13. Objects

This chapter explains how to use different objects.

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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 Secur	ity Shape Label		
Comm	aent :		
	O Bit Lamp	🔘 Toggle Switch	
Read address			
PLC name :	Local HMI		Settings
Address :	LB	▼ 0	
	🔲 Invert signal		
Blinking			
	iode : None		
м	a an	nding picture for current state	
м	a an	nding picture for current state	
м	a an	nding picture for current state	
м	a an	nding picture for current state	•
м	a and the second	nding picture for current state	•
м	a and the second	inding picture for current state	•
м	a and the second	inding 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

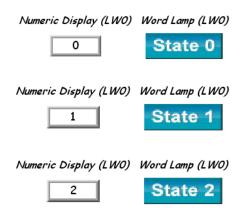
In [Label] tab, if select [ON=OFF (use state 0)] check box, both state 0 and 1 follow the settings of state 0.



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

General	Security	Shape	Label					
	Comment	:[50.				
		💿 Wo	ord Lamp		🔘 Multi-St	ate Switc]	i	
0.0	Mode	: Value		•	Offse	. 0		
	1.000	. [10106		•	Olise	ι. υ		
Read	address							
PLC	name : Lo	al HMI		22			Settings	
A	ddress : LW			• 0			16-bit Unsign	ed
Attril		e/shape :	if no corre:	sponding pict	No. of state: ure for curre			•
Attrib		re/shape :	if no corre:	sponding pict				•

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.
Mode / Offset	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)



New Wor	rd Larr	np/M	lulti-St	ate Swite	h Object				×
General	Securi	ity S	Shape	Label					
	Comm	ent :							
			💿 Wor	d Lamp		🔘 Multi-	State Sw	ritch	
		ode : fset :	Value 3				•		
-Read a	ddress								_
1	PLC : [Local	HMI					▼ Settings)
Add	ress : [LW			▼ 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	0000000000000100	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	0000001000000000	The lowest non-zero bit is bit 9, state = 10.
1024	0000010000000000	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	00100000000000000	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.
32768	100000000000000000	

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.

	Word Lamp O Multi-State Switch
	Mode : Bit combination
	Read address
	PLC 1: Local HMI V Settings
	Address 1: LB v 0
	PLC 2 : Local HMI v Settings
	Address 2 : LB v 1
	PLC 3 : Local HMI v Settings
	Address 3 : LB v 2
	PLC 4 : Local HMI V Settings
	Address 4 : LB v 3
	Attribute
	No. of states : 16 V
	Change state by time
	Change state by time
	The state displayed changes on a time basis. The frequency can be
	The state displayed changes on a time basis. The frequency can be set.
Read address	The state displayed changes on a time basis. The frequency can be
Read address	The state displayed changes on a time basis. The frequency can be set.
Read address	The state displayed changes on a time basis. The frequency can be set. Click [Setting] to select the [PLC name], [Address], [Device type],
Read address	 The state displayed changes on a time basis. The frequency can be set. 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
	 The state displayed changes on a time basis. The frequency can be set. Click [Setting] to select the [PLC name], [Address], [Device type], [System tag], [Index register] of the word device that controls the
Read address Attribute	 The state displayed changes on a time basis. The frequency can be set. 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. No. of states
	 The state displayed changes on a time basis. The frequency can be set. 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. No. of states The number of states is utilized by the object. The state is
	 The state displayed changes on a time basis. The frequency can be set. 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. No. of states 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
	 The state displayed changes on a time basis. The frequency can be set. 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. No. of states 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]
	 The state displayed changes on a time basis. The frequency can be set. 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. No. of states 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.
	 The state displayed changes on a time basis. The frequency can be set. 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. No. of states 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. If the number of states is set to 8, the valid states will be 0, 1, 2,,
	 The state displayed changes on a time basis. The frequency can be set. 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. No. of states 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.
	 The state displayed changes on a time basis. The frequency can be set. 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. No. of states 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. If the number of states is set to 8, the valid states will be 0, 1, 2,,
	 The state displayed changes on a time basis. The frequency can be set. 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. No. of states 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. 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
	 The state displayed changes on a time basis. The frequency can be set. 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. No. of states 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. 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.

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 Label Library	Use label Use label library Label tag : Label_0 Label Library
Language : 1 V State : 0 V V 0 1	Language : 2 V State : 0 V V D 1
Attribute Font : Arial	Attribute Font : Arial
Color : Size : 16	Color : Size : 16
Align : Left	Align : Left
Italic	Italic
Duplicate these attributes to Every state Every language All	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

Gener	Security Shape Label		
	Comment :		
Wri	e address		
PI	C name : Local HMI	•	Setting
	Address : LB	• 0	
		Write after button is	s released
	bute		
Mac	Set style : Set ON Set ON Set OF Toggle Momentary Periodic toggle Execute mad Set OF when wind Set OFF when wind Set OFF when wind Set OFF when wind Set OFF when bad Set OFF when bad Set OFF when bad Set OFF when bad	dow opens ow doses dow doses light on klight on light off	
	ОК	Cancel	Help

SettingDescriptionWrite addressClick [Setting] to select the [PLC name], [Address], [Device type],
[System tag], [Index register] of the bit device that controls the Set
Bit object. Users can also set address in [General] tab while adding
a new object.
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.Set a designated bit ON and OFF at a set time			
	Periodical toggle				
		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	Set Bit object can t	rigger the start of a Macro routine when the			
	Macro has been cre	eated in advance.			
	🕝 For more infor	mation, see "18 Macro References".			
Trigger mode		o [Toggle], there is a further selection to make c			
	whether the macro	operates after Off to ON, ON to OFF transition,			
	or at both of the changes 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.



Objects

Using address types other than PLB or PLW_Bit for Set Bit objects with [Periodic Toggle] attribute is not supported by cMT-SVR.



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	
Community (
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	64-bit (cMT 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
Vher	n Dynamic Address is LW-	100, the rule of s	setting Upper / B	ottom limit is:
	Content	16-bit	32-bit	64-bit (cMT 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 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.

Attribute			
Set Style :	Decrement value (JOG-))	•
Dec. value :	1	Bottom limit :	0

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 incremen	t (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 decrement (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.

Set Style :	Periodic JOG++ (up->0-	>up->)	
Inc. value :	1	Upper limit :	10
Time interval :	0.5 second(s)		

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.



Set Style : 🗛	utomatic JOG++ (up to	high limit)	
Inc. value : 1		Upper limit :	10
Time interval : 0.			

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 (down	to low limit)	
Dec. value :	1	Bottom limit :	10
		1	
Time interval :	0.5 second(s) 🔹	J	

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 Sty	e : Periodic step up (low to	high)	-
Low lim	it : 0	High limit : 10	
Inc. valu	e: 1		
Time interv	al : 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 down (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 : Cyclic JOG+	•
Bottom limit : 0	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- -

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 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 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	
	System Tag Command 🗸
Language :	Language 1 🗸

Security Tab

Set Word Object's Properties	
General Security Shape Label Profile	
Safety control	
	Min. press time (sec) : 0
Display confirmation request	Max. waiting time (sec) : 10
Interlock	
☑ Use interlock function	O Bit O Word
Hide when disabled	
🗸 Grayed 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 condition	
	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 Series

eMT, iE, XE, mTV Series

New Function Key Object	New Function Key Object
General Security Shape Label	General Security Shape Label
Comment :	Comment :
Activate after button is released	C Activate after button is released
Change full-screen window Change common window Close window Display popup window Display calculator window	 Change full-screen window Display popup window
Animation : Setting [None]	Window no. : [50. Keypad 1 - Integer -
Window no. : 50. Keypad 1 - Integer 👻	Return to previous window
Keyboard input	Keyboard input
© [Enter] •	© [Enter] -
© Execute macro	💿 Execute macro
Hard copy screen to USB disk, SD card or printer Screen hardcopy	🔘 Window title bar
(Kolosi Jaadop)	Hard copy screen to USB disk, SD card or printer
	💿 Screen hardcopy
💿 Acknowledge all events (slarms)	
Import user data/Use [USB Security Key]	💮 Import user data/Use [USB Security Key]
Notification	Notification
Enable	Enable
OK Cancel Help	OK Cancel Help



	13-23

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.
	Oisplay popup window
	Close this popup window when parent window is closed
	Style : With title bar
	Window no. : 11. Window_011

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

💿 Change full-screen window	🔘 Change common window
🧿 Display popup window	Animation Setting
Window no. : 50. Keypad 11 - In	nteger

The effects are shown below. 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.

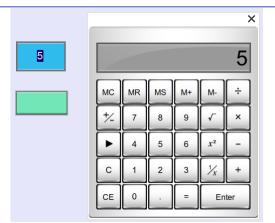
[Direction] The direction of the transition.

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 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 Key Object's Properties	⁸³
General Security Shape Label	Profile
Comment :	
🕅 Activate after bu	tton is released
🔘 Change full-screen window	Change common window
Return to previous window	Close window
🔘 Display popup window	 Display calculator window
Animation : Setting	[None, None]
🔲 Keep calculator o	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 nim.
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.
	Clear : Clear the value in the word register.
	Esc: Same as the [Close window] function; it is used to close the
	keyboard window.
	Delete: Same as the keyboard's "Delete" function, deletes the
	number or character on the right side of the text cursor.
	Left: Same as the keyboard's " \leftarrow " key moves the text cursor to the
	left side of the previous number or character.
	Right: 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.



 down list that has already been configured by users. For more information, see "18 Macro References". Execute macro Macro : [ID:000] macro_0 Function Key defined can be used to move a pop-up window which has no [window title bar] to a preferred position on screen. Select the pop-up window and then click on a preferred position, the
• Execute macro Macro : [ID:000] macro_0 Function Key defined can be used to move a pop-up window which has no [window title bar] to a preferred position on screen. Select
Function Key defined can be used to move a pop-up window which has no [window title bar] to a preferred position on screen. Select
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.
Alare Status Image: Constraint of the streen for the new position the popup window will be moved.

your internet connection before downloading the demo project.

Mode : color

	•	
Hard copy	Print the current window. Befor	re using this function, choose a printer
screen to USB disk, SD	model in [System Parameter Se	ttings] » [Model] » [Printer].
card or	If a monochrome printer is used	d, selecting [grayscale] can provide a
printer	better print result, but the text	may not be clearly printed. To
	improve text printing, avoid usi	ng [grayscale].
	Hard copy screen to USB disk, SD card o	or printer
	Screen hard copy	Printer : HP PCL Series (USB)

📃 Rotate image 90 degrees

Acknowledge	
all events	Acknowledge all events once by pressing the Function Key.
(alarms)	
(cMT Series)	
Import user	
data / Use	A Function Key can be used to import the e-mail contacts or user
[USB	accounts set, also, to log in using USB Security Key.
Security Key]	



•



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.

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

	ty Shape Label	
Comm	uent :	
	🔘 Bit Lamp	Toggle Switch
Read address	🔲 Read/Write use diffe:	rent addresses
PLC name :	Local HMI	▼ Settings
Address :	LB 🗸	0
Write address	5	
	Write when button is	: released
	Write when button is tyle : Set ON 👻	released
Масто	tyle : Set ON	: released
Switch s	tyle : Set ON	: released



Setting	Description				
Comment	User can describe the information of the object. Bit Lamp / Toggle Switch Switch between Bit Lamp and Toggle Switch features.				
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], [In	dex register] of the bit device that controls the			
	[Toggle Switch] o	bject. Users can also set address in [General] tab			
	while adding a n	ew 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/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 bit device that controls the				
	[Toggle Switch] object. Users can also set address in [General] tab				
	while adding a new object. The address can be the same or				
	different from [Read 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 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.			
Macro	Toggle Switch ob	ject can trigger the start of a Macro routine when			
	the Macro has h	een created in advance.			



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 Series

eneral Security Shape Label	General Security Shape Label
Comment :	Comment :
Word Lamp Multi-State Switch	🔘 Word Lamp 💿 Multi-State Switch
Mode : Value Offset : 0	Mode : Value Offset : 0
Read/Write use different addresses	Read/Write use different addresses
PLC name : Local HMI Settings	PLC name : Local HMI
Address : LW 0 16-bit Unsigned Enor handling	Address : LW
Write address :	Write address :
Attribute	Write when button is released
Attribute Switch style : JOG+ Vo. of states : 2 V	Attribute
	Attribute Switch style : JOG+ Vo. of states : 2 V
Switch style : JOG+ 🔹 No. of states : 2 💌	Attribute Switch style : [JOG+ No. of states : 2 -
Cyclical : Disable	Attribute Switch style : JOG+ No. of states : 2 - Cyclical : Disable
Switch style : JOG+ No. of states : 2 Cyclical : Disable User-defined mapping	Attribute Switch style : JOG+ Vo. of states : 2 Cyclical : Disable User-defined mapping
Switch style : JOG+ No. of states : 2 Cyclical : Disable User-defined mapping Send 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)			
			01
			ОК
			OK Cancel
nput illegal			Cancel
	t state 🔘 Ju	mp to error state	Cancel
	t state 💿 Ju	mp to error state	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 Series)	designated bit address. This is similar to [User-defined mapping]; 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

Slider		
 ✓ Background ✓ Slider ✓ Dynamic Scale 	General Outline Security Shape Comment :	OK Cancel Help
	Coarse increment Write address PLC: Local HMI Settings Address: LW O I6-bit Unsigned Notification Enable Watch address Enable	

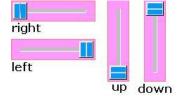


New Slider Obje	t		×	
General Outline	Security Shape			
Commer Attribute	t:			
Directio	n : Right 🔹 Re	esolution : 1		
Low/High lim	it : 💿 Constant 💿 Address			
Low lim	it: 0 H	igh limit : 100		
	Coarse increment			
- Write address -				
PLC : L	ocal HMI	•]	Settings	
Address : L	W 🔹 0	16-	bit Unsigned	
Notification				
	🔽 Enable 💿 Set C	ON 💿 Set OFI	7	
	Before writing	r writing		
PLC : L	ocal HMI	•][Settings	
Address : L	B ▼ 0			
Watch address	V Enable	11 M217		
PLC : L	ocal HMI	*	Settings	
Address : L	W • 0	16-	bit Unsigned	
- Watch address PLC : L	♥ Enable			

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 [Setting] 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 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 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 Seires



Objects

Slider		—
 ✓ Background ✓ Sider ✓ Dynamic Scale 	General Outline Security Shape Style Style Color: Slider button type	OK Cancel Help

eMT, iE, XE, mTV Seires

Feneral		Security	Shape			
Slider	button typ	be	-			-
						L
					Width :	L
					991ath :	20
	Frame	e: [_ 1	Transparent	
					19	
в	ackground	l :			ransparent	

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

13.8.3. Combo Setting

cMT 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
Slider Ø Slider Ø Dynamic Scale	O 50 100 Style : Vertical Cancel Help Tick Mark Scale Label Color : Main scale Ticks : 3 Sub scale Ticks : 4
Setting Margin	Description Specify the space between the background edge and the objects.
Color/Style	Customize
	Color/Style
	Round : 10
	Frame : Transparent 💌 Background :
	Pattern : Pattern style :
	Select a suitable background pattern and color.
	Picture
	Color/Style © Customize © Ficture
	Picture Library
	Use the default picture or choose a picture from

Picture Library.



	×
General 0 50 100 Style : Vertical Alignment : Bottom Alignment : Bottom Tick Mark Scale Label Color : Image: Color : Main scale Ticks : 3 Image: Color : Sub scale Ticks : 4 Image: Color :	OK Cancel Help
	0 50 100 Style : Vertical Alignment : Bottom Tick Mark Scale Label Color : Main scale Ticks : 3 Sub scale

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.



₩ Use scale label	
Font : Arial	•
Color: Size: 10	•
Left decimal Pt. : 4 🚔 Right decimal Pt. : 0	*
Position : Top	
🖉 Dynamic limits	,
Reverse (Left/Right)	
Left: LW-1 Right: LW-0	



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 Series

New Numeric Object	New Numeric Object
General Data Entry Format Trigger Action Setting Security Shape Font	General Data Entry Format Security Shape Font
Description :	Description :
☑ Allow input	V Allow input
Read/Write use different addresses	Read/Write use different addresses
Read address Device : [Local HMI	Read address Device : Local HMI ▼ Settings
Address : LW 🔹 0	Address : LW V
Write address Device : Local HMI	Write address Device : Local HMI
Address: LW I	Address : LW v 1
Notification	Notification
Enable Set ON Set OFF	Enable Set ON Set OFF
Before writing O After writing	Before writing O After writing
Device : Local HMI	Device : Local HMI Settings
Address : LB 🗸 0	Address : LB 🗸 0
	Notification on invalid input
	Device : Local HMI
OK Cancel Help	OK Cancel Help

Setting	Description
Allow input	If selected, the input features and relevant settings are enabled.
Read / Write use different address	Different addresses can be used to read data and write data.
Read address	Click [Setting] to select the [Device], [Address], [Device type],

eMT, iE, XE, mTV Series





	[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	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.
Notification	If an illegal value is entered, automatically set the state of a
on invalid	designated register.
input	

Data Entry Tab

cMT

Input order Enable Keyboard System keyped System keyped Syste	General Data Entry Format Security Shape Font Mode: Touch	General Data Entry Format Security Shape Font Mode : Touch •
Keyboard I use a popup keyped System keyped System keyped Hide title bar Window no.: 59. Keyped 10 - Integer(translucent) Popup position Relative to HMI screen Animation Setting Hint: If the keyboard is an USB keyboard, on indirect Window, or on the same window, please don't check. "Use a popup keyped". Other options Diplays lower and upper limits Induction of the same window of the same of the same window of the		
Keyboard I Use a popup keypad System keypad System keypad Custom keypad Window no.: 59. Keypad 10 - Integer(translucent) Popup position Relative to HMI someen Animistion Setting Hint: If the keyboard is an USB keyboard, on indirect/direct window, or on the same window, please don't check "Use a popup keypad". Other options Display lower and upper limits		
Image: System keyped Image: System keyped Image: System	Constant and Constant	
Popup position Popup position Relative to HMI screen Animation Setting Hint: If the keyboard is an USB keyboard, on indirect/direct window, or on the same window, please don't check "Use a popup keyped". Other options Display lower and upper limits	 System keypad Custom keypad 	₩ Use a popup keypad Hisle title bar
Other options In the second se	Popup position Relative to HMI screen Animation Setting	Popup position : {relative to HMI screen}
Display lower and upper limits		
	Display lower and upper limits	
	Display current value	

Setting Description Mode Touch Used when data entry is initiated by touching the screen object. Bit control

eMT, iE, XE, mTV Series



Objects

	Used when data entry is enabled by turning ON a designated bit, and entry ends when the bit goes OFF.
Allow input	Specify a bit address that enables or ends data entry. The order of
bit address	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.
Input 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.
	 If [Group] is not selected, its input order is 0.
	 The system only searches for the objects within the same
	Group.
	 The lower number of order is entered before the higher 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
	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:
	 Create a custom design on the same screen window.
	 Use a USB keyboard.
	System keypad
	cMT 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 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 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

	and and	
222	222	222
222		

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
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.	

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

Let 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



Input order		
🔽 Enable		
Stop sequential input function after	er input	
Input order : 1	Group	1

LW-1

LW-2

Input order		
Stop sequential input function	n after input	
Input order : 2	🔽 Group	1
Input order		
Enable Stop sequential input function	after input	
Input order : 3	Group	1
Group1		
0	0	0
LW-0	LW-1	→ _LW-2
Order1	Order2	Order3
		

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



Format Tab

eneral Data Entry Format	Trigger Action Setting Security Shape Font
Display	M
Device data format : 16	6-bit Unsigned 🛛 🚽 🦳 Mask
Display format	
Туре : 🖸	ustomized 🚽
	umeric
	ustomized cientific Notation
	Truncated digits : 0
Format : **	*** Examples
Use star "*" to represent [Truncated digits]	t each digits. Number of "*" = [Left of decimal Pt.] -
Scaling	
Method : In	nterpolation 👻
	Test <= Preview conversion result
	Dynamic scales
Scaling low : 0	Scaling high : 65535
/imits	
💿 Direct 💿 I	Dynamic limits
Device low : 0	Device high : 65535
Input low : 🕕	Input high : 65535
C	
🔲 Use als	larm color
Use als	arm color
Use als	arm color
Use ale	am color
Use ale	am color
Use ale	arm color

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	Numeric
format	General Numeric formats.
	Customized
	Each "*" sign represents each digit that will be displayed in the
	Numeric object. 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] Please see the following examples:

	Example 1
	[Left of decimal Pt.] = 5, [Truncated digits] = 0, so 5 stars "*" must be used.
	Use [Format] = "**kg***g" and [Align] = "Leading zero"
	=> If read data is 12345, the result will be "12kg345g"
	=> If read data is 123, the result will be "00kg123g"
	Example 2 : Change [Truncated digits]
	[Left of decimal Pt.] = 5, [Truncated digits] = 2,
	so 3 stars "*" must be used and last two digits will be truncated.
	Use [Format] = "**kg*00g" and [Align] = "Leading zero" => If read data is 12345, the result will be "12kg300g"
	=> If read data is 123, the result will be "00kg100g"
	Example 3 : Use "Left" Align
	[Left of decimal Pt.] = 5, [Truncated digits] = 0, so 5 stars "*" must be used.
	Use [Format] = "Total : **kg***g" and [Align] = "Left"
	=> If read data is 12345, the result will be "Total : 12kg345g"
	=> If read data is 123, the result will be "Total : 123g"
	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
	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 allows users to apply display limits to the values held in
	the input register. The color when the register value is outside
	limits can be set.
	Direct
	Sets the limits by entering values in [Input low] and [Input high]. If
	the value entered is outside the limits, the value in the register
	cannot be changed.
	Dynamic limits
	Set the limits by a designated register, see Example 5.
Use alarm	Low limit
color	When the value in the register is outside the [Low limit], display
	digits by the color set.
	High limit
	When the value in the register is outside the [High limit], display
	digits by the color set.
	Blink
	When the value in the register is outside either limit, the digits

Trigger Action Setting (cMT)

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.



eneral	Data E	lntry		Format	Secu	nity	Shape	
Font			Profile	6				
tions before	writing							C
Action G	roup 0			Action	Group 1		Act	0
Set Bit (S	et ON)						_	
Delay (50) ms)	•	Set W	/ord (Write o		alue : 0)	_	-
G	1			()			
tions after w:	riting		II	Î				
50 - 50	riting n Group 0			r Action Grou	up 1	Action (iroup 2	
Action			" [Action C	Group 2	,

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.)

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 only)
unsigned long	64-bit Unsigned (cMT only)
double	64-bit Double (cMT 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	
 Direct 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.

mber of digits Left o	of decimal Pt. : 4		Right of decima	al Pt. :	0	
1.0	Engineering low = 10 + (PLC 15	PLC low - 0])x -		Engineering low - 10 - 0 PLC low
÷	IMI	F	PLC			

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 📃	
	er of digits eft of decimal P	t. : 4	* *	Right of decimal Pt. : 1	* *
Scalin	,				
	Metho	d : Interpolatio	n	•	
	Dynamic so	cales			
	Engineering lo	w : 0		Engineering high : 200	
Limits	Engineering lo	w : 0		Engineering high : 200	
	Engineering lo	w : 0	nits	Engineering high : 200	
Limits		🔘 Dynamic lir	nits	Engineering high : 200 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.

New Numeric Object	83
General Data Entry Numeric Format Security Shape Font	
Display	
Data format : 16-bit Unsigned 👻 🔲 Mask	
Number of digits Left of decimal Pt. : 4 Right of decimal Pt. : 1	×
Scaling	
Method : Interpolation 💌	
Dynamic scales	
Engineering low : 0 Engineering 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	64-bit (cMT 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
Vher	n address is LW-100, the	rule of setting lim	nits is:	
	Content	16-bit	32-bit	64-bit (cMT 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, where n is an arbitrary number, the rule of setting limits is:

16-bit LW-n LW-n LW-n+1 e of setting limit	32-bit LW-n LW-n LW-n+2	64-bit (cMT only) LW-n LW-n LW-n+4
LW-n LW-n+1	LW-n LW-n+2	LW-n
LW-n+1	LW-n+2	
		LW-n+4
of setting limit	c ic.	
	.5 13.	
16-bit	32-bit	64-bit (cMT only)
LW-100	LW-100	LW-100
LW-100	LW-100	LW-100
		LW-104
		LW-100 LW-100 LW-101 LW-102

Example 6

W

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	short b b = a - 10
return b	return b
end sub	end sub

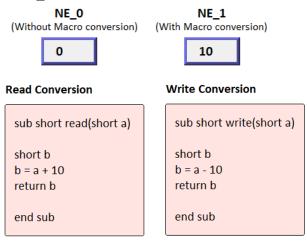
 Create two Numeric objects: NE_0 and NE_1 and use the same control address. Select [Macro subroutine] for NE_1.





eneral	Data Entry Format Security Shape Font Profile
Numb	Device data format : 16-bit Signed If digits Left of decimal Pt. : 4
Displa	ny format Enable
Scalin	ig Method : Macro subroutine

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





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

General Data Entry Format Security Shape Font Profile
Interlock
✓ Use interlock function
Hide when disabled
Grayed label when disabled
Trigger if value is : > 1
PLC : Local HMI
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 value in the object turns gray when the specified				
	condition does not occur in the specified word address.				
	0000				
	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:				



13-55

Font Tab

Hide when disabled	
Grayed label when disabled	
Trigger if value is :	== ~ 10
Tolerance :	1
When the value is t	he specified word address is greater t

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.

