 0 Engi	ineering high : 20
Original	Value 123
Converted	Value 24.6

## Example 4

If [Interpolation] is selected, set the [Engineering low] and [Engineering high] by a designated register. When Dynamic Address is LW-n, where n is an arbitrary number, the rule of setting [Engineering low] and [Engineering high] is:



Content	16-bit	32-bit	<b>64-bit</b> (cMT / cMT X only)
Dynamic address	LW-n	LW-n	LW-n
Engineering low	LW-n	LW-n	LW-n
Engineering high	LW-n+1	LW-n+2	LW-n+4
Vhen address is LW-100,	the rule of settin	g limits is:	
Content	16-bit	32-bit	<b>64-bit</b> (cMT / cMT X only)
Dynamic address	LW-100	LW-100	LW-100
Engineering low	LW-100	LW-100	LW-100
Engineering high	LW-101	LW-102	LW-104

# Example 5

Set the limits by a designated register. When [Address] is LW-n and [Use consecutive addresses] is selected, the rule of setting limits is:

Content	16-bit	32-bit	64-bit (cMT / cMT X only)
Address	LW-n	LW-n	LW-n
Low limit	LW-n	LW-n	LW-n
High limit	LW-n+1	LW-n+2	LW-n+4
When address is LW-1	00, the rule of settin	g limits is:	
Content	16-bit	32-bit	64-bit (cMT / cMT X only)
Address	LW-100	LW-100	LW-100
Low limit	LW-100	LW-100	LW-100
High limit	LW-101	LW-102	LW-104

# Example 6

The following demonstrates how to use [Macro subroutine] for scaling when configuring Numeric object.

The following two macros are used, one for [Read conversion] and one for [Write conversion].

Read Conversion	Write Conversion
sub short read(short a)	sub short write(short a)
short b b = a + 10 return b	short b b = a - 10 return b
end sub	end sub

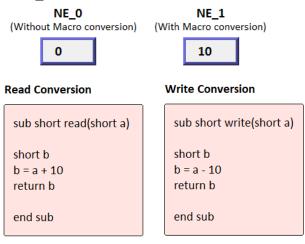
 Create two Numeric objects: NE\_0 and NE\_1 and use the same control address. Select [Macro subroutine] for NE\_1.





Numeric Object's Properties
General Data Entry Format Security Shape Font Profile
Display Device data format : 16-bit Signed  Mask Number of digits Left of decimal Pt. : 4
Display format
Scaling Method : Macro subroutine
Read conversion : read  Write conversion : write

2. Enter 0 in NE\_0 then NE\_1 will execute [Read conversion]. The value gained will be 10.



3. Enter 80 in NE\_1, [Write conversion] is executed and the value gained will be 70. NE\_0 displays 70.

NE_0	NE_1
(Without Macro conversion)	(With Macro conversion)
70	80
Read Conversion	Write Conversion
sub short read(short a)	sub short write(short a)
short b	short b
b = a + 10	b = a - 10
return b	return b
end sub	end sub



# Note

If executing [Read conversion] and [Write conversion] by the same numeric object, the value entered in this object is computed by the Macro subroutine of [Write conversion] first, and then the result is computed by the Macro subroutine of [Read conversion]. In Example 5, if the subroutine of [Write conversion] is set to b=a-20, then entering 80 in NE\_1 will get 60 after [Write conversion] and then the object displays 70 after [Read conversion].

# Security Tab

# cMT, cMT X

General         Data Entry         Format         Limits         Trigger Action Setting           Security         Shape         Font         Profile	General         Data Entry         Format         Limits         Trigger Action Setting           Security         Shape         Font         Profile
Safety control	Safety control
🗹 Display confirmation request 🛛 Max. waiting time (sec) : 10 🚔	☑ Display confirmation request Max. waiting time (sec): 10
Enable/Disable	Enable/Disable
V Use register status/value	Use register status/value
💿 Bit 💿 Word	Bit  Word
Device : Local HMI	Device : Local HMI
Address : LB 🗸 0	Address : LB 🗸 0
Enable if bit is : ON 🔻	Enable if bit is : ON 💌
🗹 Use control token ————	☑ Use control token ————
Control token : 1: Control Token - Local Only 🔻 Token Library	Control token : 1: Control Token - Local Only 🔻 Token Library
Enable if token is : Acquired	Enable if token is : Acquired 👻
* For environment of using multiple clients (cMT Viewers).	* For environment of using multiple clients (cMT Viewers).
· Tor environment of using montple chemic (JPT1 * rewers).	· Tor environment of using montple chemic (civit viewers).
Action : Do nothing when disabled	Action : Do nothing when disabled
User restriction	User restriction
Object class : None 💌	Object class : None 💌
* If the user tries to operate on an object without authorization, LB-12056 will be set to ON	* If the user tries to operate on an object without authorization, LB-12056 will be set to ON.
Sound	Sound
Enable Sound Library Beep	Enable Sound Library Beep
	-
Play	Play
OK Cancel Help	OK Cancel Help
UN Concer Help	Long Cancer Help

Setting	Description
Safety control	Displays a confirmation request window before executing a command.
Enable/Disable	Use register status / value
	With this option selected, whether an object is operable
	depends on whether the specified condition occurs in the
	designated address.
	Use control token
	With this option selected, whether an object is operable
	depends on whether a control token is acquired or
	unacquired.



	Action modes:
	Do nothing when disabled
	The object is not operable, and its status remains
	unchanged when the specified condition does not occur in
	the designated address.
	Hide when disabled
	The object is hidden when the specified condition does not
	occur in the designated address.
	Grayed label when disabled
	The value in the object turns gray when the specified
	condition does not occur in the designated address.
	0000
User restriction	Set the security class of the object to be operated by an authorized user.
Sound	When enabled, the selected sound will be played when the

object is touched.

#### Font Tab

New Numer		3
General D	ata Entry Numeric Format Security Shape	2 Font
Attribute	Font : Arial	<b>•</b>
	Color : Align : Left -	Size : 16 🔹
Content		
#####		
	OK Cancel	Help

SettingDescriptionColorWhen the value is within the limits, display digits using color set in



AlignLeft: Align the number to the left.Center: Align the number to the center.Right: Align the number to the right.	
C C	
<b>Right:</b> Align the number to the right.	
Leading zero: The number is preceded with leading zeros v	when the
number of digits is less than that set.	
Left 66	
Center 66	
Right 66	
Leading zero 0066	
Size Set the font size.	



# 13.10. ASCII

## 13.10.1. Overview

ASCII object can be used to input or display ASCII or UNICODE characters held in designated word registers.

## 13.10.2. Configuration



Click [Object] » [ASCII] icon on the toolbar to open an ASCII object property dialog box. Set up the properties, press OK button, and a new ASCII object will be created.

## **General Tab**

## cMT, cMT X

ew ASCII Object	New ASCII Object
Jeneral Data Entry Security Shape Font Trigger Action Setting	General Security Shape Font
Comment :	Comment :
Z Allow input * Set value after leaving focus can be set up in general system setting page	Allow input
Multi-line display *ASCII value of line feed (LF) character : 10 (0xA)	Multi-line display     Vertical alignment : Top     ASCII value of line feed (LF) character : 10 (0xA)
Mask Reverse high/low byte	Mask Reverse high/low byte
Data format Encoding : UTF-8 (Default)	Deta format Encoding : UTF-8 (Default)
Read/Write Device : Local HMI Address : LW V 0 I word(s) Notification Enable	Read Device : Local HMI Address : LW V 0 I word(s)
OK Cancel Help	OK Cancel Help
Setting Description	

Setting	Description
Allow input	If selected, the input features and relevant settings are enabled.
Multi-line	If selected, the ASCII object can display multi-lined text. If a line
display	feed character LF (0xA) is used in the string, a newline will be
	created.



Vertical alignment	When [Multi-line display] is enabled, the method to vertically align		
anginnent	multiple lines of text can be selected.		
Mask	If selected, any values entered will be masked by asterisks (*)		
Reverse	Normally an ASCII code is displayed in "high byte", "low byte"		
high/low byte	order. Reverse selection makes the system display ASCII characters		
	in "low byte", "high byte" order.		
	ABCD BADC		
	The left object is in normal form, and		
	another is high/low byte reversed.		
Data format	Select encoding from UTF-8 (default), Unicode, or Latin-1.		
	Data format Encoding : Latin-1		
Read address	Click [Setting] to select the [PLC name], [Address], [Device type],		
	[System tag], [Index register] of the word device that displays		
	characters. Users can select a defined address tag from Address Tag		
	Library, or set address in [General] tab while adding a new object.		
	Address		
	PLC name : Local HMI		
	Device type :         LW         v           Address :         0         System tag		
	Address format : DDDDD [range : 0 ~ 10799]		
	Index register		
	No. of word : 1		
	Tag Library OK Cancel		
	No. of words		
	Select the maximum number of words to be displayed.		
	cMT / cMT X Series: max. 160 words		
	eMT/XE/mTV/iP: max. 64 words		
Notification	With notification enabled, the state of the designated bit address		
	can be set on / off, before / after writing.		
	Notification works differently comparing cMT/cMT X Series with		
	eMT/iE/XE/mTV Series.		
	<b>cMT/cMT X Series:</b> Trigger the object to open a keyboard window »		
	Notification before writing » Enter a value and press ENTER » Start		
	writing operation » Notification after writing.		
	eMT/iE/XE/mTV Series:		
	Trigger the object to open a keyboard window » Enter a value and		
	press ENTER » Notification before writing » Start writing operation		
WEINTEK	EasyBuilder Pro V6.09		

# Note

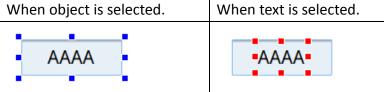
A UNICODE character uses 1 word, and an ASCII character uses 1 byte. Therefore 1 word can be used as 1 UNICODE character or 2 ASCII characters. (1 word equals to 2 bytes)

## Font Tab

# cMT, cMT X

General Date Entry Security Shape       Font       Trigger Action Setting Profile         Content       A         AA       Content         AA       A         Proview with actual font size       Attribute         Font:       Droid Sans Fallback         Size:       [16]         Color:       Color:         Text alignment       Horizontal:         Horizontal:       Center         Horizontal:       Center         Vertical:       Center         * Please use "Droid Sans Fallback" font if the content of text is determined in run time. (This font will increase HMI startup time.)	SCII Object's Properties	New ASCII Object	×
AA Preview with actual font size Attribute Font : Droid Sans Fallback Size : 16 Color : Text alignment Horizontal : Center Text area position Horizontal : Center Vertical : Center	General Data Entry Security Shape Font Trigger Action Setting Profile	General Security Shape Font Data Entry	
Preview with actual font size       Attribute       Font:       Droid Sans Fallback       Size :       16       Color :       Text alignment       Horizontal :       Text alignment       Horizontal :       Text alignment       Horizontal :       Center       Vertical :       Color :			_
Font:       Droid Sans Fellback         Size :       16         Color :       Size :         Text alignment       Color :         Horizontal :       Center         Text area position       Text area position         Horizontal :       Center         Vertical :       Center         Vertical :       Center	✓ Preview with actual font size	Preview with actual font size	
Color : Color			-
Text alignment Horizontal : Center Vertical : Center	Size : 16 🗸	Size : 16 🗸	-
Horizontal : Center  Text area position Horizontal : Center  Vertical	Color:	Color :	
* Please use "Droid Sans Fallback" font if the content of text is determined in run time. (This font will increase HMI startup time.)	Horizontal : Center  Text area position	Horizontal : Center 👻 Text area position	
	* Please use "Droid Sans Fallback" font if the content of text is determined in run time. (Th font will increase HMI startup time.)	This * Please use "Droid Sans Fallback" font if the content of text is determined in run time. (T) font will increase HMI startup time.)	uis
OK Cancel Help OK Cancel Help	OK Cancel Help	elp OK Cancel Hely	

Setting	Description		
Attribute	The font, size, color, and alignment can be set.		
Text	Multiline text is aligned within the label outline. The method to		
Alignment	align multiple lines of text can be selected.		
Text area	Multiline text is aligned within the object outline.		
position	The label outline is highlighted by red dotted line and the object		
	outline is highlighted by blue dotted line. Please note that this		
	feature is ineffective when [Multi-line display] is enabled in General		
	tab.		
	When object is selected. When text is selected.		





## Trigger Action Setting (cMT / cMT X)

Actions executed before/after writing can be classified into action groups. The groups are put in sequence. The actions within the same group are executed at the same time. When all the actions within the same group are completed, the actions in the next group are then executed. Compared to the Notification actions selected in General tab, Trigger Action Setting offers more flexible combination of actions. For more details about these settings, please also see Action Trigger in Chapter 13.

neral	Data Entry Secur	ity Shape	Font	Trigger Action Sett	ing Profi	le
Actio:	ns before writing			20 	18	
						[2
	Action Gro	up 1		Action Gro	up 2	
	Set Bit (Set Of					
	Delay (50 ms)		► Se	t Word (Write cons	stant valu	e : 0
	<u>.</u>			0		
	Ð					
< Actio:	ns after writing	m				+
1	as after writing Action Gro			Action Group 2	Ac	► E2 tion Gro
1		up 1	→ Se	Action Group 2 tt Bit (Set ON, LB-1)		Ľ
la series	Action Gro	up 1	Se			۲2 tion Gro
la series	Action Gro Wait Until (LB-	up 1	→ Se	t Bit (Set ON, LB-1		۲2 tion Gro

Setting	Description
Actions	The predefined action groups will be executed once the write
before writing	operation starts, and will not wait for it to be completed.
Actions after	The predefined action groups will be executed when the write
writing	operation is completed.



# 13.11. Indirect Window

### 13.11.1. Overview

Indirect Window object opens or closes a pop-up window assigned by a designated word register. There are two ways to use Indirect Window object: The first is to use the profile of Indirect Window object, and let the pop-up window be resized and displayed in the defined profile; the second is to automatically resize the window according to the size of the pop-up window to be displayed. To close the pop-up window, assign 0 to the designated word register. The difference between Direct Window and Indirect Window is that Direct Window is controlled by a bit register, while Indirect Window is controlled by a word register.

## 13.11.2. Configuration



Click [Object] » [Embed Window] » [Indirect Window] icon on the toolbar to open the object property dialog box. Set up the properties, press OK button, and a new Indirect Window object will be created.

#### **General Tab**

## cMT / cMT X Series

New Indirect Window Object	New Indirect Window Object
General Position Security	General Position
Comment :	Comment :
Attribute	Read address
Style : Embedded in parent window	Device : Local HMI
	Address : LW 🗸 0 16-bit Unsigned
Read	Attribute
Device : Local HMI	Style : With title bar
Address : LW 🗸 0 16-bit Unsigned	
Animation	
Effect Duration Direction	
Start : Float 🔹 100 🚖 ms From Left 💌	
End : Fly 🔹 100 🌧 ms To Left 💌	
15000	
☑ Use window no. offset Offset : -10 ▼	Use window no. offset
· · · · · · · · · · · · · · · · · · ·	
OK Cancel Help	OK Cancel Help



Setting	Description				
Style	This setting is available only on cMT / cMT X Series. When a base				
	window contains an underlay window, this setting determines the				
	display style of an Indirect Window placed in the underlay window.				
	Please see Example 2 below.				
	Embedded in parent window				
	The Indirect Window is displayed in its parent window. When an				
	Indirect Window is placed in an underlay window, the Indirect				
	Window is displayed in the underlay window when it is called in the				
	base window.				
	Popup window				
	The Indirect Window is displayed in the base window. When an				
	Indirect Window is placed in an underlay window, the Indirect				
	Window is displayed in the base window when it is called in the				
	base window.				
	Title Bar Setting				
	When [Enable title bar] is selected, a field shows for entering the				
	caption in the title bar. The caption can be selected from Label Tag Library.				
	Attribute				
	Style : Popup window  Title Ber Setting				
	Read Popup Window Property				
	A A V Enable title bar				
	Anim text				
	ц.				
	✓ Use label library Label 1: text ▼				
	OK Cancel				
Read address	Click [Setting] to select the [PLC name], [Address], [Device type],				
	[System tag], [Index register] of the word device that controls the				
	pop-up window. Users can also set address in [General] tab while				
	adding a new object.				
Attribute	Style				
	Set the display style of the pop-up window. There are two styles:				
	<ul> <li>No title bar</li> </ul>				

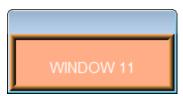


The pop-up window has no title bar and cannot be dragged.



## With title bar

The pop-up window has a title bar that can be dragged to move the window.



Animation (cMT / cMT X Series)

Effect

Different effects may be used for Start (window appears) and End (window disappears).

Effect Name	Transition
Fade	
Fly	
Float	
Wipe	
Split	
Circle	



	Clock			
	Zoom			
	Turn			
	Push			
	Duration			
	Specifies how many milliseconds	s (ms) a transition effect takes to		
	complete.			
	Direction			
	The direction of the transition.			
Use window	Sets the offset of the window nu	umber for selecting the pop-up		
no. offset	window. The window number of the pop-up window is calculated			
	by the value in the word register added to the offset. For example,			
	assume the value in the register is 20 and offset is 5, the pop-up window number will be 25.			



## Position

## eMT, iE, XE, mTV Series

Auto. adjust window size     Aligument   (relative to object display region)     Owner     Device:   Local HMI   Address:   LW   V   Address:   LW-0   Y   X datres:   LW-1   Owner   Durstion:   Durstion:     Image: LW-0   Y   Address:   LW-1   Owner   Durstion:     Image: LW-0   Y   Address:   LW-1   Owner   Durstion:     Image: LW-0   Y   Address:   LW-1   Owner   Durstion:     Image: LW-0   Y   Address:   LW-1   Image: LW-1 <th>General Position Security</th> <th>General Position</th>	General Position Security	General Position
Device : Local HMI	Alignment: (relative to object display region)	Alignment:
	Device : Local HMI Address : LW X Address : LW-0 Y Address : LW-1	
	OK Cancel Help	K     Cancel

-	
Autonatically resizes the Indirect Window and align the pop	
window size	window to the preset region.
	Alignment
	Sets a reference point of the pop-up window from one of the five
	positions on the screen; for example, if the lower-right region is
	selected, the lower-right corner of the pop-up window is aligned to
	the lower-right region of the Indirect Window. See Example 1.
Dynamic	With this option selected, the position of the window on the screen
position	can be changed dynamically by the values in the designated
	address.
	Enable shift window animation
	With this option selected, the window changes position with
	transition effect.

# Example 1

Here is an example of using Indirect Window. The setting is shown in the following figure, set the address to LW-0 which assigns the window number. Create window no. 11 and 12 first.

1. Create an Indirect Window object, set address to LW-0, and select [Auto. adjust window



size].

2. Select the region where the window is to be displayed.

neral Position			
🛛 Auto. adjust window size			
		0	0
	Alignment: {relative to object display region}	0	

- 3. Enter value 11 in LW-0, the pop-up window displayed is window no. 11.
- 4. Enter value 12 in LW-0, the pop-up window displayed is window no. 12.
- 5. Enter value 0 in LW-0, the pop-up window is closed.

Popup Window No. 11	. 1	Popup <mark>Wi</mark>	ndow No.	12
<- The frame of Indirect Window		<- The frame of Indirect Window		
Window11			Windc	ow12

To close the pop-up window, apart from entering 0 in the designated word register, another way is to place a Function Key object in the pop-up window, and set the key to [Close window].

# Example 2

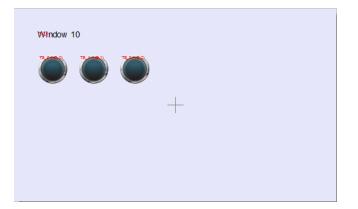
Here is an example showing the difference between these two styles: [Embedded in parent window] and [Popup window]. The style setting determines how an Indirect Window placed in an underlay window is displayed when it is called in the base window.

 Add two base windows: Window no. 10 and Window no. 11. Add an underlay window in Window no. 10 and set Window no. 11 as the underlay window.

Name :	WINDOW_010	
Window no. :	10	
Size Width :	800 Height: 480	
Background		
Color :		
Transparency :	0	0%
* [Transparenc	y] is used only on popup, direct/indirect and keyboard windows.	
Underlay window		

2. Create several objects in Window no. 10.

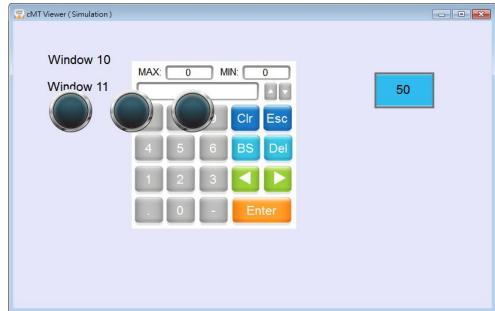




**3.** In Window no. 11 create an Indirect Window object and a Numeric Input object. Set both read addresses to LW-0.

	WP_0 (LWH0)	<u> </u>
Window 11	NE	_0 (LM+0) #######
	L	
	· · · · · · · · · · · · · · · · · · ·	

**4.** By entering a window number in the Numeric Input object, the Indirect Window is displayed according to the selected style.



### Embedded in parent window



### Popup window

cMT Viewer ( Simulation )		
Window 10 Window 11	MAX: 0 MIN: 0 7 8 9 CIr Esc 4 5 6 BS Del 1 2 3 1 2 . 0 - Enter	50

# Note

- For eMT/iE/XE/mTV models, a screen can display up to 24 pop-up windows simultaneous including System Message Window, Direct Window and Indirect Window. For cMT / cMT X Series, the number of pop-up windows is not limited.
- The system does not allow opening the same window with two Direct (or Indirect) windows in one base window.
- If the pop up window has monopoly property enabled, then when the window pops up, all background windows may not be operated until the monopolizing window has been closed.

Click the icon to watch the demonstration film. Please confirm your internet connection before playing the film.



### **13.12.** Direct Window

### 13.12.1. Overview

Direct Window object opens or closes a pop-up window assigned by a designated bit register. When the state of the bit register changes, the pop-up window appears at the predefined location. The display area for the pop-up window is limited by the size of predefined location. Returning the state of the bit register closes the pop-up window. The difference between Direct Window and Indirect Window is that Direct Window is controlled by a bit register, while Indirect Window is controlled by a word register.

### 13.12.2. Configuration



Click [Object] » [Embed Window] » [Direct Window] icon on the toolbar to open a Direct Window object property dialog box. Set up the properties, press OK button, and a new Direct Window object will be created.

### **General Tab**

### cMT / cMT X Series

New Direct Window Object	New Direct Window Object
General Position Security	General Position
Comment :	Comment :
Attribute	Attribute
Trigger : ON 👻	Trigger : ON 🗸
Window No. : 3. Monitor Mode 🗸 🗸 🗸 🗸 🗸 🗸	Style : No title bar 🗸
Style : Embedded in parent window	Window No. : 3. Fast Selection 👻
	Read address
Read	Device : Local HMI 🔹 Settings
Device : Local HMI 🔹 🏹	Address : LB 🗸 0
Address : LB 🗸 0	2
Animation	
Effect Duration Direction Start: Float	
End: Split $\checkmark$ 100 $\Leftrightarrow$ ms Vertical Out $\checkmark$	
III •••	
OK Cancel Help	OK Cancel Help

### eMT, iE, XE, mTV Series



Setting	Description				
Style	This setting is available only on cMT / cMT X Series. When a base				
	window contains an underlay window, this setting determines the				
	display style of a Direct Window placed in the underlay window.				
	Please see Example 2 in Chapter13.11 in this manual.				
	Embedded in parent window				
	The Direct Window is displayed in its parent window. When a				
	Direct Window is placed in an underlay window, the Direct Window				
	is displayed in the underlay window when it is called in the base				
	window. <b>Popup window</b> The Direct Window is displayed in the base window. When a Direct				
	displayed in the base window when it is called in the base window.				
	Title Bar Setting				
	When [Enable title bar] is selected, a field shows for entering the				
	caption in the title bar. The caption can be selected from Label Tag				
	Library.				
	Attribute Trigger: ON				
	Window No. : 3. Monitor Mode				
	Style : Popup window  Title Bar Setting				
	Read Popup Window Property				
	Title setting IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII				
	Anim text				
	· · ·				
Read address	Click [Setting] to select the [PLC name], [Address], [Device type],				
	[System tag], [Index register] of the bit device that controls the				
	pop-up window. Users can also set address in [General] tab while				
	adding a new object.				
Attribute	Style				
	Set the display style of the pop-up window. There are two styles:				
	<ul> <li>No title bar</li> </ul>				
	The pop-up window has no title bar and cannot be dragged.				

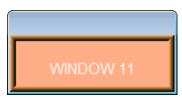






### With title bar

The pop-up window has a title bar that can be dragged to move the window.



### Window no.

Effect

Set the pop-up window number.

### Animation

(cMT / cMT X Series) Different effects may be used for Start (window appears) and End (window disappears).

Effect Name	Transition
Fade	
Fly	
Float	
Wipe	
Split	
Circle	



Clock	
Zoom	
Turn	
Push	

### Duration

Specifies how many milliseconds (ms) a transition effect takes to complete.

### Direction

The direction of the transition.

### Position

### cMT / cMT X Series

New Direct Window Object	New Direct Window Object
General Position Security	General Position
Auto. adjust window size	Auto. adjust window size
Alignment: {relative to object display region}	Alignment: (relative to object display region)
V Dynamic position	
Device : Local HMI   Address : LW  O	
X Address : LW-0 Y Address : LW-1	
Tenable shift window animation: Duration: 1	
× >	× >
OK Cancel Help	OK Cancel Help

### eMT, iE, XE, mTV Series



Setting	Description
Auto. adjust	Automatically resizes the Direct Window and align the pop-up
window size	window to the preset region.
	Alignment
	Sets a reference point of the pop-up window from one of the five
	positions on the screen; for example, if the lower-right region is
	selected, the lower-right corner of the pop-up window is aligned to
	the lower-right region of the Direct Window. See Example 1.
Dynamic	With this option selected, the position of the window on the screer
position	can be changed dynamically by the values in the designated
	address.
	Enable shift window animation
	With this option selected, the window changes position with
	transition effect.

### Example 1

Create window no. 11 which can be controlled by a Toggle Switch with address LB-0.

- 1. Create a Direct Window object and set read address to LB-0.
- 2. In this example, the reference point for alignment is set to the lower-right region.

Jeneral Posi	ition			
III 4				
M AUIO. 80;	just windov	/ size Alignmen	0	0

3. When LB-O's state is ON, window no. 11 will show.

	ON	
Fast Sel		

4. When LB-0's state is OFF, window no. 11 will be hidden.





# Note

- For eMT/iE/XE/mTV models, a screen can display up to 24 pop-up windows simultaneous including System Message Window, Direct Window and Indirect Window. For cMT / cMT X Series, the number of pop-up windows is not limited.
- The system does not allow opening the same window with two Direct (or Indirect) Windows in one base window.
- If the pop up window has monopoly property enabled, then when the window pops up, all background windows may not be operated until the monopolizing window has been closed.

Click the icon to watch the demonstration film. Please confirm your internet connection before playing the film.





### 13.13. Moving / Rotating Shape

### 13.13.1. Overview

Moving / Rotating Shape is an object that changes its state, moves, and/or rotates according to the user-defined parameters. The state, moving distance, and rotation direction/angle are determined by values in consecutive registers.

### 13.13.2. Configuration



Click [Object] » [Animation] » [Moving / Rotating Shape] icon on the toolbar to create the object, set up the properties, press OK button, and a new Moving / Rotating Shape object will be created.





### **General Tab**

meral Security	Shape 1	Label		
Commen				
	: Local HM	4I		•
lead address				
Device : Lo				
Address : L	Ŵ	▼ 0		16-bit Unsigned
				Usage
ttribute No. of states		3		
NO. OI STATES	: 1	•		
State	: 0	•	Ratio :	1
osition	<b>V</b>			
Mode	: X & Y ax	ais		-
lotate				
lotate Mode	Rotate			
Mode				
	: Rotate : OClockw	vise	) Countercla	
Mode		vise	© Countercle	
Mode		vise	© Countercle	
Mode	:   Clocky		Counterclc	
Mode Direction imit address	:  Clockw	vise rom register	Countercle	
Mode Direction imit address Device : Lo	:  Clockw Clockw Limit fr cal HMI	rom register	Countercle	ockwise
Mode Direction imit address	:  Clockw Clockw Limit fr cal HMI		Countercle	
Mode Direction imit address Device : Lo	:  Clockw Clockw Limit fr cal HMI	rom register	Countercle	ockwise
Mode Direction imit address Device : Lo	:  Clockw Clockw Limit fr cal HMI	rom register	Countercle	ckwise
Mode Direction imit address Device : Lo	:  Clockw Clockw Limit fr cal HMI	rom register	Countercle	ckwise
Mode Direction imit address Device : Lo	:  Clockw Clockw Limit fr cal HMI	rom register	Countercle	ckwise

Setting	Description					
Read address	Click [Setting	g] to configur	e the [Device], [[	Device type], [Address],		
	[System tag]	, or [Index re	gister] of the wo	rd devices that control		
	the display c	the display of object's state and moving distance. Users can also set				
	the address	in [General] t	ab while adding	a new object.		
Attribute	Select the ol	oject's mover	nent mode and r	ange. See "13.13.2.1		
	Illustration c	of Modes" in	the following par	t.		
Display ratio	The size of s	hape in differ	rent states can be	e set individually as		
	shown in the	e following fig	gure.			
	Ratio : 1					
	State 0	State 1	State 2	State 3		
Rotate	Select Clock	wise or Coun	terclockwise for I	Direction and define the		



	angle range (unit in degree) within which the object may rotate.
	The allowable range is 0~360 degrees, and the Max. angle should
	be greater than Min. angle.
	For more information please see "13.13.2.2 Rotation Modes".
Limit address	The object's moving range can be set by adjusting the data in the
	designated register, see Example 1.

### Example 1

Supposed that the object's moving range is limited by register LW-n, the addresses in the following table are used to limit the moving / rotating range.

Data format	16-bit	32-bit	64-bit (cMT / cMT X only)
Position - [Min. X] address	LW-n	LW-n	LW-n
Position - [Max. X] address	LW-n+1	LW-n+2	LW-n+4
Position - [Min. Y] address	LW-n+2	LW-n+4	LW-n+8
Position - [Max. Y] address	LW-n+3	LW-n+6	LW-n+12
Rotate – Input Low	LW-n+4	LW-n+8	LW-n+16
Rotate – Input High	LW-n+5	LW-n+10	LW-n+20
Rotate – Scaling Low	LW-n+6	LW-n+12	LW-n+24
Rotate – Scaling High	LW-n+7	LW-n+14	LW-n+28
3			

### 13.13.2.1. Illustration of Modes

Available modes are: (Assume Read Address is LW-n)

• X axis only

The object is only allowed to move along the X-axis. The moving distance ranges from [Min. X] to [Max. X].

Attribute Mode	: X axis only	•	
No. of states Min. X	[-	Max. X : 60	0
Data format	16-bit	32-bit	64-bit (cMT / cMT X only)
Object state	LW-n	LW-n	LW-n
Moving distance on X-axis	LW-n+1	LW-n+2	LW-n+4

• Y axis only

The object is only allowed to move along the Y-axis. The moving distance ranges from [Min. Y] to [Max. Y].



#### Objects

Attribute			
Mode :	Y axis only		•
No. of states :	8 🔹		
Min. Y :	0	Max. Y :	480

Data format	16-bit	32-bit	64-bit (cMT / cMT X only)
Object state	LW-n	LW-n	LW-n
Moving distance on Y-axis	LW-n+1	LW-n+2	LW-n+4

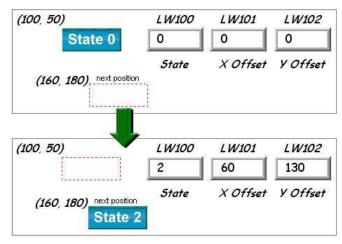
<sup>•</sup> X & Y axis

The object is allowed to move along the X-axis and Y-axis. The moving range in X and Y directions is defined by [Min. X], [Max. X] and [Min. Y], [Max. Y] respectively.

Attribute	
Mode : X & Y axis	▼
No. of states : 8	
Min. X : 0	Max. X: 600
Min. Y: 0	Max. Y: 480

Data format	16-bit	32-bit	64-bit (cMT / cMT X only)
Object state	LW-n	LW-n	LW-n
Moving distance on X-axis	LW-n+1	LW-n+2	LW-n+4
Moving distance on Y-axis	LW-n+2	LW-n+4	LW-n+8

For example, if the object's read address is LW-100 and the data format is [16-bit Unsigned], LW-100 is used to control the object's state, LW-101 is used to control the object's moving distance on the X-axis, and LW-102 is used to control the object's moving distance on the Y-axis. The following figure shows that the object's read address is LW-100 and initial position is (100, 50). To move the object to the position (160,180) and change its state to State 2, assign 2 to LW-100, 160-100 = 60 to LW-101, 180-50 = 130 to [LW102].





• X axis w/ scaling

The object moves in X-axis only with scaling. Suppose that the value of the designated register is DATA, the system uses the following equation to calculate the moving distance on the X-axis.

Displacement - (Data-[Input low])	[Scaling high]-[Scaling low]
Displacement=(Data-[Input low])×	[Input high]-[Input low]

Data format	16-bit	32-bit	64-bit (cMT / cMT X only)
Object state	LW-n	LW-n	LW-n
Moving distance on X-axis	LW-n+1	LW-n+2	LW-n+4

• Y axis w/ scaling

The object is for Y axis movement with scale, and the equation to calculate the moving distance on the Y-axis is the same as the one in [X axis w/ scaling].

Data format	16-bit	32-bit	64-bit (cMT / cMT X only)
Object state	LW-n	LW-n	LW-n
Moving distance on Y-axis	LW-n+1	LW-n+2	LW-n+4

• X axis w/ reverse scaling

This works in the way as [X axis w/ scaling], but the moving direction is in reverse.

• Y axis w/ reverse scaling

This works in the way as [Y axis w/ scaling], but the moving direction is in reverse.

### 13.13.2.2. Rotation Modes

The addresses that control the moving / rotating shape are consecutive addresses starting from Read Address (LW-n), and they may vary depending on the selected mode. Please click [Usage...] to open the window that shows the control addresses relating to rotation parameters.

Moving / Rotating Shape Object's Properties
General Security Shape Label Profile
Comment :
Device : Local HMI
Read address
Device : Local HMI 🗸 🧔
Address : LW - 100 64-bit Signed
Usage
Address Usage
Control
Object state :LW-100
Moving distance on X axis :LW-104
Rotating angle :LW-108



### Rotate

Select rotating direction from clockwise or counterclockwise and set the Min. and Max. angle range.

When rotation animation is enabled, two modes can be selected: Default and Shortest. e.g. When the angle measure is set to clockwise and the rotating angle is changed from 10 degrees to 350 degrees, these two modes give different results:

Default: rotates 340 degrees clockwise (linear interpolation between the two numbers) Shortest: rotates 20 degrees counterclockwise (in the direction that produces the shortest animation path)

Mode :	Rotate		- 37
Angle Measure :	Clockwise	Counterclockwise	
Animation :	Oefault	💿 Shortest	
Min. angle :	0	Max. angle : 359	_

### Rotate w/ scaling

Select rotating direction from clockwise or counterclockwise. The angle of rotation is calculated by the formula as shown below.

Angle of Rotation =(Data-[Input low]) ×  $\frac{[Scaling high]-[Scaling low]}{[Input high]-[Input low]}$ 

Rotate w/ reverse scaling
 Similar to [Rotate w/ scaling] but reverses the object from clockwise to counterclockwise and vice versa.



### 13.14. Animation

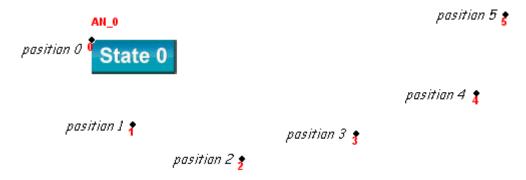
### 13.14.1. Overview

Animation object is defined by a pre-defined point set and states. Animation object will then move to a given point in a given state defined by designated registers. The object state and position depend on current value of two consecutive registers. The first register controls the state of the object and the second register controls the position along the predefined path.

### 13.14.2. Configuration



Click [Object] » [Animation] » [Animation] icon on the toolbar. First, create the pre-defined path. Move the mouse to each moving position, and click the left button to define positions one by one. When it is done, right click on the screen, set up the properties, press OK button, and a new Animation object will be created.



To change the object's attributes, double click on the object to open Animation Object's Properties dialog box.



### **General Tab**

	General Shape Label Profile					
	Comment :					
	No. of states : 8					
	Position :      Controlled by register     Description = D					
	Read address PLC name : Local HMI ▼ Setting					
	Address : LW					
	OK Cancel Help					
etting	Description					
ttribute	No. of states					
	Configure the number of states for this object.					
	Controlled by register					
	Use the designated registers to control the object's state and					
	position. See Example 1.					
	Based upon time interval					
	The object's state and position will change from time to time. [Time					
	interval attributes] is used to set the time interval for states and					
	positions.					
	Time interval attributes					
	Position speed : 10 * 0.1 second(s)					
	Image state change : Time-based 💌 🛛 Backward cycle					
	Image update time : 5 * 0.1 second(s)					

each second.



Image state change: Determines how state changes, either
[Position dependent] or [Time-based]. If [Position dependent] is
selected, the object state will change when position changes. If
[Time-based] is selected, the object position will change based on
[Position speed] and the object state will change based on [Image update time].
Backward cycle: Assumed the object has four positions: position 0, position 1, position 2, and position 3, and [Backward cycle] is not

position 1, position 2, and position 3, and [Backward cycle] is not selected. When the object moves to the last position (position 3), the next position will be back to the initial position 0, and repeat. The moving path is shown as follows:

position  $0 \rightarrow \text{position } 1 \rightarrow \text{position } 2 \rightarrow \text{position } 3 \rightarrow \text{position } 0 \rightarrow \text{position } 1 \rightarrow \text{position } 2...$ 

If [Backward cycle] is selected, when the object moves to the last position (position 3), it will move backwards to position 2, position 1 and then the initial position 0, and start over again. The moving path is shown as follows.

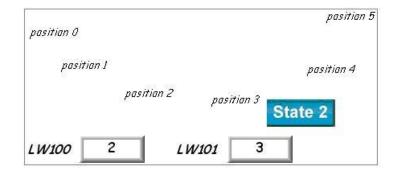
position  $0 \rightarrow \text{position } 1 \rightarrow \text{position } 2 \rightarrow \text{position } 3 \rightarrow \text{position } 2 \rightarrow \text{position } 1 \rightarrow \text{position } 0...$ 

### Example 1

The object's state and position are determined by the registers, and the addresses must be configured correctly, as in the following table:

Data format	16-bit	32-bit	64-bit (cMT / cMT X only)
Object state	LW-n	LW-n	LW-n
Object position	LW-n+1	LW-n+2	LW-n+4

For example, if the designated register is LW-100 and the data format is [16-bit Unsigned], then LW-100 represents object's state, LW-101 represents position. In the picture below, LW-100 = 2, LW-101 = 3, so the object's state is 2 and position is 3.





### **Profile Tab**

General Shape Label	Profile					
Position			[ and			laril
Pinned	х:	191	*	Υ:	56	-
Size						
Keep width/hei	ght ratio					
	Width :	404	*	Height :	131	
	Width (%) :			-		
	width (%):	100	*	Height (%) :	100	×
Shape rectangle size						
	Width :	84	•	Height :	33	-
Trajectory						
		Position	0			•
	х:	191	-	Υ:	147	

Description				
Set the size of the shape.				
Set the position of each point on the moving path.				



Since multiple pictures might be used by an [Animation] object, [Set to original dimension] will not return all pictures to the original size.



### 13.15. Bar Graph

### 13.15.1. Overview

Bar Graph object displays data as a bar graph for visualization.

### 13.15.2. Configuration

# 

Click [Object] » [Chart] » [Bar Graph] icon on the toolbar to open Bar Graph dialog box. Select properties, click OK button, a new Bar Graph object is created.

### **General Tab**

### cMT / cMT X

Bar Graph		
☑ Background General Out	line Range Security Shape	
Background     General Out       Bar Graph     Communic Scale	ment :s s Local HMI	OK Cancel Help



eMT, iE, XE, mTV

	New Bar Graph Object       General Outline Security Shape       Comment :       Read address       PLC name : [Local HMI       Address : [LW         O         16-bit Unsigned
Setting	Description
Read address	Click [Setting] to Select the [Device], [Device type], [Address],
	[System tag], and [Index register] of the word devices that controls
	how the bar graph displays.



### **Outline Tab**

cMT / cMT X

Background	General Outline Range Security Shape	
<ul> <li>☑ Bar Graph</li> <li>☑ Dynamic Scale</li> </ul>	Style : Default	OK
	Type	
	Attribute Mode : Normal   Direction : Up	Help
	Bar width ratio (%): 100 🚖	
	Background Frame : Transparent Background :	
	Bar Pattern :	
	Style :	
	Dynamic color Enable	

eMT, iE, XE, mTV

New Bar Graph O	bject	23
General Outline	Range Security Shape	
– Туре –		
	💿 Bar 💿 Circular	
Attribute		5
Mode	e: Normal	
	Bar width ratio (%): 100	-
Background		=1
Frame	e : Transparent 🖵 Background : Transparent	•
Bar		$\equiv$
Interior	r : Pattern :	Ţ
Style		

Setting	Description
Туре	Choose either [Bar] or [Circular].
Attribute	Mode
	Choose either [Normal] or [Offset]. If [Offset] is selected, an
	original value [Origin] must be entered for reference.



### **Direction / Degree**

Bar: Determine the bar graph direction. Available options are [Up], [Down], [Right], and [Left].

Circular: Determine the circular bar graph direction. Available options are [Clockwise] and [Counter clockwise].

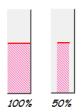
Degree		
Direction	Olockwise	Counterclockwise
Degree Start :	Full circle	
		OK Cancel

If [Full circle] is selected, set the start degree.

If [Full circle] is not selected, set the start and end degree.

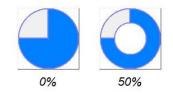
### Bar width ratio (%)

The ratio of bar to object width. The figure below shows two ratios, 100% and 50%.



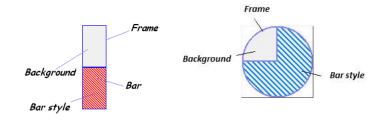
### Hole Radius (%)

The ratio of the radius of the hole to the radius of the whole circular bar graph. The figure below shows two ratios, 0% and 50%.



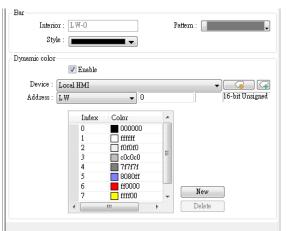
Color/Style

Set the bar's frame and background color, bar style, and bar color. See the picture below.





# Dynamic(For cMT / cMT X Series models only) With this option selected, thecolorinterior color of the bar is determined by the value in the<br/>designated address.



### **Range Tab**

General	Outline	Range	Security	Shape			
Attribute							
М	lin value :	0			Max value :	10	
Target in Targ	udicator get value :	V Ena	ble		Color : Tolerance :		
Alarm in	dicators						
L	ow limit :	0			High limit :	10	
	ow color :	1			High color :	1	

Setting	Description
Zero / Span	The percentage of filling can be calculated by the formula, see
	Example 1.
Target	When the register value meets the condition, the color of filled
indicator	area will change to the target color, see Example 2.
Alarm	If the register value is larger than [High limit], the color of filled
indicators	area will change to [High color]. If the register value is smaller than
	[Low limit], the color will change to [Low color].
	Please note that when [Dynamic color] is enabled, the Target
	indicator and Alarm indicator settings will not be present and their
	colors are determined by the designated addresses.
Dynamic	When [Enable] is selected, the [Low limit] and [High limit] of [Alarm
taget/alarm	indicator] and the [Target Value] of [Target indicator] will use



/zero(span)	designated registers, which is shown in their respective fields see
	Example 3.

### Example 1

The percentage of filling can be calculated by the following formula:

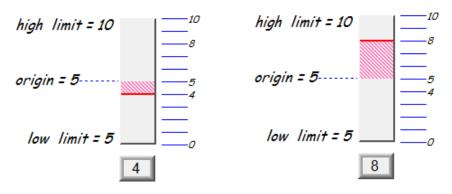
Percentage of filling = 
$$\frac{\text{Register value} - [\text{Zero}]}{[\text{Span}] - [\text{Zero}]} \times 100\%$$

Assume [Offset] is selected. If (Register value – [Zero]) is greater than 0, the bar will fill up from [Origin]. If (Register value – Zero) is less than 0, the bar will be drawn below [Origin].

For example, [Origin] is 5, [Span] is 10, and [Zero] is 0.

For different value in read address, it will display as below:

If the value at read address is 4: If the value at read address is 8:



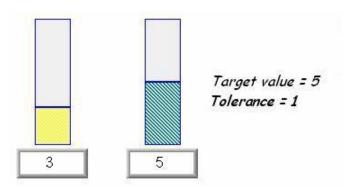
### Example 2

When the register value meets the following condition, the color of filled area will change to the target color.

[Target Value] - [Tolerance] ≤ Register value ≤ [Target Value] + [Tolerance]

Assume [Target Value] is 5 and [Tolerance] is 1. As shown below, if the register value is equal to or larger than 4 (=5-1) and equal to or less than 6 (=5+1), the filled area's color of the bar will change to the target color.





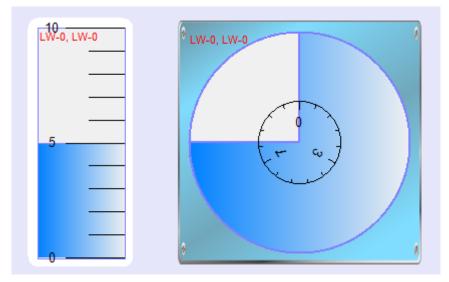
### Example 3

If [Dynamic target/alarm] is enabled, [Low limit] and [High limit] of [Alarm indicator] are defined by designated registers as shown in the following table. Furthermore, if [Dynamic zero/span] is used, [Zero], [Span] and [Origin] will be defined by designated registers. Assume the address is LW-n, the limits are:

Data format	16-bit	32-bit	64-bit (cMT / cMT X only)
Alarm Low Limit	LW-n	LW-n	LW-n
Alarm High Limit	LW-n+1	LW-n+2	LW-n+4
Target	LW-n+2	LW-n+4	LW-n+8
Zero	LW-n+3	LW-n+6	LW-n+12
Span	LW-n+4	LW-n+8	LW-n+16
Origin	LW-n+5	LW-n+10	LW-n+20

### 13.15.3. Combo Setting

cMT / cMT X Series HMI support combo setting for Bar Graph, which allows setting of multiple related objects at a time. Bar Graph can be set with Background and Dynamic Scale.





### Objects

### Background

<ul> <li>✓ Background</li> <li>✓ Bar Graph</li> <li>✓ Dynamic Scale</li> </ul>	Outline          Margin:       10         Color/Style <ul> <li>Color/Style</li> <li>Customize</li> <li>Picture</li> <li>Round:</li> <li>10</li> <li>Frame:</li> <li>Transparent</li> <li>Pattern style:</li> <li>Pattern style:</li></ul>
etting Aargin	Description Specify the space between the background edge a
olor/Style	the objects. Customize ColorStyle ColorStyle ColorStyle ColorStyle Pattern: Pattern: Pattern: Pattern style: P
	Select a suitable background pattern and color. <b>Picture</b> Color\$Style <ul> <li>Customize</li> <li>Picture Library</li> <li>Ficture Library</li> </ul> Use the default picture or choose a picture from



### Objects

### **Dynamic Scale**

<ul> <li>✓ Background</li> <li>✓ Bar Graph</li> <li>✓ Dynamic Scale</li> </ul>	General Profile
Setting	Description
Style	The scale style will follow the bar type.
Fick Mark	Configure the number of tick marks for main and sub scales. If the style is circular, the radius and tick mark length can be specified.
Scale Label	Configure the font, font color, font size and other attributes of scale label.



### 13.16. Meter Display

### 13.16.1. Overview

Meter Display object displays the value of word register with a meter.

### 13.16.2. Configuration



Click [Object] » [Chart] » [Meter Display] icon on the toolbar to open the Meter Display dialog box. Set the object's attributes and then click OK to create a new Meter Display object.

### 13.16.2.1. eMT, iE, XE, mTV Series

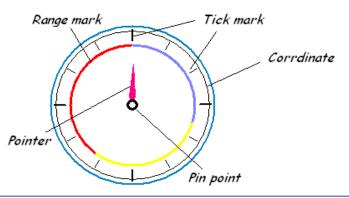
### **General Tab**

ſ	New Meter Display Object
	General Outline Limits Security Shape
	Comment :
	Read address   PLC name : Local HIMI   Address : LW     0     16-bit Unsigned
Setting	Description
Read address	Click [Setting] to select the [Device], [Device type], [Address],
	[System tag], and [Index register] of the word devices that controls
	the Meter Display object.



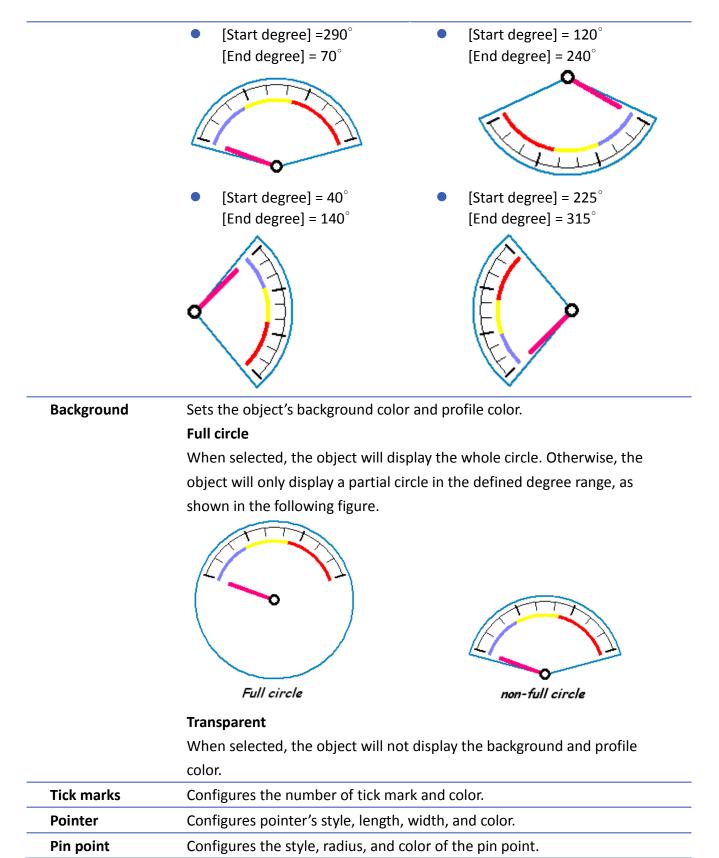
### **Outline Tab**

meral Outline	Limits Security Shaj	pe Profile	
Degree Angle :	O° ~ 359°	]	
Background Background :		, Profile :	
	V Full circle	🔲 Transparent	
Tick marks			
Color :	C Enable		Coordinate
Main scale :	4	Sub. scale :	2
Length :	10	-	
Pointer			
	Arm style	Frame :	<b></b>
		Inner :	
8	Width : 4 🗸	- Length :	50
Pin point			
	🖲 Circle 🛛 🔘 Rec	tangle	
Radius :	7	4	
Inner :			
		9	



Setting	Description
Degree	Set the pointer to go around the meter clockwise or
	counterclockwise.
	Sets the object's start degree and end degree measured clockwise
	from the 12 o'clock position. The angle range is 0 to 360 degrees.
	The following shows meters of different settings.





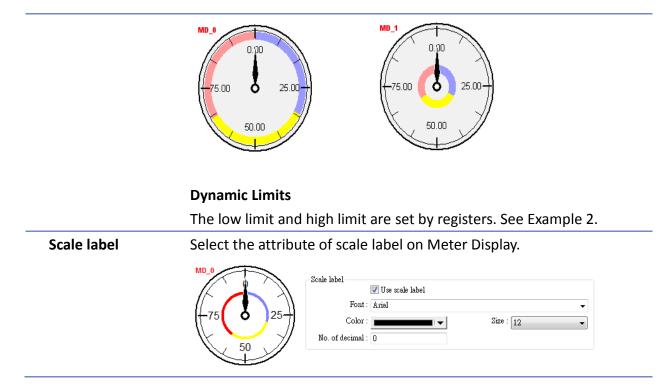


### Limits Tab

General Outlin	e Limits	Security	Shape			
Value	- 13	87				
Min	: 0		-	Max. :	100	*
Range limits						
	🔽 Enat	de				
Low	:					
Mid	:					
Higl	1: 🚺					
Widt	n: 3		-			
	🔲 Use 🤊	user-defined				
	Dyna	amic limits				
Low limi	t: 30		×	High limit :	60	×
Scale label						
	📝 Use :	xale label				
Fon	t : Arial					•
Colo	r :			Size :	16	•
			Right of	decimal point :	0	

Setting	Description		
Value	Sets the object's display range. Meter Display object will use the		
	value of [Zero] and [Span] and the value of register to calculate the		
	pointer's position. See Example 1.		
Range limits	Configures the values of [Low limit], [High limit], their		
	corresponding display colors, and the width.		
	30 60		
	0 100		
	0 Use user-defined radius		





### **Example 1: Pointer position calculation**

Set object's display range. Meter Display object will use the value of [Zero] and [Span] and the value of register to calculate the pointer's position. For example, supposed that [Zero] is 0, [Span] is 100, when the value of register is 30, [Start degree] is 0, and [End degree] is 360, then the degree indicated by the pointer is:

{ (30 - [Zero]) / ([Span] - [Zero]) } \* ([End degree] - [Start degree]) =

 $\{(30-0) / (100-0)\} * (360-0) = 108$ 

Pointer will be pointing at 108 degrees.

