ADO series

Human Machine Interface

ADO series users manual

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Chapter 1 Installation

1.1. Basic Requirements

(1) In Software：

- Microsoft Windows 2000
- Microsoft Windows XP
- Microsoft .Net Framework 1.1

(2) In Hardware：

- CPU：INTEL Pentium□ 500 MH or higher is recommended.
- RAM：256M or above is recommended.
- Hard disk space：100M or more is recommended.
- Screen Resolution：800*600 pixel or higher is recommended.

1.2. Prior to Install Microsoft .Net Framework 1.1

Microsoft .Net Framework 1.1 redistributable it is required to install first.

(1) Download：Going to Microsoft's Net to download.

URL：http://www.microsoft.com

(2) Installation：Normally, the Microsoft .Net Framework 1.1 installation program starts automatically when figure1.2.1 is clicked.

Figure 1.2.1

1.3. The Process of Installing

(1) Input the CD：

- The software installation program starts, when the CD is inserted into CD-ROM driver.
- Then the file [Setup.exe] below the CD file cabinet is executed manually.

(2) Installation：

The figure 1.3.1 will appear on screen if the [Next] button is clicked on and then the figure 1.3.2 will display contiguously. So the installation will be executed automatically if the [Next] button is clicked on continually.

Figure 1.3.1

Figure 1.3.2

When installing the software, installation pass will be established automatically. Install a different folder, entering the [Browse] to change.

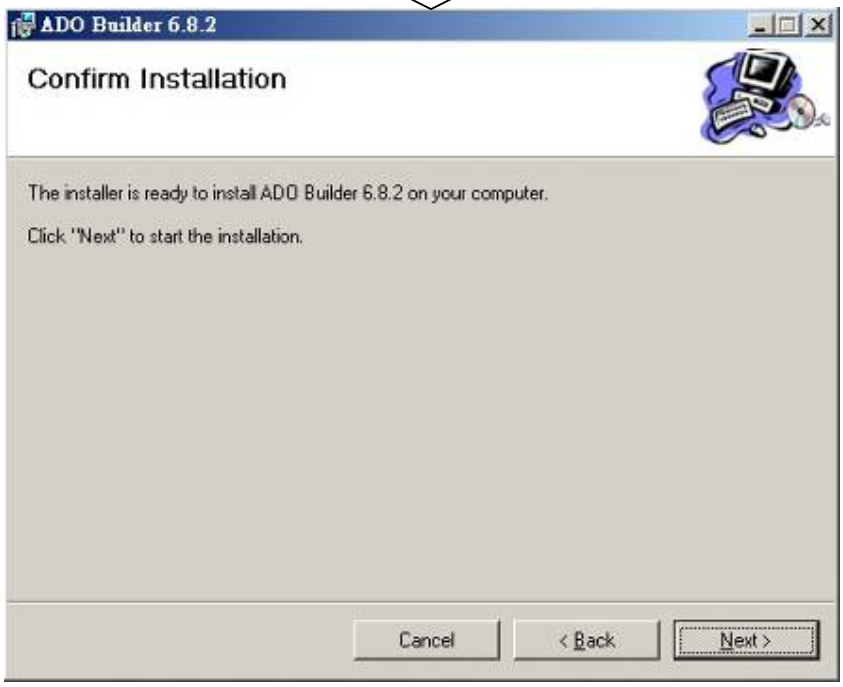


Figure 1.3.3

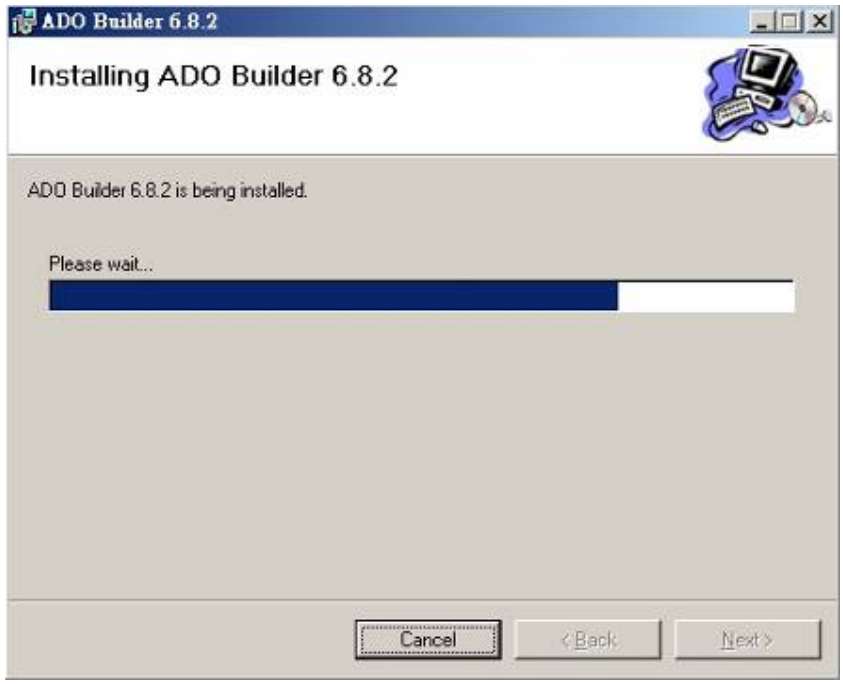


Figure 1.3.4

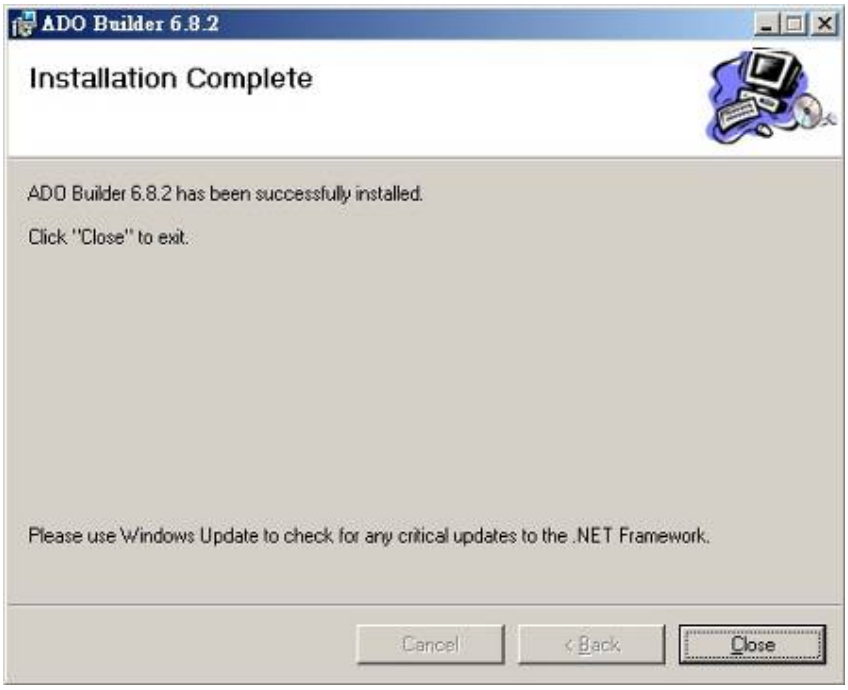


Figure 1.3.5

(3) Finished：

When the [Close] is entered, installation is finished.

(4) Using the software：

The figure 1.3.6 will display on desktop. If you double-click on it, the program will automatically start.

Figure 1.3.6

Click on the [Start] button, and point to the [Program]. Then, select the software.

Chapter 2 Function

2.1. Base View

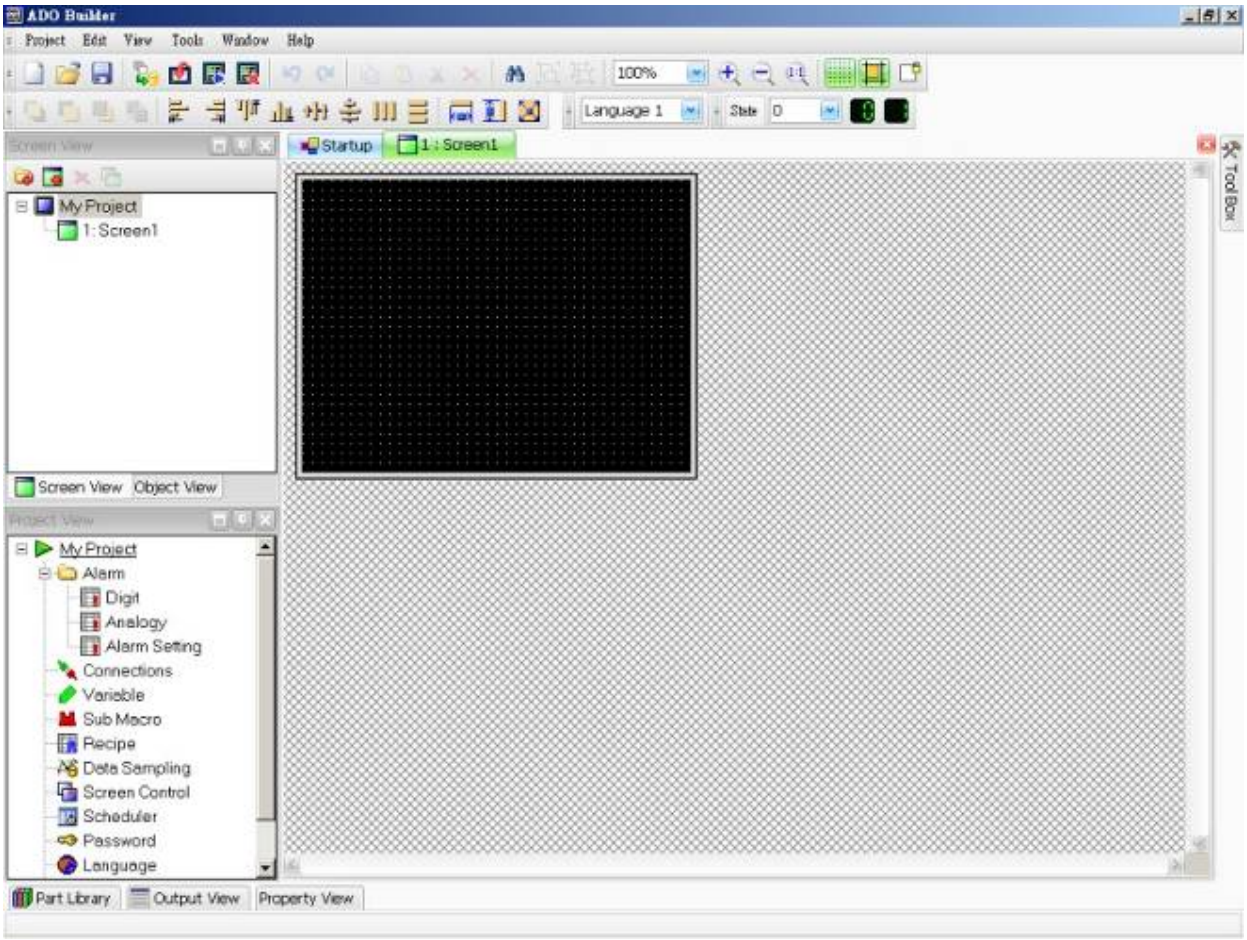


Figure 2.1.1

2.2. Title Bar

Display the program and the project name.

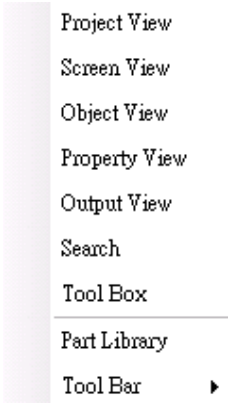
Figure 2.2.1

2.3. Menu Bar

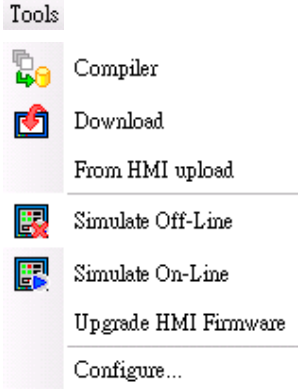
Figure 2.3.1

Cursor will been turning to shape-crossed on the red area-selected, then pressing the left of the mouse to drag it anywhere replaced. This function is marked by the symbol.

Items	Illustration
Project New Open Close Save Save as... Exit	New：To create a new project. Open：To open a project saved. Close：To close a current project. Save project：To save a current project. Save as：Save a project under a different name. Exit：Close the program.
Edit Undo Redo Copy Paste Cut Delete Search Group Ungroup Layer Align Size	Undo：Cancel the action. Redo：Redo the previous undo command Copy：Copy the selected object. Paste：Paste the object copied or cut at the new location. Cut：Cut the selected object. Delete：Delete objects. Search：Search objects or variables. Group：Select objects to be grouped Ungroup：Select a group object to ungroup. Layer：Changing the order of overlapping objects Align：To align the desired objects. Size：To change sizes of objects.
View	Project View：To open project view. Screen View：To open screen view. Object View：To open object view. Property View：To open property view. Output View：To open output view. Search：To start search command. Tool Box：To open tool box. Part Library：To open part library.



Tool Bar：To show tool bar that it is convenient to users to edit quickly.



Compiler：To check all information in project and to convert and generate data to HMI.

Download：Downloading the project to HMI.

From HMI upload：Uploading the project from HMI to PC.

Simulate Off-Line：Preview without controller.

Simulate On-Line：Preview with control.

Upgrade HMI Firmware：Upgrade the program of Management in HMI.

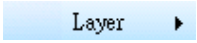
Configure：To set parameter of environment of application program.

Window：Press the Window button to change the view.

- Click on the [Window], the pull-down menu shows Startup and all page titles of project to change the screen wanted.
- The current screen is signed before the page title.

Show Startup：Click on it, Startup appears.

Version：Click on it, the following screen shows the version information.



Bring To Front：Bring an object to front.

Upward One Layer：Bring an object forward.

Downward One Layer：Send an object behind

Send To Back：Send an object to back

：Horizontal Left：Based on the left line of a model of selected objects to align horizontally

Horizontal Right：Based on the right line of a model of desired objects to align horizontally.

Horizontal Center：Based on the horizontal center of a model of selected objects to align vertically.

Space equally, Horizontal：To divide the space between the both left lines of the first and last selected objects evenly and horizontally.

Vertical Top：Based on the top line of a model of selected objects to align vertically.

Vertical Bottom：Based on the bottom line of a model of selected objects to align vertically.

Vertical Center：Based on the vertical center of a model of selected objects to align horizontally.

Space equally, Vertical：To divide the space between the both top lines of the first and last selected objects equally and vertically.

Same Width：To equate a selected object's width with a model's one.

Same Height：To equate a selected object's height with a model's one.

Same Size：To equate a selected object's size with a model's one.

Table 2.3.1

2.4. Edit Tool Bar

Figure 2.4.1

	Create a new project
	Open an existing project
	Save a project
	Complier
	Download
	Simulate on-line
	Simulate off-line
	Undo
	Redo
	Copy
	Paste
	Cut
	Delete
	Search
	Group
	Ungroup
100%	To enlarge or attenuate the drawing area.
	Zoom in：To enlarge the drawing area.
	Zoom out：To attenuate the drawing area.
	The displayed area is showed at 100% ratio.
	Display the grid points in the drawing area
	To align the selected object with grid points
	To lock the selected part in order to fix it

Table 2.4.1

2.5. Draw Tool Bar

Figure 2.5.1

	Bring an object front
	Bring to forward
	Downward One Layer
	Send to Back
	Horizontal Left
	Horizontal Right
	Horizontal Center

	Space equally, horizontal
	Vertical Top
	Vertical Bottom
	Vertical Center
	Space equally, vertical
	Same Width
	Same Height
	Same Size

Table 2.5.1

2.6. Status Bar

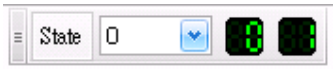


Figure 2.6.1

To set the state of current screen

Table 2.6.1

2.7. Language Bar

The current language will be switched by selecting here.

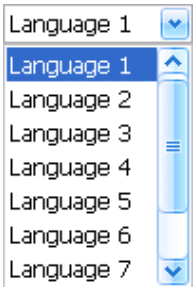


Figure 2.7.1

2.8. Drawing Area

The area of design

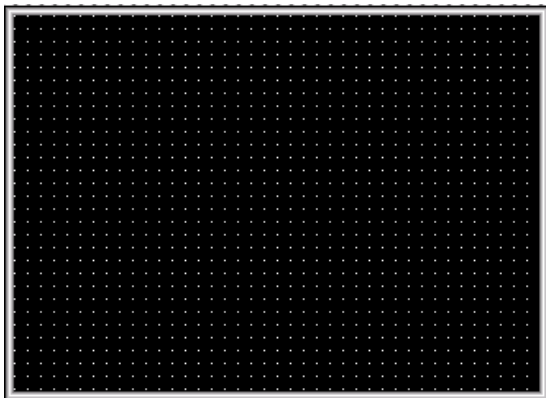


Figure 2.8.1

2.9. Project View

All functions are lined-up, and you double-click on the left of the mouse to start edit.

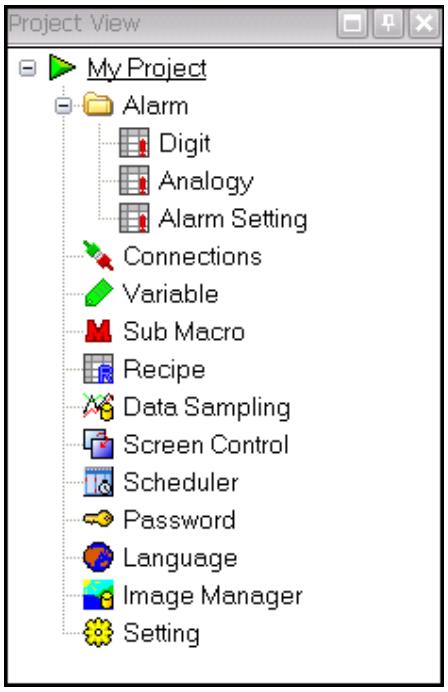


Figure 2.9.1

	Digit	Display digit alarm editor
	Analogy	Display analogy alarm editor
	Alarm Setting	To set up the attribute of alarm
	Connections	Show up the connections editor
	Variable	Open the Variable editor
	Sub Macro	Open the Sub Macro editor
	Recipe	Open the Recipe editor
	Data Sampling	Open the Data Sampling editor
	Screen Control	Open the Screen Control editor
	Schedule	Open the Schedule editor
	Password	Open the Password editor
	Language	Open the Language editor
	Image Manager	Open the Image Manager editor
	Setting	Open the HMI attribute setting editor

Table 2.9.1

2.10. Screen View

All information of screens will be displayed here. The folder established classifies data in the project.

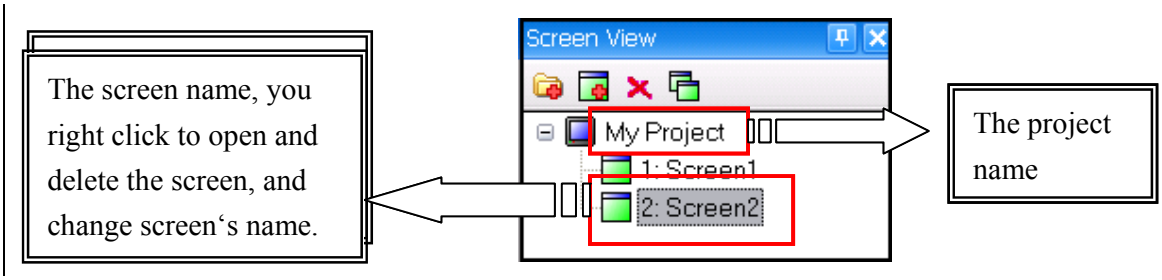


Figure 2.10.1

Items	Illustration
	Create a new folder
	Create a new screen
	Delete a screen
	Copy a screen

Table 2.10.1

2.11. Object View

It shows all the objects and related structures in current screen.

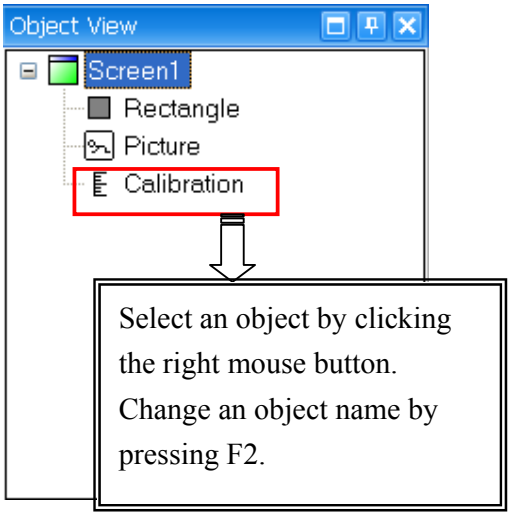
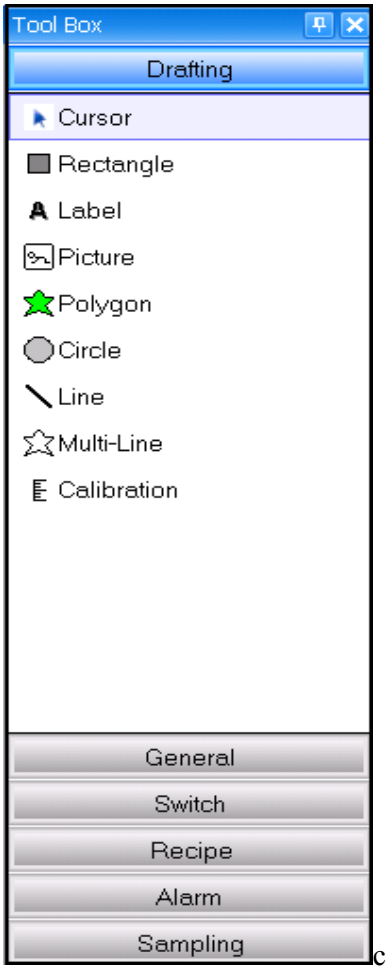


Figure 2.11.1

2.12. Tool Box

Choose the part desired in the tool box. The cursor in the tool box means to select the part in drawing area.



c

Figure 2.12.1

2.13. Property View

Edit the property of object.

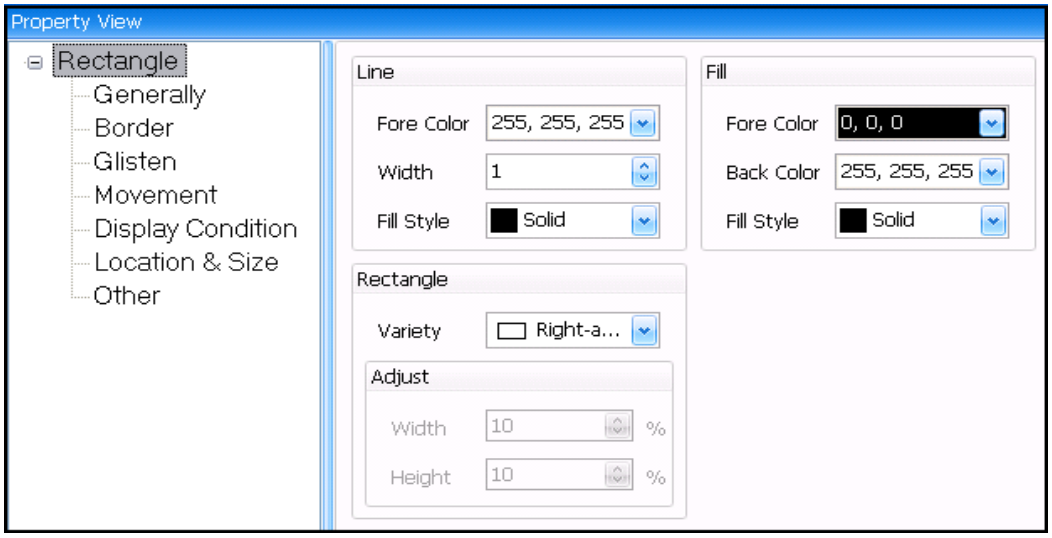


Figure 2.13.1

2.14. Output View

It displays the messages when compiling, downloading, and stimulating.

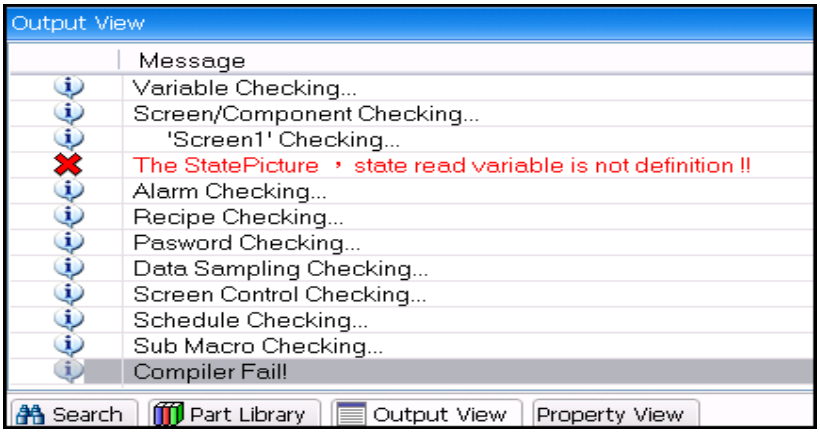


Figure 2.14.1

2.15. Search

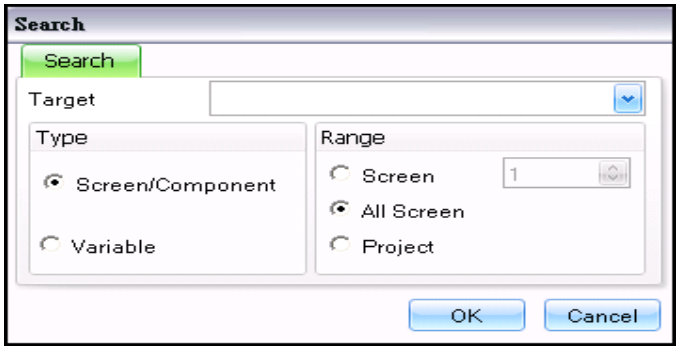


Figure 2.15.1

Items	Illustration
Target	Input the full name to search the desired screen, component, variable.
Type	Select the kind of search.
Range	Select the range of search.

Table 2.15.1

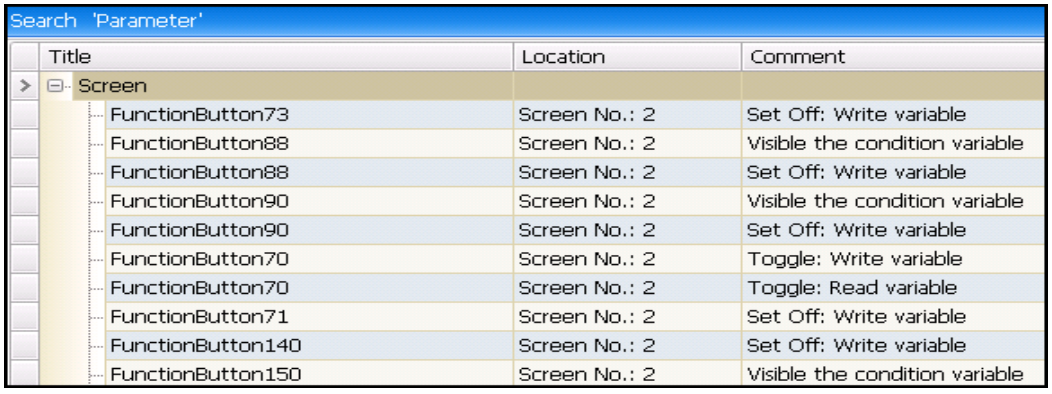


Figure 2.15.2

2.16. Part Library

User could save the part set properties in the part library, and then use the part with the same properties next time conveniently and directly. Prior to build a new part library then parts be saved allowably.

2.17. Operate Part Library

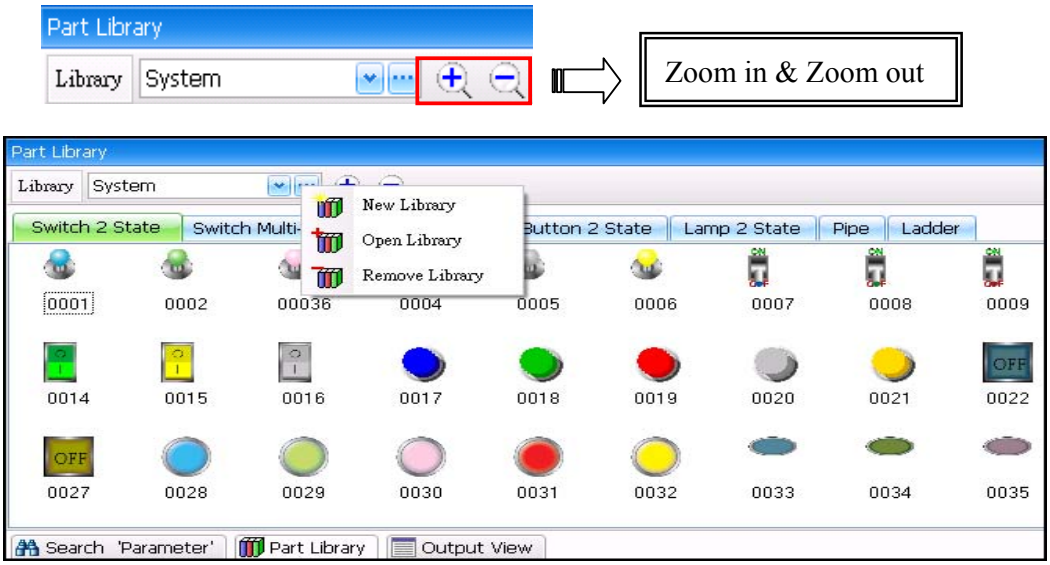
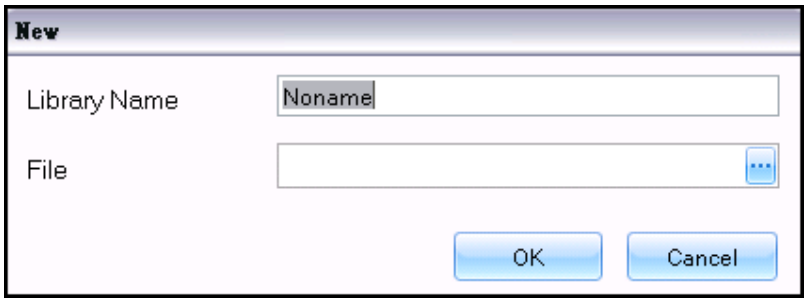


Figure 2.17.1

Items		Illustration
	New Library	Create a new library. 
	Open Library	Download an existing library. 
	Remove Library	Remove a part from the library.

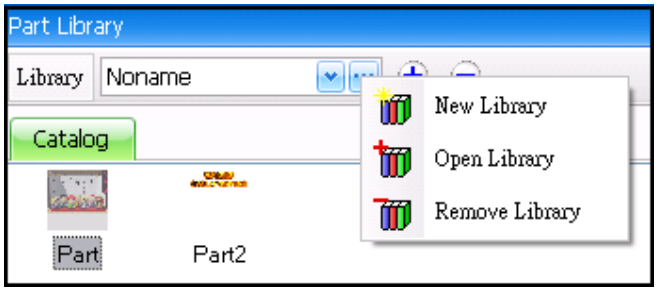


Table 2.17.1

2.18. Edit Part Library

Click on the right mouse button when cursor over the part selected to save in the part library, and then set the name of library, group and figure.

Figure 2.18.1

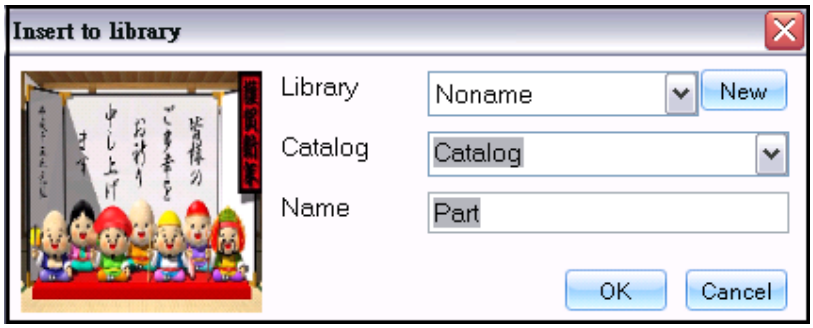


Figure 2.18.2

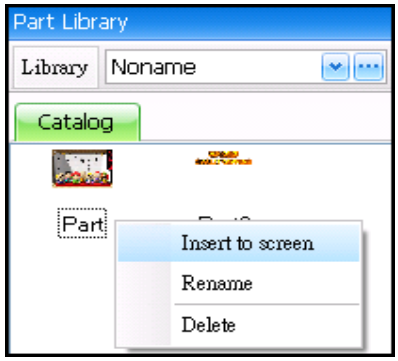


Figure 2.18.3

Item	Illustration
Insert to screen	Insert a part to screen.
Rename	Rename a part
Delete	Delete a part

Table 2.18.1

2.19. Configure

Set up Environment Parameter

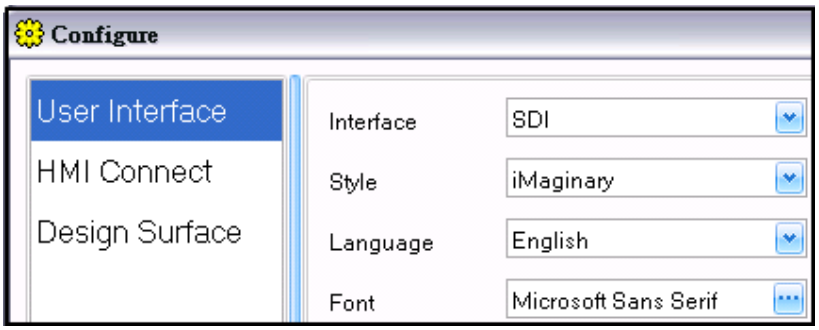


Figure 2.19.1

Items	Illustration
User Interface	SDI：Single Document Interface MDI：Multiple Document Interface
Style	Change the color of interface.
Language	Change the language of interface.
Font	Change the font of interface.

Table 2.19.1

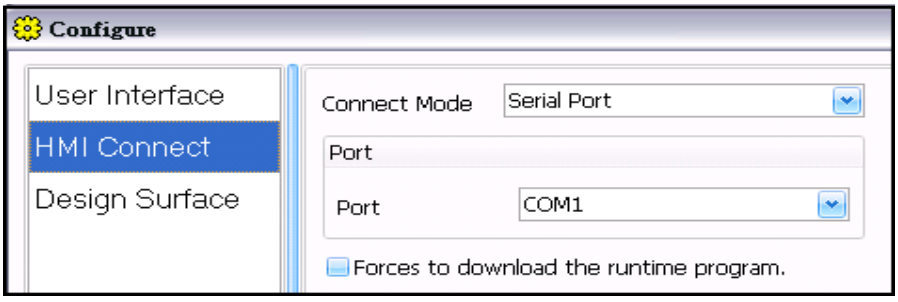


Figure 2.19.2

Items	Illustration
Connect Mode	Select the model of connation the PC with the HMI device as serial port or USB.
Port	Name the serial port in PC
Forces to download the Runtime program	If you mark this item, the HMI device will be downloaded by current version.

Table 2.19.2

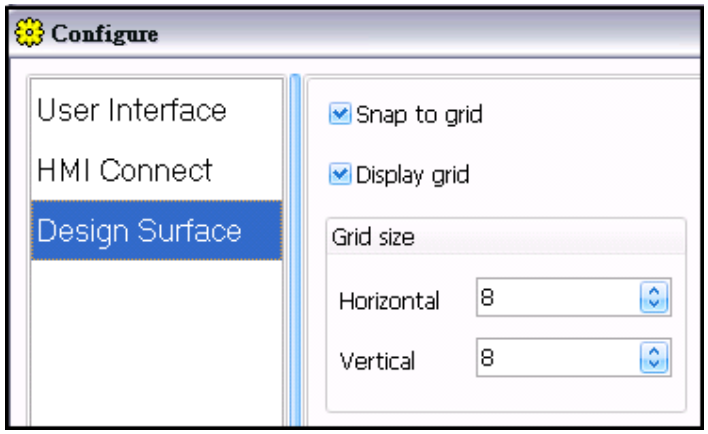


Figure 2.19.3

Items	Illustration
Snap to grid	Used to align grid automatically, if the item to be marked,
Display grid	Used to display grids on the screen if the item to be marked.
Grid size	Used to adjust the grid's vertical and horizontal space

Table 2.19.3

2.20. Graph Template

Save the state picture as a sample to save the repeated setting time when a sample used in other states. A sample is created with the most 32 states and whose size is the most 160*160.