Color	When the value is within the limits, display
Setting	Description
	OK Cancel Help
	#####
	Content
	Attribute Font : Arial Color : Size : 16 Align : Left
	General Data Entry Numeric Format Security Shape Font
	New Numeric Object

Color	When the value is within the limits, display digits using color set in
	this tab.
Align	Left: Align the number to the left.
	Center: Align the number to the center.
	Right: Align the number to the right.
	Leading zero: The number is preceded with leading zeros when the
	number of digits is less than that set.
	number of digits is less than that set.



	1.44	00
	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

	Data En	try	Security	Shape	For	nt					
	Descriptio	on :	ii.								
_	8										
	Allow in					13			22		
	set value :	atter	leaving fo	icus can b	e set u	b n s	jeneral sy	/stem s	etting j	page	
V] Multi-lin	e dis	nlav			Verti	cal aligni	ment :	Тор		
			f line feed	(LF) cha							
							,				
1	Mask			Reverse	high/lo	ow by	te				
Data f	ormat										
	Encodi	ng :	UTF-8 (Default)							
Read/	Write add	ress									
I	Device : [Loca	I HMI					A43	•		
A	ddress : [LW			v 0					1 word	l (s)
Notifi	cation] Enable										

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	When [Multi-line display] is enabled, the method to vertically align			
alignment	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			
	Address : 0 System tag			
	Address format : DDDDD [range : 0 ~ 10799]			
	No. of word : 1			
	Tag Library OK Cancel			
	No. of words			
	Select the maximum number of words to be displayed.			
	cMT Series: max. 160 words			
	eMT/XE/mTV/iP: max. 64 words			

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)



Objects

Font Tab

New ASCII Object	8
General Data Entry Security Shape Font	
Attribute	
Font : Arial	
Align : Left 👻	
Content	_
AA	
OK Cancel Help	,

Setting	Description
Attribute	The font, size, color, and alignment can be set.
	Align
	Left: Align the text to the left.
	Center: Align the text to the center.
	Right: Align the text to the right.



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 Series

New Indirect Window Object	New Indirect Window Object
General Position Security	General Position
Comment : Attribute Style : Embedded in parent window Embedded in parent window Popup window Read address Device : Local HMI Address : LW	Comment : Read address Device : [Local HMI
Start: Flost Ind: Floy Ind: Fl	
Use window no. offset Offset : -10 -	Use window no. offset Offset : -10 -
OK Cancel Help	OK Cancel Help

eMT, iE, XE, mTV Series



Setting	Description				
Style	This setting is available only on cMT 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.				
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:				
	 No title bar 				
	The pop-up window has no title bar and cannot be dragged.				
	WINDOW 11				
	 With title bar 				
	The pop-up window has a title bar that can be dragged to move the				
	window.				
	WINDOW 11				
Animation	Effect				
(cMT Series)	Different effects may be used for Start (window appears) and End				



Transition

Duration

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

Direction



	The direction of the transition.
Use window	Sets the offset of the window number 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

cMT Series

w Indirect Window Object	New Indirect Window Object General Position
✓ Auto. adjust window size	Z Auto. adjust window size
Alignment: {relative to object display region}	Alignment: {relative to object display region}
Dynamic position	
Device : Local HMI Address : LW O	
X Address : LW-0 Y Address : LW-1	
☑ Enable shift window animation: Duration: 1 ⊕	
OK Cancel Help	Cancel Help

Jetting	Description
Auto. adjust	Automatically resizes the Indirect 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 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		11	
	Alignment:	•	۲
	{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 W	/indow No. 11	Popup Wi	ndow No. 12
<- The frame of Indirect Window		<- The frame	e of Indirect Window
	Window11		Window12

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

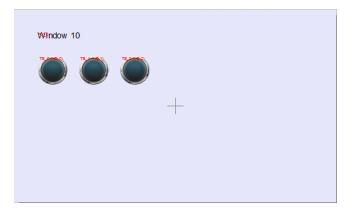
Here is an example showing the difference between these two styles: [Embedded in parent window] and [Popup window]. The style setting determines how an Indirect Window placed in an underlay window is displayed when it is called in the base window.

 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%
$\ensuremath{^{\ast}}$ [Transparency] is used only on popup, direct/indirect and keyboard windows.		

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 (LW-0)	
Window 11	NE_0 (U//-0) ######	
	· · · · · · · · · · · · · · · · · · ·	

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

cMT Viewer (Simulation)		
Window 10 Window 11	MAX: 0 MIN: 0	50

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 4 > . 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 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 Series

New Direct Window Object	New Direct Window Object
General Position Security	General Position
Comment:	Comment :
Attribute	Attribute
	Trigger: ON V
Window No. : 3. Monitor Mode	Style : No title bar
Style : Embedded in parent window 🗸 🗸	Window No. : 3. Fast Selection
	Read address
Read address	Device : Local HMI Settings
Device : Local HMI	Address : LB 🔹 0
Animation Effect Duration Direction	
Start : Float 🔹 100 🚖 ms From Left 💌	
End : Split 🔹 100 🌧 ms Vertical Out 💌	
11000	
OK Cancel Help	OK Cancel Help

eMT, iE, XE, mTV Series



Setting	Description
Style	This setting is available only on cMT 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.
	Popup window
	The Direct Window is displayed in the base window. When a Direct
	Window is placed in an underlay window, the Direct Window is
	displayed in the base window when it is called in the base window.
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:
	 No title bar
	The pop-up window has no title bar and cannot be dragged.
	WINDOW 11
	• With title bar
	The pop-up window has a title bar that can be dragged to move the
	window.
	WINDOW 11
	Window no.
	Set the pop-up window number.
Animation	Effect
	Different effects may be used for Start (window appears) and End
	(window disappears).

Transition

Duration

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

Direction



The direction of the transition.



Position

cMT Series

eMT,	iE. X	E. m ⁻	ΤV	Ser	ies
CIVII,	, ^	_,		JC.	

Iew Direct Window Object	New Direct Window Object
🖉 Auto. adjust window size	V Auto. adjust window size
Alignment: {relative to object display region}	Alignment: {relative to object display region}
Dynamic position	
Device : Local HMI	
X Address : LW-0 Y Address : LW-1	
III N N N N N N N N N N N N N N N N N N	< III > OK Cancel Help
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 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

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.



eneral	osition						
/ Auto.	adinatu	83					
	aujust w	/maow size					
	aujusi w	nnaow size	Ali {relative to object display	ignment:	۲	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.

	- D X
OFF	
OFF	
5 (0)	
Fast Sel	

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 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.
- Elick 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

neral 🔉	Security	Shape	Label					
C	omment :							
	Device :	Local .	нмі					•
ead add. Douic	ress ce : Loca	1 771 /7						
	∞:LW	ai rimi		v 0		*	16-bit Unsign	ed
110010	. [<u>1</u> 11							sage
ttribute							1.03	30,20
	of states :	1		•				
	<i></i>				20			_
	State :	0		*	Ra	tio: 1		
osition	Male:	(m. e						
	Mode :	X & Y	axis					*
otate								
otate	Mode :	Rotate	N. H					•
	Mode : irection :		kwise		© Coun	terclockwise		•
			kwise:		© Coun	terclockwise		•
			kwise		© Coun	terclockwise	ÿ	•
D	irection :		kwise		© Coun	terclockwise	ÿ	•
D	irection :	 Cloc 			© Coun	terclockwise	9	•
D: imit add	irection : lress	 Cloc Cloc Limi 	kwise it from re	gister	© Cour	terclockwise	ş	-
D: imit add Devic	irection : lress :e : Loca	 Cloc Cloc Limi 			Coum	-][(
imit add Devic	irection : lress	 Cloc Cloc Limi 		gister	Count	-][obit Unsign	.ed
D: imit add Devic	irection : lress :e : Loca	 Cloc Cloc Limi 			© Coun	-][obit Unsign	
D: imit add Devic	irection : lress :e : Loca	 Cloc Cloc Limi 			© Coun	-][obit Unsign	.ed
D: imit add Devic	irection : lress :e : Loca	 Cloc Cloc Limi 			© Coun	-][obit Unsign	.ed

Setting	Description	า				
Read address	Click [Settir	ng] to configur	e the [Device], [[Device type], [Address],		
	[System tag	[System tag], or [Index register] of the word devices that control				
	the display	the display of object's state and moving distance. Users can also set				
	the address	s in [General] t	tab while adding	a new object.		
Attribute	Select the o	Select the object's movement mode and range. See "13.13.2.1				
	Illustration	of Modes" in	the following par	t.		
Display ratio	The size of	shape in diffe	rent states can be	e set individually as		
	shown in tł	ne following fi	gure.			
	Ratio : 1	Ratio : 1.2	Ratio : 1.4	Ratio : 1.6		
	State 0	State 1	State 2	State 3		
Rotate	Select Cloc	kwise or Coun	terclockwise for	Direction and define the		



	angle range (unit in degree) within which the object may rotate.
	The allowable range is $0^{\sim}360$ 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 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

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].

Mode	X axis only		•
No. of states Min. X		Max. X : 600	
Data format	16-bit	32-bit	64-bit (cMT only)
Object state	LW-n	LW-n	LW-n
•			

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	16-bit 32-bit 64-bit (cMT	
Object state	LW-n	LW-n	LW-n
Moving distance on Y-axis	LW-n+1	LW-n+2	LW-n+4

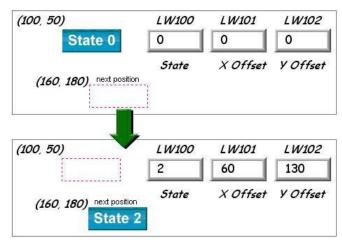
[•] X & Y axis

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.

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 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 on	
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 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



13-80

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	
ingle 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

	Animation Object's Properties
	General Shape Label Profile
	Comment :
	Attribute No. of states : 8
	Position : Controlled by register Based upon time interval
	Read address
	PLC name : Local HMI Setting
	Address : LW O
	OK Cancel Help
tting	Description
tribute	No. of states
libute	
	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
	Based upon time interval
	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
	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.
	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
	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.

Supposed that [Speed] is set to 10, the object's position will change each second.



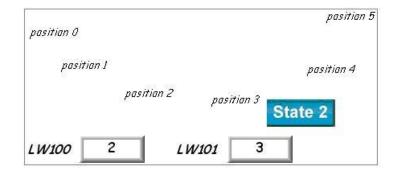
Image state change: Determines how state changes, either [Position dependent] or [Time-based]. If [Position dependent] is selected, the object state will change when position changes. If [Time-based] is selected, the object position will change based on [Position speed] and the object state will change 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 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 $0 \rightarrow \text{position } 1 \rightarrow \text{position } 2 \rightarrow \text{position } 3 \rightarrow \text{position } 0 \rightarrow 0$ 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 position 1 \rightarrow position 2 \rightarrow position 3 \rightarrow position 2 \rightarrow 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 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	x :	191	* *	Υ:	56	-
Size	ght ratio					
	Width :	404	-	Height :	131	-
	Width (%) :	100	×	Height (%) :	100	×
Shape rectangle size						
	Width :	84	* *	Height :	33	-
Trajectory		Position (
	х :	191	-	۷:	147	÷

Setting	Description
Shape rectangle size	Set the size of the shape.
Trajectory	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

Bar Graph		—
	line Range Security Shape	
Image: Bar Graph Image: Comparison of the second secon	ment :	ОК
-Read addre		Cancel
		ettings Help
Address :	LW - 0 16-b	it Unsigned



	New Bar Graph Object
	General Outline Security Shape
	Comment :
	Read address PLC name : Local HMI 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
	how the bar graph displays.



Outline Tab

cMT

Bar Graph		×
Background	General Outline Range Security Shape	
Bar Graph		ОК
Dynamic Scale	Style : Default 🗸	Cancel
	Туре	
	e Bar O Circular	
	Attribute	Help
	Mode : Normal	
	Bar width ratio (%) : 100 🚖	
	Background	
	Frame : Transparent _ Background :	
	Bar	
	Interior : Pattern :	
	Style :	
	Dynamic color	
	Enable	

eMT, iE, XE, mTV

New Bar Graph Object	8
General Outline Range Security Shape	
Туре	_
 Bar Circular 	
Attribute	51
Mode : Normal Direction : Up	
Bar width ratio (%): 100	-
Background	51
Frame : Transparent _ Background : Transparent .	•
Bar	31
Interior : 📃 📮 Pattern :	
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].

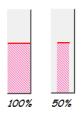
Degree		X
Direction	Olockwise	Counterclockwise
Degree Start :	Full circle	
		OK Cancel

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

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

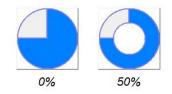
Bar width ratio (%)

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



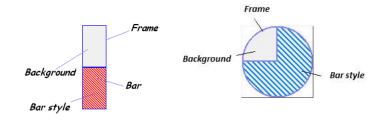
Hole Radius (%)

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%.



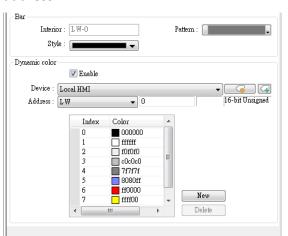
Color/Style

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





Dynamic(For cMT Series models only) With this option selected, the interiorcolorcolor of the bar is determined by the value in the designated
address.



Range Tab

General Outline Range	Security Shape		
Attribute			
Min value : 0		Max value : 10	
Target indicator Target value : 0	able	Color : 🚺	
Alarm indicators			
Low limit : 0		High limit : 10	
Low color :		High color : 📕	
Dynamic target/alarm/zero	(span)		

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:

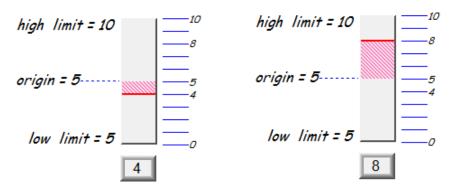
Percentage of filling =
$$\frac{\text{Register value} - [\text{Zero}]}{[\text{Span}] - [\text{Zero}]} \times 100\%$$

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:



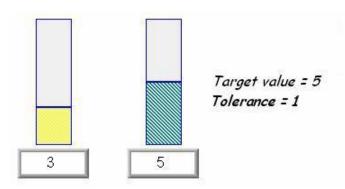
Example 2

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.





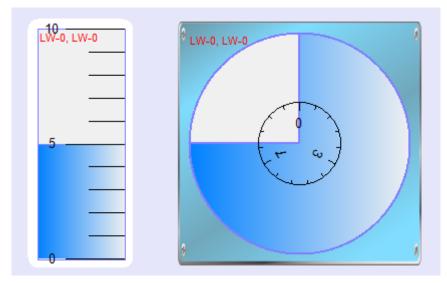
Example 3

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 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 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

.....

.....

Bar Graph	
Background Bar Graph	Outine OK
I Bar Graph I Dynamic Scale	Margin: 10 Image: Color/Style OK Color/Style Image: Customize Picture Image: Customize Image: Customize Round: 10 Image: Customize Image: Customize Image: Customize Image: Customize Frame: Transparent Image: Background: Image: Customize Image: Customize
etting	Description
Aargin	Specify the space between the background edge and
	the objects.
color/Style	Customize
	ColorStyle
	Customize Picture Round:
	Round : 10 🔶 Frame : Transparent 💌 Background :
	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.



Objects

Dynamic Scale

 ✓ Background ✓ Bar Graph ✓ Dynamic Scale 	General Profile Style: Circular Angle: Pull,0" Tick Mark Scale Label Color: Radius: Ticks: Sub scale Ticks: Ticks: Length:		
Setting	Description		
Style	The scale style will follow the bar type.		
Tick 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

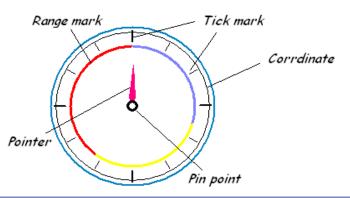
General Tab

	New Meter Display Object
	General Outline Limits Security Shape Comment :
	Read address PLC name : Local HMI 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

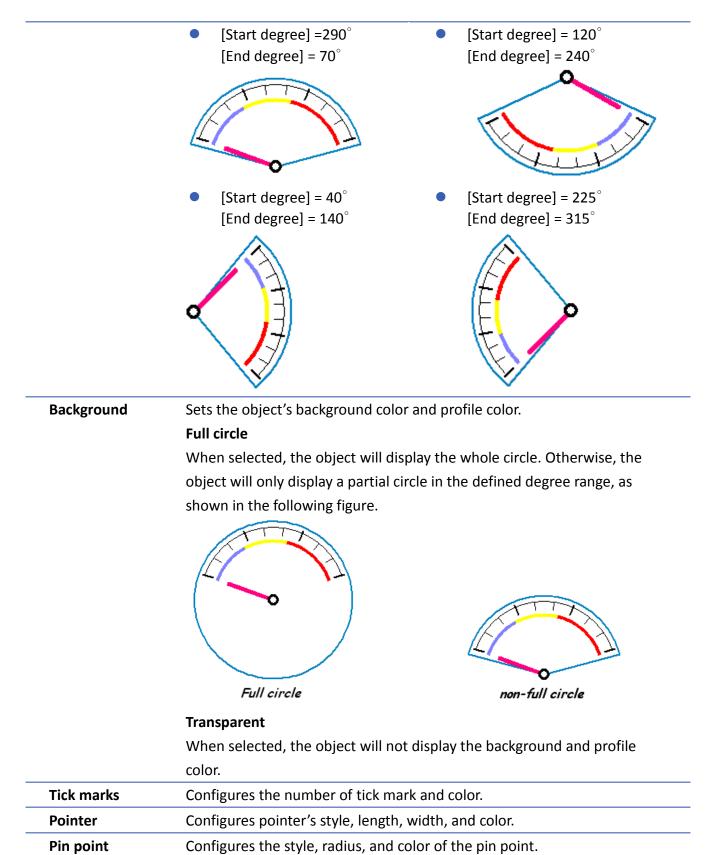
meral Outline	Limits Security Shap	pe Profile		
Degree Angle	: 👩 0°~359°]		
Background				
Background	:	. Profile :		-
	V Full circle	Transparent		
Tick marks		1		
	🔽 Enable			
Color	:		🔽 Coordinate	
Main scale	: 4	Sub. scale :	2	\$
Length	: 10			10 10
Pointer	Juniceo. 1999			
	Arm style	Frame :		-
		Inner :		
8	Width : 4	. Length :	50	*
Pin point	68 · ·	50) 		141-169
n pont	Oircle O Rec	tangle		
Radius	: 7	4		
Inner		-		
		J		



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.







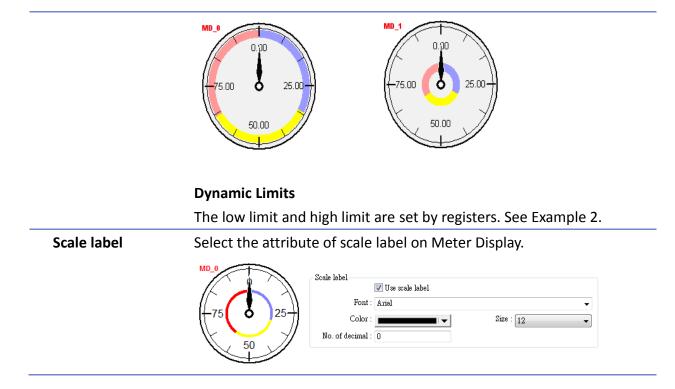


Limits Tab

General	Outline	Limits	Security	Shape			
Value	1		87				
	Min.:	0		*	Max. :	100	-
Range I	imits						
		🔽 Enab	le				
	Low :			1			
	Mid :						
	High :						
0	Width :	3					
		🔲 U se 1	1ser-defined				
-		Dyna	umic limits				
L	ow limit :	30		A V	High limit :	60	*
Scale la	bel						
		🔽 Use s	xale label				
	Font :	Arial					-
	Color :		Ţ.		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				
	Use user-defined radius				
	Configures the radius to display range limits.				
	For example, set to 80: Set to 30:				





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.

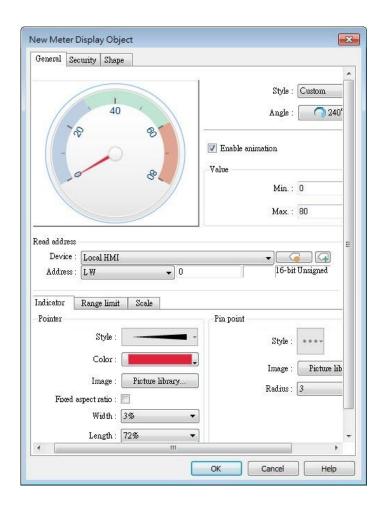
Suppose the address is LW-n, the following table shows the read address of low limit and high limit:

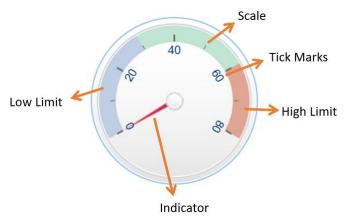
	Content	16-bit	32-bit	64-bit (cMT only)
	Low limit	LW-n	LW-n	LW-n
	High limit	LW-n+1	LW-n+2	LW-n+4
For in	nstance, when address	s is LW-100, the rule	of setting limits	is:
	Content	16-bit	32-bit	64-bit (cMT only)
	Low limit	LW-100	LW-100	LW-100
	High limit	LW-101	LW-102	LW-104



13.16.2.2. cMT Series

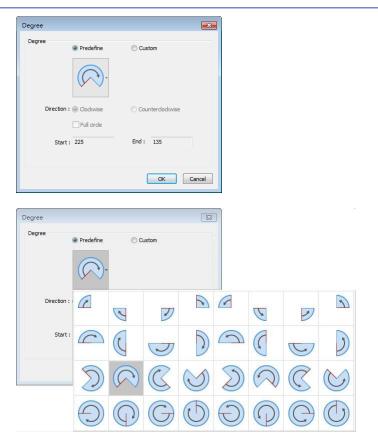
General Tab





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]: Color					
	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° 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 animation	If selected, the pointer slides to the designated position when the 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.

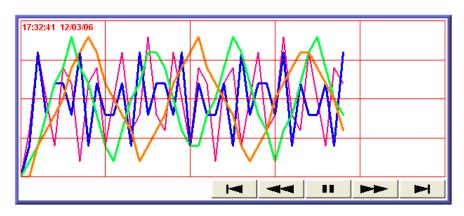
13.17.2. Configuration



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.



		Scale Security Shape		
	ment :			
3	Data Sampling Obj	L		•
			d type : Histor	y 🗸
* If no. of o	hannels is changed	l, you must reset HMI's da	ta samplings.	
🔽 Refres	h data automaticall;	у		
📄 No line	connection betwe	en records if the next reco	rd is earlier (slov	wer refresh speed)
	Х ахо	is time range : 🔘 Pixel	O Time	
	Def	ault distance : 100	second (s)	
	iic X axis time rang	je		
Device	Local HMI		•	Settings
Address	LW	• 0		16-bit Unsigned
History cont	rol			
Device	Local HMI		•	Settings
Address	LW	▼]100		16-bit Unsigned
Watch line				
🔽 Enable				
Device	Local HMI		•	Settings
Address	LW	▼] 50		
Time stamp	output			
🔽 Enable			•	Settings
	Local HMI			

Setting	Description
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,

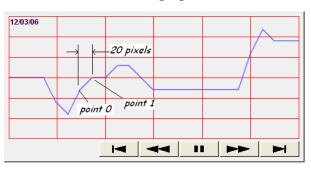
pressure_20061127.dtl, and pressure_20061203.dtl, and it is 2006/12/3 today, based on the value of LW-0, the sampling data file which will be selected by [Trend Display] is shown as follows:

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

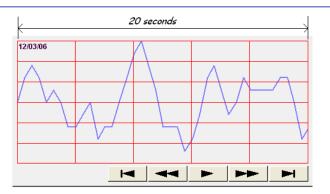
[Distance] is used to set the distance between two sampling points, as shown in the following figure.