### **Example 2: Dynamic Limits**

The low limit and high limit are set by the register.

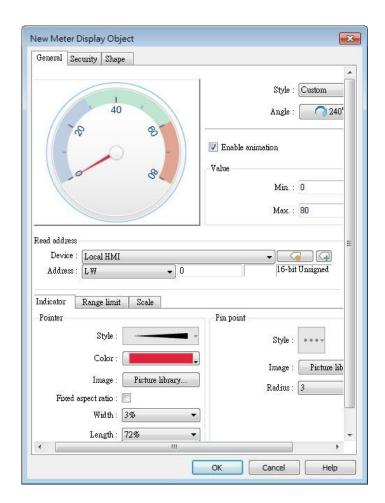
Suppose the address is LW-n, the following table shows the read address of low limit and high limit:

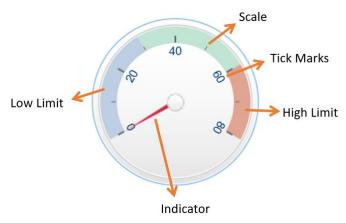
Content	16-bit	32-bit	64-bit (cMT / cMT X only)
Low limit	LW-n	LW-n	LW-n
High limit	LW-n+1	LW-n+2	LW-n+4
or instance, when ad	dress is LW-100, the	rule of setting lir	nits is:
Content	16-bit	32-bit	<b>64-bit</b> (cMT / cMT X only)
Low limit	LW-100	LW-100	LW-100
High limit	LW-101	LW-102	LW-104



### 13.16.2.2. cMT / cMT X Series

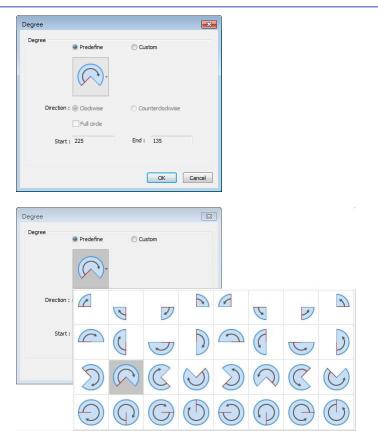
### **General Tab**





Setting	Description
Style	Select a style from the drop-down list. Available options include: [Custom], [Style 1], [Style 2], and [Classical]. If [Custom] is selected, properties such as the width / length of the pointer or the radius of the pin point, etc must also be manually set.
	The following background-related settings are available using [Style 1], [Style 2], or [Classical]: <b>Color</b>
	Sets the color of the background picture of meter.
	Outline
	The following is the outline of Style 1 when [Full circle], [Half circle], or [Quarter circle] is selected.
	The following is the outline of Style 2 when [Full circle], [Half circle], or [Quarter circle] is selected.
	Rotation
	Rotates the background picture clockwise according to the angles
	set.
Angle	Direction
	Sets the range to label the scale, using twelve o'clock direction as the 0 $^\circ$ reference.
	Degree
	Available options include: [Predefined] and [Custom]. With [Predefine] selected, pick from the thumbnails configure directions





### Full circle

	If selected, the full circle is drawn according to the selected
	direction and the start angle. The limits are determined by the value set in [Minimum] and [Maximum] field under [Value].
Enable	If selected, the pointer slides to the designated position when the
animation	read value changes; if not selected, the pointer directly points to the designated position when the read value changes.
Value	Sets the lower and upper limits of the meter.
Read address	Displays the value in meter according to the value in the designated word register.
Indicator	Sets the style of pointer and pin point. If [Custom] is selected, the direction of the pointer must points upward to correctly display.
Range limit	Sets the colors to indicate different ranges.
	Dynamic limits
	The low limit and high limit are decided by the register. See
	Example 2 in the previous section.
Scale	Sets the number of main and sub scale, the color of tick marks and
	scale label.

Click the icon to download the demo project. Please confirm your internet connection before downloading the demo project.



### 13.17. Trend Display

### 13.17.1. Overview

Trend display objects draw curves of the data recorded by Data Sampling object.

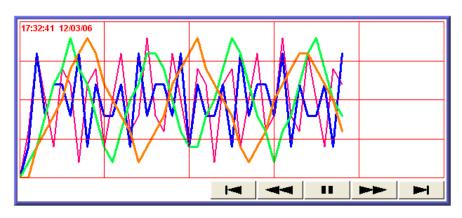
### 13.17.2. Configuration



Click [Data/History] » [Trend Display] icon on the toolbar to open a Trend Display object property dialog box. Set up the properties, press OK button, and a new Trend Display object will be created.

### 13.17.2.1. eMT, iE, XE, mTV Series

**General Tab** 



Button	Description
	Go to the earliest sampling data.
	Go to the previous time interval.
	Click to stop auto-scrolling. When the new sampling data is
	generated, the display does not scroll, nor is the new data outside
	the display range displayed.
	Click to start auto-scrolling. The display scrolls as the new sampling
	data is generated.
	Go to the next time interval.
	Go to the latest sampling data.



N	ew Trend Display Object				
		7 Scale   Security   Shape	1		
10	Comment :				
	Data Sampling Obj	ect index : 1			
		(	type : Histor	v v	
	* If no. of channels is changed			· · ·	
	✓ Refresh data automatically ○ No line connection between the second		l is earlier (slo	wer refresh speed)	
		is time range : 💿 Pixel fault distance : 100	Time second (s)		
	📝 Dynamic X axis time rang	ge			
	Device : Local HMI		•	Settings	
	Address : LW	<b>↓</b> ]0		16-bit Unsigned	
	History control				
	Device : Local HMI		•	Settings	
	Address : LW	▾ ] 100		16-bit Unsigned	
	Watch line V Enable				
	Device : Local HMI		-	Settings	
	Address : LW	◄] 50			
	Time stamp output Time Enable			5	
	Device : Local HMI			<u></u>	
	Address : LW	•]0		32-bit Unsigned	
-	C	OK Cancel		Help	
Setting De	scription				
Data					

Data	
Sampling	Select a Data Sampling object as the source data.
Object index	
Refresh data	In history mode, when this option is selected, Trend Display will be
automatically	automatically refreshed every 10 seconds. If this option is not
	selected, Trend Display can only be refreshed by changing window.
No line	When HMI time is adjusted to an earlier time, and data sampling
connection between	keeps going on, selecting this option can prevent the system from
records if the	drawing a line to connect the gap between current trend curve
next record is	(earlier in time axis) and former trend curve (later in time axis). This
earlier	can slow down refresh speed.
Trend type	Select the mode of data source, either [Real-time] or [History].
	Real-time
	In this mode, the display object shows all sampled data since the
	HMI started. The maximum number of records that can be sampled
	is set in [Max.data records] (Real-time mode) of the Data Sampling
	object. When the sampling data exceed this setting, the earlier
	data will be deleted. To show older data, use [History] mode.
	[Hold control]: Suspends the update of Trend Display. However, it

does not stop the sampling process of Data Sampling object. History

In this mode, the data comes from the history data files stored on HMI. The history data files are sorted by dates, and each is given an index. The system uses [History control] to select the history data files that are created on different dates.

The system sorts the history data of sampling data by date; the latest file is record 0 (typically the data sampled today), the second latest file is record 1, and so on. If the value of designated register in [History control] is n, the Trend Display object will display data record n.

Here is an example to explain [History control]. If the designated register is LW-0, and the sampling data files available are pressure 20061120.dtl, pressure 20061123.dtl,

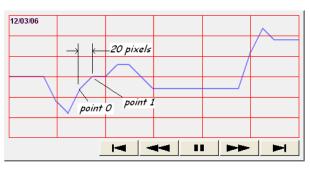
pressure\_20061127.dtl, and pressure\_20061203.dtl, and it is 2006/12/3 today, based on the value of LW-0, the sampling data file which will be selected by [Trend Display] is shown as follows:

Value of LW-0	Selected sampling history data
0	pressure_20061203.dtl
1	pressure_20061127.dtl
2	pressure_20061123.dtl
3	pressure_20061120.dtl

If use with Option List object and select data source as [Dates of historical data], the history data will be sorted by date and displayed in Option List object, see "13.29 Option List".

Pixel

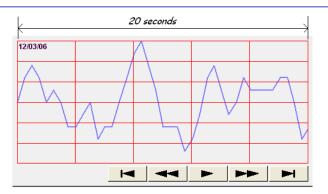
[Distance] is used to set the distance between two sampling points, as shown in the following figure.



Time

[Distance] is used to set the X-axis in unit of time, as shown in the following figure.





Select [Time] for [X axis time range] and go to [Trend] » [Grid] and enable [Time scale]. Please refer to [Time scale] in the later section.

Dynamic distance	Designate a 32-bit word register for adjusting the distance between				
between data	two sampling points (select Pixel), or the time unit represented by				
samples/ Dynamic X	X-axis (select Time). If no value is entered, the default value will be				
axis time	used.				
range	Llick the icon to download the demo project. Please confirm				
	your internet connection before downloading the demo project.				
Refresh data automatically	If selected, every time when opening the window on which the				
automatically	Trend Display object in history mode is placed, the display is				
	automatically refreshed every 10 seconds. Please note that:				
	<ul> <li>The refresh status can be observed from the control button of</li> </ul>				
	Trend Display object.				
	Showing 💻 button: The automatic refresh feature is				
	enabled.				
	Showing 🕨 button: The automatic refresh feature is				
	disabled.				
	<ul> <li>When scrolling to the previous data, the automatic refresh</li> </ul>				
	feature is disabled, the 🕨 button is shown.				
	<ul> <li>If [Refresh data automatically] check box is selected, when</li> </ul>				
	change back to the window, the display is refreshed, ignoring				
	the control buttons. For example, select [Refresh data				
	automatically], and scroll to the previous data, the automatic				
	refresh feature is disabled. In this case, changing to another				
	window and then change back will still refresh the display.				
	<ul> <li>If [Refresh data automatically] check box is not selected when</li> </ul>				
	building the project, the feature can still be enabled by				
	pressing 🕨 button on HMI. In this case, the automatic				
	refresh feature is disabled, that is, even when change back to				
	the current window, the display will not be refreshed.				



Hold control	When the register is set ON, suspend the update of Trend Display. It
	does not stop the sampling process of Data Sampling object. This
	setting is available only in Real-time mode.
Watch line	Use the [Watch line] function to display a "watch line" when user
	touches the Trend Display object. It will also export the sampling
	data at the position of watch line to the designated word device
	and use Numeric objects to display the results, as shown in the
	following figure.
	Watch line
	12/03/06
	4 LW300

[Watch line] can also export sampling data with multiple channels. The system will consecutively write each channel to the specified address and the following addresses, in the same order as in [Data Sampling] object. The address assigned to [Watch line] is the start address, and sampling data for each channel will be exported to the word devices starting from "start address." If the data format of each channel is different, the corresponding address of each channel is arranged from the first to the last. If the watch register is LW-300, watch function will export each channel's data to the following addresses:

Register	Channel	Data format
LW-300	0	16-bit Unsigned (1 word)
LW-301	1	32-bit Unsigned (2 words)
LW-303	2	32-bit float (2 words)
LW-305	3	16-bit Signed (1 word)

Click the icon to download the demo project. Please confirm

your internet connection before downloading the demo project.Time stampTime stamp outputoutputSuppose the address is set to LW-n, then:If enabled, the system will use the time of the first sampling data as<br/>"time origin", and write the time stamp of the most recent sampled

data (relative to "time origin") to [LW-n+2].

When clicking on the curve, the time stamp of the closest sampled point will be written to [LW-n].

Clear real-time data address (Data Sampling object) will clear the time origin as well.

Time stamp is recorded in seconds.

#### **Trend Tab**

eral Trend	Channel Y Scale Security Shape
F	Transparent rame : Background :
rid X axis	🖉 Enable Color : 🔽 🔍
	💿 Interval 🛛 💿 Division
Int	erval: 4 😔 second(s)
Y axis Divisi	om(\$): 4
Time scale Fr	▼ Enable rmat : HH:MM ▼ Font : Arial ▼
'ime/Date	
🔽 Relative	time mode
📝 Time	HH:MM.SS
🔽 Date	● MM/DD/YY
Color :	

Setting	Description
Transparent /	
Frame /	Select the color of frame and background.
Background	
Show scroll	Enable or disable the scroll control as shown in the following figure.
controls	K ≪ □ ■ ₩ ₩
Grid	Set the number of dividing lines and the line color. The number of divisions depends on the setting in General tab » [Distance

<ul> <li>vertical grid lines.</li> <li>Select [X axis time range] in General tab:</li> <li>Select the time range between two vertical grid lines.</li> <li>X-axis division The number of vertical grid lines. Y-axis division The number of horizontal grid lines. </li> <li>Select [Time] / [Date] check box to display the time scale along to axis.</li> </ul> Image: Select [Time] / [Date] check box to display the time scale along to axis. Fort / Color / Size Select the font, font color, and font size of the time scale. The default font size is 8.		between data samples] / [X axis time range].
<ul> <li>Select [Distance between data samples] in General tab: Select how many sampling points will be included between two vertical grid lines.</li> <li>Select [X axis time range] in General tab: Select the time range between two vertical grid lines.</li> <li>X-axis division The number of vertical grid lines.</li> <li>Y-axis division The number of horizontal grid lines.</li> <li>Select [Time] / [Date] check box to display the time scale along to axis.</li> <li>Select Time] / [Date] check box to display the time scale along to axis.</li> <li>Font / Color / Size Select the font, font color, and font size of the time scale. The default font size is 8.</li> <li>The default font size is 8.</li> <li>When this mode is selected, the time of the earliest sampling di will be the start time from which to count a relative time. This mode works with time scale [SSSSS] and under this mode, time scale [Date] cannot be used.</li> <li>Yement is mode be used.</li> </ul>		X-axis interval
Select how many sampling points will be included between two vertical grid lines. • Select [X axis time range] in General tab: Select the time range between two vertical grid lines. X-axis division The number of vertical grid lines. Y-axis division The number of horizontal grid lines. Select [Time] / [Date] check box to display the time scale along to x axis. Font / Color / Size Select the font, font color, and font size of the time scale. The default font size is 8. Select the font size is 8. Select the scale is selected, the time of the earliest sampling do will be the start time from which to count a relative time. This mode works with time scale [SSSSSS] and under this mode, time scale. Select [Date] cannot be used.		The number of vertical grid lines.
<ul> <li>vertical grid lines.</li> <li>Select [X axis time range] in General tab:</li> <li>Select the time range between two vertical grid lines.</li> <li>X-axis division The number of vertical grid lines.</li> <li>Y-axis division The number of horizontal grid lines.</li> <li>Select [Time] / [Date] check box to display the time scale along to a xis.</li> <li>Select [Time] / [Date] check box to display the time scale along to a xis.</li> <li>Font / Color / Size Select the font, font color, and font size of the time scale. The default font size is 8.</li> <li>Ime / Date</li> <li>Relative time mode When this mode is selected, the time of the earliest sampling do will be the start time from which to count a relative time. This mode works with time scale [SSSSSS] and under this mode, time scale [Date] cannot be used.</li> </ul>		<ul> <li>Select [Distance between data samples] in General tab:</li> </ul>
<ul> <li>Select [X axis time range] in General tab: Select the time range between two vertical grid lines.</li> <li>X-axis division The number of vertical grid lines.</li> <li>Y-axis division The number of horizontal grid lines.</li> <li>Select [Time] / [Date] check box to display the time scale along x axis.</li> <li>Select [Time] / [Date] check box to display the time scale along x axis.</li> <li>Font / Color / Size Select the font, font color, and font size of the time scale. The default font size is 8.</li> <li>Select the scale is selected, the time of the earliest sampling d will be the start time from which to count a relative time. This mode works with time scale [SSSSS] and under this mode, time scale [Date] cannot be used.</li> </ul>		Select how many sampling points will be included between two
Select the time range between two vertical grid lines. X-axis division The number of vertical grid lines. Y-axis division The number of horizontal grid lines. ime scale Select [Time] / [Date] check box to display the time scale along is x axis. Font / Color / Size Select the font, font color, and font size of the time scale. The default font size is 8. ime / Date Relative time mode When this mode is selected, the time of the earliest sampling divisit by the time scale. The default font size is 8. ime / Date Relative time mode When this mode is selected, the time of the earliest sampling divisit be the start time from which to count a relative time. This mode works with time scale [SSSSSS] and under this mode, time scale [Date] cannot be used.		vertical grid lines.
X-axis division         The number of vertical grid lines.         Y-axis division         The number of horizontal grid lines.         ime scale       Select [Time] / [Date] check box to display the time scale along is axis.         Image: scale interval       Select [Time] / [Date] check box to display the time scale along is axis.         Image: scale interval       Select [Time] / [Date] check box to display the time scale along is axis.         Image: scale interval       Select [Time] / [Date] check box to display the time scale along is axis.         Image: scale interval       Select [Time] / [Date] check box to display the time scale along is axis.         Image: scale interval       Select for [on the start is mode is selected, the time of the time scale. The default font size is 8.         Image: / Date       Relative time mode         When this mode is selected, the time of the earliest sampling divisit be the start time from which to count a relative time. This mode works with time scale [SSSSSS] and under this mode, time scale [Date] cannot be used.         Image:		<ul> <li>Select [X axis time range] in General tab:</li> </ul>
The number of vertical grid lines. Y-axis division The number of horizontal grid lines. Select [Time] / [Date] check box to display the time scale along is x axis.		Select the time range between two vertical grid lines.
Y-axis division         The number of horizontal grid lines.         ime scale       Select [Time] / [Date] check box to display the time scale along to x axis.         Image: Scale of the time scale along to x axis.         Image: Scale of the time scale along to x axis.         Image: Scale of the time scale along to x axis.         Image: Scale of the time scale along to x axis.         Image: Scale of the time scale of the time scale.         Font / Color / Size         Select the font, font color, and font size of the time scale.         The default font size is 8.         Image: Date         Relative time mode         When this mode is selected, the time of the earliest sampling do will be the start time from which to count a relative time. This mode works with time scale [SSSSS] and under this mode, time scale [Date] cannot be used.         Image: Image		X-axis division
The number of horizontal grid lines.         select [Time] / [Date] check box to display the time scale along x axis.         Image: Select Time] / [Date] check box to display the time scale along x axis.         Image: Select Time] / [Date] check box to display the time scale along x axis.         Image: Select Time] / [Date] check box to display the time scale along x axis.         Image: Select Time] / [Date] check box to display the time scale.         Font / Color / Size         Select the font, font color, and font size of the time scale.         The default font size is 8.         Image: Date       Relative time mode         When this mode is selected, the time of the earliest sampling do will be the start time from which to count a relative time. This mode works with time scale [SSSSS] and under this mode, time scale [Date] cannot be used.         Image: Image		The number of vertical grid lines.
ime scale       Select [Time] / [Date] check box to display the time scale along is a axis.         Image: scale is a sca		Y-axis division
x axis. <b>Font / Color / Size</b> Select the font, font color, and font size of the time scale. The default font size is 8. <b>The default font size is 8. The start time from which to count a relative time. This mode works with time scale [SSSSSS] and under this mode, time scale [Date] cannot be used. The start size is 8.</b>		The number of horizontal grid lines.
Font / Color / Size Select the font, font color, and font size of the time scale. The default font size is 8. The default font size is 8. Time / Date Relative time mode When this mode is selected, the time of the earliest sampling do will be the start time from which to count a relative time. This mode works with time scale [SSSSSS] and under this mode, time scale [Date] cannot be used.	ime scale	Select [Time] / [Date] check box to display the time scale along the
Font / Color / Size         Select the font, font color, and font size of the time scale.         The default font size is 8.         Time / Date         Relative time mode         When this mode is selected, the time of the earliest sampling do will be the start time from which to count a relative time. This mode works with time scale [SSSSSS] and under this mode, time scale [Date] cannot be used.         View Image: Selected is a selected in the scale is scale [Date] cannot be used.		x axis.
Font / Color / Size         Select the font, font color, and font size of the time scale.         The default font size is 8.         Time / Date         Relative time mode         When this mode is selected, the time of the earliest sampling data         will be the start time from which to count a relative time. This mode works with time scale [SSSSSS] and under this mode, time scale [Date] cannot be used.         View		
Font / Color / Size         Select the font, font color, and font size of the time scale.         The default font size is 8.         Time / Date         Relative time mode         When this mode is selected, the time of the earliest sampling data         will be the start time from which to count a relative time. This mode works with time scale [SSSSSS] and under this mode, time scale [Date] cannot be used.         View		
Font / Color / Size         Select the font, font color, and font size of the time scale.         The default font size is 8.         Time / Date         Relative time mode         When this mode is selected, the time of the earliest sampling data         will be the start time from which to count a relative time. This mode works with time scale [SSSSSS] and under this mode, time scale [Date] cannot be used.         View		
Font / Color / Size         Select the font, font color, and font size of the time scale.         The default font size is 8.         Time / Date         Relative time mode         When this mode is selected, the time of the earliest sampling data         will be the start time from which to count a relative time. This mode works with time scale [SSSSSS] and under this mode, time scale [Date] cannot be used.         View		
Font / Color / Size         Select the font, font color, and font size of the time scale.         The default font size is 8.         Time / Date         Relative time mode         When this mode is selected, the time of the earliest sampling data         will be the start time from which to count a relative time. This mode works with time scale [SSSSSS] and under this mode, time scale [Date] cannot be used.         View		
Font / Color / Size         Select the font, font color, and font size of the time scale.         The default font size is 8.         Time / Date         Relative time mode         When this mode is selected, the time of the earliest sampling data         will be the start time from which to count a relative time. This mode works with time scale [SSSSSS] and under this mode, time scale [Date] cannot be used.         View		
Font / Color / Size         Select the font, font color, and font size of the time scale.         The default font size is 8.         Time / Date         Relative time mode         When this mode is selected, the time of the earliest sampling data         will be the start time from which to count a relative time. This mode works with time scale [SSSSSS] and under this mode, time scale [Date] cannot be used.         View		
Select the font, font color, and font size of the time scale. The default font size is 8. <b>ime / Date</b> Relative time mode When this mode is selected, the time of the earliest sampling d will be the start time from which to count a relative time. This mode works with time scale [SSSSS] and under this mode, time scale [Date] cannot be used.           Y exis         Under the second provide the secon		нн.мми нн.мми нн.мми нн.мми нн.мми нн.мми
The default font size is 8.		Font / Color / Size
The default font size is 8.		Select the font, font color, and font size of the time scale.
When this mode is selected, the time of the earliest sampling day will be the start time from which to count a relative time. This mode works with time scale [SSSSSS] and under this mode, time scale [Date] cannot be used.		
will be the start time from which to count a relative time. This mode works with time scale [SSSSSS] and under this mode, time scale [Date] cannot be used.	ime / Date	Relative time mode
will be the start time from which to count a relative time. This mode works with time scale [SSSSSS] and under this mode, time scale [Date] cannot be used.		When this mode is selected, the time of the earliest sampling data
scale [Date] cannot be used. Y axis Division(s): 4 Time scale V Time SSSSS Color: Size: 8 V Color: V V Size: 8 V Size:		
scale [Date] cannot be used. Y axis Division(s): 4 Time scale V Time SSSSS Color: Size: 8 V Color: V V Size: 8 V Size:		mode works with time scale [SSSSSS] and under this mode, time
Y axis Division(s) : 4		
Time scale       Ime     SSSSS       Date     Font : Anial       Color :     .		Y axis
Date Font : Arial Color :		
Font : Arial   Color :		
		Tents (
Time/Date		Color:
✓ Relative time mode		
✓ Time HH:MM:SS ▼		
♥ Date ¥Y/MM/DD ▼		

The time of the latest sampling data will be marked on the top left corner of the object. This group box is used to set the time / date display format and font color.

#### **Channel Tab**

	New Trend Display Object	
	General Trend Channel Shape	
	Data sampling object	
	Channel Display Description Data type Y scale	
	▶ 0 V 16-bit Unsigned 16-bit Unsigned None	
	Channel Pen property Color : Width : 2	
	Dynamic limits Zero : 1 Span : 100	
	Channel visibility control	
	PLC name : Local HMI	
	Display channel when the corresponding bit is :  ON  OFF	
	OK Cancel Help	
Setting	Description	
Y scale	Set Y-axis to be Main Axis or Aux. Axis. See "Y Scale Tab" for m	ore
	information.	

Channel	Display	Description	Data type	Y scale
1	Troe	cheanel A	16-bit Unnigned	Aux Axi
2	True	channel B	16-bit Unsigned	Main Axi
3	Troe	channel C	16-bit Unnigned	Aux Axis

Channel

Configure each sampling line's format and color.

#### **Dynamic limits**

Not selected:

[Zero] and [Span] are used to set the low limit and high limit of sampling data. If the low limit is 50 and the high limit is 100 for one sampling line, [Zero] and [Span] must be set as [50] and [100], so that all the sampling data can be displayed in the trend display object.

Selected



The low limit and the high limit are read from the designated word devices, as shown below. When address is LW-n, the register's address:

Data Format	16-bit	32-bit	64-bit (cMT / cMT X only)
Low limit	LW-n	LW-n	LW-n
High Limit	LW-n+1	LW-n+2	LW-n+4

For example, if LW-100 is used here, the low limit and the high limit will be read from:

Data Format	16-bit	32-bit	64-bit
			(cMT /
			cMT X
			only)
Low limit	LW-100	LW-100	LW-100
High Limit	LW-101	LW-102	LW-104

A typical usage of this is to zoom in and zoom out of Trend Display. (Not available for cMT / cMT X Series). See Example 1.

Click the icon to download the demo project. Please confirm your internet connection before downloading the demo project.

If [Enable] is selected, the bits of the assigned word register will be used to show/hide each channel. The first bit controls the first channel, and the second bit controls the second channel, and so on. For example, suppose there are 5 channels and LW-0 is used, channels which will be shown given the states of the control bits are:

Channel	<b>Control Bit</b>	State	Displayed
1	LW_bit-000	OFF	YES
2	LW_bit-001	ON	NO
3	LW_bit-002	ON	NO
4	LW_bit-003	OFF	YES
5	LW_bit-004	OFF	YES

Note on using this feature: Each control bits are not reserved for the channel. If a particular channel is not displayed, the control bit is assigned to the next displayed channel. For example, if the third channel of the 5 channels is not displayed, only 4 channels will be displayed in Trend Display, and the used control bits will only be: LW\_bit-000~003.

Click the icon to download the demo project. Please confirm



Channel

visibility

control

your internet connection before downloading the demo project.

# Note

- A Trend Display can display up to 64 channels simultaneously.
- A Trend Display can only display channels with serial number ≤ 256; therefore, channels with serial number greater than 256 cannot be selected.

## Y Scale Tab

Jeneral Trend	Channe	1 Y Scale	Security Sha	pe Profile	
Data sampling	object				
Channel	Display	Description	1	Data type	Y scale
1		channel A		16-bit Unsigned	Aux. Axis
2	True	channel B		16-bit Unsigned	Main Axis
3	True	channel C		16-bit Unsigned	Aux. Axis
	ont : Arial		•		
Col Dynamic Y-sca	lor : _ <b></b> le visibility			Size : 12	•
	le visibility	able		Size : 12	▼
Dynamic Y-sca	le visibility V Ens Local HMI	ablej	▼ 50	Size : 12	▼
Dynamic Y-sca PLC name : Address :	le visibility Ens Local HMI LW	when the co	■ ▼ 50 ourresponding bit OFF	*	• Settings
Dynamic Y-sca PLC name : Address : Display chann Dynamic main	le visibility V Ene Local HMI LW wel's Y-scale ON axis V Ene	when the co	orresponding bit	*	•
Dynamic Y-sea PLC name : Address : Display chann	le visibility V Ene Local HMI LW wel's Y-scale ON axis V Ene	when the co	orresponding bit	*	
Dynamic Y-sca PLC name : Address : Display chann Dynamic main	le visibility Ene Local HMI LW el's Y-scale ON axis V Ene Local HMI	when the co	orresponding bit	• is:	

Setting	Description
Y scale	Show whether Y-axis is Main Axis or Aux. Axis.
	Y-axis will not be displayed when [none] is selected for Y scale in
	Data Sampling Object group box. At most 32 Y axes can be
	displayed, including one main axis and multiple aux. axes.
Scale font	Select the font, font color, and font size of the scale.
Dynamic	To show or hide Y-scale. If the control address is LW-50, then the
Y-scale	first axis is controlled by LW_Bit 5000, and the second axis is
visibility	controlled by LW_Bit 5001, and so on.
Dynamic	To change the main axis. If writing 1 into LW-80, the main axis will
main axis	be Channel 1; if writing 2 into LW-80, the main axis will be Channel,
	and so on.



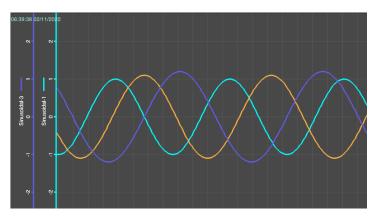
A Trend Display on an eMT/iE/XE/mTV model can display 6MB of data in maximum.

Click the icon to watch the demonstration film. Please confirm your internet connection before playing the film.

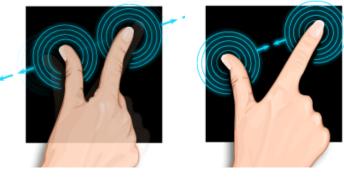
Click the icon to download the demo project. Please confirm your internet connection before downloading the demo project.

13.17.2.2. cMT, cMT X Series

## **General Tab**



The Trend Display on cMT / cMT X Series combines Real-time mode and History mode. Drag left to scroll the Trend Display to view history data and drag right to view the latest sampling data. Pinch two fingers together to zoom out Trend Display or spread them apart to zoom in.



Zoom In Zoom Out Zoom In Saved, see "8 Data Sampling".



eneral Display	Trend Channel Y	Scale Data I	Format Security	r Shape
Comme	nt : [			
D	ata Sampling Object index :	1.		
	nels is changed, you must n		to compliant	
11 110: 01 01:01	ieis is changed, you must it	5361 111/11 3 0.0	a sampings.	
Dist	ance between data samples :	Millimeter	i.	-
	Default distance :	100	mm	
V Dynamic o	listance between data sampl	es		
	Local HMI			
Address :	LW 🗕	0		16-bit Unsigned
Watch line				
🔽 Enable				
Device :	Local HMI			- 6
Address :	LW	• 0		16-bit Unsigned
Time stamp out	put			
🔽 Enable	👿 Enable day	output		
Device :	Local HMI	200	1942	-
Address :	LW	• 0		32-bit Unsigned
History control				
🔽 Enable				
Device :	Local HMI			-
Address :	LW	. 0		16-bit Unsigned
Enable rea	ling multiple histories			

Setting	Description
Data Sampling Object index	Select a [Data Sampling] object as the source data.
Millimeter	Same as eMT, iE, XE mTV Series. The upper limit is 500 mm.
Time	Same as eMT, iE, XE mTV Series.
Pixel	Same as eMT, iE, XE mTV Series. The upper limit is 1920 pixels.
Dynamic distance between data samples	Same as eMT, iE, XE mTV Series.
Watch line	Same as eMT, iE, XE mTV Series.
Time stamp output	When enabled, the number of seconds passed from the first sampling data can be calculated.

	data to the meast recent consuling data
	data to the most recent sampling data.
	Enable day output
	With this option selected, the number of days passed since
	1970/1/1 can be calculated.
	Suppose the address is set to LW-n, then:
	[LW-n+4]: The number of days passed since 1970/1/1 to the closest
	sampled point.
	[LW-n+6]: The number of days passed since 1970/1/1 to the most
	recent sampling data.
History	Same as eMT, iE, XE mTV Series.
Control	Enable reading multiple histories:
	In the following two modes, days are calculated backward.
	Number of days
	Suppose the address is set to LW-n, then:
	[LW-n]: The start day index from which to calculate number of days.
	0: today, 1: yesterday, and so on.
	[LW-n+2]: The total number of days before the start day.
	Specific days
	Suppose the address is set to LW-n, then:
	[LW-n]: The start day index from which to calculate number of days
	0: today, 1: yesterday, and so on.
	[LW-n+2]: The end day index, the specified value must be greater
	than that of the start day index. For example, if start is 4 and end is
	7, the specified days will be 4 days before to 7 days before.



#### Objects

#### **Display Tab**

General D	Display	Trend	Channel	Y Scale	Data Format	Security	Shape	
Option bu	utton							
			) Pi	edefined	🔘 Dynami	0		
			🔽 Ei	nable				
V Show	option "C	hannel v	visibility"					
🔽 Show	option "Y	'Scale"						
🔽 Show	option "E	nable Y	-axis scrolli	ng"				
Zoom but	tton visibi	lity						
📝 Enabl	le							
Display o	option							
🔽 Conn	iect data g	aps						
Touch								
🔽 Enab	le Y-axis	scrolling	with swipi	ng up/dow	m			
📝 Enabi	le X-axis	zoom						
V Enab	le Y-axis	2003						

Setting Option button visibility (cMT Series)

Show or hide the option button of the object.

#### Predefined

Description

Select [Enable] to show the option button.

### Dynamic

Choose a bit address to control option button visibility.

Option button	visibility
	Predefined
Device :	Local HMI 🗾 🚽
Address :	

#### Show option "Channel visibility"

With this option selected, the [Channel Visibility] setting will be displayed.

#### Show option "Y Scale"

With this option selected, the [Y Scale] setting will be displayed.

#### Show option "Enable Y-axis scrolling"

With this option selected, the [Enable Y-axis scrolling] setting will be displayed.

TREND DISPLAY SETTING	
Channel Visibility	
Y Scale	Off
Enable Y-axis scrolling	



Zoom button visibility	Show or hide the zoom button 🚺 of the object.
Display	Show custom file name
option	This option appears when [Customized file handling] is selected in
	Data Sampling. With this option selected, the customized file name
	is shown as caption in Trend Display.
	Connect data gaps
	Data sampling stops when PLC is disconnected, and after PLC is
	reconnected, the trend curve of the disconnected period is plotted
	with a gap. With this option selected, the system will draw a line to
	connect the gap between the former trend curve (before
	disconnected period) and the current trend curve (after
	disconnected period).
Touch	Disable Y-axis scrolling with swiping up/down
	With this option selected, dragging the object with your finger will
	only scroll X-axis range while Y-axis remains being placed in the
	middle of the object even if it is zoomed in/out.
	Disable X axis zoom
	With this option selected, dragging the object with your finger will
	only scroll Y-axis range.
	Disable Y axis zoom
	With this option selected, dragging the object with your finger will
	only scroll X-axis range.



#### **Trend Tab**

Jeneral Display	Trend	Channel	Y Scale	Data Forma	Securit	y Shape	Profi
Jenerar Display	110110	Chamier	I SCOLE	Data Forma	i   securi	y   snape	TION
	1001	ransparent					
Frame col		Tonsporent					
	0						
Background col	or:		•				
Fo	nt : Ari	ત્ર					•
Grid							
	V E	nable					
Col							
	0		•				
Interv	al: 4	🚖 s	econd (s)	Y-ax	cis: 4	🚔 di	vision(s)
Scale col	or : 🔲						
Time scale	0						
🔽 Time	HH	ММ	•	Positio	n : Belov	v x-axis	•
🔽 Date	Γ.O.	NDD/YYY	v _]		<u> </u>		
Dan Dan	[1.11.		1 •				
Time/Date							
📰 Relative tin	ne mode						
Time							
🔽 Date	MM	DD/YYY	¥ •				
Col	or : 📻						
	6						

Setting	Description
Transparent /	
Frame /	Select the color of frame and background.
Background	
Grid	Set the number of dividing lines and the line color. The number of
	divisions depends on the setting in General tab » [Distance
	between data samples] / [X axis time range].
	X-axis interval
	The number of vertical grid lines.
	<ul> <li>Select [Distance between data samples] in General tab:</li> </ul>
	Select how many sampling points will be included between two
	vertical grid lines.
	<ul> <li>Select [X axis time range] in General tab:</li> </ul>
	Select the time range between two vertical grid lines.
	X-axis division

	The number of vertical grid lines.
	Y-axis division
	The number of horizontal grid lines.
Time scale	Select [Time] / [Date] check box to display the time scale along the
	x axis. The position of the time scale can be selected.
	The default font size is 8.
Time / Date	Relative time mode
	When this mode is selected, the time of the earliest sampling data
	will be the start time from which to count a relative time. This
	mode works with time scale [SSSSSS] and under this mode, time
	scale [Date] cannot be used.
	The time of latest sampling data will be marked on the top left
	corner of the object. This group box is used to set the time / date
	display format and font color.

### **Channel Tab**

	New Trend Display Object
	General Trend Channel Shape
	Data sampling object
	Channel Display Description Data type Y scale
	▶ 0 📝 16-bit Unsigned 16-bit Unsigned None
	Channel Pen property
	Color : Width : 2
	Dynamic limits
	Zero: 1 Span: 100
	Channel visibility control
	✓ Enable
	PLC name : Local HMI
	Address : LW   0  16-bit Unsigned
	Display channel when the corresponding bit is :
	ON OFF
	OK Cancel Help
Setting	Description
Jetting	Description

Y scale	Set Y-axis to be Main Axis or Aux. Axis. See "Y Scale Tab" for more
	information. At most 32 Y axes can be displayed, including one



	main axis and mu	-					
	Channel Diplay Description 1 Troe channel A 2 Troe channel B	16-bit Unrigned Av	scale sc. Aodis din Aodis				
<u> </u>	3 Troe channel C		x. Axia				
Channel	Configure each sa	impling line's for	rmat and color.				
	Dynamic limits						
	Not selected						
		[Zero] and [Span] are used to set the low limit and high limit of					
	sampling data. If the low limit is 50 and the high limit is 100 for one						
		-	nust be set as [50]				
	-	that all the sampling data can be displayed in the trend display					
	object.						
	Selected						
		-	re read from the d	-			
	devices, as showr	n below. When a	ddress is LW-n, th	e register's			
	address:						
	Data Format	16-bit	32-bit	<b>64-bit</b> (cMT /			
				cMT X			
		114/	1)4/	only)			
	Low limit	LW-n	LW-n	LW-n			
	High Limit	LW-n+1	LW-n+2	LW-n+4			
	•		re, the low limit a	nd the high limi			
	will be read from			64-bit			
	Data Format	16-bit	32-bit	(cMT /			
				cMT X			
	Low limit	LW-100	LW-100	only) LW-100			
	High Limit	LW-100	LW-100	LW-104			
Channel							
			the assigned word The first bit contr	-			
visibility	-						
control	channel, and the second bit controls the second channel, and so						
	on. For example, suppose there are 5 channels and LW-0 is used, channels which will be shown given the states of the control bits						
		/iii be snown giv	en the states of th	ie control bits			
	are:						
	Channel	Control Bit	State	Displayed			
	1	LW_bit-000	OFF	YES			
	-	1111 1 1. 001	<b>~</b> • • •				
	<u> </u>	LW_bit-001 LW bit-002	ON ON	NO NO			



5	LW_bit-004	OFF	YES		
Note on using this feature: Each control bits are not reserved for					
the channel. If a	a particular channel is	s not displayed	l, the control bit		
is assigned to the next displayed channel. For example, if the third					
channel of the 5 channels is not displayed, only 4 channels will be					
displayed in Trend Display, and the used control bits will only be:					
LW_bit-000~00	3.				



- A Trend Display can display up to 64 channels simultaneously.
- A Trend Display can only display channels with serial number ≤ 256; therefore, channels with serial number greater than 256 cannot be selected.



#### Y Scale Tab

	Channel Y Scale	7 Trend	neral Display
		object —	)ata sampling (
Data type Y scale	Description	Display	Channel
16-bit BCD None	16-bit BCD	True	1
16-bit BCD None	16-bit BCD		2
			/-scale
visible	le when channel data :	annel Y sca	📝 Hide chi
			/-scale

The scale along the Y axis of a specific channel can be displayed. To enable Y Scale, [Grid] should first be enabled in [Trend] tab.

Hide channel Y scale when ch This option is selected by defa whether channel Y scale is sho	ult. With this option selected,			
. ,	•			
whether channel Y scale is sho				
	own or hidden is determined by the			
settings in Channel Visibility C	settings in Channel Visibility Control.			
Value alignment				
Set the alignment of Y axis tick values.				
Center on tick	Full text			
09/07/2022	00/07/2022 19-pit BCD 0 0 0 0 0 0 0 0 0 0 0 0 0			
	Center on tick			

Y Scale can be configured on the in cMT Viewer as shown in the following steps.

- Tap the button on the upper right corner of Trend Display object.
- 2. Tap [Trend Display Setting] » [Y Scale].



1.

Cancel	Option	Done
Begin Date		
Ended Date		
TREND DISPLAY SETTING		
Channel Visibility		
Y Scale		On
Disable Y-axis scrolling		
	Reset to default	

## 3. Set channel visibility.

Option	Channel Visibility	
Channel 1		
Channel 2		
Channel 3		
Channel 4		
Channel 5		

#### Data Format Tab

General Trend Channel Y Scale	Data Format Security Shape Profile
Channel : Channel 1 ~ Channel 8	
Channel 1 [16-bit Unsigned ]	
Follow settings in the Data Sampling	Right of decimal Pt. : 2
Channel 2 [16-bit Unsigned ] ————	
Follow settings in the Data Sampling	Right of decimal Pt. : 2
4	III.



Setting	Description				
Follow					
settings in the					
Data	Use the [Right of decimal Pt.] setting in Data Sampling.				
Sampling					
Right of	The number in this field determines the number of decimal places				
decimal Pt	of the value displayed; for example, when 1 is entered in this field,				
	and the original value obtained by Data Sampling is 45, then 4.5				
	will be displayed in Trend Display as a result.				

### Example 1

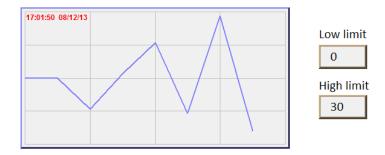
The example explains how to zoom in or zoom out Trend Display. The feature described is not available for cMT / cMT X Series.

In Channel tab select [Dynamic limits] check box. If the [Address] is set to LW-n, then LW-n controls the low limit where LW-n+1 controls the high limit.

V Dynamic limits

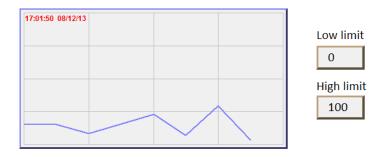
PLC name :	Local HMI	•	Setting
Address :	LW 🔻	0	16-bit Unsigned

Set [Address] to LW-0 and create two Numeric objects for entering the low / high limit. The address that controls the low limit is LW-0; the address that controls the high limit is LW-1. Let's suppose the data is between 0 and 30; set the [Low limit] to 0 and the [High limit] to 30, the trend curve is displayed as shown in the following figure.



To zoom out the Trend Display, enter a value greater than 30 in [High limit] as shown in the following figure.





To zoom in the Trend Display, enter a value less than 30 in [High limit] as shown in the following figure.



Click the icon to download the demo project. Please confirm your internet connection before downloading the demo project.



## **13.18.** History Data Display

#### 13.18.1. Overview

History Data Display object displays data stored by Data Sampling object. It differs from Trend Display in that History Data Display object uses a table to display data. The following is an example of a history data display object.

No.	Time	Date	Ch.0	Ch.1	Ch.2
3577	21:52	16/09/07	0	0	0
3576	21:52	16/09/07	0	0	0
3575	21:52	16/09/07	0	0	0
3574	21:52	16/09/07	0	0	0
3573	21:52	16/09/07	0	0	0
3572		16/09/07	0	0	0
3571	21:52	16/09/07	0	0	0
3570	21:52	16/09/07	0	0	0
3569		16/09/07	0	0	0
3568	21.52	16/00/07	0	0	

A History Data Display on an eMT/iE/XE/mTV model can display 6MB of data in maximum. The data will not be displayed after exceeding the limit.

#### 13.18.2. Configuration



Click [Data/History] » [History Data Display] icon on the toolbar to open a History Data Display object property dialog box. Set up the properties, press OK button, and a new History Data Display object will be created.



#### **General Tab**

ew History Data Display Object	<b>—</b>	New History Data Display Object
General Display Display Format Title	Edit Security Shape	General Display Display Format Title Edit Security Shape
Data Sampling Object index : 1	•	Data Sampling Object index : 1.
Style : D	efault 👻	Refresh data automatically
Grid Golor :  Profile color	Auto fit short column Column interval : 5 👄	Grid Color : Column interval : 5 -
Transparent Frame color :	🖉 Background color : 💽 🗸	Frame : Background : ,
Font : [Arial Bold [Arial] [Dr	oid Sans] ▼ Size : 12 ▼	<ul> <li>Time ascending</li> <li>Time descending</li> </ul>
© Time ascending Watch ✓ Enable Device : Local HMI Address : LW ← History control ✓ Enable Device : Local HMI Address : LW ← ✓ Enable reading multiple histories Mode : Number of days		History control Device : Local HMI Address : LW
Setting	Description	
Data Sampling object index	Select a Data Samplin	g object as the source data.
Refresh Data Automatically	-	sh data every 10 seconds. When this option is n be freshed only by changing windows.

eMT, iE, XE, mTV

#### cMT, cMT X

Shows grids between rows and columns.

Select History Data Display object's style.

## Color

Change the color of grids.

#### **Column interval**

Change the width of each column. The figures below are the examples.

Grid

Style

No.	Time	Date	Ch.0	Ch.1	Ch.2▲	
3667	21:57	16/09/07	1	0	0	
3666	21:57	16/09/07	1	0	0	
3665	21:57	16/09/07	1	0	0	
3664	21:57	16/09/07	1	0	0	
3663	21:57	16/09/07	1	0	0	
3662	21:57	16/09/07	1	0	0	
3661	21:57	16/09/07	1	0	0	
3660	21:56	16/09/07	0	0	0	
		16/09/07	0	0	0	
3658	21.56	16/00/07	Λ	0		
				1918		1 4

	No.	Time	Date	<u> </u>
	3667	21:57	16/09/07	<u> </u>
	3666	21:57	16/09/07	
	3665	21:57	16/09/07	
	3664	21:57	16/09/07	
	3663	21:57	16/09/07	
	3662	21:57	16/09/07	
	3661	21:57	16/09/07	
	3660	21:56	16/09/07	
	3659	21:56	16/09/07	
- 1	3658	21:56	16/00/07	
	<b>آ</b>		i interiority	ׂ⊾



Objects

Profile color	Change the color of frame and background. Use [Transparent] to
	hide frames and background.
Text	Change the font and font size.
	Time ascending
Time / Data	Put earliest data at the top and the latest data at the bottom.
Time / Date	Time descending
	Put the latest data at the top and the earliest data at the bottom.
History	The history files are sorted by date and each file is given an index.
History Control	The latest one is assigned index 0 (in most cases: today), the
(eMT, iE, XE, mTV Series)	second latest file is assigned index 1, and so on. [History Control] is
	used to specify the history data to be shown.
Watch (cMT /	By tapping on a record in History Data Display object, data in the
cMT X Series)	selected row can be output to the designated addresses.
History	Same as eMT, iE, XE mTV Series.
Control (cMT	Enable reading multiple histories:
/ cMT X Series)	In the following two modes, days are calculated backward.
Jenesj	Number of days
	Suppose the address is set to LW-n, then:
	[LW-n]: The start day index from which to calculate number of days
	0: today, 1: yesterday, and so on.
	[LW-n+2]: The total number of days before the start day.
	Specific days
	Suppose the address is set to LW-n, then:
	[LW-n]: The start day index from which to calculate number of days
	0: today, 1: yesterday, and so on.
	[LW-n+2]: The end day index, the specified value must be greater
	than that of the start day index. e.g. start: 4, end: 7, the specified
	days will be 4 days before to 7 days before.

## Note

When using cMT / cMT X Series, use the gear icon in the upper-right corner of History Data Display object in cMT Viewer to select the date and display the data.



#### Objects

		Caption		
Cancel	Option	Done	ch.1	Ø
Begin Date				
2020-02-10				
Ended Date				
2020-02-10				

Click the icon to watch the demonstration film. Please confirm your internet connection before playing the film.



## **Display Tab**

lew History Data Displa	/ Object	<b></b>	New History Data Displ	ay Object		×
General Display Display	Format Title Edit	Security Shape	General Display Displ	ay Format   Title   Edit	Security Shape	
Time			Time			
V Time	HH:MM 🔻	Color :	🔽 Time	HH:MM	▼ Color :	
Date			Date			
📝 Date	DD/MM/YYYY 🔹	Color :	🔽 Date	DD/MM/YY	Color :	
📃 Move column [De	te] to the front of column [Tin	ue]	🔲 Move column [	Date] to the front of column	n [Time]	
Sequence no.			Sequence no.			
💟 Sequence no.		Color :	💟 Sequence no.		Color :	
Display chart	s: 5 💌					• C
Row						
W Multi-line display		Number of lines : 5				
Option button visibility						
	Predefined	Oynamic				
	🔽 Enable					
•		•	•			P
	ОК	Cancel Help			OK Cancel	Help
<u> </u>						
Setting	D	escription				

	Enable or disable showing the time and date and configure its	
Time / Date	format and color.	
Time / Date	Move column [Date] to the front of column [Time]	
	Swap the position of column [Date] and column [Time].	
Sequence no.	Show the sequence number of all records.	
	Multi-line display	
Row	Display a specified number of lines of data. Data will be displayed	
	as specified regardless of the actual number of lines of data.	

Show or hide the option button

#### Predefined

Select [Enable] to show the option button.

Option button visibility (cMT / cMT X Series)	Select [Enable] to show the option butto <b>Dynamic</b>
	Option button visibility Predefined  Oynamic
	Device : Local HMI   Address : LB   O

Designate a bit address to control option button visibility.



### Data Format Tab

eneral Display Display Format Title Edit Security Shape	General Display Display Format Title Edit Security Shape
Channel : Channel 1 ~ Channel 6	Channel : Channel 1 ~ Channel 6
Channel 1 [16-bit Unsigned ]           Image: Channel [16-bit Unsis [16-bit Unsigned ] <td>Channel 1 [16-bit Unsigned ]</td>	Channel 1 [16-bit Unsigned ]
Leading zero	Leading zero
Right of decimal Pt. : 0 🚔	Right of decimal Pt. : 0 🚖
Channel 2 [16-bit Unsigned ]	Channel 2 [16-bit Unsigned ]
Display .	Display
Channel 3 [16-bit Unsigned ]	Chennel 3 [16-bit Unsigned ]
Display	Display
Channel 4 [16-bit Unsigned ]	Channel 4 [16-bit Unsigned ]
☑ Display ☑ Follow settings in the Data Sampling	V Display
Leading zero	Leading zero
Right of decimal Pt : 0 🚖	Right of decimal Pt. : 0 🚖

#### cMT / cMT X Series

#### Description

## Setting Channel

## escription

Each History Data Display object can display up to 64 channels. Check [Display] to select the channels to be shown on the screen. In the figure above, there are 4 channels (channel 1 to channel 4) in the Data Sampling object, and only Ch.1 and Ch.4 are selected. The data formats are shown next to channel name. The data format of each channel is decided by the corresponding Data Sampling objects. The result is shown below:

eMT, iE, XE, mTV Series

No.	Time	Date	ch.1	ch 🔺
12	09:50:16	10/03/17	0	0
11	09:50:15		0	0
10	09:50:14		0	0
9	09:50:13	10/03/17	0	0
8	09:50:12		0	0
7	09:50:11	10/03/17	0	0
6	09:50:10		0	0
5	09:50:09	10/03/17	0	0 🔻
▲				▶

When using cMT / cMT X models, Data Sampling's Data Format settings can be applied to History Data Display object. Two display modes are available when displaying [String] format in History Data Display object:



–Channel 1 [Str	ing - 11 word(s)]	
📝 Display	🔝 Follow settings in the Da	ta Sampling
	🔲 Reverse high/low byte	Left -
	byte no. : 22 🚔	String format : UTF-8 (Default)

- Follow settings in the Data Sampling.
- Reverse high byte and low byte data and then display.

#### **Title Tab**

Setting Use headers Enable or disable title, which is marked as shown below: ch.1 ch.4 Time Date No. 09'4810/03 Background Transparent When selected, hide the background for title area. Color Set the background color of title. Setting Defines the text to be shown on the title. The text can be edited in Label Tag Library. Build the Label Tag Library first, and in History Data Display settings dialog select the checkbox in the Label Library column, and then select the label tag.



Title name	Label Label tag	Title	^
Sequence no.	Z Label_1	No.	
Time		Time	
Date		Date	
Channel 1		ch.1	=
Channel 2		ch.2	
Channel 3		ch.3	

After running simulation on PC, to run simulation again using the same project that contains some changed data, please find the HMI\_memory, SD\_card, or usb1 folder in EasyBuilder Pro installation, and then delete the old data sampling records in it, to prevent the system from reading old data in the second simulation.