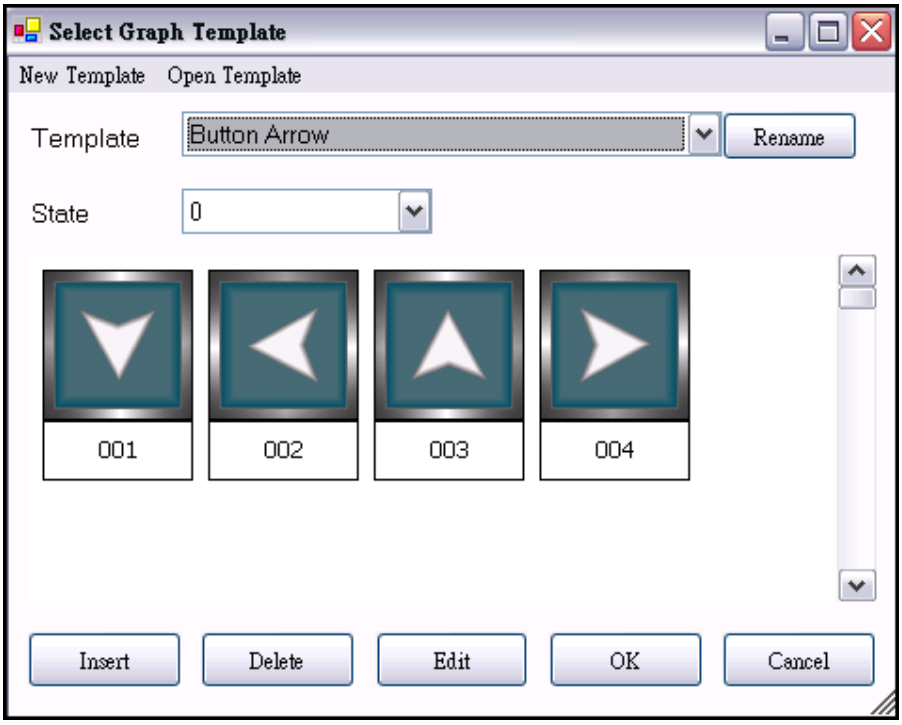


Figure 2.20.1

Items	Illustration
New Template	Used to create a new template folder

Open Template	Used to open an existing template folder
Template	Used to choose the kind of template
State	Used to preview figures at different states
Insert	Used to insert a new figure with different state
Delete	Used to delete an existing figure
Edit	Used to edit figures

Table 2.20.1

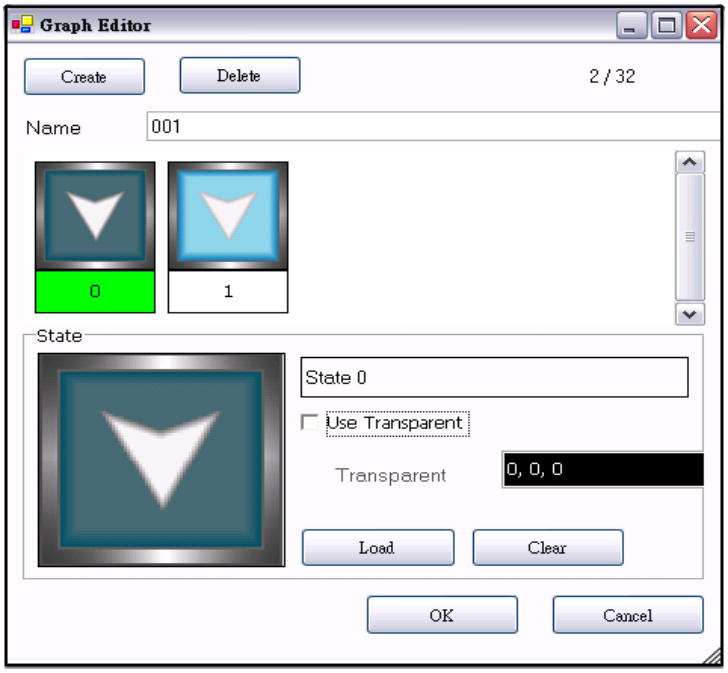


Figure 2.20.2 Editing Interface

Items	Illustration
Create	Used to create a new state.
Delete	Used to delete a state
Name	Used to name the new file
Load	Used to add figures
Clear	Used to clear figures

Table 2.20.2

2.21. Editing Base View

Base view is changeable. Users could change interface by dragging the view selected. The new collocation will maintain even the PC is off.

(1) Dragging the View：

Move the cursor over the title of view and left-click and hold the button down, then drag the view turning the window, described as figure 2.21.1.

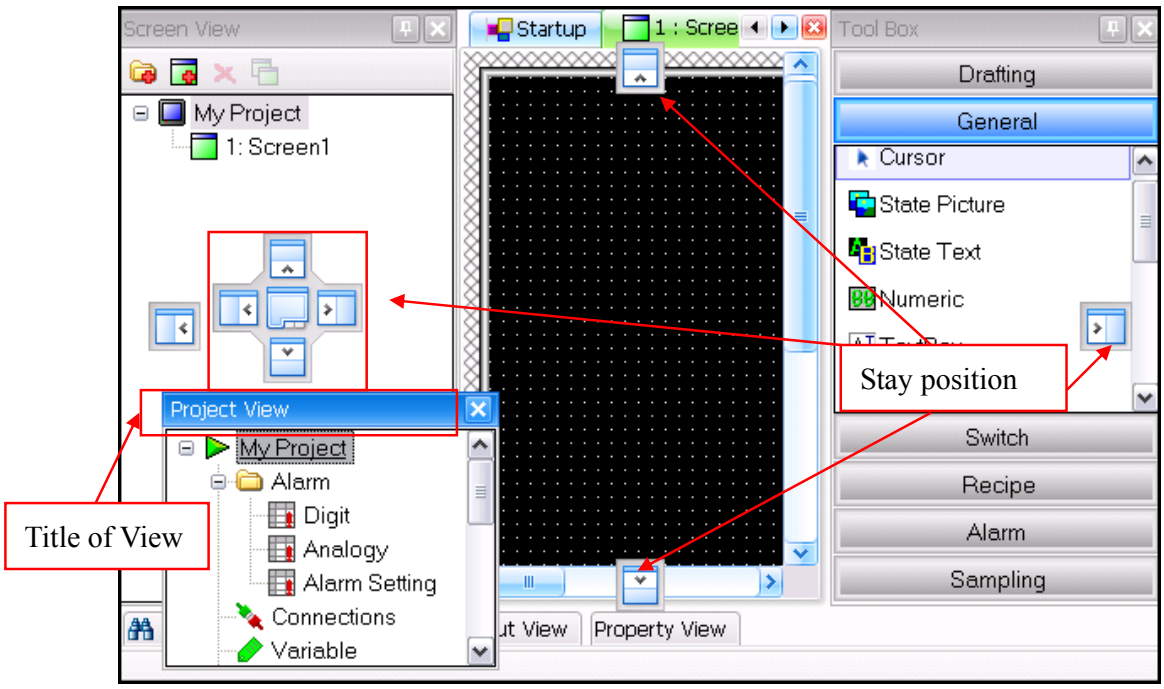


Figure 2.21.1

Drag the cursor to the position where the window to be placed.

(2) Hidden Automatically

The view will be hidden when unused, which it saves more space.

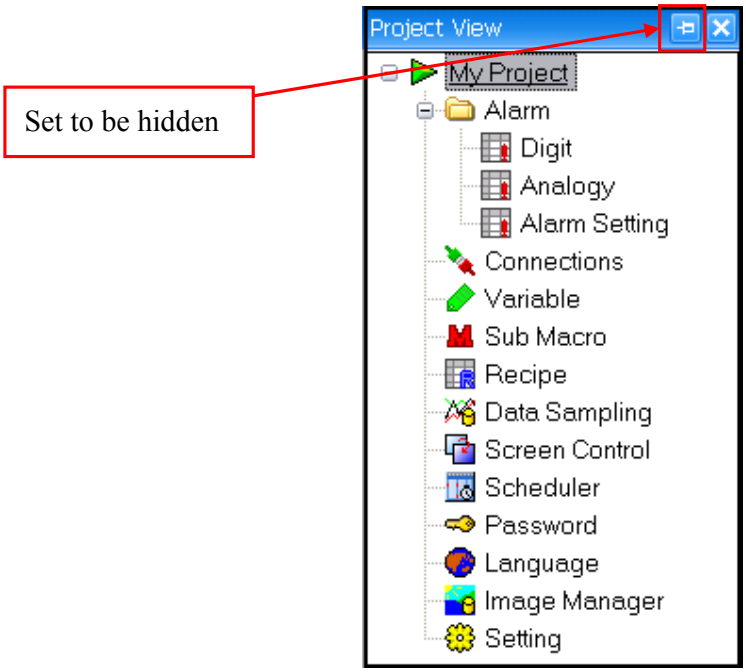


Figure 2.21.2

Chapter 3 Project

This section describes creation and edition of the project and download and upload of the file and on-line and off-line of simulation. You will clearly comprehend the completed frame about establishing a new project by a series of explanation.

3.1. Establish a new project

- Create a new project

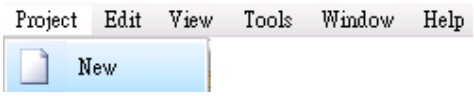


Figure 3.1.1

- Choose the HMI model

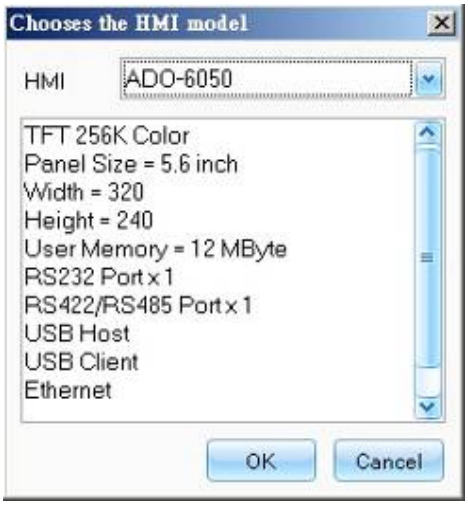


Figure 3.1.2

- Enter the project name; describe the project meat and version.

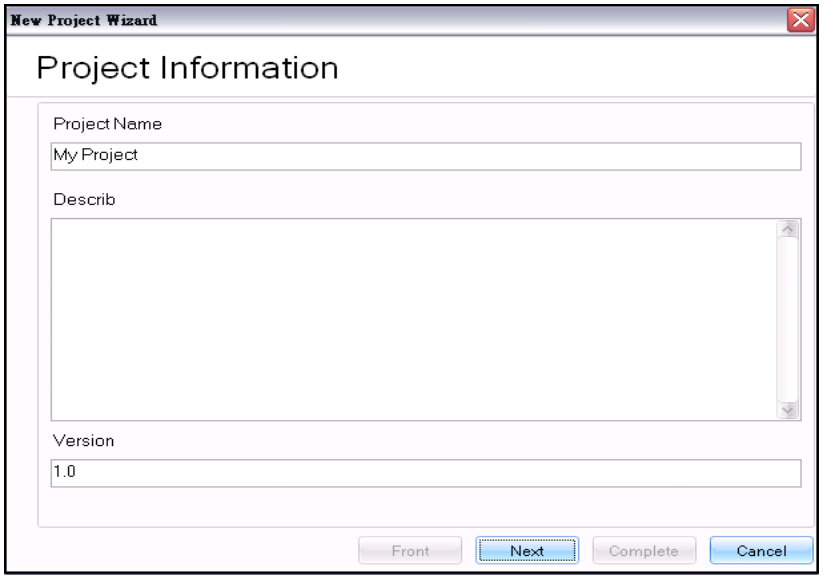


Figure 3.1.3

- Choose the controller connecting the HMI device.

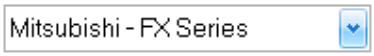


Figure 3.1.4

- Port Setting

Figure 3.1.5

Figure 3.1.6

- Create a new connect and edit it.

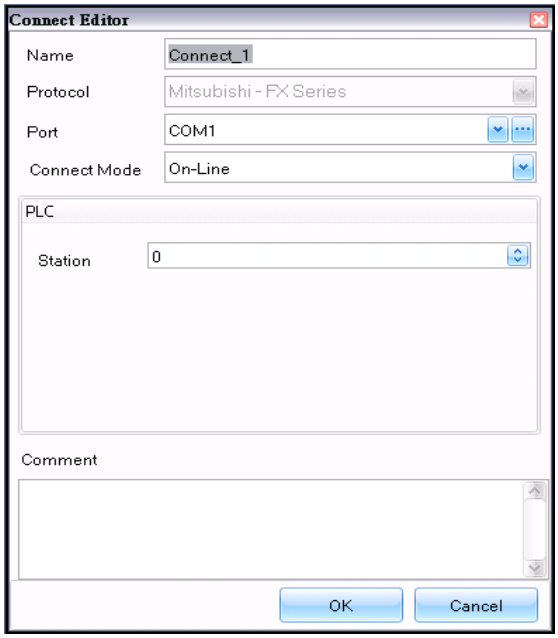


Figure 3.1.7

- Finish creating a new project when press【Complete】button.

3.2. Compiler

Compiler is to detect the information and translate the data to the HMI device. So the process of compiling should be completed prior to the translation to the HMI device.

Figure 3.2.1

- The result of compiling appears at the Output View.

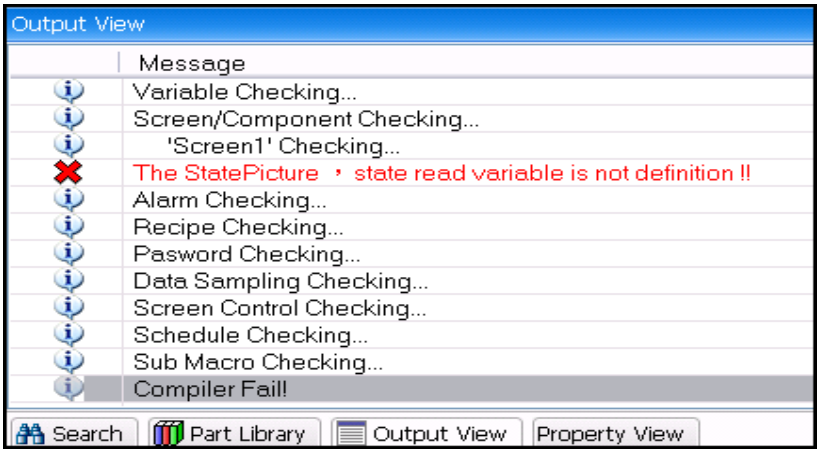


Figure 3.2.2

Double-click left mouse on the mistaken message, the related object will appear automatically.

3.3. Simulate On-Line

The PC connects the PLC to simulate.

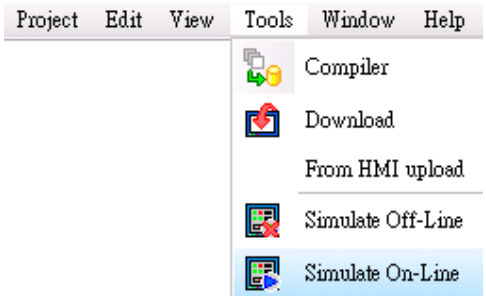


Figure 3.3.1

3.4. Simulate Off-Line

Simulate on the PC without connecting to the PLC.

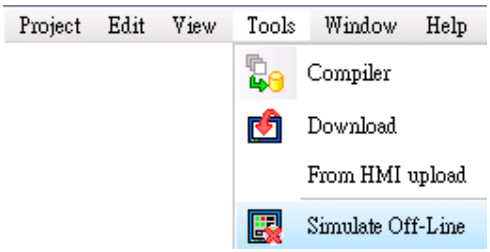


Figure 3.4.1

3.5. Download

Download the project to the HMI device via RS232 or USB. You should switch the HMI device to Transfer Model prior to download as using RS232.

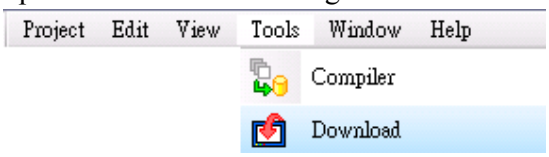


Figure 3.5.1

3.6. From HMI upload

Upload the project from the HMI device via RS232 or USB. You should switch the HMI device to Transfer Model prior to upload as using RS232.

Figure 3.6.1

3.7. Setting

(1) HMI：The parameter of the HMI device.

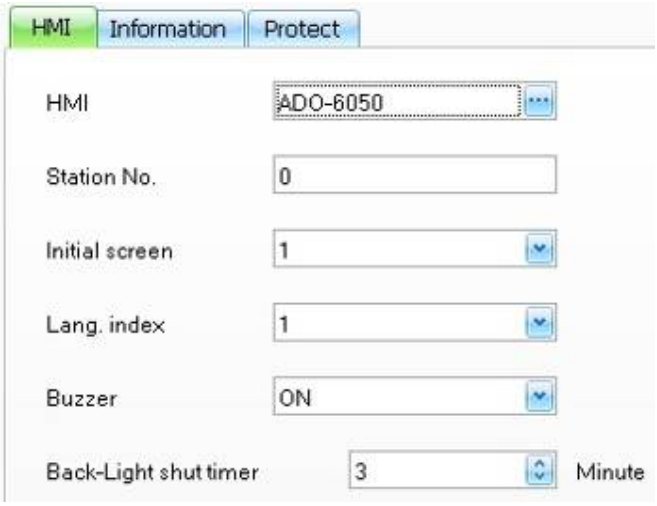


Figure 3.7.1

Items	Illustration
HMI	Setting the model of the HMI device.
Station	Designating station of the HMI device (0 ~ 255).
Initial Screen	Setting initial screen when the HMI device be booted.
Language	The presumed language of the HMI device after download. If you change the presumed language, the interface will be changed next time.
Buzzer	The power of buzzer.
Back-Light shut timer	Setting the backlight showing time. Backlight will not be shut down, if timer is set '0'.

Table 3.7.1

(2) Information：Information about project and version.

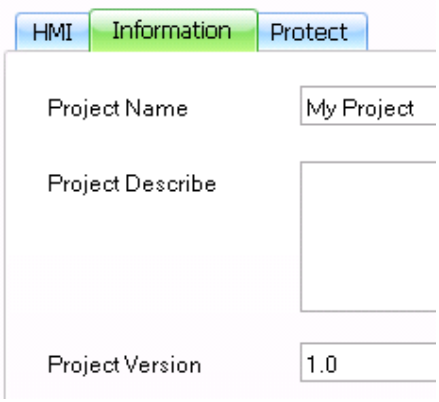


Figure 3.7.2

(3) Protect：Adds password to the project. ASC Ⅱ is suggested to use. If you use other character (ex: Chinese), the password is invalid.

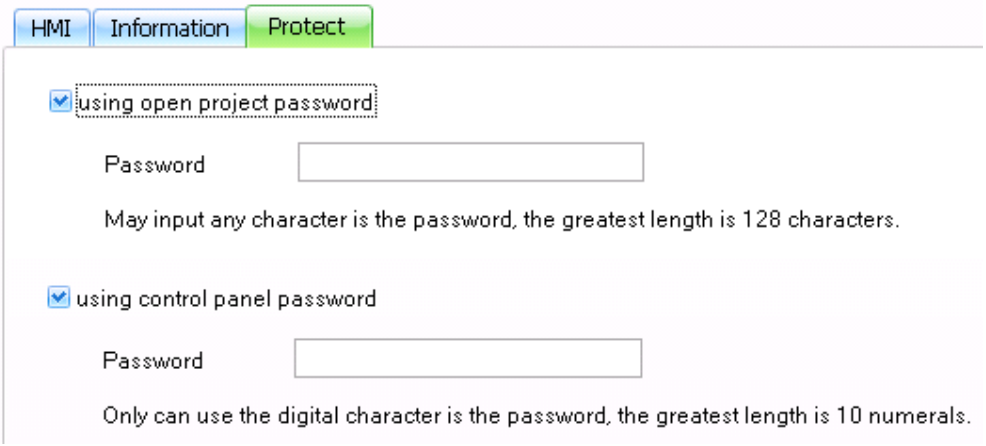


Figure 3.7.3

Password：You enter the password when open or upload the project from HMI, or the project will not be opened.

Control Panel Password：Set Control Panel Password when entering the HMI device.

3.8. Image Manager

Manage all pictures in the project. Pictures should be downloaded in Image Manager before using them.

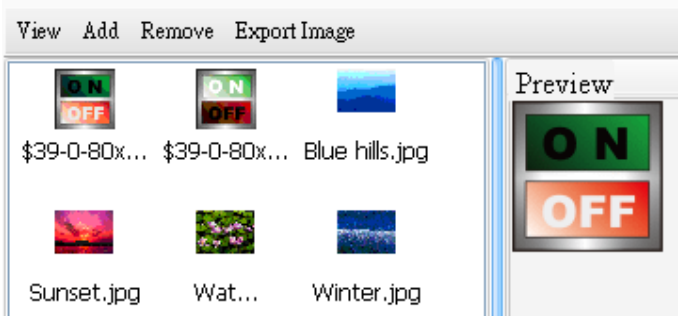


Figure 3.8.1

Items	Illustration
View	LagerIcon：Display the detailed list by images. Details：Display the detailed list by words.
Add	Adds an image file supported by bmp and jpg file format.
Remove	Removes the picture selected. The object with deleted picture is showed nothing.
Export Image	Exports the images selected.

Table 3.8.1

Chapter 4 Connection

4.1. The Function of Connection

Connection is planned to connect the HMI device with peripheral. The connection between the HMI and PLC or other external equipment should be configured in connection table first. The HMI device supports one to many connections, several communication protocols, Ethernet TCP/IP and four different communication protocols at most. In addition, the HMI device is also served as a Slave(Server). Communication Protocol will be added without a fixed schedule.

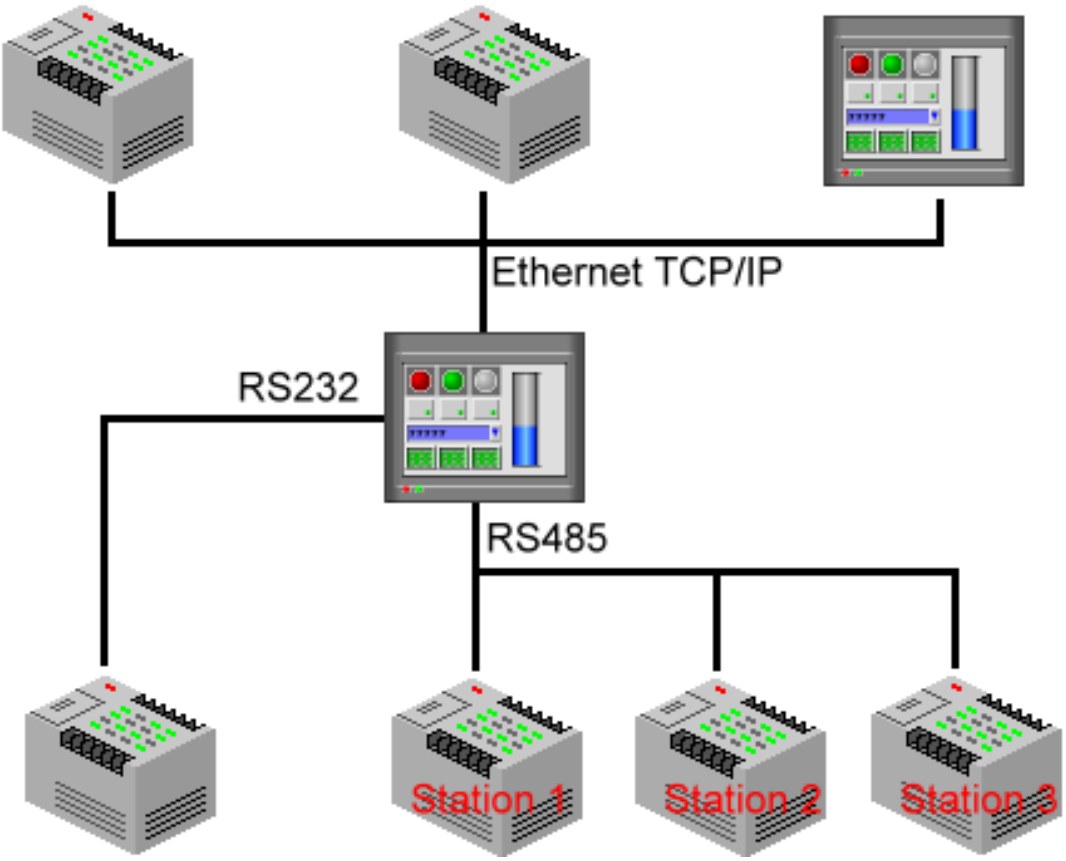


Figure 4.1.1

4.2. Editing Connection

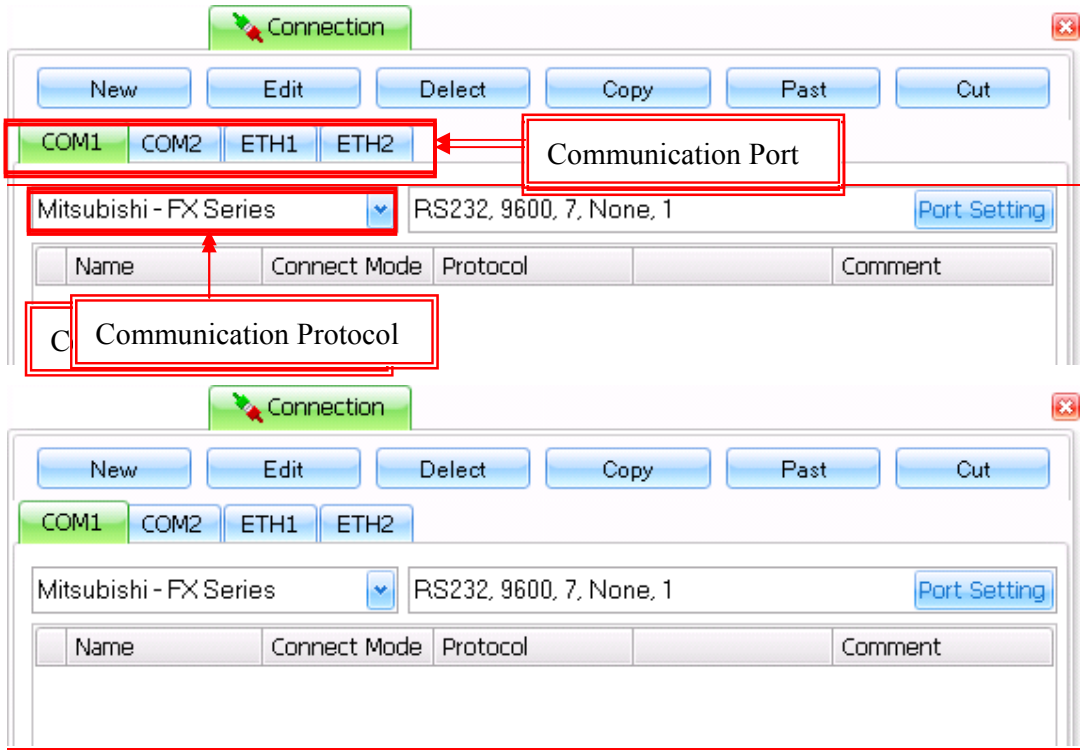


Figure 4.2.1

Items	Illustration
New	Create a new connection at current communication port.
Edit	Edit a connection selected.
Delete	Delete a connection selected.
Copy	Copy information about a connection.
Paste	Paste information about a connection.
Cut	Cut connection information.
Port Setting	Declare the parameters of the relevant interface used.

Table 4.2.1

Communication Port

COM1 and COM2 are behalf of Serial Port, which means COM1 and COM2 interfaces of the HMI device.

ETH1 and ETH2 are the symbol of Ethernet, which means Ethernet interface of the HMI device.

Communication Protocol

Set a format of communication protocol. Each communication port chooses one protocol only. There are 32 connections at most when it connects with Slave (Server). But

connecting with Master (Client), only one can be established.

If you change the module of the HMI device without Ethernet interface, the information about ETH1 and ETH2 is deleted automatically.

4.3. Connect Editor

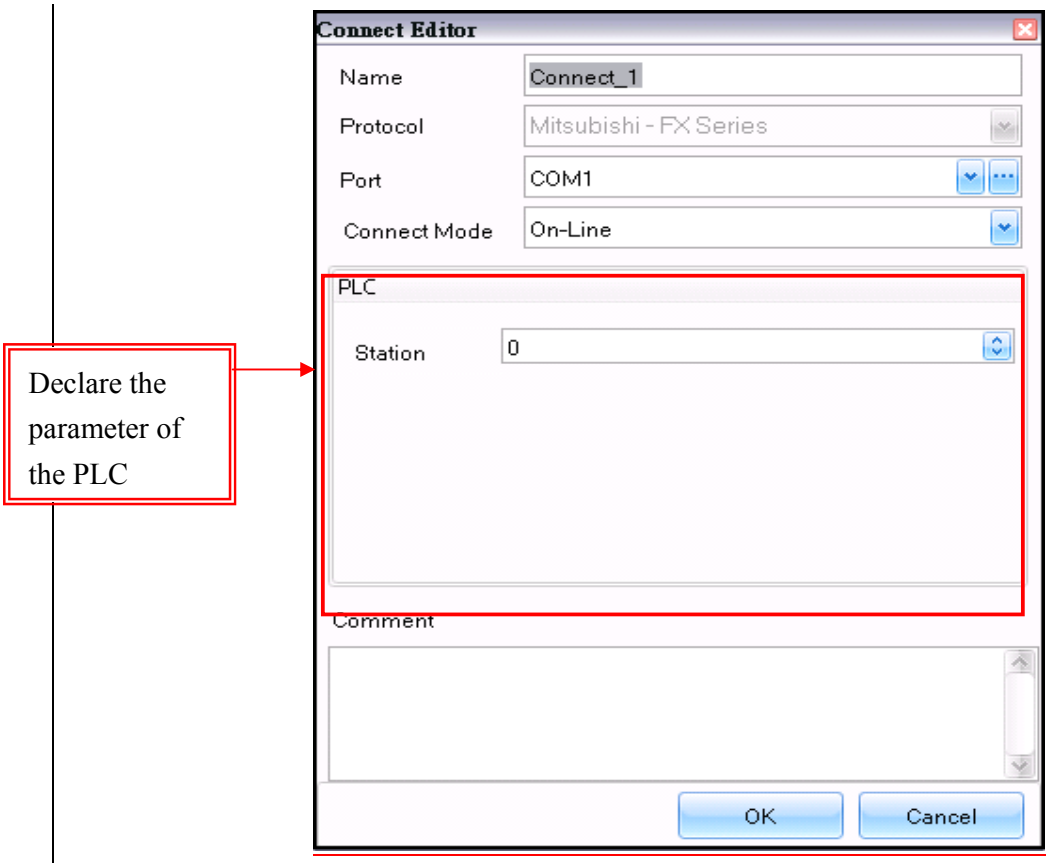


Figure 4.3.1

Items	Illustration
Name	Enter the connection name.
Protocol	Show corresponding communication protocol.
Port	Show corresponding connection port.
Connect Mode	The connect mode after downloading to the HMI device. On-Line：begin connecting. Off-Line：stop connecting. Connect mode could be changed by function keys. Reference 6.25

	Function Keys.
Station	Designate the destination station.
Comment	You can enter a comment to describe the connection.

Table 4.3.1

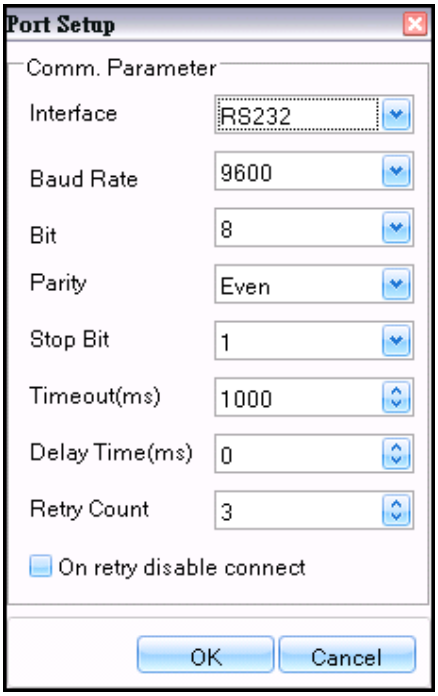
※ Different communication protocol chosen, the parameter of PLC is also different.

COM1 and COM2 could be exchanged each other. But Ethernet turns to Serial port in vain. Both of them are different construction in communication.

4.4. Port Setup

(1) Serial Port

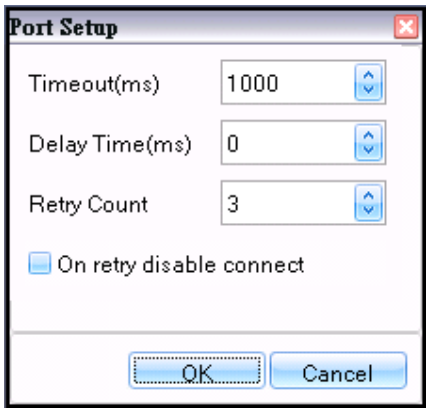
Items	Illustration
Interface	Specification of hardware, ex: RS232, RS422, RS485.
Baud Rate	Transmission speed
Bit	Information length
Parity	The model of detecting code
Stop Bit	The length of stop bit
Timeout(ms)	Set timeout how long the HMI device doesn't receive the message
Delay Time(ms)	Set delay time how long the PLC executes the command
Retry Count	Set retry count which the HMI retry to connect with the PLC when the connection is discrete then anomaly shows.
On retry disable connect	Retrying finished, the mode of connection turns to OFF-Line, if connection is still discrete.



(2) Ethernet Port

Items	Illustration
Timeout(ms)	Set timeout how long HMI doesn't receive the message
Delay Time(ms)	Set delay time how long PLC executes the command

Retry Count	Set retry count which HMI retry to connect with PLC when the connection is discrete; thus, anomaly appears
On retry disable connect	Retrying finished, the mode of connection turns to OFF-Line, if connection is still discrete.



Chapter 5 Variable

5.1. Outline

Variable means memory data or machine process parameter. It is a basic part in system. Screen data such as objects, alarm, sampling, recipe, etc accesses the values of the PLC register by variables.

Features：

- Variable names can be designated by users. Thus, you don't memorize contact number in the PLC and register number so as to enhance readability.
- Users only need to modify variable address if the PLC is switched. Others needn't.
- Users set update cycle; thus, communication result between the HMI and the PLC reaches the best status.

Types：

- External Variable

  An external address is defined in the PLC or the connecting machines.
- Internal Variable

  Internal variables are stored in the memory of the HMI device such as @R、@S registers.
- Array Variable

  It's an array variable if the variable length is above one.

5.2. Data Type

Data type defines the value range. All kinds of data types of bit length and value range are listed as following table 5.2.1

Data Type	bits per second	Value Range
BOOL	1	0 、 1

BYTE	8	0 ~ 255
CHAR	8	-128 ~ 127
WORD	16	0 ~ 65535
INT	16	-32768 ~ 32767
DWORD	32	0 ~ 4294967295
LONG	32	-2147483648 ~ 2147483647
FLOAT	32	IEEE Floating-Point -3.4e38 ~ +3.4e38

Table 5.2.1

5.3. Editing Variable

Double left click on the variable in project view (Figure 5.3.1), and then edit the variable.