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 between data samples/ Dynamic X axis time range	 Designate a 32-bit word register for adjusting the distance between two sampling points (select Pixel), or the time unit represented by X-axis (select Time). If no value is entered, the default value will be used. Click 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 Trend Display object in history mode is placed, the display is automatically refreshed once per second. Please note that: The refresh status can be observed from the control button of Trend Display object. Showing button: The automatic refresh feature is enabled. Showing button: The automatic refresh feature is disabled. When scrolling to the previous data, the automatic refresh feature is disabled, the button is shown. If [Refresh data automatically] check box is selected, when 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. If [Refresh data automatically] check box is not selected when 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 <i>LW300</i>

[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
"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

ieral 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 Fo	▼ Enable rmat : HH:MM ▼ Font : Arial ▼
	Color: Size: 8
'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 controls	Enable or disable the scroll control as shown in the following figure.	
	K ≪ □ ■ ₩ ₩	
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.		
	 Select [Distance between data samples] in General tab: 		
	Select how many sampling point 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.		
Time scale	Select [Time] / [Date] check box to display the time scale along the		
	x axis.		
	HI-MM HE-MM HE-MM HE-MM HE-MM HE-MM		
	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 earlist 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.		
	Y axis Division(s): 4		
	Time scale		
	Ime SSSSS Date		
	Font: Arial V Size: 8 V		
	Color:		
	InnerOste ☑ Relative time mode		
	✓ Time HH.MM.SS ✓ Date YY/MM/DD Color:		

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

	Trend (Channe	Shape				
			B 10	-			
C. ▶ 0			Description 16-bit Unsigned)ata type 5-bit Unsigned	Y scal None	e
⊂Channe ←Pen p	l property Color	:]	Width : 2		•
	Zero		ynamic limits		Span : 100		
Channe	l visibility c		nable				
PLC	name : Lo	-sl um	T		-	Setti	20
	dress : LW			• 0		16-bit Un:	
Ad	uress : [[N			• 0		Po-bic offi	agricu
Displa	y channel v	vhen t	he corresponding b	it is :			
		0	N OFF				

Setting	Description			
Y scale	Set Y-axis to be Main Axis or Aux. Axis. See "Y Scale Tab" for more			
	information.			
	Channel Display Description Data type Y mode 1 Tree channel A 16-bit Unnigned Avoc. Axis 2 Tree channel B 16-bit Unnigned Mein Axis 3 Tree channel C 16-bit Unnigned Avoc. Axis			
Channel	Configure each sampling line's format and color. At most 64			
	channels could be configured.			
	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			
	abjact			

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 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 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 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

arc.	С	r۵	••	
	u	I C		

Channel	Control Bit	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.

Y Scale Tab

	Trend Display Object's Properties
	General Trend Channel Y Scale Security Shape Profile
	Data sampling object
	Channel Display Description Data type Y scale 1 True 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
	Scale font
	Font : Anial
	Color : Size : 12
	Dynemic Y-scale visibility
	I Enable
	PLC name : Local HMI
	Address : LW 🔻 50
	Display channel's Y-scale when the corresponding bit is :
	ON OFF
	Dynamic main axis
	PLC name : [Local HMI
	Address : LW v 80 16-bit Unsigned
	OK Cancel Heb
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 axisbe Channel 1; if writing 2 into LW-80, the main axis will be Channel,
and so on.

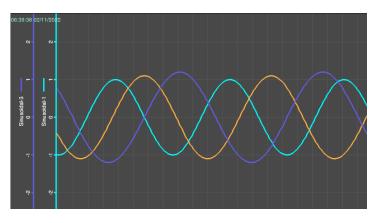
Click the icon to watch the demonstration film. Please confirm your internet connection before playing the film.

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

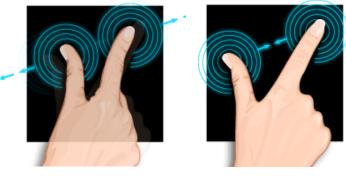


13.17.2.2. cMT Series

General Tab



The Trend Display on cMT 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 For more information about how sampling data is saved, see "8 Data Sampling".



eneral	Trend Channel Y Scale Data Format Security Shape	
	Comment :	Ĩ
	Data Sampling Object index : 1. datalog	
823		
* If no.	. of channels is changed, you must reset HMI's data samplings.	
	X axis time range : 🔘 Millimeter 🛛 💿 Time	
	Distance : 120 second (s)	
Watch	line	
30336.90	iable	
En	able	
Touch		
Di	sable Y-axis scrolling with swiping up/down	
Di		
Di	sable Y-axis scrolling with swiping up/down	
Di Di Di Mixell	sable Y-axis scrolling with swiping up/down sable zoom aneous lapt to device screen pixel density (DPI)	
Di Di Di Miscell	sable Y-axis scrolling with swiping up/down sable zoom aneous	
Di Di Di Miscell	sable Y-axis scrolling with swiping up/down sable zoom aneous lapt to device screen pixel density (DPI)	
Di Di Di Miscell	sable Y-axis scrolling with swiping up/down sable zoom aneous lapt to device screen pixel density (DPI)	
Di Di Di Mixell	sable Y-axis scrolling with swiping up/down sable zoom aneous lapt to device screen pixel density (DPI)	
Di Di Di Mixell	sable Y-axis scrolling with swiping up/down sable zoom aneous lapt to device screen pixel density (DPI)	
Di Di Di Mixell	sable Y-axis scrolling with swiping up/down sable zoom aneous lapt to device screen pixel density (DPI)	
Di Di Di Miscell	sable Y-axis scrolling with swiping up/down sable zoom aneous lapt to device screen pixel density (DPI)	

Setting	Description	
Data Sampling Object index	Select a [Data Sampling] object as the source data.	
Millimeter	Same as eMT, iE, XE mTV Series.	
Time	Same as eMT, iE, XE mTV Series.	
Watch line	Same as eMT, iE, XE mTV Series.	
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 zoom	With this option selected, Trend Display cannot be zoomed in/out. Tapping the icon on the upper right corner of Trend Display object will not be able to zoom in /out the object, but this can move the object back to its original place.	
Adapt to device screen pixel density (DPI)With this option selected, text size, position, and the s between Y axes will be adjusted according to the DPI o of the connected device.		



Show customThis option appears when [Customized file handling] is selected infile nameData Sampling. With this option selected, the customized file nameis shown as caption in History Data Display.

Trend Tab

eneral Tre	nd Chanr	nel 🛛 Y Scale 🗍 Data	Format Security Shape	Profile
	Frame : 🔳	Transparent 	Background :	
Grid	V E	nable		
Ir	Color : 🚺 iterval : 10 color : 🚺	second(s)	Y-axis : 4	division(s)
Scale Time scale		•		
V Time	· · · · ·	MM 🔹		
🔽 Date	MM	I/DD/YYYY 👻		
Time/Date	ve time mode			
🔽 Time	HH	• Z2:MM		
📝 Date	MM	I/DD/YYYY 🔹		
	Color :			
			OK Can	cel Help

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.
	 Select [Distance between data samples] in General tab:
	Select how many sampling point 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.
Time scale	Select [Time] / [Date] check box to display the time scale along the
	x axis.
	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

lew Trend Display Object				X
	Shape			
Data sampling object				
Channel Display De		Data type		
▶ 0 ▼ 16	-bit Unsigned	16-bit Un	signed None	
Channel Pen property Color :		Width :	2	
Dyna Zero : 1	amic limits	Span :	100	
Channel visibility control				
V Enab	le			
PLC name : Local HMI			▼ Sett	ting
Address : LW	•	0	16-bit Ur	
Display channel when the	corresponding bit	is :		
	ОК	Cancel		Help



Setting	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						
			e displayed, inc	luding one			
	main axis and mult	-	_				
	Channel Display Description 1 Troe channel A 2 Troe channel B	Data type Y scale 16-bit Unsigned Aux: Axis 16-bit Unsigned Main Axis					
Channel	Configure each san	16-bit Unsigned Arex Asis	t and color. At r	nost 64			
	channels could be						
	Dynamic limits	0					
	 Not selected: 						
	[Zero] and [Span] a	are used to set the	low limit and h	igh limit of			
	sampling data. If th			-			
			-				
		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 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 an	d the high limi			
	will be read from:	,		0			
	Data Format	16-bit	32-bit	64-bit			
			02 010	(cMT only)			
	Low limit	LW-100	LW-100	LW-100			
	High Limit	LW-101	LW-100	LW-104			
Channel	If [Enable] is select		-	-			
visibility	used to show/hide						
control	channel, and the se						
	on. For example, su						
	channels which wil	ll be shown given t	ne states of the	control bits			
	are:						



Channel	Control Bit	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.

Y Scale Tab

Channel Disp	play Description	Data type	Y scale
1 Tru	e 32-bit Float	32-bit Float	None
2	32-bit Float	32-bit Float	None

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

1. Tap the

<u>್ಷ.</u>

button on the upper right corner of Trend Display object.

2. Tap [Trend Display Setting] » [Y Scale].

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

3. Set channel visibility.



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

Data Format Tab

Jeneral 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
•	m

Setting	Description
Follow	
settings in the	Use the [Dickt of desired Dt] estimation in Date Convoling
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.



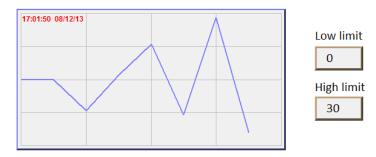
Example 1

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

	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	21:52	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	21:52	16/09/07	0	0	0
3568	21.22	16/00/07	0	0	
_					

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

cMT

lew History Data Display Object	New History Data Display Object
General Data Format Title Security Shape	General Data Format Title Security Shape
Data Sampling Object index : 1.	Data Sampling Object index : 1. 🔹
Style : Crystal 🗸	🔽 Refresh data automatically
	Grid
Style color : 🚺 🖉 Column interval : 5 👘	Color : Column interval : 5
* Title page has caption setting.	Profile color Transparent Frame : Background : •
Text Font : [Arial [Arial] [Droid Sans]	Text Font : Arial - Size : 12 -
Time HH:MM Color:	Time
Date	Time HH:MM
☑ Date DD/MM/YYYY ▼ Color : _	Date
Move column [Date] to the front of column [Time]	☑ Date DD/MM/YY ▼ Color :
Sequence no.	Move column [Date] to the front of column [Time]
Display chars : 5	V Sequence no. Color :
Time ascending	
Watch	Time ascending
W Enable	History control
Device : Local HMI	PLC : Local HMI
Address : LW	Address : LW V
確定 取消 說明	OK Cancel Help

eMT, iE, XE, mTV

Setting	Description				
Data Sampling object index	Select a Data Sampling object as the source data.				
Refresh Data	The system will refresh data every 10 seconds. When this option is				
Automatically	not selected, data can be freshed only by changing windows.				
Style	Select History Data Display object's style.				
	Shows grids between rows and columns.				
	Color				
	Change the color of grids.				
	Column interval				
	Change the width of each column. The figures below are the				
Grid	examples.				
	No. Time Date Ch.0 Ch.1 Ch.2 3667 21:57 16/09/07 1 0 0 3667 21:57 16/09/07 1 0 0 3667 21:57 16/09/07 1 0 0 3665 21:57 16/09/07 1 0 0 3665 21:57 16/09/07 3666 21:57 16/09/07 3665 21:57 16/09/07 3666 21:57 16/09/07 3665 21:57 16/09/07 36662 21:57 16/09/07 36662 21:57 16/09/07 36662 21:57 16/09/07 36662 21:57 16/09/07 36662 21:57 16/09/07 36662 21:57 16/09/07 36662 21:57 16/09/07 36662 21:57 16/09/07 36661 21:57 16/09/07 36660 21:56 16/09/07 36659 21:56 16/09/07 3659 21:56 16/09/07 3659 21:56 16/09/07 3659 21:56 16/09/07 3				

Profile color

Change the color of frame and background. Use [Transparent] to



	hide frames and background.		
Text	Change the font and font size.		
	Enable or disable showing the time and date and configure its		
	format and color.		
	Move column [Date] to the front of column [Time]		
	Swap the postion of column [Date] and column [Time].		
Time / Date	Sequence no.		
	Show the sequence number of all records.		
	Time ascending		
	Put earliest data at the top and the latest data at the bottom.		
	Time descending		
	Put the latest data at the top and the earliest data at the bottom.		
liston	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		
Series)	selected row can be output to the designated addresses.		

Note

When using cMT 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.

		Caption		
Cancel	Option	Done	ch.1	Ô
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.



Data Format Tab

cMT Series

History Data Display Object's Properties	New History Data Display Object
General Display Format Title Security Shape Profile Channel : Channel 1 ~ Channel 8 • Channel 1 [16-bit Unsigned] • • Ø Display Follow settings in the Data Sampling Left of decimal Pt : 11 Right of decimal Pt : 0 E Leading zero Center • • Channel 2 [16-bit Unsigned] • •	General Data Format Title Security Shape Channel 1 Channel 1 ~ Channel 8 Channel 1 [16-bit Unsigned]
Channel 3 [16-bit Unsigned] Display	- Channel 3 [16-bit Unsigned]
Channel 4 [16-bit Unsigned]	Channel 4 [16-bit Unsigned] Left of decimal Pt. : 4 Right of decimal Pt. : 0 Right of decimal P
OK Cancel Help	OK Cancel Help

eMT, iE, XE, mTV Series

Setting

Description

Channel

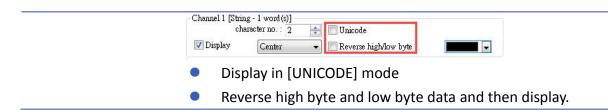
Each History Data Display object can display up to 64 channels.
Check [Display] to select the channels to be shown on the screen.
In the figure above, there are 4 channels (channel 1 to channel 4) in the Data Sampling object, and only Ch.1 and Ch.4 are selected. The data formats are shown next to channel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

No. Time Date ch.1 ch 09:50:16 10/03/17 0 0 12 09:50:15 10/03/17 0 0 11 09:50:14 0 0 10 10/03/17 09:50:13 10/03/17 0 0 09:50:12 10/03/17 0 0 09:50:11 10/03/17 0 0 09:50:10 10/03/17 0 6 0 5 09:50:09 10/03/17 0 0

When using cMT 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:





Title Tab

cMT

eMT, iE, XE, mTV

History Data Display eral Data Format Tit			New History Data Displa General Data Format Ti	1.1.1	Security Shape	
aption				3		
📝 Sho	w caption 📝 Show custom file	name				
Font size : 16	Color :					
	Name					
Caption	Caption					
itle			Title			
			IIIIe ▼ Use	title		
			Background			
			Tra	nsparent	Color :	
Title name	Title	*	Title name	Title		*
Sequence no.	No.		Sequence no.	No.		
Time Date	Time Date		Time	Time		=
Channel 1	ch.1		Date	Date		
Channel 2	ch.2		Channel 1	ch.1		
Channel 3	ch.3		Channel 2	ch.2		
Channel 4	ch.4		Channel 3	ch.3		
Channel 5	ch.5		Channel 4 Channel 5	ch.4 ch.5		
Channel 6	ch.6		Channel 6	ch.6		
Channel 7	ch.7		Channel 7	ch.7		
Channel 8 Channel 9	ch.8 ch.9		Channel 8	ch.8		
Channel 10	ch.10		Channel 9	ch.9		
Channel 11	ch.11		Channel 10	ch.10		
Channel 12	ch.12		Channel 11	ch.11		
Channel 13	ch.13	÷	Channel 12	ch.12		
Channel 14	ab 14		Channel 13	ch.13		+
			Channel 14	ah 14		
	OK Cancel	Help		ОК	Cancel	Help
etting	Descripti	on	<u>ц</u>			
Jse title	Enable or	disable titl	e, which is mar	ked as	shown below	:
	No. T	no Doto	ch 1 ch 4 h +			
		ne Date (ch.1 ch.4⊃▲			
	1 09	.48 10/03/17 #				

Show custom file name (cMT)	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 History Data Display.
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

Title name	Label	Label tag	Title	-
Sequence no.	1	Label_1	No.	
Time		Contractor (California)	Time	
Date			Date	
Channel 1			ch.1	=
Channel 2			ch.2	
Channel 3			ch.3	

Library first, and in History Data Display settings dialog select the checkbox in the Label Library column, and then select the label tag.

Note

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

Supported for eMT, iE, XE, mTV, iP Series

neral Dat	a Format Title Edit Security Shape	
🔽 En	able	
Control add	less	
Device	Local HMI 👻	Settings
Address	LW • 0	
	* Set 1 to overwrite log data * Set 2 to delete the selected log	
)ata addres	s	
Device	Local HMI 👻	Settings
Address	LW • 10	
elect add n	33 d	
Device	Local HMI 👻	Settings
Address	LW 👻 20	



Setting	Description		
Control	When set to 1, the data in Data Address will overwrite the data in		
address	data log.		
	When set to 2, the selected data log will be deleted.		
Data address	The system will start reading row by row from the selected one in		
	History Data Display, and change the data log accordingly.		
	Please note that the settings in this address must be identical to		
	that in Data Sampling.		
Select	By changing the value in Select Address, the corresponding row in		
address	History Data Display can be selected.		
	Please note that:		
	1. When the value in Select Address is 0, no row will be selected,		
	and the value in Data Address will stay the same as that of the		
	previously selected row number.		
	2. When the value in Select Address exceeds the total number of		
	rows in History Data Display, the last row (the one with largest		
	row number) will be selected.		



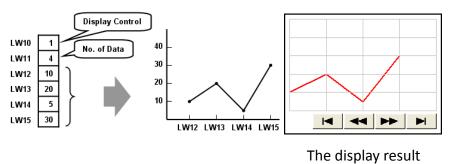
When an external device is used to save data log, removing the external device will make Edit function ineffective. Editing can keep on when the external device is inserted again and the system starts reading historical data.



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 Dis	splay Area Security Shape
Com	ument :
No. of ch	annel: 1
Watch line	
	🔽 Enable
	🗖 Allow input Color : 🔤 🗸
Device	Local HMI - Settings
Address	: [LW -] 0
Cb	annel : 🕥 🔍
Control add	
	Local HMI
Address	
No	
	 of data address: LW-1 Offset to start address
	Local HMI
Address	
Limit	
Dunit	Min.: 0 Max.: 32767

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, will display a vertical cursor line on it, and store the data on th to the designated registers. See Example 1. Allow input (cMT Series) 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.

Note

The system can draw at most N curves, where N = 32 divided by the number of channel.

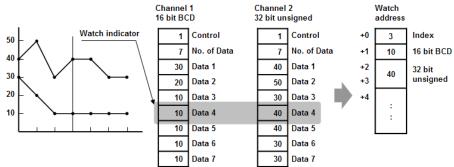
Example 1

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.

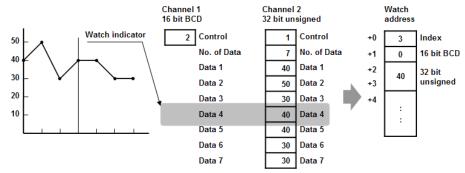
Data Format	Index Value	Channel 1 Value	Channel 2 Value
16-bit	Address	Address + 1	Address + 2
32-bit	Address	Address + 2	Address + 4
64-bit (cMT only)	Address	Address + 4	Address + 8

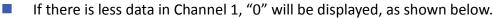
When watch address is set to LW-n, the value written into LW-n represents the channel index number to be called up. (Start form 0)

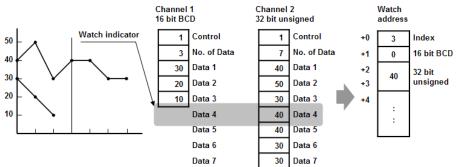


Note

- [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



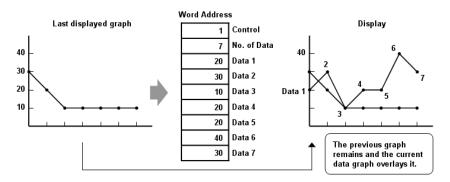




Example 2

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.



Note

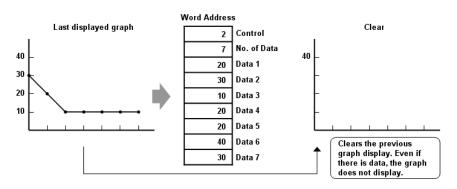
Do not change the content of [Control address], [No. of data address] and [Data storage start address] between step 3 and step 4 above as doing so might cause error for the trend curve plot.



Example 3

How to clear the graph

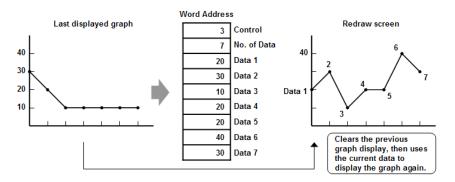
- 1. Write "2" to [Control address], all the trend curves will be cleared.
- 2. The system will write "0" to [Control address] after the trend curve is cleared.



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

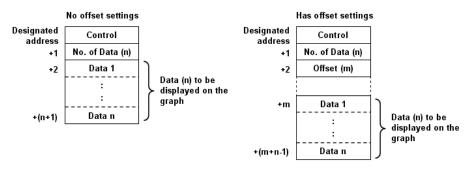
If [Offset to start address] is selected, [Control address], [No. of data address], and [Offset value storage address] will use 3 consecutive addresses.

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).



ltem	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.

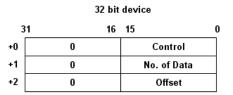


Note

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 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

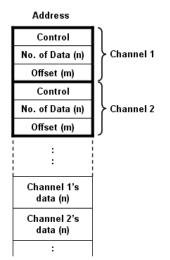
 If the control registers are 32-bit devices, only bit 0-15 will be used for control purpose, bit 16-31 will be ignored. (as illustrated below)



- 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

ĺ	Data Block Display Object's Properties
	General Display Area Shape Profile
	Data samples : 50 🗢 Samples to scroll : 10 🗢
	Profile color
	Frame : Background : Transparent
	Grid
	Color : Color :
	Horiz. : 5 🚖 division(s) Verti. : 5 😴 division(s)
	Channel Channel: Pen property Color: Width: 3
	OK Cancel Help

Setting	Description
Description	Data samples
	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.

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 selections, right, left, up or down.				
	Right Y P origin →	ection x x	Left Left direction	Up Up direction × origin → Y	Down origin→ ↓ × Down direction
No. of channels	Set the nu	Imber of o	channels for o	bservation.	
Control	Controls the operation of all channels simultaneously. When the				
address	[Control address] is LW-n, assigning values to LW-n will issue				
	command	s to XY pl	ot according t	o the table belov	v. Meanwhile,
	LW-n+11	controls t	he number of	data points plott	ed. After
	operation	, the [Cor	ntrol address] v	will be reset to 0.	
	Control address	Value	Result		
	LW-n	1		on XY curve.	
		2	(The plotte Clears all X	d points are kept	.)
		3		i plots new XY cu	rve
	LW-n+1	Any number	Controls th	e number of data	
	No. of dat	a addres	S		
	Controls t	he numbe	er of data poin	nts. Each channel	can plot up to
	1023 poin	ts.			
Channel	Select a cl	nannel to	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 o	on whethe	er [Separated a	address for X and	l Y data] and/or
	[Dynamic	limits] ha	s been selecte	ed. See Example 1	L.
Dynamic	Whe	n not sele	ected (See Exa	mple 2)	
limits	The Low a	nd High I	imits can be se	et by entering co	nstants. The Low
		-		lating X and Y rai	
	percentag			-	
				- 1	
	Whe	n selecteo	d (See Example	e 3)	



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 data] is not selected, and set [Read address] to LW-r		If [Separated address fo	X and Y datal is not selected.	and set [Read address] to LW-n
--	--	--------------------------	---------------------------------------	--------------------------------

	Select [Dynam	ic 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 st data	LW-n+4	LW-n+5	LW-n+0	LW-n+1
2 nd data	LW-n+6	LW-n+7	LW-n+2	LW-n+3
3 rd data	LW-n+8	LW-n+9	LW-n+4	LW-n+5
4 th 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 [Dynami	c limits]	Not select [D	ynamic limits]
	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 st data	LW-m+2	LW-n+2	LW-m+0	LW-n+0
2 nd data	LW-m+3	LW-n+3	LW-m+1	LW-n+1
3 rd data	LW-m+4	LW-n+4	LW-m+2	LW-n+2
4 th 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.