### **Edit Tab**

### cMT / cMT X Series

#### eMT, iE, XE, mTV Series

neral Display Display Format Title Edit Security Shape	General Display Display Format Title Edit Security Shape
🔽 Enable	Table
*For data saved in an external device (USB disk/SD card), editing commands work only when the device is plugged in.	
Control	Control
Device : Local HMI 🔹 🥥	Device : Local HMI 🗸 🏹
Address : LW 🗸 0 16-bit Unsigned	Address : LW 🗸 0 [16-bit Unsigned
Enable control result	
Command : LW-0	Command : LW-0
1 : Overwrite log data	1 : Overwrite log data
	2 : Delete the selected log
Result : LW-1 0 : Success	
0 : Success 1 : External device not connected	
2 : Command not supported	
3 : Record not found	
Data	Data
Device : Local HMI	Device : Local HMI
Address : LW 🗸 0 16-bit Unsigned	Address : LW 🗸 O 16-bit Unsigned
Select	Select
Device : Local HMI 🗸 🌀 🖓	Device : Local HMI
Address : LW V O 16-bit Unsigned	Address : LW - 0 16-bit Unsigned
Selection color :	Selection color :
OK Cancel Help	OK Cancel Help
	OK Cancel Help

Setting

Cont address

-				•
	OC.	cri	nt	
-	C3	LII	IJι	ior
				_

Iti	O		

)es	cri	n	- 1 (	זר
		P '		-

0				
	_			

De	250		p			۱
LW	V-1	n:	С	O	m	m

.W-n: Command					
Value	Description				
1	The data in Data Address will				
	overwrite the data in data log.				
2 The selected data log will be deleted.					
LW-n+1: R	esult (cMT / cMT X Series)				



	Value	Description		
	0	The command is executed		
		successfully.		
	1	The external device is not connected.		
	2	The command is not supported.		
	3	The record cannot be found.		
Data address	The syste	m will start reading row by row from the sel	ected one in	
	History D	ata Display, and change the data log accordi	ngly.	
	Please no	ote that the settings in this address must be i	dentical to	
	that in Da	ata Sampling.		
Select address	By changing the value in Select Address, the corresponding row in			
audress	History Data Display can be selected.			
	Please no	ote that:		
	1. Wher	n the value in Select Address is 0, no row will	be selected,	
	and t	he value in Data Address will stay the same a	is that of the	
	previo	ously selected row number.		
	2. Wher	n the value in Select Address exceeds the tot	al number of	
	rows	in History Data Display, the last row (the one	with largest	
	row n	umber) will be selected.		



When an external device is used to save data log, removing the external device will make Edit function ineffective. Editing can keep on when the external device is inserted again and the system starts reading historical data.

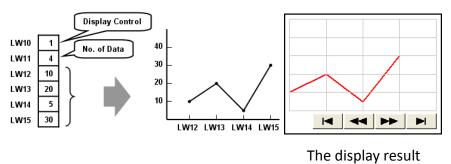
Click the icon to watch the demonstration film. Please confirm your internet connection before playing the film.



## **13.19.** Data Block Display

#### 13.19.1. Overview

Data Block is a combination of several word devices with continuous address, where the X axis of Data Block Display object represents the address and the numbers on the Y axis represent the data values in the corresponding address. Data Block Display object can display multiple data blocks. For example, it can display two data blocks LW-12~LW-15 and RW-12~RW-15 in trend curves simultaneously. It is very useful to observe and compare the difference of trend curves.



#### 13.19.2. Configuration



Click the [Object] » [Chart] » [Data Block Display] icon on the toolbar to open the property dialog box. Set up the properties, press OK button, and a new Data Block Display object will be created.



## **General Tab**

eneral Display	y Area Security Shape		
Comme	nt :		
No. of chann	el : 1 🚔		
Watch line			
	🔽 Enable		
	📝 Allow input	Color : 🔲	•
Device :	Local HMI		
Address :	LW V		16-bit Unsigned
Channe	el: 0 👻		
Control			
Device :	Local HMI		-) G Q
Address :	LW -0	- 2	16-bit Unsigned
No. of	data address : LW-1	11	
Data storage s	17.11.5		
Data storage s	Offset to cont	rol address	
Device :	Local HMI		• G G
Address :	LW 👻 2		16-bit Unsigned
Limit			
Mi	n.: 0	Max. : 327	767

Setting	Description			
Comment	Description of the object.			
No. of	Set the no of channel for this object. Each channel represents one			
channel	data block. The maximal number of channels is 12.			
Watch Line	If enabled, when user touches the [Data Block Display] object, it will display a vertical cursor line on it, and store the data on the line to the designated registers. See Example 1. <b>Allow input (cMT / cMT X Series)</b> With this checkbox selected, entering a value in the specified address for watch line can move the verticle watch line to the desired position.			
Channel	Select the channel to be configured.			
Control	Specify the control address also the data source.			
address	Control address is used to control and clear the drawn curve. After executing the operation below, the system will reset the control word to zero. Enter "0" = No action (default) Enter "1" = Draw (Without clear first) Enter "2" = Clear			



	Enter "3" = Redraw
	No. of data address
	If control address is LW-n, then LW-n+1 stores the number of word
	devices in each data block, i.e. the number of data. The maximum
	value is 1024.
	Data storage start address
	If [Offset to start address] is enabled, the [Offset value storage
	address] will be set as [Control address] + 2.
	If select 16-bit data format, the address for each data will be start
	address, start address + 1, start address + 2 and so on.
	If select 32-bit data format, the address for each data will be start
	address, start address + 2, start address + 4 and so on.
	For more information about control address, see Example 2 to 5.
Limit	Set the minimum and maximum limit for the curve.

- Without clearing the drawn lines, Data Block Display can be drawn a number of times by entering value 1 in the control address repeatedly. The way to calculate the maximum number of times is: 32 divided by the number of channels.
  - 1 channel → 32 times
  - 2 channels → 16 times
  - 16 channels → 2 times

## Example 1

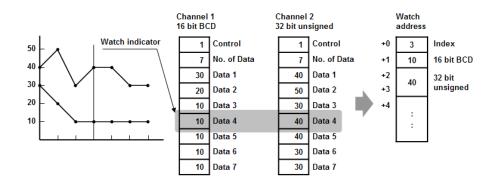
## How to use watch (Cursor Line) feature

Use "Watch" function to check the value of any point of the curve. When the user touches [Data Block] object, it will display a "cursor line", and the system will write the index and value of that data on the cursor line to the designated address.

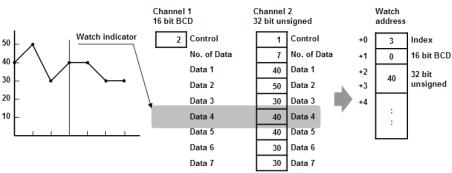
Data Format	Index Value	Channel 1 Value	Channel 2 Value
16-bit	Address	Address + 1	Address + 2
32-bit	Address	Address + 2	Address + 4
64-bit (cMT /	Address	Address + 4	Address + 8
cMT X only)	Address		

When watch address is set to LW-n, the value written into LW-n represents the channel index number to be called up. (Start form 0)

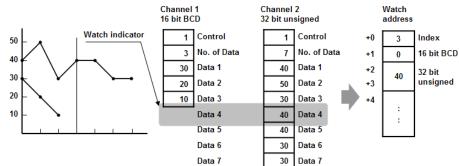




- [Data Index] is a 16 bit unsigned integer. When the designated register of cursor line is 32 bit device, it will be stored in the bit 0-15.
- If the channel to be viewed has no data, "0" will be displayed, as shown below. In the example, there is no data in channel 1, when the cursor points at Data 4, "0" will be displayed as shown below.



If there is less data in Channel 1, "0" will be displayed, as shown below.

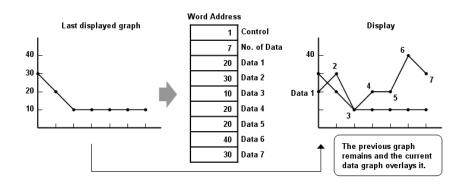


## Example 2

#### How to show a data block

- 1. Write the number of data to [No. of data address], i.e. "Control address+1"
- 2. Store the data consecutively beginning at [Data storage start address].
- **3.** Write "1" to [Control address] to draw the curve without cleaning the plot. All previous curves will not be erased.
- 4. The system will write "0" to [Control address] after marking the plot.



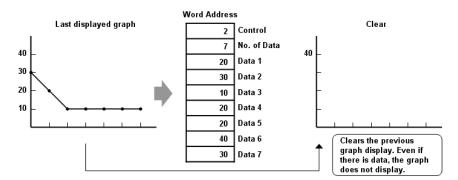


Do not change the content of [Control address], [No. of data address] and [Data storage start address] between step 3 and step 4 above as doing so might cause error for the trend curve plot.

## **Example 3**

### How to clear the graph

- **1.** Write "2" to [Control address], all the trend curves will be cleared.
- 2. The system will write "0" to [Control address] after the trend curve is cleared.

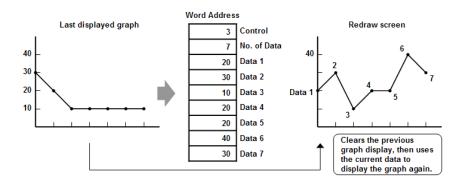


## Example 4

#### How to clear the previous trend curve and display new one

- 1. Write the number of data to [No. of data address], i.e. "control address+1"
- 2. Store the data consecutively beginning at [Data storage start address].
- **3.** Write "3" to [Control address], the previous trend curves will be cleared and the new content in data block will be plotted on the screen.
- 4. The system will write "0" to [Control address] after the trend curve has been plotted.





## Example 5

#### How to use offset mode

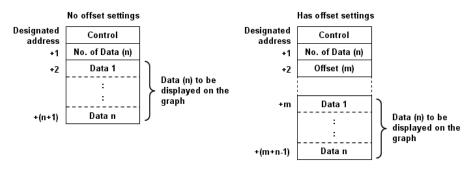
If [Offset to start address] is selected, [Control address], [No. of data address], and [Offset value storage address] will use 3 consecutive addresses.

For example, assume the total number of channels is 3 (start from 0 to 2), and the [Control address] are LW-0, LW-100, and LW-200, respectively. Then, the other addresses will be set as follows: (In the example, format 16-bit Unsigned is used and [Offset value storage address] are all m).



Item	Channel 0	Channel 1	Channel 2
Control Address	LW-0	LW-100	LW-200
No. of data	LW-1	LW-101	LW-201
address			
Offset value	LW-2 (=m)	LW-102 (=m)	LW-202 (=m)
storage address			
Data 1	LW-0+m	LW-100+m	LW-200+m
Data 2	LW-1+m	LW-101+m	LW-201+m

The following figure on the left shows the result when offset mode is not used while the figure on the right shows the result when offset mode is used.

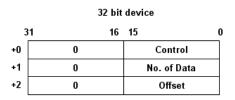


## Note

When [Control address] is set to LW-n, [No. of data address] and [Offset value storage address] are as follows:

Data Type	16-bit	32-bit	64-bit (cMT / cMT
			X only)
Control address	LW-n	LW-n	LW-n
No. of data address	LW-n+1	LW-n+2	LW-n+4
Offset value storage address	LW-n+2	LW-n+4	LW-n+8

 If the control registers are 32-bit devices, only bit 0-15 will be used for control purpose, bit 16-31 will be ignored. (as illustrated below)

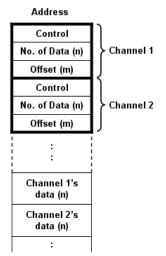


- When the value in [Control address] is not zero, the system will read [No. on data address] and [Offset value storage address].
- It is recommended to use [Offset to start address] for data block display with multiple





channels and the same device type. As shown in the following figure, The control words of channel 1 is located from LW-n, the control words of channel 2 is located from LW-n+3, and so on.



#### **Display Area**

eneral	Display Area Security Shape	
Da	ta samples : 50 🔄	Samples to scroll : 10 🚖
Profile	color	
	Transparent	Background :
Grid		
	📝 Enable	Color :
	Horiz. : 4 📥 division(s)	Verti. : 4 🚔 division(s)
Chann	el Channel : 🚺 👻	
Pen p	property	
	Color :	Width : 1 👻
	<u>1/01 1/01 1/01</u>	

Description	Data samples
Setting	Description



	Configure the maximal number of data samples (points) to be
	displayed.
	Samples to scroll
	Configure the number of data samples being scrolled.
	Enable scroll switch
	Clicking displays the previous or next data point.
	Clicking displays the first or the last data point.
Profile	Set the color of the frame and background of the object.
	Transparent
	Hides the background. Color selection will not be available.
Grid	Set the number of horizontal and vertical divisions shown by grid.
Channel	Set the color, width and style of each curve.
Lick the icon	to download the demo project. Please confirm your internet connection

before downloading the demo project.



### 13.20. XY Plot

#### 13.20.1. Overview

XY Plot object is used to display values for two variables (x,y) for a set of data, where the data comes from word registers. Up to 16 channels can be displayed simultaneously. This object facilitates data observation and analysis. Additionally, negative numbers can be displayed as well.

#### 13.20.2. Configuration



Click [Object] » [Chart] » [XY Plot] icon on the toolbar to open a [XY Plot] object property dialog box.

#### **General Tab**

/ Plot Object							
General Disp	lay Area	Shape	Profile				
Com	ment :						
Dire	ction :	Right		▼ No. of	channels :	2	
Control Addr	ess			_			
PLC name	Local	HMI				•	Setting
Address	: LW			▼ 10			
No. of	data ad	dress :	.W:10+1		-		
Ch Read addres	annel : ( s	0		•			
PLC	name : [	Local HMI	[				•
		Separa	ted address	for X and	Y data		
X data							
PLC name	Local	HMI				-	Setting
Address	: [LW			▼ 100			16-bit Unsigned
Y data							
PLC name	: Local	HMI				-	Setting
Address	s : LW			▼ 200			16-bit Unsigned
Limits							
M anda		Dynam	ic limits				
X axis	Low :	0			High :	3276	57
Yaxis							
	Low :	0			High :	3276	57



Setting	Descriptio	on				
Direction	There are	four selec	tions, right, le	ft, up or down.		
	Right dir Y t origin →	ection x x	Left Left direction	Up Up direction × ↑ origin→ v	Down origin → ↓ × Down direction	
No. of channels	Set the nu	Imber of c	hannels for ob	oservation.		
Control address	Controls the operation of all channels simultaneously. When the [Control address] is LW-n, assigning values to LW-n will issue commands to XY plot according to the table below. Meanwhile, LW-n+1 I controls the number of data points plotted. After operation, the [Control address] will be reset to 0.					
	Control address	Value	Result			
	LW-n	1	(The plotted	on XY curve. d points are kept	.)	
		2	Clears all XY curves.			
	LW-n+1	3 Any number		plots new XY cu e number of data		
	No. of data address					
	Controls the number of data points. Each channel can plot up to					
	1023 points.					
Channel	•	hannel to d	configure.			
Read Address	Device					
	Select a PLC which will be the source of [X data] and [Y data] and					
	designate a read address.					
	The format of the data register blocks used for the display channels					
	depends on whether [Separated address for X and Y data] and/or					
	[Dynamic limits] has been selected. See Example 1.					
Dynamic	<ul> <li>Whe</li> </ul>	n <b>not</b> sele	cted (See Exar	mple 2)		
	The Low a	ind High lii	mits can be se	t by entering co	nstants. The Low	
limits	The Low and High limits can be set by entering constants. The Low and High limits are used for calculating X and Y range in					
limits	and High	limits are ι	percentage.			
limits	_				18c m	
limits	percentag	ge.	(See Example	-		



### Example 1

The format of the data register blocks used for the display channels depends on whether [Separated address for X and Y data] has been selected, and if [Dynamic limits] has been selected. The following explains the situations where 16-bit register is used:

If [Separated address for X and ]	Y datal is <b>not</b> selected	, and set [Read address] to LW-n:
In Escharacca address for A and	i uataj is <b>not</b> scieticu	, and set [nead address] to Ew m.

	Select [Dynami	c limits]	Not select [Dynamic limits]		
	X data	Y data	X data	Y data	
Low Limit	LW-n	LW-n+2	Constant	Constant	
High Limit	LW-n+1	LW-n+3	Constant	Constant	
1 <sup>st</sup> data	LW-n+4	LW-n+5	LW-n+0	LW-n+1	
2 <sup>nd</sup> data	LW-n+6	LW-n+7	LW-n+2	LW-n+3	
3 <sup>rd</sup> data	LW-n+8	LW-n+9	LW-n+4	LW-n+5	
4 <sup>th</sup> data	LW-n+10	LW-n+11	LW-n+6	LW-n+7	

 If [Separated address for X and Y data] is selected, and set [X data] to LW-m, [Y data] to LW-n:

	Select [Dynamic limits]		<b>Not</b> select [Dynamic limi		
	X data	Y data	X data	Y data	
Low Limit	LW-m+0	LW-n+0	Constant	Constant	
High Limit	LW-m+1	LW-n+1	Constant	Constant	
1 <sup>st</sup> data	LW-m+2	LW-n+2	LW-m+0	LW-n+0	
2 <sup>nd</sup> data	LW-m+3	LW-n+3	LW-m+1	LW-n+1	
3 <sup>rd</sup> data	LW-m+4	LW-n+4	LW-m+2	LW-n+2	
4 <sup>th</sup> data	LW-m+5	LW-n+5	LW-m+3	LW-n+3	

## Example 2

When [Dynamic limits] is not selected, the Low and High limits can be set. The Low and High limits are used for calculating X and Y range in percentage.

Scale (%) = 
$$\frac{\text{Read Address Value} - \text{Low Limit}}{\text{High Limit} - \text{Low Lmit}}$$

If [Separated address for X and Y data] is **not** selected and the address is LW-n, the corresponding limits are retrieved from the addresses as shown in the following table.

Data format	16-bit	32-bit	64-bit (cMT / cMT X only)
X axis low limit	LW-n	LW-n	LW-n
X axis high limit	LW-n+1	LW-n+2	LW-n+4
Y axis low limit	LW-n+2	LW-n+4	LW-n+8
Y axis high limit	LW-n+3	LW-n+6	LW-n+12

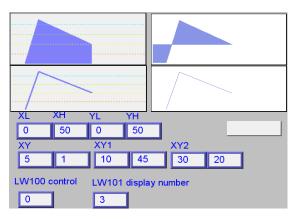


Objects

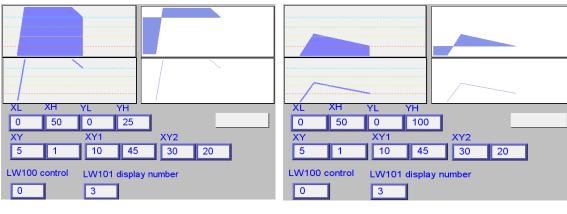
## Example 3

If **[Dynamic limits]** is selected, a zoom effect can be created by changing the setting of Low / High Limits.

In the following example, XL=X low limit, XH=X high limit, YL=Y low limit, YH=Y high limit, and XY, XY1, XY2 are three XY data. When changing the high limits of X and Y axis, the result is shown below:



Original



Change the high limit of Y axis to 25. (zoom in)

Change the high limit of Y axis to 100 (zoom out)

For more information, see "13.17 Trend Display".

## Note

- X and Y data can be set to different formats. For example: If X data uses 16-bit unsigned, Y data uses 32-bit signed, please note the address setting.
- When using a Tag PLC, such as AB tag PLC, X and Y must be in the same format. When using different formats a warning will be shown.

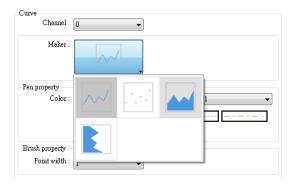


## **Display Area Tab**

neral Displa	y Area Security Shape		
rofile color	81		
	📰 Transparent		
Fra	me :	Background : 🚺	•
Curve			
	nel: 0 🗸		
Mal	ker:		
Pen property			
Co	lor :	Width : 1	•
Brush prope:	-		
Point wid	th:[1 ▼]		
Reference lir	le		
	📝 Limit from device		
Device :	Local HMI		▼ Settings
Address :		)	16-bit Unsigned
			10
	Reference line 1		
	Reference line 2		
	Reference line 3		
	E Keierence line 4		

Setting	Description
Profile color	Select the color of the frame and the background, or select
	[Transparent] check box to hide the frame and background.
Curve	For each channel select the properties of color, width, and line
	style.
Maker	Select the style of XY Plot. For eMT/iE/XE/mTV series, there are

four different types of XY plot as shown below:





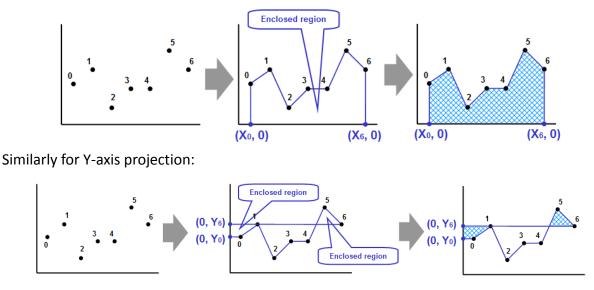
	shown below:		
	Curve Channel : 0		
	Maker :		
	Pen property Color:		
	Brush property Point width :		
	See Example 4.		
Pen property	Select color, width and style for the line in XY plot.		
Brush property	Select point width.		
Reference line	Up to 4 horizontal reference lines can be shown on the graph. Fill in		
	high, low limits and Y axis percentage values. Different colors can		
	be selected for each reference line.		
	If [Limit from PLC] is selected, designate a register to be the read		
	address of reference line.		

For cMT / cMT X Series, , there are six different types of XY plot as

## Example 4

The curve shown in the following figure is drawn with 7 points numbered from P0 to P6. The steps the system draws the X-axis Projection are:

- **1.** Calculates the two points in X-axis  $(X_0, 0)$  and  $(X_6, 0)$ .
- 2. Link all the points in the order of  $(X_0, 0)$ , P0... P6,  $(X_6, 0)$  and returns to  $(X_0, 0)$  at last.
- 3. Fill out all enclosed areas.





# Note

- Without clearing the drawn points, XY Plot can be drawn a number of times by entering value 1 in the control address repeatedly. The way to calculate the maximum number of times is: 32 divided by the number of channels.
  - 1 channel → 32 times
  - 2 channels → 16 times
  - 16 channels →2 times



## 13.21. Alarm Bar and Alarm Display

#### 13.21.1. Overview

Alarm Bar and Alarm Display objects are used to display alarm messages which are defined in Event (Alarm) Log objects. When the trigger conditions are met, events or alarms will be displayed as they occur in chronological order in Alarm Bar or Alarm Display object. Alarm Bar scrolls all alarm messages in one single display line, whereas Alarm Display shows alarm messages in multiple lines.

For more information, see "7 Event Log".

Alarm Bar - Displays alarm messages in one scrolling line.

3/12/06	13:21:38	Event 2 (when LB10 = ON)
3/12/06	13:21:38	Event 3 (when LB11 = ON)
13/12/06	13:21:38	Event 0 (when LW0 == 100)
13/12/06	13:21:38	Event 1 (When LW 1 >= 10)

Alarm Display – Displays alarm messages in multiple lines.

#### 13.21.2. Configuration



Click [Data/History] » [Alarm Display] or [Alarm Bar] icon on the toolbar to open the object property dialog box. Set up the properties, press OK button, and a new object will be created.

#### **General Tab**

The difference between these two objects is that Alarm Display allows an [Acknowledge address] and a [Scrolling control address] to be set.



Comment : Acknowledge address	Comment : Acknowledge address	Jeneral A	larm	Sort	Security	Shape	Font		
Acknowledge address          Image: Constraint of the second sec	Acknowledge address	-							
Enable acknowledge function  Device : Local HMI  Address : LW  Control address  Enable scrolling control  Device : Local HMI  Control  Control	Enable acknowledge function  Device : Local HMI  Address : LW  Control address  Enable scrolling control  Device : Local HMI  Control  Control								
Device : Local HMI  Address : LW  Control address  Enable scrolling control  Device : Local HMI	Device : Local HMI  Address : LW  Control address  Enable scrolling control  Device : Local HMI	Acknowl	ed ge a						
Address : LW • 0 16-bit Unsigned Scrolling control address I Enable scrolling control Device : Local HMI • •	Address : LW • 0 16-bit Unsigned Scrolling control address I Enable scrolling control Device : Local HMI • •			🔽 En	able acknow	/led.ge fun	ction		
Address : LW • 0 16-bit Unsigne Scrolling control address I Enable scrolling control Device : Local HMI • •	Address : LW • 0 16-bit Unsigne Scrolling control address I Enable scrolling control Device : Local HMI • •	Dev	ice : [	Local HM	I			•	
Enable scrolling control  Device : Local HMI	Enable scrolling control  Device : Local HMI		6		(12)	<b>v</b> 0		16-bit U	Insigne
Enable scrolling control  Device : Local HMI	Enable scrolling control  Device : Local HMI	Scrolling	contro	ol address					
Device : Local HMI	Device : Local HMI	-			able scrollin	g control			
Address : LW v U Ib-bit Unsigne	Address : LW v 0 Ib-bit Unsigne				I	1.5			
		Addr	ess : [	LW		▼]0		 10-011	Justane

Setting	Description		
Enable	If selected, the [Acknowledge value] selected for the associated		
acknowledge	event, specified in Alarm (Event) Log » Message tab will be written to		
function	the [Acknowledge address] designated in Alarm Display. For more		
	information, see "7 Event Log".		
	Acknowledge value for Event/Alarm Display object		
	Acknowledge value : 11		
Scrolling	If enabled, the value in the designated control address indicates the		
control	number of lines to be scrolled down. The minimal value is 0, which		
address	indicates the first line. Please note that with this address enabled,		
	the horizontal and vertical scroll bars will not be available on the		
	object; please make sure that the width of the object is enough for		
	completely showing the content.		

# Note

When using a cMT / cMT X Series model, press and hold the event on the screen to



acknowledge an event; drag a finger on the screen to scroll.

When using a cMT / cMT X Series model, a default minimal row height exists in Alarm Display objects that have enabled Acknowledge function. The minimal row height prevents the rows to be touch by mistake. On a small-sized HMI, the row height may be slightly taller when Acknowledge function is enabled.

#### **Alarm Tab**

#### Alarm Bar

Alarm Display	Ala	arm	Disp	olay
---------------	-----	-----	------	------

Alarm Sort Security Shape Font Display	General Alarm Sort Title Security Shape Font Display
Mode : Carousel  Interval : 3.0	Style : Crystal
Show current and total number of alarm	Include categories © Dynamic range © Predefined
Include categories O Dynamic range O Predefined	0 ~ 255 (see Event (Alarm) Log object)
0 ~ 255 (see Event (Alarm) Log object)	Caption Use caption
Profile Transparent Frame color : Background color :	Font size : 16 Color :
Option batton visibility	Option button visibility © Predefined  © Dynamic
Tesennes     Dynamic     Enable	🖉 Enable
OK Cancel Heb	OK Cancel Help

Setting

Description

Display

Display settings are only available for Alarm Bar.

#### iP/iE/XE/eMT/mTV Series

Display —

Speed : Speed 5

Move smoothly (may lead to highter CPU usage)

When [Move smoothly] option is selected, the message will move along the Alarm Bar object more smoothly. Please note that enabling this may lead to high CPU loading.

#### cMT / cMT X Series

The available modes are [Carousel] and [Marquee].



D: 1	Display
Display	Display
Mode : Carousel 💌	Mode : Marquee 🔹 🔹
Interval : 3.0 • second(s)	Speed : Speed 5 🔹
📝 Show current and total number of alarm	📝 Multi-line display

When [Carousel] mode is selected, the option to display the current and total alarm count and set the interval in seconds can be enabled.

0px 1	0px
<b>100</b> /299	-11:25:46 Event 15 Long

	When [Marquee] mode is selected, the speed of text movement in			
	the Alarm Bar object can be adjusted. Enabling multi-line display allows the event content to be shown in multiple lines within the			
	Alarm Bar object. Please consider the performance impact when			
	using this mode.			
Include	Events in the selected category will be displayed. The categories are			
categories	set in Event (Alarm) Log object.			
	For example, if the category is set to "2 to 4" here, only events in			
	categories 2, 3, 4 will be displayed. For more information, see "7			
	Event Log".			
	cMT / cMT X Series			
	Dynamic Category Range is an option available only for cMT Series			
	models. With this option selected, an address can be designated for			
	dynamically selecting event categories to be displayed.			
	Predefined			
	Device : Local HMI   Address : LW  O  Settings  16-bit Unsigned			
	Range begin : LW-0 Range end : LW-1			
Caption	Caption settings are only available for Alarm Display on cMT / cMT X			
	Series.			



	Caption V Use caption Font size : 16 Color : Name Caption Caption
Option button visibility (cMT / cMT X Series)	Show or hide the option button Predefined Select [Enable] to show the option button. Dynamic
	Option button visibility Predefined Opynamic Device : Local HMI Address : LB 0 Designate a bit address to control option button visibility.

#### Sort Tab

#### Alarm Bar

## Alarm Display

ornat Order : Time ascending Order & Characters Display items Trigger date Irigger time Message	Display order Triscer time Message	Format Sort Order : Ascending Order & Characters Display items Display ch Trigger date 0 V Trigger date 0 V Trigger time 0 V Message 20 Coccurrence count 0 Elapsed time 0 Priority level 0 Category 10
Date : (MM/DD/YYYY ▼)	Time : HH:MM:SS •	* Each column width is determined by: "Display chars" * (width of the character 'x') * Set "Display chars" to 0 to autofit column width to the contents. (Exception: Event message) Date : MM/DD/YYYY  Time : HH:MM:SS    OK Cancel Help
Setting	Description	
Order (Alarm	Time ascending	
Bar) Latest event is placed last in the list (the bottom).		

	Time descending
	Latest event is placed first in the list (the top).
Order (Alarm	Sort by:
Display)	Ascending – Priority Level (cMT / cMT X Series)
	Event with highest priority level is placed last in the list (the
	bottom).
	Descending – Priority Level (cMT / cMT X Series)
	Event with highest priority level is placed first in the list (the top).
	Ascending – Occurrence Count
	Event with highest occurrence count is placed last in the list (the
	bottom).
	Descending – Occurrence Count
	Event with highest occurrence count is placed first in the list (the
	top).
	Ascending - Time
	Latest event is placed last in the list (the bottom).
	Descending - Time
	Latest event is placed first in the list (the top).
Display order	Select the items to be displayed and use the up and down arrow
	buttons to adjust the display order of the alarms.
Date	Displays the date tag with each alarm message. The four formats of
	date tag:
	MM/DD/YY、DD/MM/YY、DD/MM/YY、YY/MM/DD
Time	Displays the time tag with each alarm message. The four formats of
	time tag:
	HH:MM:SS、HH:MM、DD:HH:MM、HH



#### Title Tab

	Alarm	Sort	Title	Security	Shape	Font	
Head	ers						
		E.	🗸 Use he:	aders			
	Tex	t color : [	6	Ţ			
	Column				Header	ext	1
Trig	ger date	Trig	ger date				
Trig	ger time	Trig	ger time				
Mes	sage	Mes	sage				
10000			umence co	unt			
Elap	ised time	Elap	osed time				

Title settings are available on cMT Series. With [Use headers] selected, the text color and column headers can be configured.



#### **Security Tab**

#### Alarm Bar Alarm Display New Alarm Bar Object × Alarm Display Object's Properties × Alarm Sort Security Shape Font General Alarm Sort Security Shape Font Profile User restriction Enable/Disable Object class : None 👿 Use register status/value — • Device : Local HMI $\ast$ If the user tries to operate on an object without authorization, LB-12056 will be set to ON. Address : LB 🔹 🗸 0 Enable if bit is : ON 🔹 Action : Do nothing when disabled • User restriction Object class : None • \* If the user tries to operate on an object without authorization, LB-12056 will be set to ON. OK Cancel Help OK Cancel Help

Setting	Description
Interlock	When [Use interlock function] check box is selected,
	whether the object is operable is determined by the
	state of a designated Bit address. As shown in the above
	settings, if LB-0 is ON, the object is operable.
	Hide when disabled
	When the designated Bit is OFF, the object will be
	hidden.
User	Set the security class of the object to be operated by an
restriction	authorized user.
	Object class
	"None" means any user can operate this object. Only
	account "admin" can operate "Administrator" object
	class.
	Make invisible while protected
	When the user's privilege does not match the object
	class, the object will be hidden.
	When this check box is deselected in Alarm Display

object settings, the unauthorized user can see the Alarm Display object, but cannot trigger the object or make any change.

This check box is greyed out in Alarm Bar object settings.

#### Font Tab

Set the font size or select [Italic].

New Alarm Bar Object	×
Alarm Shape Font	
Attribute	
Size : 16	•
V Italic	

The font, color, and content of the alarm messages displayed in Alarm Bar and Alarm Display objects are set in Alarm (Event) Log object:

Event (Alarm) Log	×
General Message	
Text	
Content :	Event 1: press once to acknowledge
	<b>v</b>
	Use label library Label Library
Font :	Arial 👻
Color :	

Click the icon to download the demo project. Please confirm your internet connection before downloading the demo project.



## 13.22. Event Display

#### 13.22.1. Overview

The Event Display object displays events from the Event (Alarm) Log that meet the specified trigger conditions. These displayed events can be sorted based on time, occurrence count, or priority level. The Event Display object provides information about the events, including the trigger date / time, acknowledge time, recovered time, message, occurrence count, elapsed time, priority level, category, and subcategory. Furthermore, it is capable of displaying multi-lined messages as well.

nt 1 (When LW 1 >= 10) nt 0 (when LW0 == 100) nt 3 (when LB11 = ON) nt 2 (when LB10 = ON)	12/13/00         22:03:14         22:03:17         Event 2 (when LB10 = ON)           12/13/06         22:03:13         Event 1 (When LW 1 >= 10)           12/13/06         22:03:12         Event 0 (when LW0 == 100)           12/13/06         22:02:57         Event 3 (when LB11 = ON)           12/13/06         22:02:56         22:03:04         Event 2 (when LB10 = ON)           12/13/06         22:02:56         22:02:58         Event 1 (When LW 1 >= 10)	12/13/06         22:03:13         Event 1 (When LW 1 >= 10)           12/13/06         22:03:12         Event 0 (when LW0 == 100)           12/13/06         22:02:57         Event 3 (when LB11 = ON)           12/13/06         22:02:56         22:03:04         Event 2 (when LB10 = ON)	8	12/13/06	22:03:15		Event 3 (when LB11 = ON)
nt 0 (when LW0 == 100) nt 3 (when LB11 = ON) nt 2 (when LB10 = ON)	12/13/06         22:03:12         Event 0 (when LW0 == 100)           12/13/06         22:02:57         Event 3 (when LB11 = ON)           12/13/06         22:02:56         22:03:04         Event 2 (when LB10 = ON)	12/13/06       22:03:12       Event 0 (when LW0 == 100)         12/13/06       22:02:57       Event 3 (when LB11 = ON)         12/13/06       22:02:56       22:03:04       Event 2 (when LB10 = ON)         12/13/06       22:02:56       22:02:58       Event 1 (When LW 1 >= 10)         1       07/27/10       14:32:56       14:32:57       14:32:59					Event 2 (when LB10 = ON)
nt 3 (when LB11 = ON) nt 2 (when LB10 = ON)	12/13/06         22:02:57         Event 3 (when LB11 = ON)           12/13/06         22:02:56         22:03:04         Event 2 (when LB10 = ON)	12/13/06       22:02:57       Event 3 (when LB11 = ON)         12/13/06       22:02:56       22:03:04       Event 2 (when LB10 = ON)         12/13/06       22:02:56       22:02:58       Event 1 (When LW 1 >= 10)         1       07/27/10       14:32:56       14:32:57       14:32:59       Event 0	6	12/13/06	22:03:13		Event 1 (When LW 1 >= 10)
nt 2 (when LB10 = ON)	12/13/06 22:02:56 22:03:04 Event 2 (when LB10 = ON)	12/13/06 22:02:56 22:03:04 Event 2 (when LB10 = ON) 12/13/06 22:02:56 22:02:58 Event 1 (When LW 1 >= 10) 1 07/27/10 14:32:56 14:32:57 14:32:59 Event 0	5	12/13/06	22:03:12		Event 0 (when LW0 == 100)
	• • •	12/13/06 22:02:56 22:02:58 Event 1 (When LW 1 >= 10)	4	12/13/06	22:02:57		Event 3 (when LB11 = ON)
nt 4 (Million 1 W/ 4 >= 40)	12/13/06 22:02:56 22:02:58 Event 1 (When LW 1 >= 10)	1 07/27/10 14:32:56 14:32:57 14:32:59 Event 0	3	12/13/06	22:02:56	22:03:04	Event 2 (when LB10 = ON)
nc) (mnen Lw ) 2- 30) 📃		1 07/27/10 14:32:56 14:32:57 14:32:59 Event 0	2	12/13/06	22:02:56	22:02:58	Event 1 (When LW 1 >= 10)
ne i (unen Lu i 2- 10)		1 07/27/10 14:32:56 14:32:57 14:32:59 Event 0	3 2				Event 2 (when LB10 = ON)

#### 13.22.2. Configuration



Click [Data/History] »[Event Display] icon on the toolbar to open an Event Display object property dialog box. Set up the properties, press OK button, and a new Event Display object will be created.



Multi-text

#### **General Tab**

#### 13.22.2.1. eMT, iE, XE, mTV Series

New Event Display Object	<b>•••</b>	New Event Display Object
	Security Shape Font Empty Warning	General Event Display Sort Security Shape Font Empty Warning
Comment :		Comment :
Mode : Real-time	<b></b>	Mode : History
Acknowledge		Refresh data automatically
Device : Local HMI	• •	
Address : LW	▼ 0 16-bit Unsigned	
Event management	Usage	Event management
Device : Local HMI	• •	✓ Enable Usage
Address : LW Scrolling control	0     16-bit Unsigned	Device : Local HMI   Address : LW  O  16-bit Unsigned
Enable		Address: LW    O    I6-bit Unsigned  Scrolling control
Device : Local HMI		✓ Enable
Address : LW	O     16-bit Unsigned	Device : Local HMI
		Address: LW   0  16-bit Unsigned  History control
		Usage
		Device : Local HMI
		Address : LW   C Enable reading multiple histories
		Mode : Number of days (max. 90 days)
	OK Cancel Help	OK Cancel Help
etting	Description	
Лode	The available modes a	are: [Real-time] and [History].
	Real-time	
	All the events tri	iggered since HMI starts up are displayed.
	History	
	•	
	-	s the event log in HMI memory and displays
	them. The conte	ent can be updated by changing window. In cas
	when the trend of	display shows history data from today, the
	display will refre	sh once per second.
cknowledge	When in Real-time m	ode and an event is acknowledged by touching
-		the [Acknowledge value] specified in Event
		lessage tab, is output to the [Acknowledge
	address] of Event Disp	play object. For more information, see "7 Even
	Log".	
	Acknowledge value for Event/A	Alarm Display object
	Acknowledge value : 11	
listory	When in History mod	e and if:
control	-	multiple histories] is <b>not</b> selected



The history files are sorted by date and each file is given an index. The latest one is assigned index 0 (in most cases: today), the second latest file is assigned index 1, and so on. The history control address is used to specify the history file to be displayed.

If control address is LW-100, and four files exist with dates: EL\_20100720.evt, EL\_20100723.evt, EL\_20100727.evt, and EL\_20100803.evt.

The index value given to each file is shown below:

Value in LW-100	The corresponding file
0	EL_20100803.evt
1	EL_20100727.evt
2	EL_20100723.evt
3	EL_20100720.evt

• [Enable reading multiple histories] is selected

Displays a list of events triggered in multiple days. The display range is formed by two consecutive addresses. Please note that the history control address is defined differently in "Number of days" mode and in "Index of the last history" mode.

#### Number of days

Suppose the history control address is set to LW-n, then:

[LW-n]: The start day index (which is expressed as the number of

days before today. 0: today, 1: yesterday, and so on.)

[LW-n+1]: The total number of days to display. The days are calculated backward from the start day.

Example: If today were 2010/6/10, and LW-n = 1, LW-n+1 = 3, then the data range will start from 1 day before today, which is 20100609 (yesterday), and include data for 3 days:  $20100607^{2}20100609$ .

🕎 EL_20100604	No.4	1 KB	EVT
[] EL_20100605	No.3	6 KB	EVT
🕎 EL_20100608	No.2	17 KB	EVT
🕎 EL_20100609	No.1	4 KB	EVT
🕎 EL_20100610	No.0	12 KB	EVT

#### Index of the last history

Suppose the history control address is set to LW-n, then:

[LW-n]: The index value of the file to start. 0: the latest file, 1: the second latest file, and so on.

[LW-n+1]: The index value of the file to end. The specified value must be greater than that of the start index.

Example: If LW-n = 1 and LW-n+1 = 3, then file No.1, No.2, No.3 will be displayed.

🕎 EL_20100604	No.4	1 KB	EVT
🕎 EL_20100605	No.3	6 KB	EVT
🕎 EL_20100608	No.2	17 KB	EVT
🕎 EL_20100609	No.1	4 KB	EVT
🕎 EL_20100610	No.0	12 KB	EVT

The maximum size of data that can be displayed is 4MB. Data exceeding the limit will not be displayed.



	The following shows how da size.	ta will be displayed according to data					
	5 history data, each is 0.5MB	→ Data displayed: 8 x 0.5MB					
	5 history data, each is 1MB $\rightarrow$						
	5 history data, each is 1.5MB	→ Data displayed:					
	2 x 1.5MB+1 x 1MB (partial)						
	Lick the icon to downly	oad the demo project. Please confirm					
	your internet connection befo	pre downloading the demo project.					
Event	Enable event management						
management	If this check box is selected	, writing a specific value into register					
	LW-n and LW-n+1, where n is	an arbitrary number, will control [Event					
	Display] object with different	commands as shown below:					
	Address Value Comma	and					
	LW-n 0 Display	all events.					
	1 Hide [C	onfirmed] events.					
	2 Hide [R	ecovered] events.					
	3 Hide [C	onfirmed] or [Recovered] events.					
	4 Hide [C	onfirmed] and [Recovered] events.					
	LW-n+1 1 In real- event.	time mode, delete a single selected					
Scrolling	If enabled, the value in the de	signated control address indicates the					
control	number of lines to be scrolled	down. The minimal value is 0, which					
	indicates the first line.						
	In the following figure, there a	are 10 events recorded in the object,					
		ol address. The upper event object					
	displays the events in time as	displays the events in time ascending order, and begins at the 4 <sup>th</sup>					
	event; on the other hand, the lower one displays the events in time						
	descending order, and begins	at the 7 <sup>th</sup> event.					
	event LB0         4         18:48:19         Test Event           6         18:48:20         Test Event         6           7         18:48:20         Test Event           8         18:48:20         Test Event           Scrolling         18:48:20         Test Event						
	Control         7         18:48:20         Test Event           0003         6         18:48:10         Test Event           5         18:48:19         Test Event           4         18:48:19         Test Event           3         18:48:19         Test Event	I					
	If [Scrolling control address] is	enabled, the scroll bar cannot be used					

If [Scrolling control address] is enabled, the scroll bar cannot be used for scrolling, but still shows the relative position of the content. If the control address holds a value that is larger than the total number of lines, the display will stroll to the end. Please note that with this address enabled, the horizontal and vertical scroll bars will not be available on the object; please make sure that the width of the object is enough for completely showing the content.



Click the icon to watch the demonstration film. Please confirm your internet connection before playing the film.

#### 13.22.2.2. cMT, cMT X Series

eneral	Event D	isplay	Filter	Sort	Title	Security	Shape	Fon	t	
	Comm	ent :								
Acknow	anhelm									
	Device :	Local	нмі					•		
	Address :		1 11911		• 0			2010	16-bit Ur	
							- 11-			
Scrollin	ng control		7 Enabl							
		5	Enabl	e 						
	Device :	Local		e	<b>-</b> ] ()			•	16-bit Ur	isigned
A	Device : Address :	Local		e 	• 0				[] 16-bit Ur	
A	Device :	Local I LW			• 0				16-bit Ur	
A	Device : Address : 7 control	Local 1 LW	HMI Z Enabl		• 0					
A History	Device : Address : 7 control Device :	Local : LW	HMI Z Enabl						16-bit Ur Jsage	isigned
A History	Device : Address : 7 control	Local : LW	HMI Z Enabl		• 0			Ĭ	16-bit Ur <u>Jsage</u>	isigned
A History	Device : Address : 7 control Device :	Local : LW Local : LW	HMI Enable	le		stories		Ĭ	16-bit Ur Jsage	isigned
A History	Device : Address : 7 control Device : Address :	Local	HMI Enable	le le reading	• 0	stories		Ĭ	16-bit Ur Jsage	isigned

For cMT / cMT X models, only events with "save to history" option selected in the Event (Alarm) Log settings can be displayed in the Event Display object. The events that are not set to be saved in the history can be displayed using the Alarm Bar or Alarm Display object.

Setting	Description			
Acknowledge	When an event is acknowledged, the value specified in the Acknowledge			
	Value field under the Message tab of the Event (Alarm) Log settings will			
	be outputted to the Acknowledge address of the Event Display object. For			
	more information, see "7 Event Log".			
	Acknowledge value for Event/Alarm Display object			
	Acknowledge value : 11			
Scrolling	If enabled, the value in the designated control address indicates the			
control	number of lines to be scrolled down. The minimal value is 0, which			
address	indicates the first line.			

History	<ul> <li>[Enable reading multiple histories] is <b>not</b> selected</li> </ul>
Control	The history files are sorted by date and each file is given an index which is expressed as the number of days before today. 0: today, 1: yesterday, and so on. The history control address is used to specify the history file to be displayed.
	<ul> <li>[Enable reading multiple histories] is selected</li> </ul>
	Displays a list of events triggered in multiple days. The display range is formed by two consecutive addresses. Please note that the history control address is defined differently in "Number of days" mode and in "Specific days" mode.
	Number of days
	Suppose the history control address is set to LW-n, then:
	[LW-n]: The start day index (which is expressed as the number of days
	before today. 0: today, 1: yesterday, and so on.)
	[LW-n+1]: The total number of days to display. The days are calculated
	backward from the start day.
	Specific days
	Suppose the history control address is set to LW-n, then:
	[LW-n]: The start day index. 0: today, 1: yesterday, and so on.
	[LW-n+1]: The end day index. The specified value must be greater than
	that of the start day index.
	Example: When start = 4 and end = 7, the specified days will be 4 days
	before to 7 days before.

For cMT / cMT X Series, all the events that occurred are displayed and updated in real-time.

Press the Option Button

in the upper-right corner of the object and set the start and

end date. If the dates are not set specifically, all the events are displayed.

		Cancel	Option	Done							
					Cancel		B	legin Dat	e		OK
		Include Categories		0 - 255		2021				Feb	)
					Sun	Mon	Tue	Wed	Thu	Fri	Sat
		 Begin Date				1	2	3	4	5	6
	Caption	2021-02-09			7	8	9	10	11	12	13
16:21:07	Event 0				14	15	16	17	18	19	20
16:21:08	Event 0	Ended Date									
16:21:09	Event 0	2021-02-09			21	22	23	24	25	26	27
		EVENT DISPLAY SETTING			28						
		Show triggered events		<ul> <li></li> </ul>							
		Show confirmed events	S	<ul> <li></li> </ul>							
		Show recovered events	5	<ul> <li></li> </ul>							



## **Event Display Tab**

ent Display Object's Properties	New Event Display Object
ieneral Event Display Filter Sort Title Security Shape Font Profile	General Event Display Sort Security Shape Font Empty Warning
Display Style color :	Acknowledge style : Click  Max. event no. : 200
Acknowledge style : Click 💌	Include categories
Caption	Include categories
V Use caption	0 ~ 255 {see Event (Alam) Log object}
Font size : 16 Color :	Color
Name	Frame : Background :
Caption Caption	Select box :
Acknowledge Text color : Transparent Return to normal	Acknowledge Text: Background : Transparent Return to normal
Text color : Transparent	Text : Background : Transparent 🖵
Option button visibility	Grid 🖉 Enable
Z Enable	Color :
OK Cancel Help	OK Cancel Help

## cMT / cMT X Series

	OK Cancel Help
Setting	Description
Include	Events in the selected category will be displayed. The categories are
categories	set in Event (Alarm) Log object.
	For example, if the category is set to 2 to 4 here, only events in
	categories 2, 3, 4 will be displayed. For more information, see "7 Event Log".
Acknowledge	Select [Click] or [Double Click] to acknowledge each single event.
style	When an event occurs the user can tap the event line once or twice
	to acknowledge the new event.
	When acknowledged, the text color of the event will change to the
	selected color, and the acknowledge value associated with that event
	will be sent to the register designated in [Acknowledge address]. If
	the address is set to LW-100, and the acknowledge value is set to 31,
	when user acknowledges the event, value 31 is written to LW-100.
	This can be used in conjunction with Indirect Window object so that
	when an event is acknowledged, the corresponding message window is displayed.
Max. event	The maximum number of events to be displayed in this Event Display
no. (eMT, iE,	object. When the number of the displayed events equals to the set
XE, mTV	maximum number, the new coming event will overwrite the latest

## eMT, iE, XE, mTV Series



Series)	event.					
Color	Different colors indicate different event states, such as acknowledged, returns to normal, or selected. The system draws a highlight box					
	around the latest selected event. Acknowledge					
	6 13:12:19 Event 1 (When LW 1 >= 10) 5 13:12:18 Event 2 (when LB10 = ON) 4 distribution (2002) (Strang 3 (When LB10 = ON)					
	3       13:12:15       Event 2 (when LB10 = ON)         2       13:12:14       Event 1 (When LW 1 >= 10)         1       13:12:14       Event 0 (when LW0 == 100)					
	Sequence no. Return to normal Select box History background (eMT, iE, XE, mTV)					
	When using Event Display object and select History mode, the					
	background color of the history record can be customized.					
	General     Event Display     Security     Shape     Font     Empty Warning       Include categories:     0     thru     255     (see Event (Alarm) Log object)					
	Color Transparent Frame : Background :  History background :					
	18:45:43       Event 0					
Grid	Displays a grid of rows and columns in the object. The color of the grid lines can be selected. Auto fit short column (cMT / cMT X Series Default style)					
Caption (cMT	The column width automatically adjusts to the size of the content. Available styles are: Default, Crystal, and Flat.					
cMT X	With [Use caption] enabled, the font size, color, and name of the					
Series)	caption can be specified for Recipe View object.					
Dption outton	Show or hide the option button					
visibility (cMT ′ cMT X	Predefined					
Series)	Select [Enable] to show the option button.					
	Dynamic					

	Predefined	Oynamic	
Device :	Local HMI		[
Address :	LB 👻		_

## Designate a bit address to control option button visibility.

## Filter Tab (cMT / cMT X Series)

Include categories           Dynamic range         Predefened           0         ~ 255         (see Event (Alarm) Log object)           Event display         Triggered, but not confirmed         Triggered and confirmed           Recovered, but not confirmed         Recovered and confirmed         Predefened	eneral	Event Display	Filter	Sort	Title	Securi	ty Shape	Font	Profile
Dynamic range     O     Predefened     C     ~ 255     (see Event (Alarm) Log object)  Event display      Triggered, but not confirmed     Triggered and confirmed     Recovered, but not confirmed	Includ	le categories							
0 ~ 255 (see Event (Alarm) Log object) Event display Triggered, but not confirmed Triggered and confirmed Recovered, but not confirmed		(	) Dynan	nic range			Predef	ened	
Event display Triggered, but not confirmed Triggered and confirmed Recovered, but not confirmed		~				<b>H</b> 3.3			
<ul> <li>Triggered, but not confirmed</li> <li>Triggered and confirmed</li> <li>Recovered, but not confirmed</li> </ul>		U	~ 4	22	{	ee Event (	Alarm) Log	(ODject)	
<ul> <li>Triggered and confirmed</li> <li>Recovered, but not confirmed</li> </ul>	Event	: display							
Recovered, but not confirmed	🔲 T	riggered, but not	confirme	ed					
	🔲 T	riggered and con	firmed						
Recovered and confirmed				ied					
	R	ecovered and cor	nfirmed						
OK Cancel H							OK	Can	

Setting	Description
Include	Events in the selected category will be displayed. The categories are
categories	set in Event (Alarm) Log object. For example: if the category is se
0	to 2 to 4 here, only events in categories 2, 3, 4 will be displayed. For
	more information, see "7 Event Log".
	When [Dynamic range] is selected, the object can dynamically filter
	the displayed event categories based on the value in the specified
	register.



#### Sort Tab

cMT, cMT X Series

neral Event Display Filter Sort 7	fitle Security Shape Font Profile	le General	Event Display Sort	Title Securit	y Shape Font	
ormat Sort Sort by: Priority level Order & Characters Overview Display items Display chars Sequence no. 0 Trigger date 0 Trigger date 0 Recovered time 0 Detail Display items Display chars Sequence no. 0 E	Display order       Display order	Format Sort	Order : <u>Ascending</u> & Characters Display items Sequence no. Trigger date Acknowledge time Acknowledge time Recovered time Message Occurrence count Elapsed time tcolumn width is determ	Display ch 0 0 0 0 20 0 0 0 0 0 0 0 0 0 0 0 0 0	y Shape Font Sort by : Time Display order Tripseer inne Message ars" * (width of the character to the contents. (Exception: Ex Time : HH:MM.SS	335
Trigger date Trigger time Trigger time Trigger time Recovered time Teach column width is determined by: "Display chars" to 0 to autofit column to Tate: MM/DD/YYYY	width to the contents.	Helo			Cancel	Held

#### eMT, iE, XE, mTV Series

trigger date trigger time notification time return to normal time
0 12/14/06 15:26:21 15:26:31 15:26:36 Event 0 (when LV
14/14/06 15:26:48 Event 2 (when LE
2 12/14/06 15:26:48

Setting	Description
Order	Sort by:
	Ascending – Priority Level (cMT / cMT X Series)
	Events on the Overview page are grouped and sorted by priority
	level, with the group of events with highest priority level placed
	last in the list (the bottom). On the Detail page, all events in the
	group are displayed in a time descending order, with the latest
	event placed first in the list (the top).
	Descending – Priority Level (cMT / cMT X Series)
	Events on the Overview page are grouped and sorted by priority
	level, with the group of events with highest priority level placed
	first in the list (the top). On the Detail page, all events in the group
	are displayed in a time descending order, with the latest event



	placed first in the list (the top).
	Ascending – Occurrence Count
	eMT, iE, XE, mTV Series: Event with highest occurrence count is
	placed last in the list (the bottom).
	cMT, cMT X Series: On the Overview page, the group of events with the highest occurrence count is placed last in the list (the bottom).
	On the Detail page, all events in the group are displayed in a time descending order, with the latest event placed first in the list (the top).
	Descending – Occurrence Count
	eMT, iE, XE, mTV Series: Event with highest occurrence count is
	placed first in the list (the top).
	cMT, cMT X Series: On the Overview page, the group of events with
	the highest occurrence count is placed first in the list (the top). On
	the Detail page, all events in the group are displayed in a time
	descending order, with the latest event placed first in the list (the
	top).
	Ascending - Time
	Latest event is placed last in the list (the bottom).
	Descending - Time
	Latest event is placed first in the list (the top).
Display order	Select the items to be displayed and use the up and down arrow
	buttons to adjust the display order of the events.
Date	Displays the date tag with each event message. The four formats of
	date tag: MM/DD/YY、DD/MM/YY、DD/MM/YY、YY/MM/DD
Time	Displays the time tag with each event message. The four formats of
	time tag: HH:MM:SS、HH:MM、DD:HH:MM、HH



#### Title Tab

neral	Event Displa	y Filter Sort Title Security Shape Font Profile
Heade	ers	
		Vse headers
	Text c	olor :
	~ .	
C	Column	Header text
5.3	ence no.	Sequence no.
5	ger date	Trigger date
	ger time	Trigger time
Acki	nowledge time	Acknowledge time
Reco	overed time	Recovered time
Mes	sage	Message
Occi	urrence count	Occurrence count
Elap	sed time	Elapsed time
Prio	rity level	Priority level
Cate	gory	Category
Subo	ategory 1	Subcategory 1
Subo	ategory 2	Subcategory 2

Title settings are available on cMT / cMT X Series. With [Use headers] selected, the text color and column headers can be configured.