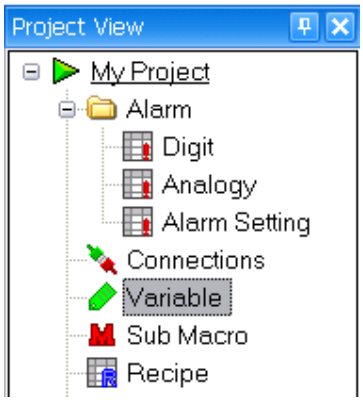


Figure 5.3.1

Figure 5.3.2

Items	Illustration
New	Create a new variable
Edit	Edit the selected variable
Delete	Delete the selected variable
Copy	Copy the current variable to system clipboard
Paste	Paste the variable data from system clipboard
Cut	Move variable data selected to the system clipboard
Search	Take the selected variable as a keyword to search the related objects in

	whole project
Export	Export the selected variable as CSV file
Import	Import a variable from CSV file
Cycle Edit	Edit cycle data

Table 5.3.1

5.4. Add New Tag

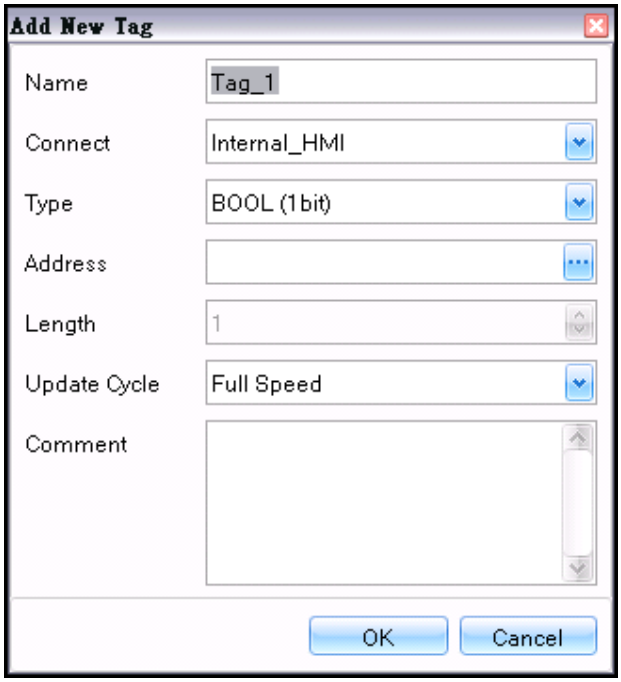


Figure 5.4.1

Items	Illustration
Name	Tag name. Variable could be named the same. It is referred by name in Macro, so that the different name is recommended to avoid confusing.
Connect	Specify the connection equipment referred.
Type	Data type of variable. Refer to Table 5.2.1
Address	Actual variable address

<table>
<tr><td>Length</td><td>It’s an array variable if the variable length is above one. Take S7-200 as an example; if its address is vw100, WORD, and its length is 3, then, the accessing range is from vw100 to vw104.
<table>
<tr><th>Index</th><th>Address</th></tr>
<tr><td>0</td><td>VW100</td></tr>
<tr><td>1</td><td>VW102</td></tr>
<tr><td>2</td><td>VW104</td></tr>
</table>
Array variable doesn’t support “BOOL” and isn’t supported by some PLC registers.</td></tr>
<tr><td>Update Cycle</td><td>Make update cycle. The time unit is millisecond. One kind of update cycle is full speed whenever update. Variables are suggested to set a suitable cycle to update. For example, the machine’s behavior is slow in temperature to be set one second to reduce communication load. However, fast behavior can be set as full speed, whenever the data is updated on the HMI device.</td></tr>
<tr><td>Comment</td><td>You can enter a comment for each variable to provide for a more exact documentation of the project.</td></tr>
</table>

Table 5.4.1

5.5. Update Cycle

Update cycle means variable reading data from register scheduled. Users set a suitable update cycle so that monitoring time distribution in whole could be up to the best status. For example, temperature changes slowly so that the update cycle is set as one second. Also a motor operates fast to be set 100ms. When users create a project, system automatically presumes several cycles, such as 100ms, 500ms, 1sec, but users could also change them by themselves.

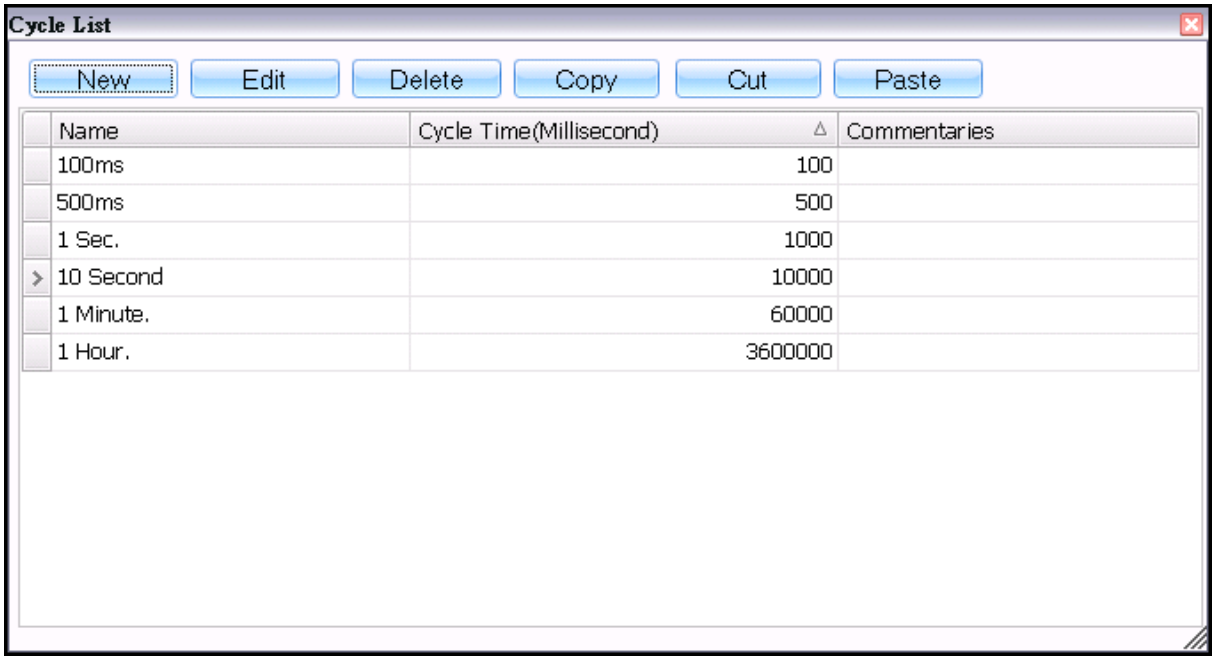


Figure 5.5.1

Items	Illustration
New	Create a new cycle
Edit	Edit a selected cycle
Delete	Delete a selected cycle
Copy	Copy a selected cycle
Cut	Cut a cycle selected
Paste	Paste a cycle data

Table 5.5.1

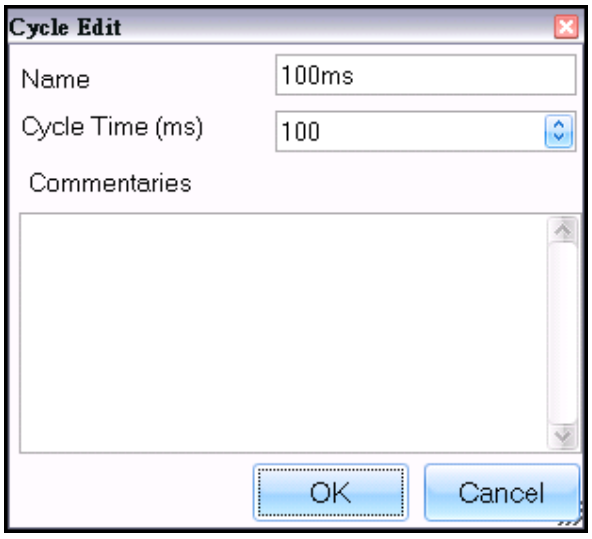


Figure 5.5.2

Items	Illustration
Name	Cycle name
Cycle Time(ms)	Time unit is millisecond (ms) from 0 to 3600000ms.
Commentaries	You can enter a comment for each cycle to provide for a more exact documentation of the project.

Table 5.5.2

5.6. Variable & Communication

Update cycle correlates closely with communication quantity. In screen data, the more communication quantity, the lower update frequency. The more variables are quoted, the more communication load is generated. In communication the variable address is arranged as contiguous as possible; thus, system optimizes operation greatly. If there are three addresses VW0, VW100, and VW200 in screen, system generates three communications. But they are turned to VW0, VW2, VW4, only one is generated.

Chapter 6 Objects

6.1. Outline

To create base screens, the editor area's part, draw, tag and menu bar commands can all be used. Also, editing commands can be used to modify any parts, objects or tags that you have created. For example, face is composed of different organs, and each organ has different function and appearance. Likewise, Parts can be placed on the drawing screen simply by selecting the desired part from the palette and placing it on the screen with drag & drop operation.

6.2. Shared Attribute

Objects in tool box have common features which also means shared attribute. The current attributes are explained as follow:

- Border
- Glisten
- Movement
- Display condition
- Location & Size
- Other
- Text shadow
- Enable condition
- Authority
- State text
- State picture

6.2.1. Border

- There five modes to set：None, flat, raised concave, 3D.
- Click on the object, and then the following screen shows as figure 6.2.1. Users could set the style of border directly.

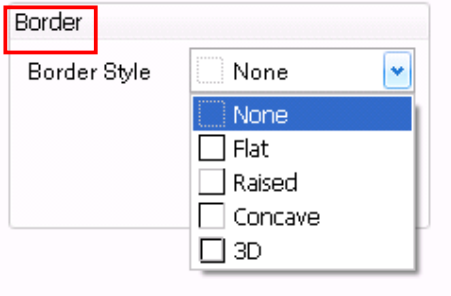


Figure 6.2.1

6.2.2. Glisten

Set the object shows whether to glisten or not and the speed of glisten.

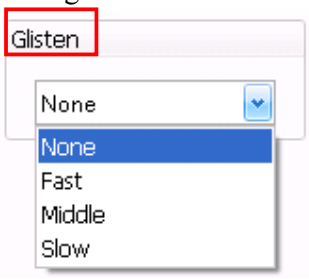
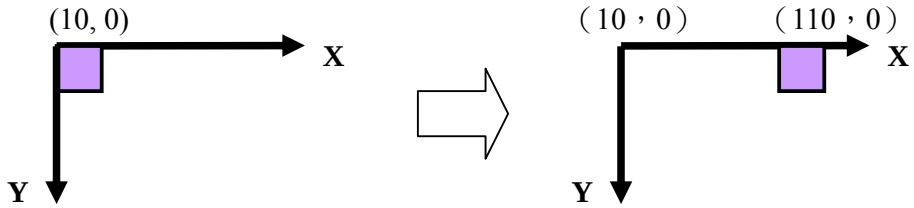


Figure 6.2.2

6.2.3. Movement

This property sets the Object's Movement parameters. The movement can be made according to variables, using the Polar Coordinates System. For example: The Object's current coordinate is (10, 0). When the variable X is 100, the Object will move to: (10 + 100, 0) = (110, 0)

The movement can be vertical or horizontal.



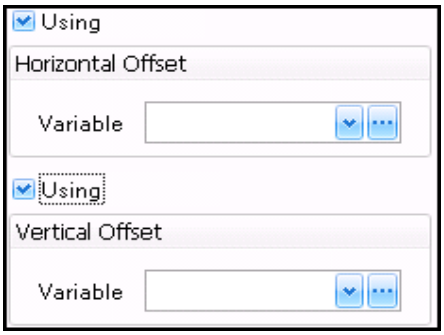


Table 6.2.3

6.2.4. Display Condition

Display Condition makes it possible to display or hide an object only under certain conditions, depending on a Variable (a > 0 for example):

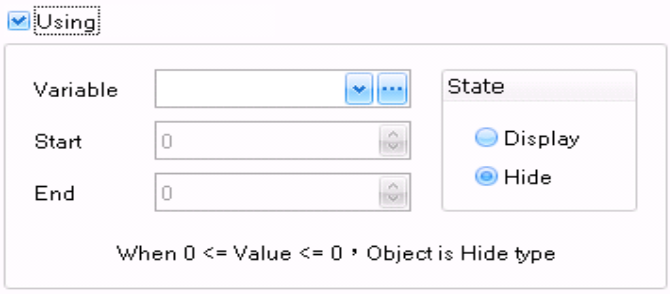


Figure 6.2.4

6.2.5. Location & Size

Adjust the Object's Coordinates and Size.

Figure 6.2.5

6.2.6. Other

Enter the object's name and description.

Figure 6.2.6

6.2.7. Text Shadow

Design text shadow to enhance a diversity of display.

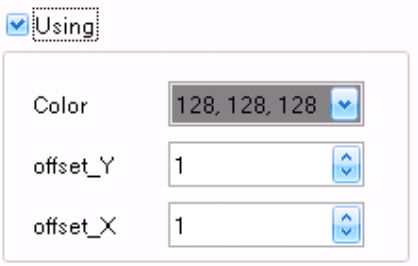


Figure 6.2.7

6.2.8. Enable Condition

Control the object by variable whether it is operated or not. If the start value＜＝variable value＜＝end value, the object are set to enable or disable.

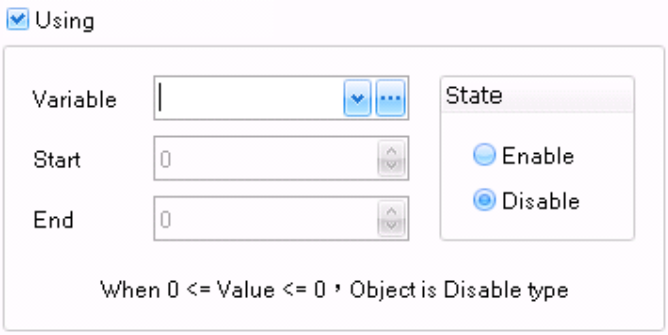


Figure 6.2.8

6.2.9. Authority

Configure the Operation Authorization Level of an Object. The lowest is 0, the highest is 9. If you have the authority, the dialog box shows on the HMI device to ask log in.

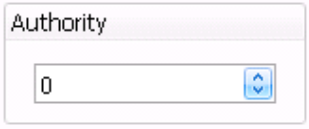


Figure 6.2.9

6.2.10. State Text

- Figure 6.2.10 is an interface of state text on Switch and function keys.
- Figure 6.2.11 is an interface of state text.
- Set a range as the value of state. The object if the variable is in the range of state displays the text and its color.

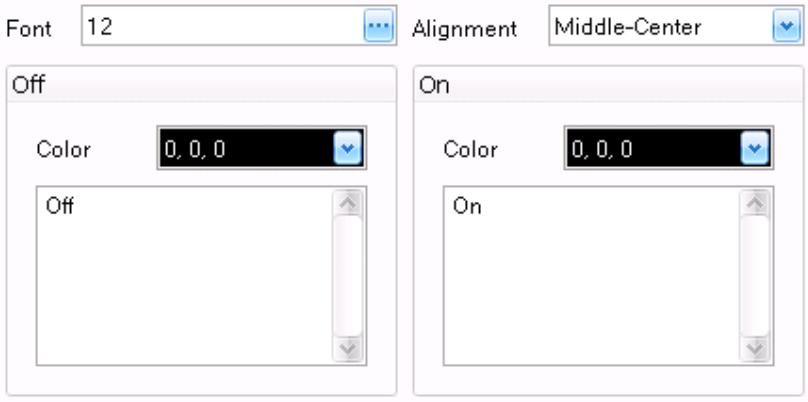


Figure 6.2.10

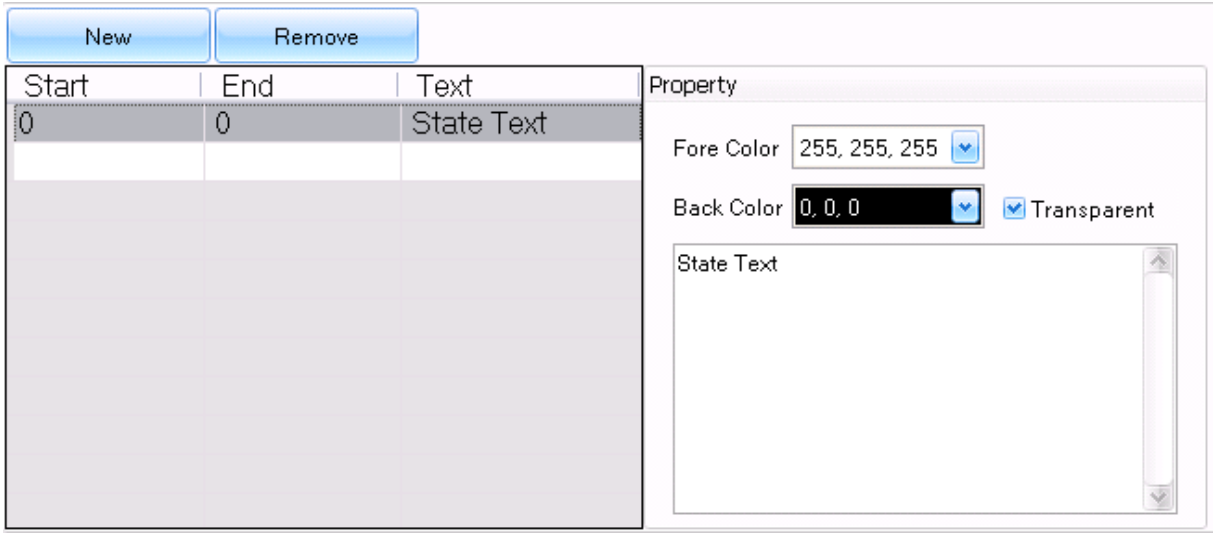


Figure 6.2.10

6.2.11. State Picture

- Figure 6.2.12 is an interface of state picture on Switch and function keys.
- Figure 6.2.13 is an interface of state picture.
- 【Template】, using the designed state picture.
- 【Stretch】, the picture stretches to the object's size, if the check box has been checked.
- 【Transparent】, the designated color doesn't appear, if the check box has been checked.
- Set a range as the value of state. The object if the variable is in the range of state displays the configured picture.

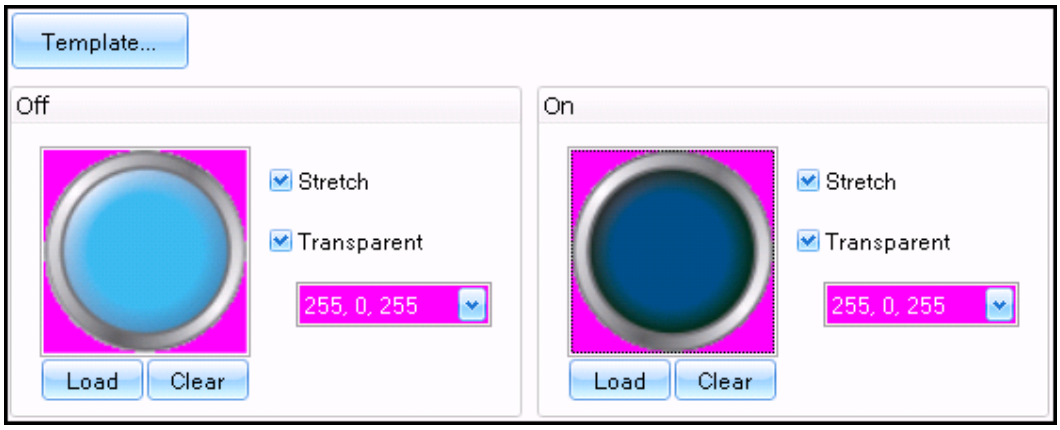


Figure 6.2.11

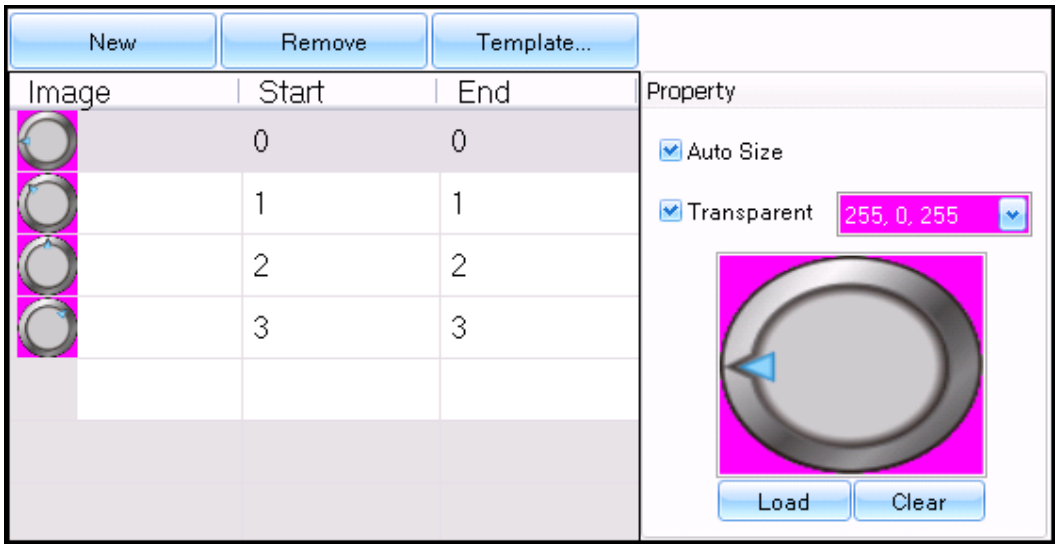


Figure 6.2.12

You can left click over the designated color to clear, when placing a check mark in the check box.

You can storage state pictures in the template folder to use them next time conveniently.

6.3. Rectangle

To draw a square

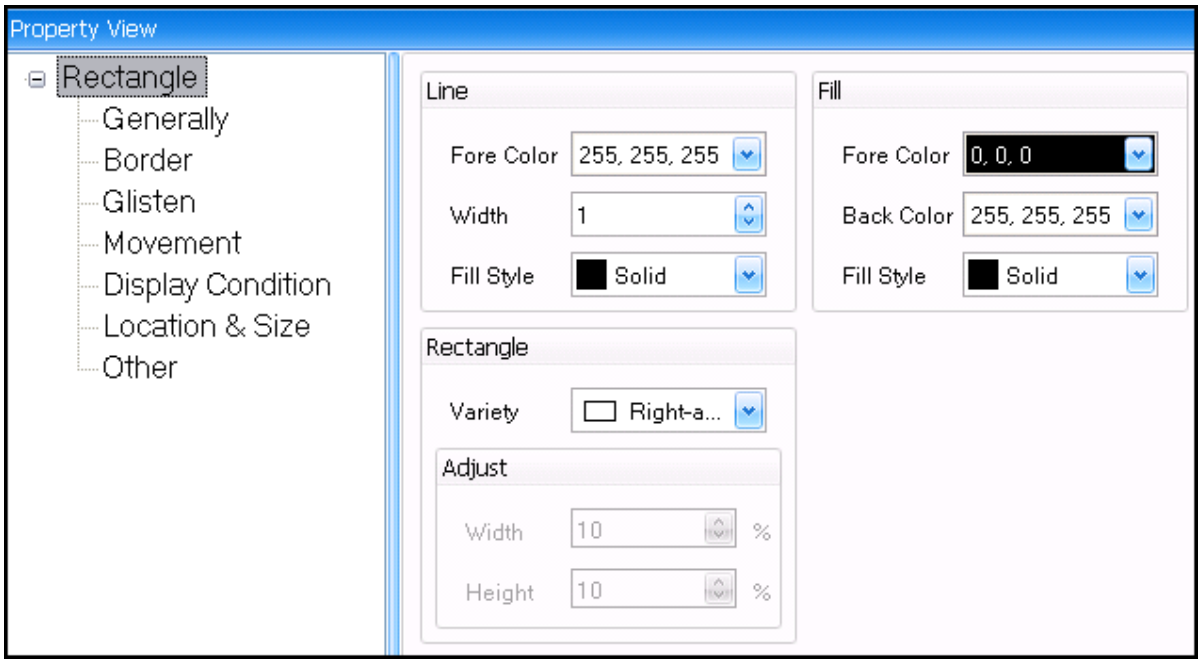


Figure 6.3.1

Generally		
Property		Illustration
Line	Fore Color	Select line's color
	Width	Select line's width
	Fill Style	Select a filled color
Fill	Fore Color	Select a tiling foreground color
	Back Color	Select a tiling background color
	Fill Style	Select a tiling style
Rectangle	Variety	Selects the type of rectangle: 1. Not beveled 2. All corners are beveled with straight lines 3. All corners are beveled with arcs.
Adjust	Width	Input a bevel ratio about round or slice rectangle in width.
	Height	Input a bevel ratio about round or slice rectangle in length.

Table 6.3.1

6.4. Text

From the keyboard enter the text and then place it on the screen. Different language has different text.

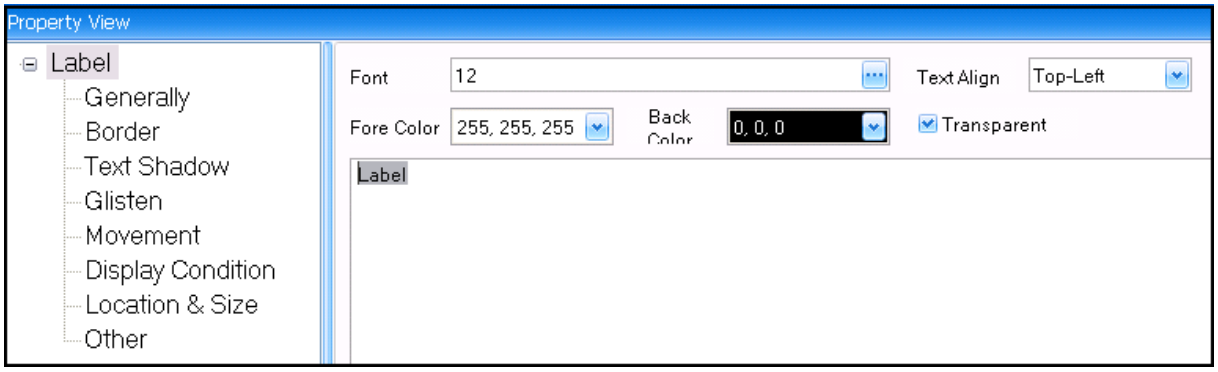


Figure 6.4.1

Generally	
Property	Illustration
Font	Specify the character size and select the font style of text
Fore Color	Select the color of text
Back Color	Select the background color of text
Text Align	Serve 3 by 3 grid as index to set the position of text.
Transparent	When enabled, the string's background color becomes transparent.

Table 6.4.1

6.5. Picture

Draw a picture and place it on the screen. Pictures display according to language.

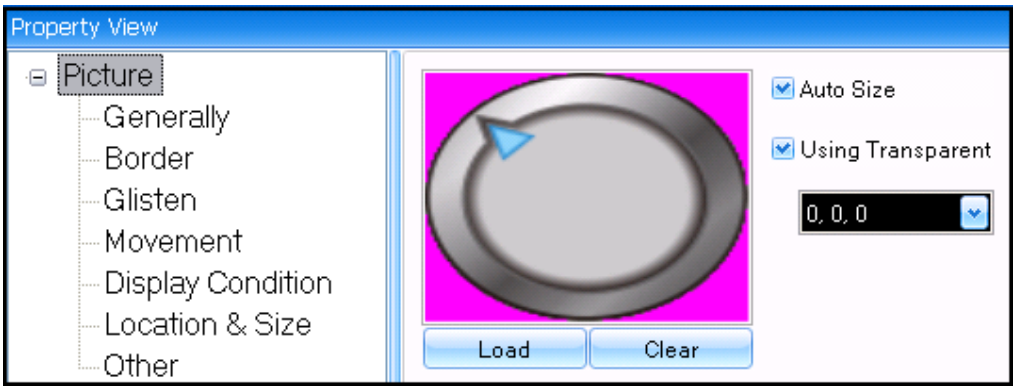


Figure 6.5.1

Generally	
Property	Illustration
Load	Load a desired picture from the list.
Clear	Clear a picture.
Auto Size	Stretch a picture to the object’s size automatically.
Using Transparent	When enabled, the designated color becomes transparent.

Table 6.5.1

6.6. Polygon

Draw a polygon and place it on the screen. Left-click to designate the positions of the Polygon's vertices. After defining the final vertices, double-click to complete the polygon.

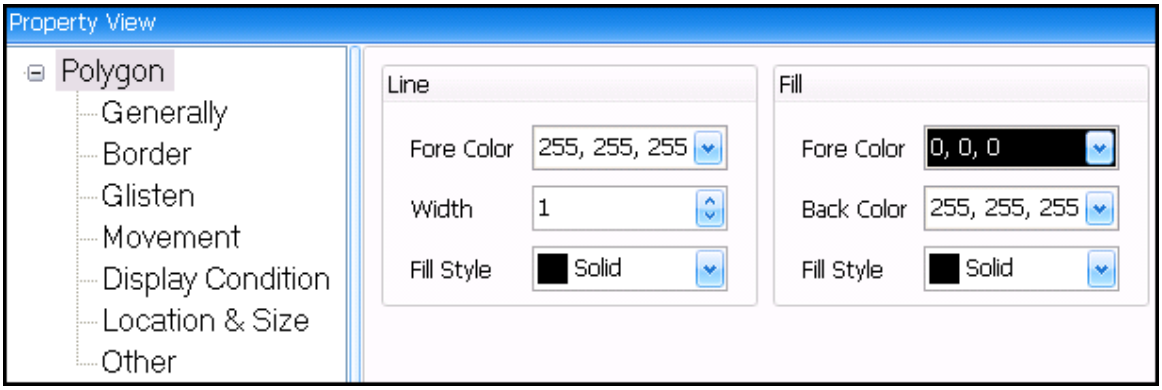


Figure 6.6.1

Generally		
Property		Illustration
Line	Fore Color	Select line's color
	Width	Select line's width
	Fill Style	Select a filled color
Fill	Fore Color	Select a tiling foreground color
	Back Color	Select a tiling background color
	Fill Style	Select a tiling style

Table 6.6.1

6.7. Circle

To draw a circle

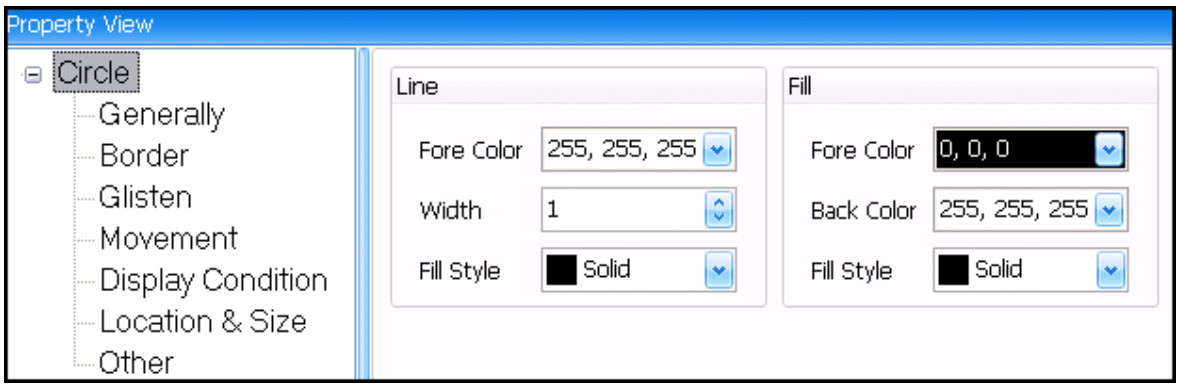


Figure 6.7.1

Generally		
Property		Illustration
Line	Fore Color	Select line's color
	Width	Select line's width

	Fill Style	Select a filled color
	Fore Color	Select a tiling foreground color
Fill	Back Color	Select a tiling background color
	Fill Style	Select a tiling style

Table 6.7.1

6.8. Line

Draw a line on the screen.

Figure 6.8.1

6.9. Multi-Line

Draw multi-line on the screen. Left-click to designate the positions of the multi-line's vertices. After defining the final vertices, double-click to complete the multi-line.

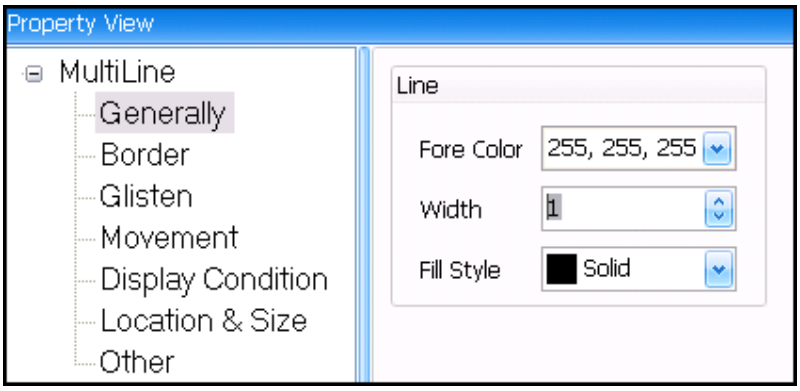


Figure 6.9.1

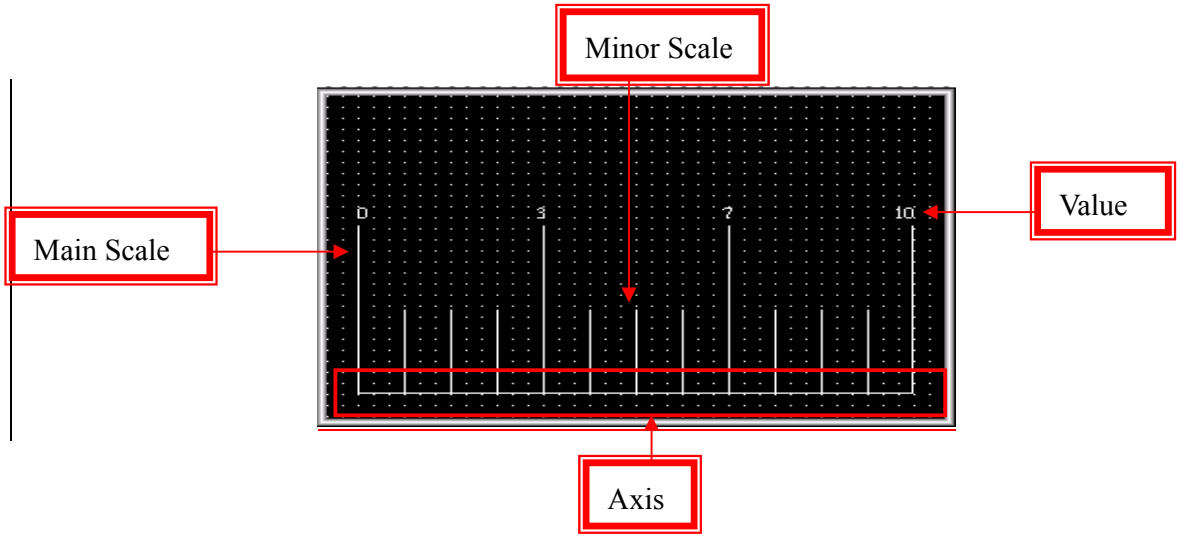
6.10. Calibration

To draw or create a Scale, input the number of divisions desired and left-click to designate the scale's beginning and end points. The pillar object could work in cooperation with calibration.

Figure 6.10.1

Generally	
Property	Illustration
Direction	Select the direction of graduation.
Main Scale	Set main scale.
Minor Scale	Set minor scale.
Line Width	Enter the desired line width.
Main Color	Select the main color.
Minor Color	Select the minor color.
Show Perch	Check this check box, and then the perch shows.

Table 6.10.1



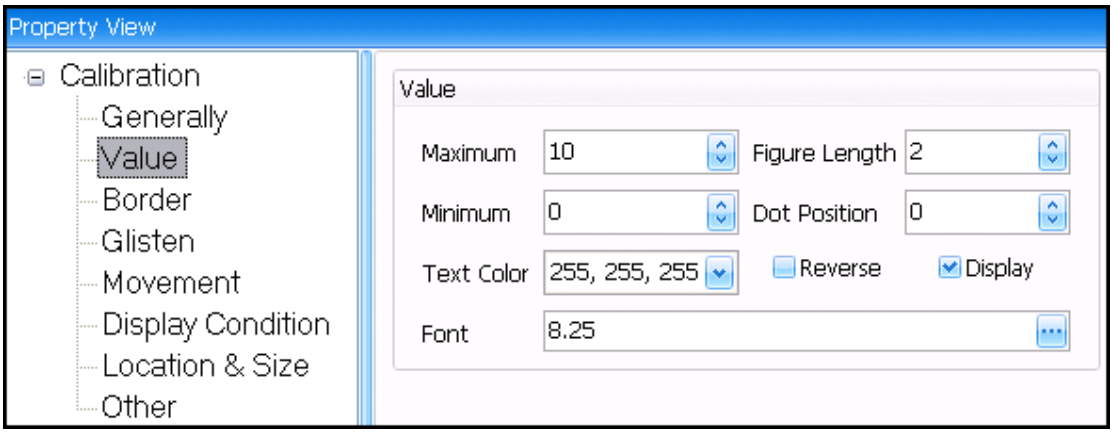


Figure 6.10.2

Value	
Property	Illustration
Maximum	Designate the upper limit value.
Minimum	Designate the lower limit value.
Text Color	Select the text color
Font	Specify the character size and select the font style of text
Figure Length	Set the figure length
Dot Position	Set the dot position
Reverse	The meter's display direction, either clockwise or counterclockwise, can be selected. Presumption in software is clockwise. Clockwise：From left to right. Counterclockwise：From right to left.
Display	Designate whether to show the value or not.

Table 6.10.2

6.11. State Picture

Show the variable via picture or text.