0			0
Data format	16-bit	32-bit	64-bit (cMT 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

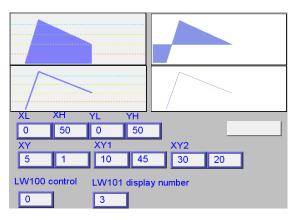


Objects

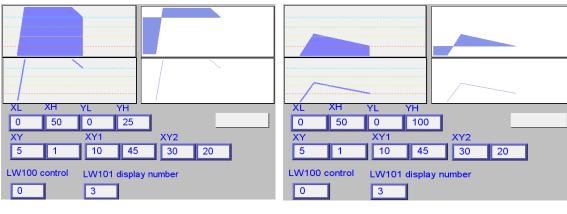
Example 3

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.

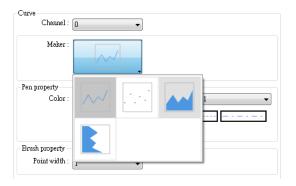


Display Area Tab

neral Display Area Security Shape		
Profile color		
🔲 Transparent		
Frame :	Background :	
-		
Curve Channel : 0		
•••••••••••••••••••••••••••••••••••••••		
Maker :		
Pen property		
Color : 📘 📮	Width : 1	•
Brush property		
Point width : 1		
Reference line		
Limit from device		
Device : Local HMI	▼ Settin	
Address : LW - 0		nsigned
🕅 Reference line 1		
Reference line 2		
Reference line 3		
🕅 Reference 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 non-cMT series, there are four	

different types of XY plot as shown below:



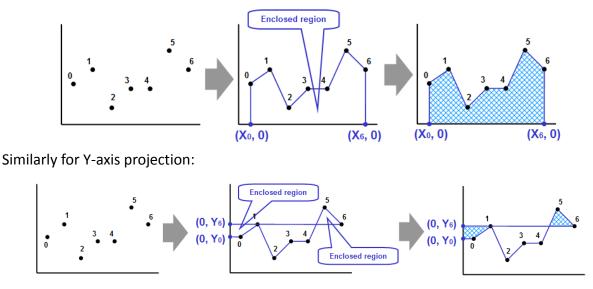


	For cMT Series, , there are six different types of XY plot as shown		
	below:		
	Curve Channel : 0		
	Maker : Pen property Color : Brush property Point with :		
	See Example 4.		
Pen property	Select color, width and style for the line in XY plot.		
Brush property	Select point width.		
Reference line	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.		

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.







• XY Plot can be drawn repeatedly up to 32 times:

1 channel → 32 times

2 channels → 16 times

The way to calculate: 32 divided by the number of channels.



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".

1 (When LW 1 >= 10) 13:21:06 Event 0 (when LW0

Alarm Bar - Displays alarm messages in one scrolling line.

3/12/06	13:21:38	Event 2 (when LB10 = ON)
13/12/06	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.



mment : lge address e : Local HMI		n Security Shape Font
lge address = : Local HMI	Com	
e : Local HMI	COUL	
e : Local HMI		
ontrol address Image: Settings S: LW Image: Settings S: LW	Acknowledge	e address
Image: Setting	PLC name :	Local HMI Settings
ontrol address	Address :	LW 0 16-bit Unsigned
✓ Enable e: Local HMI ▼ Settings s: LW ▼ 0 16-bit Unsigned		📝 Enable acknowledge function
✓ Enable e: Local HMI ▼ Settings s: LW ▼ 0 16-bit Unsigned		
✓ Enable e: Local HMI ▼ Settings s: LW ▼ 0 16-bit Unsigned		
✓ Enable e: Local HMI ▼ Settings s: LW ▼ 0 16-bit Unsigned		
✓ Enable e: Local HMI ✓ Settings s: LW ✓ 0 16-bit Unsigned		
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✓ Enable e: Local HMI ✓ Settings s: LW ✓ 0 16-bit Unsigned		
e : Local HMI		
e : Local HMI	Scrolling con	trol address
s : LW 0 16-bit Unsigned	Scrolling con	
s : LW 0 16-bit Unsigned	Scrolling con	
		☑ Enable
		☑ Enable
OK Cancel Help	PLC name :	✓ Enable : Local HMI Settings
OK Cancel Help		✓ Enable : Local HMI Settings
OK Cancel Help	PLC name :	✓ Enable : Local HMI Settings
OK Cancel Help	PLC name :	✓ Enable : Local HMI Settings
OK Cancel Help	PLC name :	✓ Enable : Local HMI Settings
	PLC name :	Enable Local HMI Settings W O 16-bit Unsigned
	PLC name :	☑ Enable Encal HMI ✓ Settings

Setting	Description	
Enable	If selected, the [Acknowledge value] selected for the associated event, specified in Alarm (Event) Log » Message tab will be writter	
acknowledge		
function	to 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 cMT-SVR, press and hold the event on the screen to acknowledge an event; drag a finger on the screen to scroll.



Alarm Tab

larm Bar	Alarm Display
lew Alarm Bar Object	New Alarm Display Object
Alarm Sort Security Shape Font	General Alarm Sort Security Shape Font
Scroll speed : Speed 5 🔹	
Move smoothly (may lead to highter CPU usage)	
Include categories	Include categories
0 ~ 255 {see Event (Alam) Log object}	0 ~ 255 {see Event (Alam) Log object}
Color-	Color Color
Transparent Frame : Background :	Frame : Background :
	Grid
	Tenable
	Color:
OK Cancel Help	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".
	cMT 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.



	Include categories
	Predefined Opnamic category range
	Device : Local HMI Settings Address : LW
	Range begin : LW-0 Range end : LW-1
Scroll speed	This selection is only available for Alarm Bar. Select one of the speed settings at which the messages scroll.
Move	When this option is selected, the message will move along the alarm
smoothly	bar more smoothly. Please note that enabling this may lead to high
	CPU loading.

Sort Tab

Alarm Bar

Alarm Display

ormat Sort Order : Time Ascending 👻		Format Sort Order : Time Ascending -	
Order & Characters Display items Display chars Event trigger date 0 Event trigger time 0 Event message 20 Occurrence count 0 Elapsed time 0	Display order Event trigger tune Event message	Order & Characters Display items Event trigger date Vevent trigger time Event message	Display order Event trigger time Event message
* If "Display chars" is 0, it means that the system will display * The column width is equal to "Display chars" multiplied by Date : MM/DD/YY Time	r the width of a 'x'.	Date : MM/DD/YY	Time : [HH:MM:SS +]

Alarm Display object has extra settings compared to Alarm Bar object: [Occurrence count] and [Elapsed time]. The table below introduces the settings shared between these two objects.



Setting	Description
Format	Time ascending
	Latest alarm is placed last in the list (the bottom).
	Time descending
	Latest alarm 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

Security Tab

Alarm Bar

Alarm Display

New Alarm Bar Object	New Alarm Display Object
Alarm Security Shape Font	General Alarm Security Shape Font
	Interlock
	Use interlock function
	🗷 Hide when disabled
	Enable when Bit is ON Enable when Bit is OFF
	PLC : Local HMI Address : LB O
User restriction	User restriction
Object class : Class : Administrator	Object class : Class : Administrator 🗸
🕢 Make invisible while protected.	Make invisible while protected
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].



Objects

New Alarm Bar Object		X
Alarm Shape Font		
Attribute		
		Size : 16 🔹
	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
	-
	Use label library Label Library
Font :	Arial
Color :	

Lick 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

Event Display object is used to display event messages which are defined in Event (Alarm) Log and have met a trigger condition. The triggered events are displayed in the chronological order. Event Display object displays: the date and time the event occurs, the time the event is acknowledged, the time the event returns to normal, the event message, the occurrence count, and the elapsed time. Multi-lined messages can also be displayed.

8	12/13/06	22:03:15		Event 3 (when LB11 = ON)	
7	12/13/06	22:03:14	22:03:17	Event 2 (when LB10 = ON)	
6	12/13/06	22:03:13		Event 1 (When LW 1 >= 10)	
5	12/13/06	22:03:12		Event 0 (when LW0 == 100)	
4	12/13/06	22:02:57		Event 3 (when LB11 = ON)	
3	12/13/06	22:02:56	22:03:04	Event 2 (when LB10 = ON)	
2	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 LW 0< 2 Multi-text	Multi-te>

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.



General Tab

13.22.2.1. eMT, iE, XE, mTV Series

eneral	Event Display Security Shape Font
	Comment :
	Mode : Real-time 👻
	Real-time History
Ackno	History wledge address
PLC	name : Local HMI Settings
Ad	dress : LW 🗸 0 16-bit Unsigned
Contr	ol address
PLC	name : Local HMI
Ad	ldress : LW 🗸 0 16-bit Unsigne
	✓ Enable event management Usage
	Inable event management Usage
	Inable event management Usage
	Inable event management Usage
	Inable event management Usage
	Inable event management Usage
Scroll	ing control address
Scroll	
	ing control address I Enable
PLC	ing control address
PLC	ing control address I Enable
PLC	ing control address
PLC	ing control address
PLC	ing control address

Setting	Description				
Mode	The available modes are: [Real-time] and [History].				
	Real-time				
	All the events triggered since HMI starts up are displayed.				
	History				
	The system reads the event log in HMI memory and displays				
	them. The content can be updated by changing window. In case				
	when the trend display shows history data from today, the				
	display will refresh once per second.				
Acknowledge	When in Real-time mode, and an event is acknowledged by touching				
address	an active display line, the [Acknowledge value] specified in Event				
	(Alarm) Log object, Message tab, is output to the [Acknowledge				
	address] of Event Display object. For more information, see "7 Event				
	Log".				



	Acknowledge value for Event/Alarm Dis	play object						
	Acknowledge value : 11							
History	When in History mode, and if:							
Control	 [Enable reading multiple l 	[Enable reading multiple histories] is not selected						
	Daily event log files can be displayed. A history control address can							
	-	the designated register is used as a						
	index to select historical files.							
	Index value 0 displays the lates							
	Index value 1 displays the seco							
	Index value 2 displays the third							
		nd four data log exist with dates:						
	EL_20100720.evt, EL_2010072	3.evt, EL_20100727.evt, and						
	EL_20100803.evt.	stud would be made to a manual						
		ntrol word corresponds to a recor						
	according to the table below: Value in LW-100	The corresponding record						
	0	EL 20100803.evt						
		EL 20100727.evt						
	2	EL 20100723.evt						
	3							
	 3 EL_20100720.evt [Enable reading multiple histories] is selected 							
		-						
		ed in multiple days. If [History control LW-n to LW-n+1 form a range of log						
		he control address leads to differen						
		node and in "Index of the last history						
	mode.	idde and in index of the last history						
	Number of days							
	-	y the value in control address. [LW-n						
		om today as the start date of display						
	-	ber of days preceding the start date						
	inclusive of the start date, as the							
		D/6/10, and the value in LW-n is 1						
	LW-n+1 is 3, then the data ra	ange will start from 1 day from toda						
	(LW-n = 1), which is 20100609	(LW-n = 1), which is 20100609 (yesterday) in this case, and include						
	data for the preceding 3 days,	inclusive of 20100609. As a result, the						
	data displayed should be 2010	0607~20100609. Since 20100607 doe						
	not exist in this example, the	data displayed will be from 20100609						
	and 20100608.							
	EL_20100604	No.4 1 KB EVT						
	EV EL_20100605	No.3 6KB EVT						
	[말] EL_20100608 [59] 편 _20100609	No.2 17 KB EVT No.1 4 KB EVT						
	EL_20100609	No.1 4KB EVT						

Index of the last history

EL_20100609

The value in control address [LW-n] marks the index value of the

No.0



12 KB EVT

			the value in [LW-n+1] marks the index value of
			LW-n = 1, and $LW-n+1 = 3$, the data displayed
	Please note value in [LW The maximu exceeding pa	EL_2010 EL_2010 EL_2010 EL_2010 EL_2010 EL_2010 that the -n], to fo um size art will b	No.3 6 KB EVT 0605 No.2 17 KB EVT 0609 No.1 4 KB EVT 0610 No.0 12 KB EVT value in [LW-n+1] must be greater than the rm a valid range. of data that can be displayed is 4MB; the
	5 history dat 5 history dat 2 x 1.5MB+1 Click th	a, each 1 a, each 1 x 1MB (e icon t	 Data displayed: 8 x 0.5MB Data displayed: 4 x 1MB Data displayed: SMB → Data displayed: partial) download the demo project. Please confirm tion before downloading the demo project.
Control	Enable even	t manag	ement
address	LW-n and LW	/-n+1, w	selected, writing a specific value into register here n is an arbitrary number, will control [Event different commands as shown below:
	Address	Value	Command
	LW-n	0	Display all events.
		1	Hide [Confirmed] events.
		2	Hide [Recovered] events.
		3	Hide [Confirmed] or [Recovered] events.
		4	Hide [Confirmed] and [Recovered] events.
	LW-n+1	1	Delete a single selected event.
Scrolling	If enabled, tl	ne value	in the designated control address indicates the
control	number of li	nes to be	e scrolled down. The minimal value is 0, which
address	indicates the		
4441055			
			e, there are 10 events recorded in the object,
			he control address. The upper event object
	displays the	events ir	n time ascending order, and begins at the 4 th
	event; on the	e other h	and, the lower one displays the events in time
			d begins at the 7 th event.



	4	18:48:19	Test Event	
	5	18:48:19	Test Event	
event LB0	6	18:48:20	Test Event	L
	7	18:48:20	Test Event	l
	8	18:48:20	Test Event	
Scrolling	-			_
Control				
	7	18:48:20	Test Event	
0003	6	18:48:20	Test Event	Į.
	5	18:48:19	Test Event	I
	4	18:48:19	Test Event	I.
	3	18:48:19	Test Event	
	3	10.40.15	Test Lvent	

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 Series

Event Display Object's Properties	×
General Event Display Shape Font Profile	
Comment :	
Acknowledge address	_
PLC name : Local HMI	
Address : LW 🗸 0 16-bit Unsigned	

For cMT Series, all the events occur are displayed and updated in real-time.

Press the filter icon in the upper-right corner of the object and set the start and end date. If the dates are not set, all the events are displayed.

					< July		ıly 2013				
					MON	TUE	WED	THU	FRI	SAT	SUN
					1	2	3	4	5	6	7
2	11:55:04 Event 2	∇			8	9	10	11	12	13	14
1	11:55:04 Event 0		Cancel	Q	15	16	17	18	19	20	21
			✓ starts	>	22	23	24	25	26	27	28
			06/07/2013		29	30	31	1	2	3	4
			 ends 08/07/2013 	>	5	6	7	8	9	10	11



Event Display Tab

cMT Series

ew Event Display Object	•••	New Event Display Object
eneral Event Display Sort Security Sha	pe Font	General EventDisplay Sort Security Shape Font Empty Warning
Style : Crystal Include categories Predefined Dyna:	Style color :	Include categories : 0 ~ 255 {see Event (Alarn) Log object} Acknowledge style : Click Max. event no. : 200
Caption 📝 Use caption	Event (Alam) Log object)	Color Transparent Frame : Background :
Font size : 16 Name Ception Ception	Color:	Acknowledge Text:Background:
Acknowledge Text :	Background : Transparent	Return to normal Text : Background : Transparent Grid
Text:	Background : Transparent	V Enable Color :
ОК	Cancel Help	OK Cancel Help
Setting	Description	
Include	Events in the select	ed category will be displayed. The categories a
categories	set in Event (Alarm)	Log object.
-	For example, if the	category is set to 2 to 4 here, only events
	categories 2, 3, 4 v	will be displayed. For more information, see

eMT, iE, XE, mTV Series

Event Log". cMT 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 categories to be displayed.

Include categories —

		Predefined (Dynamic category	/ range
Device : Address :	Local HMI LW	• 0		Settings 16-bit Unsigned
Range begin Range end				



Acknowledge style (eMT, iE, XE, mTV Series)	 Select [Click] or [Double Click] to acknowledge each single event. 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 no. (eMT, iE, XE, mTV Series)	The maximum number of events to be displayed in this Event Display object. When the number of the displayed events equals to the set maximum number, the new coming event will overwrite the latest 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. <i>Acknowledge</i> 6 13:12:19 Event 1 (When LW 1 >= 10) 5 13:12:18 Event 2 (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.				
	New Event Display Object General Event Display Security Shape Font Empty Warning Include categories : 0 thru 255 (see Event (Alarm) Log object)				





	[™] 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 Series Default style)
	The column width automatically adjusts to the size of the content.
Caption (cMT	Available styles are: Default, Crystal, and Flat.
Series)	With [Use caption] enabled, the font size, color, and name of the
,	caption can be specified for Recipt View object.

Sort Tab

eneral	Event Display	Sort	Security Shape	Font		
ormat—		1 34				
Sort		120		1857		
		Time a:	scending	🔘 Ti	ime descending	
Order &	& Characters —					
	Display item	s	Display chars		Display order	
F	Sequence no		0		Event trigger time	
F	Event trigger		0		Event message	
	and a second sec		0			
Ē	Acknowledg		0	1		
	Return to no	rmal time	0	-		
	/ Event messa;	ge	20			
E	Occurrence o	count	0			
E	Elapsed time		0			
	27	equal to "D	isplay chars" mul		the width of a 'x'.	
* The	column width is	equal to "D	isplay chars" mul	tiplied by		
* The	column width is	equal to "D	isplay chars" mul	tiplied by		
* The	column width is	equal to "D	isplay chars" mul	tiplied by		
* The	column width is	equal to "D	isplay chars" mul	tiplied by		
* The	column width is	equal to "D	isplay chars" mul	tiplied by		
* The	column width is	equal to "D	isplay chars" mul	tiplied by		
* The	column width is	equal to "D	isplay chars" mul	tiplied by		
* The	column width is	equal to "D	isplay chars" mul	tiplied by		
* The	column width is	equal to "D	isplay chars" mul	tiplied by		
* The	column width is	equal to "D	isplay chars" mul	tiplied by		
* The	column width is	equal to "D	isplay chars" mul	tiplied by		
* The	column width is	equal to "D	isplay chars" mul	tiplied by		
* The	column width is	equal to "D	isplay chars" mul	tiplied by		



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
1	12/14/06	<u>15:26:47</u>	15:26:50		Event 1 (When L)
2	12/14/06	15:26:48			Event 2 (when LE

Setting	Description
Sort	Time ascending
	Latest event is placed last in the list (the bottom).
	Time descending
	Latest event is placed first in the list (the top).
Order &	Select the items to be displayed and use the up and down arrow
Characters	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

Security Tab

Feneral	Event Display	Security	Shape	Font	Empty Warning	
0120202	Drombay		bernip's		Line of the second seco	
Interloc	k					
V (Use interlock fur	nction				
	Hide when disab	1. J				
VI	iide when disab.	led				
	Enable when Bit	- ON		Fuchle	when Bit is OFF	
	snable when Bit	1S UN) Enadie	when Bit is OFF	
	LC : Local HM	ſI			▼ Se	ttings
Addı	ress : LB		•	0		
Hoar yes	striction					
	bject class : Ch	nimbA · 226	histrator			-
	<u> </u>		1010101			1000
1	Make invisible w	hale protec	ted			



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

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.





Empty Warning

]
ľ.

When [Use empty warning] is enabled, the text displayed when no event has occurred can be specified.

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

ODBUS TCP/IP s s ncal HMI N 1 Touch trigger Activate after	 ↓ 1 ↓ 0 ↓ button is released 	• (((((((((((((((((((
s scal HMI N 1 Touch trigger	• 0		
s scal HMI N 1 Touch trigger	• 0		
s ccal HMI N 1 Touch trigger	• 0		
I Touch trigger		•	
N 1 Touch trigger			
1 Touch trigger			
Touch trigger	▼ button is released		
Touch trigger	▼ button is released		
	▼ button is released		
Activate after	button is released		
🔽 Enable	🔘 Set ON	Set OFF	
V Follow (set Of	N when data transfer s	tarts)	
cal HMI	22		
3	• 0		
		Follow (set ON when data transfer s	Follow (set ON when data transfer starts)

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.
	Follow
	The notification bit will reset to its original state once the system
	starts data transfer.



13.23.2. Data Transfer (Global): Time-based

13.23.2.1. Overview

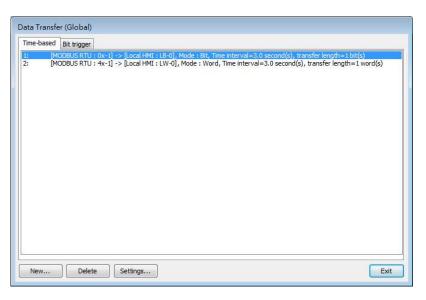
Data Transfer (Global) object in Time-based mode can transfer data from the source address to the destination address based on a time schedule.

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.

cMT Series



eMT, iE, XE, mTV Series

Data Transfer (Global)	
Time-based	
1: [Local HMI : LB-0] -> [Local HMI : LB-10], Mode : Bit, Time interval=3.0 second(s), transfer length=1 bit(s)	
New Delete Settings	Exit



General Tab

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

General [Security				
(Commen	t:			
Attribut	e				
Addı	ress mode	Word	-	Interval :	3.0 second (s) 🛛 🔻
No	. of word	: 1			
		Active or	ıly when designate	ed window opened	
Source		(ODDUG D ***			
	dress : 4	MODBUS RTU	• 1		<u> </u>
			•		
	ion addre				
		ocal HMI			<u> </u>
Ad	dress : [I	,₩	• 0		
Notifica		Enable	🔘 Set ON	Set OFF	
		Follow (set ON	when data transfe:	r starts)	
D	evice : 🛛	ocal HMI			
Ad	dress : 🛛	,В	• 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



Objects

	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	Data Transfer object transfers data only when the designated	
window	window is opened.	
opened		
Source		
address	Data Transfer object reads the data from [Source Address].	
Destination		
	Data Transfer object writes the data to [Destination Address].	
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	
	starts transferring data.	