## Security Tab

Enable/Disable Use register status/value Device : Local HMI Address : LB O Enable if bit is : ON Action : Do nothing when disabled User restriction Object class : None * If the user tries to operate on an object without authorization, LB-12056 will be set ON.	• •
✓ Use register status/value Device : Local HMI Address : LB	•
Address : LB • 0 Enable if bit is : ON • Action : Do nothing when disabled User restriction Object class : None * If the user tries to operate on an object without authorization, LB-12056 will be set	•
Address : LB • 0 Enable if bit is : ON • Action : Do nothing when disabled User restriction Object class : None * If the user tries to operate on an object without authorization, LB-12056 will be set	•
Enable if bit is : ON  Action : Do nothing when disabled User restriction Object class : None * If the user tries to operate on an object without authorization, LB-12056 will be set	•
Action : Do nothing when disabled User restriction Object class : None * If the user tries to operate on an object without authorization, LB-12056 will be set	•
User restriction Object class : None * If the user tries to operate on an object without authorization, LB-12056 will be set	•
User restriction Object class : None * If the user tries to operate on an object without authorization, LB-12056 will be set	•
Object class : None * If the user tries to operate on an object without authorization, LB-12056 will be set	
* If the user tries to operate on an object without authorization, LB-12056 will be set	
* If the user tries to operate on an object without authorization, LB-12056 will be set ON.	D
ой.	
OK Cancel	

Setting	Description			
Interlock	When [Use interlock function] check box is selected,			
	whether the object is operable is determined by the			
	state of a designated Bit address. As shown in the above			
	settings, if LB-0 is ON, the object is operable.			
	Hide when disabled			
	When the designated Bit is OFF, the object will be			
	hidden.			
User	Set the security class of the object to be operated by an			
restriction	authorized user.			
	Object class			
	"None" means any user can operate this object. Only			
	account "admin" can operate "Administrator" object			
	class.			



#### Font Tab

In Real-time mode: Users may select Italic font and set the font size. The font is displayed according to the setting in Event Log object.

In History mode: Users may select Italic font and set the font size, font and color, or tick the [Font from label library] check box.

Cold	or: 🗾 👻	Size :	16
	Font from label library		
	🔲 Italic		

#### **Empty Warning**

Jeneral	Event Display	Security	Shape	Font	Empty Warning		
🔽 Use i	empty warning						
No alar	m occurred.						
•						ŀ	
Use :	label library						
	Font : Arial					•	
l i	Color :		-		Size : 12	•]	

When [Use empty warning] is enabled, the text displayed when no event has occurred can be specified. This feature is not supported on cMT / cMT X Series models.

Click the icon to download the demo project. Please confirm your internet connection before downloading the demo project.



## 13.23. Data Transfer

#### 13.23.1. Data Transfer (Per-page)

#### 13.23.1.1. Overview

Data Transfer (Per-page) object can transfer values from the source address to the destination address when the window in which this object is placed opens. The data transfer operation can be activated by manually pressing the object or by detecting the change of state of the designated bit.



When Data Transfer (Per-page) object in Bit-Trigger mode is placed in the common window, it activates data transfer operation once the specified condition is met, regardless of the current base window.

#### 13.23.1.2. Configuration



Click [Object] » [Data Transfer] » [Data Transfer (Per-page)] icon on the toolbar to open the property dialog box. Set up the properties, press OK button, and a new Data Transfer (Per-page) object will be created.



## **General Tab**

eneral Securit	ty Shape Label
Comn	nent :
Attribute	
М	lode : Touch trigger 💌
	Activate after button is released
No. of w	vord: 1
Source	
Device :	: Local HMI 🔹 🥥 🖓
Address :	: [LW -] 0
Destination	
Device :	Local HMI
Address :	LW • 0
Notification —	✓Enable
	Follow (set ON when data transfer finished)
Device :	Local HMI
Address :	: LB • 0

Setting	Description
Source address	Data Transfer object reads the data from [Source Address].
Destination address	Data Transfer object writes the data to [Destination Address].
Attribute	No. of word
	Enter the number of words to be transferred. Unit: word.
	Mode
	Touch trigger
	Press the object to activate data transfer operation.
	External trigger
	The data transfer operation is activated when the state of the
	designated bit address changes.
	There is a further selection to make of whether the data transfer
	operation is activated after OFF to ON, ON to OFF transition, or at
	both of the changes of state.



Trigger address	Specify a bit address for [External trigger] mode.
Notification	When enabled, the system will set the designated address ON or OFF when it's ready for data transfer.
	<b>Follow</b> The notification bit will reset to its original state once the system
	finishes data transfer.



# 13.23.2. Data Transfer (Global): Time-based

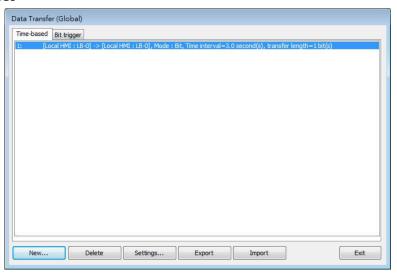
# 13.23.2.1. Overview

Data Transfer (Global) object in Time-based mode can transfer data from the source address to the destination address based on a time schedule.

## 13.23.2.2. Configuration



Click [Object] » [Data Transfer] » [Data Transfer (Global)] icon on the toolbar and open the Time-based tab. Click [New] and set up the properties, press OK button, and a new Data Transfer (Global) object will be created. Please note that the data should be imported / exported separately in Time-based mode and Bit Trigger mode of Data Transfer (Global). **cMT / cMT X Series** 



eMT, iE, XE, mTV Series

Data Transfer (Global)	
Time-based	
Time-based           I:         [Local HMI : LB-0] -> [Local HMI : LB-0], Mode : Bit, Time interval=3.0 second(s), transfer length=	1 bit(s)
New Delete Settings Export Import	Exit



# **General Tab**

Click the [New] button in the Data Transfer management dialog box.

General Security				
Comment	:			
Attribute				
Address mode	Bit	•	Interval : 3.0 second(s)	•
No. of bit	: 1			
	Active only	when designated wind	ow opened	
	🔲 High priority	y (this may reduce refi	resh rate of screen components.)	
Source				
Device : [	Local HMI		▼ 3	
Address : []	JB	▼]0		
Destination				
Device : I	Local HMI		▼ 3	
Address : I	JB	• 0		
Notification				
110 1110 100	Enable	Set ON	Set OFF	
				-
		ON when data transfer		
Device : []		1.		
Address : []	LB	▼ 0		

Setting	Description
Attribute	Address mode
	Select the data type to be transferred from [Bit] or [Word].
	No. of bit /No. of word
	When [Bit] is selected in [Address mode], set the number of bits
	transferred each time when data transfer is triggered.
	When [Word] is selected in [Address mode], set the number of
	words transferred each time when data transfer is triggered.
	Interval
	Select the time interval of data transfer; for example, when 3
	seconds is set, the system will transfer data every 3 seconds.
	Specifying a shorter time interval or a greater amount of data to
	transfer may decrease overall system performance; therefore, a
	longer time interval or a smaller amount of data to transfer is
	recommended.
	When a short interval is inevitable, please at least set an interval
	longer than the time needed for data transfer operation; for
	example, when the data transfer operation takes 2 seconds, the
	interval must be longer than 2 seconds.



	Activate only when designated window opened	
	Data Transfer object transfers data only when the designated	
	window is opened.	
	High priority	
	Assign a higher priority level for this data transfer. Please note that	
	this could result in a reduced screen refresh rate.	
Source address	Data Transfer object reads the data from [Source Address].	
Destination address	Data Transfer object writes the data to [Destination Address].	
Notification	When enabled, the system will set the designated address ON or	
	OFF when it's ready for data transfer.	
	Follow	
	The notification bit will reset to its original state once the system	
	finishes data transfer.	



# 13.23.3. Data Transfer (Global): Bit Trigger

## 13.23.3.1. Overview

Data Transfer (Global) object in Bit Trigger mode transfers data from the source address to the destination address when HMI detects that the state of the designated bit address changes. This feature is not supported on eMT, iE, XE, mTV models.

## 13.23.3.2. Operation



Click [Object] » [Data Transfer] » [Data Transfer (Global)] icon on the toolbar and open the Bit Trigger tab. Click [New] and set up the properties, press OK button, and a new Data Transfer (Global) object will be created. Please note that the data should be imported / exported separately in Time-based mode and Bit Trigger mode of Data Transfer (Global).

#### cMT / cMT X Series

Data Transfer (Global)
Time-based Bit trigger
1: [Local HMI : LW-0] -> [Local HMI : LW-0], 1 word(s), Trigger address=[Local HMI : LB-0]
New         Delete         Settings         Export         Import         Exit





# **General Tab**

General			
Com	ment:		
Attribute			
Trigger a	node : ON->OFF	•	
No. of	word : 1		
	High priorit	v (this may reduce refres	h rate of screen components
Source			
10000000	Local HMI		▼ 3
Address :		• 0	<b>_</b>
	(LW	• 0	
Destination			
	Local HMI		<u> </u>
Address :	LW	• 0	
Trigger			
Device :	Local HMI		▼ 3
Address :	LB	• 0	
Notification			
	🔽 Enable	© Set ON	Set OFF
	Follow (set	ON when data transfer fi	nished)
Device :	Local HMI		▼ 3
Address :	LB	• 0	

Setting	Description		
Attribute	Trigger mode		
	Trigger data transfer when the state of the designated register		
	changes from OFF to ON, ON to OFF, or at both of the changes of		
	state.		
	No. of word		
	Set the number of words transferred each time when data transfer		
	is triggered.		
	High priority		
	Assign a higher priority level for this data transfer. Please note that		
	this could result in a reduced screen refresh rate.		
Source	Data Transfer object reads the data from [Source Address]		
address	Data Transfer object reads the data from [Source Address].		
Destination	Dete Transfer chiest writes the dete to [Destination Address]		
address	Data Transfer object writes the data to [Destination Address].		
Trigger	Set the address used to control data transfer and select the trigger		
address	mode.		
Notification	When enabled, the system will set the designated address ON or		
	OFF when it's ready for data transfer.		
	Follow		
	The notification bit will reset to its original state once the system		
	finishes data transfer.		



# 13.24. Backup

## 13.24.1. Overview

Backup (Trigger-based) object and Backup (Global) object can transmit recipe data (RW, RW\_A), event log, recipe database, sampling data, and operation log to an external device (SD card, USB disk), in a specified time range or format. For example, when the event log is saved in a SD card, a USB disk can be inserted when HMI power is still ON, and use Backup object to copy the data into USB disk from SD card, and then remove USB disk without turning off HMI power. The data saved in USB disk can be used on PC for analyzing. When the system is backing up, the state of system register [LB-9039] is set ON. With [e-Mail] option, information can be sent to configured email contacts.

Backup (Trigger-based) object is triggered by pressing the object on the screen while Backup (Global) object runs in the background regardless of screens being viewed. Backup (Global) object is available only on cMT / cMT X Series models.

# 13.24.2. Configuration



On the toolbar click [Object] » [File Operation] to find [Backup (Trigger-based)] and [Backup (Global) objects.

Open [Backup (Trigger-based)] object property dialog box, set up the properties, press OK button, and a new Backup (Trigger-based) object will be created.

When using a cMT / cMT X Series model, [Backup (Global)] object is available. Open [Backup (Global)] object managing dialog box, click [New] to open the object property dialog box, set up the properties, press OK button, and a new Backup (Global) object will be created.



# **General Tab**

# Backup (Trigger-based) cMT / cMT X Series

New Backup (Per-page) Object 🧧	New Backup (Per-page) Object
General Output Security Shape Label	General Output Advance Security Shape Label
Comment :	Comment :
File source : [Historical event log -	File source : [Historical event log -
Range Start :  Today Vesterday Within : 90 day(s) Trigger Mode : Touch trigger V Activate after button is released	Range Start : © Today © Yesterday Within : All (max. 90 days) Trigger Mode : Touch trigger Activate after button is released
*LB-9039 indicates the status of file backup activity (backup in process if bit is ON).	*LB-9039 indicates the status of file backup activity (backup in process if bit is ON).
OK Cancel Help	OK Cancel Help

# eMT, iE, XE, mTV Series

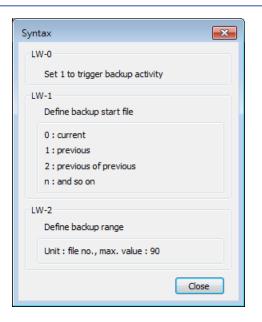
# Backup (Global) cMT / cMT X Series

Backup (Global)	×	
General Output Comment :		
File source : [Historical event	llog 🔹	
Within : 90 day(s) -Trigger Mode : External triggen Condition : OFF->ON Device : Local HMI Address : LB	♥ Yesterday • (bit) • • ♥ Follow (set OFF when backup finished) • ♥ ♥ Follow (set OFF when backup finished) • ♥ ♥ ♥ • ♥ ♥ • ♥ ♥ • ♥ ♥ • ♥ ♥ • ♥ •	
1	OK Cancel Help	
Setting	Description	
Source	[RW], [RW_A], [Rec	ipe database], [Historical event log],



	[Historical data sampling], [Operation log], [SQL Query]		
	Select one from the above for the source. When backing up		
	[Historical data sampling], use [Data Sampling object index] to		
	select the one to back up.		
	Options other than RW, RW_A will be available only when they are		
	used in the project file.		
Event	This groupbox will be available only when backing up a historical		
category	event log in CSV format. Two options can be found in this group		
range	box: All and Partial. Selecting partial and entering "3, 5, 8" in the		
	field will backup events in categories 3, 5, and 8. Selecting partial		
	and entering "3-8" will backup events in categories 3 to 8.		
Range	Historical data sampling		
	Select a number of files. For example, if [Start] is set to [Current],		
	and [Within] is set to [5 file(s)], the latest five files in memory will		
	be backed up.		
	Historical eventlog		
	Select a number of days. For example, if [Start] is set to [Yesterday],		
	and [Within] is set to [2 day(s)], the files obtained yesterday and		
	the day before yesterday will be backed up. Select [All] to save all		
	files, and the maximum is 90 days.		
Trigger	Mode		
	There are three ways to activate Backup function.		
	Touch trigger		
	Touch the Backup object to activate backup operation.		
	External trigger (bit)		
	Register a bit device to trigger the backup operation.		
	Select whether the backup operation is activated after Off to ON,		
	ON to OFF transition, or at both of the changes of state.		
	Lick the icon to download the demo project. Please confirm		
	your internet connection before downloading the demo project.		
	External trigger (word)		
	Users can specify the number of days to backup data using [Trigger		
	address]. [Trigger address] usage (suppose IW-n is used).		
	address]. [Trigger address] usage (suppose LW-n is used):		
	address]. [Trigger address] usage (suppose LW-n is used): LW-n: Will start to back up when the value changes from 0 to 1. LW-n+1: The start date of backup.		





On cMT-SVR, Backup (Trigger-based) object only supports [Touch trigger] mode but not [External trigger (bit)] and [External trigger (word)] modes.

Click the icon to download the demo project. Please confirm your internet connection before downloading the demo project.

TriggerWhen the state of the designated register is set ON, the backupaddressoperation is activated. When the backup operation is done, the<br/>state of the designated register is set OFF.

# Note

- All history files should have been saved in memory, either HMI memory, USB disk or SD card. Otherwise, the Backup object will not work.
- The maximum number of days for backup is 90 days.
- When saving files to USB disk or SD card, the capacity of a FAT32 folder depends on the length of the file names. Fewer files can be saved when the file names are longer.

For cMT / cMT X Series, see "7 Event Log" and "8 Data Sampling" that explain the

mechanism of synchronizing data to external device.

Click the icon to download the demo project. Please confirm your internet connection before downloading the demo project.



# **Output Tab**

cMT /	′ cMT X	Series
-------	---------	--------

#### eMT, iE, XE, mTV Series

ckup (Per-page) Object's Properties	Backup (Per-page) Object's Properties
eneral Output Security Shape Label Profile	General Output Advance Security Shape Label Profile
Backup position	Backup position
◯ USB disk 1 ◯ USB disk 2 ◯ e-Mail	
FTP	🔘 Remote printer/backup server
FTP Path :	
Duplicate filename	
Overwrite     O Append .BAK to the existing file	
	* Use L W-9032~9039 to change the backup folder name.
* To use [FTP] to store data, enable the FTP server in [FTP] page of [System Parameters] dialog first.	* To use [Remote Printer/Backup Server] to store data to a remote PC, enable the server in [Printer/Backup Server] page of [System Parameters] dialog first.
torage format	Storage format
Format : SQLite Database File (*.db)	Format : eMT/XE/iE/iP/mTV SERIES Data Sampling File (*.dtl)
Split by : Date	
🔄 Enable checksum for data integrity 🕕 🕕	
OK Cancel Help	OK Cancel Help
	4
etting Description	

Select the destination where the source files will be saved to. Backup SD card / USB disk position The external device connected to HMI. Remote printer/backup server (eMT, iE, XE, mTV Series) This option is available when [System Parameters] » [Printer/Backup Server] » [Use Remote Printer/Backup Server] is selected. Please note that [Operation log] backup can only be saved to Remote printer/backup server. To save into a SD card or USB drive, use the control address of Operation Log object. For more information, see "26 EasyPrinter". E-mail To send backup using e-mail, go to [System Parameters] » [e-Mail] tab to configure first, and then open Backup object's e-Mail tab to configure the recipient address, subject, and message. FTP (cMT, cMT X Series) To save backup to an FTP server, go to [System Parameters] » [FTP] tab to enable the FTP function first, and then open Backup object's



	Output tab to set the	TP path and the way to handle duplicate		
	filenames.			
Save format	Select the desired format to back up the file.			
	eMT, iE, XE, mTV Serie	25:		
	<ul> <li>HMI Event Log Fi</li> </ul>	le (.evt) / HMI Data Log File (.dtl)		
	<ul> <li>Comma Separate</li> </ul>	ed Values (.csv)		
	The [Event] column is	included in the backup file to indicate the type		
	of the event.			
	8 2 0 2013/7/4	16:12:12 Event A 16:12:33 Event B 16:12:36 Event B 16:12:37 Event B 16:12:37 Event B		
	0 = Event is triggered			
	1 = Event is acknowledged			
	2 = Event returns to normal			
	EasyConverter can be used to easily convert HMI Event Log File (.evt)			
	and HMI Data Log File (.dtl) to .xls or .csv format.			
	<ul> <li>SQLite Database File (.db)</li> </ul>			
	cMT / cMT X Series:			
	SQLite Database	File (.db) (Only for backup to e-mail)		
	<ul> <li>Comma Separate</li> </ul>	ed Values (.csv)		
	Split by			
	No split	Backup all historical data to the same file.		
	Date	Files are separated according to the date of		
		historical data.		
		When [Customized file handling] is used in		
		Data Sampling, the backup files are		
		separated in the same way they are by the		
		rules of customized file handing.		
	Number of rows	Files are separated according to the number		
		of rows set.		
	Add BOM (Bvte Order	Mark) to file header for EXCEL can		
	interpreting non-ASCI	•		
		s in .csv format, open the csv file in EXCEL. The		
		k) can be added to the file header so that		

BOM (Byte Order Mark) can be added to the file header so that the .csv file containing non-ASCII strings can directly be opened in EXCEL. The title, export time, occurrence count, and elapsed time can



be included or omitted in the backed-up .csv file.

Storage format		
Format : Comma Separated Values (*.csv)		
Split by : Date	•	
Add BOM (Byte Order Mark) to t strings correctly	file header for EXCEL can interpreting non-ASCII	
🔽 Include title	🔽 Include export time	
📝 Include occurrence count	🔽 Include elapsed time	

# Enable checksum for data integrity

This option is provided for using Backup object to generate a backup file with checksum. EasyConverter can then be used to examine data integrity.

# Advance Tab (eMT, iE, XE, mTV)

Jeneral	Advance	Security	Shape	Label	Profile		
	number (rə Enable	nge : 0000	0 ~ 6553.	5)			
Sourc	e						
PLC	name : Lo	ocal HMI				•	Settings
A	ddress : [L\	N		▼ 0			
A da		g file - 201	40407.dtl	will be ba	cked up to 20 ed up to 2014(		
Option	ns						
107	Remove o	ld files afte	r hackun				

Setting	Description
Serial number	<ul> <li>If enabled, when backing up history files, a user-defined, 5-digit serial number can be appended to the end of the file name of the history data backup.</li> <li>The serial number is determined by the value in the designated source address. After backup, the value of this LW address will automatically increment by 1.</li> <li>The range of the serial number is 0~65535</li> <li>For example, if the serial number is 123, the appended 5 digits will be 00123.</li> <li>A data sampling file -20140407.dtl will be backed up as 2014040700123.dtl.</li> <li>An event log file -20140407.evt will be backed up as 2014040700123.evt.</li> </ul>



# OptionsRemove old files after backupIf selected, the old history files will be removed after backup.

# Note

CMT / cMT X Series does not support Advance settings.

# e-Mail Tab

Recipients						
[To						
Cc Bcc						
Subject						
	a <del>a</del>					
Subje	et :				E	÷
	Use label	library				
Message						
Openin	g:					~
					Þ	
	Use label	library				
Ending :	g:					*
	4				- F	
	Use label	library				
		Label	Library	Lang	uage 1	

Setting	Description
Add .txt	
extension to	If selected, when sending backup data as an email attachment, the
the filename	filename extension .txt will be added to the file name. This
to skip the	prevents the mail server or anti-virus software from blocking
anti-virus	emails.
detection	
Recipients,	
Subject,	Back up the email address of the recipients, the subject of the
Message	email, and the message content.



# 13-195

# 13.25. Media Player

#### 13.25.1. Overview

Media Player object plays video files on HMI. It can, for example, be useful in providing better instructions onsite to facilitate maintenance.

This object does not work remotely on cMT Viewer.

#### 13.25.2. Configuration



Click [Object] » [Media Player] icon on the toolbar to open a Media Player object property dialog box. Set up the properties, press OK button, and a new Media Player object will be created.

#### **General Tab**

cMT / cMT X (excluding cMT-SVR)

eMT, XE

eneral Preview Security	General Preview
Comment :	112020
Control mode	Comment :
<ul> <li>No control</li> <li>Use UI control</li> </ul>	Control address
Use command control	🕼 Enable
Resume mode	PLC name : Local HMI
Resume previous playback     O     Resume after restart	Address : LW 🗸 0
	Command : LW : 0 Status : LW : 0 + 3
	Parameter 1:         LW : 0 + 1         File index :         LW : 0 + 4
	Parameter 2: LW : 0 + 2 Start time : LW : 0 + 5
	End time : LW : 0 + 6
	Update video playing time
	Update period : 5 second   Playing time : LW : 0 + 7
External device	Ext. device
USB disk	SD card OUSB disk Folder name : video
Folder name : video	Attribute
Attribute	Auto. repeat Background :
Mode : No repeat 🔹 Background :	* OS version 2012.11.12 or later support media player only !

Setting	Description
Control mode	No control: Disable manual control by user. Video playback starts
	as soon as the window opens.



Use built-in user interface to control media control: Use control addresses to control media to resume video playback when changing back to a hedia player. Options include <b>Resume previous</b> <b>Resume after restart</b> . ord register to control the object operations. ted trol. Video will be played automatically when the dow opens. htrol address + 0) h the Command register to designate which action is ontrol address + 1) h Parameter 1 associated with each command action ontrol address + 2) h Parameter 2 associated with each command action
to resume video playback when changing back to a nedia player. Options include <b>Resume previous</b> <b>Resume after restart</b> . ord register to control the object operations. ted trol. Video will be played automatically when the dow opens. ntrol address + 0) in the Command register to designate which action is ontrol address + 1) in Parameter 1 associated with each command action ontrol address + 2) in Parameter 2 associated with each command action
nedia player. Options include <b>Resume previous</b> <b>Resume after restart</b> . ord register to control the object operations. ted trol. Video will be played automatically when the dow opens. ntrol address + 0) n the Command register to designate which action is ontrol address + 1) n Parameter 1 associated with each command action ontrol address + 2) n Parameter 2 associated with each command action
Are register to control the object operations. ted trol. Video will be played automatically when the dow opens. atrol address + 0) a the Command register to designate which action is ontrol address + 1) a Parameter 1 associated with each command action ontrol address + 2) a Parameter 2 associated with each command action
ted trol. Video will be played automatically when the dow opens. htrol address + 0) in the Command register to designate which action is ontrol address + 1) in Parameter 1 associated with each command action ontrol address + 2) in Parameter 2 associated with each command action
ted trol. Video will be played automatically when the dow opens. htrol address + 0) in the Command register to designate which action is ontrol address + 1) in Parameter 1 associated with each command action ontrol address + 2) in Parameter 2 associated with each command action
dow opens. htrol address + 0) h the Command register to designate which action is ontrol address + 1) h Parameter 1 associated with each command action ontrol address + 2) h Parameter 2 associated with each command action
n the Command register to designate which action is ontrol address + 1) n Parameter 1 associated with each command action ontrol address + 2) n Parameter 2 associated with each command action
ontrol address + 1) n Parameter 1 associated with each command action ontrol address + 2) n Parameter 2 associated with each command action
n Parameter 1 associated with each command action ontrol address + 2) n Parameter 2 associated with each command action
ontrol address + 2) Parameter 2 associated with each command action
address + 3)
atus or errors.
trol address + 4)
r in the designated folder. It is recommended to file
e with a number.
trol address + 5)
of the video (second). 0, normally.
rol address + 6)
f the video (second). (The time length of the video) <b>blaying time</b>
elapsed playing time of video will be written into
register at a rate set by [Update period] in seconds.
of [Playing time], range from 1 to 60 (second).
ontrol address + 7)
aying time of video (Second). Normally between
end time.
in SD card / USB disk.
e of video files stored in SD card or USB disk. Files in root directory. Subdirectories won't be accepted. 'example\ex" is an invalid directory.)
cannot be empty, must be alpha-numeric, and all in

	ASCII character.
Attribute	Auto. repeat
	When finish playing all the video files, replay from the first file.
	Ex: Video 1 > Video 2 > Video 1 > Video 2
	Background
	The background color of the object.

# Note

The data format for control address is 16-bit Unsigned or 16-bit Signed. If using 32-bit Unsigned or 32-bit Signed, only the previous 16 bits will be effective.

# **Control command**

The following are the settings of different commands.

Play index file [Command] = 1 [Parameter 1] = file index [Parameter 2] = ignore (set 0)

# Note

- Files are stored with file names in ascending order.
- If the file cannot be found, [Status] bit 8 is set ON.
- Please stop the playing video before switching to another.

# Play previous file

[Command] = 2 [Parameter 1] = ignore (set 0) [Parameter 2] = ignore (set 0)



- If [File index] is zero, the same file is replayed.
- If the file cannot be found, [Status] bit 8 is set ON.

```
• Play next file
```

```
[Command] = 3
```

- [Parameter 1] = ignore (set 0)
- [Parameter 2] = ignore (set 0)
- If there are no more files, the index 0 file is played.
- If the file cannot be found, [Status] bit 8 is set ON.

• Pause / Play Switch

[Command] = 4 [Parameter 1] = ignore (set 0) [Parameter 2] = ignore (set 0)

• Stop playing and close file [Command] = 5

[Parameter 1] = ignore (set 0)
[Parameter 2] = ignore (set 0)

Start playing from the designated time
 [Command] = 6
 [Parameter 1] = target time (second)
 [Parameter 2] = ignore (set 0)

# Note

- Parameter 1 (target time) must be less than the ending of time or it plays the last second.
- Forward

```
[Command] = 7
```

[Parameter 1] = target time (second) [Parameter 2] = ignore (set 0)

# Note

- Going forward to the designated second in [Parameter 1]. If the video is paused, the forwarding action will be started by playing.
- When the designed time is later than the end time, it plays the last second.
- Backward

[Command] = 8 [Parameter 1] = target time (second) [Parameter 2] = ignore (set 0)

# Note

- Going Backward to the designated second in [Parameter 1], if the video is paused, the backward action will be started by playing.
- When the designed time is earlier than the beginning time, it plays from beginning.

Adjust volume

[Command] = 9 [Parameter 1] = volume (0 ~ 128)



[Parameter 2] = ignore (set 0)

# Note

- Default volume is 128.
- Set video display size
   [Command] = 10
   [Parameter 1] = display size (0 ~ 16)
   [Parameter 2] = ignore (set 0)

```
Note
```

- [Parameter 1 = 0] : Fit video image to object size.
- [Parameter 1 = 1 ~ 16]: Magnification from 25% ~ 400% in 25% increments where 1 = 25%, 2 = 50%, 3 = 75% and so on.

```
• Status (control address + 3)
```

When playing a video the system sets [File Open (bit00)] and [File Playing (bit01)] to ON. If the file cannot be found, or an invalid command is entered, the Command Error bit 08 is set ON. If the file format is not supported, or a disk I/O error occurs, during playback, the File Error bit 09 is set ON.

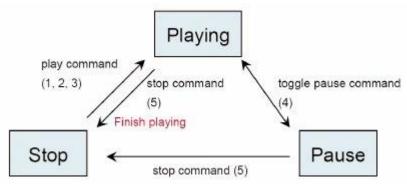
 15
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00: File Opened / Closed	(0 = closed, 1 = opened)
01: File Playing	(0 = not playing, 1 = playing)
08: Command Error	(0 = accepted, 1 = incorrect)
09: File Error	(0 = accepted, 1 = incorrect)



The figure shows the status value associated with each state: Stop = 0, Pause = 1, Playing = 3



■ [Command], [Parameter 1], and [Parameter 2] are write addresses. All others are read

only.

#### **Preview Tab**



Users can test whether the video format is supported by using the preview function.

Description
Co forward or boolward of the video (in minutes)
Go forward or backward of the video. (in minutes)
Select to start playing video or pausing.
Stop playing and close the video file. To test another video, please
stop playing the current video first.
Select a video to preview.

# Note

- Only one video file can be played at one time.
- If [control address] is not enabled and [Auto. repeat] is not selected, after finish playing the first file, the system will stop playing and close the video file.
- If [control address] is not enabled, the system will find the first file in the designated folder and start to play (in ascending order of the file name).
- If the file can be previewed, the format is supported. If the video image quality is poor, please adjust the resolution.
- The supported formats: mpeg4, xvid, flv...etc.
- The recommended frame rate for videos is 30fps.

Lick the icon to download the demo project. Please confirm your internet connection

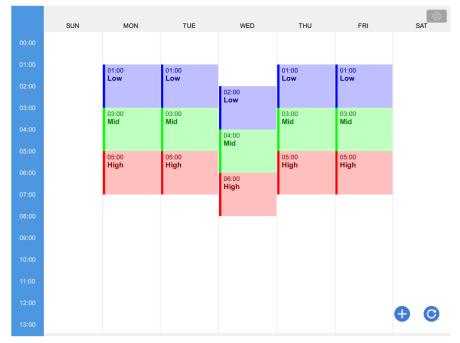
before downloading the demo project.



# 13.26. BACnet Schedule

## 13.26.1. Overview

BACnet Schedule helps visualize and access schedule data (Schedule) in BACnet IP controller with a graphical UI. This feature is only applicable for cMT / cMT X Series HMI.



# 13.26.2. Configuration



Add BACnet/IP driver into the device list in System Parameter Settings and check whether a Scudule is contained in the scanned BACnet/IP device or the imported tag file. Click [Object] » [Time Related] »[BACnet Schedule] icon on the toolbar to open the BACnet Schedule property dialog box. Configure the parameters and then click OK, a BACnet Schedule object is created.



# **General Tab**

New BACnet Schedule Object     General     Comment :     Device :     Master BMS Panel     Address :     Option button visibility     Option button visibility     Predefined     Dynamic	
Device : Master BMS Panel Address : (17,1)Schedule Option button visibility	
Device : Master BMS Panel Address : (17,1)Schedule Option button visibility © Predefined © Dynamic	
Address : (17,1)Schedule       Option button visibility       Image: Constraint of the second s	
Option button visibility <ul> <li>Predefined</li> <li>Dynamic</li> </ul>	
Predefined Oynamic	
Tenable	
OK Cancel Help	
Setting Description	
Device Select the BACnet/IP device to be read.	
Address Select the address tag of the Schedule to be read.	
Option	
button Show or hide the option button	
visibility (cMT Predefined	
/ cMT X	
Dynamic	
Option button visibility <ul> <li>Predefined</li> <li>Dynamic</li> </ul>	
Device : Local HMI  Address : LB  0	

Designate a bit address to control option button visibility.

# Example 1

After downloading the project to HMI, the HMI will automatically read the schedule settings in the BACnet IP device as shown below.



MT Viev	ver (Simulation)						
	SUN	MON	TUE	WED	тни	FRI	SAT
):00	00:00 No Name		00:00 No Name	00:00 No Name	00:00 <b>No Name</b>	00:00 <b>No Name</b>	
:00							
:00							
:00							
:00							
:00							
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:00							⊕ C
l:00							

Click

and then select Value Editor to configure the Values table containing these columns: Name, Value, Data Type, and Color, as shown below.

SUN	MON	TUE		WED	тни		FRI	SAT
00:00 No Name		00:00 No Name		00:00 No Name	00:00 No Name		00:00 No Name	
	Option		v	alues		Done		
	N	lame		Value	Data Type	Color		
	Default Va	ue			OctetString			
	No Name		69b735d	b775cf3ffff	OctetString	· •		
	No Name		4deb2d2	629a6cb5db7	OctetString	, 😐		
	No Name		69b71d7	9fd76df8e7aefcd	OctetString	•		
	No Name		d76dfca6	493e	OctetString	· •		
	No Name		e39ebcf7	5d35	OctetString	•		
				+ ADD	t DEI	ETE		

Click  $igeed{equation}$  to add a schedule setting. Click igodot to refresh schedule data by reading from the

BACnet device.



選 cMT View	ver ( Simulation )						×
	SUN	MON	TUE	WED	THU	FRI	SAT
00:00	00:00 No Name		00:00 No Name	00:00 No Name	00:00 No Name	00:00 No Name	
01:00	No Name		No Name	No Name	No Name	NUNAME	
02:00							
03:00							
04:00							
05:00							
06:00							
07:00							
08:00							
09:00							
10:00							
11:00							
12:00							
							<b>()</b>
13:00 14:00							

As shown in the following screenshot, in a schedule settings window, the Weekday, start time (From), end time (To), and Value should be configured. Value can be selected from the value

table. (Clicking 🦾 open Value Editor for editing the value table as well.)

🙄 cMT Viev	ver ( Simulation )						- • ×
							Ó
	SUN	MON	TUE	WED	THU	FRI	SAT
00:00	00:00 No Name		00:00 No Name	00:00 No Name	00:00 No Name	00:00 No Name	
01:00		Cancel		Option	Done		
02:00							
03:00		Weekday	,		SUN 🗸		
04:00		From			00:00		
05:00		То			01:00		
05.00							
06:00		Value			🗾 No Name 🗸		
07:00							
08:00							
09:00							
10:00							
11:00							
12:00							
13:00							0 0
14:00							90

After the time settings are completed, the values will be written to the corresponding schedule tags in BACnet device.



# 13-205

# 13.27. PLC Control

# 13.27.1. Overview

PLC Control object can execute commands when it is triggered.

# 13.27.2. Configuration



Click [Object] » [PLC Control] icon on the toolbar to open the PLC Control Object management dialog box. To add a PLC Control object, click [New], set up the properties, press OK button and a new PLC Control object will be created.

PLC Co	ntrol Object	
1.		
1: 2:	[Local HMI : LB-8999] => Sound control : OFF->ON, PLC no response (67 k) [Local HMI : LW-100] => Change window (clear data after window changed)	
3:	[Local HMI : LW-110] => Write data to PLC (current base window ID)	
4 :	[Local HMI : LW-120] => General PLC control	
5:	[Local HMI : LW-120] => Change window (clear data after window changed) [Local HMI : LB-10] => Execute macro program : [ID:000] macro 0 (OFF->ON) (active on Window 4)	
0:	[Locar HM1 : LB-10] => Execute macro program : [L0:000] macro_0 (0FF->0N) (active on Window 4)	
	New Delete Settings Exit	

Click [New] and the following dialog box appears. See "13.27.2.1 Type of Control".

PLC Control
Comment :
PLC name : Local HMI
Attribute
Type of control : Change window
Active only w Write data to PLC (current base window ID) Turn on back General PLC control
Turn on back Back light control (write back) Back light control Back light control Sound control Execute macro program Execute macro program
Trigger address Screen hardcopy
PLC name : Local HMI
Address : LW 🔹 10 16-bit Unsigned
OK Cancel

# Note

- The [General PLC Control] option is not available for cMT / cMT X Series.
- Triggering [Screen hardcopy] in cMT Viewer will result in files being saved into the USB disk / SD card connected to the cMT / cMT X HMI. Likewise, the [Back light control] option in cMT Viewer will control the backlight of the HMI itself.



Selecting [Change window] or [General PLC Control] as [Type of control] will require more than one trigger word (consecutive). Using a user-defined tag PLC will require declaring an array datatype.

# 13.27.2.1. Type of Control

• Change window

Comment : PLC name : Local HMI   Attribute  Type of control : Change window  Active only when designated window opened  Active only when designated window opened  Curn on back light  Clear data after window changed  Use window no. offset
Attribute Type of control : Change window  Change window  Change window opened  Change window opened  Turn on back light  Clear data after window changed
Type of control :       Change window       ▼         ✓ Active only when designated window opened       4. Common Window       ▼         Turn on back light       ✓ Clear data after window changed
Active only when designated window opened     4. Common Window
Turn on back light V Clear data after window changed
Use window no. offset
Trigger address
PLC name : Local HMI
Address : LW 🗸 0 16-bit Unsigned
OK Cancel

Setting	Description
Active only when	
designated	Allow this operation only if a particular screen is displayed.
window opened	
Turn on back light	The backlight is turned ON when the window is changed.
Clear data after	Reset the value at trigger address to zero when the window
window changed	object is changed. If [Use window no. offset] is selected, this
	option will only show when a negative offset is used.
Use window no.	Select the check box and select a window offset, the new
offset	window no. to change to will be the value in [Trigger address]
	plus the offset. For example, if [Trigger address] is LW-0 and
	offset is set to -10. When the value in LW-0 is 25, the system
	will change to window no. 15 (25-10=15). The range of the
	offset is -1024 to 1024.

# Note

If [LB-9017] is set ON, the write-back function will be disabled, the new window number is not written back into a designated address.

Place a valid window number in the designated trigger address to change the base screen to the new window number. The new window number is written back into the designated



address.

For example, if current window is window no. 10, and [Trigger address] is set to LW-0, When LW-0 is changed to 11, the system will change the current window to window no. 11, and then write 11 to LW-1.

Click the icon to watch the demonstration film. Please confirm your internet connection before playing the film.

When the window is changed, the new window number is written back into the address that is calculated by [Trigger address] and the data format, as shown in following table.

Data Format	Trigger address	Write address
16-bit BCD	Address	Address + 1
32-bit BCD	Address	Address + 2
16-bit Unsigned	Address	Address + 1
16-bit Signed	Address	Address + 1
32-bit Unsigned	Address	Address + 2
32-bit Signed	Address	Address + 2
64-bit Unsigned	Address	Address + 4
64-bit Signed	Address	Address + 4

Click the icon to download the demo project. Please confirm your internet connection before downloading the demo project.

# • Write data to PLC (current base window)

Each time the base window is changed, the new window number will be written into the [Trigger address]. If [Use window no. offset] is selected, the window number of the base window plus the window number offset will be written into the [Trigger address].

# • General PLC Control (eMT, iE, XE, mTV)

Transfer word data blocks from PLC to HMI, and vise-versa, and the transfer direction is controlled by the value in the [Trigger address].

Value in	Action
[Trigger address]	
1	Transfer data from PLC register $ ightarrow$ HMI RW register
2	Transfer data from PLC register $ ightarrow$ HMI LW register
3	Transfer data from HMI RW register $ ightarrow$ PLC register
4	Transfer data from HMI LW register $ ightarrow$ PLC register



Address	Purpose	Description
[Trigger	Determine the The valid values are l	
address]	direction of data	above table. When a new control
	transfer	code is written into the register,
		HMI will start to transfer. After data
		transfer is finished, the value will
		be set to 0.
[Trigger	The size of data	The unit is word.
address] +1	to transfer.	
[Trigger	Offset to the	Assume the value is "n", where n is
address] +2	start address of	an arbitrary number, the start
	PLC register	address of PLC register is [Trigger
		address + 4 + n].
		Take an OMRON PLC as an
		example:
		If [Trigger address] uses DM-100,
		[Trigger address + 2] will be
		DM-102. If the value in DM-102 is
		5, the start address of data source
		would be DM-109 (100 + 4 + 5 =
		109).
[Trigger	Offset to the	Take OMRON PLC as an example:
address] +3	start address of	If set [Trigger address] to DM-100,
	LW or RW	[Trigger address + 3] will be
	memory in HMI	DM-103. If the value in DM-103 is
		100, the start address of memory
		in HMI is RW-100 or LW-100.

Four consecutive word registers are used as described in the following table:

# Example 1

To use PLC Control object to transfer 16 words data in OMRON PLC, starting from address DM-100, to the HMI address, starting from RW-200. The setting is shown below:

- Firstly, create a PLC Control object, set [Type of control] to [General PLC control], and set [Trigger address] to DM-10, that is, to use the four sequential registers start from DM-10 to control data transfer.
- Confirm the data size and the offset addresses.
   Set DM-11 to 16, since the number of words to transfer is 16 words.
   Set DM-12 to 86, which indicates the address of data source is DM-100 (100=10+4+86).



#### Objects

Set DM-13 to 200, which indicates the destination address is RW-200.

Set DM-10 according to the direction of data transfer.
 If set DM-10 to 1, the data will be transferred from PLC to HMI RW register,
 If set DM-10 to 3, the data will be transferred from HMI RW register to PLC.

# Back light control (write back)

When [Trigger address] is turned ON, HMI backlight will be turned ON/OFF and [Trigger address] will be turned OFF. Any touch on the screen will turn the backlight on.

## Back light control

When [Trigger address] is turned ON, HMI backlight will turn ON/OFF and the state of [Trigger address] will not be changed.

## Sound control

When the state of the designated [Trigger address] changes, the HMI will play the sound selected from the sound library. There is a further selection determines whether the sound is played after Off to ON, ON to OFF transition, or at both of the changes of state.

## Execute macro program

Select a pre-defined Macro from the drop-down list. When the state of the designated [Trigger address] changes, the selected Macro is executed. There is a further selection determines whether the Macro is executed after Off to ON, ON to OFF transition, or at both of the changes of state. If select [Always active when ON], the macro will be executed repeatedly. (The shortest time interval between runs is 0.5 second.)

#### Screen hardcopy

PLC Control				
Comment :				
Device : Local HMI				
Attribute	•			
Type : Screen hardcopy	•			
Active only when designated window opened				
E Active only when designated window opened				
Rotate image 90 degrees	5			
Trigger				
Device : Local HMI	-			
Address : LB 🗸 0				
Screen hardcopy				
Trigger mode : OFF->ON				
ingger inder torr you				
Source window				
Current base window Window no. from register	O Designate window no.			
Device : Local HMI	-			
Address : LW - 0	16-bit Unsigned			
Output to : USB disk 1				
Customized filename handling	Settings			
Crop window	Settings			
	OK Cancel			



When the state of the designated [Trigger address] changes, print the selected screen. If select [SD card] or [USB disk] as [Printer], a "hardcopy" folder will be generated in the selected external device for saving the printed screen in JPG format. The name of the JPG files starts from yyyymmdd\_0000.

To print the screen using a printer, go to System Parameter Settings » Model tab and set the printer.

To print the screen using a remote printer, go to System Parameter Settings » Printer/Backup Server tab and configure the parameters.

There are three options to specify the source window for hardcopy:

## **Current base window**

Print the base window currently opened.

## Window no. from register

Print the window designated by the value in a designated word address.

#### Designate window no.

Directly select a window to be printed.

#### **Customized File Handling**

This feature can be used to customize naming of the folders and the JPG files.

Setting	Description		
Folder name	The folder name can be an alphanumeric name, and certain half-width symbols are allowed:		
	!@#\$%^&()_+{}`-=;',.		
	The folder name can also be specified by a naming syntax		
	Dynamic format		
	The folder names can be set by a designated word		
	address, or by a naming syntax indicating the current		
	system time. The syntax can be specified by selecting		
	time buttons or entering the syntax in Format field. The		
	length limit is from 1 to 25.		
	Note: Up to 10 layers of folders can be created. The		
	exceeding layers will be ignored.		
File name	The way to specify a file name is similar to specifying a		
	folder name.		
	Note: If the file name already exists, the system will add		
	"_0001" to the file name as a serial number. The numbers		
	of the later files add up until "_99999". The files after		
	"_9999" will be ignored.		
	For example, if the three file names exist: "A.jpg",		
	"A_0001.jpg", "A_0003.jpg". When trigger screen		



hardcopy with the same file name, the coming files will be named in this order: "A\_0002.jpg", "A\_0004.jpg", "A\_0005.jpg", and so on.

# Crop window

With this option selected, taking a cropped screenshot is possible.

Crop Window	×
10. WINDOW_010	
	Event bit Caption Trigger time Message 10:07:29 Event triggered! 10:07:29 Event triggered! 10:07:29 Event triggered!
X: 429 Width: 476	•         Y:         165         •           •         Height:         442         •
	OK Cancel

# Note

- A background printing procedure is performed when the printed window is not the current base window.
- If the hard-copied window is a background window, its [Direct Window] and [Indirect Window] objects will not be printed.
- When using a dynamic format name, the system will use a "\_" sign as a substitute for invalid symbols.
- When using a dynamic format name, if screen hardcopy is triggered without specifying the format first, the system will save the file in the default directory, which is: hardcopy\yymmdd\_0000.JPG
- On cMT / cMT X models, a triggered bit address is reset to its original state automatically, whereas on eMT/iP/iE/mTV models, the state of a triggered bit address is retained.

Click the icon to download the demo project. Please confirm your internet connection before downloading the demo project.



# 13-212

# 13.28. Scheduler

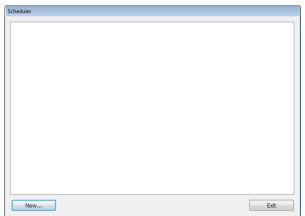
## 13.28.1. Overview

Scheduler object turns bits ON/OFF, or writes values to word registers at designated start times. It works on a weekly basis.

# 13.28.2. Configuration



Click [Object] » [Time-related] » [Scheduler] icon on the toolbar to open the Scheduler management dialog box, click [New] to open the Scheduler property setting dialog box.



The following two demonstrations explain the usage of Scheduler.

# Example 1

A motor is scheduled to power - ON at 9:00 and power – OFF at 18:00, Monday to Friday. We are using LB-100 to control the motor state. LB-100 will be set ON at 9:00 and OFF at 18:00.

- Click the Scheduler icon on the toolbar to open the Scheduler management dialog box, click [New].
- 2. In [General] tab, select [Bit ON] in [Action mode] and set [Action address] to LB-100.

General Time Se	t Prohibit		
Commen	t : Scheduler 1		
Action mode	Power-ON s	start/end action	
Action mode	Bit ON	Bit OFF	Word write
Action address			
PLC name :	ocal HMI		▼ Setting
Address :	P	▼ 100	

3. In [Time Set] tab, select [Constant].



Scheduler	×
General Time Set Prohibit	_
Constant     Address	
Start	
9 🔹 : 0 🔹 : 0 💌 (HH:MM:SS)	
Sun 🖉 Mon 📝 Tue 🖉 Wed 😨 Thu 📝 Fri 💽 Sat	
End       Image: Constraint of the second secon	
18 😴 : 0 😴 : 0 😴 (HH:MM:SS)	

- Enter [Start] time as 9:00:00 and select Monday to Friday. Do not select [Setting on individual day].
- 5. Enter [End] time as 18:00:00 and select [Enable termination action] check box.
- 6. Click [OK], a new Scheduler object will be created on the [Scheduler] list.

# Example 2

A thermal heater is scheduled to heat up to 90°C at 08:00 and cool down to 30°C at 17:00, Monday to Friday. LW-100 is used to store the set point value.

- Click the Scheduler icon on the toolbar to open the Scheduler management dialog box, click [New].
- 2. In [General] tab, select [Word write] in [Action mode] and set [Action address] to LW-100.
- 3. Select [Constant] for [Word write value settings] and enter 90 in [Start value].

cheduler					-
General	Time Set	Prohibit			
(	Comment :	Scheduler 2			
		Power-ON st	art/end action		
- Action n	lode	Bit ON	Bit OFF	Word write	
Action a	ddress				
PLC n	ame : Loci	al HMI		<ul> <li>Setting</li> </ul>	
Add	ress : LW		▼ 100	16-bit Unsigne	ed
-Word w	rite value s	ettings			
		Constant	Address		
St	art value :	90			

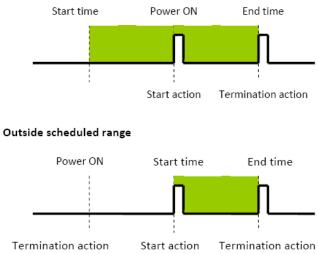
- 4. In [Time set] tab select [Constant].
- 5. Enter [Start] time as 8:00:00 and select Monday to Friday. Do not select [Setting on individual day].
- 6. Enter [End] time as 17:00:00 and select [Enable termination action] check box.
- 7. Return to [General] tab and enter 30 in [End value].
- 8. Click [OK], a new schedule object will be created on the [Scheduler] list.



## **General Tab**

eneral Time Set	Prohibit		
Comment	Scheduler 2		
	V Power-ON st	art/end action	
Action mode	Bit ON	Bit OFF	Word write
Action address			
PLC name : Lo	cal HMI		✓ Setting
Address : LV	V	▼ 100	16-bit Unsigned
Address : LV		▼ 100	16-bit Unsigned
			16-bit Unsigned
	e settings © Constant		16-bit Unsigned

Setting	Description		
Power ON	Execute the defined ac	tion when t	he HMI is powered ON.
start/end	Enabled		
action	When HMI is powered ON within the scheduled time range, the		
	start action will be performed automatically. When HMI is powered		
	ON outside the schedu	led time rai	nge, the termination action will
	be executed.		
	Inside scheduled range		
	Start time	Power ON	End time

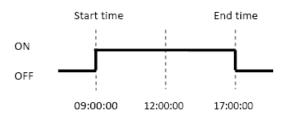


Disabled

When the HMI is powered ON at a time later than the start time, the start action will not be performed, but the termination action will be performed. When the termination action is not defined, the scheduled range is not recognized and no action is performed.



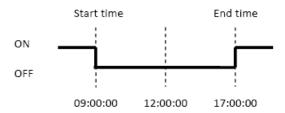
# Action modeChoose the action to do at the given time.Bit ONAt the start time, set the designated bit ON. At the end time, set<br/>the designated bit OFF.Example: Start time : 09:00:00 End time : 17:00:00



# Bit OFF

At the start time, set the designated bit OFF. At the end time, set the designated bit ON.

Example: Start time: 09:00:00 End time: 17:00:00



# Word write

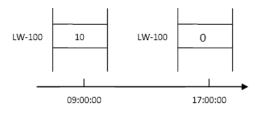
The [Write start value] entered here is transferred to the designated [Action address] word register at the start time. At end time, the [Write end value] entered here is written to the [Action address]. The valued can be entered manually or be set by using [Address] mode. In [Address] mode, the value in the specified address is the start value where the value in [Address + 1] is the end value.

Example: Device address: LW-100

Start time: 09:00:00 End time: 17:00:00

Write start value: 10 Write end value: 0

Use register: If control address is LW-n, then enter 10 in LW-n and enter 0 in LW-(n+1).





# Note

Only is an [End time] is set in the [Time set] tab will the [Write end value] box appear.

# Time Set

Specify start time and end time. [Constant] allows specifying a date or period and time. [Address] allows controlling the time by the designated address.