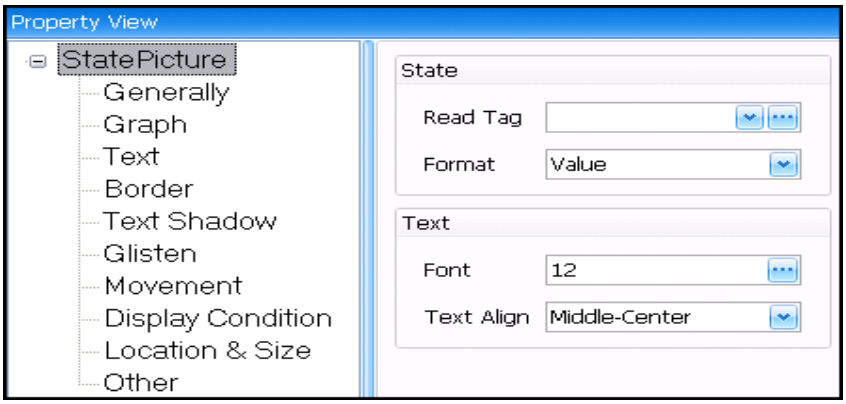


Figure 6.11.1

<table>
<tr><th colspan="3">Generally</th></tr>
<tr><th>Property</th><th></th><th>Illustration</th></tr>
<tr><td rowspan="15">State</td><td>Read Tag</td><td>Read Tag</td></tr>
<tr><td rowspan="14">Format</td><td>The state format
Boolean：
When variable isn’t 0, the state value is 1. However, the variable is 0; the state value is the same. The range of state value is 0 and 1.
Bit Index：
In the range of variable, from LSB to MSB, the state value depends on the index of the bit whose value is one.
For example, a binary value is 0010 0000
MSB LSB
7 6 5 4 3 2 1 0
0 0 1 0 0 0 0 0
The fifth bit is one and then the state value is five.
If two bits or above are one, the state value is not indefinite. Hence, the HMI device screen doesn’t show anything.
The range of state value is 0 ~ 31.
Value：
The value of tag is state value. The range of state value is 0 ~ 2147483647.</td></tr>
<tr><td rowspan="2">Text</td><td>Font</td><td>Set the size of text.</td></tr>
<tr><td>Text Align</td><td>Serve 3 by 3 grid as index to set the position of text.</td></tr>
</table>

Table 6.11.1

6.12. State Text

Show variable via text message.

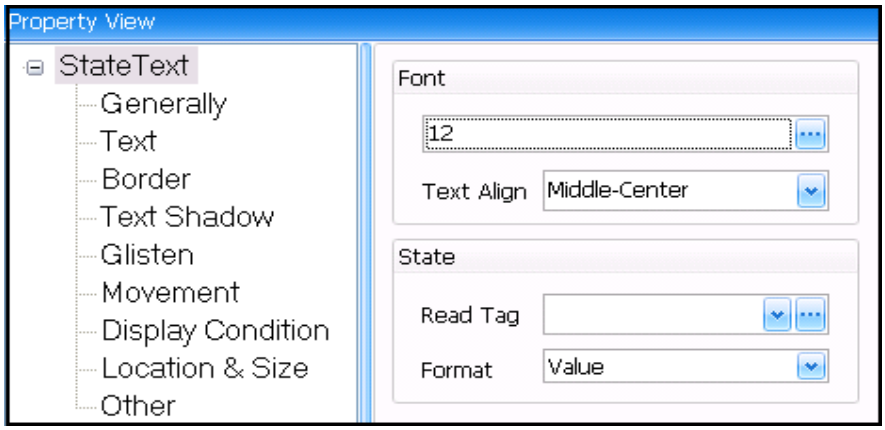


Figure 6.12.1

Generally		
Property		Illustration
Font	Font	Specify the character size and select the font style of text
	Text Align	Serve 3 by 3 grid as index to set the position of text.
State	Read Tag	Read Tag.
	Format	Set the format of text. Refer to 6.11

Table 6.12.1

6.13. Numeric

Show variable via numeric. The numeric object could be written and/or read.

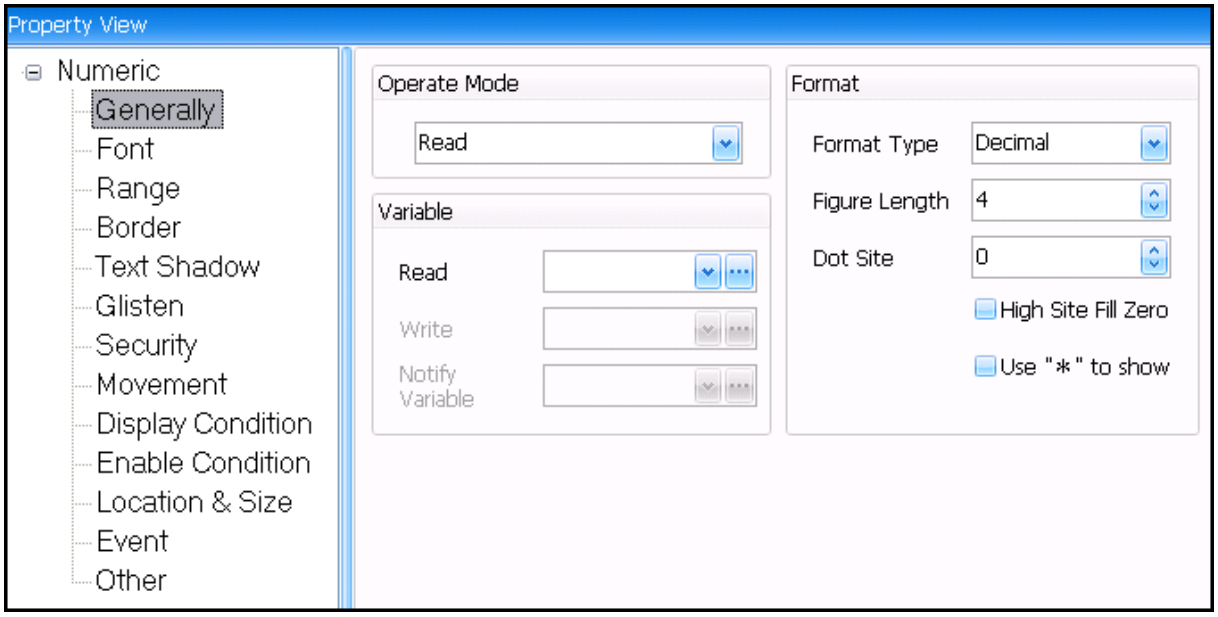


Figure 6.13.1

Generally		
Property		Illustration
Generally	Operate Mode	Set operation mode（write and/or read）。
	Read	Read variable.
Variable	Write	Write variable.
	Notify Variable	The variable is set 1when inputting numeric.
Format	Format Type	The format type about numeric. 1. Decimal 2. Sign Decimal：numeric displays with sign(+/-) whatever positive or negative 3. Octal 4. Hexadecimal 5. BCD
	Figure Length	Set the figure length.

		Set the dot position.
	Dot Sit	For example, a numeric whose figure length is 6, and whose dot position is 2, displays as ####.## 。
	High Site Fill Zero	When enabled, high site of a figure is filled in '0'. For example, 005902.1.
	Use '*' to Show	When enable, a figure is displayed by '*'.

Table 6.13.1

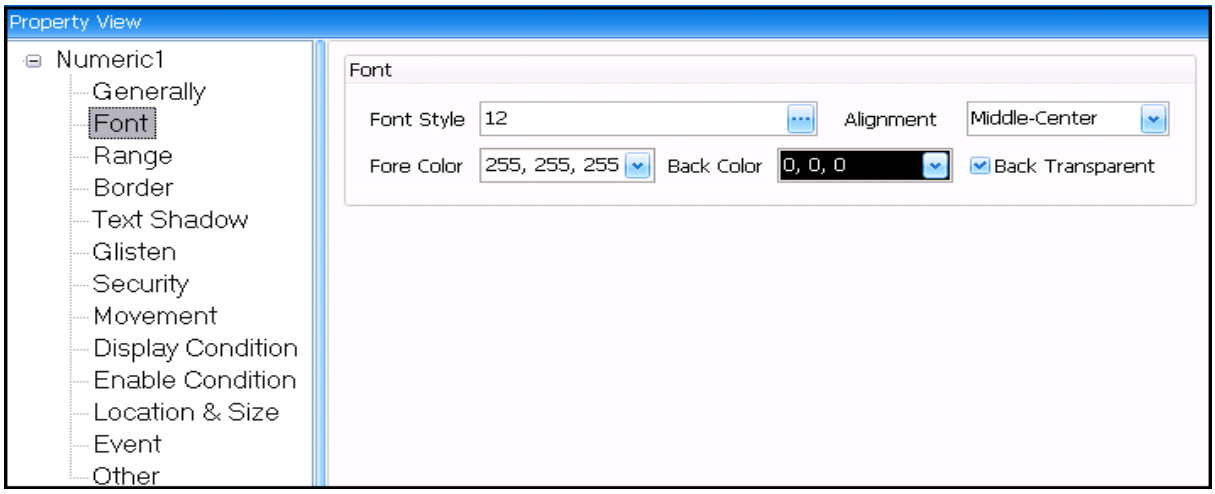


Figure 6.13.2

Font		
Property		Illustration
Font	Font Style	Select the font style and size of character.
	Alignment	Serve 3 by 3 grid as index to set the position of text.
	Fore Color	Select the character color
	Back Color	Select the character background color.
	Back Transparent	When enabled, the background color becomes transparent.

Table 6.13.2

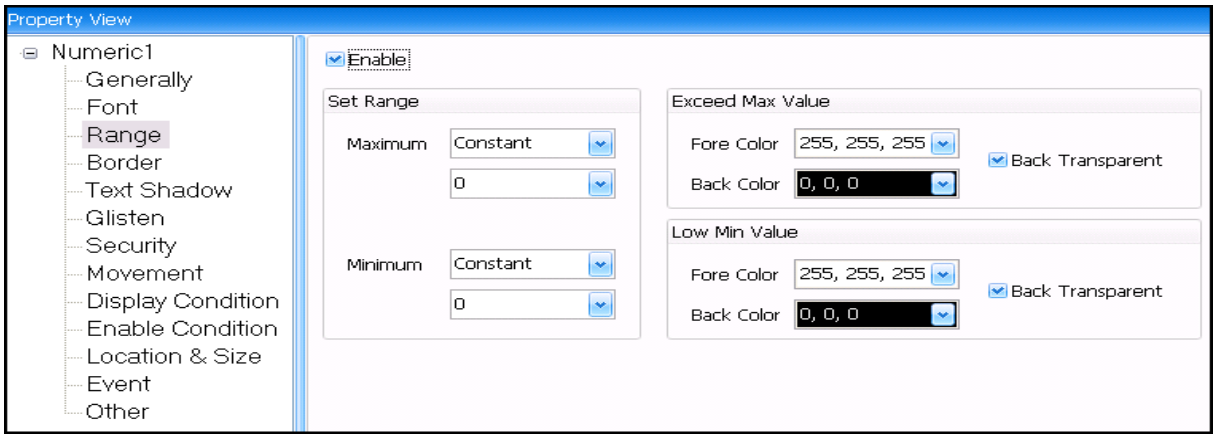


Figure 6.13.3

Range		
Property		Illustration
Set Range	Maximum & Minimum	Set the range of value.
	Variable	Read the variable of register.
	Constant	Set a constant in the range.
Exceed Max Value	Fore Color	Select the numeric color.
	Back Color	Select the numeric back color.
	Back Transparent	When enabled, the numeric background color becomes transparent.
Low Min Value	Fore Color	Select the numeric color.
	Back Color	Select the numeric back color.
	Back Transparent	When enabled, the numeric background color becomes transparent.

Table 6.13.3

Figure 6.13.4

Event	
Property	Illustration
Setting	After inputting a numeric, the event breaks out.

Table 6.13.4

6.14. Text Box

The variable is written or displayed in ASCII.

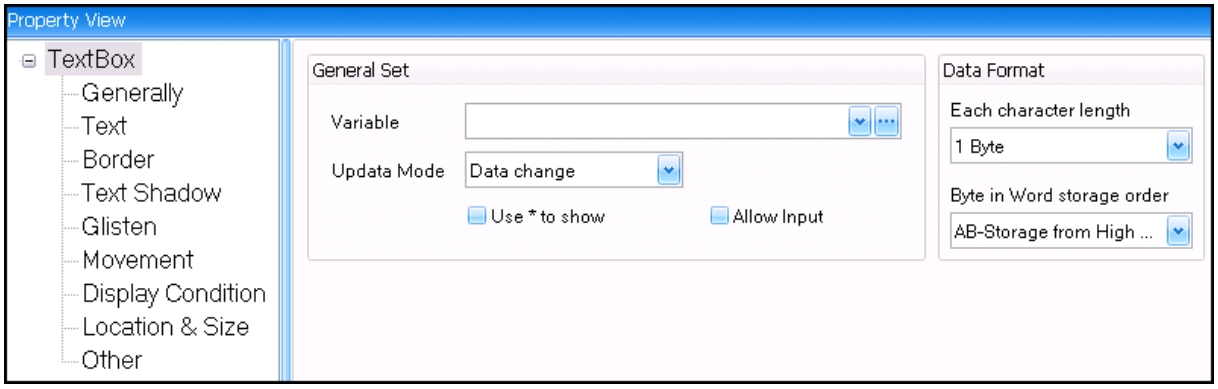


Figure 6.14.1

Generally		
Property		Illustration
General Set	Variable	The accessing variable, it could be the array variable.
	Update Mode	Update Mode

<table>
<tr><td rowspan="3"></td><td></td><td>1、Date change
2、Bit detonate (Rising Edge)（0→1）
3、Bit detonate (Falling Edge)（1→0）
4、Bit state change (Rising/Falling Edge)
（0→1→0→1…）</td></tr>
<tr><td>Use ‘*’ to show</td><td>When enable, the figure is displayed by ‘*’.</td></tr>
<tr><td>Allow Input</td><td>When enabled, it could be inputted.</td></tr>
<tr><td rowspan="2">Data Format</td><td>Each character length</td><td>Each character uses memory length.</td></tr>
<tr><td>Byte in word storage order</td><td>Memory format
AB：Big Endian
Memory in word storage order is from low to high. For example, 1234H, the storage order is 12H, 34H.
<table><tr><td>Value</td><td></td><td colspan="2">Memory</td></tr><tr><td rowspan="2">1234H</td><td rowspan="2">→</td><td>Low</td><td>High</td></tr><tr><td>12H</td><td>34H</td></tr></table>
BA：Little Endian
Memory in word storage order is from high to low. Form example, 1234H, the storage order is 34H, 12H.
<table><tr><td>Value</td><td></td><td colspan="2">Memory</td></tr><tr><td rowspan="2">1234H</td><td rowspan="2">→</td><td>Low</td><td>High</td></tr><tr><td>34H</td><td>12H</td></tr></table></td></tr>
</table>

Table 6.14.1

□The calculating method of the maximum length of character

The maximum length of character = total variable length (Byte) / each character length (Byte)

Total variable length = the length of variable type * the length of array variable

Variable Type	Byte
BYTE、CHAR	1
WORD、INT	2
DWORD、LONG	4

6.15. Display Date

Display the current data on the HMI device.

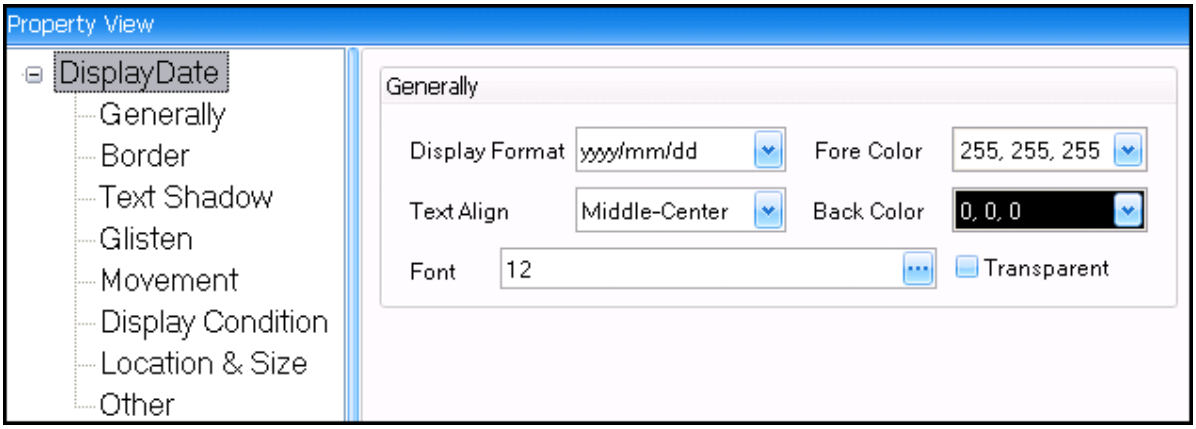


Figure 6.15.1

Generally	
Property	Illustration
Display Format	Select the desired data format 1. yyyy／mm／dd 2. dd／mm／yyyy 3. mm／dd／yyyy
Text Align	Serve 3 by 3 grid as index to set the position of text.
Font	Select the font style and size of character.
Fore Color	Text of fore color is selected, if desired.
Back Color	Text of back color is selected, if desired.
Transparent	When enabled, the background color becomes transparent.

Table 6.15.1

6.16. Display Time

Display the current time on the HMI device.

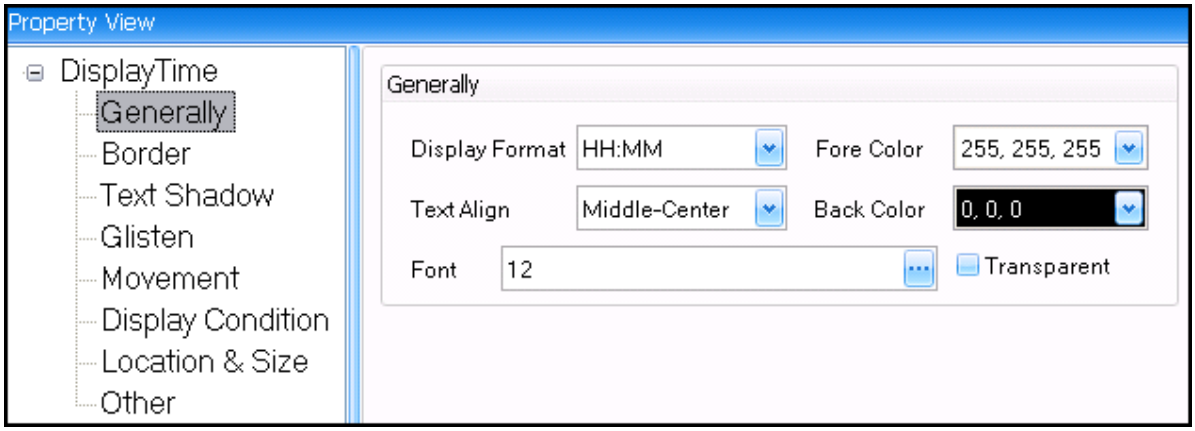


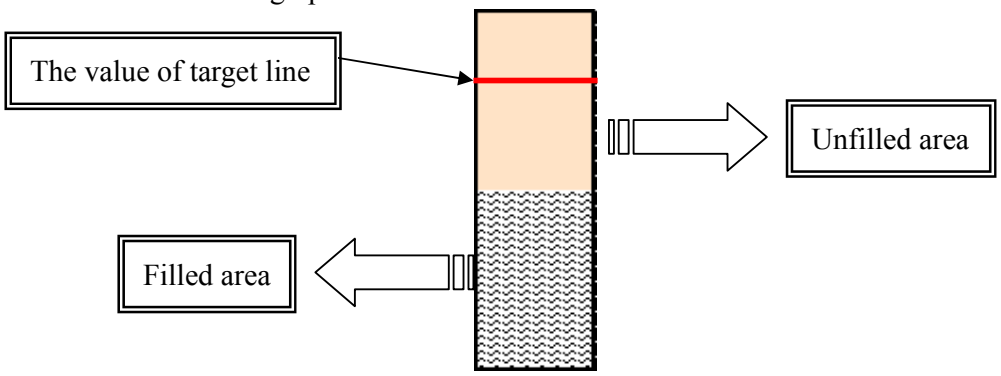
Figure 6.16.1

Generally	
Property	Illustration
Display Format	Select the desired data format 1、HH：MM 2、HH：MM：SS
Text Align	Serve 3 by 3 grid as index to set the position of text.
Font	Select the font style and size of character.
Fore Color	Text of fore color is selected, if desired.
Back Color	Text of background color is selected, if desired.
Transparent	When enabled, the background color becomes transparent.

Table 6.16.1

6.17. Bar Graph

Show variable via bar graph.



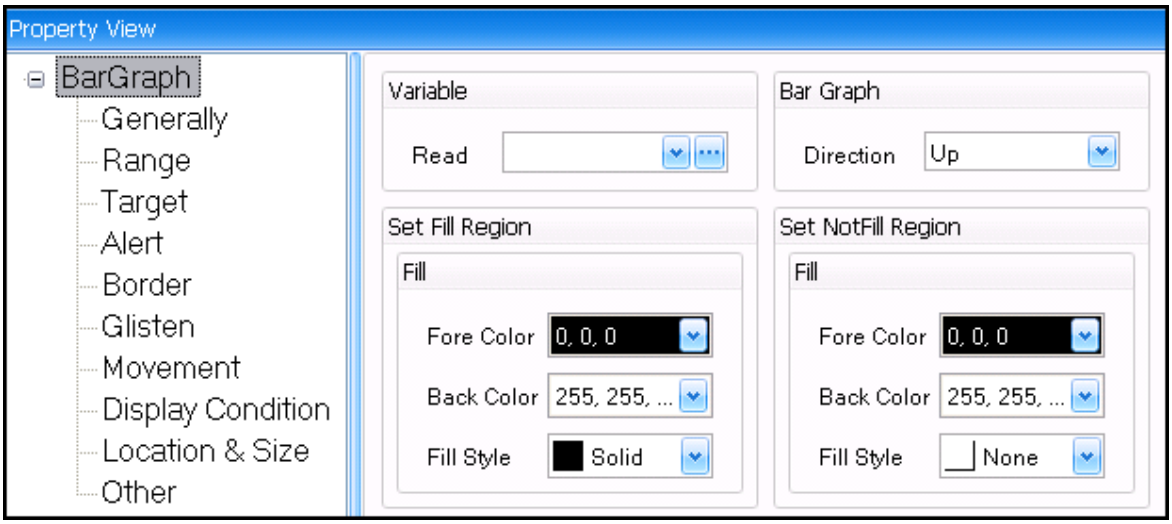


Figure 6.17.1

Generally		
Property		Illustration
Variable	Read	Read variable

Bar Graph	Direction	Bar Graph filling direction 1、right 2、up 3、left 4、down
Set Fill Region	Fore Color	Select a tiling foreground color
	Back Color	Select a tiling background color
	Fill Style	Select a tiling style
Set NotFill Region	Fore Color	Select a tiling foreground color
	Back Color	Select a tiling background color
	Fill Style	Select a tiling style

Table 6.17.1

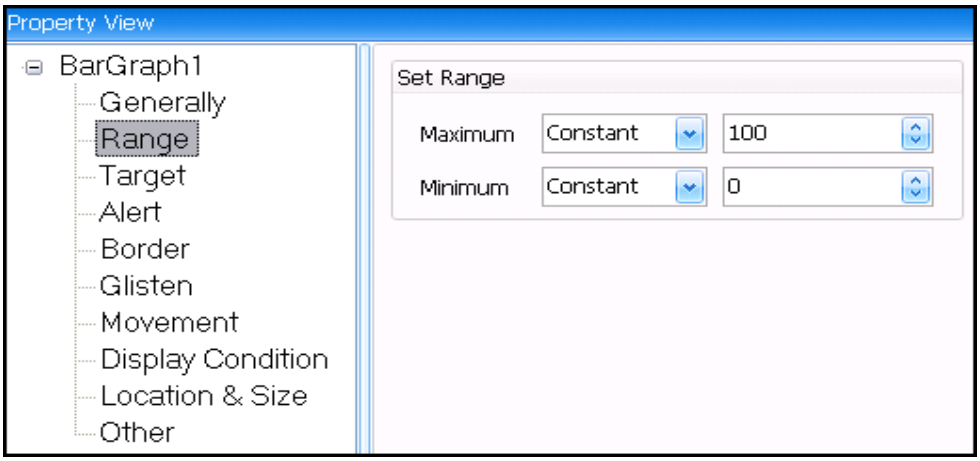


Figure 6.17.2

Range	
Property	Illustration
Maximum	Designate the variable or constant as a maximum in the range.
Minimum	Designate the variable or constant as a minimum in the range.

Table 6.17.2

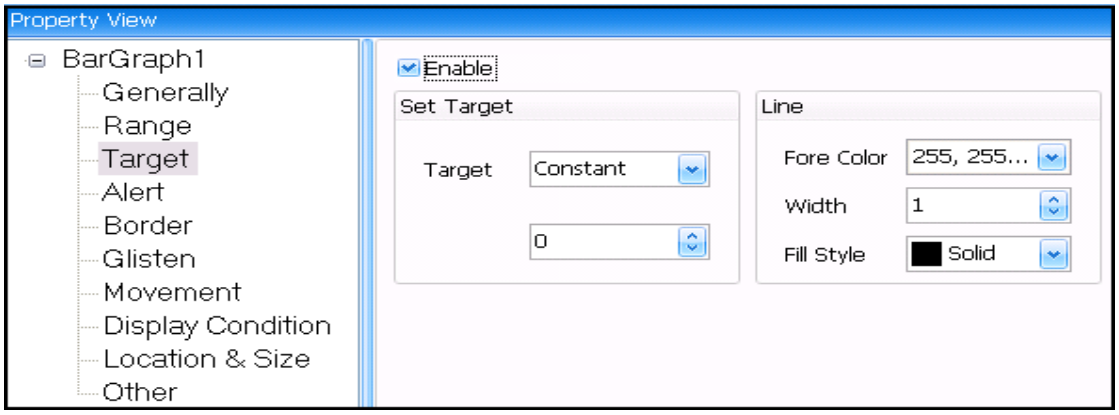


Figure 6.17.3

Target		
Property		Illustration
Enable		When enabled, target line shows.
Set Target	Target	Designate a target as a variable or constant.
	Fore Color	Select the line's color.
Line	Width	Select the line's width.
	Style	Select the line's style.

Table 6.17.3

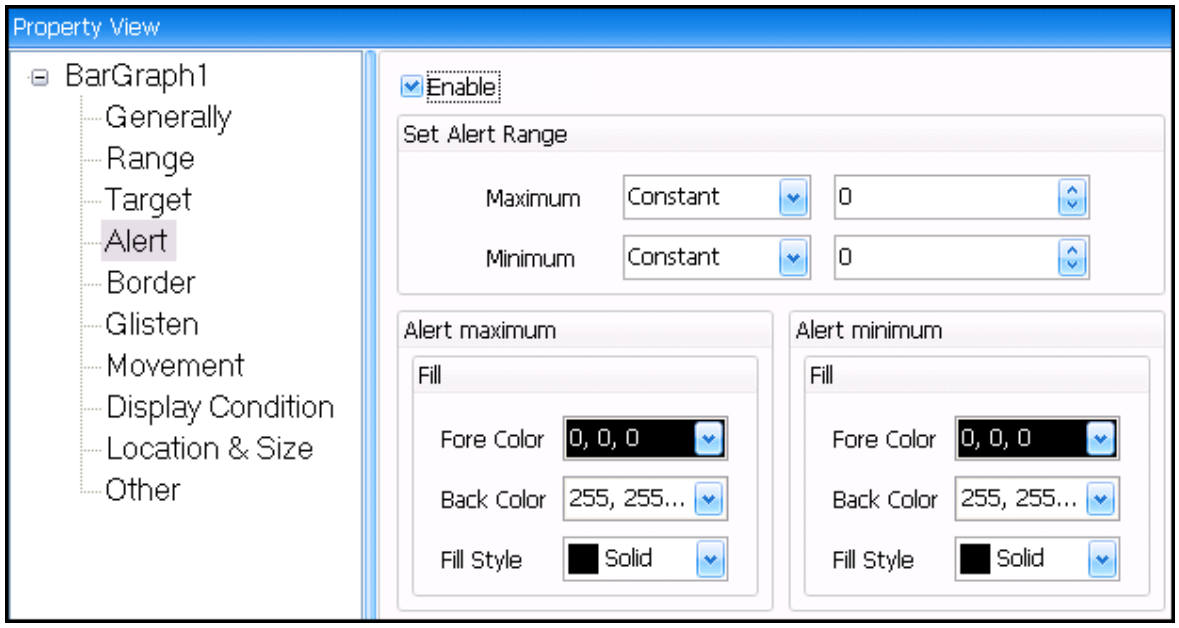


Figure 6.17.4

Alert		
Property		Illustration
Set Alert Range	Maximum & Minimum	Set maximum & minimum in the alert range.
Alert Maximum	Fore Color	Select the tiling color when exceeding the alert area.
	Back Color	Select the tiling back color when exceeding the alert area.
	Fill Style	Select the tiling pattern when exceeding the alert area.
Alert Minimum	Fore Color	Select the tiling color under the alert area.
	Back Color	Select the tiling background color under the alert area.
	Fill Style	Select the tiling pattern under the alert area.

Table 6.17.4

6.18. Dial-Semicircle/ Dial-Circle

Display the variable via a dial-semicircle or dial-circle.

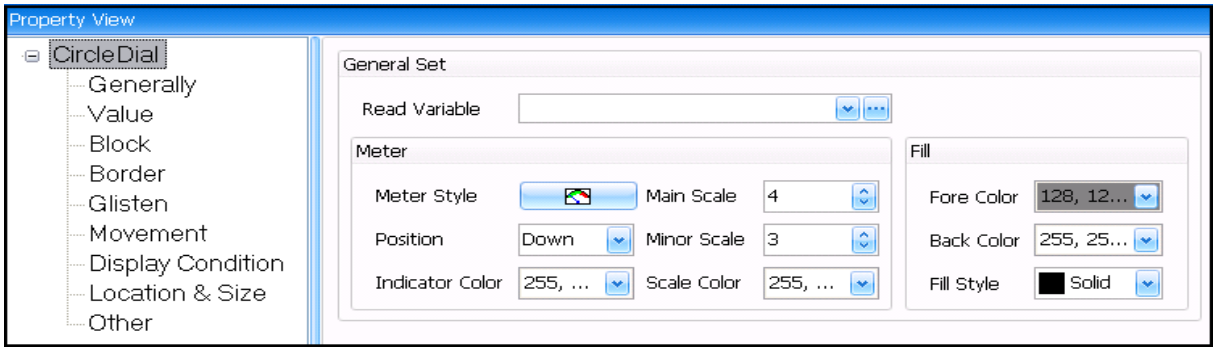


Figure 6.18.1

Generally		
Property		Illustration
General Set	Read Variable	Read Variable
Meter	Meter Style	Select the meter's style 1、180□circle. 2、120□circle.
	Position	Set the direction of meter only available in semicircle dial. 1、Down 2、Right 3、Up 4、Left
	Indicator Color	Select the indicator's color.
	Main Scale	Enter the graph's number of main divisions.
	Minor Scale	Enter the graph's number of minor divisions.
	Scale Color	Select the scale's color.
Fill	Fore Color	Select the tiling color.
	Back Color	Select the tiling back color.
	Fill Style	Select the tiling pattern.

Table 6.18.1

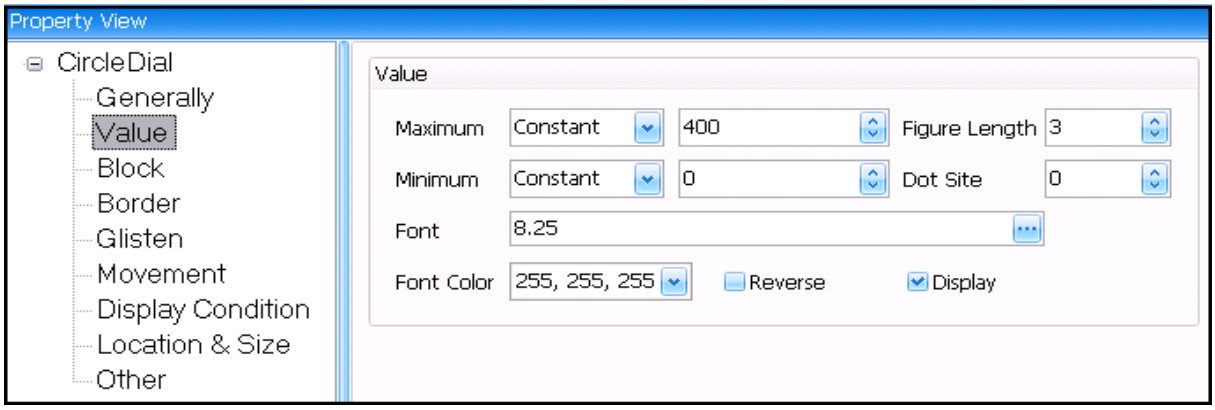


Figure 6.18.2

Value	
Property	Illustration
Maximum	Specifies the maximum.
Minimum	Specifies the minimum.
Figure Length	Specifies the value's effective bit length.
Dot Site	Specifies the dot site.
Font	Set font and size.
Font Color	Select the desired color.
Reverse	The value's display direction, either clockwise or counterclockwise, can be selected. Presumption in software is clockwise. Clockwise：From left to right. Counterclockwise：From right to left.
Display	When this check box checked, the value can be displayed.

Table 6.18.2

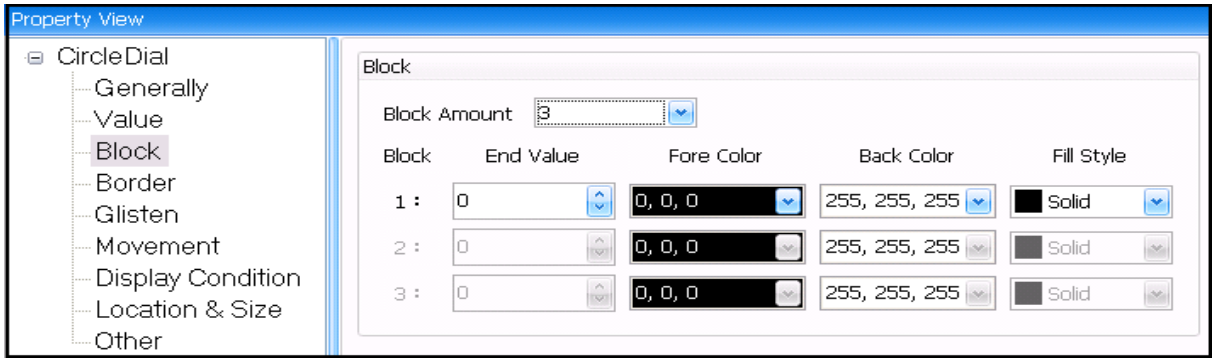


Figure 6.18.3

Block	
Property	Illustration
Block Amount	The number entered here determines how many blocks a circle dial is divided into, 5 blocks at most
Block	The number of block.

End Value	Set each block end value which should be bigger than the previous block end value. For example, the input range is from -100 to 600 and fall into 5 blocks. No.1 block the end value is 50; the range is from -100 to 50. No.2 block the end value is 260; the range is from 50 to 260. No.3 block the end value is 350; the range is from 260 to 350. No.4 block the end value is 400; the range is from 350 to 400. No.5 block the end value is 600; the range is from 400 to 600.
Fore Color	Select the tiling color.
Back Color	Select the tiling back color.
Fill Style	The desired tiling pattern is selected.

Table 6.18.3

6.19. Drop Down List

Set the variable via the pull-down menu.