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.

cMT Series

IMODBUS RTU : 4x-1) -> [Local HMI : LW-0], 1 word(s), Trigger address=[Local HMI : LB-0] Proceeding (MODBUS RTU : 4x-10] -> [Local HMI : LW-10], 1 word(s), Trigger address=[Local HMI : LB-1]	Time-based	Bit trigger	
	L: [M	MODBUS RTU : 4x-1] -> [Local HMI : LW-0], 1 word(s), 1	Tigger address=[Local HMI : LB-0] , Trigger address=[Local HMI : LB-1]



General Tab

a Transfer (B	it Trigger)			
eneral				
Com	nent :			
Source addres	s			
Device :	MODBUS RTU			(F)
Address :		• 1		
Destination ad	dress			
Device :	Local HMI		-	
Address :	LW	• 0		
Attribute No. of v Trigger addre	vord : 1			
	∞ node : OFF<->ON			
		•		
Device :	Local HMI			Œ
Address :	LB	• 0		
Notification	🔽 Enable	🖱 Set ON	Set OFF	
	🔄 Follow (set Of	V when data transfe	r starts)	
Device :	Local HMI	22.0	•	
Address :	LB	• 0		

Setting	Description Data Transfer object reads the data from [Source Address].					
Source address						
Destination address	Data Transfer object writes the data to [Destination Address].					
No. of word	Set the number of words transferred each time when data transfer is triggered.					
Trigger address	Set the address that controls data transfer and select the trigger mode.					
	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.					
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 starts 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 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 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 Series

General Security	/ Shape Label		General Advance Security Shape Label Profile	
Comn	nent :		Comment :	
File sou	urce : Historical data sampling		File source : Historical data sampling	_
	ta Sampling object index : 1.	•	Data Sampling object index : 1.	
Backup position	827. 9		Backup position	
() USB disk		lail	● USB disk 1	
	032~9039 to change the backup folder name.		Remote printer/backup server	
			* Use LW-9032-9039 to change the backup folder name. * To use [Remote primer/backup server] to store data to a remote PC, enable the ser [Primer/Backup Server] page of [System Parameter Settings] dialog first.	(VI
Storage format	(Storage format	_
	Comma Separated Values (*.csv)	•	Format : eMT/XE/iE/iP/mTV SERIES Data Sampling File (*.dtl)	_
Split by :	Date 👻			
	4 (Byte Order Mark) to file header for EXCEL can interpreting meetly ime information ☑ Include millisecond (ms) informati			
			Range	
♥ Include ti Range Start :	 me information Include millisecond (ms) information Today Yestenday 		Range Start : @ Current @ Previous	
♥ Include ti Range Start :	ime information 🛛 Include millisecond (ms) informati			
♥ Include ti Range Start : Within : Trigger	 Include millisecond (ms) informati Ioday Yesterday Oday(e) 		Start : @ Current O Previous Within : All (max. 90 files) Trigger	
♥ Include ti Range Start : Within : Trigger	 me information ✓ Include millisecond (ms) information Today Yesterday Yesterday Yesterday Touch trigger 		Start : @ Current O Previous Within : All (max. 90 files) - Trigger Mode : Touch trigger	
♥ Include ti Range Start : Within : Trigger	 Include millisecond (ms) informati Ioday Yesterday Oday(e) 		Start : @ Current O Previous Within : All (max. 90 files) Trigger	
Include ti Range Start : Within : Trigger Mode :	 me information ✓ Include millisecond (ms) information Today Yesterday Yesterday Yesterday Touch trigger 		Start : @ Current O Previous Within : All (max. 90 files) - Trigger Mode : Touch trigger	

Backup (Global) cMT Series

eneral		
Comment :		
File source :	Historical data sam	pling 🗸 🗸
Data San	npling object index :	[1. •
Backup position		
💿 USB disk		🕐 e-Mail
Storage format		
Format : Co	mma Separated Valu	es (*.csv) 🗸 🗸
Split by : Dat	ie .	•
strings correctl	y	le header for EXCEL can interpreting non-ASCII Include millisecond (ms) information
strings correctl	y	n an
□ strings correct Include time in	y formation [Include millisecond (ms) information
□ strings correct ✓ Include time in Range Start : ● 1	y formation [Include millisecond (ms) information
E strings correct Include time in Range Start : 90 Within : 90 Trigger	y formation [foday © Yest day(s)	Include millisecond (ms) information
i strings correct ✓ Include time in Range Start : ● 1 Within : ● 90, Trigger	y formation (Foday © Yest	Include millisecond (ms) information
■ strings correct ✓ Include time in Range Start : ● 1 Within : ● 00 Trigger Mode : Ext	y formation [foday © Yest day(s)	Include millisecond (ms) information
Start : ● 1 Within : 90 Trigger Mode : Ext	y formation foday Vest day(s) temal trigger (bit) F->ON •	Include millisecond (ms) information
■ strings correct ▼ Include time in Start: ● 1 Within : 900 Trigger Mode : Exat Condition : OF	y formation foday Vest day(s) temal trigger (bit) F->ON •	Include millisecond (ms) information erday Topolow (set OFF when backup finished)

eMT, iE, XE, mTV Series

Setting	Description						
Source	[RW], [RW_A], [Recipe 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.						
	cMT Series:						
	File source : Operation Log 🗸						
	Enable checksum for data integrity						
	When Operation Log is selected as file source, [Enable checksum for						
	data integrity] option is provided for using Backup object to generate						
	a backup file with checksum. EasyConverter can then be used to						
	examine data integrity.						
Backup	Select the destination where the source files will be saved to.						
position	SD card / USB disk						
	The external device connected to HMI.						
	Remote printer/backup server (eMT, iE, XE, mTV Series)						
	To select this, enable MT remote printer/backup server at: [Menu] »						
	[Edit] » [System Parameters] » [Printer/Backup Server].						
	Please note that [Operation log] backup can only be saved to Remote						
	printer/backup server. To save into a SD card or USB drive, please use						
	the control address of Operation Log object.						
	For more information, see "26 EasyPrinter".						
	E-mail						
	To use e-mail, go to [System Parameters] » [e-Mail] tab to configure						
	first. And then go to Backup object » [e-Mail] tab to configure the						
	recipient address, subject, and message.						
Save format	Select the desired format to back up the file.						
	eMT, iE, XE, mTV Series:						
	 HMI Event Log File (.evt) / HMI Data Log File (.dtl) 						
	 Comma Separated Values (.csv) 						
	The [Event] column is included in the backup file to indicate the type						
	of the event.						



	А	В	С	D	E	
1	Event	Category	Date	Time	Message	
2	0	1	2013/7/4	16:12:11	Event A	
3	2	1	2013/7/4	16:12:12	Event A	
4	0	0	2013/7/4	16:12:33	Event B	
5	2	0	2013/7/4	16:12:36	Event B	
6	0	0	2013/7/4	16:12:37	Event B	
7	1	0	2013/7/4	16:12:37	Event B	
8	2	0	2013/7/4	16:12:39	Event B	
9	0	0	2013/7/4	16:12:40	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.

• SQLite Database File (.db)

cMT Series:

- SQLite Database File (.db) (Only for backup to e-mail)
- Comma Separated 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.			

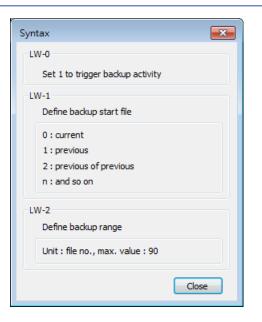
Add BOM (Byte Order Mark) to file header for EXCEL can interpreting non-ASCII strings correctly.

When back up event log in .csv format, open the csv file in EXCEL. The 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 file header for EXCEL can interpreting non-ASCII strings correctly						
	✓ Include title ✓ Include export time						
	✓ Include occurrence count ✓ Include elapsed time						
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 box:						
range	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 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.

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TriggerWhen the state of the designated register is set ON, the backupaddressoperation is activated. When the backup operation is done, the stateof 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 Series, see "7 Event Log" and "8 Data Sampling" that explain the mechanism of

synchronizing data to external device.

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Advance Tab (eMT, iE, XE, mTV)

Feneral	Advance	Security	Shape	Label	Profile		
	number (ra Enable e	nge : 0000	0 ~ 6553.	5)			
	name : Lo	ocal HMI				•	Settings
A	ddress : [[]	V		• 0			
* For	example, w ata sampling		40407.dtl	will be ba	cked up to 201		
	event log fil	le - 201404	07.evt wi	m ne nacio	eu up 10 20140	40700123.0	WL.

Setting	Description				
Serial number	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. 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.				
	The range of the serial number is 0~65535 For example, if the serial number is 123, the appended 5 digits will be 00123.				
	A data sampling file -20140407.dtl will be backed up as 2014040700123.dtl.				
	An event log file -20140407.evt will be backed up as 2014040700123.evt.				
Options	Remove old files after backup If selected, the old history files will be removed after backup.				

Note

CMT Series does not support Advance settings.



e-Mail Tab

Feneral	Advance	Security	Shape	Label	Profile	e-Mail		
1 ada	d .txt exten:	nion to the	filonomo	to alkin the	ti uima	detection		
MU			Illename	IO SETL DR	: 0111-11103	uelec IION		
Recipie	ents							ñ
		_						
	[To							-
	Cc Bcc	12						_
Subjec	t							
	Sub	ject :						
		*					E	÷
			Jse label	library				
Messag	Ye.							
1103302	o Openi	ing :						*
	10	070						*
				14			P.	
	12		Jse label	library				
	End	ing :						*
		<u> </u>	Jse label	library				
				<u> </u>				
				Labe	el Library	Lang	uage 1	•
		1	OK		Cancel			Help
			UK		Cancel			нер

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.					



13.25. Media Player

13.25.1. Overview

At the first time using Media Player object in the project, download the project to HMI via Ethernet. EasyBuilder Pro installs Media Player driver automatically.

Media Player object plays video files with controls such as seek, zoom, and volume adjustment to provide maintenance instructions or procedures on video so as to enable on-site operators to perform tasks efficiently.

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 (excluding cMT-SVR, cMT-HDM, cMT-FHD)

eMT,	XE
------	----

eneral Preview Security	General Preview	
	Preview	
Comment :	Comment :	
© U≈e UI control Media control interface	Control address	
Vedia control merrace	Inable	
	PLC name : Local HMI	
Resume previous playback	Address : LW V 0	
🕐 Use command control	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	
	Ext. device	
External device	SD card	
● USB disk	Attribute	
Attribute Repeat mode : No repeat	Auto. repeat Background :	
Background :	* OS version 2012.11.12 or later support media player only !	
OK Cancel Help	OK Cancel	Help



Setting	Description	
Use UI control	Use media control provided by user interface.	
	Resume previous playback / Resume after restart	
	Resume Media Player when changing from another window to the	
	window where Media Player is.	
Control	 Selected 	
address	 Designate a word register to control the object operations. Not selected 	
	No manual control. Video will be played automatically when the designated window opens.	
	Command (control address + 0)	
	Enter a value in the Command register to designate which action is executed.	
	Parameter 1 (control address + 1)	
	Enter a value in Parameter 1 associated with each command action	
	Parameter 2 (control address + 2)	
	Enter a value in Parameter 2 associated with each command action	
	Status (control address + 3)	
	Indicates the status or errors.	
	File index (control address + 4)	
	The file number in the designated folder. It is recommended to file	
	the video name with a number.	
	Start time (control address + 5)	
	The start time of the video (second). 0, normally.	
	End time (control address + 6)	
	The end time of the video (second). (The time length of the video) Update video playing time	
	If enabled, the elapsed playing time of video will be written into	
	[Playing time] register at a rate set by [Update period] in seconds. Update period	
	Update period of [Playing time], range from 1 to 60 (second). Playing time (control address + 7)	
	The elapsed playing time of video (Second). Normally between	
	start time and end time.	
Ext. device	Play video files in SD card / USB disk.	
	Folder name	
	The folder name of video files stored in SD card or USB disk. Files must be stored in root directory. Subdirectories won't be accepted. (For example, "example\ex" is an invalid directory.)	
	[Folder name] 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)

Note

- 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)



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)



- 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)

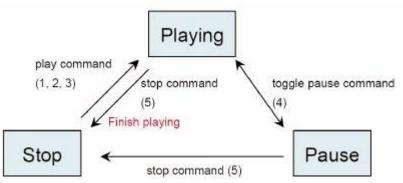
When playing a video the system sets [File Open (bit00)] and [File Playing (bit01)] to ON. If the file cannot be found, or an invalid command is entered, the Command Error bit 08 is set ON. If the file format is not supported, or a disk I/O error occurs, during playback (for example, USB disk unplugged),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

15	09	08	02	01	00	bit
Reserved (all 0)	0	0		0	0	

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)

Note

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.



Setting	Description					
Forward << /	Conforment on booleness of the wide of (in minutes)					
Backward >>	Go forward or backward of the video. (in minutes)					
Play / Pause	Select to start playing video or pausing.					
Stop	Stop playing and close the video file. To test another video, please					
	stop playing the current video first.					
Load	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.

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

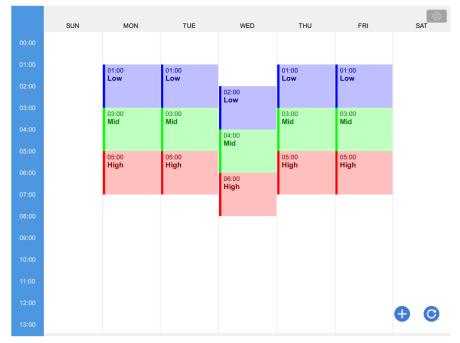
before downloading the demo project.



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 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

General		
Comment :		
Device :	BACnet/IP	•
Address :	(17,0)Schedule	•

Setting	Description
Device	Select the BACnet/IP device to be read.
Address	Select the address tag of the Schedule to be read.

Example 1

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



cMT Viev	wer (Simulation)						
	SUN	MON	TUE	WED	THU	FRI	SAT
	00:00 No Name		00:00 No Name	00:00 No Name	00:00 No Name	00:00 No Name	
12:00							
							()
14:00							

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	SA	π
00:00 No Name		00:00 No Name		00:00 No Name	00:00 No Name		00:00 No Name		
NONAME		No Name					NONAME		
	Option			Values		Done			
	N	ame		Value	Data Type	Color			
	Default Val	ue			OctetString				
	No Name		69b735	db775cf3ffff	OctetString \lor	•			
	No Name		4deb2d	2629a6cb5db7	OctetString ~	•			
	No Name		69b71d	79fd76df8e7aefcd	OctetString ~	٠			
	No Name		d76dfca	a6493e	OctetString ~	•			
	No Name		e39ebc	f75d35	OctetString ~	٠			
				+ ADD	DELE	TE			

Click 🛨 to add a schedule setting. Click 🕑 to refresh schedule data by reading from the

BACnet device.



📰 cMT View	ver (Simulation)						
	SUN	MON	TUE	WED	THU	FRI	SAT
00:00	00:00		00:00	00:00	00:00	00:00	
01:00	No Name		No Name	No Name	No Name	No Name	
02:00							
03:00							
04:00							
05:00							
06:00							
07:00							
08:00							
09:00							
10:00							
11:00							
12:00							
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 View	ver (Simulation)						
							Ô
	SUN	MON	TUE	WED	THU	FRI	SAT
00:00	00:00		00:00 No Name	00:00	00:00 No Name	00:00	
01:00	No Name		No Name	No Name	No Name	No Name	
		Cancel		Option	Done		
02:00							
03:00		Weekday	/		SUN 🗸		
04:00		From			00:00		
		То			01:00		
05:00							
06:00		Value			🗾 🛛 No Name 🖂		
07:00							
08:00							
09:00							
10:00							
11:00							
12:00							
13:00							AA
14:00							

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



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 Control Object	
1 : [Local HMI : LB-8999] => Sound control : OFF->ON, PLC no response (67 k)	
 [Local HMI: LW-100] => Change window (clear data after window changed) [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) 6: [Local HMI : LB-10] => Execute macro program : [ID:000] macro_0 (OFF->ON) (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 Series.
- Triggering [Screen hardcopy] in cMT Viewer will result in files being saved into the USB disk / SD card connected to the cMT 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

PLC Control
Comment :
PLC name : Local HMI
Attribute
Type of control : Change window
Active only when designated window opened 4. Common Window
Turn on back light 🛛 🕼 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 listed in the
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 :
PLC name : Local HMI
Attribute
Type of control : Screen hardcopy
C Active only when designated window opened
Rotate image 90 degrees
Trigger address
PLC name : Local HMI Settings
Address : LB 🔹 0
Screen hardcopy
ba cerma dopy
Trigger mode : OFF->ON 🔻
Source window for print
O Current base window ○ Window no. from register ○ Designate window no.
Printer : SD card
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 "_9999". 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 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

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



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13.28. Scheduler

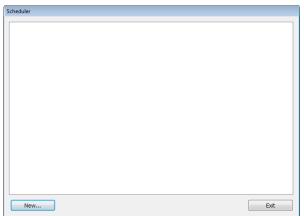
13.28.1. Overview

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 Constant Address	
Setting on individual day	
9 👘 : 0 荣 : 0 👘 (HH:MM:SS)	
Sun V Mon V Tue V Wed V Thu V Fri Sat	
End Enable termination action	
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].

heduler				
General Time	Set Prohibit			
Comn	nent : Scheduler 2			
	Power-ON s	start/end action		
Action mode	Bit ON	Bit OFF	 Word write 	
Action addre	SS			
PLC name	Local HMI		▼ Setting	
Address	: LW	▼ 100	16-bit Unsigned	_
Word write v	alue settings			
	Constant	Address		
Start v	alue : 90			
End v	alue: 30			

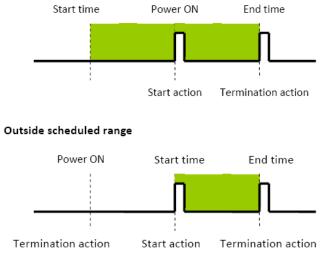
- 4. In [Time set] tab select [Constant].
- 5. Enter [Start] time as 8:00:00 and select Monday to Friday. Do not select [Setting on individual day].
- 6. Enter [End] time as 17:00:00 and select [Enable termination action] check box.
- 7. Return to [General] tab and enter 30 in [End value].
- 8. Click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



General Tab

neral 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
Nord write value	settings		
	Constant	Address	
Start value	: 90		

Setting	Description			
Power ON	Execute the defined action when the 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 scheduled time range, the termination action will			
	be executed.			
	Inside scheduled range			
	Start time Power ON End time			

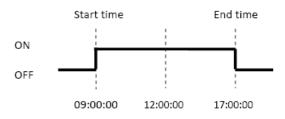


Disabled

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.



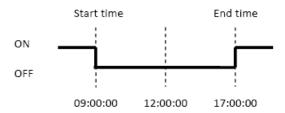
Action modeChoose the action to do at the given time.Bit ONAt the start time, set the designated bit ON. At the end time, set
the designated bit OFF.Example: Start time : 09:00:00 End time : 17:00:00



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

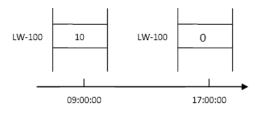
The [Write start value] entered here is transferred to the designated [Action address] word register at the start time. At end time, the [Write end value] entered here is written to the [Action address]. The valued can be entered manually or be set by using [Address] mode. In [Address] mode, the value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





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.

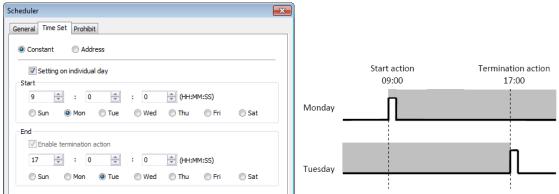
Scheduler	Scheduler
General Time Set Prohibit	General Time Set Prohibit
Constant O Address	Constant
Setting on individual day	Time setting address
Start 9 - : 0 - : 0 - (HH:MM:SS)	PLC name : Local HMI Address : LW O
Sun Ø Mon Ø Tue Ø Wed Ø Thu Ø Fri Sat	
End	Control : LW : 0
Enable termination action	Status: LW:0+1
	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	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.





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

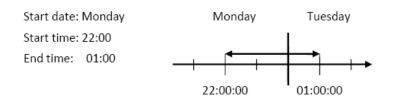
If [Setting on individual day] is not selected

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

Scheduler			
© Constant © Address		.	
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 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



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.

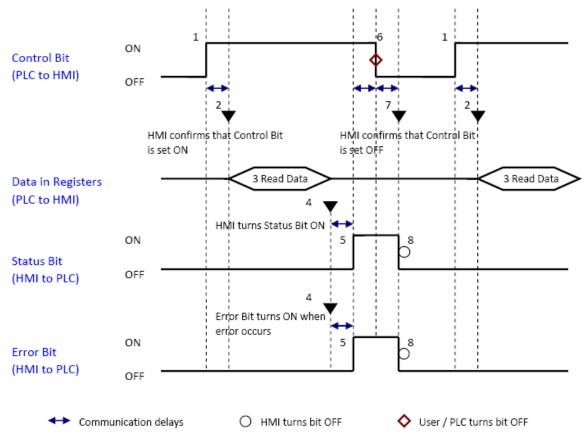
15 0.	2 01	00	Bit
Reserved (0 fixed)	0	0	

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

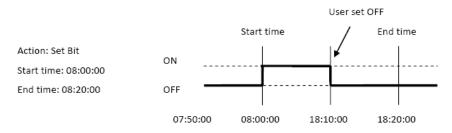
Prohibit tab

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.

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

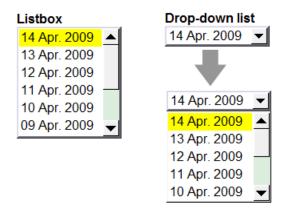


13.29. Option List

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

cMT Series

New Option List Object	New Option List Object
Option list Mapping Security Label	Option list Mapping Security Shape Label
Comment : Attribute Mode : Drop-down List • Style : Standard • Background : • Item no. : 1 • Row height : Small • Font size : Same size as label • Source of item data : Predefine •	Comment : Attribute Mode : Drop-down List Background : Item no. : 1 Selection : Down Source of item data : Predefine
Monitor address Device : Local HMI	Monitor address Device : Local HMI V Settings Address : LW V 0 16-bit Unsigned
Send notification after writing successfully Enable	Send notification after writing successfully Enable
OK Cancel Help	OK Cancel Help

eMT, iE, XE, mTV Series

Setting	Description
Attribute	Mode: The list style, either [List box] or [Drop-down list].
	Style: This option is available only when the selected mode is
	[Drop-down list]. Available styles are: [Standard] and [Classic]. The
	appearance of the obejects will be shown in cMT 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,
	the default style will be [Classic].
	Item no.: Set the number of items for the object. Each item
	represents a state displayed in the list and the corresponding value
	will be written to the [Monitor address].
	Background: Set background color.
	Selection: Set background color for the selected item.
	Row height: Set the row height for the drop-down list.

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.
Source of item data: There are 4 sources available: [Predefine],
[Dates of historical data], [Item address], and [User account]. See
13.29.2.1
The corresponding value of the selected item will be written to
[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.
Set On/Off the designated bit address after successfully writing
data to PLC.



For cMT Series, the [Dates of historical data] and the [write when button is released] selections are not available.

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].

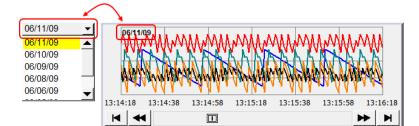
• Dates of historical data

This selection is not available for cMT Series.



New Option List Object
Option list Mapping Security Shape Label Comment :
Attribute Mode : List box Background : Selection :
Source of item data : Dates of history data
TEnable [delete history files] function
Monitor address
PLC name : Local HMI
Address : LW v 19 16-bit Unsigned
Write when button is released
Item data from dates of historical data
Type : Data Sampling Date : MM/DD/YY
Data Sampling object : 1.
Control address
PLC name : Local HMI
Address : LW 🗸 0
[Address] : set 1 to delete the selected history data
- Send notification after writing sucessfully
Enable

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			
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:

Option list	lapping Security Shape Label P	rofile
	Comment :	
Attribute -	Mode : List box 👻	Background :
		-
		Selection :
	Source of item data : Item address	•
-Monitor ad		
	e : Local HMI	▼ Setting
Addre	s:[LW	16-bit Unsigned
	Write when button is release	sed
	Write when button is released	sed
- Control add		sed
		sed Setting
PLC nar	ress	
PLC nan Addre	ress e : Local HMI	
PLC nan Addre	ress e : Local HMI ss : LW	Setting
PLC nan Addre [Address] : Item addre	ress e : Local HMI ss : LW	Setting [Address] + 1: item count
PLC nan Addre [Address] : Item addre	ress e : Local HMI ss : LW	Setting [Address] + 1: item count
PLC nan Addre [Address] : Item addre Rever	ress e : Local HMI ss : LW	Setting [Address] + 1: item count

Setting	Description
Control	[Address]: If the value at this address is changed to 1, the option
address	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].



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.

- 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.
- The system automatically disables [Mapping] tab in [Item address] mode.

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before downloading the demo project.

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.

Option List (Object's P	roperties			Σ
Option list	Mapping	Security Shape	Label	Profile	
⊂ Attribute	Comment :				
Attibute	Mode :	List box	•	Background :	
				Selection :	
Sort	Source o	fitem data : User	account	Display	▼
	ending	Descending		Display	Secret user
-Monitor a	-				
PLC na	ame : Loca	IHMI			▼ Setting
Addr	ress : [LW)	16-bit Unsigned
		Write when but	ton is re	leased	

Setting	Description
Sort	Select the sorting method from [Ascending] of [Descending].
Display	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].





The address that controls user index is [Control Address +2 (LW-n+2)] which is set in [System Parameters] » [Security] » [Enhanced Security].

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 Ma	apping Securit	/ Shape	Label	
Item	Value		Item data	
0	0		Black Coffee	-
1	1		Latte	
2	2		Black Tea	
3	3		Cappuccino	
4	4		Vanilla Latte	
5	5		Mattya	
6	6		Green Tea	
7	7		OoLong Tea	
8	8		Fruit Tea	
9	9		Scented Tea	
10 (error)				
				Set default
Imp	ort item data fr	om recipe i	record	

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	Here user can assign value for each item, basing on the following two criteria:	
	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).	
	For writing: The system writes this value to [Monitor address] when user selects an item.	
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.	



	Records of Recipe Database
	Add Delete Item data source : Item Drinic (10) Item Coffee Tea Calories 1 Black Coffee 225 0 Coffee Coffee 2 Late 150 0 Item Item Item 3 Black Tea 0 130 H4 Item Item
	Export Import
	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 notification	The system will set ON/OFF to the specified bit register when error 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

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Log, Alarm Bar, or pop-up window.

before downloading the demo project.



13.30. Timer

13.30.1. Overview

Timer object is a switch that can be used to control the mode to count time. The modes are explained later. Timer object uses the following 6 variables:

Timer Variable	Туре	Description
Input bit (IN)	Bit	The main switch of Timer.
Measurement bit (TI)	Bit	Turns ON when the Timer begins
		counting time.
Output bit (Q)	Bit	Activated when the Timer finishes
		counting time.
Preset time (PT)	Word	Presets a time before the Timer
		begins counting time.
Elapsed time (ET)	Word	Displays the elapsed time.
Reset bit (R)	Bit	Resets the elapsed time (ET) to 0.