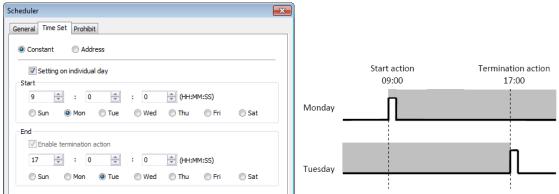
Scheduler	Scheduler
General Time Set Prohibit	General Time Set Prohibit
Constant     O Address	Constant   Address
Setting on individual day	Time setting address
Start	PLC name : Local HMI
9 😴 : 0 荣 : 0 🛬 (HH:MM:SS)	Address : LW 🔹 0
Sun V Mon V Tue V Wed V Thu V Fri Sat	Control : LW : 0
End	Status : [UW : 0 + 1
Enable termination action	Action mode : LW : 0 + 2
	Start time (day) : LW : 0 + 3
	Start time (hour): LW:0+4
	Start time (minute): LW: 0 + 5
	Start time (second) : LW : 0 + 6
	End time (day) : LW : 0 + 7
	End time (hour) : LW : 0 + 8
	End time (minute) : LW : 0 + 9
	End time (second) : LW : 0 + 10
OK Cancel Hel	elp OK Cancel Help

# Constant

# Setting on individual day

If [Setting on individual day] is selected

The same start time and end time can be assigned to different days of the week.





# Note

- Start and end time must be entered.
- Start and end time must be on a different time, or same time but different day.

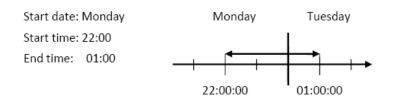
# If [Setting on individual day] is not selected

Start time and end time entered must start and end within 24-hours.

Scheduler			
© Constant © Address		o	
Setting on individual day		Start action 09:00	Termination action 17:00
Start         9         2         0         2         0         2         (HH:MM:SS)           Sun         Ø Mon         Ø Tue         Wed         Thu         Fri         Sat	Monday .	ſ	n
End Enable termination action 17 - 0 - (HH:MM:SS)	Tuesday _	Π	n
17 🔹 : 0 🛓 : 0 🖕 (HH:MM:SS)	Tuesday		

# Note

- Start time and end time must be on a different time, different day.
- If an end time is earlier than a start time, the end action will occur in the next day.



Address

The scheduler object retrieves the start/end time and day of week information from word registers, enabling all parameters to be set and changed under PLC or user control. Designated as the top address in a block of 11 sequential registers which are used to store time

Designated as the top address in a block of 11 sequential registers which are used to store time setting data.

The format of the 11 word registers should normally be 16-unsigned integer. If a 32-bit word address is chosen, only bits 0-15 are effective, and bits 16-31 should be written as zero. The following describes each register.

# Control (Time setting address + 0)

When [Control] bit is ON, the HMI will read and update [Action mode], [Start time], and [End time] values.

15	0	Bit
Reserved (0 fixed)	0	

Bit 0: no action 1: read times/action mode



# Note

HMI will not regularly read the data from [Action mode] (address + 2) to [End time] (address + 10). Please turn [Control] ON when the settings are changed.

# Status (Time setting address + 1)

When the read operation is completed, Bit00 of this register turns ON. If time data read is out of range or incorrect in any way Bit01 turns ON.

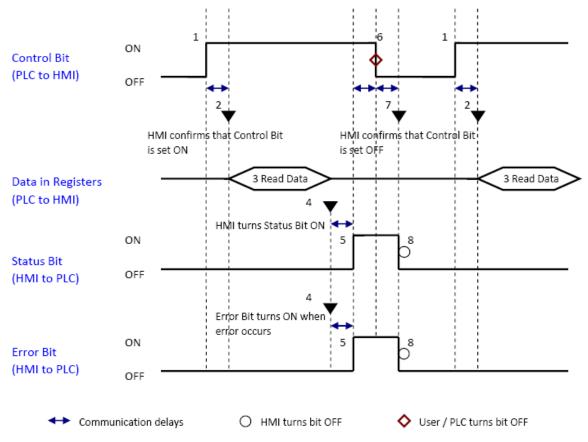
15	02	01	00	Bit
Reserved (0 fixed)		0	0	

Bit 00: Status bit: Read operation completed. (0: reading or reading not started. 1: reading completed.)

Bit 01: Error bit: Start or end time format incorrect. (0: corrected 1: error)

# Note

After the scheduler reads the data and the status is turned ON (The value in [Address + 1] = 01), the control bit must be turned OFF (address = 0). The status bit and error bit will be turned OFF  $(1 \rightarrow 0)$  at the same time.





## Action mode (Time setting address + 2)

Enable/disable [Enable termination action] and [Setting on individual day]. Whatever the [Enable termination action] bit is, all the time data, from [Control] to [End time (second)], will be read.



Bit 00 Enable termination action (0: Disabled 1: Enabled) Bit 01 Setting on individual day (0: Disabled 1: Enabled)



- If [Enable termination action] is OFF, all 11 registers are still read but end time is ignored.
- If [Setting on individual day] is ON, make sure that all start end times are entered. If more than one start / end day bit is ON, and error will occur.

Start/End Day (Start Day: Time setting address + 3, End Day: Time setting address + 7)

Designates which day of week is used to trigger the start or end action.

15		07	06	05	04	03	02	01	00	Bit
Reserved (0	fixed)		Sat	Fri	Thu	Wed	Tue	Mon	Sun	
Bit 00 Sunday	(0: not used 1: used)									
Bit 01 Monday	(0: not used 1: used)									
Bit 02 Tuesday	(0: not used 1: used)									
Bit 03 Wednesda	ay (0: not used 1: used	)								
Bit 04 Thursday	(0: not used 1: used)									
Bit 05 Friday	(0: not used 1: used)									
Bit 06 Saturday	(0: not used 1: used)									

Start/End Time (Start Time: Time setting address + 4 to + 6, End Time: Time setting address + 8 to + 10)

Hour: 0 – 23 Minute: 0 – 59 Second: 0 - 59

Values outside these ranges will cause error.

# Note

- 16-bit unsigned integer format must be used; BCD format is not supported here.
- In [Address] mode, [Control] bit should be set after HMI reboots to update scheduler time.
- When using RW address, [Control] bit should be set after HMI reboots to update scheduler time. Placing a Set Bit object with [Set ON when window opens] selected in the common window is recommended, this can retain last settings after HMI reboots.



#### Objects

End time depends on [Action mode] (address + 2). [Enable termination action] (Bit 00) and [Setting individual day] (Bit 01) are related:

Setting individual day	Enabled	Disabled	
Enable termination action	Enabled	Enabled	Disabled

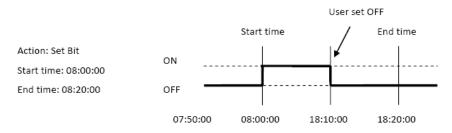
### **Prohibit tab**

Scheduler	x
General Time Set Prohibit	
Prohibit	
PLC name : Local HMI	

Before the scheduled action is performed, the HMI will read the specified bit state. If it is ON, the scheduled start/end action will be skipped. Otherwise, it will be performed normally.

# Note

- The maximum number of Scheduler objects in a project is 64.
- A time schedule applies one action only when the start time is reached.



- [Write start/end value] and [Prohibit] bit is read only once before start action. After that, even to change the state of [Prohibit] bit or [Write start/end value], the end action and the value written will not be affected. Also, to read data of [Write start/end value] and [Prohibit] bit, there is a delay of start action due to the communication.
- Each time RTC data is changed, scheduler list entries that possess both start and end times will be checked for in-range or out-range conditions. For in-range, the start action will occur. If the end action is not set, the new range is not recognized, the action will not occur.
- If several Scheduler objects are set to the same start time or end time, the action is performed in ascending order of the schedule number.



#### Objects

- In [Time Set] » [Address] mode, the system will read [Control] word regularly. The length of the period depends on the system.
- In [Time Set] » [Address] mode, when start time and end time is out- range, error occurs in the set action time. (Note: BCD is not an acceptable format)
- In [Time Set] » [Address] mode, the action will not start up until the first time the time data is successfully updated.

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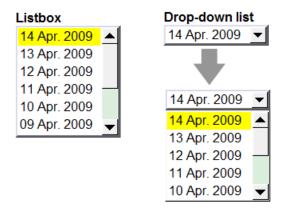


# 13.29. Option List

#### 13.29.1. Overview

Option List object displays a list of items that the user can view and select. Once the user selects an item, the corresponding data will be written to a word register.

There are two forms of this object – [List box] and [Drop-down list]. The [List box] lists all items and highlights the selected one. The [Drop-down list] normally displays only the selected item. Once the object is pressed, the system will display a list (which is similar to list box) as shown in the following figure.



#### 13.29.2. Configuration



Click [Object] » [Option List] icon on the toolbar to open an Option List object property dialog box. Set up the properties, press OK button, and a new Option List object will be created.



# **Option List Tab**

New Option List	Option List's Properties
Option list Source data Mapping Security Shape Label	Option list Source data Mapping Security Label Profile
Comment :	Comment :
Attribute	Attribute
Mode : Drop-down List 🔻 Direction : Down 💌	Mode : Drop-down List   Direction : Auto
Background color :	Background color : Style : Standard
Selection color :	Selection color : Fixed size
	Row height : Small
Monitor	Monitor
Device : Local HMI	Device : Local HMI
Address : LW • 0 16-bit Unsigned	Address : LW 🗸 0 16-bit Unsigned
Send notification after writing successfully	Send notification after writing successfully
Enable	Enable
OK Cancel Help	OK Cancel Help

#### cMT / cMT X Series

Description

#### Attribute

Setting

Mode: The list style, either [List box] or [Drop-down list]. Background color: Set the background color.

Selection color: Set the background color for the selected item. Direction: With the [Auto] option selected, the Option List expands based on its vertical alignment with the window's centerline as the reference. If the Option List is positioned above the centerline, its menu content expands downwards; conversely, if it's positioned below the centerline, the menu content expands upwards.

Expands downwards above the	centerline.
	Expands upwards below the centerline.

With the [Down] option selected, the Option List will consistently expand downwards. Conversely, with the [Up] option selected, the Option List will consistently expand upwards.

Please note that if the object is positioned near the window's edge



	and the option to expand towards the edge is selected, the menu
	content display will be compressed.
	Style: This option is available only when the selected mode is
	[Drop-down list]. Available styles are: [Standard] and [Classic]. The
	appearance of the objects will be shown in cMT / cMT X Style when
	[Standard] is selected, and shown in iE/eMT/XE style when [Classic]
	is selected. When the project is converted from iE/eMT/XE to cMT /
	cMT X, the default style will be [Classic].
	Font size: When [Same size as label] is selected, the font size set in
	Label tab will be used for the drop-down list. When [Fixed size] is
	selected, the system default font size will be used for the
	drop-down list.
	Row height: Set the row height for the drop-down list.
Monitor	The corresponding value of the selected item will be written to
address	[Monitor address].
	Write when button is released
	If this check box is selected, the selected item value will be written
	to [Monitor address] after the button is released.
Send	
notification	Set On/Off the designated bit address after successfully writing
after writing	data to PLC.
successfully	



The [write when button is released] option is not available on cMT / cMT X Series models.

#### 13.29.2.1. Source of item data

#### Predefine

The list is manually defined in [Mapping] tab.

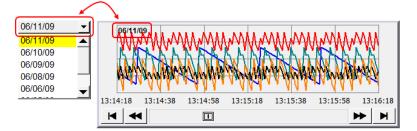
The number of items can be adjusted by [Item no.], and each item represents one state. Each item has a corresponding value which will be written to [Monitor address].

#### • Dates of historical data

New Option List	×
Option list Source data Mapping Security Shape	Label
Source of item data : Dates of history data	•
Type : Event (Alarm) Log 🔹	Date : MM/DD/YY
Enable [delete history files] function	



Option List object can be used with historical data display objects, such as Trend Display object, History Data Display object and Event Display object to control which history file should be shown. The figure below is an example of Option List used with Trend Display.



Setting	Description
Туре	Two options are available: [Event (Alarm) log] and [Data sampling].
Date	Set the date format. YYYY means a four digits year (EX: 2012), YY
	means a two digits year (EX: 12), MM means month and DD means
	day.
Data	Select which Data Sampling object is displayed when [Type] is [Data
Sampling	Sampling], and it should be the same as the [Data sampling object
	index] configured in [Trend Display] or [History Data Display].
Enable	
[delete	If selected, a control address can be set. Writing "1" to this address
history data]	will delete the history data of the specified date.
function	

- In [Dates of historical data] mode, since the system automatically reads the historical data and finds the date information, it is not necessary to configure in the [Mapping] tab.
- The error message displayed in Option List can be modified in [Mapping] tab.

Item	Value	Item data	
0 (error)		Error!!	

## Item address

The list will be read from the given [Item address] and controlled by [Control address]. The following options will be available:



#### Objects

	Option List Object's Properties
	Option list Source data Mapping Security Label Profile
	Source of item data : Item address Control Device : Local HMI Address : LW
Setting	Description
Control	[Address]: If the value at this address is changed to 1, the option
	list would be replaced by items defined at [Item address]. After
	updating, the value will be restored to 0.
	[Address + 1]: Define the number of items in [Item address].

Assign the item address UNICODE The item will use UNICODE characters, such as Chinese characters. The length of each item Define the number of letters for each item, the unit is Word.

# Note

Item

- The UNICODE characters used here should be used by Text object, so that EasyBuilder Pro will compile the needed fonts and download these fonts to HMI, then the UNICODE letters can be correctly displayed.
- [The number of items] multiplied by [The Length of each item] must be less than 4096 words.
- In [Item address] mode, the system automatically disables the settings in [Mapping] tab.
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# User account

If [Enhanced Security] mode is enabled, [User account] would appear in the [Source of item data] and it lists the names of users.



#### Objects

ption list	Source data	Mapping	Security	Label	Profile	
	Source of	f item data :	User acco	ount		•
User acco	ount		50			
Sort						
🗖 As	cending			📄 Desc	ending	
Display	<i>y</i>					
Pri	vilege			Secr	et user	

Description
Select the sorting method from [Ascending] of [Descending].
If [Privilege] is selected, the privileges for each user will be
displayed in option list.
If [Secret user] is selected, even though it is defined to be hidden in
[System parameter settings] » [Security] » [Enhanced Security], the
users will still be displayed in [Option List].

# Note

- The address that controls user index is [Control Address +2 (LW-n+2)] which is set in [System Parameters] » [Security] » [Enhanced Security].
- The [Privilege] option is not available on cMT / cMT X Series models.

# Mapping Tab

This table displays all available states/items, their item data and values. To change the number of available items, please go to [Option list tab] » [Attribute] » [Item no.].



tion list	Source data	Mapping	Security	Label	Shape		
Item	Value	(	I	tem data			
0	0						
1	1					6	<u> </u>
2	2						
3	3						
4	4						
5 (err	or)						
	Import item	data from p	ecipe recor	d			Set defaul
Error no	Import item tification Enable	data from n	ecipe recor	d			Set defaul
Error no	tification	data from n	scipe recor	a			Set defaul

Setting	Description
ltem	The system lists all available items. Each item represents a state that will be displayed in the list. This field is read-only.
Value	<ul> <li>Here user can assign value for each item, basing on the following two criteria:</li> <li>For reading: If the value in [Monitor address] is changed, the object selects the first-matched item. If no item is matched, the status goes to error state and signals the notification bit register (if requested).</li> <li>For writing: The system writes this value to [Monitor address] when user selects an item.</li> </ul>
Item data	Text displayed for each item. The Option List object displays the text of all items in the list for users to review and select.
Import item	This feature is enabled when select [Recipe-Selection] as [Monitor
data from	address]. Click [Import item data from recipe record] to open the
recipe record	[Records of Recipe Database] setting dialog box. Select [Item data source], the data belonging to the selected column will all be imported to Option List object.



	Select a recipe item
	Item data source : NewItem
	Ok Cancel
	Before importing, the number of items in Option List changes
	according to the number of items defined in Records of Recipe
	Database.
	After importing, modifying Records of Recipe Database will not
	change the content of Option List.
Error state	On error state, the list box removes the highlight to represent no item is selected and the drop-down list displays the data of error
	state. Only the drop-down list uses error state, list box is not able to use error state.
	For example, item number 8 is the error state when specifying 8 in
	[Item no.]. (The first item number is 0)
Set default	Reset all values or states to default. That is, set 0 for item 0, 1 for
	item 1, and so on.
Error	The system will set ON/OFF to the specified bit register when error
notification	is detected. The signal of the bit register could be used to trigger a
	procedure for correcting the error by using objects such as Event
	Log, Alarm Bar, or pop-up window.

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# 13.30. Timer

#### 13.30.1. Overview

Timer object can be used to count the time in a specified mode. Timer object uses the following 6 variables:

Туре	Description
Bit	The main switch of Timer.
Bit	Turns ON when the Timer begins
	counting time.
Bit	Activated when the Timer finishes
	counting time.
Word	Presets a time before the Timer
	begins counting time.
Word	Displays the elapsed time.
Bit	Resets the elapsed time (ET) to 0.
	Bit Bit Bit Word Word

Timer (Per-page): The Timer can be placed in a project window and be activated only in that window.

Timer (Global): Regardless of which window is displayed on HMI, the Timer starts counting time when the Input bit is in ON state.

### 13.30.2. Configuration



Click [Object] » [Time-related] » [Timer] icon on the toolbar to open the property dialog box as shown in the following figure.



13-231	
--------	--

Timer	8
Timer	
Description :	
	Input bit (IN)
Mode : On delay 🗸	PLC name : Local HMI
ondeay	
Time base : 0.1 second(s)	Address : LB 🗸 0
	Output bit (Q)
	PLC name : Local HMI    Setting
IN	
	Address : LB 🗾 👻 1
TI PT PT	
	Measurement bit (TI)
	PLC name : Local HMI
Q	Address : LB 👻 2
Elapsed time (ET)	Preset time (PT)
🔽 Enable	Constant preset time
PLC name : Local HMI	PLC name : Local HMI
Address : LW 🗸 0 16-bit Unsigned	Address : LW 🗾 10 16-bit Unsigned
	OK Cancel Help
	UK Cancel Help

# Note

- Constant preset time] is only available for cMT / cMT X series.
- In a cMT / cMT X project, after the [Timer (Global)] icon is clicked, a Timer management window opens in which timers can be added by clicking [New].

: Mo	de • On delav	IN · [Local HMI · LE	3-0], TI : [Local HMI :	B-21 O · [Local HM	IT • I B-1]	
		Dulata	Cattings			<b>F</b> -1
New.		Delete	Settings			Exit



### On delay

Mode	Register			
	Input bit (IN): The main switch of Timer.			
IN	Measurement bit (TI): Turns ON when the Timer			
	begins counting time.			
	Output bit (Q): Turns ON when the Timer finishes			
Q	counting time.			
1 2 3 4 5	Preset time (PT): Presets a time before the Timer			
	begins counting time.			
	Elapsed time (ET): Displays the elapsed time.			
Description				
Period 1: When the IN turns ON, TI turns	s ON and the ET starts counting. The Q remains OFF.			
Period 2: When the ET equals to the PT, the TI turns OFF and the Q turns ON.				

Period 3: When the IN turns OFF, the Q turns OFF and the ET is reset to 0.

**Period 4**: When the IN turns ON, the TI turns ON and the ET starts counting. The Q remains OFF.

**Period 5**: Turns IN OFF before the ET reaches the PT, the TI turns OFF, and the ET is reset to 0. Since the ET doesn't reach the PT, the Q remains OFF.

# • Off delay

Mode	Register
	Input bit (IN): The main switch of Timer.
IN	Measurement bit (TI): Turns ON when the Timer
	begins counting time.
	Output bit (Q): Turns OFF when the Timer finishes
	counting time.
12 34 56	Preset time (PT): Presets a time before the Timer
	begins counting time.
	Elapsed time (ET): Displays the elapsed time.
	Description

**Period 1**: When the IN turns ON, the TI remains OFF and the Q turns ON, the ET is reset to 0. **Period 2**: When the IN turns OFF, the TI turns ON and the Q remains ON, the ET starts counting.

Period 3: When the ET equals to the PT, the Q and TI turn OFF.

**Period 4**: When the IN turns ON, the TI remains OFF and the Q turns ON, the ET is reset to 0. **Period 5**: When the IN turns OFF, the TI turns ON and the Q remains ON, the ET starts counting.

**Period 6**: Turns the IN to ON before the ET reaches the PT, the TI turns OFF, the Q remains ON, and the ET is reset to 0,.



Dulco

Mode	Register
	Input bit (IN): The main switch of Timer.
IN	Measurement bit (TI): Turns ON when the Timer
	begins counting time.
	Output bit (Q): Turns ON when the Timer begins
Q	counting time and turns OFF when the Timer
1 2 3 4	finishes counting time.
	Preset time (PT): Presets a time before the Timer
	begins counting time.
	Elapsed time (ET): Displays the elapsed time.
	Description

**Period 1**: When the IN turns ON, the TI and Q turn ON simultaneously, and the ET starts counting.

**Period 2**: When the ET equals to PT, the TI and Q turn OFF simultaneously. Since IN is turned OFF when counting time, the ET is reset to 0.

**Period 3**: When the IN turns ON, the TI and Q turn ON simultaneously, and the ET starts counting.

**Period 4**: When the ET equals the PT, the TI and Q turn OFF simultaneously.

# Accumulated ON delay

Mode	Register
	Input bit (IN): The main switch of Timer.
	Measurement bit (TI): Turns ON when the Timer
	begins counting time.
R	Output bit (Q): Turns ON when the Timer finishes
Q	counting time.
1 2 3 4 5 6 7	Preset time (PT): Presets a time before the Timer
	begins counting time.
	Elapsed time (ET): Displays the elapsed time.
	Reset bit (R): Resets ET to 0
	Description

**Period 1**: When the IN turns ON, the TI turns ON and the elapsed time ET starts counting, the Q remains OFF.

**Period 2**: When the IN turns OFF, if the ET doesn't reach the PT, the TI turns OFF, and at the same time the Q remains OFF. The ET is in the retentive state.

**Period 3**: When the IN turns ON, the TI turns ON. The timer measurement starts again and the ET starts counting from the kept value. The Q remains OFF.

Period 4: When the ET reaches the PT, the TI turns OFF and the Q turns ON.

**Period 5**: When the IN turns OFF, the Q turns OFF. Turning ON the reset bit R will reset the ET to 0, and then the reset bit turns OFF.



# Accumulated OFF delay

Mode	Register	
	Input bit (IN): The main switch of Timer.	
	Measurement bit (TI): Turns ON when the Timer	
	begins counting time.	
R	Output bit (Q): Turns OFF when the Timer finishes	
Q	counting time.	
1 2 3 4 5 6 7 8 9 10	Preset time (PT): Presets a time before the Timer	
	begins counting.	
	Elapsed time (ET): Displays the elapsed time.	
	Reset bit (R): Resets ET to 0	
Description		

Period 1: When the IN turns ON, the TI remains OFF and the Q turns ON.

**Period 2**: When the IN turns OFF, the TI turns ON and the Q remains ON. The ET starts counting.

**Period 3**: When the IN turns ON, the TI and Q remain ON, and the ET is in the retentive state. **Period 4**: When the IN turns OFF again, the ET starts counting from the kept value.

**Period 5**: When the ET equals to the PT, the TI and Q turn OFF simultaneously. Turning ON the reset bit R will reset the ET to 0, and then the reset bit turns OFF.

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# 13.31. Video In

#### 13.31.1. Overview

HMI provides the video In feature that enables users to monitor sites with cameras. The images/video can also be stored in external devices for further analysis. Sampling applications include site monitoring, or vehicle/building surveillance...etc.

The following tables show the video input and image capturing behaviors for different models.

	Model	iP	iE	eMT	mTV	XE	cMT-SVR	cMT-FHD cMT-FHDX cMT-HDM	Other cMT/cMTX
	IP Camera	N/A	N/A	Y	N/A	Y	N/A	Y	Y
Supported	USB Camera	N/A	N/A	Y	Y	Y	N/A	Y	Y
device type	Video Input	N/A	N/A	eMT3121A eMT3151A	N/A	N/A	N/A	N/A	N/A

Model		Non-cMT Series – Image Capture	cMT / cMT X Series – Image Capture/	
			Video Recording	
	IP Camera		Image Capture: one image is captured	
			at the trigger moment.	
Image USB Camera Capturing	One image is captured at the trigger moment.	Video Recording: video is recorded, for		
		a pre-determined duration, around the		
		trigger moment.		
	Video Input	Several images are captured around the trigger moment.		

## 13.31.2. Configuration



Click the Video In icon on the toolbar to open the property dialog box. Set up the properties, press OK button, and a new Video In object will be created.



×

(;)

#### **General Tab**

# eMT, iE, XE, mTV Series

# Video Input

New Video In (USB Camera) Object	New Video In (USB Camera) Object
General	General
Comment:	Comment :
🔘 USB Camera 🛛 🔘 IP Camera 💿 Video Input	⊚ USB Camera ⊘ IP Camera ⊘ Video Input 🚺 * [USB Camera] can only be used in landscape (horizontal) mode.
Encode format : NTSC -	*Set LB-12356 to enable web streaming, and then use web browser to view live video from USB camera. Note that [Video input (USB camera)] cannot be used at the same time.
Capture address	Capture address
▼ Use capture function	Use capture function
Device : Local HMI	Device : Local HMI 🗸 🏹
Address : LB 🗸 0	Address : LB 🗸 0
Record time Before : 1 🔶 seconds After : 1 🔶 seconds Control address	Control address
V Use control function	Use control function
↓ Display adjustment	
Device : Local HMI	Device : Local HMI
Address : LW 🗸 0 16-bit Unsigned	Address : LW 🔹 0 16-bit Unsigned
Start/stop input : LW-0	Start/stop input : LW-0 Pause : LW-1
Contrast adjustment : L W-2	
Bright adjustment : LW-3	
	* [USB Camera] with [Pause Control] requires OS version 20170214 or later.
OK Cancel Help	OK Cancel Help

#### **IP** Camera

neral			
Comme	ent :		
	🔘 USB Camer	a 💿 IP Camera	🔘 Video Input
RTSF	' : <i>II</i>		
	🔲 Streaming o	ver TCP	
apture addres	8		
🔽 Use caj	pture function		
Device :	Local HMI		- Ca G
Address :	LB	• 0	
sorage meu.	wn © USB disk		
	🔘 USB disk		SD card
ontrol addres	O USB disk		SD card
ontrol addres V & co:	🔘 USB disk		SD card
🔽 Dynam	© USB disk s ntrol function nic RTSP URL		SD card
ontrol addres V Use co: V Dynam	© USB disk s ntrol function nic RTSP URL Local HMI	• 0	SD card
ontrol address Use co: Dynam Device : Address :	© USB disk s atrol function aic RTSP URL Local HMI LW		
ontrol address Use co: Dynam Device : Address :	© USB disk s ntrol function nic RTSP URL LOcal HMI LW art/stop input : LW-0		
ontrol address Use co: Dynam Device : Address :	© USB disk s atrol function aic RTSP URL Local HMI LW		
ontrol address Use co: Dynam Device : Address : St	© USB disk s theol function is RTSP URL Local HMI LW ant/stop input: LW-0 Pause : LW-1 RTSP : LW-2		The state of the s
ontrol address Use co: Downer: Address : St URL will be	© USB disk s theol function is RTSP URL Local HMI LW ant/stop input: LW-0 Pause : LW-1 RTSP : LW-2	; (64 words) address after object restarts	The state of the s



# **USB** Camera

# cMT, cMT X Series

# USB Camera

New Video In (USB Camera) Object	New Video In (USB Camera) Object
General	General
Comment :	Comment :
💿 USE Camera 💿 IP Camera 🚺	🔘 USB Camera 💿 IP Camera
* [USB Camera] can only be used in landscape (horizontal) mode. * Set LB-12356 to enable web streaming, and then use web howser to view live video from USB camera. Note that [Video input (USB camera)] cannot be used at the same time.	RTSP://
Capture address	Capture address
Use capture function	Use capture function
Device : Local HMI 🗸 🥥	Device : Local HMI 🗸 🥥 🗔
Address : LB 🗸 0	Address : LB 🗸 0
Record format	Record format
Ø Video O Image	🖲 Video 💿 Image
Storage medium © USB disk 1	Storage medium © USB disk 1 © USB disk 2
Record time	Record time
Before : 60 🜩 seconds After : 60 🜩 seconds	Before : 60 🚖 seconds After : 60 🖨 seconds
Control address	Control address
✓ Use control function ✓ Use pause control	<ul> <li>✓ Use control function</li> <li>✓ Use pause control</li> <li>✓ Dynamic RISP URL</li> </ul>
Device : Local HMI 🗸 😱	Device : Local HMI 🗸 😱
Address : LW 🗸 0 16-bit Unsigned	Address : LW 🔹 0 16-bit Unsigned
Start/stop input : L W-0 Pause : L W-1	Start/stop input : LW-0 Panss : LW-1
	RTSP: LW-2 (64 words)
	* URL will be reloaded from RTSP address after object restarts.
OK Cancel Help	OK Cancel Help

**IP** Camera

Setting	Description
Input channel	Select the Video Input channel from channel 1 or channel 2.
	(Analog video systems)
Encode format	Select the format from NTSC or PAL. (Analog video systems)
RTSP	Enter the IP camera's RTSP address.
	When account and password are required for accessing the IP
	Camera, an RTSP address with credentials embedded can be used.
	For example:
	admin:admin@192.168.1.119:554/cam/realmonitor?channel=1&subtype=0
	Streaming over TCP
	Select this check box to stream video over TCP.
Capture	Select [Use capture function] check box and configure the settings.
address	A non-cMT model can capture images while a cMT / cMT X model
	not only can capture images but also can record an avi video from n
	seconds before to n seconds after the triggering time of the
	designated address.
	Capture address
	Designate the address that triggers image capturing.



#### Storage medium

Designate the storage device.

Information about storage type and input type:	
--	--

Input Type	Storage Type
Analog Input	SD card or USB disk.
USB Camera	SD card only. Exception: cMT3092X
IP Camera	SD card or USB disk.

#### Record time (cMT / cMT X Series)

The camera records the video from and to the specified recording time (n seconds before and after the triggering time of the designated address). The video is then saved to the specified storage device. Please note that after the video is recorded, the HMI may take a while to compress the video. The time needed for compressing the video may differ between models depending on CPU performance. A red dot appears in the object indicating that recording or compressing is in progress. The HMI will not record the next video during compression.

#### **Record time (eMT Series)**

System	Method					
Analog video	<ul> <li>The longest period can be set from 10</li> </ul>					
system	seconds before triggering [Capture address]					
	to 10 seconds after triggering.					
	<ul> <li>The time interval of image capturing is once every second.</li> <li>The captured .jpg file will be named in the</li> </ul>					
	following format:					
	Before or after [Capture address] is					
	triggered: YYYYMMDDhhmmss.jpg					
	The moment that [Capture address] is					
	triggered: YYYYMMDDhhmmss@.jpg					
	For example, set [Record time] "Before" and					
	"After" to "5" seconds. When the state of [Capture					
	address] changes from OFF to ON, the system will					
	start capturing one image per second, from 5					
	seconds before the triggering time to 5 seconds					
	after the triggering time, which is 11 images in					

Set a period of time to capture the images.

	total including the one captured at the triggering			
	moment.			
USB	Only the image of the triggering moment is			
Camera	captured. The name format:			
	YYYYMMDDhhmmss.png.			
IP Camera	Only the image of the triggering moment is			
	captured. The naming format:			
	YYYYMMDDhhmmss.png.			

Click the icon to download the demo project. Please confirm your internet connection before downloading the demo project.

Control address If enabled, enter certain value to the control address and the following addresses can control Video Input object. For example, if the designated control address is LW-n (n is any address), enter certain value to the designated addresses will execute commands as the following table.

Analog Video Systems
----------------------

Address	Value	Command				
LW-n	0	Stop displaying image				
	1	Open channel 1 and display the				
		image on HMI				
	2	Open channel 2 and display the				
		image on HMI				
	3	Open channel 1 but don't display the				
		image on HMI (Capture function				
		operable)				
	4	Open channel 2 but don't display the				
		image on HMI (Capture function				
		operable)				
LW-n+1	1	Pause / resume the video				
LW-n+2	1~100	Adjust the contrast ratio				
		(Analog video systems only)				
LW-n+3	1~100	Adjust the brightness				
		(Analog video systems only)				

#### USB Camera / IP Camera

Address	Value	Command
LW-n	0	Stop displaying image
	1	Start displaying image
LW-n+1	1	Pause / resume the video
LW-n+2	string	RTSP address for IP camera (64



words)

- After changing the value in [Control address (LW-n)], the system will keep the new value.
- After changing the value in [Control address + 1 (LW-n+1)], the system will execute the command and then reset the value to 0.
- If [Use control function] check box is not selected, the system will play the image of the selected channel.
- If [Display adjustment] check box is selected, the contrast ratio and brightness can be adjusted. (Analog video systems)

# Note

Only one channel can be opened at a time, regardless of the type of camera used.

# About analog video systems:

- Real-time images can still be captured when Video In is paused.
- Recommended analog video systems and resolutions:

	1:1	50%
NTSC	720 x 480	360 x 240
PAL	720 x 576	360 x 288

Lick the icon to download the demo project. Please confirm your internet connection

before downloading the demo project.

## About cMT / cMT X Series Video Recording

- Compressing the recorded video may take a period of time depending on the video length.
- When HMI is compressing a video, it will not record new video even if the designated address is triggered.

## About USB Camera:

- USB camera cannot be viewed on cMT Viewer.
- When the USB Camera is disconnected during video playing, video will not resume when camera is connected again. If [Control address] is used in the project, please use the control address to stop and restart video. If [Control address] is not used, switch to another screen and then return, or restart HMI in order to resume the video.
- The maximum size of Video In object of eMT3070A is 340\*240, as for eMT3105P, eMT3120A, eMT3150A, XE, and mTV Series, the maximum size of Video in object is 640\*480.
- When using a USB Camera, the display resolution of the run-time video is determined by the resolution supported by the USB Camera that is closest to the size of the object. The resolution supported by the USB Camera may not be identical to the size of the object. Therefore, it is good practice to adjust the size of object according to the actual resolution



of the video.

- When using a USB Camera, the right and bottom edge of the Video In object will keep a distance of 50 pixels away from the window edge to prevent the run-time video from exceeding the window.
- When using a USB Camera, the background color of Video In object is black. If the resolution of the run-time video is smaller than the object, the empty area is colored black. Therefore, it is good practice to adjust the size of object according to the actual resolution of the video. The tested and available USB Cameras are: Logitech C170, Logitech C310, Logitech C910, LifeCam VX-2000.

Click the icon to watch the demonstration film. Please confirm your internet connection before playing the film.

Click the icon to download the demo project. Please confirm your internet connection before downloading the demo project.

### About IP Camera:

- Viewing IP camera on cMT Viewer may be possible on a Windows PC, provided that appropriate third-party codecs are used.
- As compatibility may vary, testing with an actual device is recommended.
- A RTSP address is required for using IP camera. The RTSP address can be found in the configuration tool of the IP camera, or possibly from an online repository.
- When the IP Camera is disconnected during video streaming, video will not resume when the camera is connected again. If [Control address] is used in the project, please use the control address to stop and restart video. If [Control address] is not used, switch to another screen and then return, or restart HMI in order to resume the video.
- When using an IP camera, the display resolution of the run-time video will be same as that of the object drawn in the EasyBuilder Pro project. If the actual video resolution is different from the size of the object, the resolution will be adjusted to fit the object, which may cause distortion of video image. Therefore, it is good practice to adjust the size of object according to the actual resolution of the video.
- Use the IP cameras that comply with ONVIF standard, and use RTSP for video streaming.
- To ensure the quality and smoothness of the video, and not to affect HMI's general performance, adjust the settings of IP camera when video lags or high CPU loading is observed. As the project complexity and hardware specs vary from one case to another, please fine-tune the video parameters accordingly.
- Recommended video specification:

Resolution	960x544 (max.)
Format	H.264, MJPEG
Refresh Rate	15 fps
Transmission Speed	800kbps (max.)

Click the icon to download the demo project. Please confirm your internet connection before downloading the demo project.

Click the icon to watch the demonstration film. Please confirm your internet connection before playing the film.



# 13.32. System Message

#### 13.32.1. Overview

If objects use [Display confirmation request] or [local HMI supports monitor function only] is turned on/off, the corresponding messages configured here will be displayed in pop-up message boxes.

## 13.32.2. Configuration



Click the System Message icon on the toolbar to open the setting dialog box.

#### System Message

System Message							
Confirmation require	ed						
Dialog size :	Small						
			]				
Message :	Please confirm the o	peration					
		🗌 U	se label library				
ок:	01/		]				
UK :	UK						
		L U	se label library				
Cancel :	Concol						
Cancel :	Cancer		en leh el libere i				
			se label library				
Font :	Arial		•				
Deny write-commar		140.15					
Message :	The system is being	prohibited from wr	ting device registers!				
Font :	Arial		•				
		U 🗌 U	se label library				
Allow write-comma	nd						
Message :	The system is now a	allowed to write dev	vice registers.				
Font :	Arial		•				
		🗆 U	se label library				
		ОК	Cancel				

Setting	Description
Dialog Size	Select the size for pop-up window and texts.
Confirmation	If an object uses [Display confirmation request], this message
required	would pop up when the object is used. [Message] shown on



confirmation dialog box, and the text label of the 2 buttor				
	and [Cancel], can be set. Please use the same font for the labels of			
	[Message], [OK] and [Cancel]. Additionally, only when selecting			
	[Label Library] for [Message], the use of Label Library for [OK] and			
	[Cancel] buttons can be enabled.			
Deny	Displays when system tag LB-9196 (local HMI supports monitor			
write-command	function only) is turned ON.			
Allow	Displays when system tag LB-9196 (local HMI supports monitor			
write-command	function only) is turned OFF.			



# 13.33. Recipe View

#### 13.33.1. Overview

Recipe View object can be used to display a specific recipe. All items and values of the recipe can be viewed by using this object.

### 13.33.2. Configuration



Click the Recipe View icon on the toolbar to open a Recipe View object property dialog box. Set up the properties, press OK button, and a new Recipe View object will be created.

#### **General Tab**

Ne

### cMT / cMT X Series

Security Shape Font	General Security Shape Font Profile
Comment :	Comment :
Filter enabled	Refresh data automatically
Allow in-cell editing	Recipe table
ipe table	Recipe name : recipe
Recipe name : 123 💌	
Item name Display	Default sort method
NewItem 🔽	Inable
	Sort by : A
	Ascending O Descending
	Ascending Sescending
ault sort method	
I Enable	Title
Sort by : NewItem	Transparent
	Color:
Ascending Operating	
Style : Crystal 👻 Style color :	Profile
no	Transparent
🔽 Use caption	Frame : Background :
Font size : 16 🔹 Color :	Grid
	▼  Enable
Name	Color:
ption Caption	
	Selection control

# eMT, iE, XE, mTV Series



# The name of each part of the Recipe View object is shown in the following figure.

		itle- reen Part <del>«</del>			_
	16-BCD	32-BCD	16-Hex	32-Hex	Selection
	11.11	66.66	1111	AAAA 🔺	control-
Profile-	22.22	77.77	2222	BBBB	Pink Part
Frame and	33.33	88.88	3333	CCCC	
Background color	44.44	99.99	4444	DDDD	
	55.55	12.34	5555	EEEE	
	Grid-				

Setting	Description
Filter enabled	When selected, entering keywords in Recipe View to search for
	specific text is possible.
Allow in-cell	When selected, editing Recipe Database directly in Recipe View is
editing	possible.
Refresh data	When selected, the system will automatically refresh Recipe View
automatically	when recipe is changed; otherwise, Recipe View will be refreshed
	after window change.
Recipe table	Recipe name
	Choose the recipe name or look for other recipes from the
	drop-down list.
	Display
	Choose an item to be displayed by selecting its checkbox.
Default sort	Configure how the items are sorted. [Ascending] and [Descending]
method	can be selected.
Style	
(cMT / cMT X	Available styles are: Default, Crystal, and Flat.
Series only)	
Caption	With [Use caption] enabled, the text, font size, color, and name of
(cMT / cMT X	the caption can be specified. (Use caption is only available when
Series only)	the selected style is Crystal or Flat.)
Title	The item name assigned in [Data/History] » [Recipe Database].
	Transparent
	If selected, the title row has no shading; the color selection is not
	available.
Profile	The frame and background color of the object can be set.
	Transparent
	Select to hide the background, the color selection is not available.
Grid	The dividing lines between columns and rows.
	Enable
	Select to show the grid.
	Auto fit short column (cMT / cMT X Series Default style)
	The column width automatically adjusts to the size of the content.



Selection Shading color of the selected row.		
Control	Selection	Shading color of the colocted row
	Control	

# Note

There are 4 system registers that can be used to view/update/add/delete recipe database: Selection

Current selection of record in Recipe View object, and it is numbered from zero. If the first record is chosen, the value of Selection will be 0. When the value of Selection is changed, the corresponding values will be updated, such as "No", "Timer\_1", "Timer\_2", as shown in the following figure.

	<b>—</b>
tting.	
$\checkmark$	Selection
	Count
	Command
	Result
	No
	Timer_1
	Timer_2
	Timer_3
	Timer_4
	Speed

# Count

Show the number of records in current recipe.

# Command

Enter certain value will send command to the selected record.

Enter "1": Add a new recipe record.

Enter "2": Update the selected recipe record.

Enter "3": Delete the selected recipe record.

Enter "4": Delete all recipe records.

Enter "5": Write the selected recipe record to PLC.

Enter "6": Update the recipe record selected from PLC.

# Result

View the result of executing commands. Displays "1": Command successfully executed.



Displays "2": The selected record does not exist. Displays "4": Unknown command. Displays "8": Records reach limit (10000 records), no new records can be added. Display "16": Another command is being executed. Display "32": Transfer command failed.

Please go to [Data/History] » [Recipe Database] tab to create the recipe data before using Recipe View object. See "24 Recipe Editor".



# Example 1

In this example, a recipe database is created to be displayed by Recipe View object. When you select a recipe record on Recipe View object, the value of [Selection] and the corresponding values will change accordingly. When finish designing, you can modify the recipe database by entering a value in [Command].

	Name	Timer_1 T	ïmer_2 T	Fimer_3 T	Timer_4	Speed	
0	Mercury	10	1	11	12	26.500	
1	Venus	20	1	21	22	33.500	
2	Mars	30	2	32	35	41.500	
3	Jupiter	50	3	53	56	50.500	
4	Saturn	80	5	85	90	60.500	
		Count:	5	Comman	d: O	Result: 1	
Sele	ction: 2		<u> </u>				
	ction: 2 cords: (mod						
		lify here)					

**1.** Create a recipe as shown in the following figure.

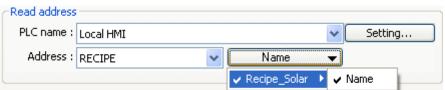
efinition Data System Regi Recipes List :	31513						
Recipes 🛛 👪 💌	Item name	Data type	Size	Display width	Decimal Pt.	Alignment	
1. Recipe Solar	No	16-bit Unsigned	1	5	0	Left	
	Name	ASCII	10	8	0	Left	
	Name_1	32-bit Signed	2	8	0	Left	
	Name_2	32-bit Signed	2	8	0	Left	
	Name_3	32-bit Signed	2	8	0	Left	
	Name_4	32-bit Signed	2	8	0	Left	
	Speed	32-bit Float	2	8	3	Left	
	and the second second						
Import Export	]	(		New	Delete	Settings	



ecipes List :						
ecipe_Solar (5)		No	Name	NewItem1	NewItem2	NewItem
	1	0	Test1	10	11	0
	2	1	Test2	20	21	0
	3	2	Test3	30	0	0
	4	3	Test4	50	0	0
	5	4	Test5	60	0	0
	4					4
					New	Delete
						DOLL

2. In Data tab create a number of records as shown in the following figure.

- 3. Create a Recipe View object and use the recipe database created in the preceding steps.
- 4. Create 4 Numeric objects using registers "Selection", "Count", "Command", and "Result".
- Create corresponding input objects for "No", "Name", "Timer\_1", ..., "Timer\_4", "Speed".
   For example, "Name" is an ASCII item with size "10". Create an ASCII object and set device type to "RECIPE" » "Name".



- 6. The project is then completed.
- 7. As shown above, "Mars" is selected and the corresponding items are also updated. There are 5 records so the "Count" displays "5". Try selecting different rows of the Recipe View object. Fields "Name", "Timer\_1", ...will change accordingly.
- 8. Try the following operations:
- Add:

To add current data as a new record, enter "1" in "Command".

• Update:

To update recipe database, enter "2" in "Command".



### Objects

• Delete:

To delete the selected record, enter "3" in "Command".

- Sort the items.
- Click the title to change the order.



Objects

# Example 2

In this example, [RECIPE\_Bit] can be used to read / write individual bits of Recipe data. Although BOOL type items cannot be added to Recipe Database, individual bit access of 16bit / 32bit data is possible.

As shown in the following figure, select [RECIPE\_Bit] for the read address of Bit object and point to the target item, and then the available Bit selections will be displayed. In this manner, Recipe Database can be used to record, read, and write bit data.

Recipes 🛛 🛃 🗙	Item name	Data type	Size	Display width	Decimal Pt.	Alignment
1. myRecipe	A	16-bit Unsigned	1	5	0	Align left
jiteelpe	В	32-bit Unsigned	2	5	0	Align left
	С	32-bit Unsigned	2	5	0	Align left
Read address						
PLC name : Local HM	I		~	Settings		
Address RECIPE_	Bit 🗸	Selection-O	-			
		✓ myRecipe	Þ	<ul> <li>Selection</li> </ul>	n ►	
	Invert signal			Count	•	
				Comma	nd 🕨	
				Result	▶	
			[	A	۲	0
				В	•	1
				С	•	2
						3
						4
						5
						6
						7
						8
						9
						10
						11
					-	12
						13
						14



15

# 13.34. Flow Block

### 13.34.1. Overview

Flow Block object displays the flow status of the blocks in the pipe or the status of the transportation lines. Unlike Moving Shape object which requires a precise measurement between two points when drawing a straight line provided by users, the blocks flow at a fixed interval in a horizontal or vertical straight line. For cMT / cMT X Series models, drawing non-horizontal and non-vertical lines is possible.

The features of Flow Block:

- Each section of the Flow Block must be a horizontal or vertical straight line and the blocks flow at a fixed interval within it. For cMT / cMT X Series models, drawing non-horizontal and non-vertical lines is possible (angle limit: 5 degrees).
- Dynamic speed and direction adjustment (Speed and direction can be controlled by a designated register.
- Security mechanism (Interlock), which hides Flow Block when the status of designated bit is invalid.

## 13.34.2. Configuration



Click on the Flow Block icon on the toolbar or select [Objects] » [Animation] » [Flow Block] to create object.

#### **General Tab**

General	al Outline Security
	Comment :
Flow	v speed
	Reverse direction
	Dynamic speed
	Flow speed : 5

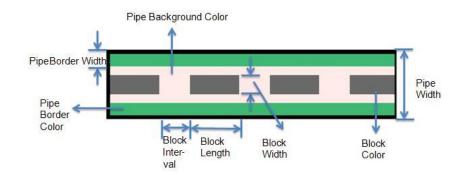
Setting	Description
Reverse	The blocks flow in the direction the object is drawn (the blue
direction	arrow). If select this check box, the blocks flow in the opposite
	direction.



	Flow-direction Reverse direction
Dynamic	Read address
speed	The direction and speed at which the blocks flow can be controlled
	by a designated register. The valid rage is -25 to 25. When a
	negative value is entered, the blocks flow in a reversed direction.
	Setting
	Displays the address and format of the designated register. [System
	register], [Index register], and [Tag Library] can be set here.
Flow speed	25 flow speed levels, the valid range is 0 to 25 when [Dynamic
	speed] is not selected. A larger value indicates a faster speed.

## **Outline Tab**

For setting the outline property of Flow Block. The following illustration shows each item.





	ine Securi	У				
			Pipe	0000000		
	-			Width : [	23	•
	í.			0	7 Border	
	-				<i>50</i>	
	1			Width :	2	•
				Color : [		-
				5	7] Background	28
		_		Color : [	Darkeroum	
211				00101 . [		•
Block	Style :	Arrow	•			
	Width :	15	•			
	Length :	20	-			
	Interval :	4	•			
		🔽 Dynami	c color			
Device :	Local HMI				✓ Settings	
Address :	LW		• 0	1	16-bit Unsigne	ed
	211	<u></u>		-	The second se	
		Index	Color	<u>^</u>		
		0	000000	=		
		2	f0f0f0			
		3	0:00 cOcOcO			
		4	7f7f7f		New	
		5	8080ff	T T	Delete	
		4				
		5	110 8080 FF		Delete	

Setting	Description
Pipe	Sets the properties of the pipe within which the blocks flow. The
	background color, border width and color can be set. When the
	[Border] check box is selected, the background color must be set.
Block	Sets the properties of blocks. Style, width, length, interval and color
	can be set.
	Available styles are Rectangle and Arrow. The direction in which the
	arrows point to indicates the direction of the flow block.
	Rectangle: Arrow:
Dynamic	Allows dynamic color change with 256 customized colors,
color	numbered from 0 to 255 allowed. The color is selected by entering
	a value in the designated register. Entering a value greater than the
	largest color number changes the Flow Block to the last color in the
	list.

# Note

If both [Reverse direction] and [Dynamic speed] check boxes are selected in [General] tab,

when entering a negative value in the designated register of dynamic speed, the blocks flow in the direction the object is drawn.

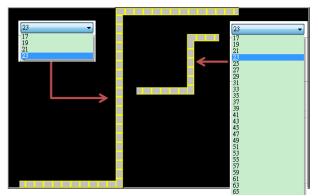
- When both [Arrow] and [Dynamic speed] are selected, the arrow will only show when a value is given to the designated address.
- To avoid the pipe lines from overlapping when drawing a turn, there is a minimum width planned at each turn. As shown in Fig. 34.1, the sign on the cross cursor defines the minimum width. Fig. 34.2 demonstrates that each turn is drawn in the minimum width.



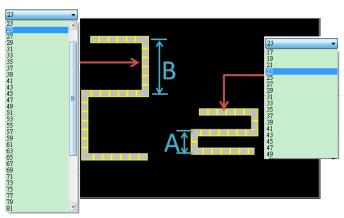
(Fig. 34.1) (Fig. 34.2)

The valid range of the length, width, and height of the Flow Block can be adjusted according to the size of the object drawn and the size of the window.

As shown in the following figure, when the size of the Flow Block is larger, the valid range is restricted to prevent the flow block from exceeding the window size. When the size of the object is smaller, the adjustment range will be larger.



To prevent the flow block from overlapping itself, when the distance between two lines is shorter (Section A), the valid range is restricted. When the distance is longer (Section B), the adjustment range will be larger.





The demonstration below shows how to use [Dynamic speed] to control the direction and speed of Flow Block by a designated word register.

 Create a Flow Block object and select [Dynamic speed] check box. Set [Address] to LW-0, and set the format to 16-bit Signed.

General Outline Se	curity	
Comment :		
Flow speed		
	Reverse direction	
	Vpnamic speed	
Read address		
PLC name : Loca	al HMI	▼ Setting
LOCI		16-bit Signed

2. Create a Numeric object, set [Address] to LW-0. The high limit is 25, and the low limit is -25. The format is 16-bit Signed.

Oirect	🔘 Dynamic limits	
PLC low :	-25	PLC high : 25
Input low :	-25	Input high : 25

- 3. Execute simulation or download the project to HMI. When entering a positive value in LW-0, the blocks flow in the direction the section is drawn. A larger value indicates a faster speed. When a negative value is entered, the blocks flow in a reversed direction, and the smaller value indicates a faster speed. When 0 is entered, it stops flowing.
- Lick the icon to download the demo project. Please confirm your internet connection.



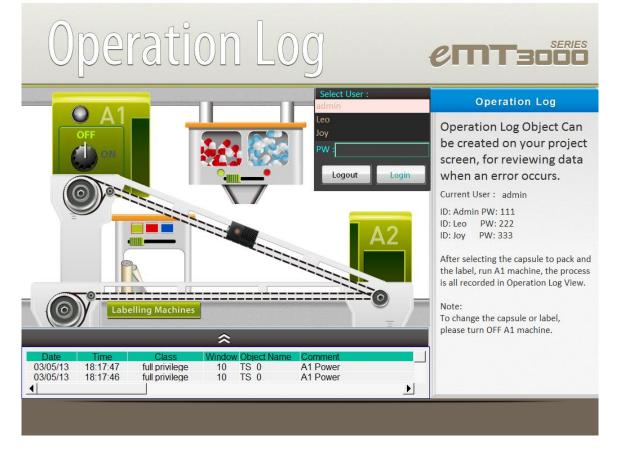
## 13-257

# 13.35. Operation Log

#### 13.35.1. Operation Log Settings

#### 13.35.1.1. Overview

Operation Log records user's operation steps and displays the record in real-time. When an error occurs, use operation log to analyze the problem. The backup tables can be used to review the process in order to resolve the errors. Operation log, if configured properly, may also be used to satisfy the requirement for audit trail and electronic signature.