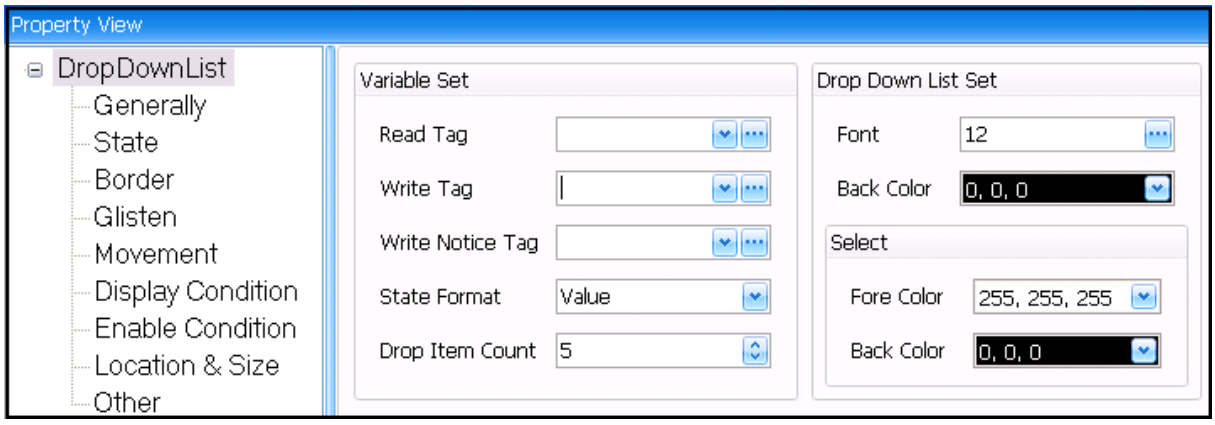


Figure 6.19.1

Generally		
Property	Sub-property	Illustration
Variable Set	Read Tag	Read variable.
	Write Tag	Write variable.
	Write Notice Tag	After an item set, the variable is one.
	State Format	The state format Boolean： When variable isn't 0, the state value is 1. However, the variable is 0; the state value is the same. The range of state value is 0 and 1. Bit Index： In the range of variable, from LSB to MSB the state value depends on the index of the bit whose value is one. For example, a binary value is 0010 0000

MSB LSB

7	6	5	4	3	2	1	0
0	0	1	0	0	0	0	0

The fifth bit is one and then the state value is five.

If two bits or above is one, the state value is not indefinite. Hence, the HMI device screen doesn't show anything.

The range of state value is 0 ~ 31.

Value：

The value of tag is state value. The range of stat value is 0 ~ 2147483647.

Drop Down list set	Drop Item Count	Set the item number.
	Font	Select the font style and size of character.
	Fore Color	The desired character's background color is selected.
Select	Fore Color	The text's color in menu is selected.
	Back Color	The menu's background color is selected.

Table 6.19.1

6.20. XY Chart

The HMI device reads variables in the corresponding register of PLC and then variables are become XY chart and displayed via the screen of the HMI device.

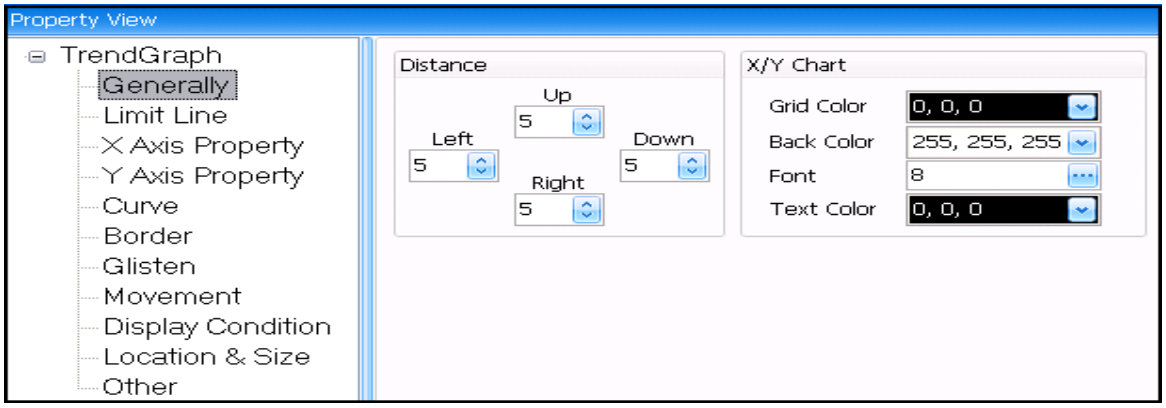


Figure 6.20.1

Generally	
Property	Illustration
Distance	Set distance between side and chart.
Grid Color	Select the grid color.
Back Color	Select the background color.
Font	Select the font style and size of character.
Text Color	Select the text color.

Table 6.20.1

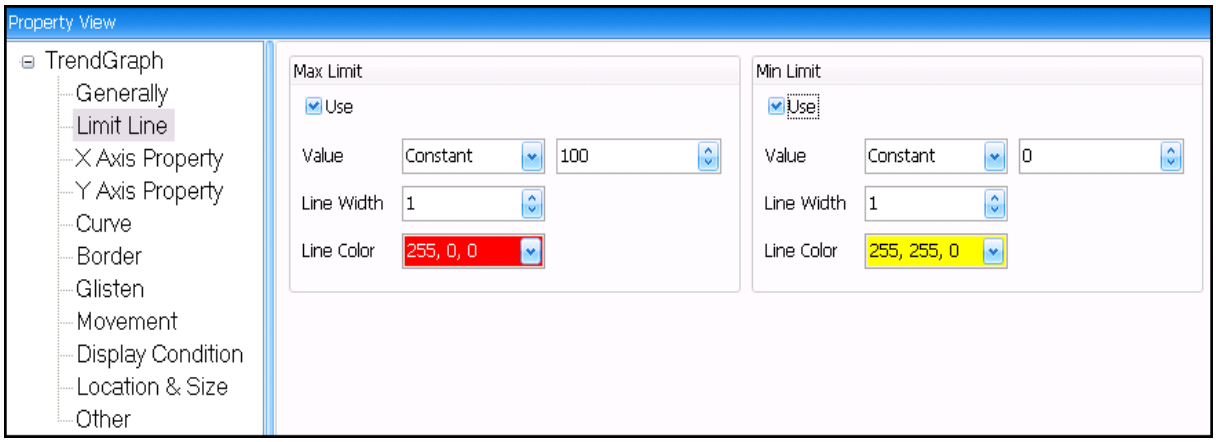


Figure 6.20.2

Limit Line		
Property		Illustration
Max Limit Min Limit	Value	Specifies the value input range and as a constant or variable.
	Line Width	The line's width is selected. (1~5)
	Line Color	Select line's color.

Table 6.20.2

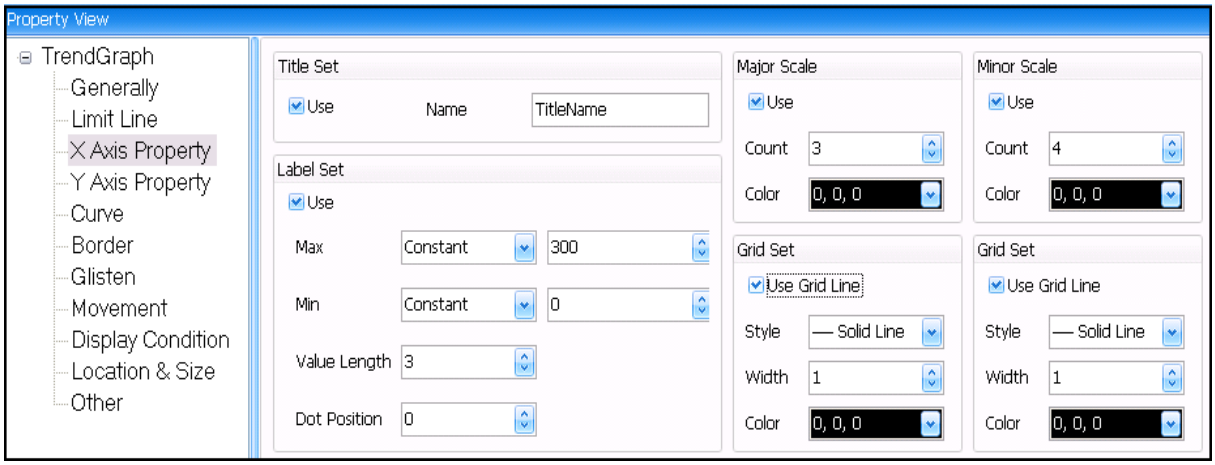


Figure 6.20.3

X Axis Property		
Property		Illustration
Title Set	Name	Name the title.
Label Set	Max	Specifies the maximum.
	Min	Specifies the minimum.
	Value Length	Specifies the value's effective length.
	Dot Position	Set the dot position.
Major Scale Minor Scale	Count	Enter the major and minor scale's number of division.
	Color	Select the color of major and minor.

	Style	The solid line and dash line are selected as the style of grid.
Grid Set	Width	Select the grid's width.（1~5）
	Color	Select the grid's color.

Table 6.20.3

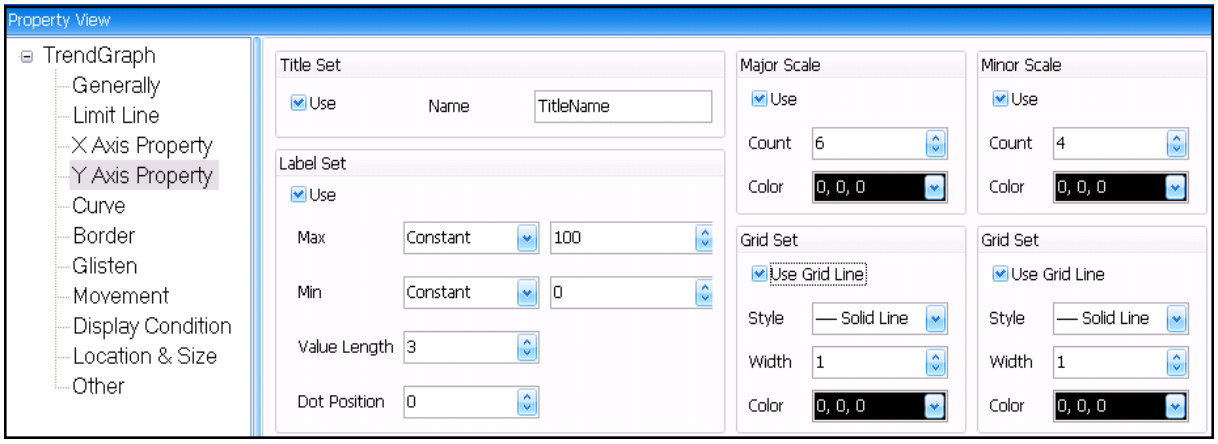


Figure 6.20.4

Y Axis Property

Property		Illustration
Title Set	Name	Name the title.
Label Set	Max	Specifies the maximum.
	Min	Specifies the minimum.
	Value Length	Specifies the value's effective length.
	Dot Position	Set the dot position.
Major Scale	Count	Enter the major and minor scale's number of division.
Minor Scale	Color	Select the color of major and minor.
	Style	The solid line and dash line are selected as the style of grid.
Grid Set	Width	Select the grid's width.（1~5）
	Color	Select the grid's color.

Table 6.20.4

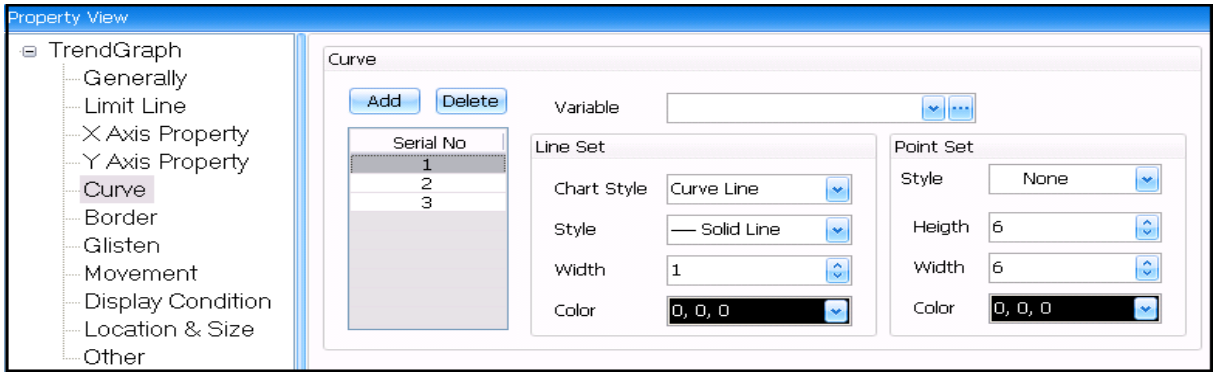


Figure 6.20.5

<table>
<tr><th colspan="3">Curve</th></tr>
<tr><th>Property</th><th></th><th>Illustration</th></tr>
<tr><td rowspan="2">Curve</td><td>Add & Delete</td><td>Specifies how many lines in trend graph, but 8 lines at most.</td></tr>
<tr><td>Variable</td><td>The data of curve.
Data Format
<table>
<tr><th>Array Index</th><th>Information</th><th>Illustration</th></tr>
<tr><td>0</td><td>Total points</td><td></td></tr>
<tr><td>1</td><td>X1 data</td><td rowspan="2">First point</td></tr>
<tr><td>2</td><td>Y1 data</td></tr>
<tr><td>3</td><td>X2 data</td><td rowspan="2">Second point</td></tr>
<tr><td>4</td><td>Y2 data</td></tr>
<tr><td>…</td><td>Xn、Yn data</td><td>Nth point</td></tr>
</table></td></tr>
<tr><td rowspan="3">Line Set</td><td>Chart Style</td><td>Curve, sawtooth, bar lines are selected as chart style.</td></tr>
<tr><td>Style</td><td>Solid and dash lines are selected as line style.</td></tr>
<tr><td>Width</td><td>Set the line’s width (1~10)</td></tr>
<tr><td rowspan="4">Point Set</td><td>Color</td><td>Set the line’s color.</td></tr>
<tr><td>Style</td><td>Set the dot’s style.</td></tr>
<tr><td>Width</td><td>Set the dot’s width.（1~20）</td></tr>
<tr><td>Height</td><td>Set the dot’s height.（1~20）</td></tr>
<tr><td>Color</td><td>Set the dot’s color.</td></tr>
</table>

Table 6.20.5

6.21. Connect View

All connection data is listed on the HMI device, so each state could be controlled easily.

Figure 6.21.1

<table>
<tr><th colspan="3">Generally</th></tr>
<tr><th>Property</th><th></th><th>Illustration</th></tr>
<tr><td>Generally</td><td>Row Height</td><td>Set the height of row.</td></tr>
<tr><td></td><td>Font</td><td>Select the font style and size of character.</td></tr>
<tr><td rowspan="2">Title</td><td>Fore Color</td><td>Select the color of title.</td></tr>
<tr><td>Back Color</td><td>Select the back color of title.</td></tr>
</table>

Main	Fore Color	Select the color of text
	Back Color	Select the back color of text.
Select	Fore Color	Select the color of selected character.
	Back Color	Select the background color of selected character.

Table 6.21.1

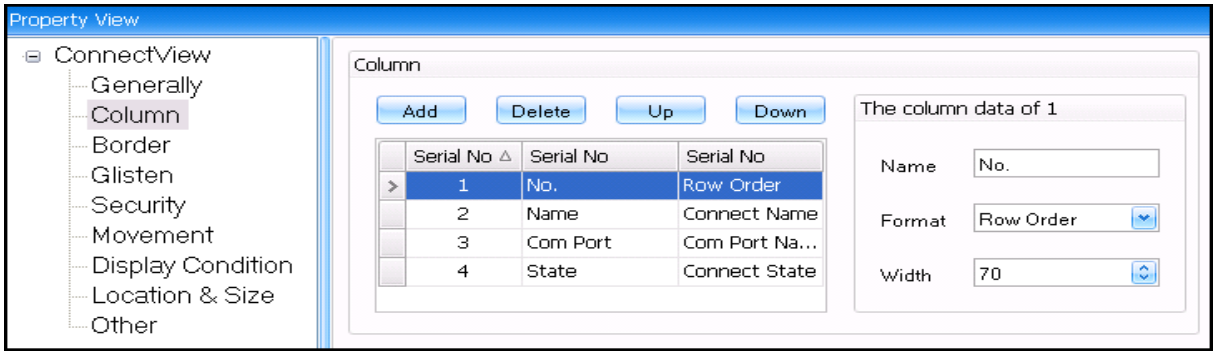


Figure 6.21.2

Column		
Property		Illustration
Column	Add	Add a new connection.
	Delete	Delete a connection.
	Up & Down	Change the order of data; click on the [Up] & [Down] button.
The Column data	Name	Enter the name of column.
	Format	Set the data type of each column.(Row order, Connect name, COM port, Connect state)
	Width	Set the width of column.

Table 6.21.2

6.22. Password List

Show and modify passwords of all levels. Password list only shows passwords which the level is equal to and lower than the current one. The higher ones do not to be displayed.

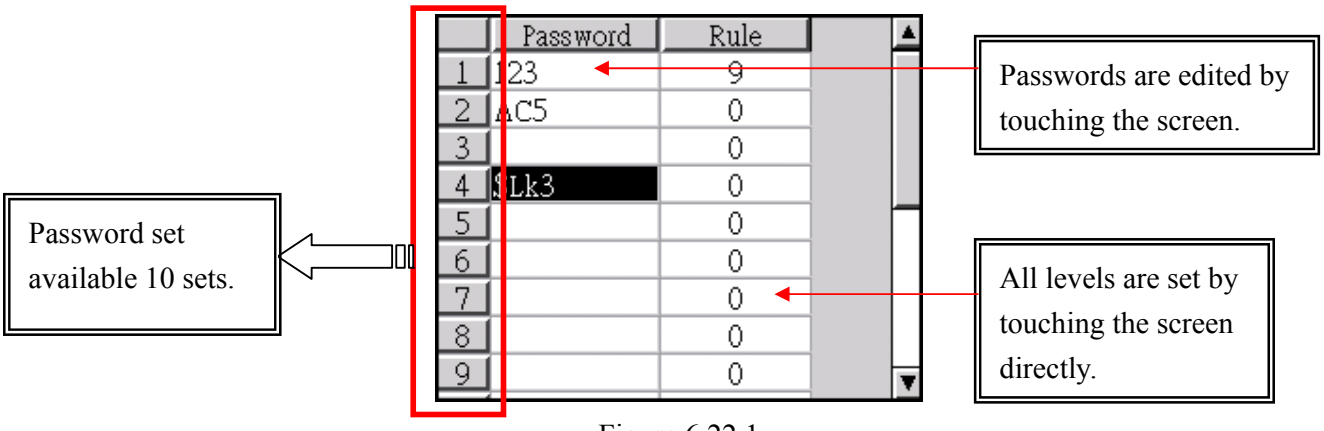


Figure 6.22.1

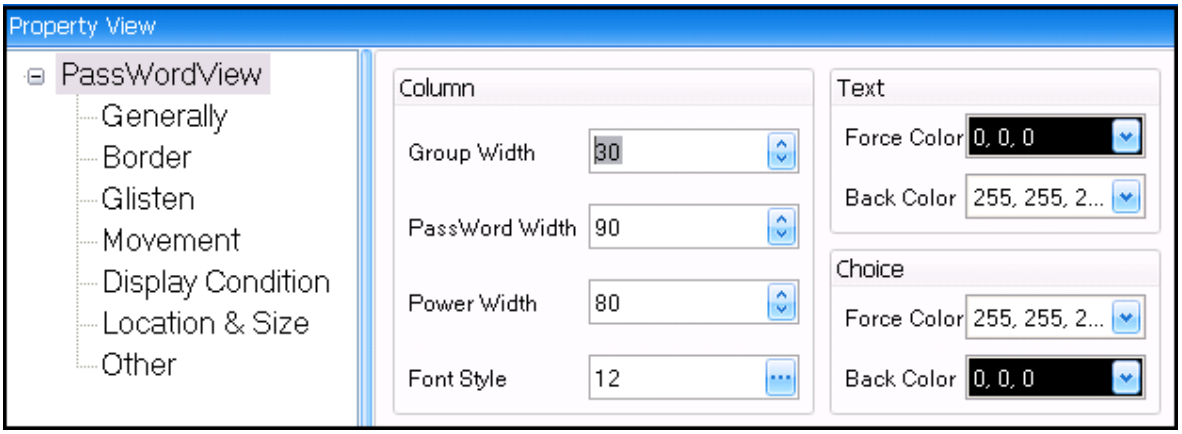


Figure 6.22.2

Generally		
Property		Illustration
Column	Group Width	Set the width of group set.
	Password Width	Set the width of password column.
	Power Width	Set the width of rule column.
	Font	Select the font style and size of character.
Text	Fore Color	The desired text color is selected.
	Back Color	The desired text background color is selected.
Choice	Fore Color	The selected text color is chosen.
	Back Color	The selected text background color is chosen.

Table 6.22.2

6.23. Bit Switch

The creation of a touch panel switch is used for turning a specified Bit ON or OFF.

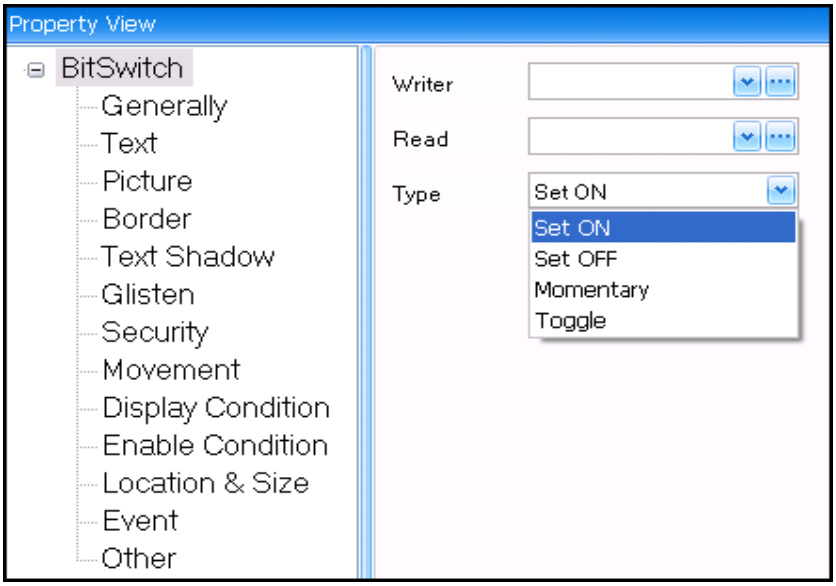


Figure 6.23.1

Generally	
Property	Illustration
Writer	Write variable.
Read	Read variable.
Type	Select the switch's function 1、Set On：When the Bit Switch is pressed, the device's designated Bit Address is turned ON. This state continues (i.e. remains ON) even after the switch is released. 2、Set Off：When the Bit Switch is pressed, the device's designated Bit Address is turned OFF. This state continues (i.e. remains OFF) even after the switch is released. 3、Momentary：Only while the Bit Switch is pressed and held, the specified device Bit Address turned ON. Thus, when the switch is released, the specified Bit Address is turned OFF. 4、Toggle：Every time the Bit Switch is pressed, the device's designated Bit Address state is changed (from ON to OFF, or from OFF to ON).

Table 6.23.1

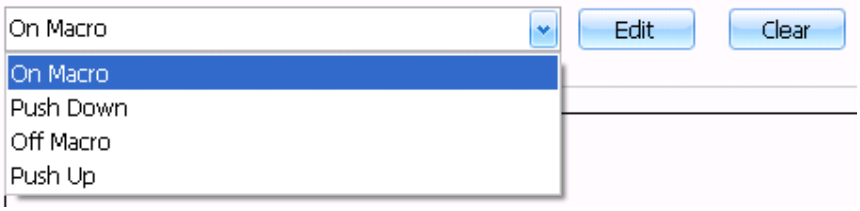


Figure 6.23.2

Event	
Property	Illustration
Push Down	When the bit switch is pressed, the event will break out.
Push Up	When the bit switch is released, the event will break out.
On Macro	When the bit switch is pressed, bit address is turned ON, and then On Macro event breaks out. The detonated event is fast than the released motion, and slower than pressed motion.
Off Macro	When the bit switch is pressed, bit address is turned OFF, and then OFF Macro event breaks out. The detonated event is fast than the released motion, and slower than pressed motion.

Table 6.23.2

6.24. Multi Stage Switch

Multi-Stage Switch is a touch switch. Different from bit switch, it owns multiple states. For example, it is used for multi-stage motor operation or multi-stage motion, etc.

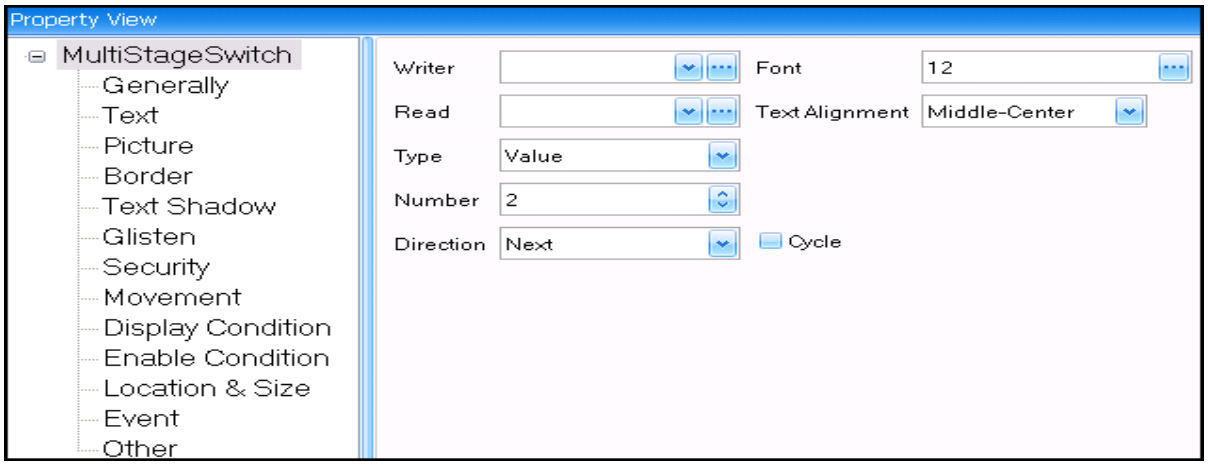


Figure 6.24.1

Generally	
Property	Illustration
Writer	Write variable.
Read	Read variable.
Font	Select the font style and size of character.
Text Alignment	Serve 3 by 3 grid as index to set the position of text.
Type	1、Bit Index： In the range of variable, from LSB to MSB the state value depends on the index of the bit whose value is one. For example, a binary value is 0010 0000 MSB LSB 7 6 5 4 3 2 1 0 0 0 1 0 0 0 0 0 The fifth bit is one and then the state value is five. If two bits or above is one, the state value is not indefinite. Hence, the HMI device screen doesn't show anything. The range of state value is 0 ~ 31. 2、Value： The value of tag is state value. The range of state value is 0 ~ 2147483647.
Number	Set the number of state.
Direction	Next：Switch to next state. Before：Return to before state.
Cycle	When this is clicked, the state is set as a circular motion. Circular motion forward：for example, S0→S1→S2→S3→S4→S0 Circular motion backward：for example, S0→S4→S3→S2→S1→S0

Table 6.24.1

Event	
Property	Illustration
Push Down	When the bit switch is pressed, the event will break out.
Push Up	When the bit switch is released, the event will break out.

Table 6.24.2

6.25. Function Keys

A touch panel with special functions can be created, such as change screen, set value, JOG +/- and so on, 16 functions at most. When the button is pressed, the function works in order.

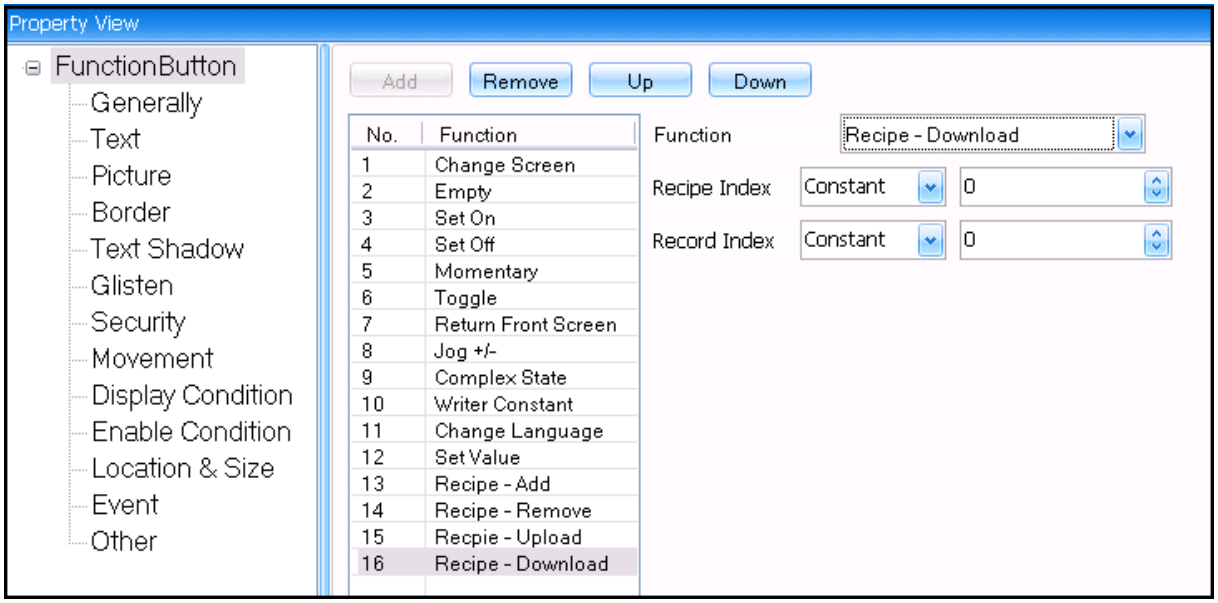


Figure 6.25.1

Generally	
Property	Illustration
Add	Add the function, 16 functions at most.
Remove	Remove the function.
Up	Edit the order of function.
Down	Edit the order of function.
Function	Select the switch's operation.

Table 6.25.1

Event	
Property	Illustration
Push Down	When the bit switch is pressed, the event will break out.
Push Up	When the bit switch is released, the event will break out.

Table 6.25.2

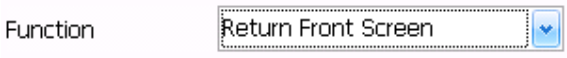
6.25.1. Change Screen

When the switch is pressed, the current screen on the HMI will be changed to the specified

screen.

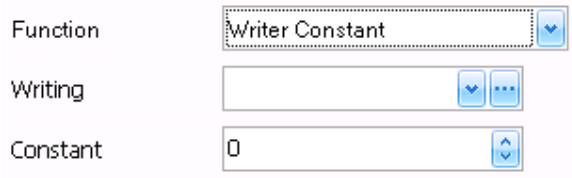
6.25.2. Return Front Screen

When the switch is pressed, the current screen on the HMI will be changed to the previously displayed one.



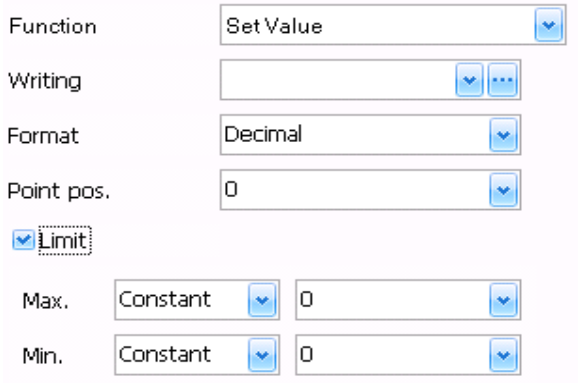
6.25.3. Writer Constant

Write a constant to a designated variable.



6.25.4. Set Value

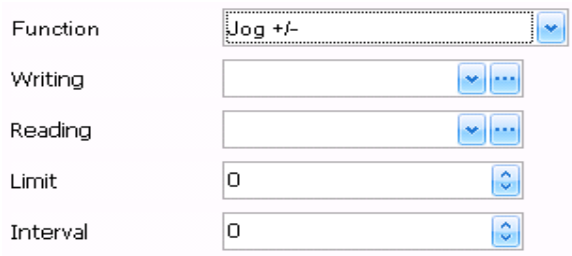
Input a value to the designated variable by shown numeric keypad on the HMI's screen.



Property	Illustration
Writing	Write variable
Format	Select the tag type, decimal or hexadecimal.
Point pos.	Set the dot position.
Limit	When this is checked, the numeric range can be set.
Max	Set the maximum.
Min	Set the minimum.

6.25.5. Jog +/-

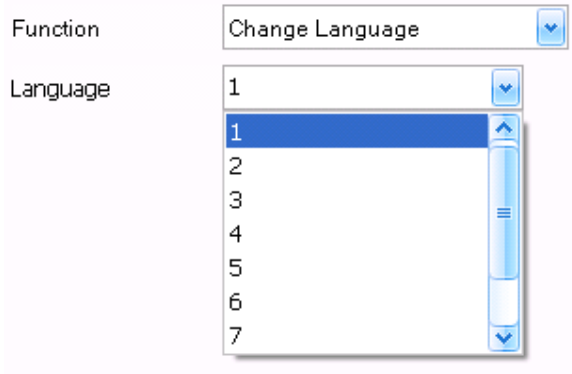
The variable is written to the designated variable after Jog + or Jog-



Property	Illustration
Writing	Write variable.
Reading	Read variable.
Limit	To be set the up limit of Jog- or the down limit of Jog+
Interval	The numeric of Jog+ or Jog- each time

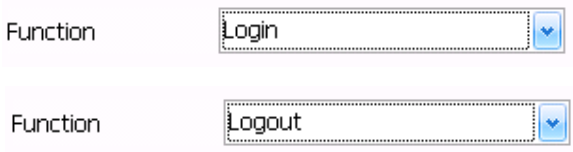
6.25.6. Change Language

Change the current language on the HMI screen.



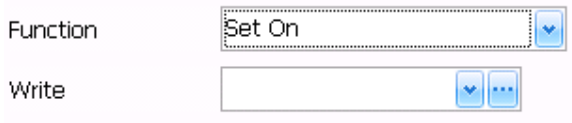
6.25.7. Login／Logout

Login／Logout the power.



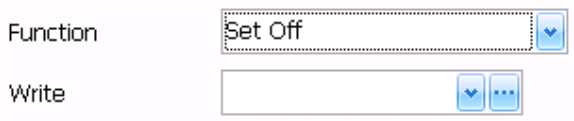
6.25.8. Set On

When the Bit Switch is pressed, the device's designated Bit Address is turned ON. This state continues (i.e. remains ON) even after the switch is released.



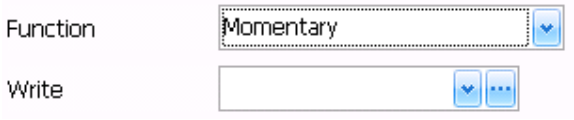
6.25.9. Set Off

When the Bit Switch is pressed, the device's designated Bit Address is turned OFF. This state continues (i.e. remains OFF) even after the switch is released.



6.25.10. Momentary.

Only while the Bit Switch is pressed and held is the specified device Bit Address turned ON. Thus, when the switch is released, the specified Bit Address is turned OFF.

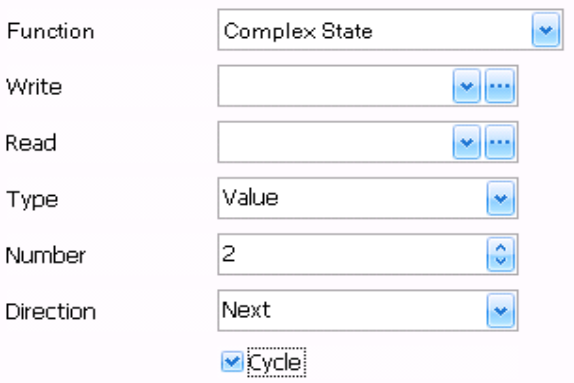


6.25.11. Toggle

Every time the Bit Switch is pressed, the device's designated Bit Address state is changed (from ON to OFF, or from OFF to ON).

6.25.12. Complex State

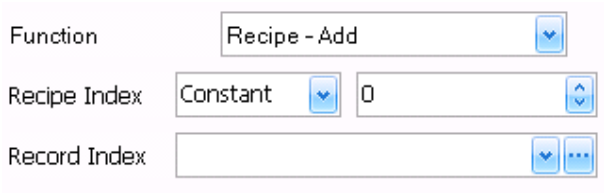
Complex state supplies the functions like the multistage switch.



Property	Illustration
Write	Write variable
Read	Read variable
Type	Bit Index、Value。
Number	The maximum numeric of status.
Direction	Next status：Change to next state. Previous：Change to previous state.。
Cycle	When this is clicked, the state is set as a circular motion. Circular motion forward：for example, S0→S1→S2→S3→S4→S0 Circular motion backward：for example, S0→S4→S3→S2→S1→S0

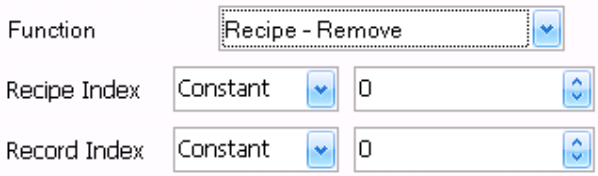
6.25.13. Recipe-Add

Establish a new recipe record and a new index value will be written to the index variable.