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.

imer Timer	
Description : Mode : On delay Time base : 0.1 second(s) IN	Input bit (IN) PLC name : Local HMI Address : LB Output bit (Q) PLC name : Local HMI Address : LB IDDRESS : L
Elapsed time (ET)	Measurement bit (TI) PLC name : Local HMI Address : LB Preset time (PT)
Image: Very setting of the settin	Constant preset time PLC name : Local HMI Address : LW 10 I6-bit Unsigned
	OK Cancel Help



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[Constant preset time] is only available for cMT series.

If use cMT Series, clicking the Timer icon on the toolbar will open the Timer managing window, click [New] to configure.

Timer	
0: Mode : On delay, IN : [Local HMI : LB-0], TI : [Local HMI : LB-2], Q : [Local HMI : LB-1]	
New Delete Settings	Exit
	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 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.	
	Measurement bit (TI): Turns ON when the Timer	
	begins counting time.	
	Output bit (Q): Turns OFF when the Timer 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 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,.

Pulse	
Mode	Register
	Input bit (IN): The main switch of Timer.
	Measurement bit (TI): Turns ON when the Timer
TI PT PT	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.



before downloading the demo project.



13.31. Video In

13.31.1. Overview

The HMIs provide the Video Input feature. By installing a surveillance camera, user can monitor the site on HMI. The video images can be stored in external devices and then analyzed on PC. This feature can be utilized in different places for monitoring, such as vehicles or buildings. The following is a comparison table that shows the video input and image capturing behaviors of different models.

Model		iP	iE	eMT	mTV	XE	cMT-SVR	cMT-FHD cMT-HDM	cMT All-in-one
	IP Camera	N/A	N/A	Y	N/A	Y	N/A	Y	Y
Video Input	USB Camera	N/A	N/A	Y	Y	Y	N/A	Y	Y
video input	Video Input	N/A	N/A	eMT3121A	N/A	N/A	N/A	N/A	cMT3151
	Video input	N/A	NA	eMT3151A	N/A		N/A	177	
Model		Non-cMT Series – Capture Images				cMT Ser	ies – Record \	/ideos	
	IP Camera	The came	The camera captures the image at the moment when the			The camera records the video of the			
Image	USB Camera	address is triggered. specified recording time and the			and the				
Capturing			Images before and after the triggering time of the address			video is saved into the designated		esignated	
Video Input		are captured.			storage device.				

This object does not work remotely on cMT Viewer.

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

Analog Video Systems

USB Camera

New Video In Object	Video In (USB Camera) Object's Properties
General	General Profile
	Comment :
Comment :	Commune.
Input channel : 1 Encode format : NTSC	
Capture address	Capture address
Vise capture function	
PLC name : Local HMI	PLC name : Local HMI Address : LB 0
Address : LB 🔹 0	Storage medium
Storage medium	SD card
SD card 💿 USB disk	
Record time	
Before : 1 🚔 seconds After : 1 🚔 seconds	
	Control address
Control address	Use control function
	PLC name : Local HMI
	Address : LW 0 16-bit Unsigned
	Start/stop input : LW : 0
	Pause : LW : 0 + 1
	* OS version 2014.01.16 or later support USB camera only !
OK Cancel Help	OK Cancel Help

IP Camera

meral				
Comn	nent :			
	🔘 USB Camer	a 💿 IP Cam	iera	
RTS	SP:// 192.168.1.100:	554/medias2		
Capture addr	ess			
🔽 Use ca	apture function			
Device :	Local HMI			Settings
Address :	LB	• 0		5
Storage me	dium			
O USB	disk			
Be	fore : 5 🔶 sec		After : 5	🔹 seconds
Control addre V Use co	ontrol function	🗸 Dynam:		
🔽 Use c	ontrol function	V Dynam:	R KISI OKD	Settings
🔽 Use c	Local HMI	▼ 0		Settings 16-bit Unsigned
Use of Device : Address : S	Local HMI	▼ 0 (64 words) address after object		

SettingDescriptionInput channelSelect the Video Input channel from channel 1 or channel 2.



	(Analog video sy	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
Encode	Select the format from NTSC or PAL. (Analog video systems)			
format				
RTSP	Enter the IP camera's RTSP address.			
	When account a	and password are required for accessing the IP		
	Camera, an RTSP address with credentials embedded can be used.			
	For example:			
	admin:admin@192	2.168.1.119:554/cam/realmonitor?channel=1&subtype=0		
	Streaming over	ТСР		
	Select this check box to stream video over TCP.			
Capture	Select [Use capt	ture function] check box and configure the settings.		
address	A non-cMT model captures images while a cMT model records 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 s	torage device.		
	System	Storage Device		
	Analog video	Select SD card or USB disk to save the captured		
	system	images. The images of channel 1 will be saved in		
		"VIP1" folder in the chosen storage and so on.		
	USB	Only saves the captured images in SD card.		
	Camera			
	IP Camera	XE Series: Captured images can be saved in USB		
		drive.		
		eMT Series: Captured images can be saved in SD		
		card.		

cord time (CMIT 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, iE, XE, mTV Series)

Set a period of time to capture the images.

System	Method
Analog video	 The longest period can be set from 10
system	seconds before triggering [Capture address]
	to 10 seconds after triggering.
	 The time interval of image capturing is once
	every second.
	 The captured .jpg file will be named in the
	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
	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.

ControlIf 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
		(N/A for cMT)
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
		(N/A for cMT)
LW-n+2	string	RTSP address for IP camera

- 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

About analog video systems:

- Only one channel can be opened at a time.
- 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



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

About cMT 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:

- 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:

- 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	d	
Diplog size i	@ facel	
Dialog size :	Small	C Large
Message :	Please confirm the operation	
		Use label library
ОК :	ОК	
		Use label library
Cancel :	Cancel	
		Use label library
Font :	Arial	•
Deny write-commar		
	u The system is being prohibited from	a writing dovice registers!
-		I which g device registers!
Font :	Arial	•
		Use label library
Allow write-comma	-	
Message :	The system is now allowed to write	e device registers.
Font :	Arial	•
		Use 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 buttons, [OK]
	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.

Note

CMT Series does not support adjusting dialog size and using system tag LB-9196.



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

cMT Series

New Recipe View Object		Recipe View Object's Properties
General Security Shape	Font	General Security Shape Font Profile
Comment : Recipe table		Comment :
Recipe name : Re	sipe 👻	Refresh data automatically
Item name	Display	Recipe table
1 NewItem		Recipe name : recipe 🔻
2 NewItem1		Default sort method
3 NewItem2		
4 NewItem3		✓ Enable Sort by: A
5 NewItem4		Sort by : A A A A B B B B B B B B B B B B B
Sort by : Ne	Enable wItem - Ascending () Descending	Title Transparent Color :
Style : Cr Caption	vstal Vstyle color :	Profile Transparent Frame : Background :
Font size : 16 Caption Capt	Color: Color: Name	Grid Color:
	OK Cancel H	lelp OK Cancel Help

eMT, iE, XE, mTV Series



The name of each part of the Recipe View object is shown in the following figure.

		tle- reen Part •			_
	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- dividing	g line			
Descript	ion				
When se	lected t	he svst	em will	automat	ically refresh

Setting	Description
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	Available styles are: Default, Crystal, and Flat.
(cMT Series only)	Available styles are. Delault, crystal, and riat.
Caption	With [Use caption] enabled, the text, font size, color, and name of
(cMT Series only)	the caption can be specified. (Use caption is only available when
	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 Series Default style)
	The column width automatically adjusts to the size of the content.
Selection	
Control	Change the shading color of the selected row.
(N/A for cMT)	



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.

Numeric Input Object's Properties		
General Data Entry Numeric Format Security Shape Font Profile		
Description :		
Read/Write use different addresses		
	tting.	
Address : RECIPE Selection V Recipe_Solar	\checkmark	Selection
the second secon		Count
		Command
		Result
⊘ Notification		No
Enable		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.

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.

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 1	Fimer_3 1	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	
			5	Comman	4. O	Result: 1	
Sele	ction: 2	Count:	J	Comman	u	Result	
	ction: 2 cords: (mod		5	Comman	u. <u>-</u>	itesuit.	
		lify here)	J	Comman	u. <u> </u>	Itesuit.	

1. Create a recipe as shown in the following figure.

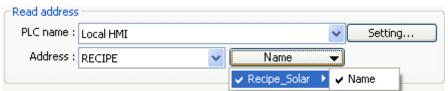
efinition Data System Reg Recipes List :	31513						
Recipes 🛛 🚺 🗙	Item name	Data type	Size	Display width	Decimal Pt.	Alignment	1
1. Recipe_Solar	No	16-bit Unsigned	1	5	0	Left	
	Name	ASCII	10	8	0	Left	
	Name_1	32-bit Signed	2	8	0	Left	
	Name_2	32-bit Signed	2	8	0	Left	
	Name_3	32-bit Signed	2	8	0	Left	
	Name_4	32-bit Signed	2	8	0	Left	
	Speed	32-bit Float	2	8	3	Left	
	1 State of Sound						
Import Export			~	New	Delste	Settings	



ecipes List :						
lecipe_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
	•		m			4
					New	Delete

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
I. myRecipe	A	16-bit Unsigned	1	5	0	Align left
	В	32-bit Unsigned	2	5	0	Align left
	C	32-bit Unsigned	2	5	0	Align left
lead address						
PLC name : Local HMI	I		~	Settings		
Address RECIPE_E	Bit 🗸 🗸	Selection-O	-			
		✓ myRecipe	Þ	✓ Selecti	on 🕨	
	Invert signal		_	Count	+	
				Comm	and 🕨	
				Result	•	
			1	A	۲.	0
				В	•	1
				С	•	2
						3
						4
						5
					-	6
						7
						8
						9
						10
						11
					-	12
						13
						14

15

13-233

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 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 Series models, drawing non-horizontal and non-vertical lines is possible.
- 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	Outline Security	
	Comment :	
Flow	speed	
	Reverse direction	
	Dynamic speed	
	Flow speed : 5	

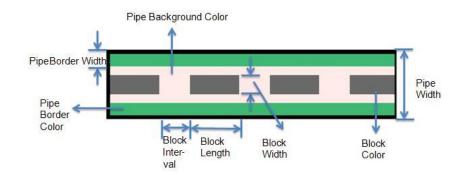
Setting	Description
Reverse	The blocks flow in the direction the object is drawn (the blue
direction	arrow). If select this check box, the blocks flow in the opposite
	direction.



	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.





neral Outli	ne Securi	У			
****	1		Pipe	Width :	23 🔹
			-		🔽 Border
				Width :	2 🔹
		$\rangle \rangle \rangle$		Color :	
		Ľ	() ······		Background
				Color :	•
Block		0			
	Style :	Arrow			
	Width :	15	•		
	Length :	20	•]		
	Interval :	[4	•		
		🔽 Dynami	c color		
Device :	Local HMI				✓ Settings
Address :	LW		• 0][16-bit Unsigned
		Index	Color		
		0	000000		
		1	ffffff	E	
		2 3	f0f0f0		
		4	7f7f7f		New
		5	8080ff	-	
		. €	, III,		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.
	Rectange: 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.

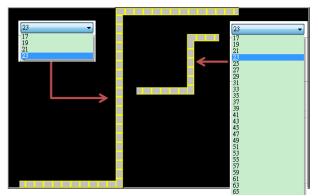
- When both [Arrow] and [Dynamic speed] are selected, the arrow will only show when a value is given to the designated address.
- To avoid the pipe lines from overlapping when drawing a turn, there is a minimum width planned at each turn. As shown in Fig. 34.1, the sign on the cross cursor defines the minimum width. Fig. 34.2 demonstrates that each turn is drawn in the minimum width.



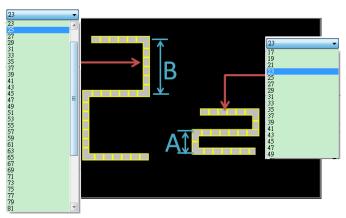
(Fig. 34.1) (Fig. 34.2)

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.





Example 1

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.

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



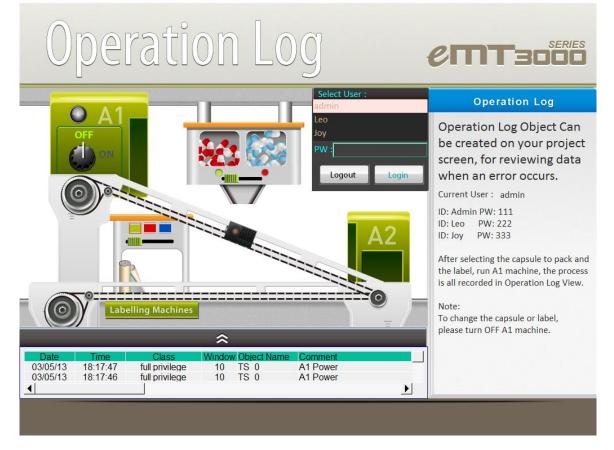
13-238

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.



Object V=	Enable	Comment
5 : Device Response		
6 : HMI Connection		
E FK_0		
7 : Password Restriction		
Em FK_0		
8 : Storage Space Insufficient		
ЕЩ FK_0		
10:WINDOW_010		
2 NE_0		
222 NE_1		
NE 2		•
	1000	•
Storage settings Maximum record no. in HMI memory :	1000	T

Setting	Description
Object	When Operation Log is enabled, the objects that can be recorded
	are listed in the setting dialog box sorted by window numbers.
	[Filter]: By clicking 🍱 icon, 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	The description of the object as shown in the following figure.



Set Word Object's Properties				
General Security Shape Label Profi	ile			
Comment : Log in				
Write address				
PLC name : Local HMI		•	Setting	
Address : UAC command	▼ LW-100		16-bit Unsigned	_
Write after button		,]I		
Write after button				
Write after button 10: WINDOW_010				
Write after button 10: WINDOW_010	n is released			
Write after button I0 : WINDOW_010 AE_0 723 SW 0		Log in Log out		
Write after button 10: WINDOW_010 123 SW_0 123 SW_0 123 SW_1 24 OL 0	n is released	Login		
Write after button WiNDOW_010 I0: WINDOW_010 IZ3 SW_0 IZ3 SW_0 IZ3 SW_1	n is released	Log in Log out		

Select all	Selects all the listed objects. If [Filter] is used, clicking [Select all]				
	only selects the objects in the list.				
Discard all	Discards all the selected objects. If [Filter] is used, clicking [Discard				
	all] only discards the objects in the list.				
Automatically enable					
operation log	With this option selected, new objects created will automatically				
for new objects	be enabled for Operation Log.				
Storage	Sets the way the records are stored.				
settings	Maximum record no. in HMI memory				
	Sets the maximum number of records that can be stored in HMI				
	memory.				
	External devices for synchronization / backup				
	Stores backup data to SD card or USB disk. Backup data can be				
	synchronized to database (cMT 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 disck after changing HMI.

(9): Use history data stored in SD card after changing HMI.

(10): Copy the records to the database server. (cMT Series)

(11): Copy the records to the database server and clear the records in HMI memory. (cMT Series)

(12): Use existing historical data in database after changing to

another HMI. (cMT 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

N	ew Operation Log View Object	
	General Title Security Shape	
	Comment :	
	Style : Default	
	Title Transparent	
	Color :	
	Profile Transparent	
	Frame : Background : V	
	Grid	
	Enable Auto fit short column	
	Selection control	
	Color :	
	Font	
	Name : [Arial] [Droid Sans]	
	Color :	
	Size : 12 -	
	OK Cancel Help	
	Title	
7	1	
_	Date Time Class Window (03/04/13 15:15:07 full privilege 10 10	
4	03/04/13 15:15:07 full privilege 10 1	
	03/04/13 15:15:00 full privilege 10 1	Selection
	03/04/13 15:14:55 full privilege 10 1 03/04/13 15:14:55 full privilege 10 1	Control
Profile	02/26/13 18:50:21 full privilege 10 1	
Frame &	02/26/13 18:50:18 full privilege 10 T 02/26/13 18:50:15 full privilege 10 T	
Deckersund	02/26/13 18:50:09 full privilege 10 T	
Background	02/26/13 18:50:07 1 full privilege 10 1	
	Grid	
Setting	Description	
Style	The style of Operation Log View object can l	be selected
	from Default, Crystal, and Flat.	



Title/Profile/Grid/ Selection control	These attributes can be configured when the chosen style is Default.
Font	Sets the color, font, and font size of the text displayed in
	Operation Log View object.

Title Tab

Date Date Time Time User name User name Class Class Window Window Object Name Object Name Comment Comment Action Action Address Address Information Information Order & Characters Display ch Ø Date Ø Ø Date Ø Ø Display items Display ch Ø Ø Ø Ø Ø Date Ø Ø Ø Display order Ø Ø Ø Ø Display order Ø Ø Ø Ø Ø Display order Ø Ø Ø Ø Ø Ø Display order Ø Ø Ø Ø Ø Ø Ø <		name	Title				
User name User name Class Class Window Window Object Name Object Name Comment Comment Action Address Information Information Information Information Order & Characters Display items V Date V Date V Class V User name V Class V Object Name O V V Date V Class V User name V Object Name V Action Action O	Date		Date				
Class Class Window Window Object Name Object Name Comment Comment Action Action Address Address Information Information ort Information Order & Characters Display items Display items Display ch Image: Display items	Time		Time				
Window Window Object Name Object Name Comment Comment Action Action Address Address Information Information ort Time ascending Order & Characters Display items Order & Characters Display items V Date V Date V User name V Object Name V Action V Action	User	name	User nam	e			
Object Name Object Name Comment Comment Action Action Action Action Address Address Information Information ort Information Time ascending Time descending Order & Characters Display items Order & Characters Display order Ime 0							
Comment Comment Action Action Address Address Information Information ort Information Time ascending Image: Time descending Order & Characters Display items Image: Display items Display ch • Image: Display items Display ch • </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
Action Action Address Address Information Information ort Information Time ascending Image: Time descending Order & Characters Display items Display items Display ch Image: Display							
Address Information Information Informati				t			
Information							
Display items Display ch Ø Time 0 Ø Date 0 Ø User name 0 Ø User name 0 Ø User name 0 Ø User name 0 Ø Object Name 0 Ø Object Name 0 Ø Comment 0 Action 0				o			
Time ascending ● Time descending Image: Second s							
♥ Time 0 ♥ User name 0 ♥ Class 0 ♥ Window 0 ♥ Object Name 0 ♥ Comment 0 ♥ Action 0	-	-	I II	me descendi	ng		
♥ Inite 0 ♥ User name 0 ♥ Class Window ♥ Object Name 0 ♥ Comment Action ♥ Action 0	order &	Characters Display iten	ns	Display ch	_		ler
Image: Class 0 Image: Class 0 Image: Class 0 Image: Class 0 Image: Comment 0 Image: Class 0	order &	Characters Display iten Date	ns	Display ch 0	_	Date	ler
V Window 0 V Object Name 0 V Comment Action V Comment 0 V Action User name	order &	Characters Display iten Date Time	ns	Display ch 0 0	_	Date Time	ler
Image: Object Name 0	order &	Characters Display iten Date Time User name	ns	Display ch 0 0 0		Date Time Class Window	ler
✓ Comment 0 Address ✓ Action 0 User name	order &	Characters Display iten Date Time User name Class	ns	Display ch 0 0 0 0		Date Time Class Window Object Name	ler
Action 0 User name	Vrder &	Characters Display iten Date Time User name Class Window	ns	Display ch 0 0 0 0 0		Date Time Class Window Object Name Comment	ler
)rder & ♥ ♥ ♥ ♥ ♥	Characters Display iten Date Time User name Class Window Object Name	ns e	Display ch 0 0 0 0 0 0		Date Time Class Window Object Name Comment Action Address	ler
)rder &	Characters Display iten Date Time User name Class Window Object Name Comment	ns e	Display ch 0 0 0 0 0 0 0		Date Time Class Window Object Name Comment Action Address Information	ler
)rder &	Characters Display iten Date Time User name Class Window Object Name Comment	ns e	Display ch 0 0 0 0 0 0 0		Date Time Class Window Object Name Comment Action Address Information	ler

Setting	Description
Title	Sets the title 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 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 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.

Pı	rinting Manager	X
	Enable [Operation Log] printing	
		Settings
		OK Cancel

General Tab

Printer	Device :	SD card		•			
Orientatio							
	Horizontal	A	Vertical	◄]		
Font							
	Name :	Arial		•			
	Size :	Middle		•			
-Range	Type :	🔘 Date	Record				
	Within :	1000			record(s)		
Trigger ad	dress						
PLC nar	ne : Local HM	II			•	Setting	
Addre	ss : LB		▼ 0				

Setting	Description
Printer	Select the device to save the Operation Log sheet. If a printer is

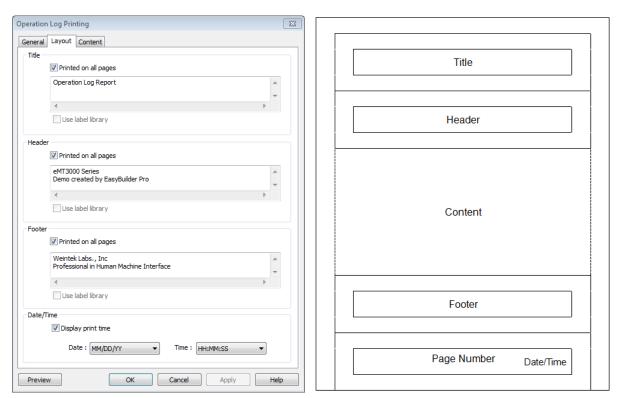


	selected, the pa	aper size should	be A4. If an exte	rnal device is				
	selected, the Operation Log sheet is saved as a JPEG file. The							
	system generat	es a folder nam	ed "operationlog	sheet", and the files				
	saved in the fol	der are named	"print date_seque	ence number". For				
	example, the fir	st JPEG file save	ed on 2013/05/08	3 is named				
	130508_0000 a	130508_0000 and so on.						
Orientation	Sets the layout	Sets the layout of the Operation Log sheet to be horizontal or						
	vertical.							
Font	Sets the font an	d the font size	to of the Operation	on Log sheet. The				
	following table	lists the corresp	oonding size.					
	Size	Title	Content					
	Large	20 pt.	16 pt.					
	Middle	16 pt.	12 pt.					
	Small	12 pt.	8 pt.					
Range	Sets the range of	of the Operation	n Log to be includ	ed in the sheet.				
	Date							
	Sets the range by date, counted from the start day through the							
	number of days	entered. The n	naximum availabl	e range is 30 days.				
	Record							
	Sets the range b	by the number of	of records. The m	aximum available				
	range is 10000	records.						
Trigger	Sets the registe	r to control Ope	eration Log Printi	ng. When the				
address	register is set O	N, it starts print	ting. When the pr	inting is done, the				
	register is set O	FF automaticall	у.					
Preview	Preview the res	ult before gene	rating the Operat	ion Log sheet.				



Objects

Layout Tab



The layout of each part is shown in the above figure.

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					
	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
	General Layout Content
	Title name Title
	Date Date Time
	Window Window
	Object Name Object Name
	Comment Comment
	Action Action
	Address Address
	Information Information
	Sort O Time ascending O Time descending
	Order & Characters Display items Display chars Display order
	Image: Weight of the second
	✓ Time 10 Time ✓ Class 8 Class
	Window
	✓ Window 8 ✓ Object Name 12 ✓ Comment
	Comment 30 Action
	Action 30 Address
	Address 15 Information
	Information 30
	Date : MM/DD/YY Time : HH:MM:SS
	Preview OK Cancel Apply Help
Setting	Description
Title	Sets the title displayed.
Sort	Time ascending
	The latest record is placed at the bottom.
	Time descending
	The latest record is placed at the top.
Data /Tima	
Date/Time	Sets the format of date and time displayed.

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				
<u>•</u> F FK_0				
🗉 6 : HMI Connection				
<u>_</u> F_FK_0				
7 : Password Restriction				
<u>•</u> F FK_0				
🗉 8 : Storage Space Insufficient				
<u>•</u> F FK_0				
10 : WINDOW_010				
AE_0				
0_W2 E1		1	Login	
L_MS E2		V	Logout	
OL 0		1	User ID	
₩_SB_0		1	Green Label	
₩-Ø <= 1		EN.	Pad I ahal	1

- 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].