## 13.35.1.2. Configuration



Select the objects to be recorded. Click [Data/History] » [Operation Log Setting], and then select [Enable operation log function] check box.

cMT, cMT X Series

Dbject filter			Comment text filter :		
Dbject	Enable	Comment Source	Comment	Settings	
<ul> <li>Global</li> </ul>		<i>.</i>			
📭 User login/logout		From object's comment 🔹			
▲ 5 : Device Response					
📇 FK_0		From object's comment 🔹			
6 : HMI Connection					
📇 FK_0		From object's comment 🔹			
7: Password Restriction					
📇 FK_0	$\checkmark$	Use label library 🔹	Label_1 : temp=%(WATCH1) •	Watch	
8 : Storage Space Insuffic					
📇 FK_0		From object's comment 👻			
62 : ASCII Upper M					
123 SW_0 (LW-9540 (		From object's comment 🔹			
63 : ASCII Lower M					
122 011 0 1111 05 10 /	-	- 11-12 ·			

## eMT, iE, XE, mTV Series

Objects History/Control Object filter		Comment text filter :	
Object	Enable	Comment	
4 : Common Window			
B_0 (LB-12042)		Open/Close System Information	
4 5 : Device Response			
📇 FK_0			
4 6 : HMI Connection			
📇 FK_0			
7 : Password Restriction			
📇 FK_0			
▲ 8 : Storage Space Insuffic			
📇 FK_0			
4 62 : ASCII Upper M			
123 SW_0 (LW-9540 (			
4 63 : ASCII Lower M			
Select All Discard All			
Select All Discard All			



# **Objects**

Setting	Description				
Object	With Operation Log function enabled, user login/logout activities				
	and the objects that can be recorded are listed in the setting dialog				
	box sorted by window numbers.				
	[Filter]: By clicking [Object filter], all recordable objects are listed.				
	Users can use the filter to more easily locate the desired objects.				
Enable	The selected objects are recorded by Operation Log.				
Comment	From object's comment				
Source	The content in the [Comment] field of the Operation Log is sourced				
	from the object's comment setting.				
	New Toggle Switch/Bit Lamp       General       Security       Shape       Label       Comment :       Bit Lamp       O Toggle Switch				
	Customize				
	Users can customize the content in the [Comment] field of the				
	Operation Log by clicking [Watch].				
	Use label library				
	The [Comment] field supports the utilization of a label library,				
	enabling the content to be recorded with translated text in				
	different languages.				
Settings	When the comment source is set to [Customize] or [Use label				
	library], users can configure the watch addresses by clicking				
	[Watch]. When a label library is used as the comment source, the				
	watch address syntax should be defined within the label content.				
	Up to four addresses can be simultaneously watched.				



	Operation Log W	atch Address			×
	-Watch Addresses				
	Syntax	Description	Preview	Operator	
	%(WATCH1)	LW-0	####	Insert	
	%(WATCH2)	LW-1	####	Insert	t=
	%(WATCH3)	LW-2	AA	Insert	t=
	%(WATCH4)	LW-0	####	Insert	
	New	Delete Settings			
	Comment				
	%(WATCH1)%(M	VATCH2)%(WATCH3)%(WATCH4)			
				ОК	Cancel
Select all		-		ilter] is used, clicl	king [Sele
	all] only se	elects the objec	ts in the list.	- · ·	
Select all Discard all	all] only se	elects the objec	ts in the list.	ilter] is used, clicl ect filter] is used,	
	all] only se Discards a	elects the objec	ts in the list. objects. If [Obj	ect filter] is used,	

# History/Control

peration Log
V Enable
Objects History/Control
History
Limit write frequency to HMI flash drive
Maximum record no. in HMI memory: 1000
Sync. to external devices
None 💿 USB disk 1 🔘 USB disk 2
Sync to database
Enable 1. 192.168.1.0
Behavior when HMI space is insufficient
Stop saving operation log
Synchronize to external device. If the device does not exist, erase the oldest records.
Control
Device : Local HMI
Address : LW   0 16-bit Unsigned
<u>Usage</u>
QK Cancel
UK Cancel



Setting	Description				
Storage	Sets the way the records are stored.				
settings	Limit write frequency to HMI flash drive				
	When enabled, the system will store operation logs on the HMI at				
	intervals of 10 seconds. To prevent the loss of operation log data				
	between two storage actions caused by power-off, EasyBuilder Pro				
	provides the system register LB-9034. By sending an ON signal to				
	this register, the system will initiate a data storage process.				
	Maximum record no. in HMI memory				
	Sets the maximum number of records that can be stored in HMI memory.				
	Sync. to external devices / database				
	Stores backup data to SD card or USB disk. Backup data can be				
	synchronized to database (cMT / cMT X Series).				
	Behavior when HMI space is insufficient				
	When HMI memory space is insufficient, two options are provided:				
	[Stop saving operation log]: Stops saving new records in order to				
	keep the earlier records.				
	[Synchronize to external device]: Stores the Operation Log to the				
	external device. When the device does not exist, the HMI clears the				
	oldest records in its memory.				
Control	Entering different values in the control address sends				
address	corresponding commands to Operation Log and returns the result				
	of executing the command.				
	If control address is LW-n (where n is an arbitrary number), the				
	address that returns the result of executing the command is				
	LW-n+1.				
	Control address (LW-n):				
	(1): Clear all records.				
	(2): Copy the records to the USB disk.				
	(3): Copy the records to the SD card.				
	(4): Copy the records to the USB disk and clear the records in HMI memory.				
	(5): Copy the records to the SD card and clear the records in HMI				
	memory.				
	(6): Enable Operation Log.				
	(7): Disable Operation Log.				
	(8): Use history data stored in USB disk after changing HMI.				



(9): Use history data stored in SD card after changing HMI.
(10): Copy the records to the database server. (cMT / cMT X Series)
(11): Copy the records to the database server and clear the records in HMI memory. (cMT / cMT X Series)
(12): Use existing historical data in database after changing to another HMI. (cMT / cMT X Series)
Execution result (LW-n+1):
(0): Processing.
(1): Execution succeeded.
(2): The device does not exist.
(3): The record does not exist.
(4): Unknown error.

# Note

- Operation Log can only record the operation of the objects that are manually triggered.
   Objects that cannot be manually triggered are not recorded, such as Time Based Data Transfer object.
- When running off-line or on-line simulation, Operation Log is stored under EasyBuilder installation directory: HMI\_memory\operationlog\operationlog.db
- Triggering Macro with a Set Bit object generates two records, the triggering of bit and the triggering of Macro.

## 13.35.2. Operation Log View

## 13.35.2.1. Overview

Operation Log View can be used to review the Operation Log.

## 13.35.2.2. Configuration



Before using Operation Log View, please follow the steps described in the preceding part to finish Operation Log Settings. Click [Data/History], and then click [Operation Log View].



### **General Tab**

lew Operation Log View Object	New Operation Log View Object
General Title Security Shape	General Title Security Shape
Comment :	Comment :
Style Crystal Color :	Style : Default 👻
Crystal 🔹 Color :	Title Transparent
	Color:
	Profile
	Transparent
	Frame : Background :
	Grid
	🖉 Enable 🕼 Auto fit short column
	Selection control
	Color:
	Font
Font	Name : Arial [Arial] [Droid Sans]
Name : Arial	Color :
Color :	Size : 12 👻
Size : 12 🗸	
Option button	Option button
Predefined      Opnamic	
Device : Local HMI	[♥] LIRDIE
Address : LB 🗾 50	
OK Cancel Help	OK Cancel Help

cMT, cMT X Series

#### eMT, iE, XE, mTV Series

Title 10 10 10 10 10 10 
 Date
 Time

 03/04/13
 15:15:07

 03/04/13
 15:15:07

 03/04/13
 15:15:07

 03/04/13
 15:15:06

 03/04/13
 15:15:06

 03/04/13
 15:15:06

 03/04/13
 15:14:55

 03/04/13
 15:14:55

 02/06/13
 18:50:21

 02/26/13
 18:50:18

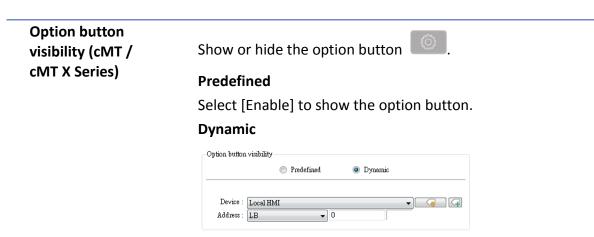
 02/26/13
 18:50:15

 02/26/13
 18:50:07

 18:50:07
 Class full privilege full privilege full privilege Selecti full privilege full privilege full privilege full privilege full privilege 10 10 10 10 10 10 Profile on Frame & full privilege full privilege full privilege Backgrou 1-• • nd I

	Grid		
Setting	Description		
Style	The style of Operation Log View object can be selected		
	from Default, Crystal, and Flat.		
Title/Profile/Grid/	These attributes can be configured when the chosen style		
Selection control	is Default.		
Font	Sets the color, font, and font size of the text displayed in		
	Operation Log View object.		





Designate a bit address to control option button visibility.

eMT, iE, XE, mTV Series

#### **Title Tab**

#### cMT, cMT X Series

eneral Title Secur	rity Shape				General Tit	e Shape	Profile			
🔽 Use caption										
Caption					Title na		Title			
Caption					Date		Date			
1200-0010-000					Time		Time			
					User na	me	User name			
4				•	Class		Class			
📃 Use label library					Window		Window			
Color :		Size : 16			Object 1		Object Name			
	•	Size . [16	•		Comme	int	Comment Action			
				Level 1	Addres		Action Address			
Column		Label tag	Header text	A	Inform		Address Information			
Date Time			Date Time	=	Intorna	1001	monnation			
11me User name			User name							
Class			Class		Sort					
Window			Window		◎ Time a	ascending	Time descend	na		
Object Name	0		Object Name	-		sectioning	Inne descend	ing ing		
•		m		+	Order & Ch	naracters				
Sort  O Time a	mending	Time des	cending	p		Display items	Display ch		[	Display order
	scenanig	I mic des	contraing			Date	0			Date
Order & Characters			7735555555 297	- C	<b>V</b>	Time	0			Time
Display item		Display ch 🔺	Display order		<b>V</b>	User name	0			Class Window
🔽 Date		10	Date Time	A	V (	Class	0	=		Object Name
V Time		10	User name			Window	0		-	Comment
User name		17	Class Window			Object Name	0			Action
✓ Class ✓ Window		<u>′</u>	Object Name			Comment	0			Address Information
V Object Name			Comment Action			Action	0			User name
Comment		30	Address	222	<b>V</b>	Address	0	Ŧ		
🔽 Action			Information IP	+					L	
					If "Display	chars" is 0,	it means that the syst	em will d	isplay all	of characters.
						-				
Date : MM/DD/	YYYY	▼ Time : [HH	MM:SS 🔹		Date : M	M/DD/YY	Time : H	H:MM:SS	5	•
(MARDEN										

Setting	Description
Use Caption	Sets the caption displayed in Operation Log View object.
Title	Sets the title name of the columns displayed in Operation Log View
	object.
Sort	Sorts the records in time ascending or descending order.
Display order	Sets the order of the displayed item. If [Display chars.] is 0, all
	characters are displayed.
Date / Time	Sets the format of date and time displayed in Operation Log View

EasyBuilder Pro V6.09.01

object.

## 13.35.3. Operation Log Printing

#### 13.35.3.1. Overview

Operation Log Printing can generate an Operation Log sheet by printing out using a printer or by saving as JPEG file into an external device. Before using this function, please go to Operation Log Settings to finish the settings.

Operation Logs printed using cMT Viewer will be saved to the USB disk / SD card connected to the cMT / cMT X HMI.

#### 13.35.3.2. Configuration

	_	
=	=	

Select "Enable [Operation Log] printing" check box and click [Settings] button to open the Operation Log Printing dialog box.

Printing Manager	X
Enable [Operation Log] printing	
	Settings
	OK Cancel



## **General Tab**

Operation Log Printing		8				
General Layout Content						
Comment :						
Printer Device : SD card	•					
Orientation						
Horizontal	○ Vertical					
Font Name : Arial	•					
Size : Middle	•					
Range		1				
Type : 🔘 Date	e 💿 Record					
Within: 1000		record(s)				
Trigger address						
PLC name : Local HMI	-]0	▼ Setting				
	• 0					
Preview	OK Cancel	Apply Help				
Description						
Select the device to save the Operation Log sheet. If a printer is						
selected, the paper size should be A4. If an external device is						
selected, the Operation Log sheet is saved as a JPEG file. The						
system generate	s a folder nam	ed "operationlog	sheet", and the files			
saved in the fold	er are named '	'print date seque	<i>ence number</i> ". For			
• *						
			hautantal			
vertical.						
Sets the font and the font size to of the Operation Log sheet. The						
Size	Title	Content	]			
Large	20 pt.	16 pt.				
Middle	•	•				
Small	12 pt.	8 pt.				
Sets the range of	-		led in the sheet.			
Date						
Date						
	General Layout Content Comment : Printer Device : SD card Orientation Font Name : Arial Size : Middle Range Type : Dat Within : 1000 Trigger address PLC name : Local HMI Address : B PLC name : Local HMI Address : B Preview Description Select the device selected, the pay selected, the pay selected, the pay selected, the pay selected, the pay selected, the pay selected, the fold example, the first 130508_0000 ar Sets the layout of vertical. Sets the layout of vertical. Sets the font and following table li Size Large Middle Small	General Layout Content         Comment :         Printer         Device :         Size :         Middle         Range         Type :         Date         Range         Type :         Date         Range         Type :         Date         Range         Type :         Date         Range         PLC name :         Local HMI         Address :         B         OK         Cancel   Preview OK    Cancel        Description    Selected, the Operation Log shese system generates a folder name saved in	General Layout Content         Comment :         Pinter         Device :       Device :         Point       Image: Comment :         Pinter       Device :         Device :       Device :         Pinter       Image: Comment :         Pinter       Device :         Pinter       Image: Comment :         Pinter       Device :         Pinter       Image: Comment :         Image: Comment :       Image: Comment :         Image: Comment :       Image: Comment :         Image: Comment :       Image: Comment :			



	number of days entered. The maximum available range is 180 days.
	Record
	Sets the range by the number of records. The maximum available
	range is 10000 records.
Trigger	Sets the register to control Operation Log Printing. When the
address	register is set ON, it starts printing. When the printing is done, the
	register is set OFF automatically.
Preview	Preview the result before generating the Operation Log sheet.

# Layout Tab

peration Log Printing	
General Layout Content	
Title	Title
Operation Log Report	
< ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■	Header
Header	
Printed on all pages  eMT3000 Series Demo created by EasyBuilder Pro  Use label library	Content
Footer	
Weintek Labs., Inc Professional in Human Machine Interface	
✓ ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ►	Footer
Date/Time           Image: Construction of the second secon	
Date : MM/DD/YY   Time : HH:MM:SS	Page Number Date/Time
Preview OK Cancel Apply Help	

The layout of each part is shown in the above figure.

, ,	5
Setting	Description
Title	Sets the content of the title. The title is limited to one line.
	Printed on all pages
	If selected, the title is shown on each page; otherwise, the title is
	shown on the first page.
Header	Sets the content of the header. The header can have 5 lines in
	maximum.
	Printed on all pages
	If selected, the header is shown on each page; otherwise, the
	header is shown on the first page.
Footer	Sets the content of the footer. The footer can have 5 lines in
	EacyDuildar Dro V/6 00
WE!NTEK	EasyBuilder Pro V6.09

	maximum.
	Printed on all pages
	If selected, the footer is shown on each page; otherwise, the footer
	is shown on the last page.
Date/Time	If selected, the date/time the in the sheet is shown on the
	lower-right corner of each page; otherwise, the date/time is not
	shown.
Page number	Shown on each page.

## **Content Tab**

	Operation Log Printing       EX         General Layout Content       Itile         Title name       Title         Date       Date         Time       Time         Class       Class         Window       Window         Object Name       Object Name         Comment       Comment         Address       Address         Information       Information
	Image: Time ascending         Order & Characters         Image: Display items       Display chars         Image: Display items       Display order         Date       Time         Image: Display items       Display items         Image: Display items       Time         Image: Display items       Display items         Image: Display items       Display items         Image: Display items       Time         Image: Display items       Time
Setting	Description
Title	Sets the title displayed.
Sort	Time ascending
	The latest record is placed at the bottom.
	Time descending
	Time descending
	The latest record is placed at the top.

### 13.35.3.3. Demonstration

# Example 1

The following demonstration explains how to create an Operation Log project.



- 1. Create a Toggle Switch object and a Numeric object on window number 10.
- 2. Go to Operation Log Settings; enable the Toggle Switch object and Numeric object on window number 10.

Object	¥=	Enable	Comment	
5 : PLC Response				[
<pre>FLFK_0</pre>				
Ξ 6 : HMI Connection				
<pre>FK_0</pre>				
7 : Password Restriction				
<pre>FLFK_0</pre>				
🖃 8 : Storage Space Insufficient				
<u>•</u> F]FK_0				
10:WINDOW_010				
AE_0				
lsm_0		1	Login	
r≡ sw_1		1	Logout	
₽OL_0		<b>V</b>	User ID	
₩_SB_0		<b>V</b>	Green Label	
₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩		UN.	Rad I shal	

- 3. Create an Operation Log View object and finish relevant settings.
- **4.** Run off-line simulation, trigger Toggle Switch and Numeric object. Operation Log is displayed by Operation Log View object.

Date	Time	Object ID	Action	Address	Information
04/05/17	13:48:22	TS 0	Toggle	Local HMI : LB-0	bit set OFF->ON
04/05/17	13:48:19	NE 0	Set word	Local HMI : LW-0	write 0->0

Lick the icon to download the demo project. Please confirm your internet connection.

## Example 2

Upload Operation Log to PC by using Utility Manager or use Backup object to send the file by email.

- Upload by Utility Manager
- 1. Open Utility Manager, click [Upload].
- 2. Select [Operation log], enter file name and HMI IP, and then click [Upload].

Jpload					<b>—</b> ×
	eMT3000 S	eries		-	
Project					
□ RW					
E RW_A					
🗌 Recipe databas	se				
Operation log	C:\Users\use	er\Desktop\Operation	Log file.db		Browse
Data log					
Event log					
Extend Memory	(EM)				
Connection					
• Et	hernet C	USB cable			
IP Nar	ne				Þ
	IP: 192.168.1.10				
	1				
Upload	Stop	Settings			Exit



- Send the sheet by e-mail
- 1. Open [System Parameter Settings] » [e-Mail] tab. Set e-mail server and the address of recipient and sender.
- Create a Backup object, under [Source] select [Operation log], and under [Backup position] select [e-Mail].

	Security	Shape	Label	e-Mail	
	Comment	. —			
ource		•			
© F	-		W A		Recipe database
<u> </u>	Historical ev	-			Historical data sampling
-		- <sup>-</sup>			Historical data sampling
0	Operation lo	og			
Backu	p position				
05	SD card		O USB	disk	🔘 e-Mail
() F	Remote prir	nter/back	up serve	er	
Note	e : Use LW-	-9032~9	039 to ch	nange th	e backup folder name.
Note	e : Use [Re	mote prir	nter/back	up serv	er] to store data to a remote PC. Enable the
serv	/er in [Syst	em Parar	neter][Pr	inter/Ba	ckup Server] settings.
ſrigge		: Touch	trigger		•

For more information about e-Mail settings, see "5 System Parameter Settings".

Click the icon to download the demo project. Please confirm your internet connection before downloading the demo project.



# 13.36. Combo Button

#### 13.36.1. Overview

Combo Button can execute multiple commands. The former way was to overlay multiple objects in the same position, and the commands are executed in the order of the layer of the objects. This takes time to test the order when planning the project. Combo Button allows users to easily set multiple commands with one object, and freely adjust the order of executing commands.

The following are the features of Combo Button:

- Executes multiple commands.
- Allows adjusting the order of executing multiple commands.
- Displays the state in Bit or Word Lamp.

#### 13.36.2. Configuration

	T

Click on the Combo Button icon on the toolbar or select [Objects] » [Combo Button] to create object. Configure object properties, click OK, a new Combo Button object will be created.



## 13.36.2.1. eMT, iE, XE, mTV

# **General Tab**

General	Security Shape Font	
	Comment :	1
Lamp		
	Mode : None	
	Bit lamp Word lamp	
Actions		
_		Ť
+	Set Bit (Set ON) Set Word (Write constant value : 0) Delay (50 ms) Change full-screen window (50, Keypad 11 - Integer)	
×	Change full-screen window (50. Keypad 11 - Integer)	
6		
		- 28,
		_

Setting	Description
Lamp	The mode to display the state of a designated bit or word register.
	None: Not using lamps to show states.
	Bit Lamp
	Displays the state of a designated bit address.
	[Invert Signal] Reverses the display of ON / OFF states. For example,
	if [Invert signal] check box is selected, when the designated bit is
	OFF, the object displays ON state.
	Word Lamp
	Displays the state according to the value of a designated word
	register.
	[No. of state]: The number of states used by the object. The state is
	numbered from 0, so the number of states minus 1 will be the state
	number. If the value in the word register is ≥ [No. of states] defined



in Attribute, the highest state will be displayed.

If the number of states is set to 8, the valid states will be 0, 1, 2, ...,

7. In this case if the word value is 8 or higher, the system will display the state 7 shape.

[Change state by ranges]: Displays the state according to the range. When two ranges overlap, the state is determined by the priority. The priority is Default when the value is not within any range.

Priority	Lower Limit	Upper Limit	State	
)	0	10	State 0	
L	10	20	State 1	
2	20	30	State 2	
3	30	40	State 3	
Default			State 4	

Actions

A combo button can execute up to 20 actions.

Кеу	Description
+	Add actions.
×	Delete the selected action.
	Change the order of the actions.
	Copy the selected action.
	Paste the copied action.

Add

#### Delay

Delays the action for a few milliseconds. A combo button can set one [Delay] action only.

#### Set Bit

Sets the designated bit ON or OFF.

Set style	Description
Set ON	Set ON the designated bit of the device.
Set OFF	Set OFF the designated bit of the device.
Toggle	Alternates the bit state each time pressed.

#### Set Word

Sets the value in the designated register.



Set style	Description
Write Constant Value	Writes a constant value to the designated register.
JOG+	Increases value in register by a set amount in [Inc. value] each time when the button is pressed, to the [Upper limit].
JOG-	Decreases value in register by a set amount in [Dec. value] each time when the button is pressed, to the [Bottom limit].
Dynamic limits	Sets the Upper / Bottom limit by a designated register. When Dynamic Address is LW-n, where n is an arbitrary number, set upper limit when using [JOG+], and bottom limit when using [JOG-].

# **Change Window**

Switch to the designated window.

## 13.36.2.2. cMT / cMT X Series

# **General Tab**

eneral	Security	Shape	Font	Profile		
	Comment	: [				
Lamp						
	Mode	: None			•	
Down	actions					E
	A	Action G	oup 0		Action Group 1	
Se	et Bit (Set	ON)				
<u> </u>	et Word (		nctantw	alua : 0)	Set Bit (Set ON)	=
2000	00.00000000000000000000000000000000000	0452 (2015-004) 2015		aue.u)	Execute macro (macro_0)	
E	ecute ma		icro_0)		-	
		Đ	)			
•	11 (11 (11 (11 (11 (11 (11 (11 (11 (11		m		•	
Up acti	ons				N 12 St. 1945	1
	Action (	Group 0			Action Group 1	1
Se	et Bit (Set	ON)				
Se	et Bit (Set	ON)		Chang	ge full-screen window (11. Windov	A =
W	ait Until (	(LB-0 is c	on)		0	
	6	)		-		
•			m		+	
Upacti	ons will be	run simu	ltaneously	even if dov	vn actions are still running. Use Wait Un	til t
oid rac	e condition	1.				



	<b>5</b> 1
Setting	Description
Down actions	Execute action when the button is pressed.
Up actions	Execute action after the button is pressed and released.
Delay	Delay action for the specified time (ms).
Set Bit	Sets the designated bit address ON or OFF.
	Set ON
	Sets ON the designated bit.
	Set OFF
	Sets OFF the designated bit.
	Toggle
	Alternates the bit state.
	Momentary
	Momentary is a two-step action where pressing the button (Down
	action) will set the bit ON and then releasing the button (Up action)
	will set the bit OFF. Corresponding Down and Up actions will be
	created.
Set Word	Changes the value in the designated word address.
	Write constant value
	Writes the constant value to the designated register.
	Increment value (JOG+)
	Increases value in register by a set amount in [Inc. value], up to the
	[Upper limit].
	Decrement Value (JOG-)
	Decreases value in register by a set amount in [Dec. value], down to
	the [Bottom limit].
	Dynamic Limits (JOG+, JOG-)
	Sets the [Upper limit](JOG+) and [Buttom limit](JOG-) by a
	designated register.
	Write constant string
	Writes the constant string to the designated register.
Change	Switches to the designated window.
window	Change full-screen window: Changes to another base window.
	Change common window: Changes common window.



Return to previous window: Changes from current screen to the
previous one displayed. For example, when window no. 10 is
changed to window no. 20, this function can be used to return to
window no. 10. This function is only available for base window.
Animation Setting:
The effects are: Fade, Fly, Float, Wipe, Split, Circle, Clock, Zoom,
Turn, Push. Different effects may be used for Start (window
appears) and End (window disappears).
[Duration] specifies how many milliseconds (ms) a transition effect
takes to complete.
[Direction] The direction of the transition.
Executes one of the Macros from the drop down list that has
already been configured by users. In an action group, [Execute
Macro] is seen as completed as soon as it is triggered. Ever if a
particular macro takes longer to complete, the system will not wait
for the macro to complete running before moving on to the next
action group.
One ne e designete duvin devu
Opens a designated window.
Classes surrently energed windows
Closes currently opened window.
Configures the button as a keypad key, and the character it enters,
via [Numeric] or [ASCII] objects.
Enter: Same as the keyboard's "Enter" function.
Backspace: Same as the keyboard's "Backspace" function.
<b>Clear</b> : Clear the value in the word register.
Esc: Same as the [Close window] function; it is used to close the
keyboard window.
<b>Delete:</b> Same as the keyboard's "Delete" function, deletes the
number or character on the right side of the text cursor.
<b>Left:</b> Same as the keyboard's " $\leftarrow$ " key moves the text cursor to the
left side of the previous number or character.
left side of the previous number or character. <b>Right:</b> Same as the keyboard's "→" key moves the text cursor to the left side of the next number or character.
<b>Right:</b> Same as the keyboard's " $\rightarrow$ " key moves the text cursor to the left side of the next number or character.
<b>Right:</b> Same as the keyboard's " $\rightarrow$ " key moves the text cursor to the

Screen Hardcopy	Captures the current screen and saves it to an SD card or USB disk.
nandcopy	For headless HMI models (cMT-SVR / cMT-SVRX) connected to
	specific interfaces, the available options for screen hardcopy are as
	follows:
	cMT-iV6: The captured screen can be saved to the SD card on
	cMT-iV6.
	cMT Viewer on PC: The "Screen Hardcopy" action is not supported,
	please use the right-click "Screenshot" function instead.
	cMT Viewer: The "Screen Hardcopy" action is not supported.
Acknowledge	
all events	Acknowledges all events once.
(Alarms)	
Import Data	Imports e-mail contacts or user accounts, or is used as USB Security
	Key login.
	Data Position:
	[SD card] or [USB disk].
	Account import mode:
	If [Overwrite] is selected, the existing accounts will be overwritten
	by new accounts. If [Append] is selected, accounts are appended.
	Delete file after importing user accounts:
	The system will delete the account data saved in the external
	device after importing; this can prevent the account data from
	leaking out.
Wait Until	The next group will be executed only when the condition set for a
Wait Until	The next group will be executed only when the condition set for a designated bit or word address is met.
	designated bit or word address is met.
Data Transfer	
Data Transfer (Global)	designated bit or word address is met.
Data Transfer (Global)	designated bit or word address is met. Sends the value in the designated address to another address.
Data Transfer (Global)	designated bit or word address is met. Sends the value in the designated address to another address. Transfer files by FTP. HMI will connect to the FTP server in passive
Data Transfer (Global)	<ul> <li>designated bit or word address is met.</li> <li>Sends the value in the designated address to another address.</li> <li>Transfer files by FTP. HMI will connect to the FTP server in passive mode.</li> </ul>
Wait Until Data Transfer (Global) File Transfer	<ul> <li>designated bit or word address is met.</li> <li>Sends the value in the designated address to another address.</li> <li>Transfer files by FTP. HMI will connect to the FTP server in passive mode.</li> <li>General Tab:</li> </ul>
Data Transfer (Global)	<ul> <li>designated bit or word address is met.</li> <li>Sends the value in the designated address to another address.</li> <li>Transfer files by FTP. HMI will connect to the FTP server in passive mode.</li> <li>General Tab:</li> <li>Download: Transfer file from FTP server to local HMI.</li> </ul>
Data Transfer (Global)	<ul> <li>designated bit or word address is met.</li> <li>Sends the value in the designated address to another address.</li> <li>Transfer files by FTP. HMI will connect to the FTP server in passive mode.</li> <li>General Tab:</li> <li>Download: Transfer file from FTP server to local HMI.</li> <li>Upload: Transfer file from local HMI to FTP server.</li> </ul>
Data Transfer (Global)	<ul> <li>designated bit or word address is met.</li> <li>Sends the value in the designated address to another address.</li> <li>Transfer files by FTP. HMI will connect to the FTP server in passive mode.</li> <li>General Tab:</li> <li>Download: Transfer file from FTP server to local HMI.</li> <li>Upload: Transfer file from local HMI to FTP server.</li> <li>Server address:</li> </ul>
Data Transfer (Global)	<ul> <li>designated bit or word address is met.</li> <li>Sends the value in the designated address to another address.</li> <li>Transfer files by FTP. HMI will connect to the FTP server in passive mode.</li> <li>General Tab:</li> <li>Download: Transfer file from FTP server to local HMI.</li> <li>Upload: Transfer file from local HMI to FTP server.</li> <li>Server address:</li> <li>[Direct]: Designate server address related settings in EBPro.</li> </ul>
Data Transfer (Global)	<ul> <li>designated bit or word address is met.</li> <li>Sends the value in the designated address to another address.</li> <li>Transfer files by FTP. HMI will connect to the FTP server in passive mode.</li> <li>General Tab:</li> <li>Download: Transfer file from FTP server to local HMI.</li> <li>Upload: Transfer file from local HMI to FTP server.</li> <li>Server address:</li> <li>[Direct]: Designate server address related settings in EBPro.</li> <li>[Dynamic]: Designate an address for changing the server address</li> </ul>

LW-n+1: IP (4 words)

LW-n+5: Port

LW-n+6: Authentication (0: None, 1: Account)

LW-n+7: Username (16 words)

LW-n+23: Password (16 words)

LW-n+39: Domain name (64 words)

Delete the source file after successful transfer

Following successful transfer, the source file will be deleted. When transferring in [Download (FTP -> HMI)] mode, please make sure that the account has the write permission on the FTP server. **File Tab:** 

Set file position and full path of FTP server / Local HMI. When a folder path is specified, all the files in that folder will be transferred, not including files in subfolders. When a file with identical file name already exists, it will be overwritten regardless. **Status Tab:** 

Designate an address for showing file transfer result and FTP server response. Please use the following link for more information on FTP server return codes.

https://en.wikipedia.org/wiki/List of FTP server return codes

# Note

- One Combo Button can only do one of these window actions, and only once: [Change Window], [Popup Window], and [Close Window].
- At most 20 groups can be created in a Combo Button, and at most 20 actions can be added into a group.
- File Transfer Error Codes:

Error Code	Description
0	File transferred successfully.
1	The HMI directory for download does not exist.
3	USB disk or SD card is not found.
4	HMI or FTP directory is empty.
5	Uploaded file does not exist.
8	Operation rejected by FTP server.
9	USB disk or SD card is full.
10	Unknown error.

Lick the icon to download the demo project. Please confirm your internet connection

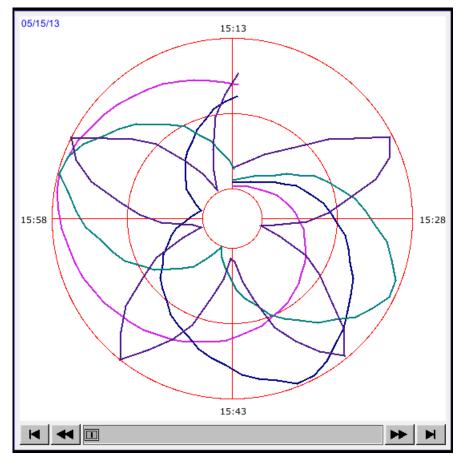
before downloading the demo project.



# **13.37.** Circular Trend Display

#### 13.37.1. Overview

Circular Trend Display object draws the trend curve of Data Sampling in a polar coordinate system, where y-axis represents the radial coordinate and the x-axis represents the angular coordinate. The way to use this object is similar to using Trend Display object.



#### 13.37.2. Configuration



Click the Circular Trend Display icon on the toolbar to open the property dialog box. Set up the properties, press OK button, and a new Circular Trend Display object will be created.



# **General Tab**

eMT,	ie, xe	E, mTV
------	--------	--------

# cMT, cMT X

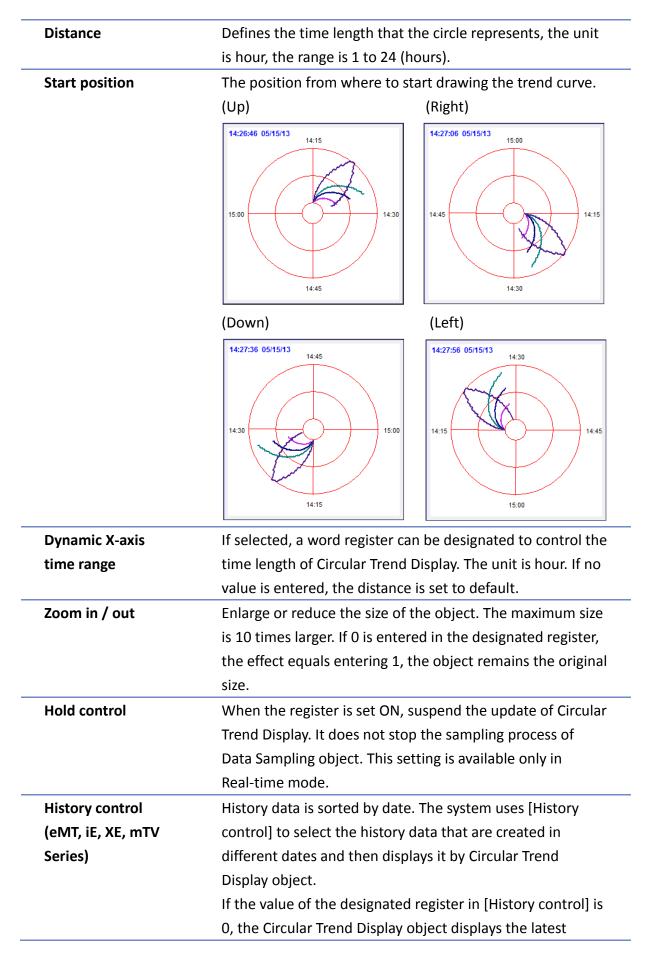
cular Trend [	Display Object's Properties	
eneral Trend	Channel Security Shape Profile	General Display Trend Channel Security Shape
Com	ument :	Comment :
	mling - [	Data Sampling : 1.
		* If no. of channels is changed, you must reset HMI's data samplings.
	Type : Real-time 👻	
* If no. of cha	annels is changed, you must reset HMI's data samplings.	Distance : 24 🔹 hour(s) Start position : Up 💌
Dis	stance : 24 • hour(s) Start position : Up •	V Dynamic time range
	Vnamic time range	Device : Local HMI 🗸 🥥
Device ·		Address : LW 0 16-bit Unsigned
Address :		Zoom in/out Enable
Zoom in/out –		Device : Local HMI 🗸 🥥
	Table	Address : LW 🗸 0 16-bit Unsigned
	Local HMI	History control
Address :	LW V 200 16-bit Unsigned	Tenable
Hold control		Device : Local HMI 🗸 🥥 🖓
	📝 Enable	Address : LW 🗸 0 16-bit Unsigned
	Local HMI -	Enable reading multiple histories
Address :	LB • 0	Mode : Number of days
Watch line		Watch line
	📝 Enable	Valua inis
Device :		Device : Local HMI
Address :	LW - 300 16-bit Unsigned	Address : LW 🗸 O 16-bit Unsigned
Time stamp ou	atput 📝 Enable	Time stamp output
Device :	Local HMI 👻 🗔	Device : Local HMI
Address :	LW + 400 32-bit Unsigned	Address : LW
	OK Cancel Help	OK Cancel Help

Setting	Description	
Data Sampling	Selects the data source for drawing the trend curve.	
Type (eMT, iE, XE,	Selects the type of the trend from [Real-time] or [History].	
mTV Series)	Real-time	
	In this mode, it displays a fixed number of sampling data	
	from the moment HMI starts to present. The number of	
	sampling data is determined by the [Max. data records	
	(real-time mode)] setting of Data Sampling object. If the	
	number of sampling data exceeds this number, the earlier	
	data will not be displayed. To display earlier data or the	
	data in other days, please select [History] mode.	
	[Hold control] address can be used to pause refreshing the	
	display. This only stops displaying new data in the Circular	
	Trend Display object, and the data is still being sampled by	
	Data Sampling object.	
	History	



	In this mode, it displays the sampled data sorted by date.
	Select the data source from [Data Sampling], and then use
	[History control] address to view the records of different
	dates.
	Note
	If [Show scroll control] check box in Trend Tab is not
	selected, the earlier data cannot be viewed when
	exceeding the specified [Distance].
	For example: Set [Distance] to 1 (hour.), then sampling data
	earlier than one hour is not displayed.
Refresh data	If enabled, the window in which the Circular Trend Display
automatically	object (in history mode) is placed will be refreshed once
	per second.
	<ul> <li>The scroll controls can be used to check the refresh</li> </ul>
	status.
	If 🔳 button is displayed, the Circular Trend Display
	will be automatically refreshed.
	If 🕨 button is displayed, the Circular Trend Display
	will stop being refreshed.
	<ul> <li>Scrolling backward and viewing earlier data will</li> </ul>
	disable [Refresh data automatically]. The button
	displayed is 🕨 at this moment.
	<ul> <li>If [Refresh data automatically] is selected, the display</li> </ul>
	is refreshed when change back to this window,
	regardless of the use of scroll controls.
	Example: If [Refresh data automatically] is selected,
	scrolling to the earlier display stops auto-refresh. At this
	moment change to another window and then change back,
	the Circular Trend Display is still refreshed.
	If [Refresh data automatically] is not enabled when
	building the project, to enable it directly on HMI, simply
	press 🕨. Please note that auto-refresh remains disabled
	after window change.







record. If the value is 1, the second latest record is displayed and so on. This setting is available only in History mode.

If use with Option List object and select data source as [Dates of historical data], the history data will be sorted by date and displayed in Option List object, see "13.29 Option List".

In the following example, when history control address is set to LW-n, and there are 4 sampling data: 20061120.dtl, 20061123.dtl, 0061127.dtl, 20061203.dtl. The

corresponding data selected by the value in history control address is as the following list.

	Value in LW-n	The sampling data displayed	
	0	20061203.dtl	
	1	20061127.dtl	
	2	20061123.dtl	
	3	20061120.dtl	
History control S	ame as eMT, iE, XE m	TV Series.	
(cMT, cMT X E	nable reading multip	le histories:	
Series) Ir	n the following two modes, days are calculated backward.		
Ν	Number of days		
S	Suppose the address is set to LW-n, then:		
[[	.W-n]: The start day in	ndex from which to calculate number	
0	of days.		
0	0: today, 1: yesterday, and so on.		
[[	[LW-n+2]: The total number of days before the start day.		
S	Specific days		
S	uppose the address is	s set to LW-n, then:	
[[	.W-n]: The start day in	ndex from which to calculate number	
0	f days.		
0: today, 1: yesterday, and so on.		and so on.	
[[	[LW-n+2]: The end day index, the specified value must		
g	reater than that of th	e start day index. For example, if	
S	tart is 4 and end is 7,	the specified days will be 4 days	
h	oforo to 7 days hofor		
2	efore to 7 days before	Ξ.	
	-	 /hen user touches the Circular Trend	
Watch line D	isplays a watch line w		



sampling data with multiple channels, the system consecutively writes the data of each channel to the designated word register and the following registers. If the data format of each channel is different, the channels are sorted by the data format of its corresponding register. In the following example, when watch address is set to LW-n, and there are 4 sampling data, the format of each data is: 16-bit Unsigned, 32-bit Unsigned, 32bit Signed, and 16-bit Signed. The corresponding watch address is as the following list.

Channel	Data Format	Data Length	Watch Address
0	16-bit Unsigned	1 Word	LW-n
1	32-bit Unsigned	2 Words	LW-n+1
2	32-bit Signed	2 Words	LW-n+3
3	16-bit Signed	1 Word	LW-n+5

Time stamp outputIf selected, the system will start counting time from the<br/>first data sampled, and output the elapsed time counted of<br/>the latest data sampled to the register designated in [Time<br/>stamp output + 2]. When pressing a point on the trend<br/>curve, the relative time of the nearest data sample is then<br/>output to [Time stamp output address].

#### Note

The format of the register designated in [Time stamp output] and [Time stamp output + 2] must be 32-bit. [Time stamp output + 2] is only available for Real-time mode while [Time stamp output] is available for Real time mode and History mode.

#### **Display Tab**

New Circ	ular Trend Display Object	×
General	Display Trend Channel Security Shape	
-Option	button visibility	
	Predefined	
	🔽 Enable	

Display settings in this page are only supported on cMT / cMT X Series models.

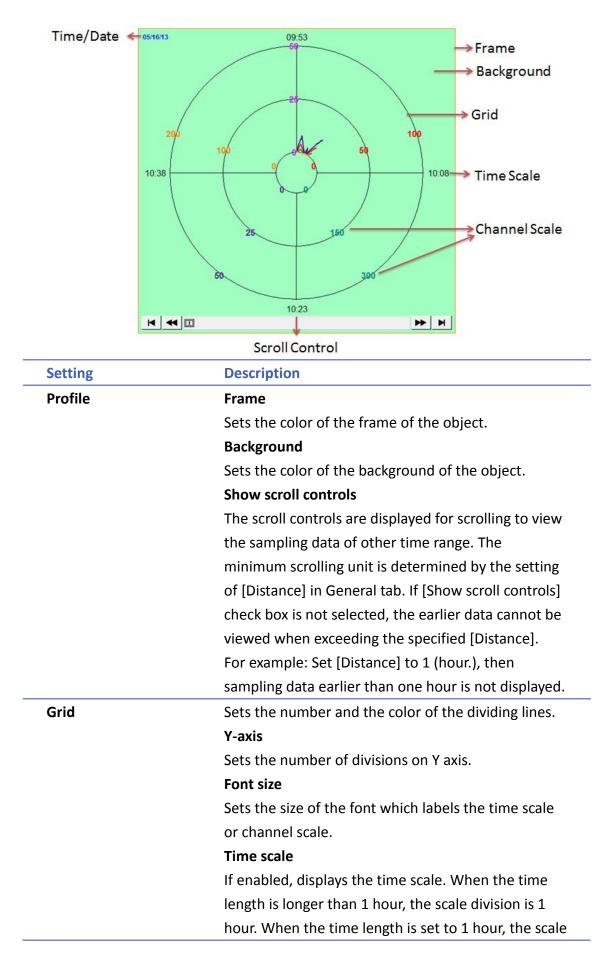


Setting	Description
Option button	Show or hide the option button
visibility	Predefined
	Select [Enable] to show the option button.
	Dynamic
	Option button visibility
	Device : Local HMI   Address : LB   O

## **Trend Tab**

Circular Trend Display Object's Properties
General Trend Channel Shape Profile
Profile
Frame : Background :
Show scroll controls
Grid
Y-axis: 4 division(s)
Font size : 8
Time scale
Channel scale
Enable
Time/Date
Time 💿 HH:MM:SS 🔘 HH:MM
Date MM/DD/YY OD/MM/YY OD.MM.YY Y/MM/DD
Color:
OK Cancel Help





	division is 15 minutes.				
	Channel scale				
	If enabled, displays the channel scale. The color of				
	the font which labels the channel scale corresponds				
	to the setting of the trend curve of each channel.				
Time / Date	Time				
	Sets the display format of time.				
	Date				
	Sets the display format of date.				

## **Channel Tab**

	al Trend	Channel	Shape Profile			
ata	sampling o	bject				
		Display	Description	Data type		
• 0 1 2 3		<b>V</b>	16-bit Unsigned	16-bit Unsigned		
		<b>V</b>	16-bit Unsigned	16-bit Unsigned		
		<b>V</b>	16-bit Unsigned	16-bit Unsigned		
		1	16-bit Unsigned	16-bit Unsigned		
	4	<b>V</b>	16-bit Unsigned 16-bit Unsign			
	n property Col	lor :		Width : 2		
	Ze	no : 100	namic limits	Span : 1000		
han	nel visibilit	v control -				
han	nel visibilit	y control	able			
	nel visibilit C name : [	V En	able	▼ Setting		
PL		En Local HMI	able v 250	Setting     16-bit Unsigned		
PL	C name : [ Address : [	En Local HMI	▼ 250 e corresponding bit is :			

Setting	Description
Channel	Sets the style and the color of the trend curve, and
	the upper and lower limit of data that can be drawn
	on the trend curve. Up to 8 channels are supported
	simultaneously.



	Not selecting [Dynamic limits]							
	The upper and lower limits of the data are set by							
	constants.							
	Selecting [Dynamic limits]							
	The upper and lower limits are set by the designated register. When the address is LW-n, the							
	cor	corresponding addresses are as the following list.						
		Data	a format	16-bit	32-bit			
		Low	er limit	LW-n	LW-n			
		Upp	er limit	LW-n+1	LW-n+2	2		
Channel Visibility	of the desi	gnated						
Control	word register will be used to show/hide each							
	channel. First bit (Bit-0) controls the first channel;							
	sec	second bit (Bit-1) controls the second channel, and						
	SO	so on.						
	Dis	Display channel when the corresponding bit is:						
	If [	If [ON] is selected, when the corresponding bit is						
	OF	OFF, the channel is hidden. If [OFF] is selected, when						
	the	the corresponding bit is ON, the channel is hidden.						
	In t	In the following example, the control address of						
	cha	channel visibility is set to LW-0 and each channel						
	sho	shows when the corresponding bit is OFF. If there						
	are	are 5 channels, the visibility of the channels is as the						
	foll	following list.						
		Channel	Control a	ddress	Bit state	Display		
		0	LW_bit	-000	OFF	YES		
		1	LW_bit	-001	ON	NO		
		2	LW_bit	-002	ON	NO		
		3	LW_bit	-003	OFF	YES		
			LW bit					



## 13.38. Picture View

#### 13.38.1. Overview

Picture View object plays slideshow of picture files saved in an external device such as a USB drive or SD card.

This object does not work remotely on cMT Viewer.

#### 13.38.2. Configuration



Click the Picture View icon on the toolbar to open the property dialog box. Set up the properties, press OK button, and a new Picture View object will be created.

### **General Tab**

	Security			
Comme	nt :			1
File position				
🧿 USB disk	1 🔘 USB disk 2 🖉	SD card		
Directory				
Differency				
🔽 Dynamic	folder path			
Device	Local HMI		*	<u> </u>
Address	LW - 0		20 w	ord(s)
File selection	lin the second sec			
		2		
🗸 🔍 🖉 utomete		1009.09		
V Automati	ally display the newly generated	ımage		
(S)	fication when switching to a new	0.22		
(S)	fication when switching to a new	picture		
🔽 Send not	fication when switching to a new	0.22		
Send not	fication when switching to a new  Set ON  Local HMI	picture		<u>.</u>
🔽 Send not	fication when switching to a new  Set ON  Local HMI	picture	<b></b>	<u>-</u>
V Send not Device Address	fication when switching to a new  Set ON  Local HMI  LB  V  0	picture	•)	<b>.</b> 4
Send not Device Address	fication when switching to a new  Set ON  Local HMI	picture Set OFF		<u>.</u>
✓ Send not Device Address ✓ Specify f Disable le	ication when switching to a new Set ON Local HMI LB I from address ft/right swiping and hide file brow	picture Set OFF	- C	
Send not Device Address Specify f Disable k Device	ication when switching to a new  Set ON  Local HMI  LB  From address  fthright swiping and hide file brow  Local HMI	picture Set OFF	*	
Send not Device Address Specify f Disable la Device Address	ication when switching to a new  Set ON  Local HMI  LB  From address  fthright swiping and hide file brow  Local HMI	picture Set OFF vser/first/last butto	+) 20 w	The second secon



Setting	Description
File position	Select the file source of the picture files from [SD card] or
	[USB disk].
Directory	Specify the directory where the picture files are saved. The
	directory can be the one used for Video Input's capture
	feature or Function Key's screen hardcopy feature. The
	picture file saved in the external device can be
	immediately displayed.
	Dynamic folder path
	Designate folder path by a local address.
File selection	Automatically display the newly generated image
	When a new image is generated in the designated folder
	path, Picture View object will automatically display the
	new image.
	Send notification when switching to a new picture
	When [Automatically display the newly generated image]
	is selected, the state of the designated address changes to
	On/Off when the new picture is displayed on HMI.
	Specify file from address (hide toolbar)
	When enabled, the displayed picture is designated by a file
	name in a local address, and the toolbar will be hidden.
	name in a local address, and the toolbar will be hidden.

# Note

- The file name must be all in ASCII characters, and the Unicode characters are not supported.
- The supported picture formats are: .jpg, .bmp, .gif, .png.
- The size of the picture that can be displayed on an iP/iE/eMT/XE/mTV model is calculated in the following formula: (image.width × image.height) < (screen.width × screen.height) × 4</p>

Pictures with sizes exceeding this range cannot be displayed on HMI.

Two-finger zoom in / out gestures are supported on capacitive touchscreens.



## **Outline Tab**

	New Picture View Object         General Outline Security         Toolbar position :         Background :         Font :         Anial         Display with original size when a picture size is smaller than the object size
Setting	Description
Outline	Specify the position, background color, and font of Picture
	View object. (Supported only on iP/iE/eMT/XE/mTV
	models.)
	Hide delete button
	When selected, the delete button for deleting the viewed
	picture will be hidden in the Picture view object.
	Display with original size when a picture size is smaller
	than the object size.
	When selected, the picture will be displayed in its original
	size if it is smaller than the Picture View object. This can
	avoid distortion caused by enlarging the picture.

Lick the icon to download the demo project. Please confirm your internet connection

before downloading the demo project.



## 13.39. File Browser

#### 13.39.1. Overview

File Browser object can display filenames and their directories saved in the SD card or USB disk. Apart from browsing for the files in the external devices, the filenames and the directories selected in File Browser object can be written to the designated address. This object does not work remotely on cMT Viewer.

## 13.39.2. Configuration



Click the File Browser icon on the toolbar, or select [Object] » [File Browser] to open a File Brower object property dialog box and set up the properties.

#### **General Tab**

Jeneral Outli	ne Security Shape		
Folder path a	ldress		
	🔽 Enable		
Device :	Local HMI	•	Settings
Address :	LW • 0		20 word(s)
File name add	lress		
	📝 Enable		
Device :	Local HMI	•	Settings
Address :	LW 🖌 0		20 word(s)
Full (folder +	file name) address		
	🔽 Enable		
Device :	Local HMI	•	Settings
Address :	LW 🕶 0		20 word(s)
Control addr	28		
	🔽 Enable		
Device :	Local HMI	+	Settings
Address :	LW 🗸 0		22 word (s)
Com	nand : LW-O		
	0 : none, 1 : delete, 2 : rename		
F	esult : LW-1		
	0 : success, 1 or more : error		
New file	name : LW-2		



# 13-293

Setting	Description
Folder path address	Current directory.
File name address	The file name of the currently selected file.
Full (folder + file	The full directory and file name of the currently
name) address	selected file.
Control address	Designate the control address used for deleting a
	file or changing file name in File Browser.
	Command: Control Address
	0: None
	1: Delete
	2: Rename
	3: Select (only supported on cMT / cMT X Series
	models)
	Result: Control Address+1
	0: Success
	1 or more: Error
	New File Name: Control Address +2



### **Outline Tab**

eneral Outline Sec	urity Shape		
File position :	SD card 💿 U:	SB disk	
File type :	All files	•	
Font			
	Arial	<i>[9</i>	•
Color :		Size : 12	•
Background			
0.1	Transparent		
Color :			
Color Grid :	-	Select box :	-

Setting	Description
Folder position	Select the position of the file from SD card or USB
	disk.
File type	File types to be displayed. Options include all files,
	CSV files, or image files. For cMT / cMT X Series
	models, there is also a PDF file option for use in
	conjunction with PDF reader.
Font / Background / Color	Set the attributes and font of the object.

# Note

- The file name and the directory of the selected file will be written to the designated address. To change file selection in File Browser to another file by changing the address, please enter the position of the file and then use the select command (=3).
- The system will read the folder path address and file name address when the HMI is restarted or when an external device is inserted to the unit. If valid data is can be read



from the designated address, the system will then automatically navigate to the appropriate directory and highlight the file according to the data read. If [Folder path address] is not enabled, the data at Full (folder + file name) address will be read.

Click the icon to watch the demonstration film. Please confirm your internet connection before playing the film.



# 13.40. Import/Export

#### 13.40.1. Overview

With Import/Export object, Recipe Database or String Table can be imported or exported.

## 13.40.2. Configuration



Click the Import/Export icon on the toolbar to open the Import/Export Object management dialog box. To add an Import/Export object, click [New], set up the properties, press OK button and a new Import/Export object will be created.