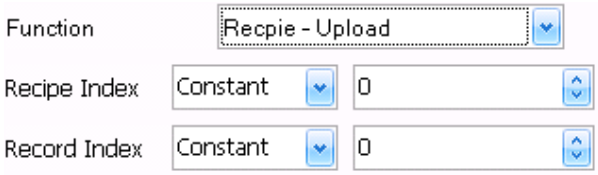
6.25.14. Recipe-Remove

Remove a designated recipe record.



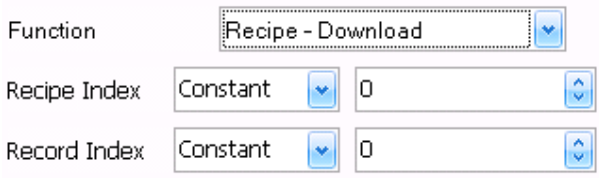
6.25.15. Recipe-Upload

The upload information on the PLC will be transferred to the HMI recipe.



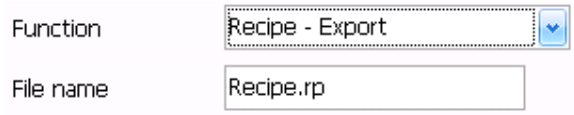
6.25.16. Recipe-Download

The specified recipe record can be transferred to the PLC.



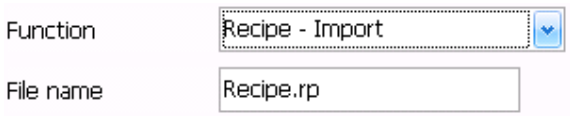
6.25.17. Recipe-Export

The recipe information on the HMI can be exported to the USB Flash memory.



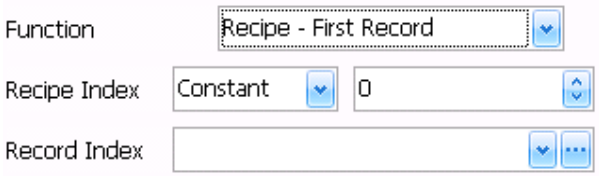
6.25.18. Recipe-Import

The recipe information on the USB memory can be imported to the HMI device. If failed, the definition of source recipe is different from the destination one.



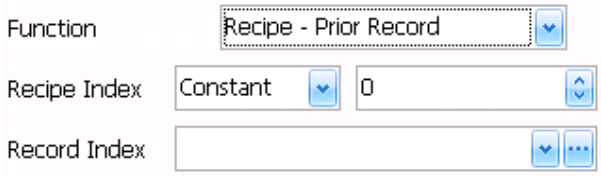
6.25.19. Recipe-First Record

Display the first record whose record index is “0”. It is used for browsing or editing.



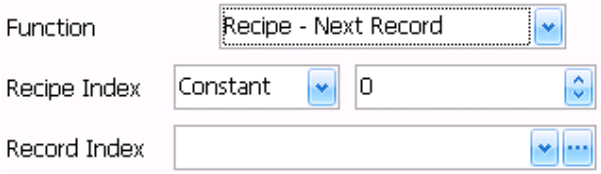
6.25.20. Recipe-Prior Record

Display the prior record whose record index is the value which the current value minus one. It can be set as 0 if it is smaller than 0 or equals 0. It is used for browsing or editing.



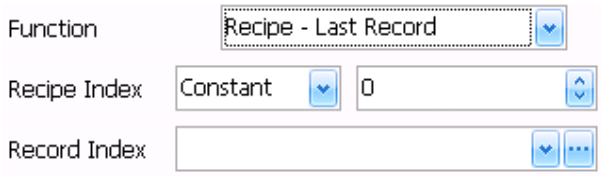
6.25.21. Recipe-Next Record

Display next record whose record index is the value which the current value plus one. It can be set as the maximum, if the record index is larger than last one. It is used for browsing or editing.



6.25.22. Recipe-Last Record

Display the last record whose record index is the maximum one. It is used for browsing or editing.

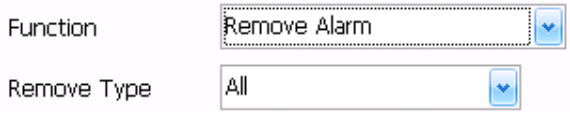


6.25.23. Export Alarm

Export the annals and the current alarm data to USB Flash memory.

6.25.24. Remove Alarm

Remove the annals and the current alarm data.



6.25.25. Export Sampling

Export sampling data to USB Flash memory.

6.26. Recipe Numeric

Recipe numeric is used for displaying the values of all elements and for inputting the values. The refreshed recipe will be saved; even the HMI's power is interrupted.

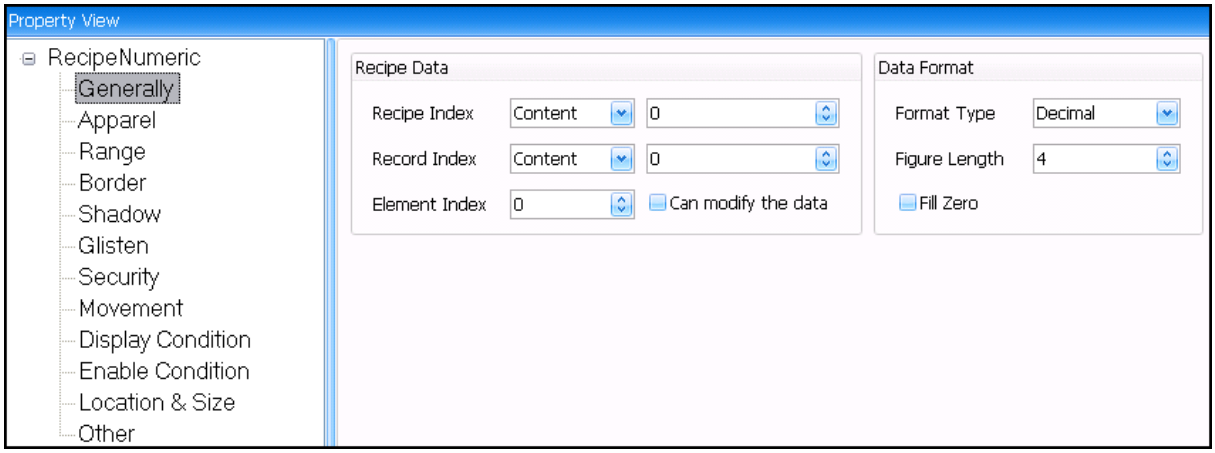


Figure 6.26.1

Generally		
Property		Recipe Data
Recipe Data	Recipe index	The number can be designated a constant or variable and used for joining the recipe index. If the designated index is invalid, the part is displayed blank space.
	Record index	The number can be designated a constant and variable and used for joining the record index. If the designated index is invalid, the part is displayed blank space.
	Element index	The number can be designated constant only and used for joining element index. If the designated index is invalid, the part is displayed blank space.
	Can modify the data	When enabled, the part can be inputted.
Data Format	Format Type	The format type 1. Decimal 2. Sign Decimal：numeric displays with sign(+/-) whatever positive or negative 3. Octal 4. Hexadecimal

	5. BCD Select the longest figure length inclusive of dot length.
Figure Length	The data is displayed '*****',if the actual data length longer than the set one
Fill Zero	When enabled, the remainder will be filled with Zero.

Table 6.26.1

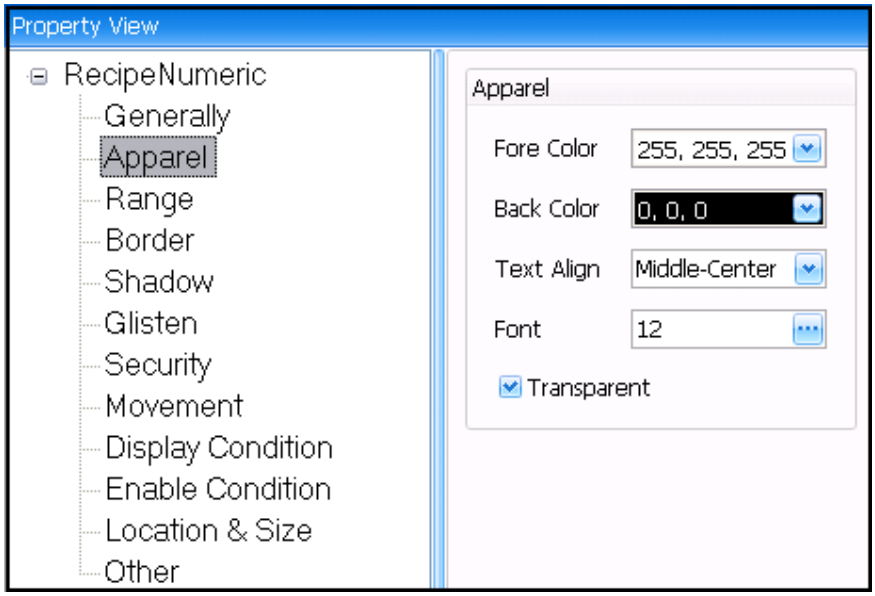


Figure 6.26.2

Apparel	
Property	Illustration
Back color	Select the text background color.
Text Align	Serve 3 by 3 grid as index to set the position of text.
Font	Select the font style and size of character.
Transparent	When enabled, the part's background color becomes transparent.

Table 6.24.2

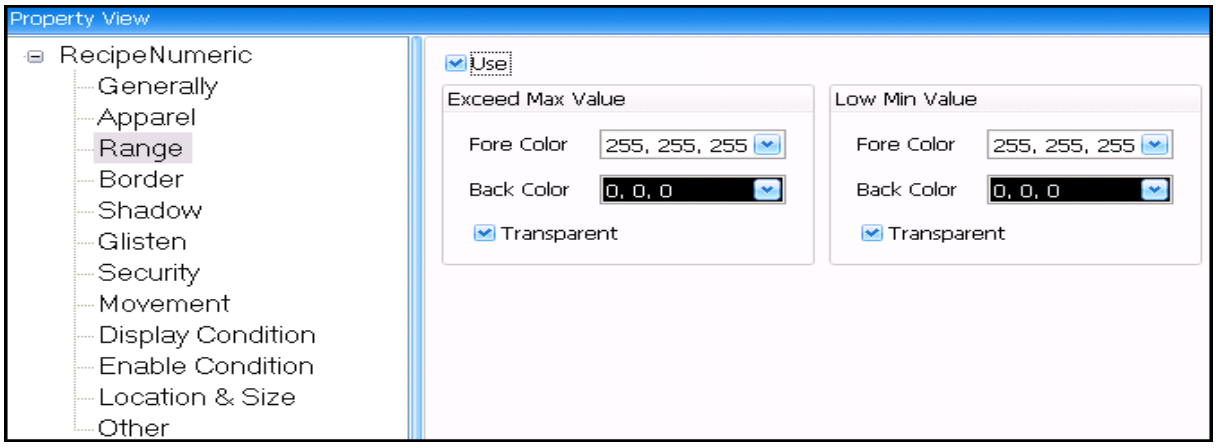


Figure 6.26.3

Range		
Property		Illustration
Use		When this is clicked, the function can be used.
Exceed Max Value	Fore Color	Select the text color.
Low Min Value	Back Color	Select the text background color.
	Transparent	When enabled, the part's background color becomes transparent.

Table 6.26.3

6.27. Display Data

Recipe text is used for displaying recipe list caption, recipe module name, and element caption. When enabled, the recipe text starts inputting function. The refreshed record will be saved; even the HMI's power is interrupted.

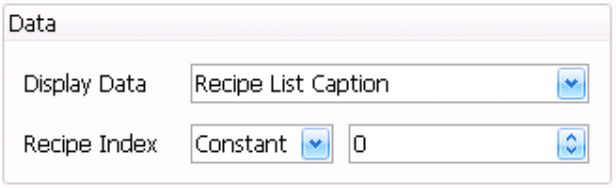


Figure 6.27.1

Generally	
Property	Illustration
Display Data	Select the desired content.
Recipe Index	The number can be designated a constant or variable and used for joining the recipe index. If the designated index is invalid, the part is displayed blank space.

Table 6.27.1

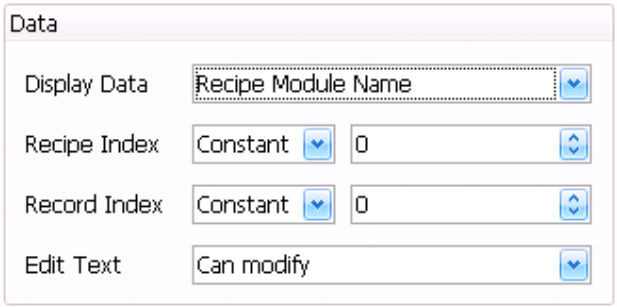


Figure 6.27.2

Generally	
Property	Illustration
Display Data	Select the desired content.
Recipe Index	The number can be designated a constant or variable and used for joining the recipe index. If the designated index is invalid, the part is displayed blank

	space.
Record Index	The number can be designated a constant and variable and used for joining the record index. If the designated index is invalid, the part is displayed blank space.
Edit Text	When this check box checked, the inputting function can be started.

Table 6.27.2

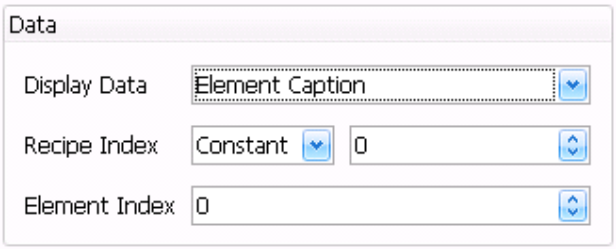


Figure 6.27.3

Generally	
Property	Illustration
Display Data	Select the desired content.
Recipe Index	The number can be designated a constant or variable and used for joining the recipe index. If the designated index is invalid, the part is displayed blank space.
Element index	The number can be designated constant only and used for joining element index. If the designated index is invalid, the part is displayed blank space.

Table 6.27.3

6.28. Record List

Record list is used to choose a record of recipe. When users have chosen the record, the HMI device writes the index of the record into reference variable. If the designated index is invalid, the part is displayed blank space.

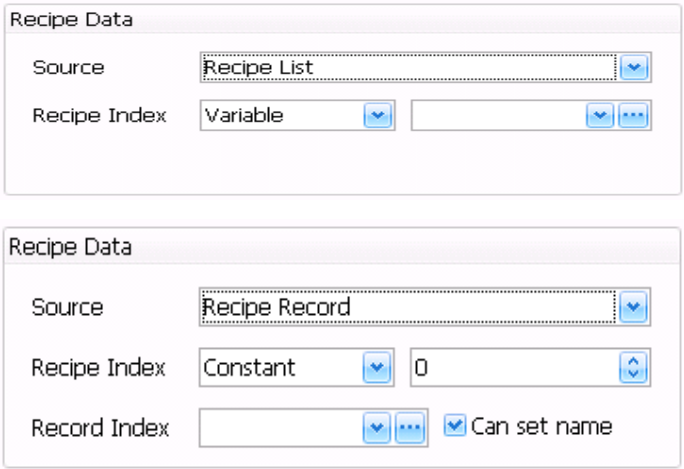


Figure 6.28.1

Generally	
Property	Illustration
Source	Specify the source of the displaying content such as recipe or recipe record.
Recipe Index	The number can be designated a constant or variable and used for joining the recipe index. If the designated index is invalid, the part is displayed blank space.
Record Index	The number can be designated a constant and variable and used for joining the record index. If the designated index is invalid, the part is displayed blank space.
Can set name	When this check box checked, the record name can be modified where press on the part's text area on the HMI screen.

Table 6.28.1

6.29. Recipe List

Recipe list is used to select the recipe. When users select the recipe, the HMI writes the number of recipe into reference variable. If the designated index is invalid, the part is displayed blank space.

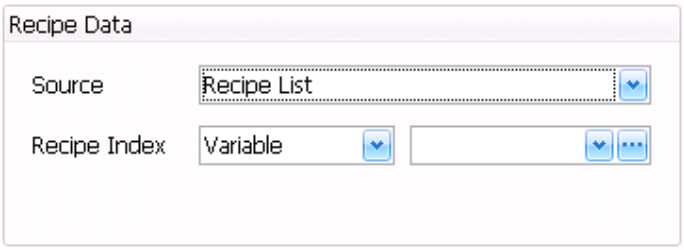


Figure 6.29.1

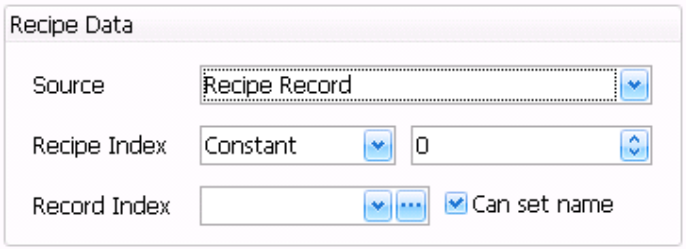


Figure 6.29.2

Generally	
Property	Illustration
Source	Specify the source of the displaying content such as recipe or recipe record.
Recipe Index	The number can be designated a constant or variable and used for joining the recipe index. If the designated index is invalid, the part is displayed blank space.

Record Index	The number can be designated a constant and variable and used for joining the record index. If the designated index is invalid, the part is displayed blank space.
Can set name	When this check box checked, the recipe record name can be modified.

Table 6.29.1

6.30. Record View

Record view is used to display all recipe elements in tabular form. The required data are showed automatically by designated recipe table number and record index. In addition, you can change the value of recipe directly by clicking on that element, if desired.

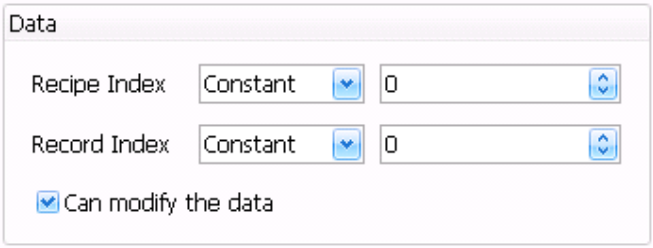


Figure 6.30.1

Generally

Property	Illustration
Recipe Index	The number can be designated a constant or variable and used for joining the recipe index. If the designated index is invalid, the part is displayed blank space.
Record Index	The number can be designated a constant and variable and used for joining the record index. If the designated index is invalid, the part is displayed blank space.
Can modify the data	When this check box checked, the data can be modified.

Table 6.30.1

6.31. Recipe View

Recipe view is used to display all records and elements in tabular form. The recipe data record is showed by choosing a valid number of the recipe designated by the recipe index. Click on the record data from the HMI screen, the HMI device writes the record index to the reference variable. This part is only for viewing.

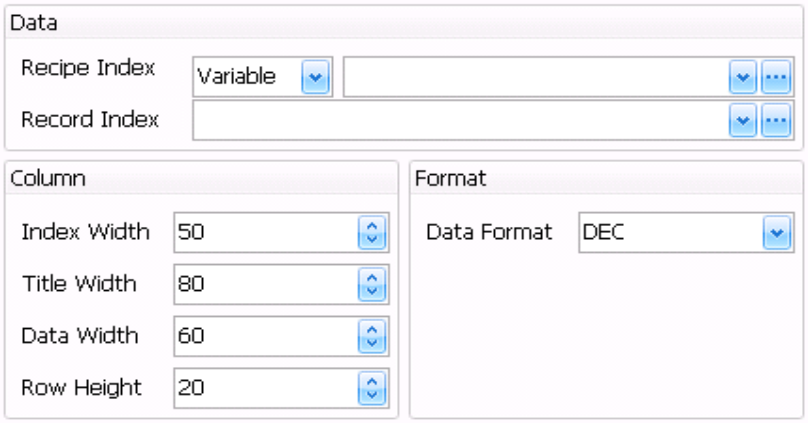


Figure 6.31.1

Generally	
Property	Illustration
Recipe Index	The number can be designated a constant or variable and used for joining the recipe index. If the designated index is invalid, the part is displayed blank space.
Record Index	The number can be designated a constant and variable and used for joining the record index. If the designated index is invalid, the part is displayed blank space.
Index Width	Set the index width of the index.
Title Width	Set the title width of the record.
Data Width	Set the data width of the element.
Row Width	Set the row height. The row height within the height of used font will not be changed.
Data Format	Set the displaying data format.

Table 6.31.1

6.32. Alarm View

Display alarm records.

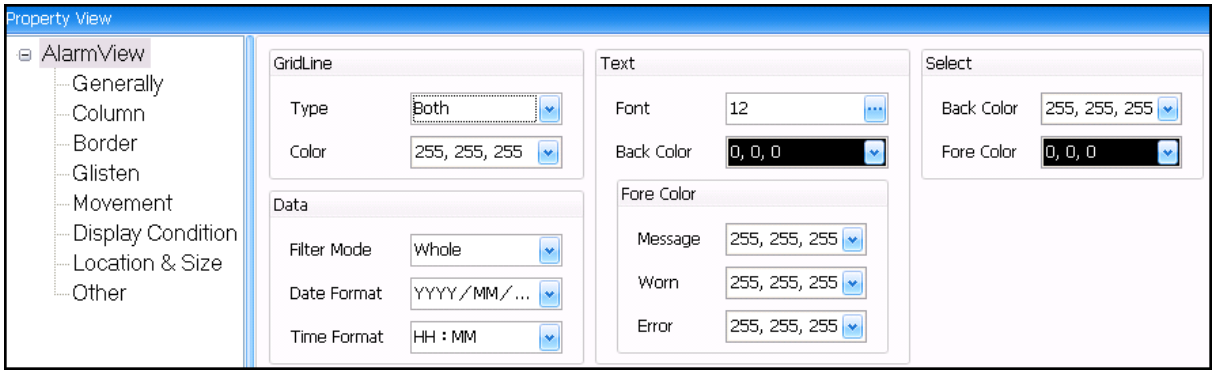


Figure 6.32.1

Generally		
Property		Illustration
Gridline	Type	Designate the gridline's type.
	Color	Select the gridline's color.
Data	Filter Mode	Select the filter mode of alarm display. 1、Whole 2、Show Today 3、Show Touch off
	Data Format	Select the desired data format 1. yyyy／mm／dd 2. dd／mm／yyyy 3. mm／dd／yyyy
	Time Format	Select the desired data format 1. HH：MM 2. HH：MM：SS
Text	Font	Specify the character size and select the font style of text
	Back Color	Select the background color of text
Fore Color	Message	Select the color of message.
	Warn	Select the color of warn.
	Error	Select the color of error.
Select	Back Color	Select the back color of box.
	Fore Color	Select the color of text.

Table 6.32.1

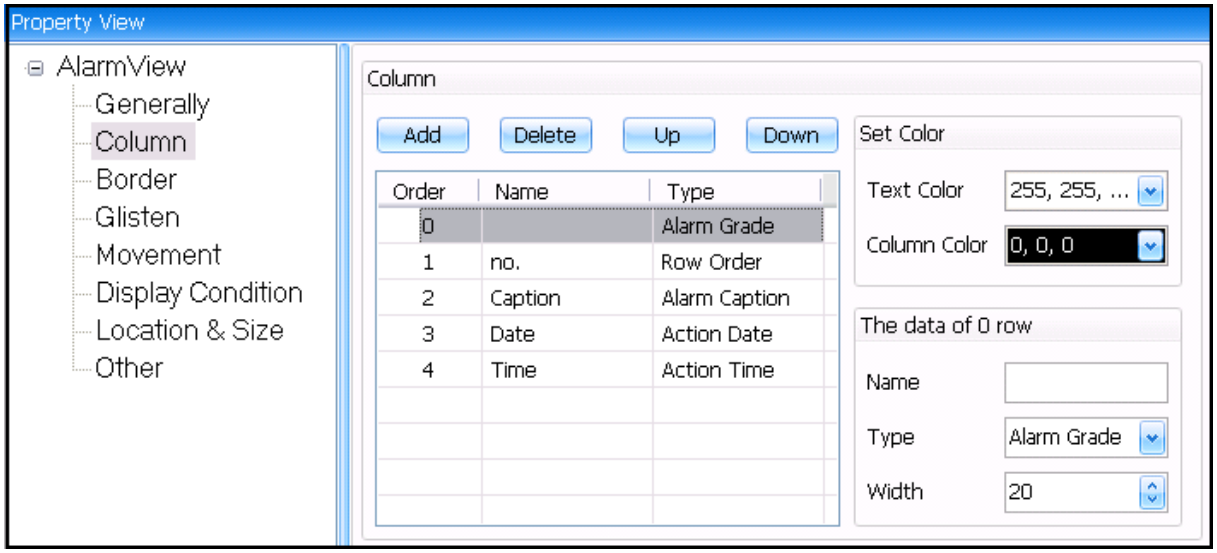


Figure 6.32.2

Column		
Property		Illustration
Add		Add column. Up to 7 columns can be used.
Delete		Delete column.
Up		Move up the column to arrange the order.
Down		Move down the column to arrange the order.
Set Color	Text Color	Select the text color in the column.
	Column Color	Select the back color of column.
The Data of Row	Name	Specify the name.
	Type	Select the type of editing.
	Width	Set the width of column.

Table 6.32.2

Alarm type	
Type	Illustration
Row order	Display numbers of alarm order.
Alarm grade	Alarm grade is graded by icons:  message：Display the alarm message.  warn：Display the alarm warn.  error：Display the instruction of error.
Alarm caption	The alarm caption in display.
Restore data	The restore data of alarm.
Restore time	The restore time of alarm.
Action data	The action data of alarm.
Action time	The action time of alarm.

Table 6.32.3

6.33. Real-Time／History Trend Chart

The real time trend chart accesses the data regularly from PLC, and shows the data with immediateness in trend chart. The history trend chart accesses the data regularly from PLC. The sustained data sampling is turned to continuous curve in history trend chart on the HMI screen.

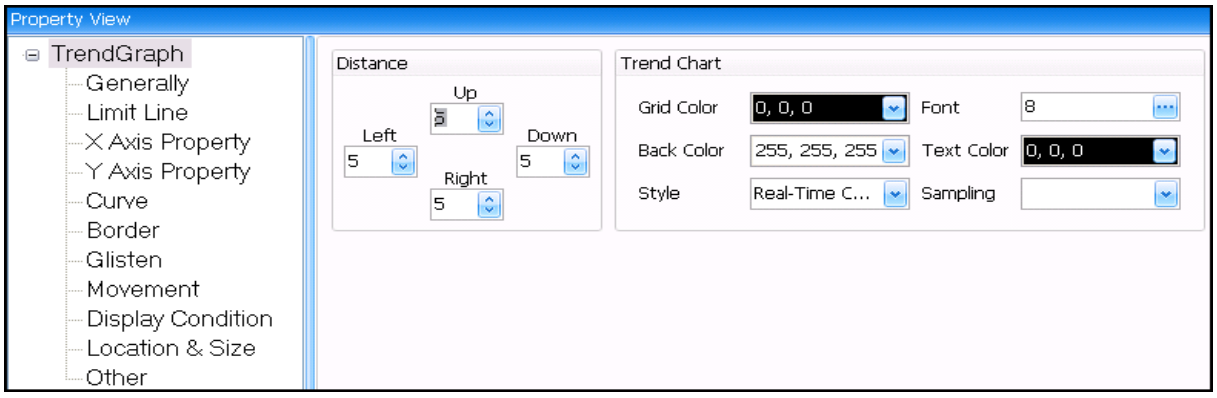


Figure 6.33.1

Generally		
Property		Illustration
Distance	Up down right left	Set the distance of boundary.
	Grid Color	Select the color of box.
	Back Color	Select the back color of trend graph.
	Style	Specify the type of trend graph.
Trend Chart		1、Real-Time trend chart. 2、History trend chart.
	Font	Specify the character size and select the font style of text
	Text Color	Select the color of text
	Sampling	Specify the source of sampling.

Table 6.33.1

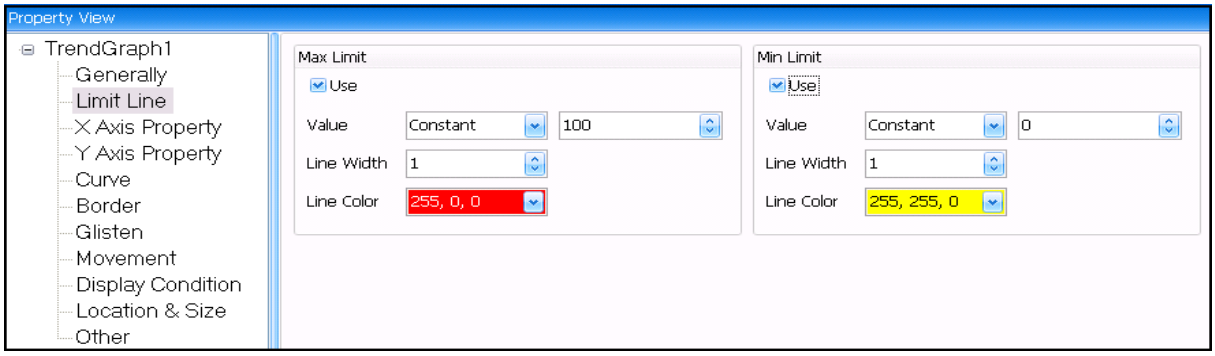


Figure 6.33.2

Limit		
Property		Illustration
	Use	When enabled, you can set the limit range.
Max Limit	Value	Variable or constant can be designated.
Min Limit	Line Width	Select the line width（1~5）
	Line Color	Select the line color.

Table 6.33.2

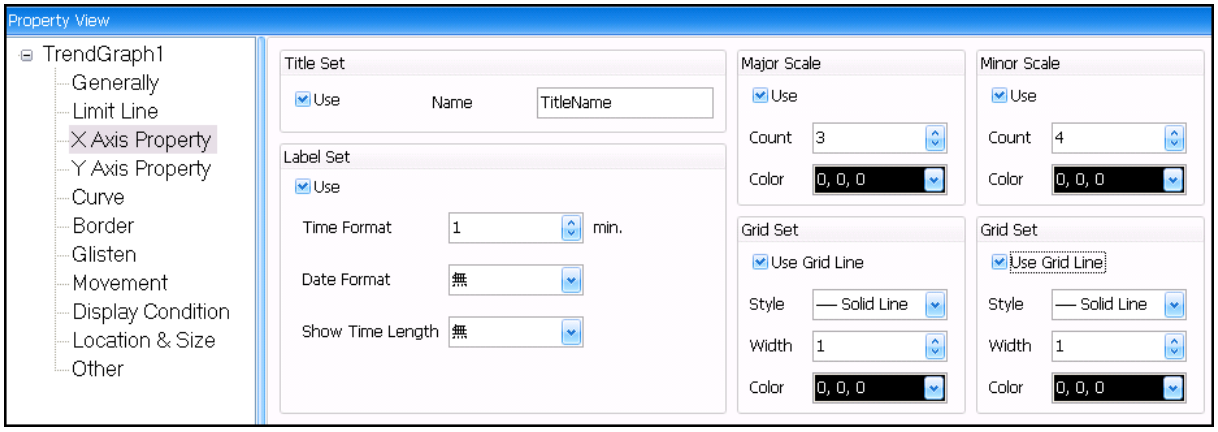


Figure 6.33.3

X Axis Property		
Property		Illustration
Title Set	Name	Specify the title name.
Label Set	Show Time Length	Set the time length in display on X axis.
	Data Format	Select the desired data format 1. yyyy／mm／dd 2. dd／mm／yyyy 3. mm／dd／yyyy
	Time Format	Select the desired data format 1. HH：MM 2. HH：MM：SS
Major Scale	Count	Set the count of major scale in display on X axis.
	Color	Set the color of major scale on X axis.
Minor Scale	Count	Set the count of minor scale in display on X axis.
	Color	Set the color of minor scale on X axis.
Grid Set	Use Grid Line	When this is clicked, displays the grid line.
	Style	Grid style 1、Solid line 2、Dash line
	Width	Select the width of grid line（1~5）
	Color	Select the color of grid line.

Table 6.33.3

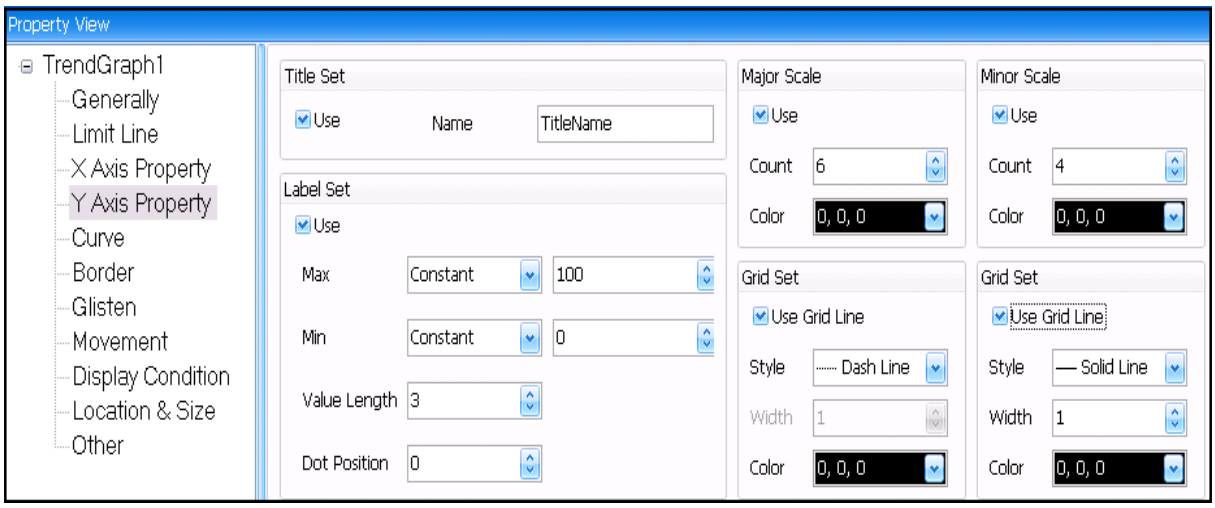


Figure 6.33.4

Y Axis Property		
Property		Illustration
Title Set	Name	Specify the title name.
Label Set	Max	Set the maximum.
	Min	Set the minimum.
	Value Length	Set the data length inclusive of decimal.
	Dot Position	Set the dot position.
Major Scale	Count	Set the count of major scale in display on X axis.
	Color	Set the color of major scale on X axis.
Minor Scale	Count	Set the count of minor scale in display on X axis.
	Color	Set the color of minor scale on X axis.
Grid Set	Use Grid Line	When this is clicked, displays the grid line.
	Style	Grid style 1、Solid line 2、Dash line
	Width	Select the width of grid line（1~5）
	Color	Select the color of grid line.

Table 6.33.4

Figure 6.33.5

Curve		
Property		Illustration
Add		Add curves. Up to 8 curves is available.
Delete		Delete curves.
Index		The index of sampling.（0～N-1）。
	Chart Style	Set the chart style 1、Curve Line 2、Sawtooth Line 3、Bar Chart
Line Set	Style	Grid style 1、Solid line 2、Dash line
	Width	Select the width of line（1~5）
	Color	Select the color of line.
Point Set	Style	Designate the style of dot. Up to 14 styles can be used.
	Width	The width of dot（1~20）
	Height	The height of dot（1~20）
	Color	Select the color of dot.

Table 6.33.5

6.34. Data Sampling View

The value data of sampling is showed in tabular form.

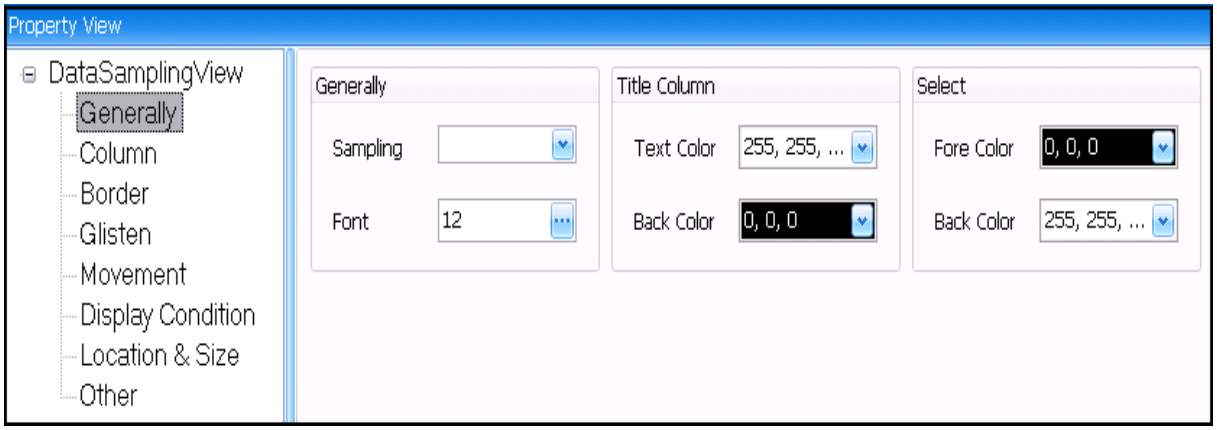


Figure 6.34.1

Generally		
Property		Illustration
Generally	Generally	Specify the source of sampling.
	Font	Specify the character size and select the font style of text
Title Column	Text Color	Select the color of title text.
	Back Color	Select the back color of title text.
Select	Fore Color	Designate the color of selected text.
	Back Color	Designate the back color of selected box.