Upioad		
	eMT3000 Series	•
Project		
□ RW		
RW_A		
Recipe database		
Operation log	C:\Users\user\Desktop\Operation Log file.db	Browse
Data log		
Event log		
Extend Memory (EM)		
Extend Memory (EW)		
Connection © Ethernet	C USB cable	
4 IP Name	C USB cable	
		V
IP:	192.168.1.100 💌	
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].

ieneral	Security	Shape	Label	e-Mail]	
			Laber	C T IGH		
	Comment	:				
Source	-	~				
0	RW	() R	W_A		Recipe database	
0	listorical ev	/ent log			 Historical data sampling 	
٥	Operation lo	pg				
Backu	p position					
	SD card		O USB	disk	e-Mail	
	Remote prin	nter/bad	up serve	er		
Not	e : Use LW-	-9032~9	039 to cł	nange th	e backup folder name.	
Not	e : Use [Re	mote prir	nter/bac	kup serv	er] to store data to a remote PC. Enable the	
serv	er in [Syste	em Parar	neter][Pi	rinter/Ba	ckup Server] settings.	
- Trigge		: 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.

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 Series

General Tab

feneral	Security Shape	Font Profi	le	
	Comment :			1
Lamp				
	Mode : None		•	
Down a	ctions			Г
	Action G	iroup 0	Action Group 1	
-	t Bit (Set ON)		Set Bit (Set ON)	E
Set Word (Write constant value : 0)		onstant value : (D) Execute macro (macro_0)	-
Ex	Execute macro (macro_0)		-	
	C			+
•			•	
Up actio	anc			Ē
2	Action Group ()	Action Group 1	•
Se	t Bit (Set ON)			
Se	t Bit (Set ON)	Ch	nange full-screen window (11. Window	
W	Wait Until (LB-0 is on)			H
			•	
	•			+
•		.00	•	
TT	ons will be run sim:	ultaneously even if	down actions are still running. Use Wait Unti	l to

Bit/Word Lamp actions are explained in 13.36.2.1 eMT, iE, XE, mTV.

For cMT Series, actions can be classified into action groups, whichs are put in sequence. Actions within a group are executed at the same time, and after the actions in the current group have been all triggered, the actions in the next group will then be triggered. Please see Ch13.53 Action Trigger for more information on the notes about action groups.

DescriptionExecute action when the button is pressed.Execute action after the button is pressed and released.Delay action for the specified time (ms).
Execute action after the button is pressed and released.
-
Delay action for the specified time (ms).
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.
Execute	[Direction] The direction of the transition. Executes one of the Macros from the drop down list that has
Execute Macro	



	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.
Popup Window	Opens a designated window.
Close Window	Closes currently opened window.
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.
	Clear : Clear the value in the word register.
	Esc: Same as the [Close window] function; it is used to close the keyboard window.
	Delete: Same as the keyboard's "Delete" function, deletes the
	number or character on the right side of the text cursor.
	Left: Same as the keyboard's " \leftarrow " key moves the text cursor to the
	left side of the previous number or character.
	Right: Same as the keyboard's " \rightarrow " key moves the text cursor to the
	left side of the next number or character.
	Inc: Increment by 1.
	Dec: Decrement by 1.
	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 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

	leaking out.
Wait Until	The next group will be executed only when the condition set for a
	designated bit or word address is met.
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.
	General Tab:
	Download: Transfer file from FTP server to local HMI.
	Upload: Transfer file from local HMI to 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.



Objects

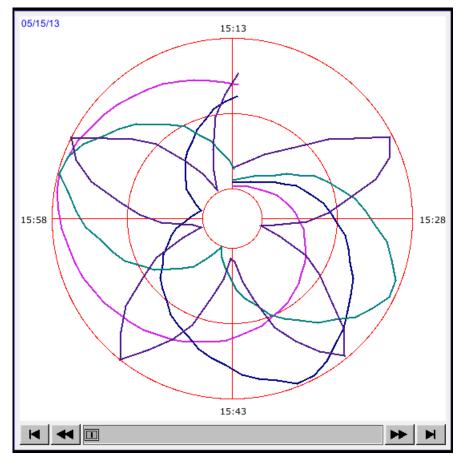
before downloading the demo project.



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.



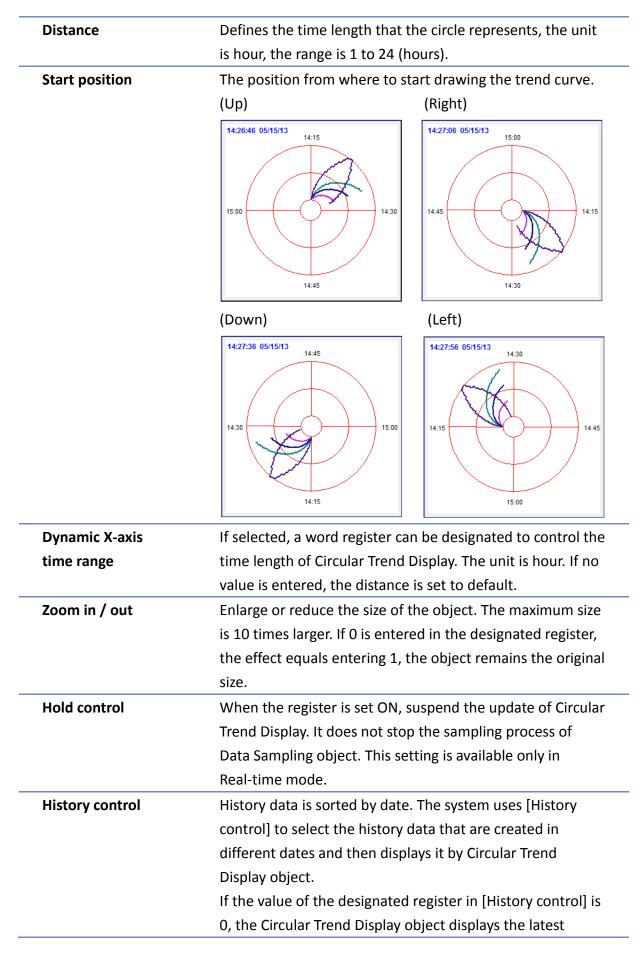
lar Trend Di	splay Object's Pro	operties		
eral Trend	Channel Shape	e Profile		
Com	ment:			
Data Sam	pling : 1.	•		
	Type : Real-time			
	channels is chang	ed, vou must rese	t HMI's data samp	linas !!
	-			
Distance :	1 •	hour(s)	Start position :	Up 🔻
	🔽 Dynamic X	-axis time range		
PLC name :	Local HMI		•	Setting
Address :	LW	▼ 100		16-bit Unsigned
oom in/out				
	🔽 Enable			
PLC name :	Local HMI		•	Setting
Address :	LW	▼ 200		16-bit Unsigned
iold control -				
	🔽 Enable			
PLC name :	Local HMI		•	Setting
Address :	LB	▼ 0		
Vatch line				
	🔽 Enable			
PLC name :	Local HMI		•	Setting
Address :	LW	▼ 300		
ime stamp ou	tput			
	V Enable			
PLC name :	Local HMI		•	Setting
Address :	LW	▼ 400		32-bit Unsigned

Setting Description			
Data Sampling	Selects the data source for drawing the trend curve.		
Туре	Selects the type of the trend from [Real-time] or [History].		
	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.		
	 The scroll controls can be used to check the refresh 		
	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.		
	 Scrolling backward and viewing earlier data will 		
	disable [Refresh data automatically]. The button		
	displayed is 🕨 at this moment.		
	 If [Refresh data automatically] is selected, the display 		
	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 I . Please note that auto-refresh remains disabled		







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

Watch line Displays a watch line when user touches the Circular Trend Display object, and the sampling data at the position of the watch line is output to the designated register. To display 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 Watch Address Data Length 0 16-bit Unsigned 1 Word LW-n 2 Words LW-n+1 1 32-bit Unsigned 2 LW-n+3 32-bit Signed 2 Words 3 16-bit Signed 1 Word LW-n+5 Time stamp output If selected, the system will start counting time from the first data sampled, and output the elapsed time counted of



the latest data sampled to the register designated in [Time stamp output + 2]. When pressing a point on the trend curve, the relative time of the nearest data sample is then output to [Time stamp output address].

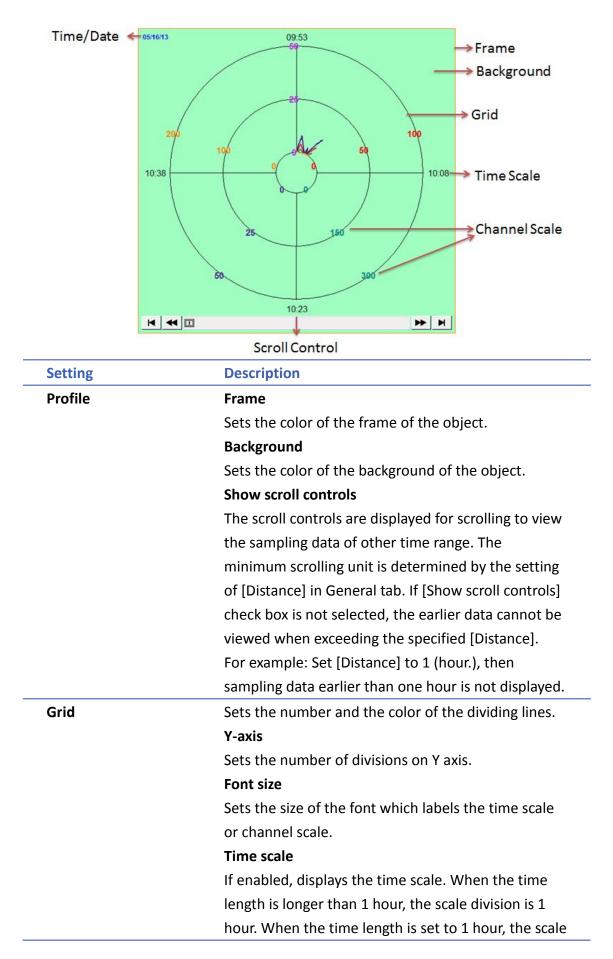
Note

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.

Trend Tab

eneral Trend	isplay Object's Properties
Profile	ame : Background :
110	Show scroll controls
Grid	
Y-a Font s	ixis: 4 division(s)
Time scale	ize : 8 🔹
	✓ Enable Color :
Channel sca	
	Enable Enable
Time/Date	
🔽 Time	
V Date	MM/DD/YY ◎ DD/MM/YY ◎ DD.MM.YY ◎ YY/MM/DD
Color :	





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	
Sets the display format of time.	
Date	
Sets the display format of date.	

Channel Tab

	al Trend	Channel	Shape Profile	
ata	sampling o	bject		
	Channel	Display	Description	Data type
Þ		V	16-bit Unsigned	16-bit Unsigned
	1	v	16-bit Unsigned	16-bit Unsigned
	2	V	16-bit Unsigned	16-bit Unsigned
	3	1	16-bit Unsigned	16-bit Unsigned
	4	V	16-bit Unsigned	16-bit Unsigned
	n property Col	lor :	namic limits	Width : 2
	Ze	ro: 100		Span : 1000
	nel visibilit	y control		
han		🔽 En	able	
han				✓ Setting
	.C name :	Local HMI		↓ Seturig
PL	.C name : (Address : (▼ 250	16-bit Unsigned
PL	Address : (LW el when th	e corresponding bit is :	
PL	Address : (LW	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 selecti	ng [Dynami	c limits]			
	The upper a	and lower lin	mits of th	e data are	e set by	
	constants.					
	Selecting [[Dynamic lim	its]			
	The upper a	and lower lin	mits are s	et by the	designated	
	register. Wł	nen the add	ress is LW	/-n, the		
	correspond	ing address	es are as	the follow	/ing list.	
	Da	ta format	16-bit	32-bit		
	Lov	wer limit	LW-n	LW-n		
	Up	per limit	LW-n+1	LW-n+2	2	
Channel Visibility	If [Enable] i	s selected, t	he bits of	f the desi	gnated	
Control	word regist	er will be us	ed to sho	w/hide e	ach	
	channel. Fir	st bit (Bit-0)) controls	the first o	channel;	
	second bit ((Bit-1) contr	ols the se	cond cha	nnel, and	
	so on.					
	Display cha	nnel when	the corre	sponding	bit is:	
	If [ON] is se	lected, whe	n the cor	respondir	ng bit is	
	OFF, the channel is hidden. If [OFF] is selected, when					
	the corresp	the corresponding bit is ON, the channel is hidden.				
	In the follow	wing examp	le, the co	ntrol addı	ress of	
		ibility is set				
		n the corres				
		els, the visi	bility of th	he channe	els is as the	
	following lis					
		Control a				
	0	LW_bit		OFF	YES	
	1	LW_bit	-001	ON	NO	
	2	LW_bit	-002	ON	NO	
	3	LW_bit	-003	OFF	YES	
					YES	



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.

eneral	Outline	Security			
	Commer				
File po					
		🔘 SD card	💿 USB disk		
Directo	ory				
	Dynamic :	iolder path			
	PLC :	Local HMI		Ŧ	Settings
	Address :	LW	↓]0		20 word (s)
		ally display the new ication when switch Settings	ing to a new picture		
V V	Automatic Send notif Specify fil	ication when switch Settings e from address (hide	ing to a new picture LB-0		Cattions
V V	Automatic Send notif Specify fi PLC :	ication when switch Settings e from address (hidd Local HMI	ing to a new picture LB-0 e toolbar)		Settings
	Automatic Send notif Specify fi PLC : Address :	ication when switch Settings e from address (hide Local HMI LW	ing to a new picture LB-0		Settings 20 word (s)



Setting	Description
Outline	Sets the toolbar position, background color, and text font
	of the Picture View object.
	Hide delete button
	If selected, the delete button will not be displayed on the
	Picture View object toolbar. The delete button is used to
	delete the picture currently viewed.
	Display with original size when a picture size is smaller
	than the object size.
	If selected, when the size of the picture is smaller than the
	Picture View object, this setting helps to prevent distortion
	caused by enlarging the picture.
File position	Select the file source of the picture files from [SD card] or
	[USB disk].
Directory	The directory where the picture files are saved.
	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 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.

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.



Outline Tab

	New Picture View Object General Outline Security
	Toolbar position : Bottom Hide delete button Background : Font : Arial
Setting	Description
Outline	Specify the position, background color, and font of Picture
	View object.
	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.

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		



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 Series models)
	Result: Control Address+1
	0: Success
	1 or more: Error
	New File Name: Control Address +2

Outline Tab

neral Outline Sec	unity Shape	
File position :	💿 SD card 💿 USB disk	
File type :	All files 🔹	
Font		
	Arial	•
Color :	Size : 12	•
Background		
Color :	Transparent	
Color Grid :	Select box :	-



Setting	Description
Folder position	Select the position of the file from SD card or USB
	disk.
File type	Select all files, CSV files, or images to be displayed.
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



	Description :	
	Type :	Recipe database
	Recipe :	recipe
	File position :	💿 SD card 💿 USB disk 📐 🔘 Remote HMI (cMT series)
Contro	ol address	
	PLC : Local	I HMI 👻 Settings
Ad	dress : LW	→ 100
	U: 10.1e, 1:1	DUSY
	0 : idle, 1 : 1 Result : L W- 1 : success, 4	
File na	Result : LW-	-102
File na	Result : L W- 1 : success, « ame address	-102
	Result : L W- 1 : success, « ame address	-102 4 or more : error nclude folder path
	Result : L W- 1 : success, - ame address Ir	-102 4 or more : error nclude folder path
Ad	Result : LW- 1 : success, a ame address In PLC : Local	-102 4 or more : error nclude folder path HMI
Ad Folder	Result : LW- 1 : success, 4 anne address Ir PLC : Local dress : LW	-102 4 or more : error nclude folder path 1 HMI

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 Series). When Remote HMI is selected, please
	note that only files in cMT 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
	Series)], please enter the remote HMI's IP address

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

	Angle : Full, 0" Hole No. of channels : 4 Border color : •
- Dati	A display Style : Value Font : Arial Size : 12 Right of decimal Pt. : 0
Rea	d address PLC name : Local HMI
	Text color : Pattem color : Pattem color : Pattem style :

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



13-278

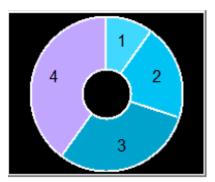


be set.

Degree			X
Start degree :	Clockwise	Counterclockw End degree :	
	Full circle		OK Cancel

Hole

Set the size of the hollow circle in the center of Pie Chart.

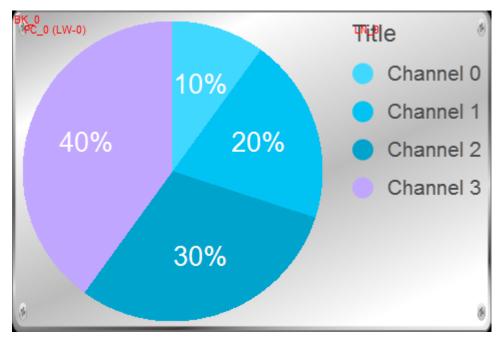


No. of channels	Set the number of channels to be displayed in the
	chart. The range is from 2 to 16.
Border color	Set the color of the border.
Data display	The [Style] can be set as [None], [Value] and
	[Percentage]. The [Font] and [Size] are for the text
	on the chart. For Value Style, the [Right of 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.
Read Address	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.
Channel	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 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		
☑ Background ☑ Pie Chart			ОК
✓ Legend	Margin: 10		Cancel
	Color/Style		Help
	Customize In the provide the provided and the p		
	Picture Library		
		Ξ	
		*	



	Setting	Description
	Margin	Specify the space between the background edge and
		the objects.
	Color/Style	Customize
		Color/Style
		Customize Picture
		Round : 10 🔶 Frame : Transparent 💌 Background :
		Pattern : Pattern style :
		Colort o suitable background pattern and color
		Select a suitable background pattern and color.
		Picture
		Color/Style © Customize © Picture
		Picture Library
		Lies the default sisture or choose a sisture from
		Use the default picture of choose a picture from
		Use the default picture or choose a picture from Picture Library.
		Picture Library.
 gend		
	Dis Chart	Picture Library.
 gend	Pie Chart IV Background	
	 ☑ Background ☑ Pie Chart 	Picture Library.
	Background	Picture Library.
 gend	 ☑ Background ☑ Pie Chart 	Picture Library.
	 ☑ Background ☑ Pie Chart 	Picture Library.
	 ☑ Background ☑ Pie Chart 	Picture Library.
 gend	 ☑ Background ☑ Pie Chart 	Picture Library.
egend	 ☑ Background ☑ Pie Chart 	Picture Library.
egend	 ☑ Background ☑ Pie Chart 	Picture Library.
	 ☑ Background ☑ Pie Chart 	Picture Library.



÷

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 Security			
Comment :			
Mode :	QR code	•	
Correction level :	H (30%) - Default	•	
Color :	•		
	📃 Unicode		
Read address			
PLC : Local HM	I	•	Settings
Address : LW	• 0		

Setting	Description		
Mode	Supports QR code and Aztec code.		
Correction level	2D barcodes have error correction capability to restore da if the barcode is dirty or damaged. QR code Four correction levels are available: L, M, Q, and H. The da restoration rate is listed below. (The data restoration rate total codewords. Codeword is a unit that constructs the da area.) Correction Level L 7% M 15% Q 25% H 30% Aztec code		
	Aztec code 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. this check box is selected, the 2D barcode is generated via UNICODE encoding. For characters that are not ASCII defined English alphabets numbers, for example, Chinese or Korean characters, pleas select the Unicode check box.		
Read address	The 2D Barcode Display object will display the 2D barcode generated from the information entered by the read address. The word length limit: 1 ~ 1024.		

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.

	New Push Notification Barcode Display Object
	Comment : Mode : QR code Correction level : H (30%) - Default Color : Unicode
	Read address Device : Local HMI Address : LW-11770 (64 words) : QR code (URL) f Length : 64 word (s)
Setting	Description
Mode	Supports QR code and Aztec code.



Correction level	 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 7% M 15% Q 25% H 30% Aztec code Aztec code supports error correction levels from 5% to 95%. Specifying a bigher correction value results in a larger printed 	
	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.	
Read address	Cannot be changed by default.	

System Parameter Settings

Extended Mem	iory (Cellular Data Network	Time Sync./DST	e-Mail	Recipes
Device	Model	General	System Setting	Remote	Security
🥅 Prohibit p	bassword rem	onnecting to this machi ote-read operation (or ote-write operation (or	set LB9053 on)		
531 i			sec 205004 only		
VNC server					
Password	free				
Password	from project				
🔲 Monitor r	mode				
EasyAccess se	rver				
		Location of	f EasyAccess 2.0 server :	China	•
Diagnoser					,
-					
Enable					
cMT viewer					
Max connect	count : 3 🛓	Count : 1 ~ 10			
		Warning : too many	connect count will affe	ct performance.	



Setting	Description
EasyAccess	Global: Supports push notification features of Wechat,
Server	Facebook, and Line. China: Supports push notification features of WeChat only.

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



Objects

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 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	1	
tatus address			
PLC :	Local HMI		▼ Settings
Address :	LB	• 0	
	nning Status : LB-1	off, 1 : on) topped, 1 : scanning)	88
arcode addre	\$		
PLC :	Local HMI		▼ Settings
Address :	LW	▼ 10	20 word (s)
	🔽 Use Unicode		
ead byte limi	it		
	🔽 Enable	Limit : 10	Bytes

Setting

Description

Control address

Control 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	If the data read exceeds this setting, the execution
	status turns to 2 (error code).



Objects

Security Tab

ound Library Library 📴 👔		Size	Import
[Project]	▶ 0 Beep	0 k	
			Play
			1.07
		[OK Cancel
Sound			
🗹 Enable	Sound Library Play] Sound Index : Default	
	V.611		

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 I I I I I I I I I I I I I I I I I I I
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 Care	Control address Command 0000 Start Stop Clear Execute Status 0000 Length (in Byte) 0000 Status address
Barcode address	Camera 애 💽 Scanning 🐼 🔵
Data	
Data Unicode 0000 0000	0000 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 A	ndroid Camera
	Control address Command 0000 Start Stop Clear Execute Status 0001 Length (in Byte) 0007 Status address
	Camera 💽 Scanning 💽 OFF
Barcode addr	ess
Data We	intek
	intek 157 0065 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 S	canner wit	h Android Cam	era
			Control address
			Command 0000
Carlos Carlos			Start Stop Clear
(ma)			Execute Status 0002
and second second		N.	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 S	canner wit	h Android Camera
		Control address Command 0000 Start Stop Clear Execute Status 0002 Length (in Byte) 0015 Status address Camera OX Scanning OFF
	Barcode a	ddress
	Data	barcode scanner
	Data 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. String Table

13.43.1. Overview

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	ts	•	New Section	Delete Se	ection				
Des	cription : Digits		<u></u>						
ing 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	Sett	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	Import *.csv file into the String Table.
Export EXCEL File	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	le l
ext Security	
Use label library	Label Library
🔽 Use string table	String Table
Section : [[D:000] Digits	•
String ID	
📝 Dynamic	
PLC : Local HMI	✓ Settings

- 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



Comment : Server system : MySQL • IP : 192 . 168 . 1 . 0 Port : 3306 * *Default port of MySQL is 3306 Usemame : user Password : password Database name : database	General TLS/SSL	Status/Control						
Use IP Image: The state st	Comm	nent :						
IP : 192 . 168 . 1 . 0 Port : 3306 * *Default port of MySQL is 3306 Username : user Password : password	Server sys	tem : MySQL	•					
Port : 3306 🜩 * Default port of MySQL is 3306 Username : user Password : password		Use IP	•					
Username : user Password : password		IP : 192	. 168		1	24	0	
Password : password		Port : 3306 📑	* Default port of 1	4ySQL is 3	306			
	Usem	ame : user						
Database name : database	Passw	ord : password						-
	Database n	ame : database						-

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 name=""> (Connect to Default Instance :</computer> 		



	MSSQLSERVER)
	 <ip address="">\<instance name=""></instance></ip>
	 <ip address=""> (Connect to Default Instance :</ip>
	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.

TLS/SSL Tab

General TLS/SSL Status/Control
🔽 Enable
Version : TLS 1.2 🔻
Server verification
Use certificate on HMI first (if existed). Otherwise, use imported files below.
CA certificate : None
Import
Server name must match certificate's information
OK Cancel Help

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
Server verification	Enable Verify whether the server certificate is signed by CA



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

eneral TLS	/SSL Status/Co	ntrol			
Status addres	s				
Device	: Local HMI			-	Settings
Address	: [L₩)		16-bit Unsigned
	Status : L V	W-0			
	(1	0 : stopped, 1 : d	lisconnected, 2	: connected])
	Error : L V	W-1			
	()	0 : none, 1 or m	ore : error)		
Control addr					
🔽 Enabl	e				
Device	Local HMI				Settings
Address	LW	•)		16-bit Unsigned
Address	: [LW	•])		J
Address	: LW Command : LV)		J
Address	Command : L1			pdate)	J
Address	Command : L V	₩-0		pdate)	J
Address	Command : L V	W-0 0 : none, 1 : star W-1 (4 words)		pdate)	J
Address	Command : LV (I IP : LV Port : LV	W-0 0 : none, 1 : star W-1 (4 words)		pdate)	J
Address	Command : LV () IP : LV Port : LV Username : LV	W-O O:none, 1:star W-1 (4 words) W-5 W-6 (16 words)	t, 2 : stop, 3 : υ	pdate)	J
	Command : LV () IP : LV Port : LV Username : LV Password : LV	₩-0 0 : none, 1 : star ₩-1 (4 words) ₩-5 ₩-6 (16 words) ₩-22 (16 words)	t, 2 : stop, 3 : υ)	pdate)	J
	Command : LV () IP : LV Port : LV Username : LV	₩-0 0 : none, 1 : star ₩-1 (4 words) ₩-5 ₩-6 (16 words) ₩-22 (16 words)	t, 2 : stop, 3 : υ)	pdate)	J
	Command : LV () IP : LV Port : LV Username : LV Password : LV	₩-0 0 : none, 1 : star ₩-1 (4 words) ₩-5 ₩-6 (16 words) ₩-22 (16 words)	t, 2 : stop, 3 : υ)	pdate)	J
	Command : LV () IP : LV Port : LV Username : LV Password : LV	₩-0 0 : none, 1 : star ₩-1 (4 words) ₩-5 ₩-6 (16 words) ₩-22 (16 words)	t, 2 : stop, 3 : υ)	pdate)	J
	Command : LV () IP : LV Port : LV Username : LV Password : LV	₩-0 0 : none, 1 : star ₩-1 (4 words) ₩-5 ₩-6 (16 words) ₩-22 (16 words)	t, 2 : stop, 3 : υ)	pdate)	J
	Command : LV () IP : LV Port : LV Username : LV Password : LV	₩-0 0 : none, 1 : star ₩-1 (4 words) ₩-5 ₩-6 (16 words) ₩-22 (16 words)	t, 2 : stop, 3 : υ)	pdate)	16-bit Unsigned

Setting	Descript	Description	
Status address	LW-n: Di	LW-n: Displays 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.
Control address	LW-n: Cor	ntrols the operation of Database Server.
	Value	Description
	0	Ready
	1	Start
	2	Stop
	3	Update
	LW-n+1: S	ets the IP address of the database.
	LW-n+5: S	ets 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.

 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
<pre><hmi name="">_<datalog name="">_data</datalog></hmi></pre>	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.

3	—
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.

Example 1

 Create a Database Server object, set Status Address to LW-0, and Control Address to LW-10.



	/Control
tus address PLC :	Local HMI
Address :	
	Status : L W-O
	(0:stopped, 1:disconnected, 2:connected) From: L.W-1
	Error : L w-1 (0 : none, 1 or more : error)
Enable	
PLC : Address :	
	Command : LW-10 (0 : none, 1 : start, 2 : stop, 3 : update) IP : LW-11 (4 words) Port : LW-15 Username : LW-16 (16 words)

 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 © Time-based © Trigger-based Sampling time interval : [second(s) • Read address PLC : [Local HMI • Settings Address : [LW • 100 Data Record Data Format Data length : 1 word(s) History files Sync. to SD card Sync. to USB disk Sync. to USB	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	
 There-based Trigger-based Sampling time interval : second(s) Read address PLC : Local HMI Address : LW 100 Data Record Data Format Data length : 1 word(s) Sinc. to SD card Sync. to USB disk Sync. to USB disk	Comment :	
 There-based Trigger-based Sampling time interval : second(s) Read address PLC : Local HMI Address : LW 100 Data Record Data Format Data length : 1 word(s) Sinc. to SD card Sync. to USB disk Sync. to USB disk	Sampling mode	Wold 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 100 PLC: Local HMI Solution: Solution: Data Record Data Format Data length: 1 word(s) PLC: Local HMI Solution: Solution: Solution: PLC: Local HMI Solution: So		
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 Sync. to USB disk Databese: I to 20,0,1 Image: Image: Image:		C Enable
PLC: Local HMI Settings Address: W 100 Istory files Bata Format Data length: 1 word(s) Sync. to SD card Sync. to USB disk Sync. to USB disk Sync. to Josplay history from database Database: Istory files Database: Istory files Sync. to USB disk Sync. to USB disk	Read address	PLC : Local HMT 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 : I W T 100	Address . Lw 🗸 ad
Data Record Data Format Data length : 1 word(s) Charlength : 1 word(s) C		History files
Data Format Data length : 1 word(s) 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 Cancel		
OK Cancel		
		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			Act	ion			Records 🔮	Туре	Collation	Size	Overhead
hostname_datalog_data	:=	ŝ	1	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		ß	12	3-	1	\mathbf{X}	0	MyISAM	utf8_unicode_ci	1.0 KiB	-
3 table(s)			Su	m			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		≤	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

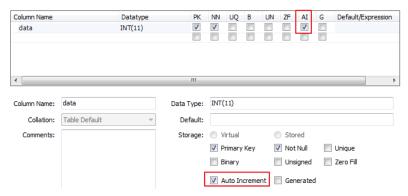
Setting	Description
Advanced Mode	Without [Advanced Mode] selected:
	Click [New] to add a new row or click [Import from
	server] to import an existing database.
	With [Advanced Mode] selected:
	Manually enter syntax in Command tab to control
	MySQL/MS SQL database. Please note that returning
	from Advanced 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.





Command Tab

SQL Query		- ×
General	Control address	
Command	Device : Local HMI	
	Address : LW	
	Customize length for error message	
	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	
	ОК	ancel
Setting	Description	
Control a	ddress Designate five consecutive registers to execute commands and show results. Of the results, the length of error message can be customized.	
Comman	d In standard mode (without checking Advanced box), the four basic commands of SQL (Create, Update, and Delete) and their command ID are shown.	Read

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

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.



Objects

General	Control address							
ommand	Device : Loc	cal HMI						
	Address : LW	1	▼ 800	16-b	it Unsigned			
	Customize length for error message							
	Error message	: 64 words 🔮	A					
	Command ID	: LW-800						
	Row selection	1: LW-801						
	Status : LW-802							
	Error code	e: LW-803						
	Error code		words)					
	Error code	e: LW-803	words)					
	Error code Error message Command	e : LW-803 e : LW-804 (64 v	words) No. of arguments	No. of outputs	Action			
	Error code Error message Command	e : LW-803 e : LW-804 (64 v		No. of outputs	INSERT INTO `table_name`() values();			
	Error code Error message Command Command ID	e : LW-803 e : LW-804 (64 v Description	No. of arguments					
	Error code Error message Command — Command ID 1	e : LW-803 e : LW-804 (64 v Description Create	No. of arguments	0	INSERT INTO `table_name`() values();			
	Error code Error message Command ID 1 2	E : LW-803 E : LW-804 (64 v Description Create Read	No. of arguments 0	0	INSERT INTO `table_name`() values(); SELECT `default_name_1` FROM `table			

Click [New] or [Settings] to open SQL Query Command window.

Query Tab

Command ID :	5 🔺
Description :	Update
SQL Query :	Update country SET Name = '\${2}', Continent = '\${3}, SurfaceArea = "\${4}', P
	< [] >
	✓ Discard result
	OK Cancel
	Description : SQL Query :



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

QL Query Comm	hand				×
Query	PLC name Addre	ss Address format			
Argument	1 Local HMI LW-30				
	2 Local HMI LW-32				
	3 Local HMI LW-32				
	4 Local HMI LW-34				
	5 Local HMI LW-34	12 32-bit Float			
	6 Local HMI LW-34	14 String			
	New D	elete Settings.			
				ОК Са	ancel

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

Argument 1 Local HMI LW-300 String (2) 2 Local HMI LW-302 String (26) 3 Local HMI LW-328 String (10) 4 Local HMI LW-338 32-bit Float 5 Local HMI LW-340 32-bit Float 6 Local HMI LW-342 32-bit Float 7 Local HMI LW-344 String		PLC n	ame Addres	s Address format	
Output 2 Local HMI LW-302 String (26) 3 Local HMI LW-328 String (10) 4 Local HMI LW-338 32-bit Float 5 Local HMI LW-340 32-bit Unsigned 6 Local HMI LW-342 32-bit Float	rgument				
3Local HMILW-328String (10)4Local HMILW-33832-bit Float5Local HMILW-34032-bit Unsigned6Local HMILW-34232-bit Float	Output				
4 Local HMI LW-338 32-bit Float 5 Local HMI LW-340 32-bit Unsigned 6 Local HMI LW-342 32-bit Float					
5 Local HMI LW-340 32-bit Unsigned 6 Local HMI LW-342 32-bit Float				• • •	
6 Local HMI LW-342 32-bit Float					
				-	
		, 2000		Stillig	

After reading database, the result will be stored in the addresses specified in this tab.

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

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
13	Internal error

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 Security	Shape
Comment :	
SQL Query :	1: General Mode 🔻
Style :	Crystal 💌
Style Color :	
Text	
Font :	Arial [Arial] [Droid Sans]
Size :	12 •
Color :	
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	Select a style and a color for this result viewer.
Text Set the font, font size, and font color for the text	
	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 : Cincular Angle :	▼ Full,0°
ick Mark Scale Label	Radius :	0
Main scale Ticks : 5	Length :	
Sub scale	▼ Length :]

Setting	Description
Style	Select the style from [Circular], [Horizontal], or [Vertical]. If select
	[Circular], set the [Direction] and [Degree].



Degree		×	ĵ
Direction	Olockwise	Counterclockwise	
Degree Start :	✓ Full circle		
		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					
		E Full circle			
	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	
Itek Mark Scale Label	Style : Cincular - Angle : Full, 0°
Font : Arial	
Color :	Size : 12 V
	Right decimal Pt. : 0
Radius :	0
Dynamic lin Min. : 0	Max.: 100
ОК	Cancel Help

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.

New Dynamic Scale Objec	t 💽
General	
	Style : Horizontal •
Tick Mark Scale Label	
Use scale label	
Font :	Arial 🔹
Color :	Size : 12 🔻
Left decimal Pt. :	4 Right decimal Pt. : 0
Position :	Right
Top :	Dynamic limits 0 Bottom : 100
	OK Cancel Help

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.	:LW-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.

	General Color					
	Clear address					
	PLC : Local HMI					
	Address : LB 🔹 0					
	Attributes address					
	PLC : Local HMI - Settings					
	Address : LW 🗸 0					
	LW-O 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 (more) LW-2 line/fill style (more) LW-3 inner color LW-4 interior pattern color (rectangle, circle) LW-5 x1 LW-6 y1 LW-6 y1 LW-7 x2 (radius of circle, arc, pie), rx (ellipse) LW-8 y2, ry (ellipse), start degree (arc, pie) LW-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					
 ting	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	Destangle solar	Interior pattern	
Rectangle	2	1: Solid		Drawn in Pattern mode	Rectangle color	color	
Circle	2	0: Hollow		Drawn in Line mode	Circle color	Interior pattern	
Circle	3	3	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	
FIE	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 	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 35 16 17 18 19 20 21 22 23 24 25 26



Objects

Color Tab

General	Color	Profile				
No	Co	lor		1	New	
0		000000				
1		ffffff			Delete	
2		f0f0f0				
3		cOcOcO				
4		7f7f7f				
5		8080ff				
6		ff0000				
7		ffff00				
8		80ff00				
			OK Car	ncel		Help
		Descri		ncel		Help

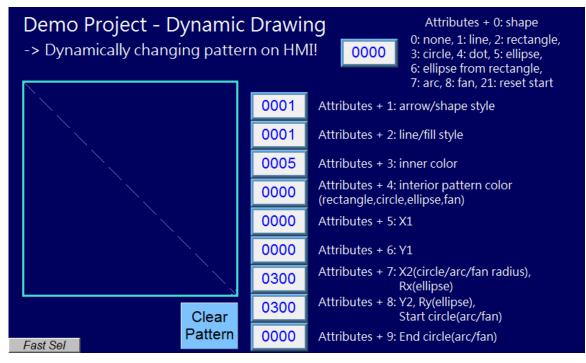
octing	Description
New	Adds a color to be used in the drawing.
Delete	Deletes the selected color.



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.

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



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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.

New PDF Reader General	Object	×
	Comment :	
Backg	ground color : Transparent	
File position		
Path PLC : Address :	Local HMI Settings LW 10 20 word(s)	
-Page control -	🕼 Enable	
PLC : Address :	Local HMI	
	LW-0 Current page LW-1 Total pages	
* PDF Reader	r requires OS version 20160301 or later.	
	OK Cancel Help	

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	Change the displayed page by entering its page
	number.



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.

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 editing 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.

neral Profile				
17) 27		vivisions		
		Vertical :	3	×
		Horizontal :	3	*
		Spacing :	Equal	-
		. 9 ±	N 197	
		Spacing : Free he row width and	column widt	h can he
	a	djusted freely.	COIGHI WICE	r cour be
Border				
Line type :	Width : 1	Colo:	r : 🚺	
Jrid			an she	1.1.1.1.1.1
J110		Seconda de La Marca Adres	-	
Line type :	Width : 1	Color		
Line type :	Width : 1	Color		•
Line type : Alignment V Enable		Color		
Alignment Z Enable				
Alignment Z Enable	Fill with this table by dragg	ing them into cells		P
Alignment Enable * Align objects in line	Fill			
Alignment Enable * Align objects in line	Fill with this table by dragg	ing them into cells		
Alignment Enable * Align objects in line 1	Fill with this table by dragg	ing them into cells		
Alignment Enable * Align objects in line	Fill with this table by dragg	ing them into cells		
Alignment Fnable * Align objects in line 1 2	Fill with this table by dragg	ing them into cells		
Alignment Enable * Align objects in line 1	Fill with this table by dragg	ing them into cells		



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
	[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.



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] » [VNC Viewer] to open the settings dialog box. Configure the parameters and click OK; a VNC Viewer object will be created.

Comment :	-	
IP :	192 . 168	. 0 . 1
Port :	5900	
	🔲 Default passwo	rd
Color level		
Full (all available colors)		🖱 Medium (256 colors)
C Low (64 colors)		🔘 Very low (8 colors)
* Some servers s	upport full or medi	um mode only.
Auto select (not all serve Enable run-time modifi		
Title bar		
🔽 Enable		
Use label library		
Label Library	-	
the second second second	 Must he less then 2	2 characters. Font setting has no effective.
· Only ASCH is available.	M 031 DE 1635 11011 2	z characters. Four setting has no effective.



<u> </u>	
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.

- eMT/iE/XE/mTV: VNC Viewer is supported for OS version 20160418 or later.
- CMT 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.
- 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

ſ	New VNC Viewer Object
	General Control Security
	▼ Enable
	PLC : Local HMI
	Address : [LW] 0
	Status : LW-0 0 : stopped, 1 : running, 2 : failed to connect 3 : authentication error, 4 : server disconnection 5 : security error Command : LW-1 0 : none, 1 : start, 2 : stop, 3 : update IP : LW-2 (4 words) Port : LW-6 Default password : LW-7 0 : disable, 1 : enable Password : LW-8 (16 words) Title bar : LW-24 0 : disable, 1 : enable Title bar name : LW-25 (16 words) Color level : LW-41 0 : very low, 1 : low, 2 : medium, 3 : full Auto select : LW-42 0 : disable, 1 : enable
	OK Cancel Help
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

- 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.



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.

General Tab

neral Out	ne Title Shape	
Control addr	SS	
PLC :	Local HMI Setting	gs
Address :	LW 🗸 0	
Cor	mand : LW-0	
	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]	
	esult : LW-1	
	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)]	
Gr	up(s) : LW-2	
	Name : LW-3 (32 word(s))	
	e-Mail : LW-35 (32 word(s))	
Group(s) :	it 0 [Group A], bit 1 [Group B], bit 2 [Group C]	



Setting	Description
Control Address	A set of word addresses can be specified to chang
	contact 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
	represent groups.
	Value Commands
	0 Group A
	1 Group B

2

name

address

3~15

Group C

Group D ~ Group P

Control address + 3: Name (32 word(s)), contact

Control address + 35: e-Mail (32 word(s)), e-mail

- General tab cannot be found when the model used is a cMT 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

Title

1	New Contacts Editor Obje	ect	—	
	General Outline Title	Shape		
	Title name	Title		
	Contact Name	Contact Name		
	Mail Address	Mail Address		
	Characters Display items Contact Name Mail Address	Display 12 25	Label Library	
Cotting		Description		
Setting		Description		
Title	-	The title shown in Con	tacts Editor.	
Display chars	-	The displayable data le	ength of each tit	le in Contacts
	ł	Editor. Range: 1~60		



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 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.

C	ategory :	AII [9]		•	Edit categ	ory name mapping			28
	5	/ Enable	e back l	ight when a	larm occurs				
No.	Category	Text	Mode	Condition	Read address	Notification address	Buzzer	e-Mail	-
1	0	Fan	BIT	ON	Local HMI : LB-0	Disable	Disable	Disable	
2	1	Fan	BIT	ON	Local HMI : LB-1	Disable	Disable	Disable	E
3	2	Fan	BIT	ON	Local HMI : LB-2	Disable	Disable	Disable	
4	0	Pump	BIT	ON	Local HMI : LB-3	Disable	Disable	Disable	
5	1	Pump	BIT	ON	Local HMI : LB-4	Disable	Disable	Disable	
6	2	Pump	BIT	ON	Local HMI : LB-5	Disable	Disable	Disable	-

Setting

Description

Edit category name

Event Bar Chart will show the name of each category.





13.51.2.2. General Tab

	Event (Alarm) Log
	General Message Statistics Category : 0: Site A Priority level : Low Delay time for event monitoring when HMI resets : 1 second(s) V Save to history
	Push notification (EasyAccess 2.0) Type
	Device : Local HMI Address : LB
ng	Description

Category

Event Bar Chart will illustrate the duration of all events in one category, please select correct category in this field.

13.51.2.3. Message Tab

	Event (Alarm) Log
	General Message Statistics
	Text Content: Fan
	Use label library
	Use string table String Table
	Color : Background Color : Transparent -
	Font : [Arial] [Droid Sans]
	* Font from [Language & Font] settings
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.

General Tab

Ge	nt Bar Chart Object's Properties neral Appearance Profile Comment : nclude categories : 0 🐨 ~ 2 🐨 * See Event (Alarm) Log obj	ect.
Setting	Description	
Include categories	Select the categories that wi	ll be shown in Event
	BarChart.	

Appearance Tab

08/23/2018 13:10 ~ 08/23/2018 13:58 (NOW)	14:10
Category 1	
Event log 1	
Category 2	
Event log 2	
Event log 3	
13:15 13:30 13:45 14:00	
Style : Style 1 Text size : 100% Title bar Format : Date + Time	E
Grid Watch line : Enabled Number of Division : 4 division(s) - * Actual number of grid lines drawn may vary according to the parameter [Displa	ay

Setting	Description
Display timespan	Specify the time interval that is measured as a number of



	hours. Events occur during this time interval will be						
	illustrated in Event Bar Chart. Tapping 🔟 in the upper						
	right corner of the HMI screen can also change this						
	setting.						
	Cancel Option Done						
	Begin Date and Time						
	End Date and Time						
	Display Timespan (hr)						
	1 2 3 4 6 8 12 24						
Style	By default 3 styles are provided for users to choose from.						
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 ~ 09/04/2018						
	Time only: 13:57 ~ 14:57						
Watch line	A watch line shows at the point in the Event Bar Chart						
	that is touched. The time represented by the touched						
	point will show at the top of the watch line.						
Number of Division	The number of divisions on X axis.						
Time label Format	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 classify actions into action groups. The groups are put in sequence. 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 for cMT Series. Action Trigger has two types, each with different modes for triggering action execution: Action Trigger (per-page): [Window open/close] and [Backlight on/off] modes. Action Trigger (Global): [Idle timeout] and [Value changed] 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

meral	Mode : () Idle timeout Idle time : () second(s) ered actions	Value changed
ngg	ered actions	C ²
	Action Group 0	Action Group 1
S	et Bit (Set ON) et Word (Write constant value : 0) cknowledge All Events (Alarms)	Set Bit (Set ON) Set Word (Write constant value : 0)
4	III	
	ОК	Cancel Help

Setting	Description					
Mode	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.					
Mode: Idle	If the screen is left untouched for more than the specified time limit					
Timeout	configured in [Idle Timeout], Action Trigger will start execution.					
(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]					
	option. When [Read/Condition use different addresses] is not					
	selected, the condition value is read from the next contiguous					
	register of [Value address].					
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.					
	Toggle					
	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 [Buttom limit](JOG-) by a					
	designated register.					
	Write constant string					
	Writes the constant string to the designated register.					
	Object Control Command (cMT only)					
	Listed for selection are commands (with their corresponding					
	command values) available for the control address of various					
	functions.					
	System Tag Command (cMT 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
	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.
Popup	Pops-up a designated window.
Window	
Keyboard	Inputs characters/control signals, as often used with [Numeric] or
Input	[ASCII] objects.
	Enter: Same as the keyboard's "Enter" function.
	Backspace: Same as the keyboard's "Backspace" function.
	Clear : Clear the value in the word register.
	Esc: Same as the [Close window] function; it is used to close the
	keyboard window.
	Delete: Same as the keyboard's "Delete" function, deletes the
	number or character on the right side of the text cursor.
	Left: Same as the keyboard's " \leftarrow " key moves the text cursor to the
	left side of the previous number or character.
	Right: 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 on
	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.
	General Tab:
	Download: Transfer file from FTP server to local HMI.
	Upload: Transfer file from local HMI to 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_



- 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.
- 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.				



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13.53. Calendar

13.53.1. Overview

The Calendar object can show a calendar on cMT 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.
	Today 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: YYYYMM/DD
	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 Singer : 3
	Actions
	Action Group 0 Action Group 1
	Set Bit (Set ON, LB-1500)
New Delete	
	OK Cancel



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.		

- 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 and cMT3072XH.

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

eneral Secur	ity			
escription :				
Default URL :				
📝 Show navi	gation bar			
Control addre	\$			
🔽 Enable				
Device :	Local HMI			
Address :	LW	- 0		16-bit Unsigned
				<u>Usage.</u>
Destination pa	ge URL address			
🔽 Enable				
Device :	Local HMI			- 🕢 🖓
Address :	LW	▼ 10	1	20 word(s)
Current page	URL address			
🔽 Enable				
Device :	Local HMI			-
Address :	LW	▼ 100		20 word(s)
20 betroard 02	version : 202007	73 or later		
Limitation: ru		reen of HMI that does n	ot have CODE	SYS activated . See
elp for details.	CDIT : ·			T
	owser 15 a CPU-1nt Iort Java applets	ensive feature. It will gre	ацу анест НМ	1 overall performance
1013 - 1017 - 1017 - 1017 - 1017 - 1017 - 1017 - 1017 - 1017 - 1017 - 1017 - 1017 - 1017 - 1017 - 1017 - 1017 -	ompatibility, chec	k the actual HMI		

Setting	Description	
Default URL	Enter the URL into the provided field.	
	Show navigation bar	



	With this option selected, users can directly change URL, refresh				
	page, or zoom in/out web page by clicking the icons in the naviga				
	bar displa	bar displayed on HMI.			
	Icon	Command			
	\leftarrow	Go back to the previous page			
	\rightarrow	Go forward to the next page			
	Θ	Zoom out the page			
	\odot	Zoom in the page			
	â	Return to homepage			
	C	Refresh the page			
Control	LW-n: Command ID				
address	Value	Command			
	0	None			
	1	Go to the destination page			
	2	Reload this page			
	3	Stop loading the page			
	4	Go back to the previous page			
	5	Go forward to the next page			
	6	Clear cache			
	7	Clear cookies			
Destination	The designated register is for entering a URL with length limit 255				
page URL	words. After entering the URL, please enter value 1 in the Command				
address	ID address to go to the destination page.				
Current page URL address	Shows the URL of current page, the length limit is 255 words.				

13.55.3. Notes on PLC Web Browser

- 1 This object only runs on local screens of cMT3072X and cMT3072XH. Supported OS version: 20200723 or later.
- 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.



Objects

- 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.
- 5 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.
- 6 When multiple PLC Web Browser objects are placed in a single window, only one of them will run while the rest remain ineffective.
- 7 PLC Web Browser object displays web page on top of everything else even if there are other objects placed above it.
- 8 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.
- 9 Browsing web pages using PLC Web Browser on cMT-iV5/cMT-iV6 is not possible.
- 10 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.