Import/Export	
1: File position : USB disk, Recipe database : Recipe	
1:       File position : USB disk, Recipe database : Recipe         2:       File position : USB disk, String Table	
New Delete Settings	Exit



## **General Tab**

neral													
	Descrip	otion :											
	3	Гуре :	Recip	e databə	se								•
	Re	ecipe :	recipe	•									Ŧ
I	File pos	ition :	© 51	D card	0	USB	disk [	2 © F	lemote	HM	[ (cM ]	l' serie	s)
Contro	l addre	\$\$											
J	PLC :	Local	HMI							-	Se	ttings	]
Add	lress :	LW				• 1	00						
Cor	Status		import 101	, 2 : exp	ort (n	LO OVe:	rwrite),	3 : exp	ort				
Cor	0 : no Status 0 : idl Result	ne, 1 : :: LW- le, 1 : b :: LW-	import 101 usy 102	, 2 : exp re : erro		LO OVE:	rwrite),	3 : exp	ort				
	0 : no Status 0 : idl Result	me, 1 : : LW- le, 1 : t : LW- ccess, 4	import 101 usy 102			LO OVE	rwrite),	3 : exp	ort				
	0 : no Status 0 : idl Result 1 : su	ne, 1 : : LW- le, 1 : t : LW- ccess, 4 ress	import 101 usy 102 or mo		r	uo ove:	rwrite),	3 : exp	ort				
File nav	0 : no Status 0 : idl Result 1 : su	ne, 1 : : LW- le, 1 : t : LW- ccess, 4 ress In	import 101 usy 102 or mo	re : erro	r	LO OVE	rwrite),	3 : ехр	ort	•	Se	ttings	
File nav	0 : no Status 0 : idl Result 1 : su me add	ne, 1 : : LW- le, 1 : t :: LW- ccess, 4 ress In Local	import 101 usy 102 or mo	re : erro	r	10 ove:		3 : exp	ort	•	<u>Se</u> 20 wo		
File nau I Add	0 : no Status 0 : idl Result 1 : su me add	ne, 1 : : LW- le, 1 : b : LW- ccess, 2 ress In Local LW	import 101 usy 102 or mo	re : erro	r			3 : ехр	ort	•			
File nau I Add Folder	0 : no Status 0 : idl Result 1 : su me add PLC : lress :	me, 1 : :: LW- :: LW- ccess, 4 ress In Local LW Idress	import 101 usy 102 or mo clude f	re : erro	r			3 : exp	ort	•	20 wc		

Setting	Description
Туре	Select the file source from Recipe Database or
	String Table.
File position	Select the position of the file to be imported /
	exported from SD card, USB disk, or Remote HMI
	(cMT / cMT X Series). When Remote HMI is
	selected, please note that only files in cMT / cMT X
	Series models can be imported.
Recipe	Select the recipe. This option is hidden when select
	String Table.
Control address	Designate the control address used for performing
	import/export, or displaying the result.
	Control: Control Address
	Recipe Database:
	0: None
	1: Import
	2: Export (no overwrite)



	3: Export
	String Table:
	0: None
	1: Delete
	2: Import
	4: Export (no overwrite)
	5: Export
	Status: Control Address+1
	0: Idle
	1: Busy
	Result: Control Address +2
	1: Success
	4: The file already exists, no overwriting.
	Other: Error
File name address	The name of the imported/exported file. If [Include
	folder path] is selected, the full directory and file
	name will be included at this address.
Folder path address	The directory of the imported/exported file.
Remote HMI address	When the file position is [Remote HMI (cMT / cMT
	X Series) ], please enter the remote HMI's IP
	address in this field.

## Example 1

The following is an example on recipe export/import settings.

Field	Setting
File position	USB disk
Recipe	Recipe_A (or other recipe)
Control address	LW-100
File name address	LW-200
Folder path address	LW-250

- 1. Create two ASCII Input objects. Set address to LW-200 and LW-250 respectively.
- 2. Enter the file name in LW-200: 2015\_recipe.csv.
- **3.** Enter the folder path in LW-250: Setting.
- 4. Use a Set Word object to write value 3 to LW-100. Then, Recipe\_A will be exported to the USB disk, in the "Setting/2015\_recipe.csv" file.



# Note

When performing "Export (no overwrite)" command, if the target file already exists, the export operation will be canceled, and the result value will be set to "4". The following lists the result values and the information.

Result (HEX)	Information
0x1	Success.
0x4	File already existed and will not overwrite.
0x10	Invalid command.
0x100	Data contains non-numeric data.
0x101	Path contains invalid string "".
0x102	Communication error while updating Recipe DB.
0x103	Error while reading Recipe DB information from project file.
0x200	General exception.
0x201	General status error.
0x202	Import to unknown database type.
0x203	Error while validating Recipe DB table definition.
0x204	Error while validating Recipe DB table data.
0x205	Error while writing Recipe DB table definition.
0x206	Error while writing Recipe DB table data.
0x300	File error: Unknown error.
0x301	File error: Empty file name.
0x302	File error: The external device does not exist.
0x303	File error: Invalid file name (directory or special
	files), or a folder with the same name already exits.
0x304	File error: Unable to remove file.
0x305	File error: Open file stream error.
0x306	File error: Unhandled BOM.
0x307	File error: Error while parsing CSV file (incorrect
	formats).
0x308	File error: Insufficient space on the external device.
0x309	File error: Unable to find the file.
0x30A	File error: The CSV file contains over 10000 data
	rows.
0x400	Database general exception.



0x401	Database error: Unable to open table.
0x402	Database error: Unable to get rows.
0x403	Number of columns in CSV file and in Recipe DB do
	not match.
0x501	Unable to connect remote HMI.
0x503	Import from remote HMI database is prohibited.
0x504	Import from remote HMI database is not
	supported.

Click the icon to watch the demonstration film. Please confirm your internet connection before playing the film.

Click the icon to download the demo project. Please confirm your internet connection before downloading the demo project.



## 13.41. Pie Chart

#### **13.41.1.** Overview

The Pie Chart object draws a pie chart that is divided into slices to illustrate numerical proportion, according to the value of the designated read address.

### 13.41.2. Configuration



Click the Pie Chart icon on the toolbar to open the property dialog box. Set up the properties, press OK button, and a new Pie Chart object will be created.

#### **General Tab**

General Security Profile	Angle : Angle : Hole	Full, 0"
3	Border color :	
And the part of the second sec	Value	-
Font : Size : Right of decimal Pt. :	12 💌	
Read address PLC name : Local HMI		Settings
Address : LW	• 0	Securigs
Channel : 0	•	
Text color :	Background color : Pattern style :	
	OK Cancel	Help

Setting

Description

Angle

Set the [Start degree] of the chart. Choose the Chart

to be [Clockwise] or [Counter clockwise].

If [Full circle] isn't selected, then [End degree] must



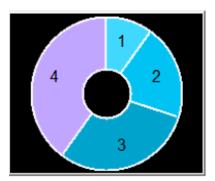
EasyBuilder Pro V6.09.01

be set.

Degree			X
Start degree :	Olockwise	Counterclockw End degree :	
	Full circle		OK Cancel

Hole

Set the size of the hollow circle in the center of Pie Chart.

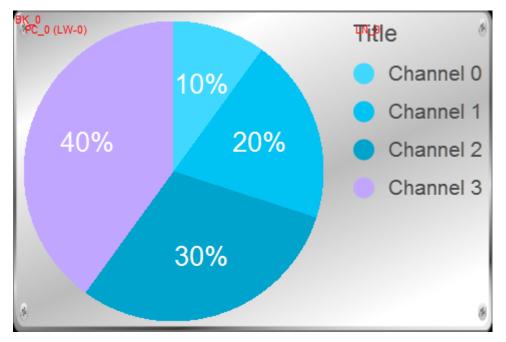


Set the number of channels to be displayed in the
chart. The range is from 2 to 16.
Set the color of the border.
The [Style] can be set as [None], [Value] and
[Percentage]. The [Font] and [Size] are for the text
on the chart. For Value Style, the [Right of decimal
Pt.] can set the value on the chart to be displayed
with the decimal point. The [Right of decimal Pt.]
option is only available for [Value] style.
The address is for channel 1. The following
consecutive addresses are for the rest of the
channels. For example, if the Read Address is LW-0,
then the Read Address for channel 2 is LW-1;
channel 3 is LW-2and so on.
Set the [Text color], [Background color], [Pattern
color], and [Pattern style] of the selected channel.
The [Background color] is for the [Pattern style] that
has background. If the [Pattern style] doesn't have a
background, then the [Background color] doesn't
need to be set.



## 13.41.3. Combo Setting

cMT / cMT X Series HMI support combo setting for Pic Chart, which allows setting of multiple related objects at a time. Pic chart can be set with Background and Legend.



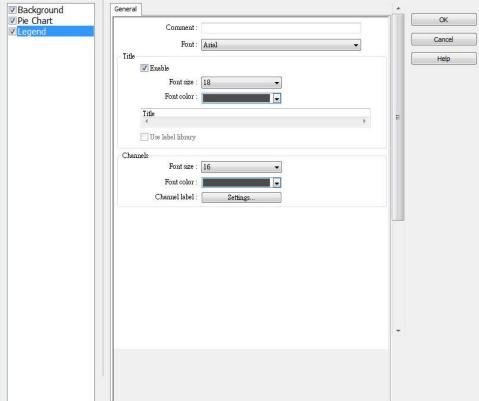
## Background

Pie Chart			×
☑ Background	Outline	<b>^</b>	
Pie Chart			ОК
✓ Legend	Margin: 10 🚔		Cancel
	Color/Style		
	Customize		Help
	Picture Library		
		Ξ	
	e		
		-	
	,		



EasyBuilder Pro V6.09.01

Setting	Description
Margin	Specify the space between the background edge and
	the objects.
Color/Style	Customize
	Color/Style  Customize  Picture
	Round : 10
	Pattern : Pattern style :
	Select a suitable background pattern and color.
	Picture
	Color/Style Customize   Picture
	Picture Library
	Use the default picture or choose a picture from
	Picture Library.
gend	
Berra	
Pie Chart	
☑ Backgrour	General
Pie Chart	Comment : OK
Mategenu	Font: Arial



Setting	Description
Title	Set whether to use a title for Pic Chart, and set the
	font size / font color of the title. The title can be
	selected from Label Library.
Channel	Set the channel label. When using Label Library, the
	number of the channels should be the same as the
	number of states in the library.

Click the icon to download the demo project. Please confirm your internet connection before downloading the demo project.



## 13.42. Barcode

### 13.42.1. 2D Barcode Display

#### 13.42.1.1. Overview

The 2D Barcode Display object transfers the information from the read address into QR Code or Aztec Code.

#### 13.42.1.2. Configuration



Click the 2D Barcode Display icon on the toolbar to open the property dialog box. Set up the properties, press OK button, and a new 2D Barcode Display object will be created.

#### **General Tab**

General Security	
Comment :	
Mode : Conrection level : Color :	QR code
Read Device : Local HM Address : LW Length :	• 0

Setting	Description
Mode	Supports QR code, Aztec code, Data Matrix.



<b>Correction level</b>	2D barcodes have error correction capability to restore data
	if the barcode is dirty or damaged.
	QR code
	Four correction levels are available: L, M, Q, and H. The data
	restoration rate is listed below. (The data restoration rate for
	total codewords. Codeword is a unit that constructs the data
	area.)
	Correction Level
	L 7% M 15%
	Q 25%
	H 30%
	Aztec code
	Aztec code supports error correction levels from 5% to 95%.
	Specifying a higher correction value results in a larger printed
	symbol and increases accuracy.
Color	Set the 2D barcode color.
UNICODE	By default, the 2D barcode is generated via ASCII encoding. If
	this check box is selected, the 2D barcode is generated via
	UNICODE encoding.
	For characters that are not ASCII defined English alphabets or
	numbers, for example, Chinese or Korean characters, please
	select the Unicode check box.
Reverse	By default, the 2D barcode is displayed in high byte then low
	byte order. With this option selected, the 2D barcode is
high/low byte	displayed in a reverse order, low byte then high byte.
Read address	The 2D Barcode Display object will display the 2D barcode
neau auuress	generated from the information entered by the read address.
	The word length limit of QR code: $1 \approx 1024$ .
	The word length limit of Aztec code and Data Matrix: $1 \sim$
	2048.

#### 13.42.2. Push Notification Barcode Display

#### **13.42.2.1.** Overview

Push Notification Barcode Display object displays the QR code needed for setting up EasyAccess 2.0 push notification via messaging applications.

## 13.42.2.2. Configuration



Click the [Object] » [Barcodes] » [Push Notification Barcode Display] to open the property dialog box. Set up the properties, press OK button, and a new Push Notification Barcode Display object will be created.



# **General Tab**

feneral Security	
Comment :	
Mode :	QR code 🔹
Correction level :	(H (30%) - Default
Color :	
	Unicode
	Reverse high/low byte
Read	
Device : Local HM	
Address : LW-117	70 (64 words) : QR code (URL) for 💌
Length :	64 word (s)
rengut.	
rengur.	04 #000(9)
rengu .	107 WORKS
Telffor .	
Pengur .	
Tenên :	
Terfên :	
Tenên :	
Teufân :	
Teufân :	

Setting	Description
Mode	Supports QR code, Aztec code, Data Matrix.
Correction level	<ul> <li>2D barcodes have error correction capability to restore data if the barcode is dirty or damaged.</li> <li><b>QR code</b></li> <li>Four correction levels are available: L, M, Q, and H. The data restoration rate is listed below. (The data restoration rate for total codewords. Codeword is a unit that constructs the data area.)</li> <li><b>Correction Level</b></li> <li>L</li> <li>7%</li> <li>M</li> <li>15%</li> <li>Q</li> <li>25%</li> <li>H</li> <li>30%</li> </ul> Aztec code Aztec code supports error correction levels from 5% to 95%.
	Specifying a higher correction value results in a larger printed symbol and increases accuracy.
Color	Set the 2D barcode color.
UNICODE	Cannot be changed by default.
Reverse high/low byte	Cannot be changed by default.



```
Read address
```

Cannot be changed by default.

#### System Parameter Settings

Syst	tem Parameter Settings
	Extended Memory Cellular Data Network Time Sync /DST e-Mail Recipes
	Device Model General System Setting Remote Security
	Prohibit remote HMI connecting to this machine
	Prohibit password remote-read operation (or set LB9053 on)
	Prohibit password remote-write operation (or set LB9054 on)
	VNC server
	Password free
	Password from project
	Monitor mode
	EasyAccess server
	Location of EasyAccess 2.0 server : China 💌
	Diagnoser
	Enable
20	cMT viewer
	Max connect count : 3 🚔 Count : 1 ~ 10
	Warning : too many connect count will affect performance.
8	
	OK Cancel Help
etting	Description
syAccess	Global: Supports push notification features of Wechat,
ver	Facebook, and Line.
	China: Supports push notification features of WeChat

#### **Push Notification Settings**

After downloading the project file to HMI, the QR code will be shown on HMI screen. For more information on setting up push notifications in WeChat, Facebook, and LINE, please refer to the link below (see version 2.8 and later).

https://support.ihmi.net/ea20/release-notes



## 13.42.3. Barcode Scanner (Android Camera)

### 13.42.3.1. Overview

By connecting an Android device (smartphone/tablet) equipped with a camera to a cMT / cMT X HMI using cMT Viewer installed on the Android device, the camera can be used to scan 1D or 2D barcodes.

### 13.42.3.2. Configuration



Click the Barcode Scanner icon on the toolbar or click [Objects] » [Barcodes] and then select [Barcode Scanner]. Configure the parameters and click OK; a Barcode Scanner object will be created.

#### **General Tab**

neral Securi	ty Profile		
Comme	ent :		
Control addres	8		
PLC :	Local HMI		▼ Settings
Address :	LW	▼]0	
Exe	cution status : LW-1	none, 1 : start and clear	
	Data length : LW-2	}	
tatus address			
PLC :	Local HMI		▼ Settings
Address :	LB	• 0	
	nning Status : LB-1	off, 1 : on )	
arcode addre	\$		
PLC :	Local HMI		▼ Settings
Address :	LW	▼ 10	20 word(s)
	🔽 Use Unicode		
ead byte limi	it		
	🔽 Enable	Limit : 10	Bytes

SettingDescriptionControl addressControl address: Gives Command to Barcode



	Scanner.
	0: None
	1: Start and Clear
	2: Stop
	3: Clear
	Control address + 1: Shows Execution Status.
	0: None
	1: Success
	2 or more: Error Code
	Control address + 2: Shows data length scanned.
Status address	Status address: Shows camera status is On / Off.
	0: Off
	1: On
	Status address + 1: Shows whether scanning is
	ready.
	0: Stopped
	1: Ready for scanning
Barcode address	The address that stores the data read, UNICODE is
	allowed.
Read byte limit	allowed. If the data read exceeds this setting, the execution



#### Objects

### **Security Tab**

und Library	Name	Size 0 k	Impor	•t
[Project]			Pla	у
-11			С	ancel
Sound I Enable	Sound Library Play	] Sound Index : Default	ł	

Setting	Description
Sound	If Enable is selected, when data is read, a sound is
	emitted. The supported sound file format is .wav.

# Note

- Barcode Scanner is currently supported on cMT-SVR and cMT3151 models. Barcode Scanner cannot be opened using simulation mode or cMT Viewer.
- Supports: EAN/UPC, Code 128, Code 39, Interleaved 2 of 5 and QR Code.
- On the device, if other applications are also using the camera, or the camera is locked, cMT Viewer may not operate properly.
- In the project, when multiple cMT Viewer devices are connected, since the same address is shared between the devices, the devices will simultaneously scan if they are displaying the same window with Barcode Scanner.



## Example 1

The following demo project shows how to scan QR code using a tablet.

**1.** At the beginning, the display is dark.

Barcode Scanner with Android Camera
Control address
Command 0000 Start Stop Clear Execute Status 0000 Length (in Byte) 0000 Status address Camera Scanning OFF
Barcode address
Data
Data Unicode 0000 0000 0000 0000

**2.** Tap Start button, the status of Scanning turns ON, the display turns bright, and is ready for scanning.

Barcode Scanner with Android Cam	era
Baroole Scarrer with Android Camera Control address Comeral Control address Comeral Control address	Command 0000 Start Stop Clear
Exercise Status address Exerci	Execute Status 0000 Length (in Byte) 0000
	Camera 🔍 Scanning 🔍
Barcode address	
Data	
Data Unicode 0000 0000 0	000 0000

3. When a QR code is read, the Execute Status turns 1, and the QR code is captured, its content will be displayed in Barcode Address group box. Unicode is also supported.



#### Objects

Barcode Scanner with Android	Camera
	Control address Command 0000 Start Stop Clear Execute Status 0001 Length (in Byte) 0007 Status address
	Camera Con Scanning Correct
Barcode address	
Data Weintek	
Unicode 0057 006	55 0069 006E 0074 ···

4. If the size of the data read exceeds the maximum allowable size set in Read Byte Limit (10 bytes in this project), the Execution Status turns to 2 (error code). The exceeding part will still be displayed in the ASCII objects in Barcode Address group box, since the data length displayed depends on the ASCII object settings (20 words in this project).

Barcode Sc	anner wit	h Android Cam	era
			Control address
			Command 0000
And Add			Start Stop Clear
()	_		Execute Status 0002
20. mar -		S.	Length (in Byte) 0015
and the second second		新建	Status address
			Camera 💽 Scanning 💽 🕞
	Barcode a	ddress	
	Data	barcode scan	ner
	Data Unicode	barcode scanner 0062 0061 00	072 0063 006F ···

**5.** After changing to another page, Scanning turns OFF, the parameters are reserved. The parameters will be cleared when next time Start button is tapped, or Clear button is tapped.



#### Objects

Barcode Scanner with Android Camera
Control address
Command 0000
Start Stop Clear
Execute Status 0002
Length (in Byte) 0015
Status address
Camera ON Scanning OFF
Barcode address
Data barcode scanner
Data barcode scanner
Unicode 0062 0061 0072 0063 006F

Click the icon to download the demo project. Please confirm your internet connection before downloading the demo project.



## 13.43.1. Overview

13.43. String Table

By pre-configuring the texts and their corresponding numbers in the String Table, the text can be changed dynamically on HMI. String Table can also be used in a multi-language environment.

## 13.43.2. Configuration



Click [Project] » [String] to open the property dialog box. Set up the properties, press OK button, and a new String Table object will be created.

D:000] Digit	s	•	New Section	Delete Se	ection				
Desc	ription : Digits		· · · ·						
ng Table									
String ID	Language 1	Language 2	Language 3	Language 4	Language 5	Language 6	Language 7	Language 8	
0	1	one	壹						
1	2	two	壹 貳 參						
2	3	three	参						
					_				
New	Set	tings	Delete	Delete All			Export C	SV File	Import CSV File

Setting	Description		
Section	A list of all the existing String Tables.		
	[New Section] Add a new String Table.		
	[Delete Section] Delete the selected String Table.		
New	Add a new string in the table.		
Settings	Set the content of the selected string.		
Export CSV File	Export all the existing String Tables as a *.csv file.		
Import CSV File	SV File Import *.csv file into the String Table.		
<b>Export EXCEL File</b> Export all the existing String Tables as a *.xls file			
Import EXCEL File	Import *.xls file into the String Table.		

# Note

The font of each language in the String Table must be specified in Label Text Library.





Number of rows from all sections combined is limited to 10000.

## Example 1

- 1. Create a String Table using the same settings as the preceding figure.
- Create a Text object, select [Use string table] check box. In String ID group box, select [Dynamic] and set read address to LW-0.

w Text Object	l
Ext Security	Label Library
Use label library Wse string table	String Table
Section : [[D:000] Digits	▼]
String ID	
PLC : Local HMI	▼ Settings
Address : LW 🗸 0	16-bit Unsigned

- 3. Create a Numeric object, set address to LW-0.
- 4. When the value in LW-0 is 0, the No. 0 string is displayed; when the value in LW-0 is 1, the No. 1 string is displayed.

No.	0	No.	1	
Text Object	String_0	Text Object	String_1	



## 13.44. Database

### 13.44.1. Database Server

### **13.44.1.1.** Overview

Database Server object enables connection with MySQL or MS SQL database server, allowing users to send data log or event log to the database, or use SQL Query to access data from the database.

## 13.44.1.2. Configuration



Click the Database Server icon on the toolbar to create a Database Server object. Or, click [Data/History] » [Database Server] in the menu.

Database Server	
1: Server : 192.168.1.100:3306 User name : user Database : database	
New Delete Settings	Exit



# **General Tab**

- ·		_
Comment :		-
Server system :	MySQL 🔻	_
	Use IP •	
IP :	192 . 168 . 1 . 0	
Port :	3306 🔹 * Default port of MySQL is 3306	
Usemame :	user	
Password :	•••••	0
Database name :	database	_
Connect timeout : Read timeout : Write timeout :	10               second (s)         10              second (s)        10              second (s)	

Setting	Description		
Server system	Supported server systems: MySQL, MS SQL Server		
IP	Enter the IP address of the database.		
Use domain name	Use domain name 💌 Domain name : 127.0.0.1		
	Supports designating a server using a domain name.		
Use server name	Server system : MS SQL Server  Use server name  e.g. HOST/SQLEXPRESS Server name : PC_NAMEUNSTANCE_NAME		
	This option is only available when the selected server		
	system is MS SQL Server. An instance stands for a		
	communication port number, and the port number can		
	be used to identify multiple database servers on the		
	same computer.		
	A server name can be in one of the following formats.		
	<computer name="">\<instance name=""></instance></computer>		



	<ul> <li><computer name=""> (Connect to Default Instance :</computer></li> </ul>				
	MSSQLSERVER)				
	<ip address="">\<instance name=""></instance></ip>				
	<ul> <li><ip address=""> (Connect to Default Instance :</ip></li> </ul>				
	MSSQLSERVER)				
Port	Enter the port number of the database.				
Username	Enter the username for connecting the database.				
	The maximum is 32 words.				
Password	Enter the password for connecting the database.				
	The maximum is 32 words.				
Database name	Enter the name of the database for collecting historical				
	data.				
Customize timeout	Timeouts for the following operations can be customized.				
	Connect timeout				
	The timeout for connection attempts. Connection				
	attempts will be terminated when the timeout is				
	reached.				
	Read timeout				
	The timeout for read operations.				
	Write timeout				



# TLS/SSL Tab

General TLS/SSL	Status/Control
🔽 Enable ——	N
Version	: TLS 1.2 🔻
🔽 Server verif:	ication
CA certifics	icate on HMI first (if existed). Otherwise, use imported files below.
CATEILL	Import
	Import
📝 Server na	me must match certificate's information

Setting	Description	
Enable	Enable TLS/SSL security. TLS version can be selected	
	from: TLS 1.0, TLS 1.1, and TLS 1.2.	
Server verification	Enable	
	Verify whether the server certificate is signed by CA	
	(certificate authority) certificate. Server certificate is	
	sent from server during connection.	
	Server name must match certificate's information	
	Verify whether the server's domain name or IP	
	matches the records in the server certificate.	
	Domain name and IP records are stored in Subject	
	Alternative Name of the certificate.	



# Status/Control Tab

General	TLS/SS	SL Status/Co	ontrol			
Status a	ddress					
D	evice :	Local HMI			2.2	▼ Settings
Ad	dress :	LW		• 0		16-bit Unsigned
		Status : L	W-0			
		(	0 : stopped,	1 : disconnecte	d, 2 : connec	ted )
		Error : L	W-1			
		(	0 : none, 1 d	or more : error	)	
Control		\$				
VI	Enable					
D	evice :	Local HMI				✓ Settings
Ad	dress :	LW		• 0		16-bit Unsigned
						201 201
-	77	201 0.0007	19452787			
		Command : L				
		(	0 : none, 1 :	start, 2 : stop,	3 : update )	
		(			3 : update )	
		(	0 : none, 1 : W-1 (4 word		3 : update )	
		( IP : L	0 : none, 1 : W-1 (4 word W-5	ls)	3 : update )	
		( IP : L Port : L Username : L	0 : none, 1 : W-1 (4 word W-5 W-6 (16 wor	ls) rds)	3 : update )	
		( IP : L Port : L Username : L Password : L	0 : none, 1 : W-1 (4 word W-5 W-6 (16 wor W-22 (16 wo	ls) rds) ords)	3 : update )	
		( IP : L Port : L Username : L	0 : none, 1 : W-1 (4 word W-5 W-6 (16 wor W-22 (16 wo	ls) rds) ords)	3 : update )	
		( IP : L Port : L Username : L Password : L	0 : none, 1 : W-1 (4 word W-5 W-6 (16 wor W-22 (16 wo	ls) rds) ords)	3 : update )	
		( IP : L Port : L Username : L Password : L	0 : none, 1 : W-1 (4 word W-5 W-6 (16 wor W-22 (16 wo	ls) rds) ords)	3 : update )	
		( IP : L Port : L Username : L Password : L	0 : none, 1 : W-1 (4 word W-5 W-6 (16 wor W-22 (16 wo	ls) rds) ords)	3 : update )	
		( IP : L Port : L Username : L Password : L	0 : none, 1 : W-1 (4 word W-5 W-6 (16 wor W-22 (16 wo	ls) rds) ords)		Cancel

Setting	Descripti	on
Status address	LW-n: Dis	plays the connection status of Database
	Server.	
	Value	Description
	0	Not attempting to connect to
		database.
	1	Failed to connect to database.
	2	Connection succeeded.
	LW-n+1:	Error indicator.
	Value	Description
	0	No error.
	1	Unknown error.
	2	Failed to connect to database.
	3	Database blocks the
		unauthorized connection.
	4	Incorrect database name.
	5	Invalid domain name.
	6	Exceeded connection limit.
Control address	LW-n: Co	ntrols the operation of Database Server.
	Value	Description
	0	Ready
	1	Start
	2	Stop



3	Update	
LW-n+1: S	Sets the IP address of the database.	
LW-n+5: S	Sets the port number of the database.	
LW-n+6: S	Sets the username for connecting database.	
LW-n+22:	Sets the password for connecting database.	
LW-n+38:	Sets the name of the database for collecting	
 historical	data.	

# Note

If sampled data is successfully synchronized to the SQL database, three tables will be generated in the database, and the sampled data is saved in \* data table.

Table	Description
<hr/>	Saves data sampling
<pre><hmi name="">_<datalog name="">_data_format</datalog></hmi></pre>	System folder
<pre><hmi name=""> <datalog name=""> data section</datalog></hmi></pre>	System folder

When synchronizing event log, the three tables generated in the database are listed as the following table, and the event log is saved in \*\_event table.

Table	Description
<hmi name="">_event</hmi>	Saves event log
<hr/>	System folder
<hr/>	System folder

- If the content of data sampling / event log, such as data format or event message, is changed and downloaded to HMI, please delete the tables listed above first, and then the new content will thus be effective.
- Azure SQL Server is supported. To use Azure SQL Server, select MS SQL as server system and use domain name. Azure SQL Server has firewall settings, please add the client into whitelist, and see how to configure by opening the link below:

https://docs.microsoft.com/en-us/azure/azure-sql/database/single-database-manage#ma nage-an-existing-server

# Example 1

 Create a Database Server object, set Status Address to LW-0, and Control Address to LW-10.



tus address	Control					
PLC :	Local HMI				✓ Settings	)
Address :	LW	•	0		<b>-</b>	
	Status : L W-O					-
	(0:s	topped, 1 : d	isconnected,	2 : connecte	d)	
	Error : L W-1					
	(O:n	ione, 1 or m	ore : error )			
ntrol addres	s					
🔽 Enable						
PLC :	Local HMI				✓ Settings	)
PLC : Address :		÷	10		▼ Settings	)
			10		✓ Settings	)
	LW Command : LW-10	)	10 , 2 : stop, 3 :	update )	✓ Settings	
	LW Command : LW-10 (0 : n	)	10 10 00	update )	✓ Settings	)
	LW Command : LW-10 (0 : n	) ione, 1 : star 1 (4 words)	10 10 00	update )	▼ Settings	
	LW Command : LW-10 (0 : n IP : LW-1	) ione, 1 : star 1 (4 words) 5	t, 2 : stop, 3 :	update )	Settings	
	LW Command : LW-11 (0 : n IP : LW-1 Port : LW-1	) ione, 1 : star 1 (4 words) 5 5 (16 words)	i, 2 : stop, 3 :	update )	Settings	
Address :	LW Command : LW-11 (0 : n IP : LW-11 Port : LW-11 Username : LW-11	) ione, 1 : star 1 (4 words) 5 5 (16 words) 2 (16 words)	t, 2 : stop, 3 :	update )	Settings	

2. Create a Data Sampling object, in [Sync. to database] group box select [Enable], and set Control Address to LW-80, to update or clear HMI historical data.

Comment : Sampling mode Image: Trigger-based Sampling time interval : Isecond(s) Read address PLC : [Local HMI	Data Sampling Object							
Sampling mode Time-based Sampling time interval : isecond(s) Read address PLC : Local HMI Address : LW Data Record Data Format Data length : 1 word(s) Hold address Control address	Bata samping object							
<ul> <li>There-based Trigger-based</li> <li>Sampling time interval : second(s)</li> <li>Read address</li> <li>PLC : Local HMI</li> <li>Address : LW</li> <li>100</li> <li>Data Record</li> <li>Data Format</li> <li>Data length : 1 word(s)</li> <li>Sinc. to SD card</li> <li>Sync. to USB disk</li> <li>Sync. to USB disk</li></ul>	Comment :							
<ul> <li>There-based Trigger-based</li> <li>Sampling time interval : second(s)</li> <li>Read address</li> <li>PLC : Local HMI</li> <li>Address : LW</li> <li>100</li> <li>Data Record</li> <li>Data Format</li> <li>Data length : 1 word(s)</li> <li>Sinc. to SD card</li> <li>Sync. to USB disk</li> <li>Sync. to USB disk</li></ul>	Sampling mode	Hold address						
Sampling time interval : isecond(s)   Sampling time interval : isecond(s)   Read address   PLC : local HMI   Address : LW   Data Record   Data Format   Data Format   Data length : 1 word(s)    Control address  Control address  PLC : local HMI  Cocle HMI  Cocl								
Read address       Image: Control address         PLC : Local HMI       Image: Control address         Address : LW       100         Data Record       Image: Control address         Data Format       Data length : 1 word(s)         Control address       Image: Control address         Image: Control address       Image: Control address	Time-based O Trigger-based	Enable						
Read address       PLC: Local HMI       Settings         Address:       LW       100         Data Record       Image: Comparison of the setting o	Sampling time interval : 1 second(s)							
Read address       PLC: Local HMI       Settings         Address:       LW       100         Data Record       Image: Comparison of the setting o								
Read address       PLC: Local HMI       Settings         Address:       LW       100         Data Record       Image: Comparison of the setting o								
Read address   PLC:   Local HMI   Address:   LW   Data Record   Data Format   Data length:   1 word(s)     PLC::   Local HMI   Vertice   LW   Boata Record   Vertice   Data Format   Data length:   1 word(s)     PLC::   Local HMI   Vertice   Vertice <t< th=""><th></th><td colspan="7">Control address</td></t<>		Control address						
PLC:       Local HMI        Getulliss         Address:       LW       100       IG-bit Unsigned         Data Record        History files       History files         Data Format       Data length:       1 word(s)       Sync. to SD card       Sync. to USB disk         Sync. to SD card       Sync. to USB disk       Sync. to USB disk       Database       Database         Database:       Image:       Image:       Image:       Image:       Image:       Image:		V Enable						
PLC:       Local HMI <ul> <li>Settings</li> <li>Address:</li> <li>W</li> <li>100</li> <li>Istory files</li> <li>Bata Format</li> <li>Data length:</li> <li>1 word(s)</li> <li>Sync. to SD card</li> <li>Sync. to USB disk</li> <li>Sync. to USB disk</li> <li>Sync. to Josplay history from database</li> <li>Database:</li> <li>Istory files</li> <li>Database:</li> <li>Istory files</li> <li>Sync. to USB disk</li> <li>Sync. to USB disk</li></ul>	Read address	PLC : Local HMI    Settings						
Address : LW • 100 Data Record Data Format Data length : 1 word(s) Sync. to SD card Sync. to USB disk Sync to database Database Database Database Database : 1. 127.0.0.1	PLC : Local HMI    Settings							
Data Record       Image: Constraint of the second of the se	Address : LW V 100							
Data Record Data Format Data length : 1 word(s)  Charlength : 1 word(s)  C		History files						
Data Format       Data length : 1 word(\$)         Name : Datalog         Sync. to SD card         Sync. to USB disk         Sync to database         Enable         Database : 1 127.0.0.1	Data Record							
Sync. to SD card Sync. to USB disk Sync to database Enable Display history from database Database : 1. 127.0.0.1	Data Format Data length : 1 word/c)							
Sync to database	Data romac Data religin. 1 word(s)							
✓ Enable     ☐ Display history from database     Database : 1. 127.0.0.1		Sync. to SD card Sync. to USB disk						
Database : 1. 127.0.0.1		Sync to database						
Database : 1. 127.0.0.1		Enable     Display history from database						
OK Cancel		Database : 1. 127.0.0.1						
OK								
OK Cancer								
		OK Cancel						

- **3.** If the database is successfully connected, the status indicator LW-0 displays 2 (connection succeeded), and the error indicator LW-10 displays 0 (no error).
- 4. Write 2 in LW-80 (sync. data). Open SQL database, the data can be found in table <HMI NAME>\_<DATALOG NAME>\_data.

Table	Action						Records 🔮	Туре	Collation	Size	Overhead
hostname_datalog_data	:=	ŝ	2	3-	Ĩ	X	6	MyISAM	utf8_unicode_ci	2.1 KiB	-
hostname_datalog_data_format		ß		3-	Ĩ	$\mathbf{X}$	1	MyISAM	utf8_unicode_ci	2.0 KiB	-
hostname_datalog_data_section		r		3-	1	$\mathbf{X}$	0	MyISAM	utf8_unicode_ci	1.0 KiB	-
3 table(s)	Sum						7	MyISAM	utf8_unicode_ci	5.2 KiB	0 B



Objects

Click the icon to watch the demonstration film. Please confirm your internet connection before playing the film.

Click the icon to download the demo project. Please confirm your internet connection before downloading the demo project.



### 13.44.2. SQL Query

### **13.44.2.1.** Overview

SQL Query can exchange data with SQL database. Before enabling SQL Query, please configure Database Server.

### 13.44.2.2. Configuration



Click [Data/History] » [SQL Query] to open the settings dialog box. Configure the parameters and click OK; a SQL Query will be created.

General Command	Description : SQL query : Database : Local v Position : [	1			Advanced mode
Command	Database : Local	]			
		]			
	Position :	2			
		USB disk 🔻			
	File path :	Dynamic 🔻 Device	e: Local HMI		▼ Settings
		Address		▼ 100	20 word(s)
			(=		
	Table name : table_name				
	Schema				
	Device : Local HMI		<u>►</u>	Settings	
	Address : LW	▼ 0			
	Name	Description	Primary key	Address	Address forma
	1 ID		۲	LW-0	16-bit Unsigned
	2 Name		0	LW-1	String
	New Delete	m + Primary key shou	uld be auto incremen	ıt.	• •
					OK Cancel

Setting	Description
Advanced Mode	Without [Advanced Mode] selected:
	Click [New] to add a new row or click [Import from
	server] to import an existing database.
	With [Advanced Mode] selected:
	Manually enter syntax in Command tab to control
	MySQL/MS SQL database. Please note that returning
	from Advanced Mode to General Mode is not



	possible.
Description	User's description about this query.
Database	Select the source database to read from.
	Local: The source database is the SQLite database
	stored in a USB disk or SD card attached to HMI.
	Click the icon to watch the demonstration film.
	Please confirm your internet connection before
	playing the film.
	Remote: The source database is the designated
	Database Server.
File path	Use [Static] or [Dynamic] directory for a local
	database. When [Static] is selected, please enter the
	directory in this dialog box. When [Dynamic] is
	selected, please designate an address as the data
	source for the file path.
Table name	Enter the name of this query table.
Schema	The data read from database will be filled into the
	corresponding address specified in the schema.
	Please manually set Address Format after reading



- A Primary Key should contain only numeric values.
- In MySQL, Auto Increment must be enabled for Primary Key.

Column Name		Datatype	PK	NN	UQ	В	UN	ZF	AI	G	Default/E	xpression
data		INT(11)							1			
•												)
Column Name:	data		Data Type:	INT(	11)							
Collation:	Table Default	-	Default:									
Comments:			Storage:	<b>V</b>	irtual		0	Sto	red			
				V P	rimary	Кеу		/ Not	Null		Unique	
				B	inary			Uns	igned		Zero Fill	
			[	<b>V</b> A	uto In	creme	nt 🛽	Ger	erated	ł		



### **Command Tab**

SQL Query		×				
General	Control address					
Command	Device : Local HMI					
	Address : LW 300 16-bit Unsigned					
	Customize length for error message Error message : 64 words 🚔					
	Command ID : LW-300 Row selection : LW-301 Status : LW-302 Error code : LW-303 Error message : LW-304 (64 words)					
	Command					
	Command ID Description					
	1 Create					
	2 Read					
	3 Update					
	4 Delete					
	OK Can	cel				
Setting	Description					
Control a	ddress Designate five consecutive registers to execute S commands and show results. Of the results, the length of error message can be customized.	QL				
Comman	<b>d</b> In standard mode (without checking Advanced n box), the four basic commands of SQL (Create, R Update, and Delete) and their command ID are shown.					

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### 13.44.2.3. Advanced Mode

In the Command table in Advanced Mode, [No. of arguments], [No. of outputs], and [Action] columns can be found. Outputting multiple results to consecutive addresses at a time is possible.



	Control address								
Command	Device : Loc	cal HMI							
	Address : LW	1	▼ 100	16-b	bit Unsigned				
	Customize length for error message								
	Enable result count								
	Command ID	: LW-100							
	Row selection	: LW-101							
	Status : LW-102								
	Error code	: LW-103							
	Error code Error message	: LW-103 : LW-104 (64)	words)						
	Error code	: LW-103 : LW-104 (64)	words)						
	Error code Error message	: LW-103 : LW-104 (64)	words)						
	Error code Error message No. of results Command	: LW-103 : LW-104 (64 v : LW-168	words) No. of arguments	No. of outputs	Action	•			
	Error code Error message No. of results Command	: LW-103 : LW-104 (64 v : LW-168	-	No. of outputs 0	Action INSERT INTO [Table]([name], [age]) v	•			
	Error code Error message No. of results Command — Command ID	: LW-103 : LW-104 (64 ) : LW-168 Description	No. of arguments			-17			
	Error code Error message No. of results Command — Command ID 1	: LW-103 : LW-104 (64 v : LW-168 Description Create	No. of arguments 2	0	INSERT INTO [Table]([name], [age]) v				

Setting	Description			
Control address	Specify the ID number used to give this command.			
Row selection	Specify a row.			
Status	Displays the execution status. See Ch13.44.2.4.			
Error code	Displays the execution result. See Ch13.44.2.5.			
Error message	Displays the error message sent from database			
	server. The default length of the error message is 64			
	words. Customizing the length of the error message			
	is also possible, and the upper limit is 200 words.			
No. of results	Displays the number of output results.			
New / Delete /				
Settings / Copy	Add, delete, set, or copy a SQL Query command.			



### Objects

# **Query Tab**

Query		
	Command ID :	5
Argument	Description :	Update
	SQL Query :	Update country SET Name = ' $\{2\}$ ', Continent = ' $\{3\}$ , SurfaceArea = " $\{4\}$ ', I
		۰ ( ا
		☑ Discard result

Setting	Description
Command ID	Specify the ID number used to give this command.
Description	Enter the description of this command.
SQL Query	Enter the syntax for this command. An argument
	should be enclosed in braces: \${argument no.}
Discard result	With this checkbox selected, the result of executing
	this command will not be shown in SQL Query Result
	Viewer object. This checkbox can be selected for
	commands that are done directly to the database
	without the need for returning a result, such as
	INSERT INTO, UPDATE, DELETEetc.



### Argument Tab

Query rgument	PLC name Local HMI Local HMI Local HMI Local HMI Local HMI	LW-300 LW-328			
gument	2 Local HMI	LW-328			
			String (10)		
	3 Local HMI	114/ 229			
		LVV-558	32-bit Float		
	4 Local HMI	LW-340	32-bit Unsigned		
	5 Local HMI	LW-342	32-bit Float		
	6 Local HMI	LW-344	String		
	New	Dele	ete Settings		

If argument is used in the syntax of a command in [Query] tab, the system will refer to the address specified in this tab according to the argument number enclosed in \${argument no.}.

### **Output Tab**

[Multiple results] not selected

After reading database under Advanced Mode, the result will be stored in the addresses specified in this tab. Selecting [Multiple results] option can output multiple query results to consecutive addresses at a time.

SQL Query Cor	mand	×	SQL Query Command
Query Argument Output	PLC name       Address       Address       format         I       Local HMI       LW-300       String (2)         I       Local HMI       LW-328       String (20)         I       Local HMI       LW-328       String (20)         I       Local HMI       LW-338       32-bit Float         I       Local HMI       LW-344       32-bit Unsigned         I       Local HMI       LW-344       String	▲	Query       Multiple results         Bulk address       Bulk address         Output       Device : [acat Het]         Address : [w]       200         Results       Maximum number of results : 2         Maximum number of results : 2       3         * Number of voords in a result: 11 voords       *         * Number of voords in a result: 12 voords       *         * Number of voords in a result: 12 voords       *         Masimum number of results : 12       *         Massimum number of results : 12       *         Massimum number of results : 12       *         Number of voords in a result: 13 voords       *         The address of the Nth result: 12*       *         Che Address column of the following bable shows the output address of the Nth result:       *         PLC name Address Address format       Word Length         1       Local HMI       LW-200       Show the addresses of the Nth result:         Vec and the following bable shows the output address of the Nth result:       *         1       Local HMI       LW-210       16-bit Unsigned 1         1       Local HMI       LW-210       16-bit Unsigned 1       *         New

[Multiple results] selected

Setting	Description
Bulk address	Designate the start address for bulk output of
	results. The upper limit of data records is 10000



	(maximum number of results x number of columns).		
Maximum number	The upper limit is 1000 results. Suppose maximum		
of results	number of results is set to 100, and the returned		
	number of query results is 300, then:		
	When [Row selection] is set to 20, the 20 <sup>th~</sup> 119 <sup>th</sup>		
	results are output to bulk addresses.		
	When [Row selection] is set to 260, the 260 <sup>th~</sup> 299 <sup>th</sup>		
	results are output to bulk addresses.		
Show the	Shows the output address of the N <sup>th</sup> result in the		
addresses of the	Address column of the table below this setting.		
Nth results	If the address of the output of the first result is		
	LW-200 and the number of words in a result is		
	OFFSET, the address of the output of the N <sup>th</sup> result is		
	LW-200+OFFSET*N.		

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### 13.44.2.4. Status

Value	Meaning		
0	Normal		
1	Query result exceeds 1000 records. Using LIMIT clause can		
	constrain the number of rows in one page.		

### 13.44.2.5. Error Code

Error Code	Meaning		
0	No mistakes		
1	Unknown error		
2	Invalid command		
3	Database Server is not connected yet		
4	Argument cannot be read		
5	Cannot write and output		
6	Incorrect number of arguments		
7	Error in MySQL, please read error message		
8	Unsupported datatype		
9	Number of columns exceeds the limit		
10	Number of rows exceeds the limit		
11	Unable to read local database directory		
12	Name of local database does not exist		



EasyBuilder Pro V6.09.01

13 Internal error
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### **13.44.2.6.** Converting Datatype

Converting datatype as shown in the following table will take place after reading MySQL database. If conversion cannot run properly, error code 5 will show. For example, when converting MySQL's INT into EasyBuilder Pro's 16-bit Unsigned, if the value exceeds the limit of 16-bit Unsigned, error code 5 will show.

MySQL data format	EasyBuilder Pro datatype
TINYINT	16/32-bit BCD
SMALLINT	16/32-bit HEX
MEDIUMINT	16/32-bit Binary
INT	16/32-bit Signed
BIGINT	16/32-bit Unsigned
ВІТ	
FLOAT	32-bit Float
DOUBLE	
DECIMAL	
DATETIME	String
CHAR, BINARY	
VARCHAR, VARBINARY	
TINYBLOB, TINYTEXT	
BLOB, TEXT	
MEDIUMBLOB, MEDIUMTEXT	
LONGBLOB, LONGTEXT	



### 13.44.3. SQL Query Result Viewer

### **13.44.3.1. Overview**

SQL Query Result Viewer shows the results obtained by running SQL Query.

### 13.44.3.2. Configuration



Click on [Data/History] » [SQL Query Result Viewer] to open the settings dialog box. Configure the parameters and click OK; a SQL Query Result Viewer will be created.

General Securi	y Shape	
Comment	:	
SQL Query	: 1: General Mode 🔹	
Style	: Crystal 🔻	
Style Color	:	
Text		
Font	: Arial [Arial] [Droid Sans]	•
Size	: 12 •	1.0
Color	:	
<b>V</b> Caption –		
Text size	16 💌	
Text color		
	Filter enabled	

Setting	Description	
Comment	User's comment about this result viewer.	
SQL Query	Select an existing SQL Query to show its result.	
Style/ Style Color	yle Color Select a style and a color for this result viewer.	
Text	Set the font, font size, and font color for the texts	
	shown in this result viewer.	



Caption	Set the font size and font color for the caption of this result viewer.
Table	This group box opens when selecting Default as style. The attributes of the result query table can be configured.
Filter enabled	With this checkbox selected, entering keywords in SQL Query Result Viewer to search for specific text is possible.



# 13.45. Dynamic Scale

### 13.45.1. Overview

Dynamic Scale offers customizable tick marks and scale labels and can be used together with objects such as Trend Display, Bar Graph..., etc.

### 13.45.2. Configuration



Click the Dynamic Scale icon on the toolbar to open a Dynamic Scale object property dialog box. Set up the properties, press OK button, and a new Dynamic Scale object will be created.

$\left\{ \begin{array}{c} \\ \end{array} \right\}$	Style : Circula Angle :	r 🔹
ick Mark Scale Label		
Color :	Radius :	
Ticks : 5	Length :	<u> </u>
Sub scale Ticks : 1	▼ Length :(	]

Setting	Description
Style	Select the style from [Circular], [Horizontal], or [Vertical]. If select
	[Circular], set the [Direction] and [Degree].



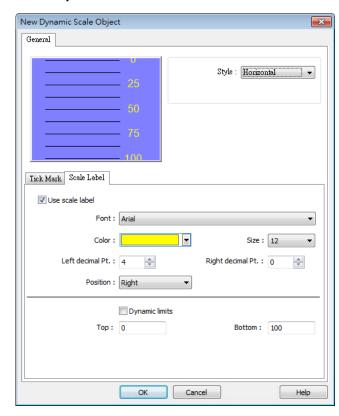
	Degree				
	Direction				
	Clockwise     Counterclockwise				
	Degree				
	✓ Full circle				
	Start: 0				
	OK Cancel				
	Direction				
	Select from [Clockwise] or [Counterclockwise].				
	Degree				
	If [Full circle] is selected, set the start degree.				
	If [Full circle] is not selected, set the start and end degree.				
	Degree				
	Start: 0 End: 0				
Tick Mark	Select the color of the tick mark, and set the number of ticks for the				
	main and sub scale (major and minor tick mark).				
	For [Circular] style, the length of the major and minor tick mark, and				
	the radius of the circular tick mark can be set.				
Scale Label	Displays major tick labels.				
	Circular				
	New Dynamic Scale Object				
	General				
	Style : Circular Angle : Full, 0°				
	Tick Mark Scale Label				
	Use scale label				
	Font : Arial				
	Color : Size : 12 V				
	Right decimal Pt. : 0				
	Radius :				
	Dynamic limits				
	Min.: 0 Max.: 100				
	Min.: 0 Max.: 100				
	Min.: 0 Max.: 100				

Set the font, font color, font size, and decimal point of the scale



#### label.

Set the radius start from the center of the object to the position to place the scale label.



Virtical / Horizontal

Set the font, font color, font size, and decimal point of the scale label.

Set the position to display the scale label.

The Max. and Min. limits of the scale label can be specified. If [Dynamic limits] is selected, the Max. and Min. limits can be set by the designated word addresses.

		V Dynamic limits			
	Min.:	LW-0		Max. :	.W-0 + 1
PLC :	Local HMI			•	Settings
Address :	LW	•	0		16-bit Unsigned

Click the icon to download the demo project. Please confirm your internet connection before downloading the demo project.



# **13.46.** Dynamic Drawing

### 13.46.1. Overview

Dynamic Drawing object enables drawing a shape in a specified region on HMI screen at run time. The shape can be a line, a rectangle, a circle, or a dot. By setting the Attributes Addresses, the style and the color of the shape can be customized.

### 13.46.2. Configuration



Click the Dynamic Drawing icon on the toolbar to open a Dynamic Drawing object property dialog box. Set up the properties, press OK button, and a new Dynamic Drawing object will be created.

1							
	General Color						
	Clear address						
	PLC : Local HMI 👻 Settings						
	Address : LB 🔹 0						
	Attributes address						
	PLC : Local HMI 🗸 Settings						
	Address : LW 🗸 0						
	LW-0 shape						
	0: none, 1: line, 2: rectangle, 3: circle, 4: dot						
	5: ellipse, 6: ellipse from rectangle						
	7: arc, 8: pie, 21: move origin LW-1 arrow/shape style ( <u>more</u> ) LW-2 line/fill style ( <u>more</u> ) LW-3 inner color LW-4 interior pattern color (rectangle, circle)						
	LW-5 x1						
	LW-6 y1						
	L W-7 x2 (radius of circle, arc, pie), rx (ellipse) L W-8 y2, ry (ellipse), start degree (arc, pie) L W-9 end degree (arc, pie)						
	* (x1, y1) : start point (line, rectangle ellipse from rectangle) center (circle, ellipse, arc, pie) origin position relative to left-top corner (move origin)						
	* (x2, y2) : end point (line, rectangle) width and height (ellipse from rectangle)						
	OK Cancel Help						
ng	Description						



### **Attributes Address**

Entering different values in different Attributes Addresses brings different effects, as shown in the following table.

Attributes Address	Attributes Address+0	Attributes Address+1		Attributes Address+2	Attributes Address+3	Attributes Address+4
Default	0	Ones	Tens		Customizable	Customizable
		0: Non-arrow	0: Small	0: Solid line		
		1: Single-ended arrow (Hollow)	1: Large	1: Dashed line		
		2: Double-ended arrow (Hollow)		2: Dotted line		
Line	1	3: Single-ended arrow (Solid)		3: Dash Dot line	Line color	
		4: Double-ended arrow (Solid)		4: Dash Dot Dot line		
				5 and up: Solid line with thicknesses greater than 2		
Rectangle	2	0: Hollow		Drawn in Line mode	Postonalo color	Interior pattern
Rectangle	2	1: Solid		Drawn in Pattern mode	Rectangle color	color
Circle	3	0: Hollow		Drawn in Line mode	Circle color	Interior pattern
Circle	5	1: Solid		Drawn in Pattern mode		color
Dot	4				Dot color	
Ellipse	5	0: Hollow		Drawn in Line mode	Ellipse color	Interior pattern
Liipse	5	1: Solid		Drawn in Pattern mode		color
Ellipse from	6	0: Hollow		Drawn in Line mode	Ellipse color	Interior pattern
Rectangle	0	1: Solid		Drawn in Pattern mode		color
Arc	7			Drawn in Line mode	Arc color	
Pie	8	0: Hollow		Drawn in Line mode	Pie color	Interior pattern
FIC	0	1: Solid		Drawn in Pattern mode		color
Move Origin	21					

Attributes Address	Attributes Address+0	Attributes Address+5	Attributes Address+6	Attributes Address+7	Attributes Address+8	Attributes Address+9
Default	0					
Line	1	Start point X	Start point Y	End point X	End point Y	
Rectangle	2	Left-top point X	Left-top point Y	Right-bottom point X	Right-bottom point Y	
Circle	3	Center point X	Center point Y	Radius		
Dot	4	Dot X	Dot Y			
Ellipse	5	Center point X	Center point Y	Radius on the X	Radius on the Y	



				axis	axis	
Ellipse from Rectangle	6	Left-top point X	Left-top point Y	Width	Height	
Arc	7	Center point X	Center point Y	Radius	Start degree	End degree
Pie	8	Center point X	Center point Y	Radius	Start degree	End degree
Move Origin	21	New origin X	New origin Y			

The values in [Attributes Address+2] represent different Line or Pattern styles, as shown in the following table.

Line mode	Pattern mode
0 1 2 3 4 5 6  19	0       1       2       3         4       5       6       7         8       9       10       11         12       13       14       15         16       17       18       19         20       21       22       23         24       25       26



### Objects

# **Color Tab**

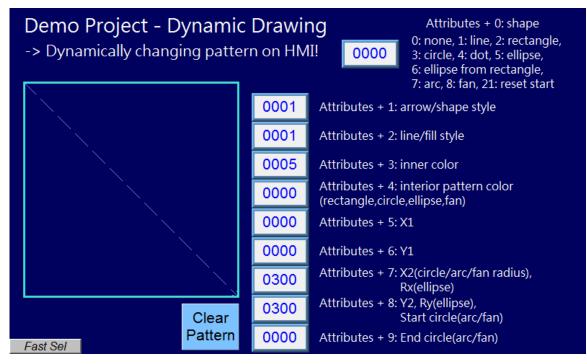
	General C	Color	Profile						_	
	No. 0 1	Colo	00000					lew elete		
	2 3 4	☐ f0 ☐ c0 ☐ 71	fOfO IcOcO 7f7f							
	5 6 7 8	ff	080ff 0000 ff00 0ff00							
	2		(	OK	Can	e		Help		
g	2		( Des	ок criptio		rel		Help		
g				criptio	n		in the	Help	ng.	



# Example 1

The following demo project demonstrates how to dynamically draw an arrow or a circle on HMI screen. To build the project, follow these steps:

- 1. Create a Dynamic Drawing object, set Clear Address to LB-0, and Attributes Address to LW-0.
- 2. Create a Toggle Switch object, set address to LB-0, and select Toggle as switch style, for clearing the drawing.
- Create 10 Numeric objects, set addresses to LW-0~LW-9, for specifying the attributes in the drawing.
- 4. Run simulation or download the project to HMI to see the result. By entering 1 in LW-0, a line is drawn, and entering different values in LW-1~9 can change the style, the color, and the position of the line.



**5.** Press Clear Pattern button, and enter 3 in LW-0, a circle is drawn, and entering different values in LW-1~9 can change the style, the color, and the position of the circle.



Demo Project - Dynamic -> Dynamically changing patte		0: none 1: line 2: rectangle
	0001	Attributes + 1: arrow/shape style
	0025	Attributes + 2: line/fill style
	0004	Attributes + 3: inner color
	0008	Attributes + 4: interior pattern color (rectangle,circle,ellipse,fan)
	0150	Attributes + 5: X1
	0150	Attributes + 6: Y1
	0100	Attributes + 7: X2(circle/arc/fan radius), Rx(ellipse)
Clear	0000	Attributes + 8: Y2, Ry(ellipse), Start circle(arc/fan)
Fast Sel	0000	Attributes + 9: End circle(arc/fan)

# Note

- Before using Attributes Address, please define [Attributes Address + 1] ~ [Attributes Address + 9]. The system will reset the Attributes Address, after it is used.
- If the drawing is not cleared, the new drawing will overlap the previous one, and the maximum acceptable number of drawings in a Dynamic Drawing object is 1000.
- The maximum number of line styles is 19, which means the maximum thickness of a solid line is 16. The style numbers that exceed 19 will be displayed as 19.
- Find the color number in Color tab.
- The range of the start and end degree for Arc and Pie is 0 to 360 degrees.
- Origin position is relative to left-top corner (0,0). Giving "move origin" command will make (x1, y1) the new origin, and x1, y1 will keep on accumulating until being reset to (0,0) by clearing the drawing.
- If cMT Viewer is used to monitor a Dynamic Drawing object on a cMT / cMT X model, then PLW address is recommended to be used as the Attribute Address, so that drawing commands can be given to the cMT Viewer device's PLW addresses. This prevents the issue where the HMI and the cMT Viewer device show different drawing results.

Click the icon to download the demo project. Please confirm your internet connection before downloading the demo project.



### 13-345

# 13.47. PDF Reader

### 13.47.1. Overview

PDF Reader object enables viewing of PDF documents on HMI.

## 13.47.2. Configuration



Click the PDF Reader icon on the toolbar to create a PDF Reader object. Or, click [Object] » [Media] » [PDF Reader] in the menu.

Jeneral						
	Comment :					
Backgro	ound color :	Tra	nsparent	•		
File position						
💿 USB dis	k 1					
Path						
Device :	Local HMI				-	
Address : [	LW	•	0		20 word (	(s)
Address control						
🔽 Page con	ntrol		📝 Zoom	ratio control		
Device :	Local HMI				*	
Address :	LW	•	0		16-bit Ur	nsigned
L	W-0 Current page					
L	W-1 Total pages					
L	W-2 Zoom ratio					

Setting	Description
File position	Select the position where the PDF file is stored.
Path	The directory of the PDF file stored in the external
	device.
Page Control	Current page
	The page number of the current page. Set a value to
	change the current page.
	Total pages
	Total number of pages of the PDF file.



Zoom ratio	Current zoom ratio. Set a value to change the zoom
	ratio. Unit: %; i.e., the number 100 indicates 100%
	display (1:1).

# Note

- PDF Reader cannot be opened using simulation mode or cMT Viewer.
- The PDF files protected by passwords or restrictions cannot be read using PDF Reader.
- CPU loading may rise when multiple PDF Reader objects are opened simultaneously.
- When entering a page number in the Page Control register under multi-page view mode, the specified page will be opened in single-page view.
- Two-finger zoom in / out gestures are supported on capacitive touchscreens.

Click the icon to download the demo project. Please confirm your internet connection before downloading the demo project.



## 13.48. Table

### 13.48.1. Overview

Table object allows users to draw a table in the project window and customize the border, grid, and pattern of the table.

### 13.48.2. Configuration



Click the Table icon on the toolbar to create a Table object. Or, click [Object] » [Table] in the menu.

Contraction and the second sec				
197 197	-D	ivisions		
		Vertical :	3	÷
		Horizontal :	3	A.
		Spacing :	Equal	-
	T	pacing : Free he row width and ljusted freely.	column widt	h can be
Border		121	_	
Line type :	▼ Width : 1	Colo	r : 🚺	•
Frid				
Line type : 💻	— 🗸 Width : 1	Colo:	c: 📃 📃	-
	Fill			
Alignment	Fill			
V Enable	Fill with this table by draggi	ng them into cells		
V Enable	_	ng them into cells 3		
Enable * Align objects in line				
Enable * Align objects in line				
Enable * Align objects in line	e with this table by draggi			



Setting	Description
Preview Window	Displays the settings result.
Vertical	Sets the number of columns in the table. Range: 1~255
Horizontal	Sets the number of rows in the table. Range: 1~255
Spacing	The available options are [Equal] and [Free]. When
1 0	[Free] is selected, the user can manually adjust the
	column width or row height in the editing window.
Border	Sets the type, width, and color of the border. [Line
	width] setting is available only when Solid line type
	is selected. The range of width is 0~8. The line will
	become invisible when the width is set to 0.
Grid	Sets the type, width, and color of the grid. [Line
	width] setting is available only when Solid line type
	is selected. The range of width is 0~8. The line will
	become invisible when the width is set to 0.
Fill	Sets the pattern style and color.
Alignment	By dragging the objects into the cells in the Table,
	the objects can align to the preset position. Different
	alignments can be set for each cell in the Table, by
	default the objects are center-aligned, and nine
	different alignments can be selected as shown in the
	screenshot of the settings window.
	With Alignment enabled, the maximum number of
	vertical / horizontal divisions is 32.
	Please note that this setting does not support the
	alignment of multiple groups of objects.



# 13.49. VNC Viewer

### 13.49.1. Overview

VNC Viewer can run on HMI to control a PC or a device remotely. VNC server must be installed on the remote device to be connected. On HMI the user can monitor and control the remote device.

### 13.49.2. Configuration



Click on the VNC Viewer icon on the toolbar or select [Objects] » [Media] » [VNC Viewer] to open the settings dialog box. Configure the parameters and click OK; a VNC Viewer object will be created.

	ecurity
Co	mment :
	IP: 192.168.0.1
	Port : 5900
	Default password
Color level	
	(all available colors)
	/ (256 colors)
Title bar 📝 Enable	
🔲 Use label librar	
6	ry vailable. Must be less than 32 characters. Font setting has no effective.
Label Libra	
	wanabie, wust be less han 52 characlers, rom seining has no enective.
	walable. Prost de less dial 52 characlets, roin setuig has no enecuve.
* Only ASCII is a Option	rom system keypad

Setting	Description
IP	Enter the IP address of the remote device to be



	connected.
Port	Enter the port number of the remote device to be
	connected.
Default Password	Enter the VNC password to log in the VNC server of
	the remote device. If Default Password is enabled,
	when connecting the remote device, VNC Viewer
	will automatically use the password specified here
	to log in, and the user doesn't need to enter the
	password.
Color level	Select from four color levels: Full (all available
	colors), Medium (256 colors), Low (64 colors), Very
	low (8 colors).
	Auto select (not all servers support this function)
	Allow VNC Viewer to automatically detect and select
	the color level supported by the server used.
	Enable run-time modification in [Control] function
	Select color level or decide whether to enable [Auto
	select] in HMI runtime using the control addresses
	that can be specified in the Control tab in the VNC
	Viewer settings dialog box.
Title bar	Enable
	When [Enable] is selected, a field shows for entering
	the caption in the title bar. The caption is limited to
	ASCII characters, and the font cannot be customized.
	The caption can be selected from Label Tag Library.
	Only when the title bar is enabled can the VNC
	Viewer window be moved or resized by dragging.
Option	Enable input from system keypad
	With this option selected, a keypad icon shows in
	the upper right corner of the VNC Viewer object,
	and the system keypad can be opened by clicking
	this icon.

# Note

- eMT/iE/XE/mTV: VNC Viewer is supported for OS version 20160418 or later.
- cMT / cMT X Series: VNC Viewer is supported only on cMT series HMI screen accessed locally, and for OS version 20180928 or later.
- VNC Viewer cannot be simulated in on-line simulation mode.



#### Objects

- VNC Viewer only mirrors the actual resolution of the VNC server device and does not support scaling.
- When [Default password] is selected, HMI's Virtual Keyboard can only be called out manually. If [Default password] is not selected, the Virtual Keyboard can pop up automatically.

### **Control Tab**

	V Enable			
PLC :	Local HMI		<b>_</b> ][	Settings
	LW	• 0		Notango
	Status : L W-0		-12 	
	NEW TO SEE U. CO. (10/10/10	opped, 1 : running, 2 : fa	iled to connect	
		thentication error, 4 : ser		
		curity error		
	Command : LW-1	1		
	0 : no	one, 1 : start, 2 : stop, 3 :	update	
		? (4 words)	0-0 • 0-0-1-1-0-	
	Port : LW-6			
Defaul	t password : LW-7	7		
	0 : di	sable, 1 : enable		
	Password : LW-8	3 (16 words)		
	Title bar : LW-2	24		
	0 : di	sable, 1 : enable		
Title	e bar name : LW-2	25 (16 words)		
(	Color level : L W-4	11		
	0 : ve	ery low, 1 : low, 2 : med:	ium, 3 : full	
A	uto select : LW-4	12		
	0 : di	sable, 1 : enable		

Setting	Description
IP	A set of word addresses can be specified to control
	VNC Viewer as well to display the connection status.
	Control address: Shows the connection status
	0: Stopped
	1: Running
	2: Failed to connect
	3: Authentication error
	4: Server disconnection error
	5: Security error
	Control address + 1: Command



0: None
1: Start
2: Stop
Control address+2~+5: IP
Control address+6: Port Number
Control address+7: Default Password
0: Disable
1: Enable
Control address+8: Password (16 words)
Control address+24: Title bar
0: Disable
1: Enable
Control address+25: Title bar name (16 words)
Control address +41: Color level
0: Very low
1: Low
2: Medium
3: Full
Control address +42: Auto select
0: Disable
1: Enable

# Note

- The allowable value range that can be entered in Control Address+6 is 0~99. The actual Port Number will be the value entered in Control Address+6 plus 5900. For example, if the user enters 1 in Control Address+6, the actual Port Number will be 5901. However, if the user enters 100 in Control Address+6, the value will not be added by 5900, and the actual Port Number will be 100.
- In VNC Viewer, to use the HMI built-in Virtual Keyboard, please tap the Focus button on the Virtual Keyboard first, and then tap VNC Viewer screen. This will change the input target.

Virtu	al I	Keyb	ooard												$\times$
•	1	2	3	4	5	6	7	8	9	0	-	=		BackS	pace
q	ω		e	r	t	у		u	i	0	Р		[	]	× .
a		s	d		f	9		h	j	k		1		;	
Caps		z	×	с		,	Ь	n	m	,			1	Re	turn
Esc		1	23							~		-	<b>→</b>	F	ocus



Click the icon to download the demo project. Please confirm your internet connection

before downloading the demo project.

Click the icon to watch the demonstration film. Please confirm your internet connection before playing the film.



# 13.50. Contacts Editor

### 13.50.1. Overview

Contacts Editor enables users to dynamically add / modify / delete email contacts on HMI.

## 13.50.2. Configuration



Click the Contacts Editor icon on the toolbar to create a Contacts Editor object. Or, click [Objects] » [Contacts Editor] in the menu.

eneral Outli		ape		
Control addre				 
PLC :	Local HMI			 Settings
Address :	LW	-	0	
Com	mand : LW-0			
	0 [ Non	e]		
	1 [ Add	a contact to o	contacts list ]	
	2 [ Dele	te a contact f	rom contacts list ]	
	3 [ Upd	ate mail addre	ss]	
	4 [ Add	a contact to g	group ]	
	5 [ Rem	iove a contact	from group ]	
	6 [Rem	iove all contac	ts from group ]	
	7 [ Disp	lay contacts ir	n group ]	
	8 [ Disp	lay contacts v	vith no group ]	
	9 [ Disp	lay all contact	s]	
F	tesult : LW-1			
	1 [ Succ	tess ]		
	2 [ Inva	alid command ]		
	3 [ Con	tact not found	1]	
	4 [ Con	tact already e	xists ]	
	5 [ Too	many contact	s]	
	6 [ Inva	alid name ]		
	7 [ Inva	alid mail addres	ss ]	
	-	alid group (equ		
	9 [ Inva	alid group (exc	eed boundary) ]	
Gro	up(s):LW-2			
	Name : LW-3 (32	2 word <b>(s))</b>		
	e-Mail : LW-35 (3	32 word(s))		
* Group(s) : b	it 0 [Group A], b	it 1 [Group B]	, bit 2 [Group C]	



Setting	Descript	ion
Control Address	A set of	word addresses can be specified to chang
	contact l	list or to show results.
	Control	address: Gives commands.
	Value	Command
	0	None
	1	Add a contact to contacts list
	2	Delete a contact from contacts list
	3	Update mail address
	4	Add a contact to group
	5	Remove a contact from group
	6	Remove all contacts from group
	7	Display contacts in group
	8	Display contacts with no group
	9	Display all contacts
	Control	address + 1: Shows execution result.
	Value	Result
	1	Success
	2	Invalid command
	3	Contact not found
	4	Contact already exists
	5	Too many contacts
	6	Invalid name
	7	Invalid mail address
	8	Invalid group (equal to zero)
	9	Invalid group (exceed boundary)
	Control	address + 2: Group(s), uses bits to
	represer	nt groups.
	Value	Commands
	0	Group A
	1	Group B
	2	Group C

name

address

3~15

Group D ~ Group P

Control address + 3: Name (32 word(s)), contact

Control address + 35: e-Mail (32 word(s)), e-mail

# Note

- General tab cannot be found when the model used is a cMT / cMT X model.
- Contact names do not support Unicode.
- The number of groups is specified in [System Parameter Settings] » [e-Mail] » [Recipients].
  Please note that the number of groups cannot be dynamically changed on HMI.

# Outline

Select box :
--------------

### Title

	New Contacts Editor Obje	ect		
	General Outline Title	Shape		
	Title name	Title Contact Name		
	Contact Name Mail Address	Mail Address		
	Characters		Label Library	
	Display items Contact Name		Display chars 2	
	Mail Address	2		
Setting		Description		
Title	-	The title shown in	Contacts Editor	:
Display chars	-	The displayable da	ta length of eac	ch title in Contacts
	ł	Editor. Range: 1~6	0	



13-357

# 13.51. Event Bar Chart

# 13.51.1. Overview

Event Bar Chart is a type of easy-to-use bar chart that can comprehensively illustrate project schedule. Using Event Bar Chart to illustrate HMI events or alarms can help users to clearly understand the time at which an event or alarm occurs, and its duration. Before drawing an Event Bar Chart, please configure Event Log object first.

This feature is only supported on cMT / cMT X Series models (excluding cMT-Gateway).

# 13.51.2. Configuration

# 13.51.2.1. Event Log

Click [Data/History] » [Event Log] in the menu to configure several event logs. This section describes the Event Bar Chart related settings that can be found in the Event Log settings dialog box.

j	Category : All [8	31			•	Edit category na	me mappin	g		26
No.	Category	Text	Mode	Condition	Read address	Notification	Buzzer	e-Mail	Enable/Dis:	New
1	0: Category 0	Fan	BIT	ON	Local HMI : LB-0	Disable	Disable	Disable	Enable	Insert
2	1: Category 1	Fan	BIT	ON	Local HMI : LB-1	Disable	Disable	Disable	Enable	Delete
3	2: Category 2	Fan	BIT	ON	Local HMI : LB-2	Disable	Disable	Disable	Enable	Settings
4	3: Category 3	Fan	BIT	ON	Local HMI : LB-3	Disable	Disable	Disable	Enable	botmigo
5	0: Category 0	Pump	BIT	ON	Local HMI : LB-10	Disable	Disable	Disable	Enable	Сору
6	1: Category 1	Pump	BIT	ON	Local HMI : LB-11	Disable	Disable	Disable	Enable	Paste
7	2: Category 2	Pump	BIT	ON	Local HMI : LB-12	Disable	Disable	Disable	Enable	Paste+
8	3: Category 3	Pump	BIT	ON	Local HMI : LB-13	Disable	Disable	Disable	Enable	1 0.500 1
										Export
										Import
									,	•
									15	
				3	III				•	
V En	nable back light w	hen alam	n occurs			Numbe	r of event (	(alarm) log	: 8 / 10000	

Setting	Description	
Edit category name	Event Bar Chart will show the name of each category.	
mapping		



#### 13.51.2.2. **General Tab**

Event (Ala	rm) Log	<b>—</b>
	Message Statistics Security	
	Category : 0: Category 0   Subcategory	
Pri	Delay time for event monitoring when HMI resets : 1 second(s)	<b>-</b>
_ Туре —	Push notification (EasyAccess 2.0)	
	• Bit O Word	
	Device : Local HMI   Idress : LB   0	Ŧ
ng	Description	

Category

Event Bar Chart will illustrate the duration of all events in one category, please select correct category in this field.

#### Message Tab 13.51.2.3.

	Event (Alarm) Log		
	General Message Statistics Security		
	Text Content: Fan		
	Use label library Use string table String Table		
	Color : Background Color : Transparent		
	Font:       微軟正黑體 [Heiti TC] [Droid Sans]         * Font from [Language & Font] settings       Language & Font		
Setting	Description		
Text	Enter the name of the event log.		
Color	Select the color for the bar shown in Event Bar Chart that illustrates this event log.		



### Objects

### 13.51.2.4. Event Bar Chart



Click [Data/History] » [Event Bar Chart] in the menu to draw an Event Bar Chart.

	New Event Bar Chart Object			
	General Appearance			
	Comment :			
	Include categories			
	Predefined			
	0 🚖 ~ 255 🚖 *See Event (Alam) Log object.			
	Option button visibility			
	Predefined			
	I Enable			
Setting	Description			
Include	Predefined			
categories	Predefine a range of event categories to be displayed in the Event Bar			
0	Chart.			
	Dynamic category range			
	Use a set of consecutive addresses to select the display range of event			
	categories dynamically.			
	Include categories			
	Predefined			
	Device : Local HMI			
	Address: LW 0 16-bit Unsigned			
	Range begin : LW-0			
	Range end: LW-1			
<u> </u>				
Option button visibility	Show or hide the option button of the object.			
	Predefined			
	Select [Enable] to show the option button.			
	Dynamic			
	Choose a bit address to control option button visibility.			
	· /			



	💿 Predefined 🛛 💿 Dynamic
Device :	Local HMI

# Appearance Tab

New	vent Bar Chart Object	<b></b>	
Gene	ral Appearance		
		5 ~ 10/05/2022 14:05 3:35 13:53 (NOW) 13:45 14:00	
	Display timespan : 1 hour Style : Style 1 Text size : 100% Format : Date + Time Watch line : Enabled Number of Division : 4 Actual number of grid lines drawn may vary accord messan]	ing to the parameter [Display	
	OK	Cancel Help	
Setting	Description		
Display timespan	Specify the time into	erval that is measured during this time inter	

illustrated in Event Bar Chart. Tapping

right corner of the HMI screen can also change this

setting.



	Cancel Option	Done
	Begin Date and Time	
	End Date and Time	
	Event Filter	
	Keyword	
	Match case	~
	Display Timespan (hr)	1 •
Style	By default 3 styles are provided for u	sers to choose fro
Text size	Text sizes range from 50%~200%.	
Title bar Format	Date + Time: 08/16/2018 13:55 ~ 08/16	/2018 14:55
	Date only: 09/03/2018 ~ 09/04	1/2018
	Time only: 13:57 ~ 14:57	
Watch line	A watch line shows at the point in th	e Event Bar Chart
	that is touched. The time represente	d by the touched
	point will show at the top of the wat	ch line.
Number of Division	The number of divisions on X axis.	
Time label	The format in which the time label is	displayed.

# **HMI Settings**

On cMT HMI or cMT Viewer, tap the icon in the upper-right corner of the object to open

the following settings window.

Cancel	Option	Done
Begin Date and Time		
End Date and Time		
Event Filter		
Keyword		
Match case		$\sim$
Display Timespan (hr)		1 🔻



Setting	Description		
Begin Date and Time	Specify the begin date and time at which Event Bar		
	Chart displays data. By default this setting is disabled,		
	and Event Bar Chart displays from the begin date and		
	time of the stored data.		
End Date and Time	Specify the end date and time at which Event Bar Chart		
	displays data. By default this setting is disabled, and		
	Event Bar Chart ends at the end date and time of the		
	stored data.		
Event Filter	Keyword		
	Events can be filtered by entering a keyword.		
	Match case		
	Use case-sensitive search when searching for events in		
	English.		
Display Timespan	Dynamically change the time range (1~96 hours.)		
(hr.)	shown in Event Bar Chart. Select all to display all		
	existing events.		



When HMI power is off, the HMI will not be able to obtain the alarm states; therefore, the alarm states during the power off period will not be illustrated in Event Bar Chart, not even after the power turns on.



# 13.52. Action Trigger

#### 13.52.1. Overview

The Action Trigger object can trigger a sequence of action groups when the specified condition is met. Users can divide actions into action groups and the actions within the same group are executed at the same time when the specified condition is met. When all the actions within the same group are completed, the actions in the next group are then executed. This object is only available on cMT / cMT X Series models.

Action Trigger has two types, each with different modes for triggering action execution: Action Trigger (per-page): [Window open/close], [Backlight on/off], and [Value changed] modes.

Action Trigger (Global): [Idle timeout], [Value changed], [Control token], [User secure access], and [Condition object] modes.

#### 13.52.2. Configuration



Click [Object] » [Action-related] » [Action Trigger (per-page)] or [Action Trigger (Global)] icon on the toolbar to open an Action Trigger object property dialog box. Clicking [New] can add a new Action Trigger.



#### **General Tab**

# Action Trigger (Per-page)

Action Trigger (G	lobal)
-------------------	--------

aer secure access
le timeout alue changed ontrol token ser secure access
ser secure access 🔹 💌
ser secure access 🔹 💌
ondition object
Action Group
Set Bit (Set ON, LB-0)
Set Word (Write constan
rms)
rms)

Setting	Description
Trigger	Window open: Triggers actions when window opens. Settings in
(per-page)	Security tab will not be available when using this mode.
	Window close: Triggers actions when window closes.
	Backlight on: Triggers actions when backlight turns on.
	Backlight off: Triggers actions when backlight turns off.
	Value changed: When the state of the designated register meets the
	preset condition, Action Trigger will start executing.
Mode: Idle	If the screen is left untouched for more than the specified time limit
Timeout	configured in [Idle Timeout], Action Trigger will start executing.
(Global)	Range: 1~43200 seconds
Mode: Value	When the state of the designated register meets the preset
Changed	condition, Action Trigger will start executing.
(Global)	Check condition recursively when actions ended
	When all actions are completed, the trigger condition will be checked
	again; and if the condition is met, the actions will be triggered again.
	Dynamic condition value
	This option is available when [Word] is selected as Type. Selecting
	this option opens the [Read/Condition use different addresses]

Objects

	option. When [Read/Condition use different addresses] is not
	selected, the condition value is read from the next contiguous
	register of [Value address].
Control	
Token	Triggers actions when the Control Token is acquired or unacquired.
(Global)	
User Secure	Triggers actions when access to the specified security class is
Access	obtained or lost. When the security class is [Any], the actions can be
(Global)	triggered, regardless of class, when the access is obtained or lost.
Condition	Triggers actions when the conditions set in Condition object are met.
Object	Check condition recursively when actions ended
(Global)	When all actions are completed, the trigger condition will be checked
	again; and if the condition is met, the actions will be triggered again.
Action Group	Actions are classified into groups. Actions in the same group will
	simultaneously be triggered, and only after the actions in the
	previous group have been all triggered, the actions in the next group
	will then be triggered.
Delay	Delays the action for the specified time period (milliseconds).
Set Bit	Sets the designated bit address ON or OFF.
	Set ON
	Sets ON the designated bit.
	Set OFF
	Sets OFF the designated bit.
	Тодде
	Alternates the bit state.
Set Word	Changes the value in the designated word address.
	Write constant value
	Writes the constant value to the designated register.
	Increment value (JOG+)
	Increases value in register by a set amount in [Inc. value], up to the
	[Upper limit].
	Decrement Value (JOG-)
	Decreases value in register by a set amount in [Dec. value], down to
	the [Bottom limit].
	Dynamic Limits (JOG+, JOG-)
	Sets the [Upper limit](JOG+) and [Bottom limit](JOG-) by a
	Sets the [Upper limit](JOG+) and [Bottom limit](JOG-) by a designated register.

	Writes the constant string to the designated register.
	Object Control Command (cMT / cMT X only)
	Listed for selection are commands (with their corresponding
	command values) available for the control address of various
	functions.
	System Tag Command (cMT / cMT X only)
	When a system tag is set as write address; for example, LW-9134:
	Language Mode, the commands relating to the system tag can be
	selected.
Change	Switches to the designated window. Change full-screen window can
window	only be the last action in the last group in an Action Trigger.
	Change full-screen window: Changes to another base window.
	Change common window: Changes common window.
	Return to previous window: Changes from current screen to the
	previous one displayed. For example, when window no. 10 is
	changed to window no. 20, this function can be used to return to
	window no. 10. This function is only available for base window.
	Animation Setting:
	The effects are: Fade, Fly, Float, Wipe, Split, Circle, Clock, Zoom, Turn,
	Push. Different effects may be used for Start (window appears) and
	End (window disappears).
	[Duration] specifies how many milliseconds (ms) a transition effect
	takes to complete.
	[Direction] The direction of the transition.
Execute	Executes one of the Macros from the drop-down list that has already
Macro	been configured by users. Running a macro may take a while to
Macro	been configured by users. Running a macro may take a while to complete; therefore, when [Execute Macro] is put into an action
Macro	
Macro	complete; therefore, when [Execute Macro] is put into an action
Macro	complete; therefore, when [Execute Macro] is put into an action group, it is seen as completed when it is triggered. The system will
Macro Popup	complete; therefore, when [Execute Macro] is put into an action group, it is seen as completed when it is triggered. The system will not wait for the macro to complete running before moving on to the next action group.
	complete; therefore, when [Execute Macro] is put into an action group, it is seen as completed when it is triggered. The system will not wait for the macro to complete running before moving on to the
Popup Window	<ul> <li>complete; therefore, when [Execute Macro] is put into an action group, it is seen as completed when it is triggered. The system will not wait for the macro to complete running before moving on to the next action group.</li> <li>Pops-up a designated window.</li> </ul>
Popup Window Popup	<ul> <li>complete; therefore, when [Execute Macro] is put into an action group, it is seen as completed when it is triggered. The system will not wait for the macro to complete running before moving on to the next action group.</li> <li>Pops-up a designated window.</li> <li>Opens a calculator with an unchangeable appearance, allowing</li> </ul>
Popup Window	<ul> <li>complete; therefore, when [Execute Macro] is put into an action group, it is seen as completed when it is triggered. The system will not wait for the macro to complete running before moving on to the next action group.</li> <li>Pops-up a designated window.</li> <li>Opens a calculator with an unchangeable appearance, allowing operators to do simple calculation and enter the result to a</li> </ul>
Popup Window Popup Calculator Window	<ul> <li>complete; therefore, when [Execute Macro] is put into an action group, it is seen as completed when it is triggered. The system will not wait for the macro to complete running before moving on to the next action group.</li> <li>Pops-up a designated window.</li> <li>Opens a calculator with an unchangeable appearance, allowing operators to do simple calculation and enter the result to a destination object by pressing the Enter key.</li> </ul>
Popup Window Popup Calculator	<ul> <li>complete; therefore, when [Execute Macro] is put into an action group, it is seen as completed when it is triggered. The system will not wait for the macro to complete running before moving on to the next action group.</li> <li>Pops-up a designated window.</li> <li>Opens a calculator with an unchangeable appearance, allowing operators to do simple calculation and enter the result to a</li> </ul>



	Backspace: Same as the keyboard's "Backspace" function.
	<b>Clear</b> : Clear the value in the word register.
	<b>Esc:</b> Same as the [Close window] function; it is used to close the
	keyboard window.
	<b>Delete:</b> Same as the keyboard's "Delete" function, deletes the
	number or character on the right side of the text cursor.
	<b>Left:</b> Same as the keyboard's " $\leftarrow$ " key moves the text cursor to the
	left side of the previous number or character.
	<b>Right:</b> Same as the keyboard's " $\rightarrow$ " key moves the text cursor to the
	left side of the next number or character.
	Inc: Add 1 to the current value.
	Dec: Minus 1 from the current value.
	ASCII/UNICODE: Specify the character to be entered by this key.
Screen Hardcopy	Saves current screen as a hard copy file into a SD card or USB disk.
Acknowledge	
all events	Acknowledges all events at once.
(Alarms)	
Import Data	Imports the e-mail contacts or user accounts, or logs in using USB
	Security Key.
	Data Position:
	The external device to read data from. Options: USB disk or SD card.
	Account import mode:
	If [Overwrite] is selected, there will be only imported accounts after
	import. If [Append] is selected, there will be imported accounts in
	addition to existing accounts after import.
	Delete file after importing user accounts:
	The system will delete the account data saved in the external device
	after importing; this can prevent the account data from leaking out.
Wait Until	The next group will be executed only when the condition set for a
	designated bit or word address is met. However, if the condition is
	not met even after the set wait time (timeout), it can either move or
	to the next action group or end prematurely without continuing.
Data Transfer	
(Global)	Sends the value in the designated address to another address.
File Transfer	Transfer files by FTP. HMI will connect to the FTP server in passive
	mode.
	mode.



	Download: Transfer file from FTP server to local HMI.
	Upload: Transfer file from local HMI to FTP server.
	Server address:
	[Direct]: Designate server address related settings in EBPro.
	[Dynamic]: Designate an address for changing the server address
	related settings dynamically on HMI.
	Suppose the dynamic address is set to LW-n, then:
	LW-n: Host usage (0: IP, 1 Domain name)
	LW-n+1: IP (4 words)
	LW-n+5: Port
	LW-n+6: Authentication (0: None, 1: Account)
	LW-n+7: Username (16 words)
	LW-n+23: Password (16 words)
	LW-n+39: Domain name (64 words)
	Delete the source file after successful transfer
	Following successful transfer, the source file will be deleted. When
	transferring in [Download (FTP -> HMI)] mode, please make sure that
	the account has the write permission on the FTP server.
	File Tab:
	Set file position and full path of FTP server / Local HMI. When a
	folder path is specified, all the files in that folder will be transferred,
	not including files in subfolders. When a file with identical file name
	already exists, it will be overwritten regardless.
	Status Tab:
	Designate an address for showing file transfer result and FTP server
	response. Please use the following link for more information on FTP
	server return codes.
	https://en.wikipedia.org/wiki/List of FTP server return codes
Control	The action to acquire or unacquire a Control Token.
Token	Control Token: Select a Control Token.
	Action: Set this action to acquire or unacquire a Control Token.
	Max. waiting time: Continues or stops running the next action group
	if the Control Token is still not acquired even after the set [Max.
	waiting time].



At most 1000 Action Triggers can be created in a project.



- At most 20 groups can be created in an Action Trigger, and at most 20 actions can be added into a group.
- To rename an action group, right-click on the name of the action group and select [Rename].
- File Transfer Error Codes:

Error Code	Description
0	File transferred successfully.
1	The HMI directory for download does not exist.
3	USB disk or SD card is not found.
4	HMI or FTP directory is empty.
5	Uploaded file does not exist.
8	Operation rejected by FTP server.
9	USB disk or SD card is full.
10	Unknown error.



#### 13-370

# 13.53. Calendar

#### 13.53.1. Overview

The Calendar object can show a calendar on cMT / cMT X Series HMI.

#### 13.53.2. Configuration



Click [Object] » [Time-related] » [Calendar] icon on the toolbar to open a Calendar object property dialog box. Set up the properties, press OK button, and a new Calendar object will be created.

#### **General Tab**

ppearance	Operation							
	<		F	eb 202	0		>	
	Sun	Mon	Tue	Wed	Thu	Fri	Sat	
	26	27	28	29	30	31	1	
	2	3	4	5	6	7	8	
	9	10	11	12	13	14	15	
	16	17	18	19	20	21	22	
	23	24	25	26	27	28	29	
	1	2	3	4	5	6	7	
Navigati Day of w	Backgro veek	und color Fext color und color	r:					
D	1000	lext colo	r: 🚺					
Day —	Backgro	und colo:	r: 🚺		-			_
	(	Frid colo:						
		r		_	•			

 Setting
 Description

 Appearance
 Navigation bar Set the background color and text color of the navigation bar.

 Day of week Set the background color and text color of the days of



	week.
	Day Set the background color, grid color, and text color of the days.
	<b>Today</b> Set the background color and text color to show today.
Operation	Output the date information in a number or a string to the
	designated address.
	New Calendar Object
	Appearance Operation
	Calendar output
	Type:   Number   String
	Format:
	Device : Local HMI
	Address : LW V O 16-bit Unsigned (1)
	Year: LW-0
	Month: LW-1
	Date: LW-2

Click the icon to watch the demonstration film. Please confirm your internet connection before playing the film.



# 13.54. Touch Gesture

#### 13.54.1. Overview

For some time, smartphones or tablets nowadays have been using gesture-based operation, e.g., pinch with five fingers to close an app. Now, with HMI having Touch Gesture object that supports up to 23 touch gestures, HMI can provide operating experience comparable to that of a smartphone or tablet.

The Touch Gesture finger limit is 5.

#### 13.54.2. Configuration



Click [Object] » [Action Related] »[Touch Gesture] icon on the toolbar to open the Touch Gesture property dialog box. Select a window and then add its allowable touch gestures.

#### **General Tab**

Touch Gesture	
-Window List	-Gesture Action List
1 Global	1 Call out Fast System Setting Window
2 15. VNC viewer	2 Turn off Fast System Setting Window
3 73. EasyAccess 2.0	3 Return to Home
4 77. MQTT	
5 92. Web View	
6 94. CODESYS	
7 110. SQL Query	New Delete
8 140. Touch Gesture	Gesture
9 141.	Name : Swipe Up Finger : 3
	Actions
	Action Group 0 Action Group 1
	Set Bit (Set ON, LB-1500)
New Delete	
	OK Cancel



EasyBuilder Pro V6.09.01

Setting	Description
Window List	Allow the gesture actions to be used in a specific window or all
	windows. When Global is selected, one-finger gestures are not
	supported.
	Add/Delete
	Add or delete a window that allows this gesture action.
Gesture	Shows gesture action list for the window.
Action List	Add/Delete
	Add or delete a gesture action.
Actions	Set an action or group of actions triggered using this gesture. For
	more information on the actions, see Chapter 13.36 or 13.52 in this
	manual.

# Note

- Up to 16 gestures can be used for each window setting (global/individual).
- When the same gesture is used in both the Global window and an individual window, the gesture is effective only for the individual window.
- When a user performs a gesture on the screen, objects are still triggered when they are touched.
- The touch gesture for an individual window is only effective when the window is a base window. If the said window is a pop-up window, or overlaid windows, its touch gesture will be ineffective and its gesture actions will not be executed.
- Detection for the next gesture will only start when the actions for the current gesture have been completed.



# 13.55. PLC Web Browser

#### 13.55.1. Overview

The PLC Web Browser object can be used for browsing PLC web pages. PLC Web Browser is supported only on cMT3072X, cMT3072XH, cMT3092X, cMT3152X, and cMT3162X.

#### 13.55.2. Configuration



Click [Object] » [Media] » [PLC Web Browser] icon on the toolbar to open a PLC Web Browser object property dialog box. Set up the properties, press OK button, and a new PLC Web Browser object will be created.

#### **General Tab**

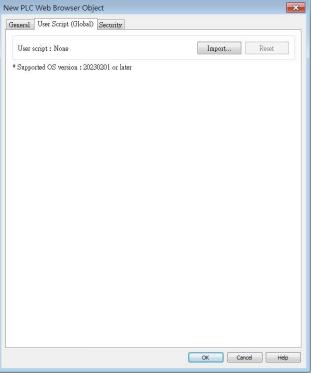
	Script (Global)	Security			
Comment :	52 C0 X0.	2017 - 2011a			
	Default U	RL:			
Show nav	igation bar				
Rounded	corners 🕕				
Control					
🔲 Enable					
Destination p	age URL				
🔲 Enable					
Current page	URL				
Enable Enable					
		l screen of HMI that d		YS activated. See help	t
details. * PLC Web Br * Does not sup * For browser * If text cannot	owser is a CPU- port Java applets compatibility, cl	intensive feature. It wi s heck the actual HMI prrectly, add a font to b	ll greatly affect HM		

Setting	Description
Default URL	Enter the URL into the provided field.
Show	With this option selected, users can directly change URL, refresh
navigation	page, or zoom in/out web page by clicking the icons in the navigation
bar	bar displayed on HMI.

	lcon	Command
	$\leftarrow$	Go back to the previous page
	$\rightarrow$	Go forward to the next page
	$\Theta$	Zoom out the page
	$\odot$	Zoom in the page
	ŝ	Return to homepage
	C	Refresh the page
Rounded	With this	option selected, the browser window will be displayed with
corners	rounded	corners.
Control	LW-n: Co	mmand ID
address	Value	Command
	0	None
	1	Go destination
	2	Reload
	3	Stop
	4	Go back
	5	Go forward
	6	Clear cache
	7	Clear cookie
	LW-n+1 S	tatus
	Value	Command
	0	Load started
	1	Load stopped
	2	Load succeeded
	3	Load failed
	LW-n+2 E	rror Code
	Value	Command
	0	No error
	1	Internal error
	2	Connection error
	3	Certificate error
	4	HTTP error
	5	FTP error
	6	DNS error
Destination	The desig	nated register is for entering a URL with length limit 255
page URL	words. Af	ter entering the URL, please enter value 1 in the Command
address	ID addres	s to go to the destination page.



Current page URL address	Shows the URL of current page, the length limit is 255 words.
Jser Script (Global)	
	New PLC Web Browser Object
	General User Script (Global) Security



PLC Web Browser's User Script settings allow users to import a JavaScript file, which can be used to modify the webpage code. This User Script JS file is shared globally within the project, meaning it will have the same effect on all the PLC Web Browsers in the project. This feature requires OS version 20230201 or later.

#### 13.55.3. Notes on PLC Web Browser

- 1 For more details about supported models and OS versions, please see Appendix A in this user manual.
- 2 PLC Web Brower object is designed specifically for connection to PLC's built-in web server, allowing users to access PLC web page to configure PLC and view PLC data. Using PLC Web Browser to connect to other types of websites may lead to unexpected results or errors.
- 3 Displaying relatively complex web page using PLC Web Browser will occupy more memory and consume a large amount of CPU, which can significantly slow down HMI's operating speed. Users are advised to use change page function or a Direct/Indirect window to display PLC Web Browser object only when it is needed, in order to prevent reduction of system performance.
- 4 As HMI memory is limited, when the PLC Web Browser occupies too much memory, the system will automatically stop PLC Web Browser to ensure proper operation of HMI.



EasyBuilder Pro V6.09.01

#### Objects

- 5 In consideration of performance, PLC Web Browser can only run on an HMI whose CODESYS is not activated.
- 6 Due to rapid change in web technologies, it is not guaranteed that all PLC web servers are supported by PLC Web Browser in EasyBuilder Pro, and certain PLC web pages may not be correctly displayed using PLC Web Browser.
- 7 When multiple PLC Web Browser objects are placed in a single window, only one of them will run while the rest remain ineffective.
- 8 PLC Web Browser object displays web page on top of everything else even if there are other objects placed above it.
- 9 When the PLC Web Browser is clicked or tapped in cMT Viewer running on a PC, smart phone or tablet device, the default browser for the device will be used to open the web page. Note that, in this case, to access the PLC within the same network as HMI, the device running cMT Viewer should also be in the same network as the PLC.
- 10 Browsing web pages using PLC Web Browser on cMT-iV5/cMT-iV6 is not possible.
- 11 Features not supported by PLC Web Browser:
  - Save file as...
  - Text selection
  - Right-click menu
  - Drag & Drop
  - Windows prompt for entering account name and password (e.g., FTP login)
  - Playing videos, e.g. YouTube...etc.
  - Uploading / Download files.
- 12 If the text on a webpage is not displayed correctly in the PLC Web Browser, please refer to Chapter 15.5.5 in this user manual for information on how to download the complete font file to add support for non-built-in fonts in the OS to the PLC Web Browser.



EasyBuilder Pro V6.09.01

# 13.56. Condition

#### 13.56.1. Overview

The Condition object can be used to replace the if-else statement in macro. When the specified conditions in the Condition object are met, the designated output bit address will be set ON. The output bit address can be used in objects' security settings, Event Log, Backup, and Data Transfer...etc. The Condition object can be selected in Action Trigger (Global) object's mode setting. Note that this object is available only on cMT / cMT X models.

#### 13.56.2. Configuration

Click [Object] » [Condition] icon on the toolbar to open a Condition object property dialog box. Click [New] to add a new condition, and then click [OK] to create a Condition object.

#### **General Tab**

	ndition Object 1
Conditionals	
Operator :	AND OR
Name	Description
1	
New	Delete Settings
New	Delete Settings
Output — Device :	
Output — Device :	
Output — Device :	



Setting	Description
Name	Enter the name of this object.
Conditionals	<b>Operator:</b> Select AND / OR operator.
	AND: The Condition object is effective when all the specified
	conditions are met.
	<b>OR:</b> The Condition object is effective when one of the specified
	conditions is met.
Туре	Value Address: Select an address type from Bit / Word.
	Conditional
	Name : Conditional 1
	Type : Value Address
	Type Bit Word Address Device : Local HMI Address : LB    0
	Condition Enable if value is : OFF -
	Condition Object: Select another Condition object.
	Name : Conditional 1
	Type : Condition Object
	Condition : 0. Condition Object 1 👻
	Enable if value is : ON
Output	With this option selected, when the conditions are met, the specified
	bit address will be set ON. When the conditions are not met, the



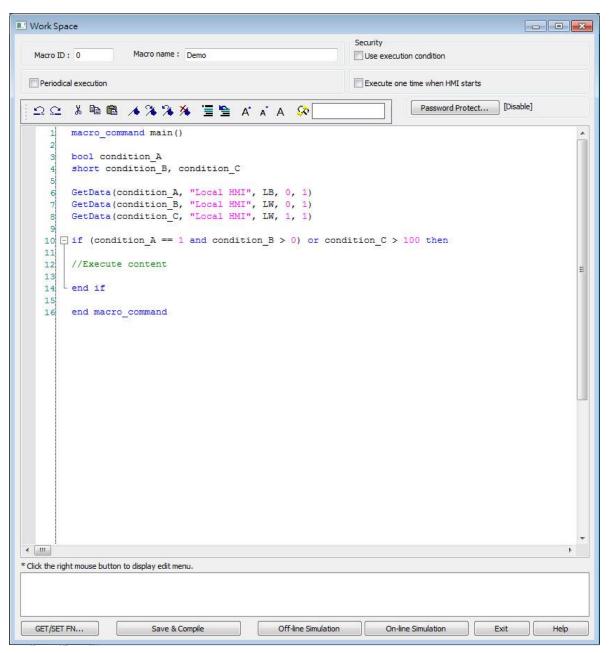
- At most 128 Condition objects can be created in a project.
- At most 8 conditions can be created in a Condition object.



Objects

**Example 1** 

Here is an example of using Condition object to replace the if-else statement in macro. The macro below contains three conditions.



 Create a Condition object, add condition\_A and condition\_B, and then select AND operator as shown below.





		AND OR	_
	Name	Description	
1	condition_A	Value address : [Local HMI : LB-0] is "ON"	
2	condition_B	Value address : [Local HMI : LW-0] > "0"	
	New	Delete Settings	

 Create another Condition object, add Condition Object 1 created in the previous step, add condition\_C, and then select OR operator as shown below.

	nditionals erator : 🛛 🔘 AN		
	Name	Description	
1	Condition Object 1	Condition Object : Condition Object 1 is "ON"	
2	condition_C	Value address : [Local HMI : LW-1] > "100"	

3. Now the Condition objects can do the same thing as the macro, which triggers actions according to the conditions.



# 13.57. FTP Server

#### 13.57.1. Overview

In FTP Server settings, FTP connection parameters can be configured. With FTP function enabled, backup files (screen hardcopy or historical data) can be transferred to FTP server on PC from HMI, in order to achieve the same effect as using EasyPrinter. This feature is only supported on cMT / cMT X Series models.

### 13.57.2. Configuration



Click the FTP Server icon in Data/History tab to open the property dialog box. Set up the properties and press OK button to add a new FTP server.

FTP Sen	ver	
1:	FTP server : 192.168.1.100:21, User name : user	
1: 2:	FTP server : 192.168.1.100:21, User name : user FTP server : 192.168.1.200:990, User name : user	
Ne	ew Delete Settings	



# **General Tab**

Server Comment : Server address O Direct Dynamic Type : Plain FTP Host : 192 . 168 . 1 . 100 Use domain name Port : 21 Usemame : user Password : •••••••• O Use anonymous Password : •••••••	neral								
Server address  Direct  Dynamic  Type: Plain FTP  Host: 192 168 1 Use domain name Port: 21 Usemame: Username: Username: Username:	Server								
Direct     Direct     Dynamic  Type: Plain FTP Host: 192 168 1 Use domain name Port: 21 Username: user Username: Username:	Comment :								
Type : Plain FTP  Host : 192 . 168 . 1 . 100 Use domain name Port : 21 * Usemame : user Use anonymous	Server add n	228							
Host: 192 . 168 . 1 . 100 Use domain name Port: 21 🔹 Usemame : user	o Direct				0	Dynam	ic		
Host : 192 . 168 . 1 . 100 Use domain name Port : 21 🚖 Username : user 🔲 Use anonymous	Туре :	Plain FTP		_	_	_	•	1	
Username : user 🔲 Use anonymous			. 168	-2	1		100	📕 🔲 Use dom	ain name
	Port :	21							
Password :	II.comome ·		2					The energy	
	o sermanie .	user							TAUTOUS
		. Jimmono					0		lymous

Setting	Description
Server address	Direct
	Use the server address related settings (e.g. Type, IP,
	Portetc.) in EasyBuilder Pro.
	Dynamic
	Specify an address for setting FTP connection parameters
	dynamically on HMI.



	Server	
	Comment :	
	Server address	
	Direct      O Dynamic	
	Device : Local HMI   Carl Address : LW   O  16-bit Unsigned	
	Enable secure FTP connection	
	Host usage : LW-0 (0: IP, 1: Domain name) IP : LW-1 (4 words) Port : LW-5	
	Authentication : LW-6 (0 : none, 1 : account) Usemame : LW-7 (16 words) Password : LW-23 (16 words) Domain name : LW-39 (64 words)	
Туре	Plain FTP	
	No encryption.	
	Implicit FTP over TLS	
	The entire connection is encrypted. Default TCP port is 990.	
	Explicit FTP over TLS	
	Encryption begins following authentication request (AUTH	
	TLS). Default TCP port is 21.	
Host	FTP server's IP address or domain name.	
Port	FTP server's port number.	
Username	FTP server's username.	
Password	FTP server's password.	



If "This server is used and cannot be deleted." message shows while deleting an FTP server, please disable FTP function in Home » System Parameters » FTP tab.



# 13.58. Date/Time

#### 13.58.1. Overview

The Date/Time object displays the current date and time in the specified format and font.

# 13.58.2. Configuration



Click the Date/Time icon on the toolbar or click [Object] » [Time-related] » [Date/Time] in the menu to create a Date/Time object.

#### **General Tab**

General Security	Shape	
Date		
	📝 Enable	
Format	MM/DD/YY -	
Day of week		
	🔽 Enable	
Label	Settings	
Time		
	🔽 Enable	
Format	HH:MM:SS •	
	🔽 12-hour clock	
Label (AM/PM)	Settings [am], [pm]	
	Right align	
Font		
Name	Arial [Arial] [Droid Sans]	•
Color		
		•
Align	Center 👻	

Setting	Description
Date	Set the date format.
Day of week	Set the label of the days of the week.



Time	Set the time format.
Font	Set the font, color, size and alignment of the text displayed.



### 13.59. Template

#### 13.59.1. Template Window

#### 13.59.1.1. Overview

The Template Window object can be used to specify the source window for the Template object.

#### 13.59.1.2. Configuration



Click on the [Object] » [Template] » [Template Window] icon on the toolbar to open the settings dialog box. Then click [Add], specify the template window range, and press the OK button. A new Template object will be created.

Template Window Setti	ngs		<b>×</b>
			Add Delete Setting
		ОК	Cancel
Template Window	Range Settings		×
	Range Settings ge (range: [ 10 ~ 1999 ]):		×
Template window rar	ge (range: [ 10 ~ 1999 ]):		×
Template window rar	ge (range: [ 10 ~ 1999 ]):		
Template window rar	ge (range: [ 10 ~ 1999 ]):		



### 13.59.2. Template

# 13.59.2.1. Overview

The Template object reduces repetitive project design steps by replacing object addresses or texts based on Template Window settings.

#### 13.59.2.2. Cofiguration

#### **General Tab**

eneral Profile		
Com	ment:	1
Windo	w no : 14. Window_014 🔹	
Tag name mappings		3
Find	Replace with	
Text mappings	Add Remove	Ξ
Find	Replace with	
	Add Remove only be used with regular text in Text objects, Combo ons. It is not compatible with the Label Library.	

Setting	Description
Comment	User-defined object description.
Window no.	Select the source template window.
Tag name mappings	Find a custom string in the tag name and replace it with another custom string.
Text mappings	Find a custom string in the text label of a Text object, Combo Button, or Operation Log, and replace it with another custom string.



Tag name replacement is only supported for user-defined tags and tags using Symbolic

Addressing.

- Bulk replacement of tag names on multiple devices is supported. For instance, tag A can be replaced with tag B on device 1, while simultaneously replacing tag C with tag D on device 2. However, it's important to note that each replacement action is limited to tags within the same device.
- Text mapping is not supported for objects using Label Tag Library.
- Template objects are only effective during the editing phase and will be transformed into independent objects after compilation. This means that when decompiling .exob/.cxob files, the resulting project file will only contain independent objects, not template objects.
- The Template Window cannot contain Template objects.
- Template objects become independent only after compilation; therefore, Address Viewer and Label Tag Library cannot display their status after address replacement.
- Objects that extend beyond the Template Window's range, including those that go beyond the range after text replacement, will be removed and not displayed by the Template objects.

### Example

Here is an example that demonstrates how to create a template:

1. Create two tags in Address Tag Library and name them Tag\_0 and Tag\_1.

Tag_0	Local HMI	LW-0	Word
Tag_1	Local HMI	LW-1	Word

2. Create a new window and set its size which will determine the size of the Template object.



3. In the window created in step 2, place a Meter object and a Combo Button object, and set their read/write addresses to the Tag\_0 created in step 1.

Pext
MD_0 (Tag 0-11W-0) 60
2000
CR 0 /Ten 0 - 100.00 CR 1 /Ten 0 - 100.00
Combo+



New Meter Display	New Combo Button     Image: Combo Button       General     Security       Security     Shape       Font       Comment:     Text Combo+ pressed
General Security       Image: Style: Sty	Lamp Mode : None Set Word Style : Increment value (JOG+) Mode : Value Inc. value : 1 Down actions Action Group 1 Set Word (Increment value Oevice : Local HMI Address : Tag_0 Limits Dynamic limits

 Set the Combo Button's comment to "Text Combo+ pressed" and its text label to "Combo+".

ew Combo Button General Security Shape Font	
✔ Use label Use label library	Add to Label Library Label Library
State : 0	Duplicate this label to every state
Combo+	

5. Place a Text object in the window created in step 2, and set its content to "Text".

New Text/Comment	×
Text/Comment Security	
Use as comment (not shown on HMI) Use label library Add to Label Library Label Library Use string table String Table	
Content Text	
✓ Preview with actual font size	

6. Set the window created in step 2 as the Template Window.



Template Window Settings	<b>×</b>
Window [ 13 ~ 13 ]	Add Delete Setting
ОК	Cancel

7. Create a Template object and configure it with the following settings.

	ral Profile		
	Ç	omment :	
	Wi	ndow no : 13. Window_013	•
Tag	g name mappings		
	Find	Replace with	
1	0	1	
	xt mappings Find	Add Remov Replace with	78
	1000 0000		70
1	Find	Replace with	78

8. After compiling the project, EasyBuilder Pro will replace any tag names containing "0" with "1" for objects in the Template Window that use them. This means that "Tab\_0" will be replaced by "Tag\_1". The text mapping feature will also replace object comments, text contents, and text labels according to the settings defined in the Template object.