Table 6.34.1

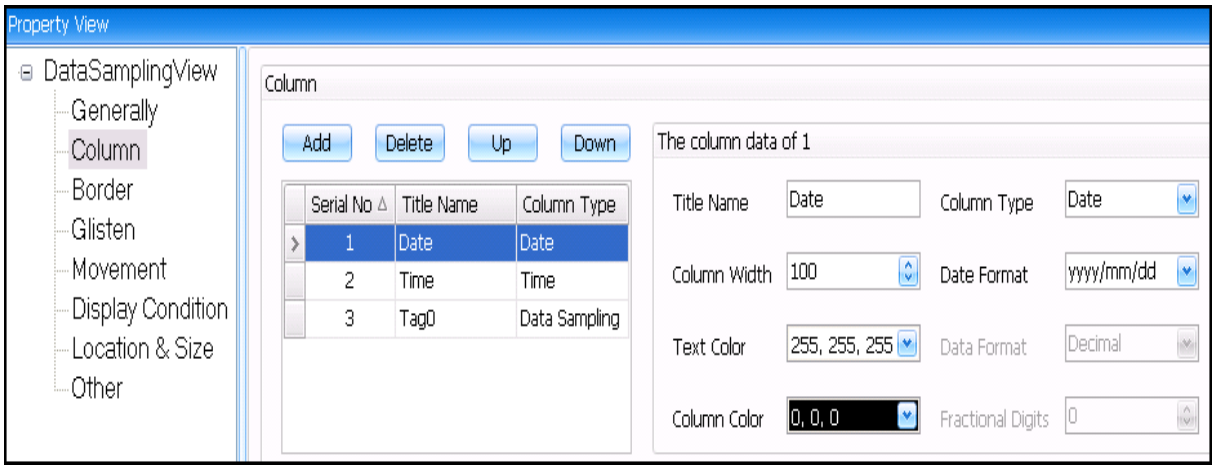


Figure 6.34.2

Generally	
Property	Illustration
Add	Add a column.
Delete	Delete a column.
Up	Move up to change the order.
Down	Move down to change the order.

Serial No.	The order number.
Title Name	Designate the title name.
Column Width	Select the content of column. 1、Date 2、Time 3、Data sampling：The tag of sampling.

Table 6.34.2

Chapter 7 Multi-language

7.1. Outline

This software could support multi-language. It is a trend of software design allowed you to easily switch the language and information displayed on the screen during operation. There are many used languages in one country, so you can easily switch the display language on the HMI screen. It is not merely accord with the demand on the market but also design conveniently the project for users.

7.2. Edit the project language

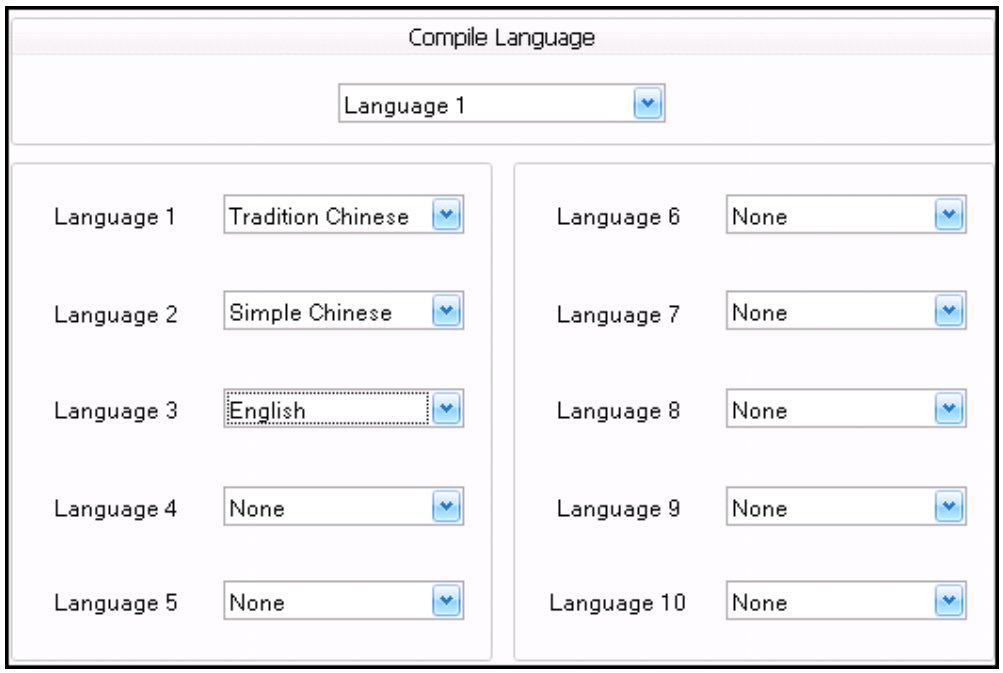


Figure 7.2.1

- Compile language：The editing language.
- Language 1 ~ Language 10：Set language. When None is set, the language will be not downloaded to the HMI device.

7.3. An example of editing Multilanguage

This example describes the way how to set up Multilanguage. The diagrams below describe the steps for switching the display language.

Set language：

Language 1：English

Language 2：Tradition Chinese

Language 3：Simple Chinese

(1) Language 1 have been set as follow (Figure 7.3.1)

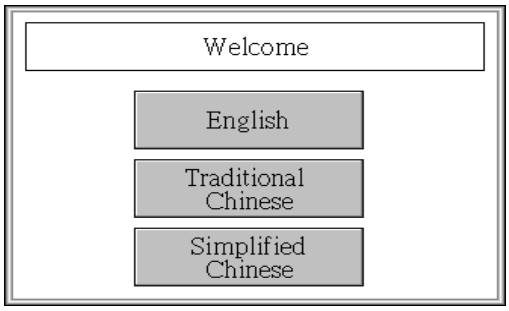


Figure 7.3.1

(2) Switch the editing language, English, language 1, to language 2, simple Chinese, via compile language in project view (Figure 7.2.1) or via language bar, full down menu (Figure 7.3.2). After switched, the display language will be changed.

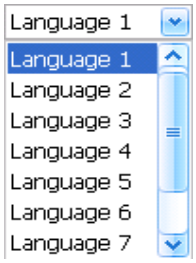


Figure 7.3.2

(3) The text is switched. The interface is showed follow (Figure 7.3.3)

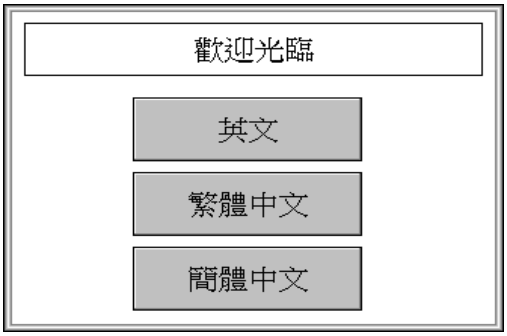


Figure 7.3.3

(4) Repeat the step 2, language 2, tradition Chinese, will be switched to language 3, simple Chinese. The interface is showed follow (Figure 7.3.4)

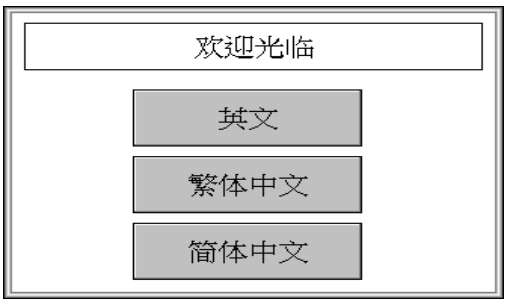


Figure 7.3.4

7.4. How to switch language on the HMI device

Switch language via the function key. Reference Chapter 6 function key. This switched language on screen will be stored on the HMI device. The display language will be the switched language when rebooting.

If the desired language is not mentioned above. You could choose English in Compile Language, and edit the text in the desired language. Therefore, the display language will be the desired language. But the built-in language in the HMI device doesn't support the font. Thus, it will be not showed properly.

Chapter 8 Recipe

8.1. Outline

Recipes are a collection of data that belongs together, e.g. machine parameter settings or production data. Users select the required recipe data and display it on the HMI device. It transfers the machine parameter settings or production data to the PLC depending on recipe data. You can also start the transfer from the HMI device. The recipe data is saved in the internal memory of the HMI device, even rebooting.

The structure of recipe falls into：

- Element

  The machine parameter settings or production data is called Element. Each element corresponds to a tag supported by BIT, BYTE, CHAR, WORD, INT, DWORD, LONG, FLOAT. Up to 512 elements can be used in a recipe.

- Record

  A record consists of several different elements. Up to 32768 records can be set up.

An example of cutting paper of various sizes. Its machine parameter is length and width. The structure of recipe is showed below.

Record

Production	Width	Length
A3	29.7	42
A4	21	29.7
A5	14.8	21
B4	25.7	36.4
B5	18.2	25.7

Element

Table 8.1.1

8.2. Recipe

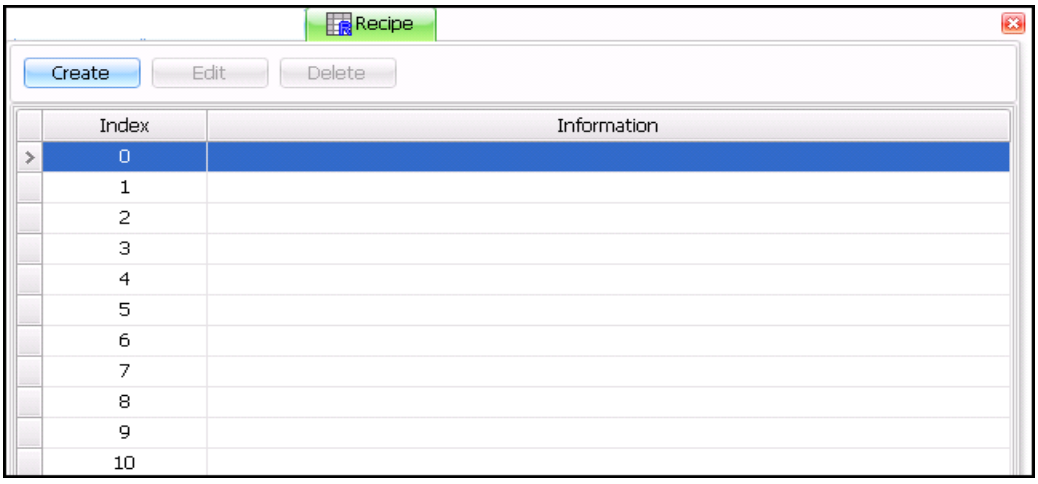


Figure 8.2.1

Item	Illustration
Create	Set up the recipe. Up to 20 recipes can be established.
Edit	Edit the recipe.
Delete	Delete the recipe.

Table 8.2.1

8.3. Recipe Editor

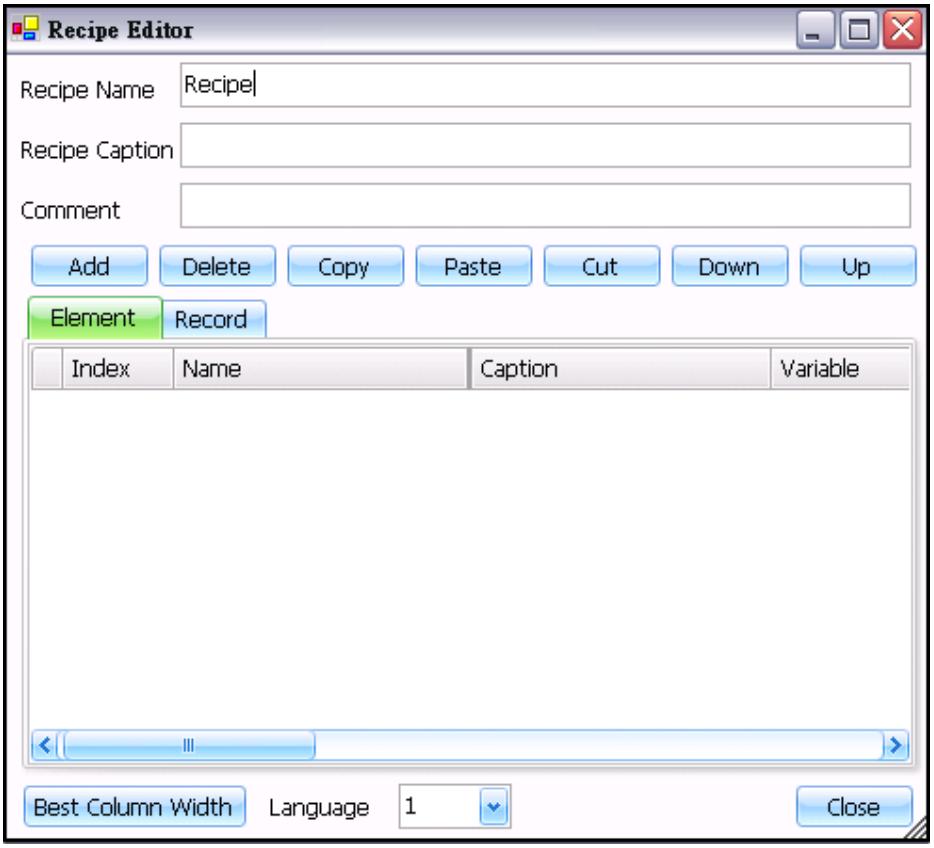


Figure 8.3.1

Item	Illustration
Recipe Name	Identify the recipe name.
Recipe Caption	The text appears on the HMI device. You can configure display text in multiple languages.
Comment	You can enter a comment about the recipe data record.
Add	Add new element or recipe data record.
Delete	Delete new element or recipe data record.
Copy	Copy element or recipe data record to clipboard.
Paste	Paste element or recipe data record from clipboard.
Cut	Cut the selected element and recipe data record to clipboard and then delete them.

Up	Move the element or recipe data record up to arrange the order.
Down	Move the element or recipe data record down to arrange the order.
Close	Close the recipe editor window.
Best column width	Adjust the column width to the best size automatically.
Element	Switch to the element page.
Record	Switch to the record data page.
Language	Switch the current language.
Recipe elements	
Item	Illustration
Index	The element number identifies the element uniquely.
Name	The element name identifies a recipe entry uniquely.
Caption	You can configure display text in multiple languages.
Variable	Read/write variable supported by BIT, BYTE, CHAR, WORD, INT, DWORD, LONG, FLOAT.
Fractional	The number defines exactly how many decimal places will be displayed. The inputted number 1.23 is saved as 12300, when the variable isn't supported by FLOAT and the fractional number is not 4.
Default	The default value is used as the default entry when you create anew recipe data record.
Use range	The entered value from the HMI device is controlled in the use range.
Minimum	The minimum entered.
Maximum	The maximum entered.
Recipe data records	
Item	Illustration
Name	The recipe data record name identifies the data record uniquely within a recipe. It also displays on the HMI's screen and cannot be used in multiple languages.
Element	The element information are showed, if they are established in the element page. The element value can be entered here.

Table 8.3.1

8.4. An example of recipe setting

(1) Take an example of cutting paper mentioned 8.1. Set recipe from number 0.

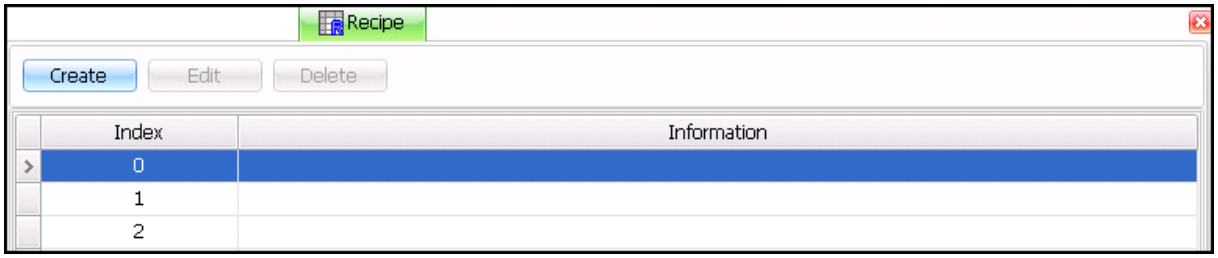


Figure 8.4.1

(2) The element setting as figure 8.4.2 below.

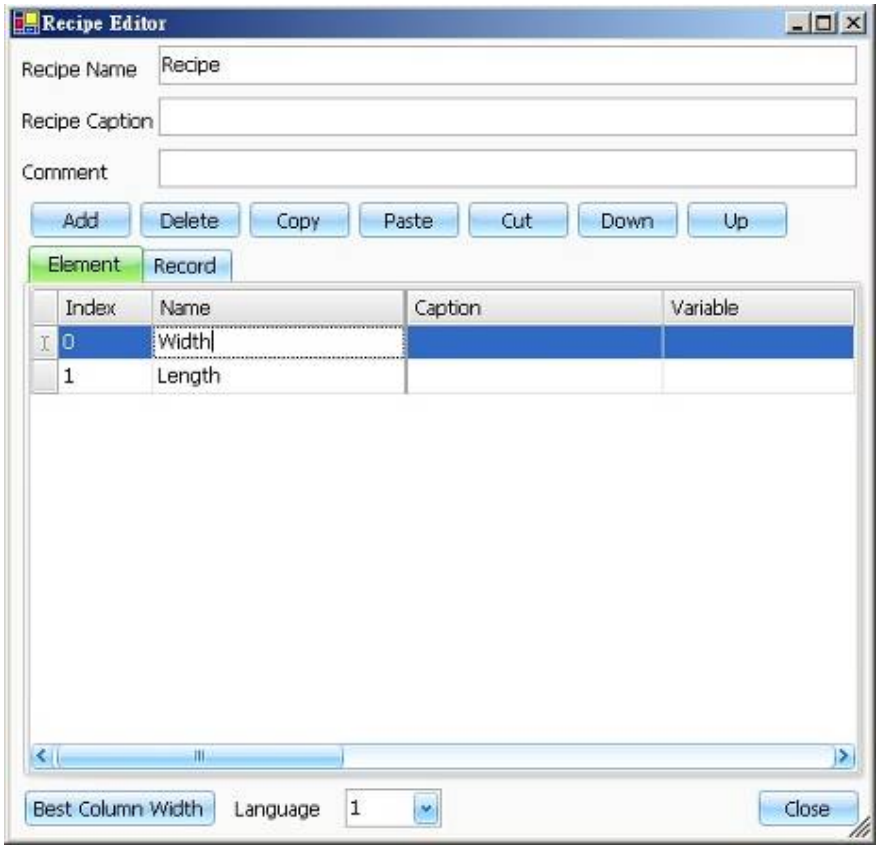


Figure 8.4.2

Click on the [Add] to set two elements, the respective setting is：

Name	Caption	Variable	Fractional	Default
Width	Width	WidthVar	2	0
Length	Length	LengthVar	2	0

Variable setting

Name	Connect	Type	Address	Length
WidthVar	Internal_HMI	WORD	@R0	1
LengthVar	Internal_HMI	WORD	@R2	1

When you switch language, the caption is showed its language. For example, you can write Width, Length in caption column when language 2 is English.

(3) Input the 5 record data information as figure 8.4.3 below. Click on the [Close] after finished.

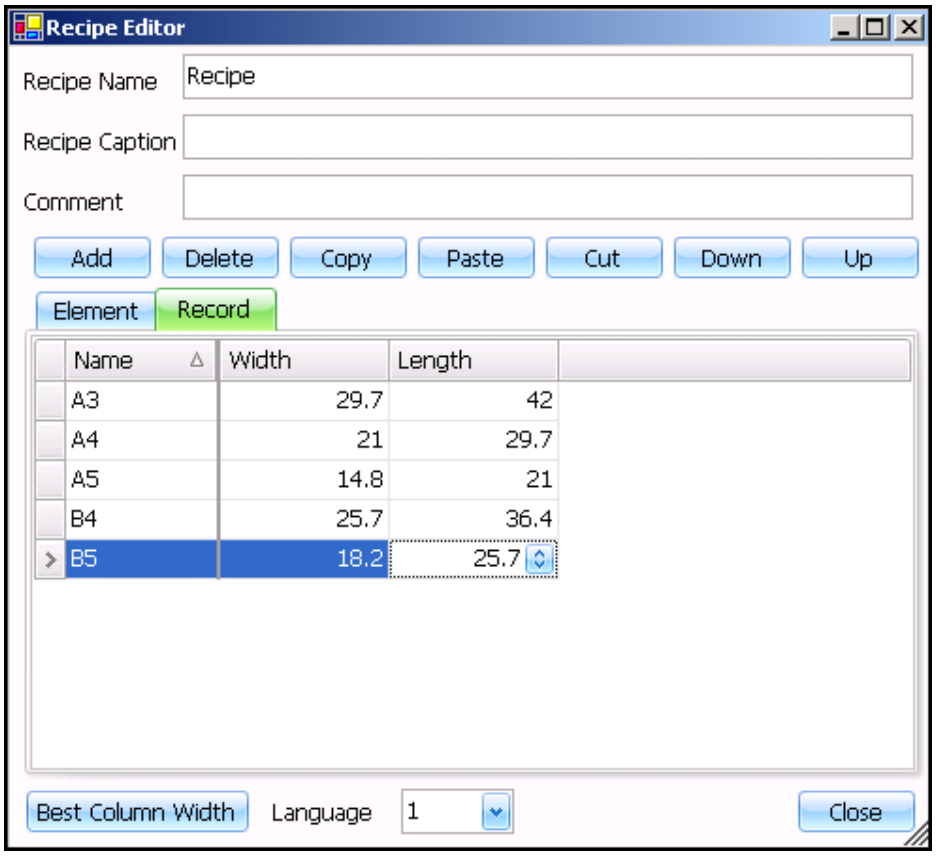


Figure 8.4.3

(4) Recipe is finished, when the recipe is showed as figure 8.4.4 below.

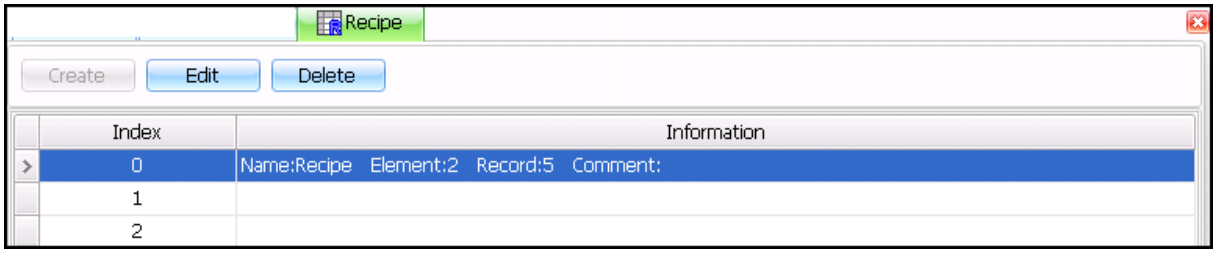


Figure 8.4.4

Name: Recipe Name

Element: the quantity of element

Record: the quantity of data record

Comment: recipe description

Chapter 9 Alarm

9.1. Outline

When the machine works inadequately such as the temperature too high or too low, the HMI device will show the error message. The error message is called Alarm. When the alarm occurs, the HMI device receives message and then transfer it as text, pattern, or record to remind operators to obviate the errors.

Features：

- Up to 1000 records can be saved.
- The alarm data is non-volatile memory, and thus the data will not appear even rebooting.
- The alarm falls into digit alarm and analog alarm.
- The unit for the Scan Time is second.
- Up to 4096 records can be used in digit alarm and analog alarm.
- Scrolling banner and switching message are the ways to notify the triggering alarm.
- The screen changes to the alarm's screen automatically after the alarm occurred.
- The alarm records can be exported via the USB derive and are saved to a CSV file.

9.2. Digit Alarm

Digit alarm monitors the status of connection in an I/O field.

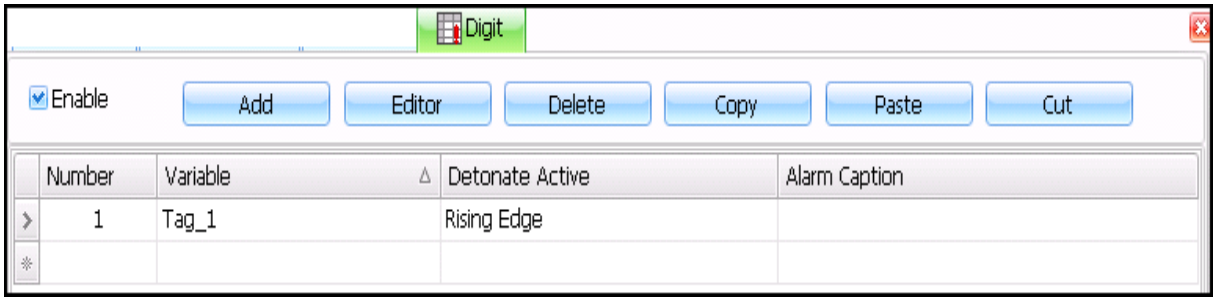


Figure 9.2.1

Item	Illustration
Enable	When enable, digit alarm can be used.
Add	Create a new alarm data.
Editor	Modify the selected alarm data.
Delete	Delete the selected alarm data.
Copy	Copy data.
Paste	Paste data.
Cut	Cut data.

Table 9.2.1

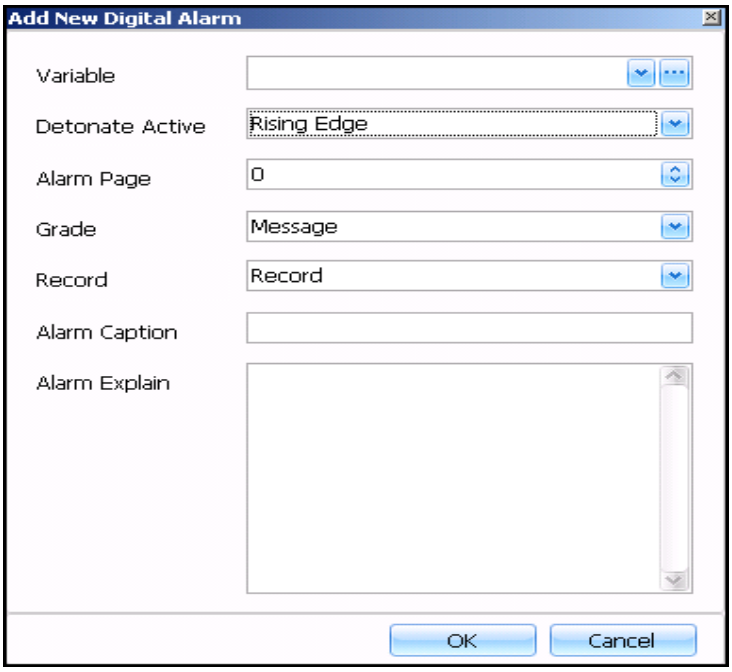


Figure 9.2.2

Property	Illustration
Variable	Specify the monitor tag.
Detonate Active	The state of triggering alarm： No action：No detonating. Rising edge：Detonate the alarm when variable turns to 1 from 0. Falling edge：Detonate the alarm when variable turns to 0 from 1. Rising and failing edges：Detonate the alarm when either rising or falling edge occurs. High Level (on)：Detonate the alarm when the variable is one. Low Level (off)：Detonate the alarm when the variable is zero.
Alarm Page	As the alarm is detonated, the designated screen is showed. The screen doesn't change if 0 is selected.
Grade	The alarm message level can be used for three grades. Use this feature to assign lower levels to less important message and higher levels to more important messages.
Record	Specify whether or not the alarm messages are saved into the alarm history.
Alarm Caption	Enter the alarm caption.
Alarm Explain	Enter more descriptions about the alarm. Double-click the alarm data, and then the alarm explain's window will appear when you view the object.

Table 9.2.2

9.3. Analog Alarm

Analog alarm monitors the value of the PLC register. The alarm is detonated when the value is too high or too low.

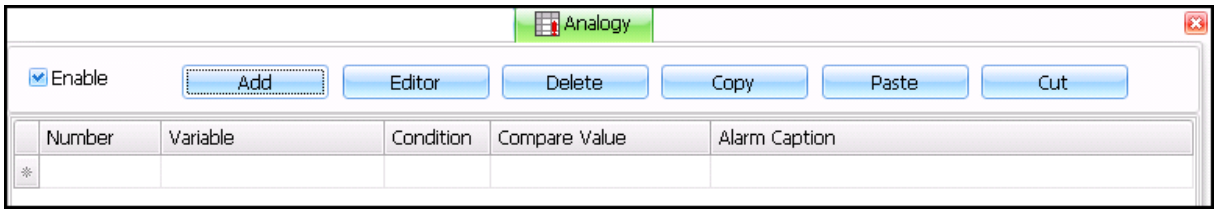


Figure 9.3.1

Item	Illustration
Enable	When enable, analog alarm can be used.
Add	Create a new alarm data.
Editor	Modify the selected alarm data.
Delete	Delete the selected alarm data.
Copy	Copy data.
Paste	Paste data.
Cut	Cut data.

Table 9.3.1

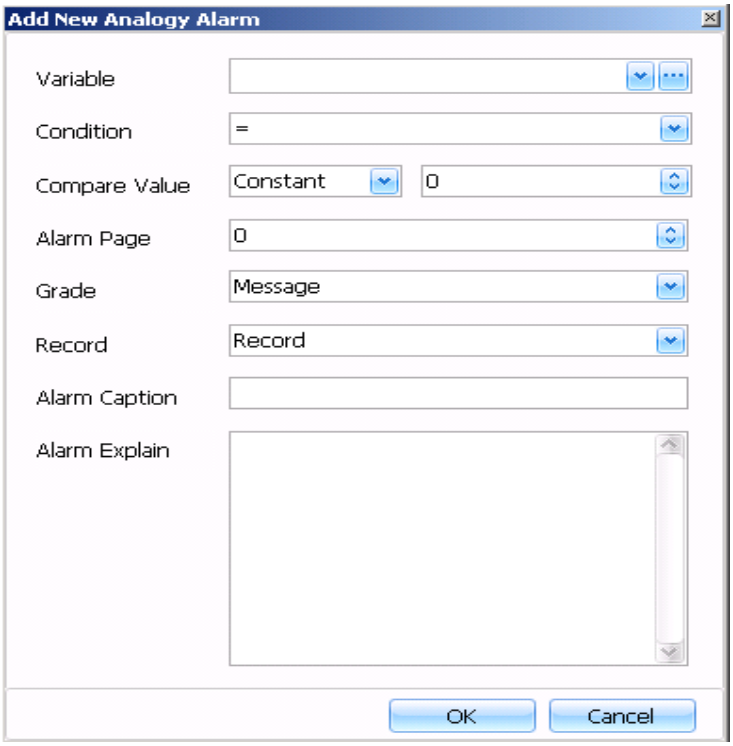


Figure 9.3.2

Property	Illustration
Variable	Specify the monitor tag.

Condition	Condition ： ＝：Detonate the alarm when the value equals the compare value. ＞：Detonate the alarm when the value is greater than the compare one. ＞＝：Detonate the alarm when the value is greater than or equal to the compare one. ＜：Detonate the alarm when the value is smaller than the compare one. ＜＝：Detonate the alarm when the value is smaller than and is equal to the compare one.
Compare Value	Select the constant or variable as the compare value.
Alarm Page	As the alarm is detonated, the designated screen is showed. The screen doesn't change if 0 is selected.
Grade	The alarm message level can be used for three grades. Use this feature to assign lower levels to less important message and higher levels to more important messages.
Record	Specify whether or not the alarm messages are saved into the alarm history.
Alarm Caption	Enter the alarm caption.
Alarm Explain	Enter more descriptions about the alarm. Double-click the alarm data, and then the alarm explain's window will appear when you view the object.

Table 9.3.2

9.4. Alarm Message

When the alarm is detonating, the alarm caption will show on the HMI screen. The message will disappear automatically, as the alarm obviated.

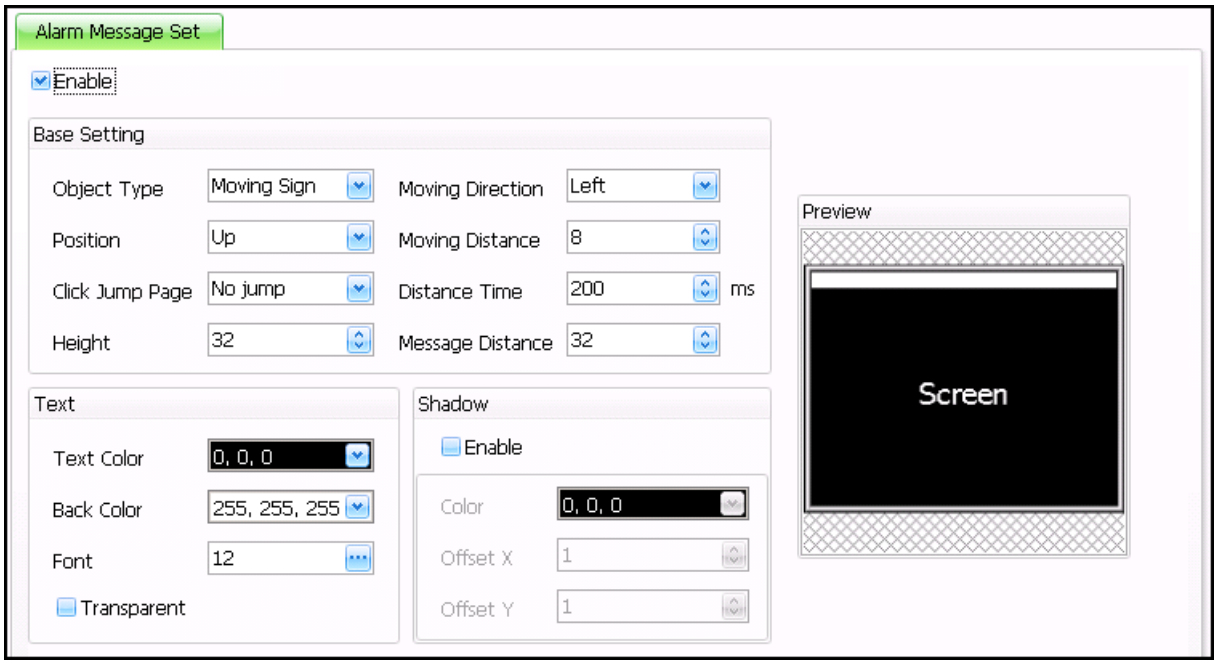


Figure 9.4.1

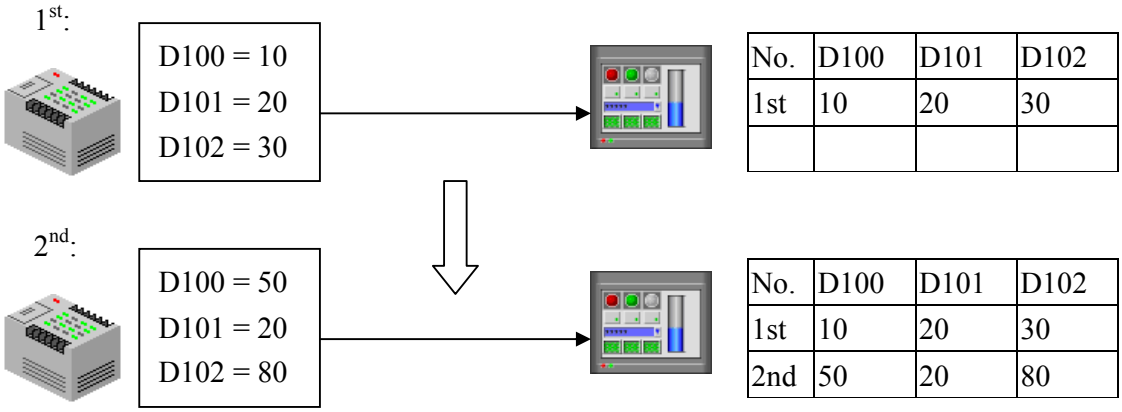
Item		Illustration
Enable		The alarm message is used when the check is checked..
Base Setting	Object Type	Display type of message： Static：Display alarm caption in form of line. Moving sign：Display alarm caption in form of scrolling banner.
	Position	Display position：At the top or bottom of the screen.
	Click Jump Page	As the alarm is detonated, the designated screen is showed. The screen doesn't change if 0 is selected.
	Height	Specify the height of display area.
	Moving Direction	Select the moving direction. (the option of moving sign)
	Moving Distance	Specify the distance of moving.(the option of moving sign)
	Distance Time	Specify an interval time between each moving. The unit is millisecond.(the option of moving sign)
	Message Distance	Specify an interval distance between two scrolling banner, when the moving sign is used.(the option of moving sign)
	Text Align	Serve 3 by 3 grid as index to set the position of text. (the option of static)
	Switch Time	Specify the switch time for alarm message.(the option of static)
Text	Text Color	Select the color of text
	Back Color	Select the background color of text
	Font	Specify the character size and select the font style of text
	Transparent	When enabled, the background color becomes transparent.

Table 9.4.1

Chapter 10 Data Sampling

10.1. Outline

Data sampling is which the HMI device reads parameter in the PLC and saves it into the internal memory via the trigger bit or with a desired time cycle.



No.	D100	D101	D102
1st	10	20	30

No.	D100	D101	D102
1st	10	20	30
2nd	50	20	80

Features：

- Use the trend graph to display the data in the form of curve.
- Use data sampling to view the object and then display value data in tabular form.
- Access data via the trigger bit or with a desired time cycle.
- Export the data to USB driver and save it as a CSV file via function key.
- Data sampling accommodates a maximum of 512 bytes which is volatile memory.

10.2. Data Sampling Edit

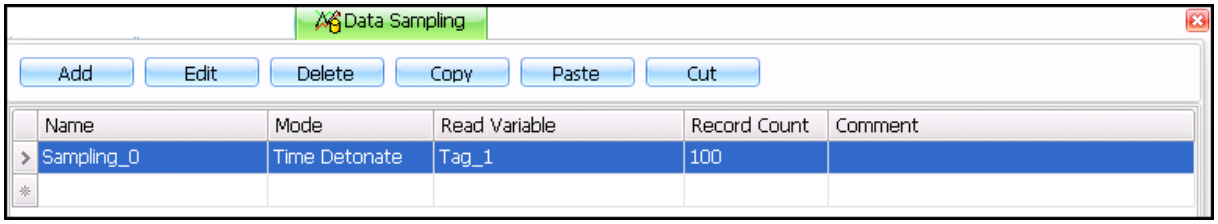


Figure 10.2.1

Item	Illustration
Add	Additional data sampling settings.
Edit	Changes the data sampling setting attributes.
Delete	Delete the data sampling settings.
Copy	Used to copy the sampling data.
Paste	Used to insert the data sampling temporarily stored on the clipboard into the desired place.
Cut	Used to delete the sampling data and store it on the clipboard.

Table 10.2.1

10.3. Sampling Property Form

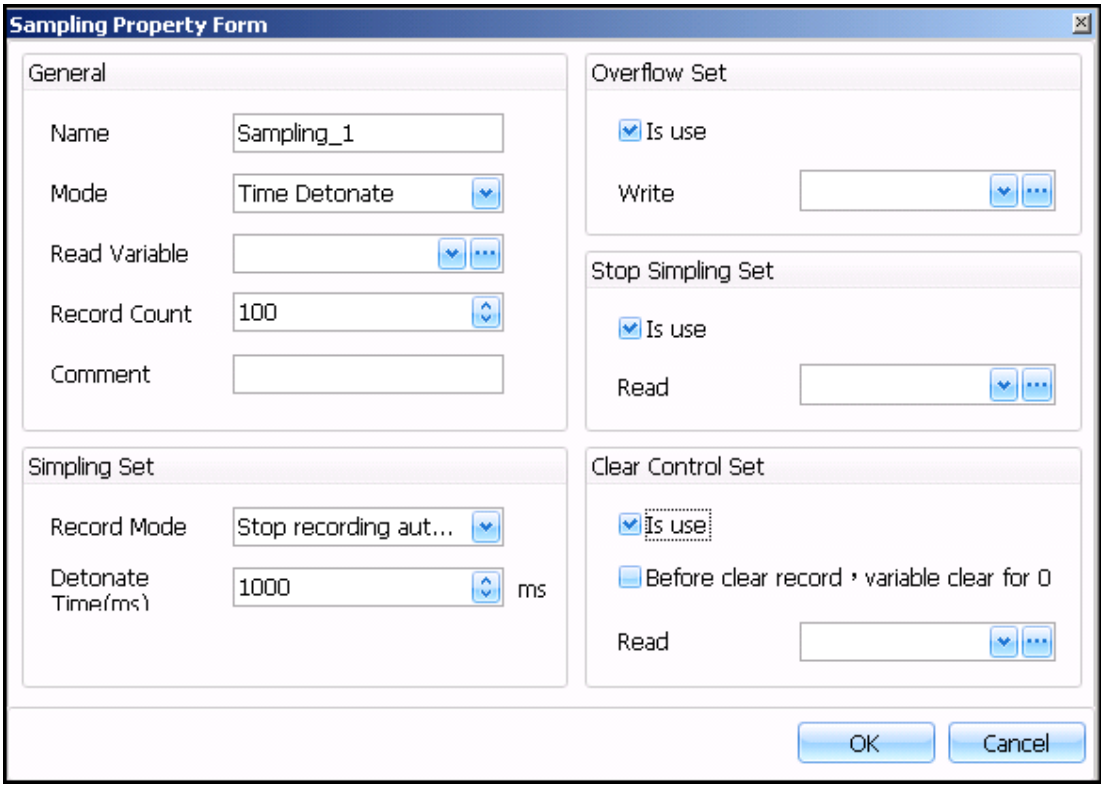


Figure 10.3.1

Property		Illustration
General	Name	Enter a data sampling name.
	Mode	Time Detonate：Access data with a desired time cycle. Bit Detonate：Access data via the trigger bit.
	Read Variable	Specify the tag read.
	Record Count	Designate the record count of up to 32767.
	Comment	You can enter a comment for each data to provide for a more exact documentation.
Sampling Set	Record Mode	How to deal with when the data sampling is full： Stop recording automatic：Stop sampling. First in first out (FIFO)：When the record exceeds the limit. The first record always is excluded first, and the newest one fills a vacant position.
	Detonate Time	The parameter is set for Detonate Time mode.
	Read	The parameter is set for Detonate Bit mode.
	Detonate Type	Designate the detonate mode in trigger bit. Up Detonate：The variable turns to 0 from 1.

		Down Detonate：The variable turns to 1 from 0. Up/Down Detonate：The variable changes in both modes.
Overflow Set	Is Use	With this check selected, overflow set can be used.
	Write	When the record is up to 32767, the tag value will be set as 1.
Stop Sampling Set	Is Use	With this check selected, overflow set can be used.
	Read	Stop sampling when the tag value is 0.
Clear Control Set	Is Use	With this check selected, overflow set can be used.
	Before clear record, variable clear for 0	With this check selected, the tag value will be set as 0, after cleared.
	Read	The data sampling will cleared, when the tag value is 1.

Table 10.3.1

Chapter 11 Scheduler

11.1. Outline

The scheduler is used to execute event-controlled job automatically. The event occurs either cyclically or acyclically. The structure of each event is the following：

- Set the condition of the implement of event.
- Configure the implement job of scheduler.

The number of job doesn't limit. But in the scheduler, only one job can be configured and executed at the same time. If many jobs are executed within short intervals, time delays can occur. You should make sure that all of the jobs are executed before the next event occurs.

11.2. Scheduler Compiler

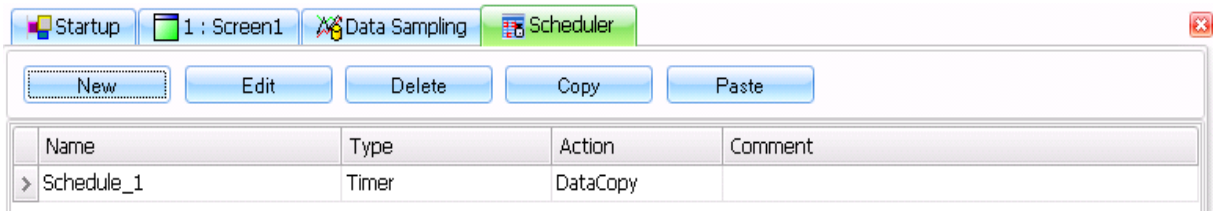


Figure 11.2.1

Item	Illustration
New	Add a new job.
Edit	Edit a job.
Delete	Delete a job.
Copy	Copy a job.
Paste	Paste a job.
Name	Enter a job caption.
Type	Select a trigger type.
Action	Select the implement of content.
Comment	Enter more description about the scheduler.

Table 11.2.1

11.3. Edit Scheduler

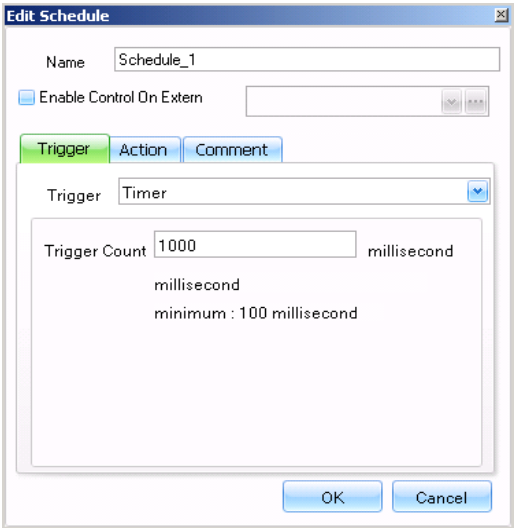


Figure 11.3.1

Item	Illustration
Name	Enter a job caption.
Enable Control On Extern	Enable controlled by tag OFF：Stop. ON：Normal.

Table 11.3.1

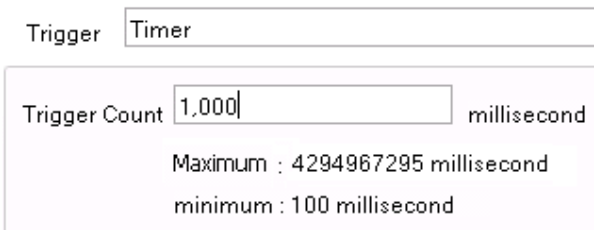
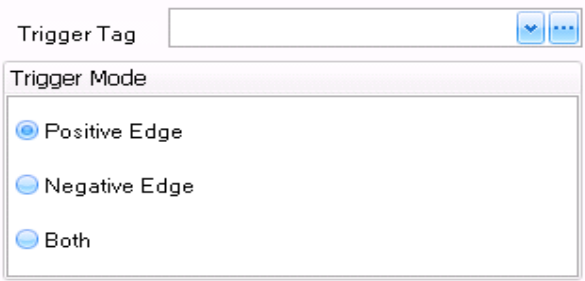
Trigger：Timer

The job is executed by the fixed time.

Table 11.3.2

Trigger：Trigger Bit1


Trigger Mode Positive Edge：The variable turns to 1 from 0. Negative Edge：The variable turns to 0 from 1 Both：The variable changes in both modes.

Table 11.3.3

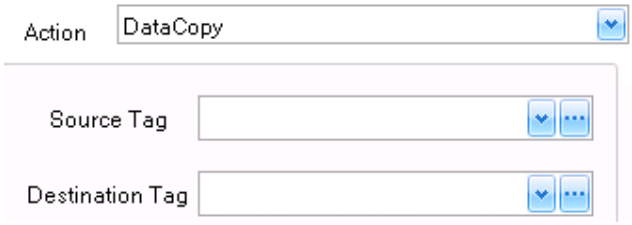
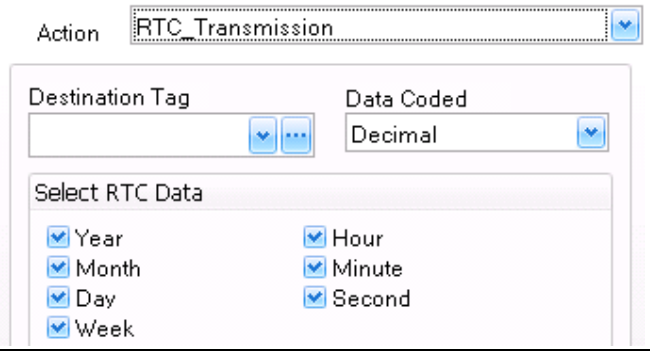
Action：Data Copy

Copy the value of source tag to destination one, which is supported by array copy.

Table 11.3.4

Action：Run Macro

The function, RunMacro, should be noted whether the time is too long or not. In the RunMacro, only one command per HMI device can be configured and executed at the same time.

Table 11.3.5

Action：RTC_Transmission (Real Timer Counter Transmission)

Save date time in the HMI device to the destination tag. Destination Tag：Supports the array tag. Data Coded：The format of data coded.

Select all items, the saved order of array is following：

Array index	Items
0	Year
1	Month
2	Data
3	Week
4	Hour
5	Minute
6	Second

If the check box doesn’t check, the next data will fill the former empty in order.

The length of array tag should be enough to save or the error will occur. If all check box selected, the length should be 7 at least.

Table 11.3.6

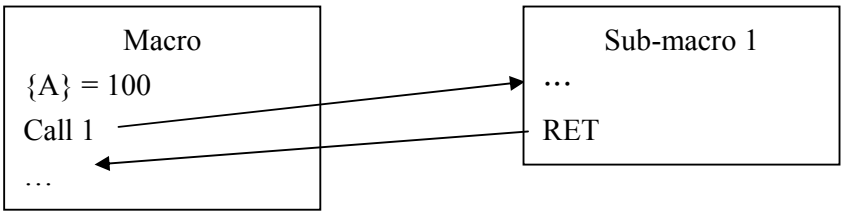
Chapter 12 Macro

12.1. Outline

Macro function is a simple programming which executes Arithmetic and Control to reduce the load of PLC. In programming, the program logic should be reasonable, or the infinite circle of problem will occur. It results in the HMI device worked improperly. In addition, too many commands affect the efficiency of the HMI device. You can compile the macro in the property of event, scheduler and sub-macro. Refer to Appendices 2.

12.2. Sub-Macro

Sub-macro is a discrete macro program. You can call up the sub-macro by using Call command. Sub-macro also calls up repeatedly sub-macros; up to 10 layers can be used if over 10 layers, Call will not be executed.



Macro call Sub-macro 1

- **Sub-Macro**

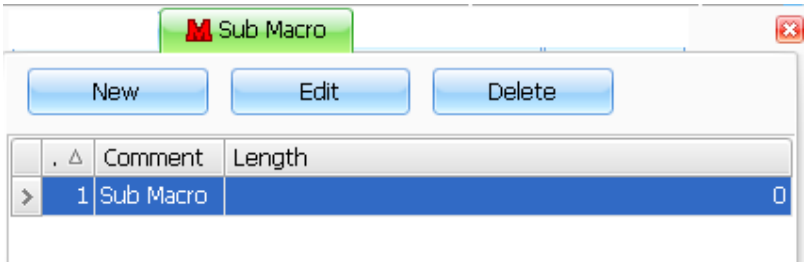


Figure 12.2.1

Items	Illustration
New	Add a sub-macro
Edit	Allow you to edit the contents of a macro
Delete	Delete a registered sub-macro

Table 12.2.1

- **Sub Macro Editor**

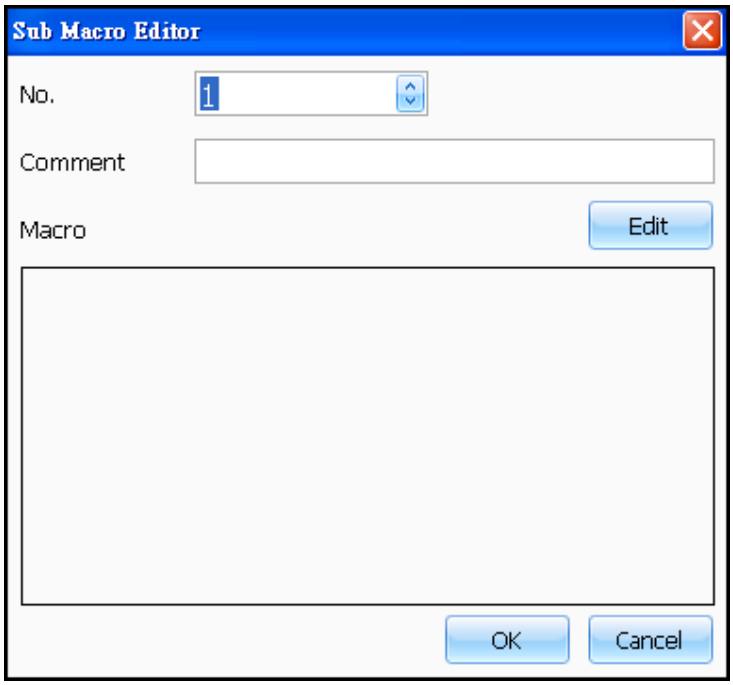


Figure 12.2.2

Item	Illustration
Number	Enter the number of sub-macro (1 ~ 512)
Comment	You can enter a comment for macro function.
Macro	Edit macro source code.

Table 12.2.2

12.3. Macro Editor

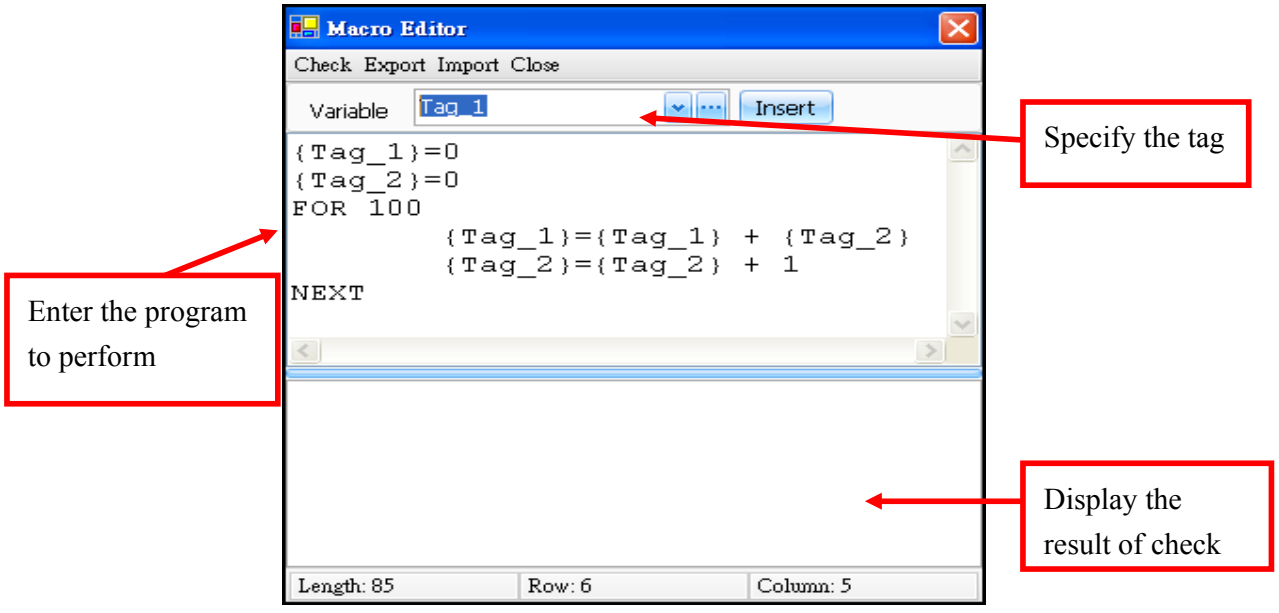


Figure 12.3.1

Items	Illustration
Check	Checking allows you to test your macros in runtime for syntax errors.
Export	To export the information and save as a text file.
Import	To import the macro from the text file.
Close	Close the window.

Table 12.3.1

12.4. Access to tag in a Macro

The syntax of access to tag is {TAG}. TAG is the name of variable in lowercase or upper case. The HMI device fetches the value of the tag from the external device, and then the next command will be performed. Suggest copying the external tag to internal one in a runtime to enhance the execution efficiency.

12.5. Make a annotate in a Macro

When facing more difficult program needing some description to provide more document about the operation, you can use “;” symbol to declare. The compiler will ignore all the words behind the ‘;’ till next line.

For example

{Tag_1} = 1 ; **operate the motor**

Bold word will be ignored.

Appendix

A. Optimization

1. Design pictures without stretching automatic as far as possible.
2. Specifying variable address at a stretch increases the communication efficiency.
3. The more objects using, the slower speed occurring in a screen. 50 objects below in a screen is suggested.
4. The object with frequent upgrading is not been overlapped by others, which will increase the speed of display.
5. Designate the upgrading cycle for variables, for example designating 500ms ~ 1000ms for temperature changing and designating 0ms ~ 500ms for motor monitoring.
6. The HMI device fetches the value of the tag from the external device, and then the next command will be executed. Suggest copying the external tag to internal one in a runtime to enhance the execution efficiency.

B. Macro Commands

Arithmetic	Logic Arithmetic	Flow Control	Data Move
ADD	AND	CALL	MOVE
SUB	OR	RET	COPY
MUL	XOR	GOTO	FILL
DIV	NOT	FOR … NEXT	
MOD	BCD	IF	
MAX	BIN	DELAY	
MIN	SHL		
AVG	SHR		
SUM			

Command:

MOVE

Syntax:

F0 = F1

Parameter	Illustration
F0	Result
F1	Operand

Parameter data type

Parameter	Constant	Internal tag	External tag
F0		●	●
F1	●	●	●

Command Description:

Designate the value of F1 to F0.

Ex:

Variable Type

Name	Address	Data Type	Data Length
F0	@R0	WORD	1
F1	@R100	WORD	1

Presumption:

F0 = 0

F1 = 1234

Macro:

{F0} = {F1}

Result:

F0 = 1234

Command:

ADD

Syntax:

F0 = F1 + F2

Parameter	Illustration
F0	Result
F1	Augend
F2	Addend

Parameter data type

Parameter	Constant	Internal tag	External tag
F0		●	
F1	●	●	
F2	●	●	

Command Description:

Adds F1 and F2 and saves the result in F0.

Ex:

Variable Type

Name	Address	Data Type	Data Length
F0	@R0	WORD	1
F1	@R100	WORD	1

Presumption:

F0 = 0

F1 = 50

Macro:

{F0} = {F1} + 100

Result:

F0 = 150

Command:

SUB

Syntax:

F0 = F1 - F2

Parameter	Illustration
F0	Result
F1	Minuend
F2	Subtrahend

Parameter data type

Parameter	Constant	Internal tag	External tag
F0		●	
F1	●	●	
F2	●	●	

Command Description:

Subtracts F2 from F1 and saves the result in F0. If F0 is an unsigned variable, the result is negative and thus the overflow will occur.

Ex:

Variable Type

Name	Address	Data Type	Data Length
F0	@R0	WORD	1
F1	@R100	WORD	1

Presumption:

F0 = 0

F1 = 50

Macro:

{F0} = {F1} - 10

Result:

F0 = 40

Command:

MUL

Syntax:

F0 = F1 * F2

Parameter	Illustration
F0	Result
F1	Multiplier
F2	Multiplicand

Parameter data type

Parameter	Constant	Internal tag	External tag
F0		●	
F1	●	●	
F2	●	●	

Command Description:

Multiplies F1 by F2 and saves the product in F0.

Ex:

Variable Type

Name	Address	Data Type	Data Length
F0	@R0	WORD	1
F1	@R100	WORD	1

Presumption:

F0 = 0

F1 = 50

Macro:

{F0} = {F1} * 100

Result:

F0 = 5000

Command:

DIV

Syntax:

F0 = F1 / F2

Parameter	Illustration
F0	Result
F1	Dividend
F2	Divisor

Parameter data type

Parameter	Constant	Internal tag	External tag
F0		●	
F1	●	●	
F2	●	●	

Command Description:

Divides F1 by F2 and saves the quotient in F0.

Ex:

Variable Type

Name	Address	Data Type	Data Length
F0	@R0	WORD	1
F1	@R100	WORD	1

Presumption:

F0 = 0

F1 = 50

Macro:

{F0} = {F1} / 5

Result:

F0 = 10

Command:

MOD

Syntax:

F0 = F1 % F2

Parameter	Illustration
F0	Result
F1	Dividend
F2	Divisor

Parameter data type

Parameter	Constant	Internal tag	External tag
F0		●	
F1	●	●	
F2	●	●	

Command Description:

Divides F1 by F2 and saves the remainder in F0.

Ex:

Variable Type

Name	Address	Data Type	Data Length
F0	@R0	WORD	1
F1	@R100	WORD	1

Presumption:

F0 = 0

F1 = 45

Macro:

{F0} = {F1} % 10

Result:

F0 = 5

Command:

MAX

Syntax:

F0 = MAX (F1, F2)

Parameter	Illustration
F0	Result
F1	Comparison value
F2	Comparison value

Parameter data type

Parameter	Constant	Internal tag	External tag
F0		●	
F1	●	●	
F2	●	●	

Command Description:

Sets F0 to the larger of F1 and F2.

Ex:

Variable Type

Name	Address	Data Type	Data Length
F0	@R0	WORD	1

Presumption:

Macro:

{F0} = MAX (50, 100)

Result:

F0 = 100

Command:

MIN

Syntax:

F0 = MIN (F1, F2)

Parameter	Illustration
F0	Result
F1	Comparison value
F2	Comparison value

Parameter data type

Parameter	Constant	Internal tag	External tag
F0		●	
F1	●	●	
F2	●	●	

Command Description:

Sets F0 to the smaller of F1 and F2.

Ex:

Variable Type

Name	Address	Data Type	Data Length
F0	@R0	WORD	1

Presumption:

Macro:

{F0} = MIN (50, 100)

Result:

F0 = 50

Command:

AVG

Syntax:

F0 = AVG (F1, F2)

Parameter	Illustration
F0	Result
F1	Sum may as a array
F2	Divisor

Parameter data type

Parameter	Constant	Internal tag	External tag
F0		●	
F1	●	●	
F2	●	●	

Command Description:

Calculates the average of F1 and saves the result in F0. Divides the sum of all elements in F1 array by F2.

Ex:

Variable Type

Name	Address	Data Type	Data Length
F1	@R100	WORD	10
F0	@R0	WORD	1

Presumption:

F1 = {10, 20, 30, 40, 50, 60, 70, 80, 90, 100}

Macro:

{F0} = AVG (F1, 10)

Result:

F0 = 55

Command:

SUM

Syntax:

F0 = SUM (F1, F2)

Parameter	Illustration
F0	Result
F1	Summation may as a array
F2	Length

Parameter data type

Parameter	Constant	Internal tag	External tag
F0		●	
F1	●	●	
F2	●	●	

Command Description:

Calculate the value of F1 in F2 length and saves the result in F0.

Ex:

Variable Type

Name	Address	Data Type	Data Length
F1	@R100	WORD	10
F0	@R0	WORD	1

Presumption:

F1 = {10, 20, 30, 40, 50, 60, 70, 80, 90, 100}

Macro:

{F0} = SUM (F1, 5)

Result:

F0 = 150

Command:

AND

Syntax:

F0 = AND (F1, F2)

Parameter	Illustration
F0	Result
F1	Operand
F2	Operand

Parameter data type

Parameter	Constant	Internal tag	External tag
F0		●	
F1	●	●	
F2	●	●	

Command Description:

Performs the bit-wise AND operation of F1 and F2 and saves the result in F0.

Ex:

Variable Type

Name	Address	Data Type	Data Length
F1	@R100	WORD	1
F0	@R0	WORD	1

Presumption:

F1 = 15

Macro:

{F0} = AND (F1, 5)

Result:

F0 = 5

Command:

OR

Syntax:

F0 = OR (F1, F2)

Parameter	Illustration
F0	Result
F1	Operand
F2	Operand

Parameter data type

Parameter	Constant	Internal tag	External tag
F0		●	
F1	●	●	
F2	●	●	

Command Description:

Performs the bit-wise OR operation of F1 and F2 and saves the result in F0.

Ex:

Variable Type

Name	Address	Data Type	Data Length
F1	@R100	WORD	1
F0	@R0	WORD	1

Presumption:

F1 = 3

Macro:

{F0} = OR (F1, 5)

Result:

F0 = 7

Command:

XOR

Syntax:

F0 = XOR (F1, F2)

Parameter	Illustration
F0	Result
F1	Operand
F2	Operand

Parameter data type

Parameter	Constant	Internal tag	External tag
F0		●	
F1	●	●	
F2	●	●	

Command Description:

Performs the bit-wise XOR operation of F1 and F2 and saves the result in F0.

Ex:

Variable Type

Name	Address	Data Type	Data Length
F1	@R100	WORD	1
F0	@R0	WORD	1

Presumption:

F1 = 3

Macro:

{F0} = OR (F1, 5)

Result:

F0 = 6

Command:

NOT

Syntax:

F0 = NOT (F1)

Parameter	Illustration
F0	Result
F1	Operand

Parameter data type

Parameter	Constant	Internal tag	External tag
F0		●	
F1	●	●	

Command Description:

Performs the bit-wise NOT operation of F1 and saves the result in F0.

Ex:

Variable Type

Name	Address	Data Type	Data Length
F1	@R100	WORD	1

Presumption:

F1 = FF00H

Macro:

{F0} = NOT (F1)

Result:

F0 = 00FFH

Command:

BCD

Syntax:

F0 = BCD (F1)

Parameter	Illustration
F0	Result
F1	Operand

Parameter data type

Parameter	Constant	Internal tag	External tag
F0		●	
F1	●	●	

Command Description:

Converts F1 from a binary number to a BCD number and saves the result in F0.

Ex:

Variable Type

Name	Address	Data Type	Data Length
F1	@R100	WORD	1

Presumption:

F1 = 12

Macro:

{F0} = BCD (F1)

Result:

F0 = 0012H

Command:

BIN

Syntax:

F0 = BIN (F1)

Parameter	Illustration
F0	Result
F1	Operand

Parameter data type

Parameter	Constant	Internal tag	External tag
F0		●	
F1	●	●	

Command Description:

Converts F1 from a BCD number to a binary number and saves the result in F0.

Ex:

Variable Type

Name	Address	Data Type	Data Length
F1	@R100	WORD	1

Presumption:

F1 = 0012H

Macro:

{F0} = BIN (F1)

Result:

F0 = 12

Command:

SHL

Syntax:

F0 = SHL (F1, F2)

Parameter	Illustration
F0	Result
F1	Operand
F2	Offset

Parameter data type

Parameter	Constant	Internal tag	External tag
F0		●	
F1	●	●	
F2	●	●	

Command Description:

Shifts F1 left by F2 bits and saves the result in F0

Ex:

Variable Type

Name	Address	Data Type	Data Length
F1	@R100	WORD	1

Presumption:

F1 = 000FH

Macro:

{F0} = SHL (F1, 4)

Result:

F0 = 00F0H

Command:

SHR

Syntax:

F0 = SHR (F1, F2)

Parameter	Illustration
F0	Result
F1	Operand
F2	Offset

Parameter data type

Parameter	Constant	Internal tag	External tag
F0		●	
F1	●	●	
F2	●	●	

Command Description:

Shifts F1 right by F2 bits and saves the result in F0.

Ex:

Variable Type

Name	Address	Data Type	Data Length
F1	@R100	WORD	1

Presumption:

F1 = 1200H

Macro:

{F0} = SHR (F1, 8)

Result:

F0 = 0012H

Command:

BSET

Syntax:

F0 = (ON)

Parameter	Illustration
F0	Result

Parameter data type

Parameter	Constant	Internal tag	External tag
F0		●	

Command Description:

Sets bit F0 to ON (1) and only the data type “BIT’ is available.

Ex:

Variable Type

Name	Address	Data Type	Data Length
F0	@R0.5	BIT	1

Presumption:

F0 = 0

Macro:

{F0} = (ON)

Result:

F0 = 1

Command:

BCLR

Syntax:

F0 = (OFF)

Parameter	Illustration
F0	Result

Parameter data type

Parameter	Constant	Internal tag	External tag
F0		●	

Command Description:

Sets bit A1 to OFF (0) and only the data type “BIT’ is available.

Ex:

Variable Type

Name	Address	Data Type	Data Length
F0	@R0.5	BIT	1

Presumption:

F0 = 1

Macro:

{F0} = (OFF)

Result:

F0 = 0

Command:

BINV

Syntax:

F0 = BINV (F1)

Parameter	Illustration
F0	Result
F1	Operand

Parameter data type

Parameter	Constant	Internal tag	External tag
F0		●	
F1		●	

Command Description:

Inverses the state of bit F1 and only the data type “BIT’ is available.

Ex:

Variable Type

Name	Address	Data Type	Data Length
F1	@R0.5	BIT	1

Presumption:

F1 = 1

Macro:

{F0} = BINV (F1)

Result:

F0 = 0

Command:

COPY

Syntax:

COPY (F0, F1)

Parameter	Illustration
F0	Destination tag
F1	Source tag

Parameter data type

Parameter	Constant	Internal tag	External tag
F0		●	●
F1		●	●

Command Description:

Copies the value of F1 in F0. The data length and type must be the same respectively in tags.

Ex:

Variable Type

Name	Address	Data Type	Data Length
F0	@R0	WORD	5
F1	@R100	WORD	5

Presumption:

F1 = {10, 20, 30, 40, 50}

F0 = {0, 0, 0, 0, 0}

Macro:

COPY (F0, F1)

Result:

F0 = {10, 20, 30, 40, 50}

Command:

FILL

Syntax:

FILL (F0, F1)

Parameter	Illustration
F0	Destination
F1	Filling value

Parameter data type

Parameter	Constant	Internal tag	External tag
F0		●	●
F1	●	●	

Command Description:

Fills a block of memory starting at F0 with the value of F1.

Ex:

Variable Type

Name	Address	Data Type	Data Length
F0	@R0	WORD	5

Presumption:

F0 = {10, 20, 30, 40, 50}

Macro:

FILL (F0, 0)

Result:

F0 = {0, 0, 0, 0, 0}

Command:

RET

Syntax:

RET

Command Description:

A sub-macro uses this instruction to return to the macro invoking it. A macro using this instruction means finishing the program.

Command:

CALL

Syntax:

CALL (F0)

Parameter	Illustration
F0	Sub-macro number

Parameter data type

Parameter	Constant	Internal tag	External tag
F0	●	●	

Command Description:

Goes to the sub-macro specified by F0. In sub-macro, calling up other sub-macros or one itself is allowed. There can be up to 3 nested CALL loops.

Ex:

Macro:

Call 5 ; call up sub-macro 5

Call 0 ; invalid number is not existing.

{F0} = 10
Call {F0}; call up sub-macro 10

Command:

GOTO

Syntax:

GOTO label

Parameter	Illustration
label	Label

Command Description:

Go to the macro specified by label number. Each GOTO corresponds with one label in the same macro.。

Ex:

Macro:

```
    {var} = 0
L1: {var} = {var} + 1
    If ({var}! = 100)
        goto L1
```

Result:

var = 100

Command:

FOR ….. NEXT

Syntax:

FOR F0

Command block

NEXT

Parameter	Illustration
F0	Loop counter

Parameter data type

Parameter	Constant	Internal tag	External tag
F0	●	●	

Command Description:

Execute repeatedly the command in *Command block*. A loop is formed by a matching pair of FOR and NEXT instructions.

Ex:

Variable Type

Name	Address	Data Type	Data Length
F0	@R0	WORD	1
F1	@R100	WORD	1

Macro:

{F1} = 0

{F0} = 10

For {F0}

{F1} = {F1} + 1

NEXT

Result:

F1 = 55

Command:

IF

Syntax:

IF (*condition*)

Command

Condition			
Parameter	Operand	Parameter	Illustration
F0	==	F1	equal
F0	<>	F1	not equal
F0	>	F1	greater than
F0	>=	F1	greater than or equal
F0	<	F1	less than
F0	<=	F1	less than or equal

Data Type			
Parameter	Constant	Internal tag	External tag
F0	●	●	
F1	●	●	

Command Description:

Execute Command if the result of condition is true; otherwise, it does not execute.

Ex:

Variable Type

Name	Address	Data Type	Data Length
F0	@R0	WORD	1

Macro:

{F0} = 200

If ({F0} > 100)

{F0} = 100

Result:

F0 = {0, 0, 0, 0, 0}

Command:

DELAY

Syntax:

DELAY (F0)

Parameter	Illustration
F0	Delay time. Unit: millisecond.

Data Type			
Parameter	Constant	Internal tag	External tag
F0	●	●	

Command Description:

Delay time.

Ex:

Macro:

DELAY (100)

Result: