

CIMON Xpanel

Total Solution For Industrial Automation

XpanelDesigner User Manual



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Chapter 1. CIMON XPANEL

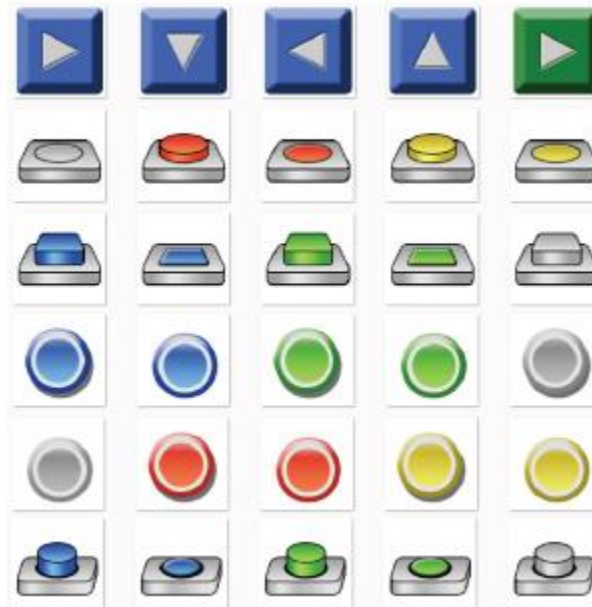
1. XPANEL Introduction

XPANEL provides optimized on-site performance using unique technology from **CIMON-SCADA**. XPANEL's broad range of systems covers everything from small machines to large industrial facilities, and provides top-quality performance with outstanding reliability and stability in every industrial field. Its Windows **CE-based OS** serves as a stable foundation, and its powerful Networking, Graphics Library, Communication Drivers, and convenient Editing UI make it easy for beginners to use.

2. XPANEL Properties

1) A Wide Range of Libraries

Users can easily access a wide variety of Switch and Image Libraries, sorted by **category**.



2) Mass Storage Space

- Program capacity is up to **128MB**. There is no capacity limit on high-resolution color images.
- With sufficient storage space, Xpanel supports Project Saving/Data Logging/ Alarm Saving/Recipe features, without requiring any memory expansion.



3) Screen Capture

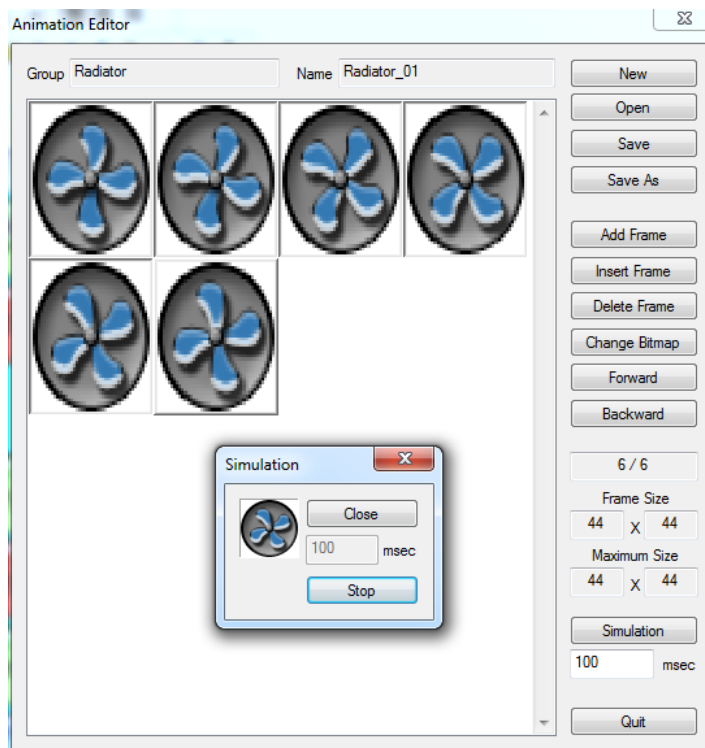
The current Xpanel screen can be saved as a **Bitmap** Image file, without requiring any connection to a PC. Critical moment and Trend graphs can also be saved as bitmaps, a useful feature when **reporting** operating system status.



4) Easy and Detailed Animation

- With a variety of Animation Libraries, even beginners can create vivid animations of on-site situations.

- New animations can be created and saved using the **Animation Editor**.



5) Simulator

- Projects created on a PC can be run **virtually**. The Simulator feature allows you to test a projects operation, even without Xpanel and PLC.
- The Xpanel database simulator feature changes Tag values **virtually**, providing realistic and vivid simulation.



6) Security

- Xpanel's security features allow you to tailor user access to specific functions and operation by dividing security into **10 levels**.



7) Multi-Language/Font

- Xpanel provides unlimited support for **Multi-Language** display within a single page, an extremely useful feature in a global industrial environment.
- Xpanel can use standard **Windows fonts**.
- Xpanel uses a string **Table** to store translated strings for quick localization.
- Applicable Languages:
- Korean, English, Chinese (Simp., Trad.), Japanese, German, Arabic, Hebrew, etc.
(Any language supported by Windows)

※ **Font type** is dependent on the specific **Language**.



8) Data Bridge

Xpanel **synchronizes** data between the various devices connected to it.

It supports data sharing between devices connected to **different serial ports**, and between devices with **serial and Ethernet connections**. Xpanel serves as a bridge, allowing data sharing between devices with no common Communication method.

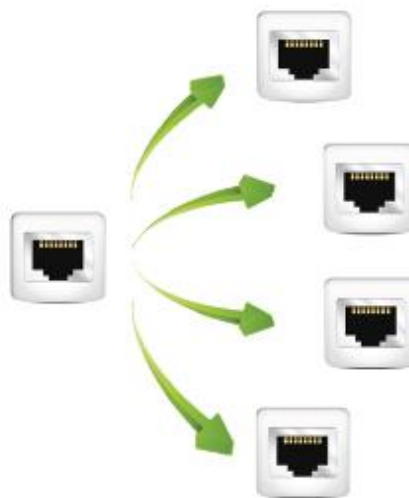


9) Ethernet Communication

Ethernet Communication allows for High-speed communication. One Ethernet port can communicate with several devices simultaneously.

High-speed data sharing between **Xpanel** and **CIMON SCADA** is compatible with a variety of network configurations.

For a downloading/uploading projects, Ethernet Communication is much **faster** and more **convenient** for on-site installation. Xpanel includes remote monitoring and controlling features.



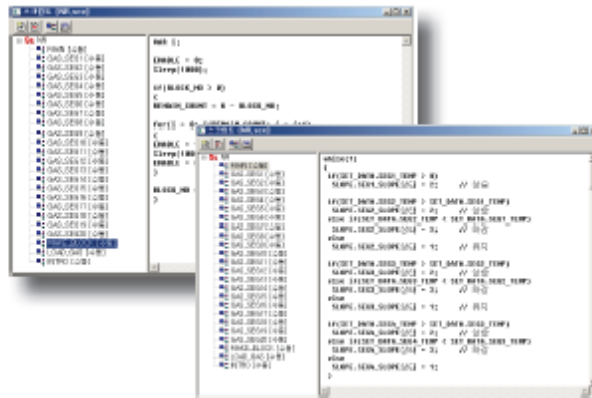
10) High Quality LED Display

Xpanel supports Full Color **SVGA (260,000)**, and allows high-quality graphics with a wide view angle. Low power, low heat and full brightness make it one of the most powerful and vivid high-definition HMI in the market.



11) Script

- Xpanel's script language supports **C syntax** for easy use, and allows **user-defined functions**.
- A variety of Script types are supported, such as **On StartUp, Manual, Periodic, on page opening/closing**.



12) Logistics Management

A wide range of **Barcode Readers** and **RFID Readers** are supported, allowing efficient Logistics Management.

- Barcode Reader

Serial and **USB-type** Barcode Readers are supported. Xpanel's **code39** feature displays barcodes on screen.

- RFID Reader

A variety of products, such as **Omron**, **Sick**, **LSIS**, etc. are supported. Xpanel supports changing Tag Values.



13) Remote Monitoring and Controlling (VNC)

Users can control and monitor the Xpanel screen from a **PC** or **Smart phone** using **Ethernet** Communication.

- On IOS : Pocket Cloud
- On Android : Mocha VNC Lite

※ This feature applies to **all models**, and need the **latest** XpanelDesigner.



14) Schedule

- Xpanel allows execution of **pre-registered** operations at a **pre-determined time**.

A variety of schedule configuration operations are available, such as **certain time, annually, monthly, daily**. Calling other operations, such as **Writing Tag Value** and **Script**, is supported.



15) Data Logging

- **Raw Data** from a device, or an **inner memory value**, can be saved, based on a variety of **conditions**. Depending on the logging conditions, data is managed by **Model** or **Block**.

- Collected Data can be converted from **Binary file** format to **CSV** format. Data can be stored on USB Memory and SD Memory up to the limits of the device's capacity. **Trend Graph** allows immediate on-screen access to logged Info.



16) External Interface

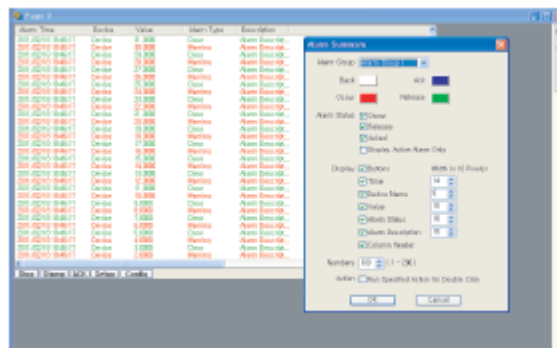
A variety of external devices are supported through the USB port, including **scanners**, **keyboards**, **pointing devices** and **printers that support the PCL driver**.



USB Scanner USB Keyboard USB Printer

17) Alarm Message

- A real-time Alarm summary is available to users on screen. Xpanel allows an unlimited Alarm list with a maximum of 10 groups. Depending on the Alarm status, the Alarm **action** can be determined by opening an **Alarm Page** or by using a **Script**. The Alarm summary is saved as a **CVS** file, which can be opened in EXCEL.
- The **Scroll Message** feature displays Alarms as scrolling messages across the bottom of the screen. The Administrator can see the status of each Alarm without checking the Alarm Window.



18) VNC (Virtual Network Computing)

- Operator can control the client's Xpanel remotely by an **Ethernet** network connection.
- VNC makes it possible to provide prompt technical support without a visit to the site.



19) Recipe

- Production, Assembly line and Machine settings are registered **in advance**, then later selected and applied to the appropriate device.
- Xpanel's user interface makes it easy to create a project.
- Recipe settings tables can be modified on-site while the device is in operation.
- The settings table can be printed out as a Text file; these settings can then be entered in the XpanelDesigner settings table.

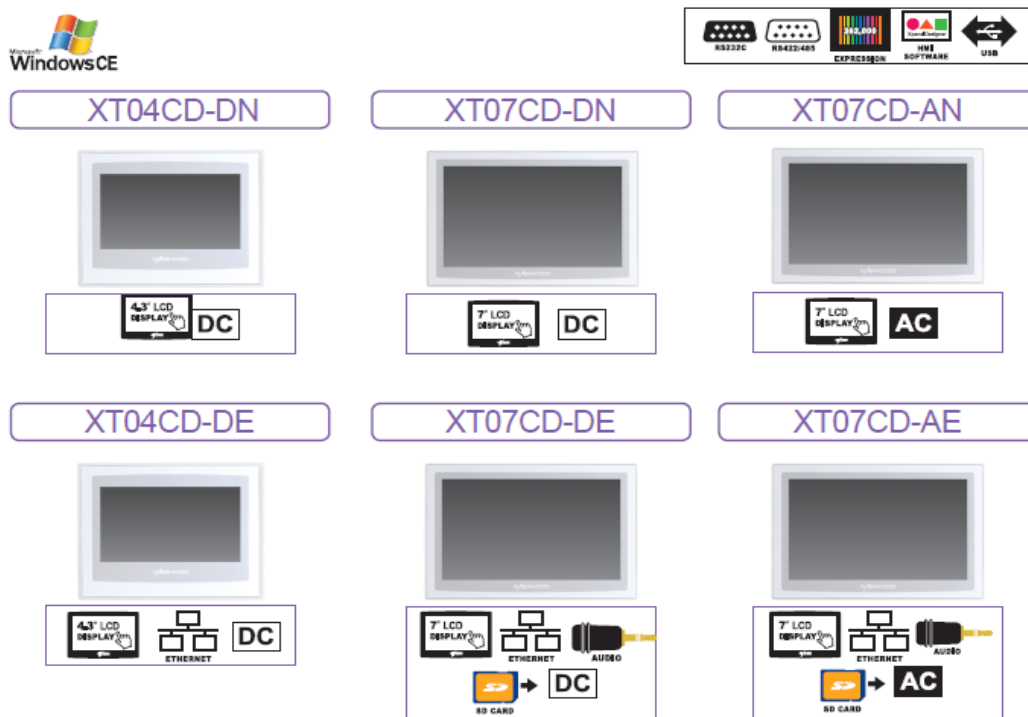


3. Xpanel Specification

1) General Specification

Item	Description
Permitted Voltage	DC24V or AC100-240V
Ambient Temperature	0°C ~ 60°C
Storage Temperature	-10°C ~ 60°C
Ambient Humidity	10%RH ~ 90%RH (Non-condensing, wet bulb temperature: 39°C max.
Storage Humidity	10%RH ~ 90%RH (Non-condensing, wet bulb temperature: 39°C max
Air Pressure Vibration Resistance (Available altitude)	800hPa ~ 1114hPa(Up to 2000m/6,500ft)
Dust	0.1mg/m ³ or less
Pollution Degree	Pollution degree 2 or less
Corrosive gases	Free from corrosive gases
Vibration Resistance	IEC61131-2 Compliant On occasional Vibration 10Hz to 75Hz 0.075mm, 57Hz to 150Hz 9.8m/s ² On continuous Vibration 10Hz to 57Hz 0.035mm, 57Hz to 150Hz 4.9m/s ² X,Y,Z directions for 10 cycle (80min.)
Noise resistance	1uS
Electrostatic Discharge Immunity	Contact Discharge 4kV (IEC61000-4-2)
	Discharge in Air 8kV

2) Model Specification



Type		XT04CD-DN		XT04CD-DE		XT07CD-DN		XT07CD-AN		XT07CD-DE		XT07CD-AE	
Panel Size		4.3"				7"							
Resolution		480X272				800 X 480							
LCD		Color TFT											
Color		65,536 Colors											
Luminance		400 cd/m²											
Memory		128MByte DDR2 SDRAM											
Storage		128MByte SLC NAND Flash											
OS		Windows CE 6.0											
Programming Tool(HMI)		Xpanel Designer											
Audio		None										1 Port	
Interface	Ethernet	None	10/100BaseT		None		10/100 BaseT						
	Serial(COM1)	RS232C											
	Serial(COM2)	RS422/485											
	Serial(COM3)	None											
	USB HOST	1 Port											
	Tool Port	1 Port											
	SD Card Slot	None										1 Slot	
Input Power		DC24V				DC24V		AC100-240V		DC24V		AC100-240V	
Dimension(mm)		128X102X50				185X127X50							
Panel Cut(mm)		120X94				177X119							



XT08CD-D



XT10-CD-D



XT12CD-A



XT08CD-A



XT10CD-A

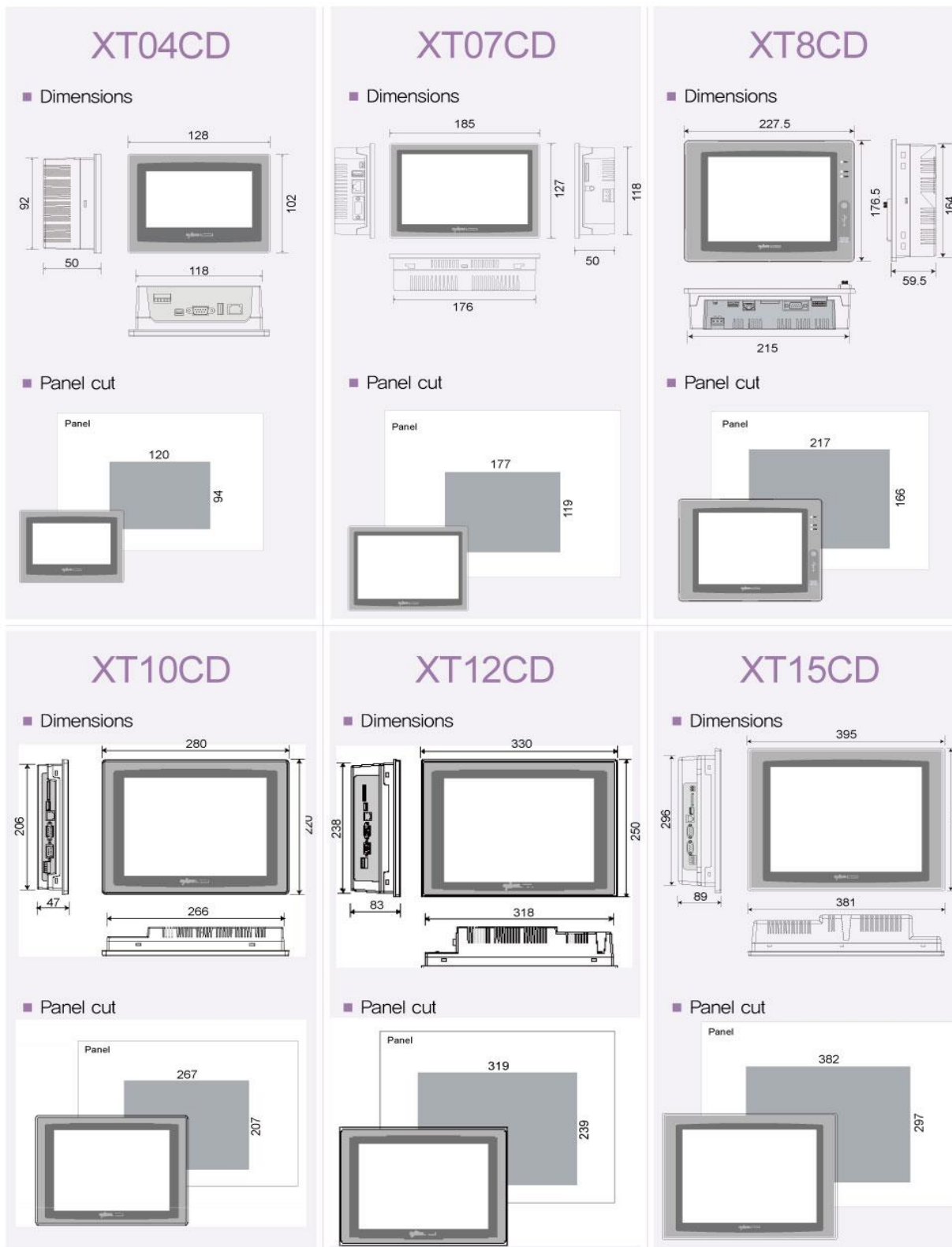


XT15CD-A



Type	XT08CD-A	XT08CD-D	XT10CD-D	XT10CD-A	XT12CD-A	XT15CD-A
Panel Size	8"		10.4"		12.1"	15"
Resolution	800 X 600					1024X768
LCD	Color TFT					
Color	262K Colors					16.7M colors
Luminance	350 cd/m²		400 cd/m²		450 cd/m²	400 cd/m²
Memory	128MByte DDR2 SDRAM		256MByte DDR2 SDRAM			
Storage	128MByte SLC NAND Flash					
OS	Windows CE 6.0		Windows Embedded Compact 7			
Programming Tool(HMI)	Xpanel Designer					
Audio	None					
Interface	Ethernet	10/100 BaseT				
	Serial(COM1)	RS232C		RS422/485		
	Serial(COM2)	RS422/485		RS232C		
	Serial(COM3)	None		RS232C		
	USB HOST	1 Port				
	Tool Port	1 Port				
	SD Card Slot	1 Slot				
Input Power	AC100-240V	DC24V		AC100-240V		
Dimension(mm)	227.5 X 176.5 X 59.5		280 X 220 X 47		330X250X83	395X310X89
Panel Cut(mm)	217 X 166		267 X 207		319 X 239	382 X 297

3) Xpanel Cut Size



4. Installation Guide

◆ Critical Safety Information

※ Warning

1) System Configuration

- Please **do NOT** create Xpanel Graphic Objects that can **threaten** the safety of the device or the operator. If Xpanel **malfunctions**, but continues to **send ON/OFF output**, this can cause a major accident. To prevent this, install a **Limit Switch** to detect circuit errors and malfunctions.
- Please **do NOT** create Xpanel Graphic Objects to control **Device Safety operations** such as Emergency Stop. Device Safety operation switches must be **hardware based** and installed separately.
- Please configure the system so that it will **not be affected** by the status of **communication** between Xpanel and the Device.
- Please **avoid** using Xpanel to provide any important warnings, such as those involving Operator safety, Device Breakdown or Production Suspension.
- Xpanel is **not** compatible with **extreme conditions** which require extremely high stability and reliability, such as those involving Aircraft Control devices, Aerospace equipment, Nuclear Power Control devices, Medical Life-Support equipment, or Central Data Transmission devices.
- If Xpanel operates with **Transportation systems** (Vehicles, Trains, or Vessels), **Disaster & Crime Prevention systems**, **Safety** Devices, **Medical** Equipment (Except Life-Supporting), the System must be designed to take into consideration Device **breakdown prevention & management** in order to assure safe and reliable operation.
- If the Xpanel LCD Backlight breaks down and the screen turns black, Xpanel will still be operating. If the operator touches the Xpanel screen without knowing that it is black because of a **Backlight malfunction**, an accident could result. This is another important reason to avoid creating Xpanel Graphic Objects to control **Device Safety operations** such as Emergency Stop.
- If the LCD Backlight suddenly turns off, please follow the procedure below to check the LCD status.
 - (1) Check to see if **Standby** mode is **off**. If it is off, and no images are displayed on the screen, the backlight is damaged.
 - (2) If **Standby** mode is on, and no images are displayed after you touch the screen, the backlight is damaged.

2) Installation

- Please do not **disassemble** Xpanel. An Electric Shock can occur because of the high voltage used by Xpanel's internal components.
- Please do not physically **alter** Xpanel, because it can cause electric shock or fire.
- Please avoid using Xpanel in a place where **flammable gas** is present, since it can cause an explosion.

3) Wiring

- To prevent electric shocks, make sure to disconnect Xpanel from any **Power** source when working on wiring.
- Please do not apply more than the **allowed voltage**.
- For tightening the screws on the **Terminal Block**, **proper torque** is between **0.5~0.6 N·m**. If accurate torque is not applied to the screws, a short circuit, fire or device breakdown could result.
- Please be careful not to drop any **metal or cable pieces** into Xpanel's interior.

4) Maintenance

- Xpanel use a **Lithium** battery to run its internal Clock. There may be a risk of explosion if the battery is mounted the wrong way during replacement. If you need to replace the battery, please contact your Xpanel provider or distributor.

※ Attention

1) Installation

- **Secure** all connections between cable connectors and Xpanel. A loose connection can affect device operation.
- Both Communication and Input/Output cables should be separated from **Power or the Power Line** by at least 10 cm.

2) Wiring

- Ground the **FG** line of the Xpanel **separately** from the FG lines of other Devices. Wiring these FG lines too close may cause an electric shock or unit malfunction.
- Be sure that the rated voltage and terminal layout are within the **designated range**, and wire Xpanel correctly. If the supplied voltage differs from the rated voltage, or incorrect wiring or grounding is applied, it may cause a fire or unit malfunction.
- When tightening the screws on the **Terminal Block**, **proper torque** is between **0.5~0.6 N·m**. If accurate torque is not applied to the screws, it can cause short-circuit, fire, or device breakdown.
- Please be careful not to drop any metal and cable pieces into Xpanel's interior.

3) Maintenance

- The LCD contains a strong irritant material. If for any reason, the LCD panel is damaged and its contents come into contact with any part of your body, be sure to wash that area with running water for 15 minutes. If any of this liquid gets into your eyes, wash your eyes and seek medical assistance immediately.

4) Product Disposal

- Product disposal procedures should be in accordance with local or national laws.

◆ General Safety Information

- 1) Do **not strike** the touch panel with a hard or pointed object, or press the touch panel with too much force. Doing so may damage the touch panel or the display.
- 2) Do not install Xpanel where the **ambient temperature** exceeds the allowed range. Doing so may cause Xpanel to malfunction, or shorten its operational life.
- 3) Do not restrict or block Xpanel's rear **ventilation**,
- 4) Do not install or use Xpanel in an environment with **extreme changes in temperature**. Extreme temperature change can cause dew to condense inside Xpanel, resulting in device malfunction.
- 5) Be sure to keep water, liquid, metal. or charged dust out of Xpanel's interior.
- 6) Do not use or place Xpanel in areas exposed to **direct sunlight** or in a **dusty** or **dirty** environment.
- 7) Do not use or place Xpanel in areas subject to **high vibration**.
- 8) Do not use **paint thinner** or organic **solvent** to clean Xpanel.
- 9) If you store Xpanel in areas where the **temperature** is lower than allowed level, the liquid in the LCD will **congeal**, and the LCD may be damages. If, on the other hand, the storage area's temperature becomes higher than the allowed level, the liquid in the LCD will become **isotropic**, causing irreversible damage to the LCD. Therefore, it is important to store the panel only in areas where temperatures are within the range specified in this manual.
- 10) After turning Xpanel OFF, be sure to **wait a few seconds** before turning it ON again. If Xpanel started too soon, it may not start up correctly.
- 11) Because of the possibility of accidental loss of data, it is important to **back up** Xpanel's project data **on a regular basis**.

◆ Wiring

※ Warning

- 1) When connecting Xpanel to a power source, be sure that Xpanel's power supply is completely turned **OFF**, via a breaker or similar unit, to avoid an electric shock.
- 2) Since there is no power switch on the Xpanel unit, be sure to attach a breaker-type switch to its power cable.
- 3) To avoid a short circuit caused by loose ring terminals, be sure to use ring terminals with a insulating sleeves.
- 4) When the FG terminal is connected, be sure that the wire is grounded.

● Connecting to Power

- When connecting Xpanel to Power, be sure to follow the procedures given below.

- (1) Be sure that Power Cable is **unplugged** from the power supply.
- (2) Unscrew the screws on the terminals, then insert **Ring Terminals** and tighten the screws.
- (3) if the operator comes into contact with any electrical components, it could cause a fatal accident (because a charge is stored in the circuit, the operator could be injured by touching electrical components even if the device is turned off). Please wait for **5 minutes** after Xpanel is turned off.
- (4) Be sure that the **Ring terminal** wires are connected correctly.
- (5) Copper wire or the equivalent should meet at least **60%** of its requirement.
- (6) Copper wire size must be within the 18AWG(0.823 mm²) ~ 26AWG (0.405 mm²) range. When tightening the screws, **proper torque** is between **0.79~0.88 N·m**.

● Notice on Connecting to Power

- Please pay special attention when connecting Xpanel to a Power supply, as described below.

- (1) If the power supply voltage exceeds Xpanel's rated voltage range, use a voltage **transformer**.
- (2) Between power and ground, be sure to use a power supply with low noise. If there is still an excessive amount of noise, use a noise reducing **transformer**.
- (3) The power supply cable should not be bundled with or kept close to main circuit lines (high voltage, high current), or input/output signal lines.
- (4) Connect a **surge absorber** to handle power surges.
- (5) To reduce noise, make the power cable as **short** as possible.

● Notice on Grounding

- (1) When grounding to the FG terminal at the rear of Xpanel, (on the Power Input Terminal Block), be sure to create an **exclusive ground**.
- (2) Inside the Xpanel unit, the SG (Signal Ground) and FG (Frame Ground) terminals are connected to each other.
- (3) When connecting the SG of external device to the SG of Xpanel, be sure that **no short-circuit** loop occurs.

5. Package Content

The following items are contained in the Xpanel package. Before using Xpanel, please confirm that all items listed here are included.

※ The diagram below is for illustration purposes, and may differ from actual size.

- Xpanel Unit



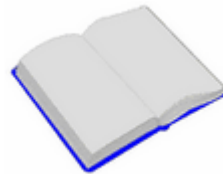
- Fastener: 8 EA



- 5P Connector(XT08/XT10/XT12/XT15)



- Installation Guide



- Installation CD



- Power Plug (XT07/XT07/12/15)

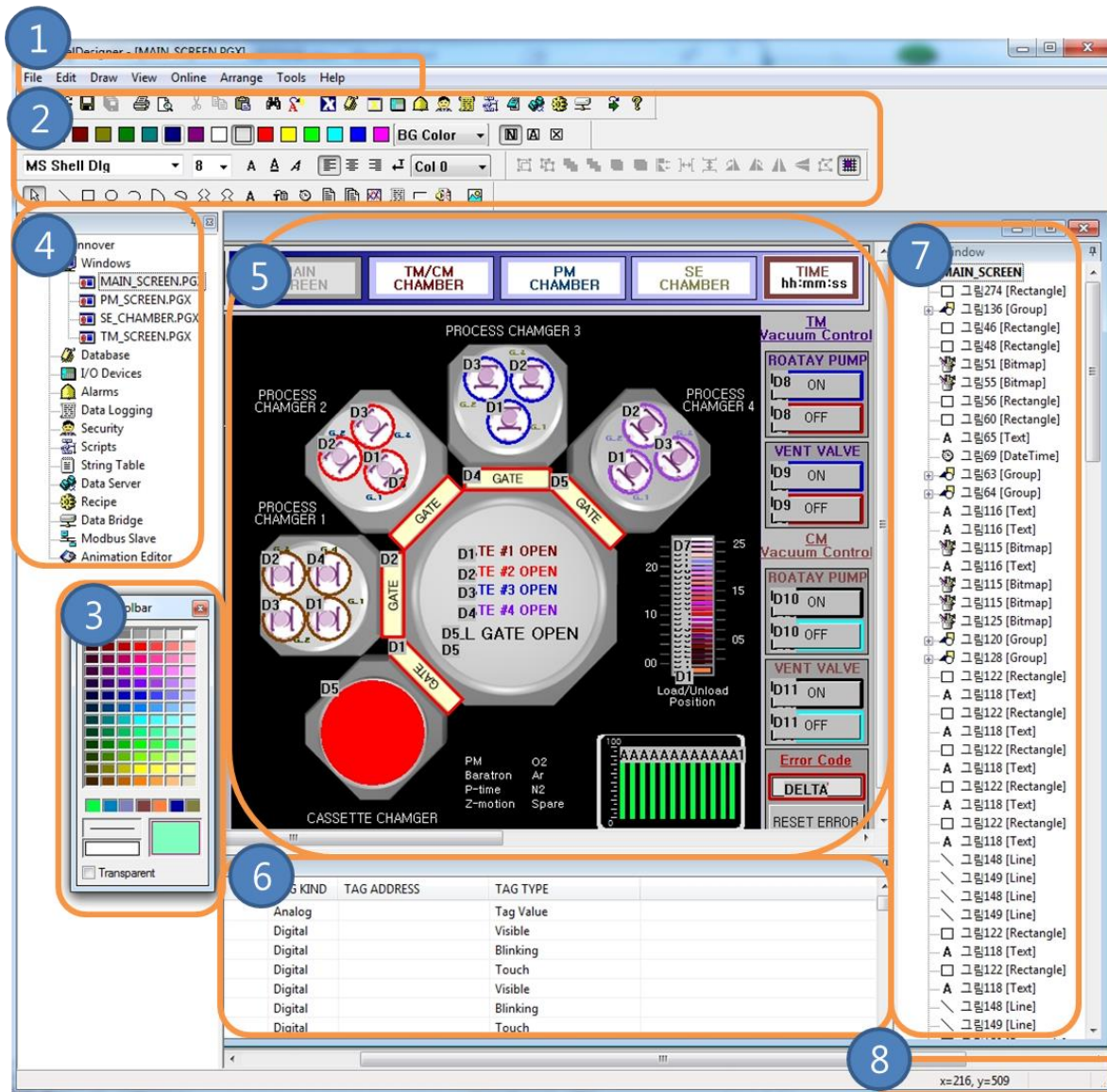


This unit has been carefully packed with special attention to quality. However, should you find anything damaged or missing, please contact your local Xpanel distributor immediately.

Chapter 2. Menu Configuration and Features

1. XpanelDesigner Configuration

This chapter describes the various tool bars and configuration options.

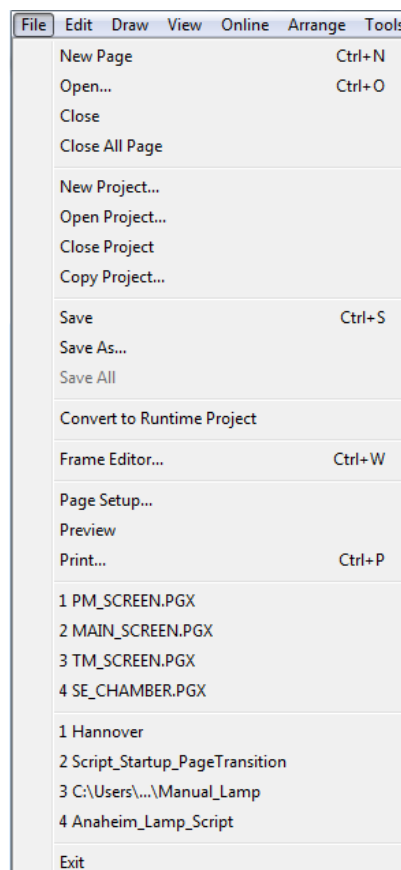


- 1) Menu: Select configuration Tools.
- 2) Tool Bar: Displays menu functions as **icons** for quick access.
- 3) Color Tool: Select object and background colors.
- 4) Project Workspace: Provides **shortcuts** to a variety of features and **pages** used in the project.

- 5) Page: For project development.
- 6) Tag Window: Displays the Tags included in the current page. It includes shortcuts to **Tag configuration** and **Object Properties**.
- 7) Object Window: Displays the current Tag properties in tree view.
- 8) Coordinates: Shows the mouse location.

2. Menu Configuration

1) File



(1) New Page

Create a New Page.

(2) Open

Open other pages during development. This is useful for access to other project features such as page files, Scripts and Databases.

(3) Close

Close the current page.

- (4) New Project
Create a new project.
- (5) Close Project
Close the current project.
- (6) Copy Project
Copy and back up the current project.
- (7) Save
Save the current project.
- (8) Save as
Save the current project under a different name.
- (9) Save All
Save all work.
- (10) Convert To Runtime Project
Compile the current project. This compiles without downloading, and includes error-detection.
- (11) Frame Editor
Edit individual frames of the Xpanel screen.
- (12) Page setup
Printer settings, such as Headers, Footers, Margins, and Black&White Reversal.
- (13) Preview
Display a preview before printing out.
- (14) Print
Print out the current page.
- (15) Exit
Close Xpanel Designer.

2) Edit

Edit	Draw	View	Online	Arrange	Tools
Undo					Ctrl+Z
Redo					Ctrl+Y
Cut					Ctrl+X
Copy					Ctrl+C
Paste					Ctrl+V
Delete					Del
Select All					Ctrl+A
Find...					Ctrl+F
Replace...					Ctrl+H
Object Config(W) ...					
Graphic File Paste(B) ...					
Insert Animation Bitmap ...					

(1) Undo

Cancel the last operation.

(2) Redo

Reverse the last Undo operation.

(3) Cut

Delete the selected item and copy it to the **Clipboard**.

(4) Copy

Copy the selected item to the **Clipboard**.

(5) Paste

Paste the item currently in the clipboard to the selected location on the page.

(6) Delete

Delete an item without copying it to the clipboard.

(7) Select All

Select all items on the page.

(8) Find

Find a tag or string in the project.

(9) Replace

Replace a Tag name or String. This can be done on a page by page basis, or for the whole project.

This is useful for quickly **converting** between **Virtual Tags** and **Real Tags**.

(10) Object Configuration

Open the Object Configuration dialog box.

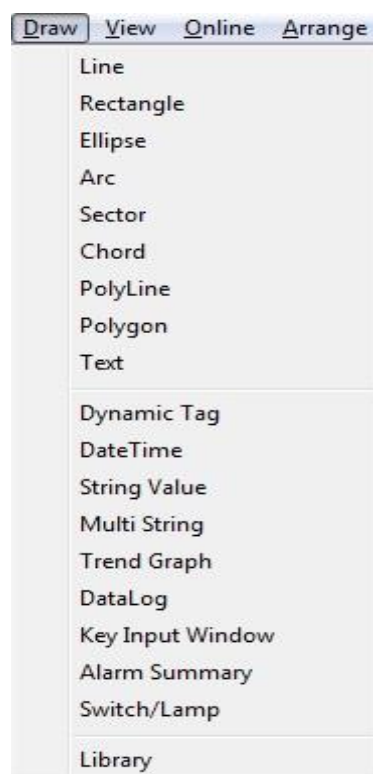
(11) Graphic File Paste

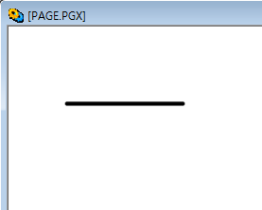
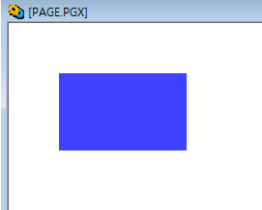
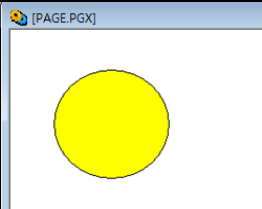
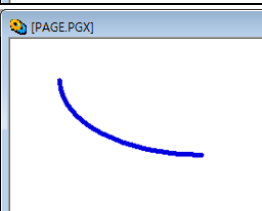
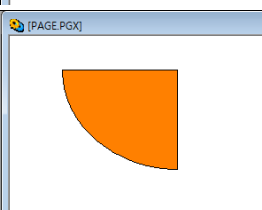
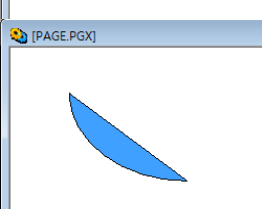
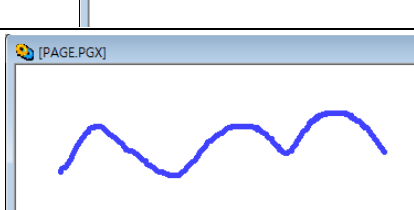
Paste a Graphic File into the page. Supported file types include **JPG** and **BMP**, but not PNG.

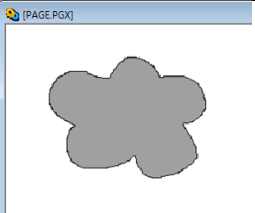
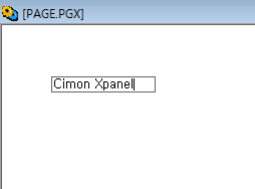
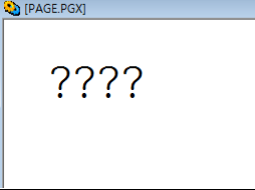
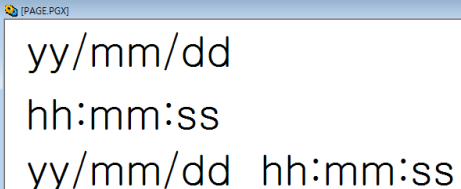
(12) Insert Animation Bitmap

Insert an Animation into the Page, from either the XpanelDesigner **Library** or from a custom user library created with **User Library Edit** from the **Tools** Menu.

3) Draw



Object Type	Display	Description
(1) Line		Draw a line Object on the page. You can control line color and thickness using Object Configuration .
(2) Rectangle		Draw a rectangle on page. You can change the fill and border color using Object Configuration .
(3) Ellipse		Draw an ellipse on the page. You can change the fill and border color using Object Configuration .
(4) Arc		Draw an arc on the page. You can change the fill and border color using Object Configuration .
(5) Sector		Draw a sector on the page. You can change the fill and border color using Object Configuration .
(6) Chord		Draw a chord on the page. You can adjust chord color and thickness using Object Configuration .
(7) Polyline		Draw a polyline on the page. Line color and thickness can be adjusted using Object Configuration .

(8) Polygon		Draw a polygon on the page. A polygon can be drawn connecting between the beginning and the end of a free-form curve.
(9) Text		Enter text on the page. The font type and size can be adjusted.
(10) Dynamic Tag		Display the value of a Tag in the database.
(11) Date&Time		Display the date and time on the page. You can choose three display modes. (Year/Month/Day, Hour:Min:Sec, Year/Month/Day Hour:Min:Sec)

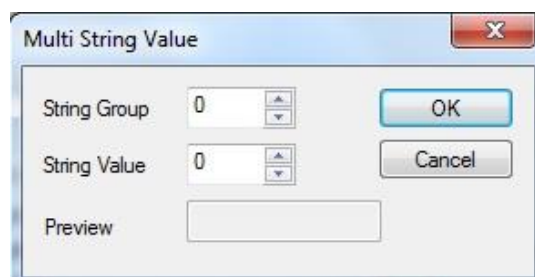
(12) String Value

Display the value of a String Tag.



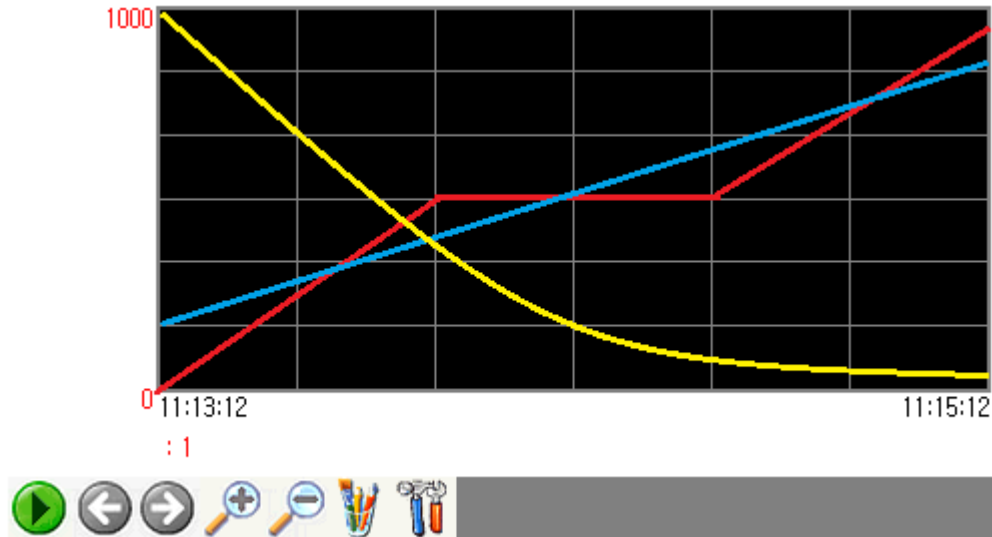
(13) Multi Language String

Multiple language Strings can be used by selecting **Multi Language Setup** in the Tool menu.



(14) Trend Graph

Display Trend Graph on the Page. Six types of Trend Graph are available (YT, SPC, ST, Scope, Log, and XY).



(15) DataLog

Display log data in a table. This feature is supported on real-time based systems.

(16) Key Input Window

Create a dialog box which takes a **String** or **Number** as Input. When no Keyboard is available, a virtual soft keyboard can be used to enter input.

※ For the End Code, refer to the ASCII Code Table.

(17) Alarm Summary

Display **pre-determined** alarm information on the screen, based on the Alarm condition.

Alarm Time	Device	Value	Alarm Type	Description
2012/09/17 08:41:54	Device	31,0000	Clear	Alarm Descript,..
2012/09/17 08:41:54	Device	30,0000	Warning	Alarm Descript,..
2012/09/17 08:41:54	Device	29,0000	Clear	Alarm Descript,..
2012/09/17 08:41:54	Device	28,0000	Warning	Alarm Descript,..
2012/09/17 08:41:54	Device	27,0000	Clear	Alarm Descript,..
2012/09/17 08:41:54	Device	26,0000	Warning	Alarm Descript,..
2012/09/17 08:41:54	Device	25,0000	Clear	Alarm Descript,..
2012/09/17 08:41:54	Device	24,0000	Warning	Alarm Descript,..
2012/09/17 08:41:54	Device	23,0000	Clear	Alarm Descript,..
2012/09/17 08:41:54	Device	22,0000	Warning	Alarm Descript,..
2012/09/17 08:41:54	Device	21,0000	Clear	Alarm Descript,..
2012/09/17 08:41:54	Device	20,0000	Warning	Alarm Descript,..
2012/09/17 08:41:54	Device	19,0000	Clear	Alarm Descript,..
2012/09/17 08:41:54	Device	18,0000	Warning	Alarm Descript,..
2012/09/17 08:41:54	Device	17,0000	Clear	Alarm Descript,..
2012/09/17 08:41:54	Device	16,0000	Warning	Alarm Descript,..
2012/09/17 08:41:54	Device	15,0000	Clear	Alarm Descript,..
2012/09/17 08:41:54	Device	14,0000	Warning	Alarm Descript,..
2012/09/17 08:41:54	Device	13,0000	Clear	Alarm Descript,..
2012/09/17 08:41:54	Device	12,0000	Warning	Alarm Descript,..
2012/09/17 08:41:54	Device	11,0000	Clear	Alarm Descript,..

Stop Stamp ACK Setup Config

(18) Switch/Lamp

Handle various functions with **one button**. With a variety of Switch/Lamp Libraries available, it is possible to configure several operations at the same time.

Switch / Lamp

Object Name

Switch Switch Common Lamp Label

☒ Switch Function

Touch - Down

Touch - Up

Add Delete Edit

Bit Switch Word Switch Page Special Fn.

Tag Name

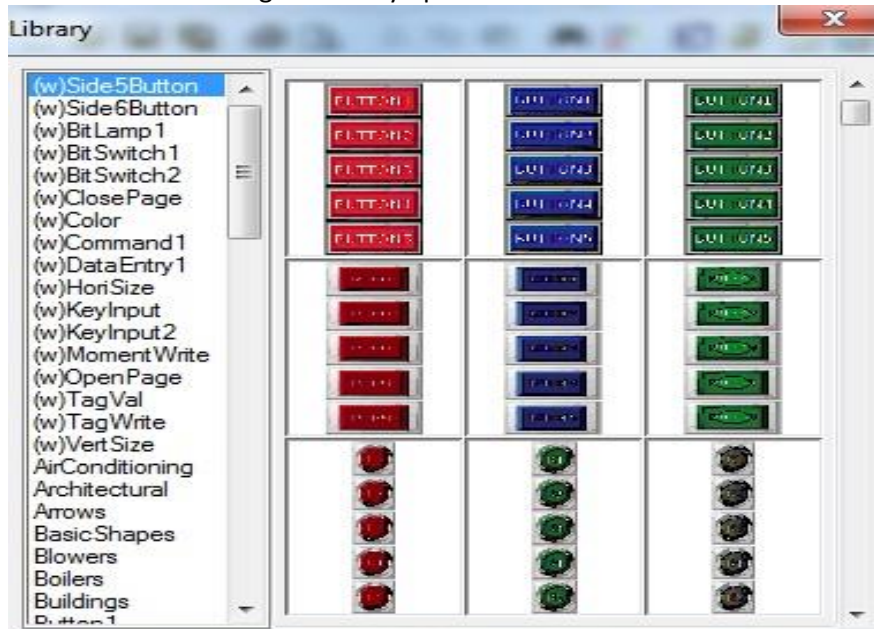
Function

☒ Set ☐ Reset ☐ Toggle

OK Cancel

(19) Library

A variety of Object libraries are available, such as Machinery, Equipment, Lamps etc. Please update to the latest version of XpanelDesigner on a regular basis so you can take advantage of library updates.



4) View

(1) Redraw

(2) Current Page Position To Runtime

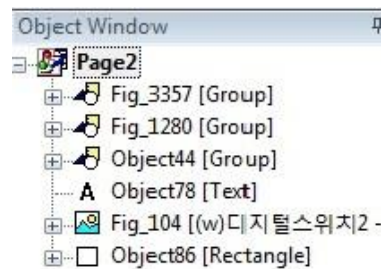
(3) Tag Window

The Tag Window displays all the tags used on the current page. It lists tag names, kinds (i.e., digital or analog), addresses and types.

Tag Screen			
TAG NAME	TAG KIND	TAG ADDRESS	TAG TYPE
DIG1	Digital		Visible
DIG1	Digital		Horizontal Movement
DIG1	Digital		Touch
DIG1	Digital		Visible
DIG1	Digital		Touch
ANA1	Analog		Numeric

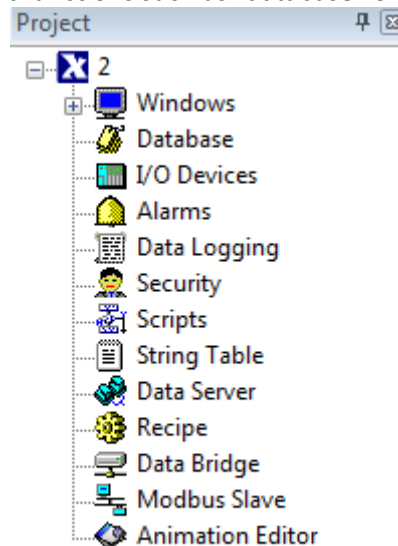
(4) Object Window

Displays Object Properties in the form of a tree view.



(5) Project Workspace

This provides convenient access to project management features. You can view a list of pages added to the project, and you can check, open and delete pages. You can use shortcut functions such as “database” or “script”.



(6) Main Tool

The Main Tool is a toolbar which includes the most commonly used features in Xpanel.



(7) Status Tool

The Status Tool displays the mouse location, along with XpanelDesigner status messages.

x=409, y=536

(8) Drawing Tool

Draw Objects, such as Diagrams, Dynamic Tags, Text, etc.



(9) Color Tool








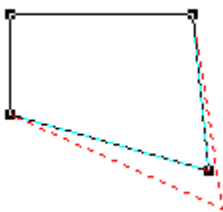

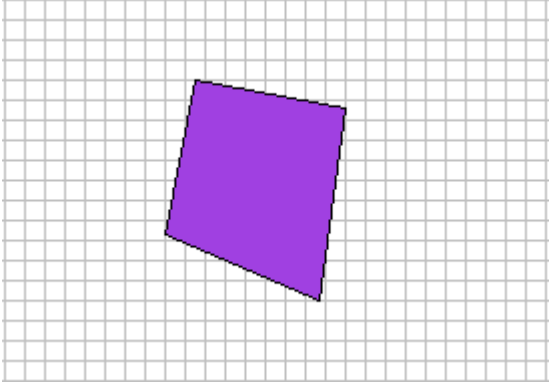
The Color Tool allows you to select colors for Object such as **diagrams**.



(10) Arrange Tool

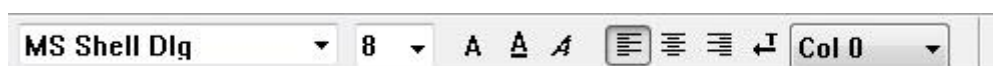
Arrange or place objects on the Page.

Group		Combine the selected objects into a group
Ungroup		Release a grouped set of objects.
Bring To Front		Bring the selected object to the front of a set of overlapping objects.
Send To Back		Move the selected object to the back of a set of overlapping objects.
One Step Forward		Bring the selected object forward one step in a set of overlapping objects.
One Step Backward		Move the selected object one step back in a group of overlapping objects.
Align		Aligns the selected objects based on the alignment selection.

Space Horizontal		Distribute the horizontal spacing of objects evenly.
Space Vertical		Distribute the vertical spacing of objects evenly.
90°Clockwise		Rotate the selected object 90° clockwise .
90°Counterclockwise		Rotate the selected object 90° counter-clockwise .
Horizontal		Flip the selected object horizontally .
Vertical		Flip the selected object vertically .
Reshape		 <p>Diagram shapes can be changed by dragging the edge of the object.</p>
Snap To Grid		 <p>After dividing page into a small grid, this feature aligns objects to the grid lines when you draw or move them. It is useful for controlling vertical and horizontal alignment.</p>

(11) Font Tool

Select the font type and size.



(12) Switch/Lamp Tool

Change the Switch/Lamp State by changing its Tag value status.



(13) Tag View Tool



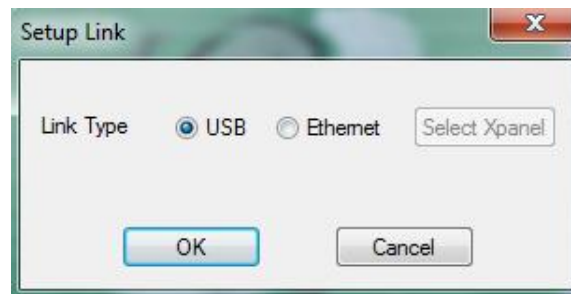
(14) Zoom In/Out

Control the magnification of the screen (up to 800%).

5) Online

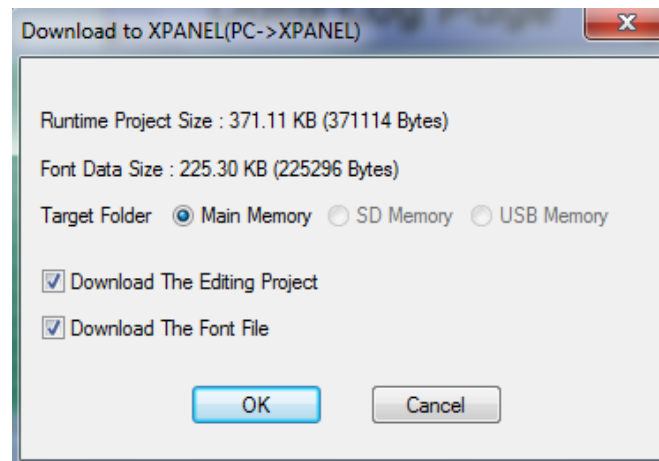
(1) Setup Link

Select the type of connection between the PC and Xpanel: either “**USB cable**” or “**Ethernet**”.



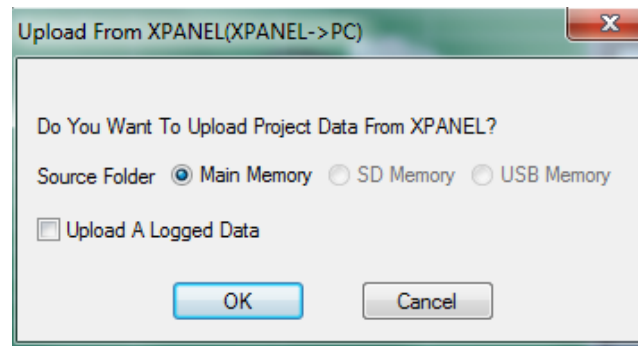
(2) Download To Xpanel (PC->Xpanel)

Download the project from the **PC** to **Xpanel**.



(3) Upload From Xpanel (Xpanel->PC)

This feature transmits the downloaded project from Xpanel to the PC.



(4) Upload From Storage (Storage->PC)

Transfer a project from a portable storage device (USB memory or SD memory) to the PC.

(5) Make Executing Removable Memory

The project is downloaded to USB or SD memory. After installing the removable memory device into Xpanel, the operator can run the project **without downloading** it to Xpanel. This feature is useful when the **size** of project is too **large** to download to Xpanel.

(6) Copy Project To Removable Memory

Download the project from the **PC** to **USB memory** or **SD memory**. After inserting the memory device into Xpanel, the project can be transmitted to Xpanel through the **Ethernet Loader**. This allows you to update a project in the field using portable memory, rather than a PC.

(7) Stop Xpanel Application Program

When the PC is connected to Xpanel and **online**, this will **terminate** the current project and exit to Xpanel Desktop.

(8) Run Xpanel Application Program

When the PC is connected to Xpanel and **online**, this will re-run the terminated project.

(9) Run Remote Control Server

This command must be run before using **VNC**.

(10) Stop Remote Control Server

This command must be run in order to stop **VNC**.

(11) Run Remote Control Viewer

This allows you to **monitor and Control** the Xpanel screen from the **PC** using VNC.

(12) Upgrade Xpanel Application Program

Upgrade the Xpanel **Application Program**. If the Application Program versions used by Xpanel and XpanelDesigner are **different**, you must **re-download** the project to run properly. You do not need to use this feature unless the Xpanel Application Program file is corrupted, or until an upgrade becomes necessary for other reasons.

(13) Xpanel Repair Mode

This feature is used when you **cannot download** the project to Xpanel for any reason, or if an error occurs. After running Repair Mode, you must execute **System Shutdown** or **download** the project to Xpanel to finish the process.

(14) Xpanel Touch Calibration

When the touch screen is not accurate, run Xpanel Touch Calibration. With this feature on, press the touch calibration points as directed. After the completion of the calibration process, you must run System Shutdown to save the calibration settings.

6) Arrange

(1) Group

Combine the selected objects into a group.

(2) Ungroup

Release a grouped set of objects.

(3) Regroup

Regroup previously ungrouped Objects.

(4) Bring To Front

Bring the selected object to the front of a set of overlapping objects.

(5) Send To Back

Move the selected object to the back of a set of overlapping objects.

(6) One Step Forward

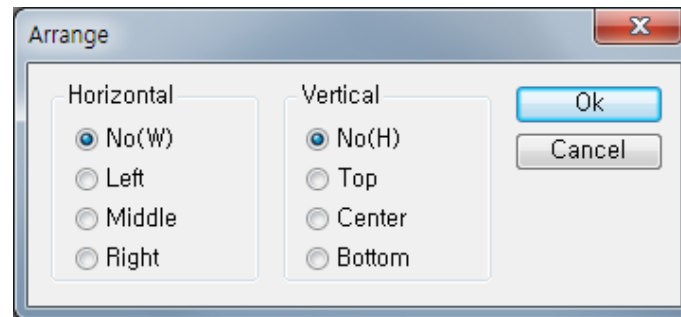
Bring the selected object forward one step in a set of overlapping objects.

(7) One Step Backward

Move the selected object one step back in a group of overlapping objects.

(8) Arrange

Arranges the selected objects based on the alignment selection.



(9) Rotate

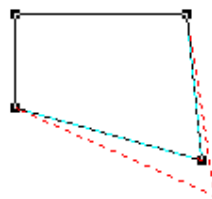
- A. 90° Rotate **clockwise** : Rotate the selected object 90° clockwise.
- B. 90° Rotate **counter-clockwise** : Rotate the selected object 90° counter-clockwise.

(10) Flip

- A. Horizontal : Flip the selected object horizontally.
- B. Vertical : Flip the selected object vertically.

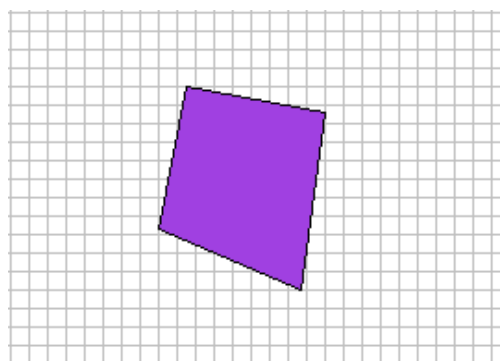
(11) Diagram Reshape

Diagram shapes can be changed by dragging the edge of the object.



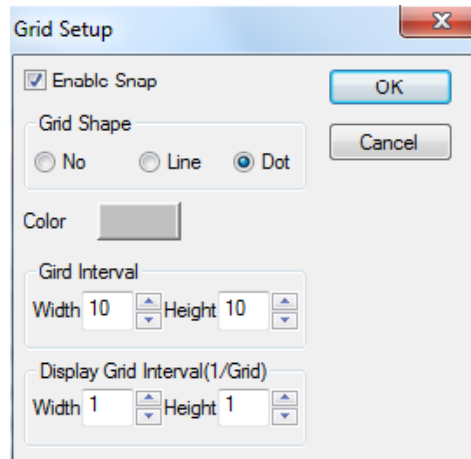
(12) Enable Snap

After dividing page into a small grid, this feature aligns objects to the grid lines when you draw or move them. It is useful for controlling vertical and horizontal alignment.



(13) Grid Configuration

Three grid types (**No grid**, **Line**, **Dot**) are supported. The user can choose the grid interval and colors.



(14) Make Symbol

Set a picture or object as the **page background**. Once the background is set, you cannot edit it.

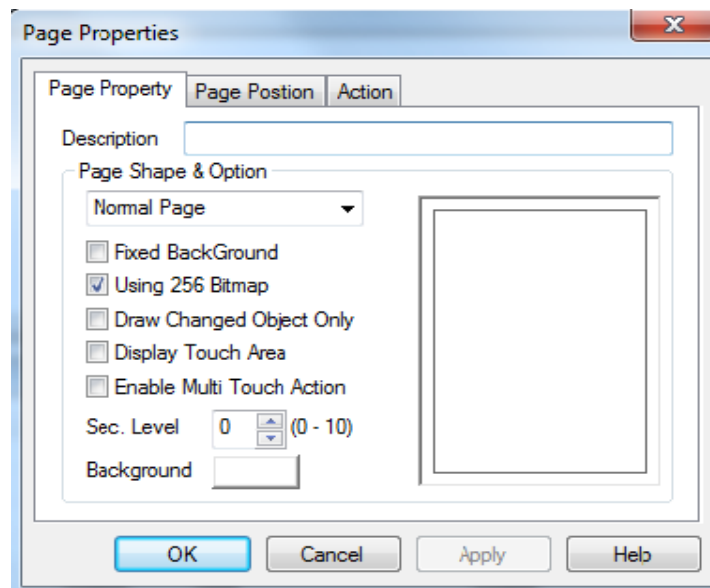
(15) Break Symbol

Release a picture or object from being the Page Background.

7) Tools

(1) Page Setup

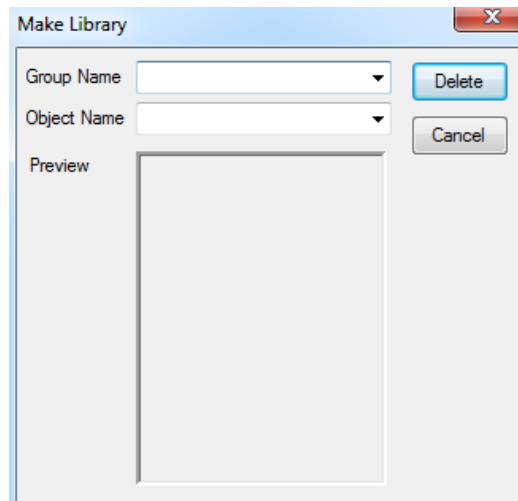
Change general settings for the page, such as **shapes, background color, security level, page size**, etc.



(Please see the detailed description in 'Chapter 4 – Page Setup')

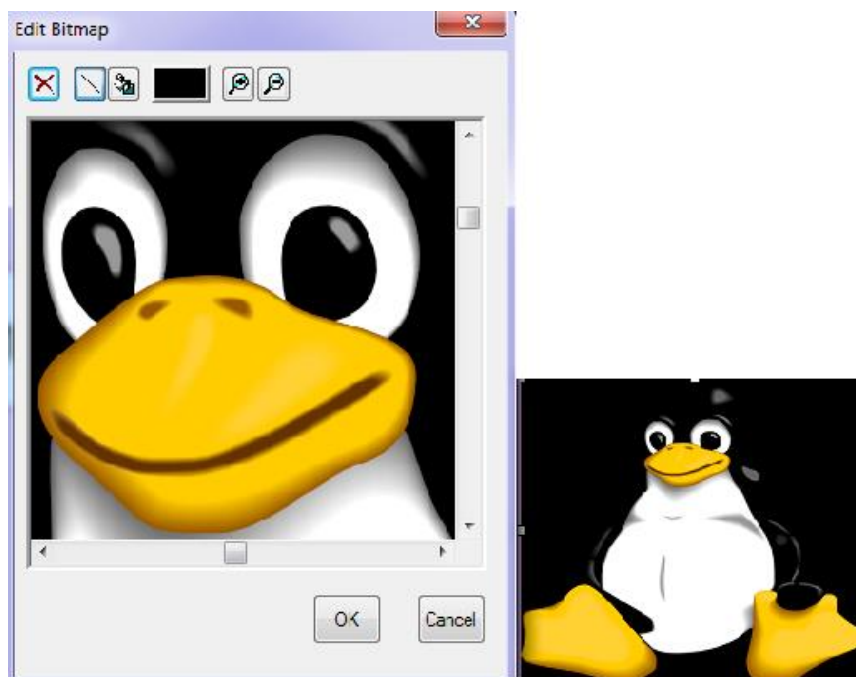
(2) User Library Edit

Edit and add a **user-created library**.



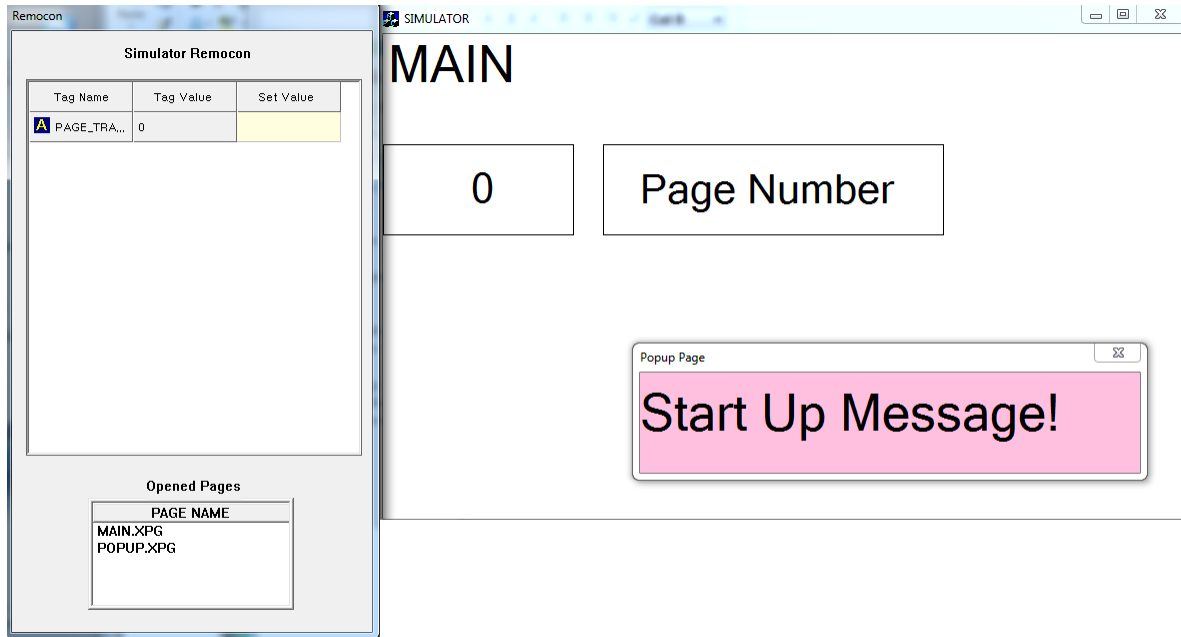
(3) Bitmap Edit

Edit **Bitmap** objects on the page. This feature provides **simple** editing, but does not support many of the functions that you would find in Paint or a professional image editing program.



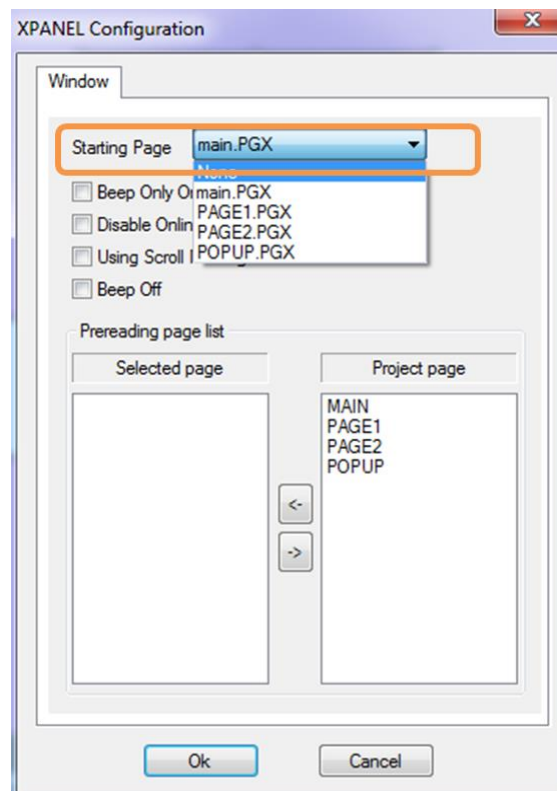
(4) Run Simulator

Check an Xpanel project on the PC simulator. This feature provides virtual simulation even without a connection between Xpanel and PLC. Using the Xpanel Database Simulator, you can change the **Tag value**.



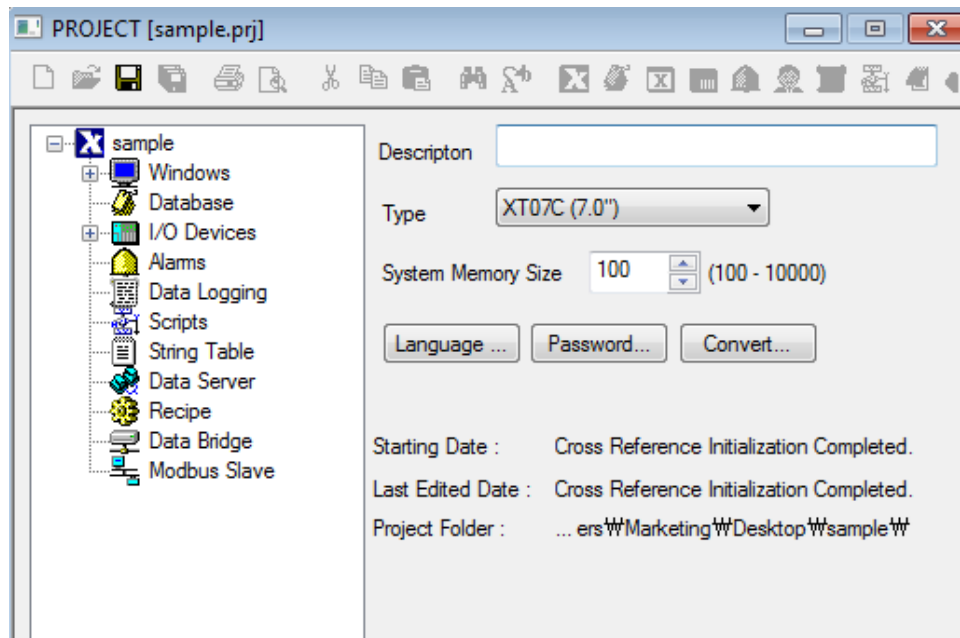
(5) Run simulator With Active Page

Without setting up a **Starting Page**, the **current Page** can be run on the **Simulator**.



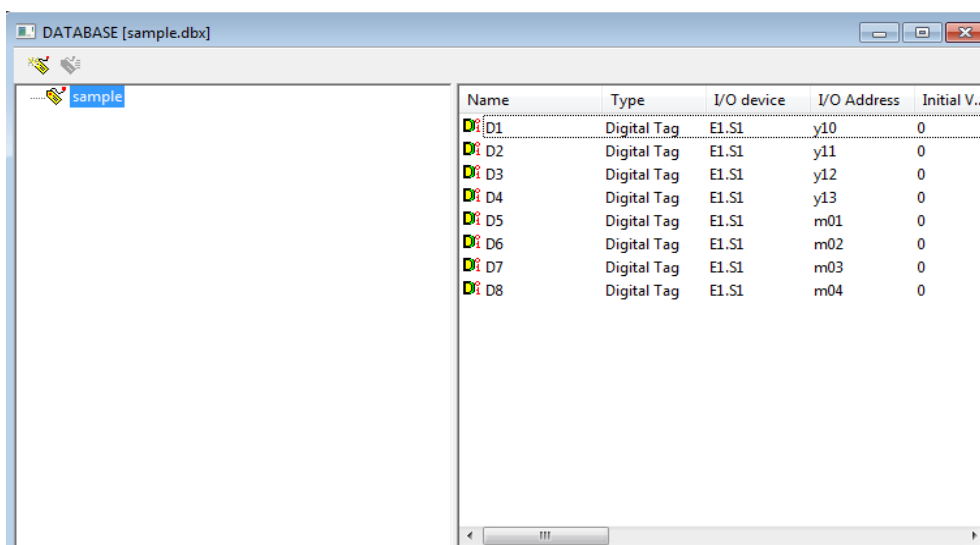
(6) Project

Change overall project settings such as **Xpanel Type**, **Multi-language**. For example, you can change the project model **size** from 10.4" to 7" by using the **Convert** feature.



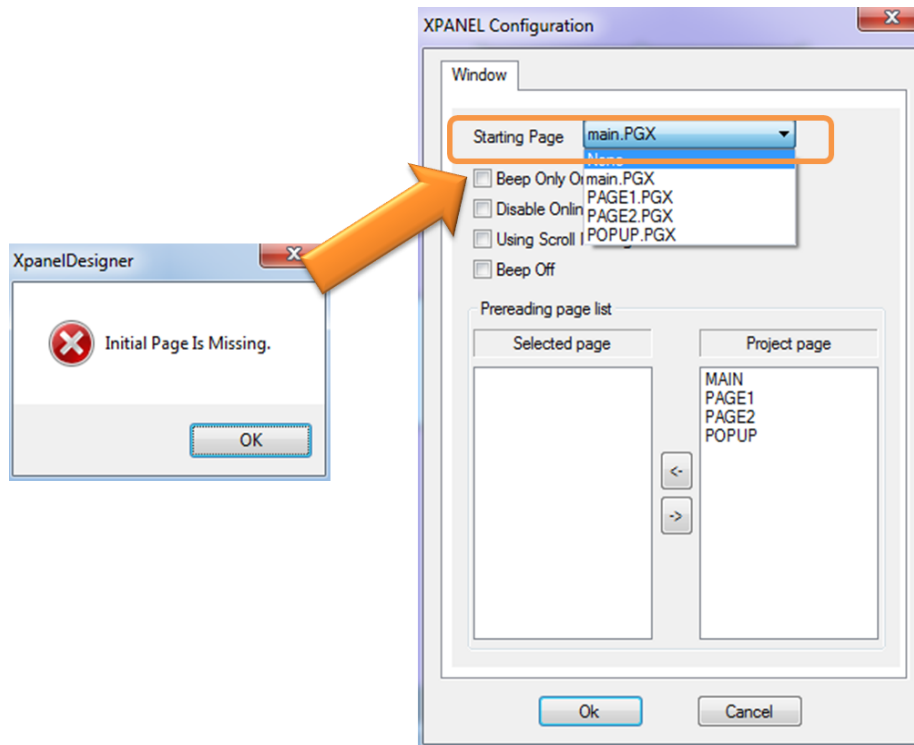
(7) Database

Create and edit **Tags** for communication. Tag types can be **Digital**, **Analog**, or **String**. A **Real tag** is used for actual communication with the device. A **Virtual tag** uses Xpanel's internal memory.



(8) CIMON-XPANEL Setup

Set up Xpanel operation. The **Initial Page** of Xpanel must be selected before downloading the project to Xpanel. If the Initial Page is not set, an **error message** will appear during downloading.



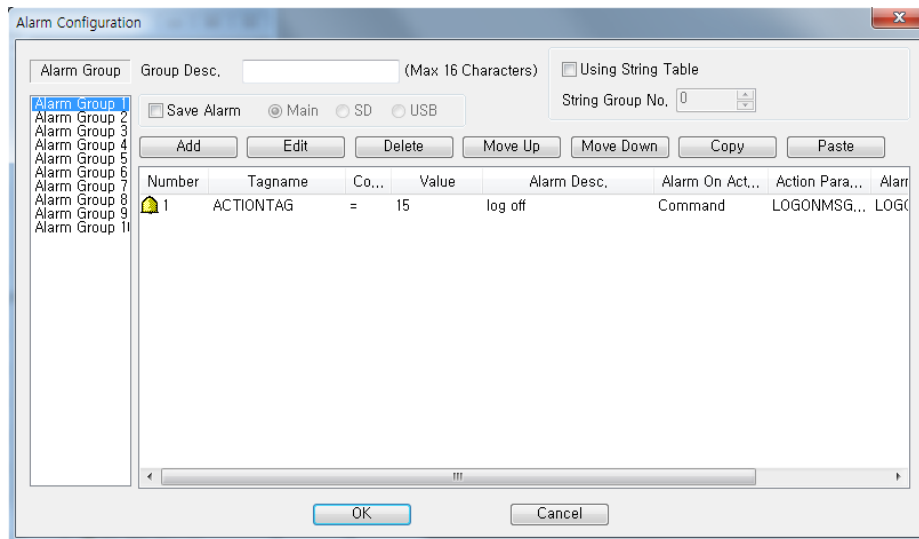
(9) I/O Device

Set Xpanel's **communication properties**, such as Serial/Ethernet, Protocol, Comm. Speed, etc.



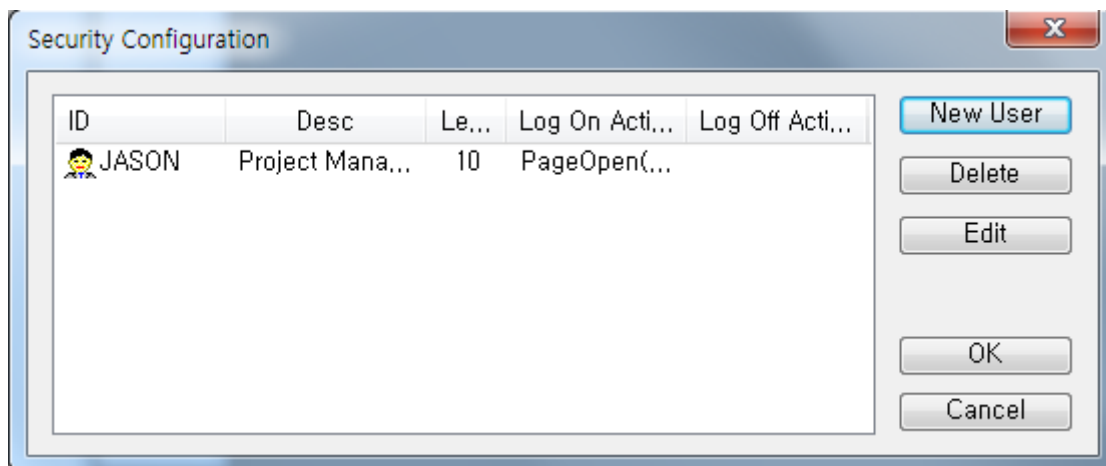
(10) Alarms

To create the Alarm **list** and set Alarm **conditions**. The Alarm summary and Alarm Action can be set when the Alarm is ON.



(11) Security

Limit **access** to Xpanel only to users with sufficient **authority**. Security is divided into **10 Levels**. A user ID can be given a password. Operations such as Log On/Off Actions can be configured.



(12) Data Logging

Collect and save Data in a variety of formats. The data logging **Start Option**, **Logging Option**, and **Logging Tag** must be set up.

DATA LOGGING [Script_Startup_PageTransition.lox]

..... Data Logging Model

Logging Model Name

Start Option

Type: Periodic

Start Time 0 : 1 Delay 0 Min

☐ Addr Bit

☒ Tag

Logging Option

Type: Periodic Period 60 Sec

☐ Addr Bit

☒ Tag

Block Option

Maximum Log No. Per Block 1440

Maximum Block No. 32

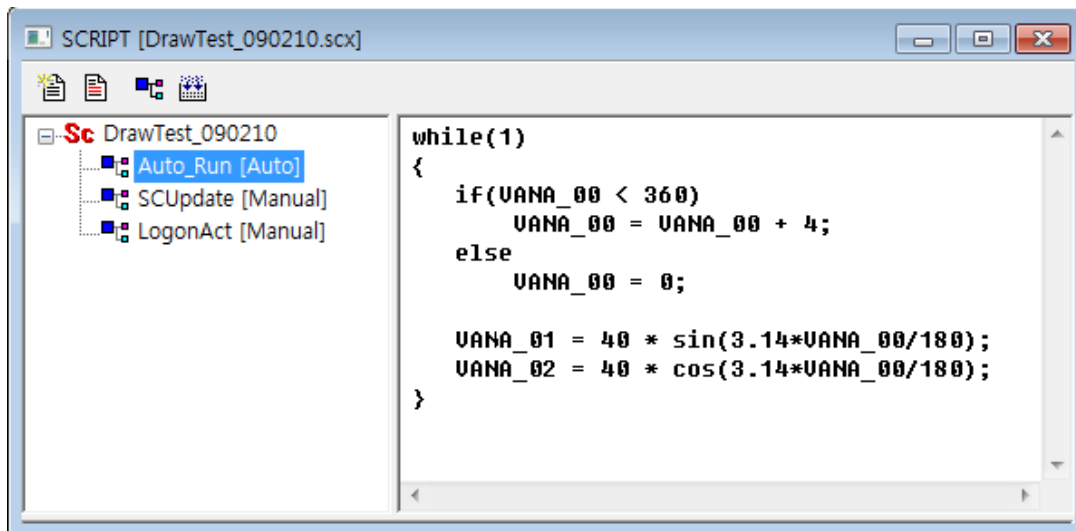
Add Tag Edit Tag Delete Tag

Tagname	Description

Add Apply Delete Close

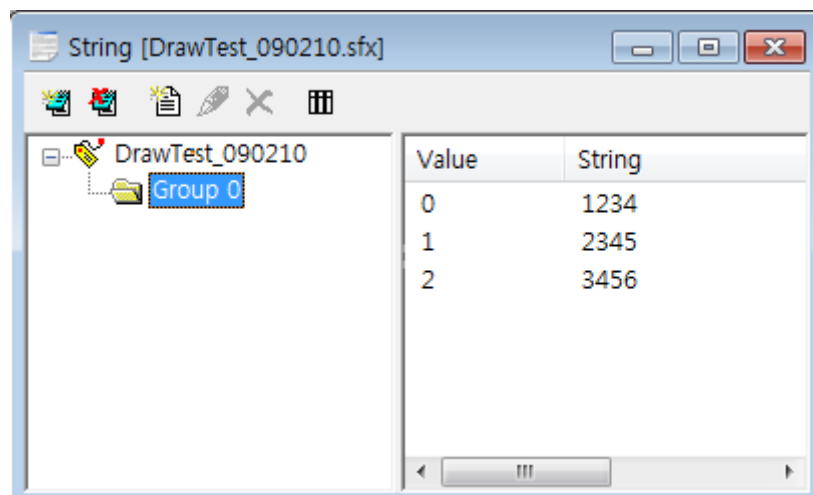
(13) Scripts

Scripts supports C-style syntax. There are three types of script: “**On StartUp(Auto)**”, “**Manual**” and “**Period**”.



(14) String Editor

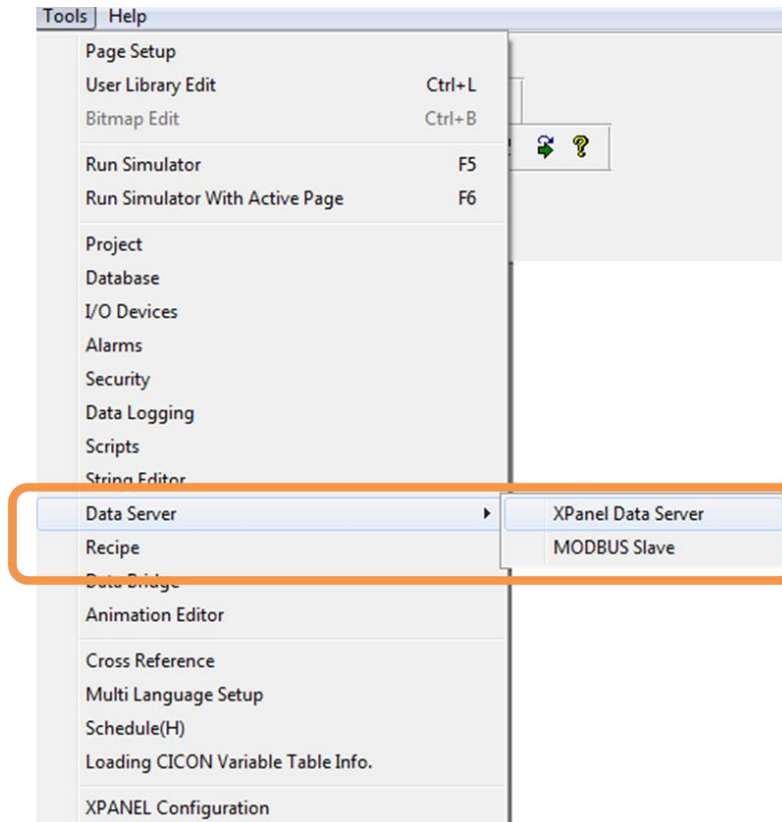
Create a set of strings. You can display string value according to tag value.



(15) Data Server

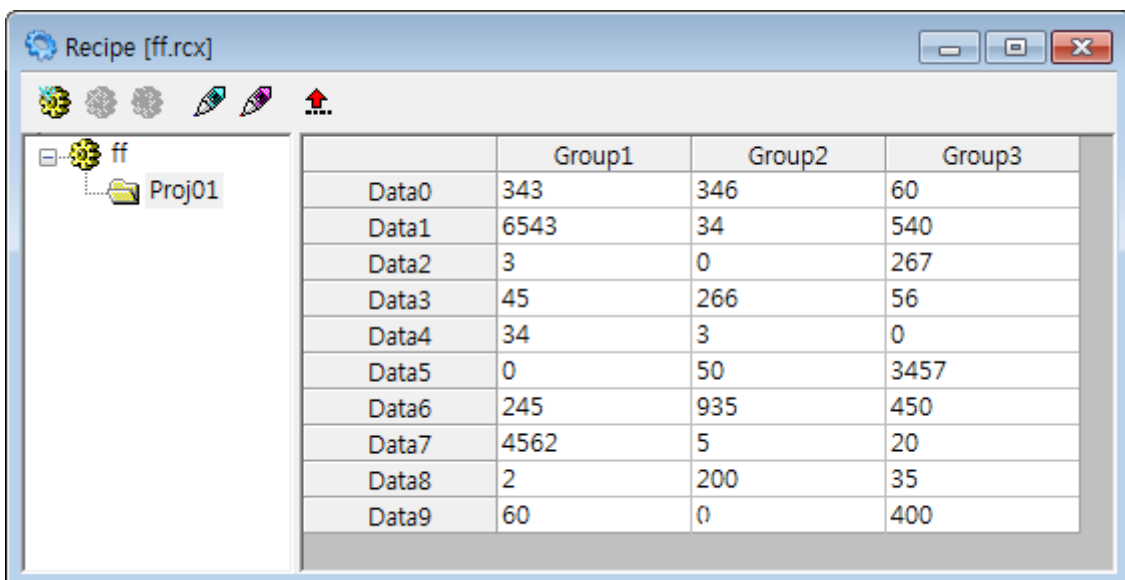
When Xpanel is used as a Data server, it can transmit tag values to equipment and clients.

- Xpanel Data Server - CIMON dedicated communication with **CIMON SCADA by Ethernet**.
- MODBUS Slave : Communicate with **Modbus Master** in Modbus Protocol (**RTU** or **TCP**).



(16) Recipe

Create a **Set of Data** in advance, to be used later on site. The user can **Upload** or **Download** the values between **Xpanel** and the Real **device** (PLC).



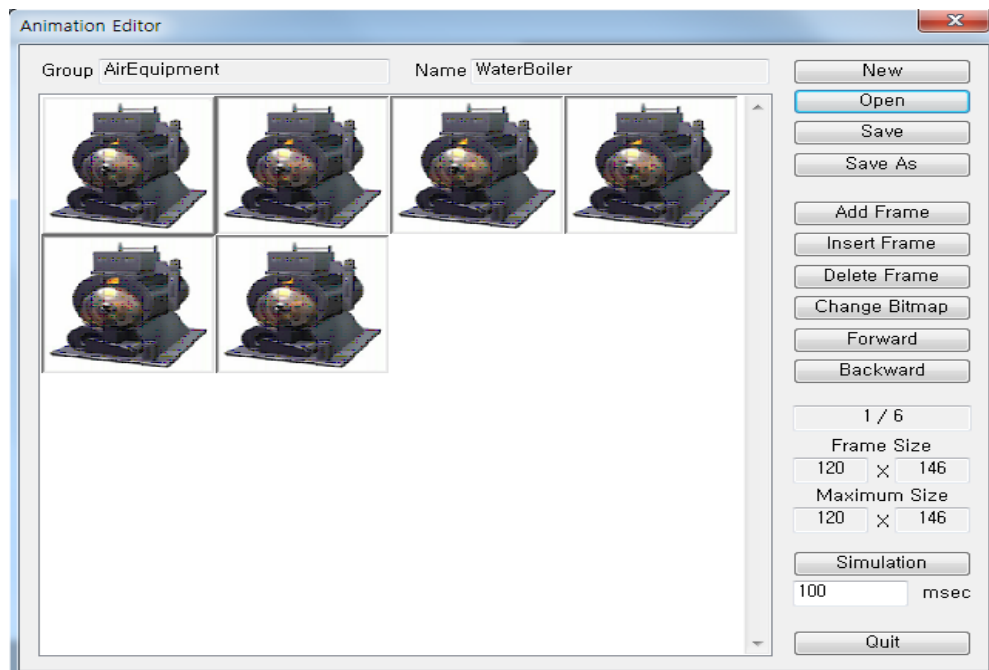
(17) Data Bridge

When one device **cannot** communicate with another device **directly**, Xpanel can serve as a bridge to exchange data between both devices.



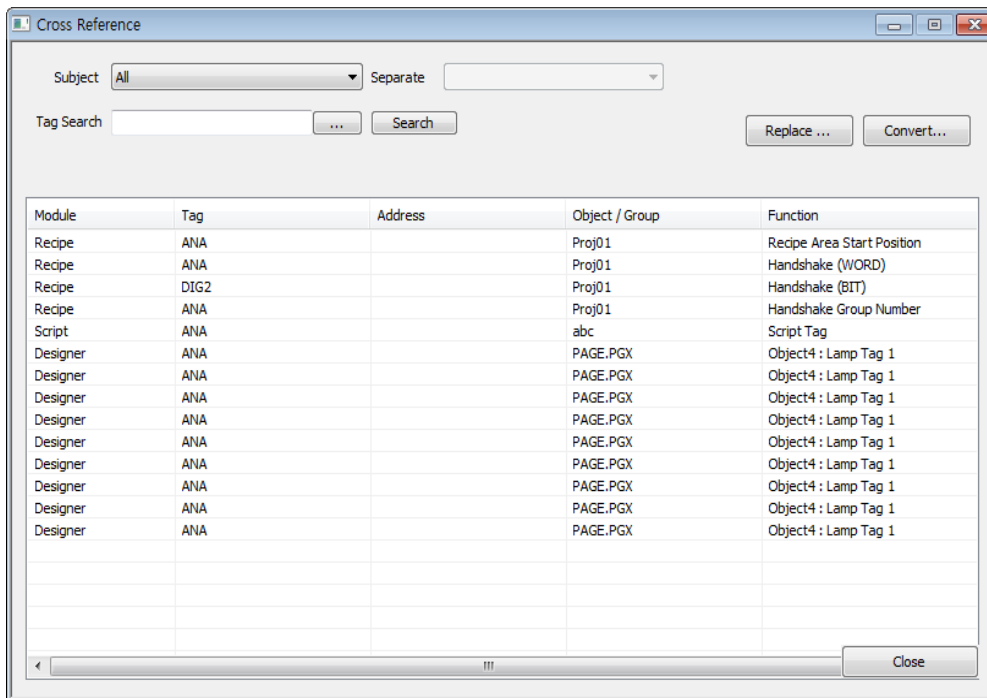
(18) Animation Editor

Users can **create** their own **Animation Objects**. After adding graphic files to the Animation Editor, the user can run a virtual **Simulator**.



(19) Cross Reference

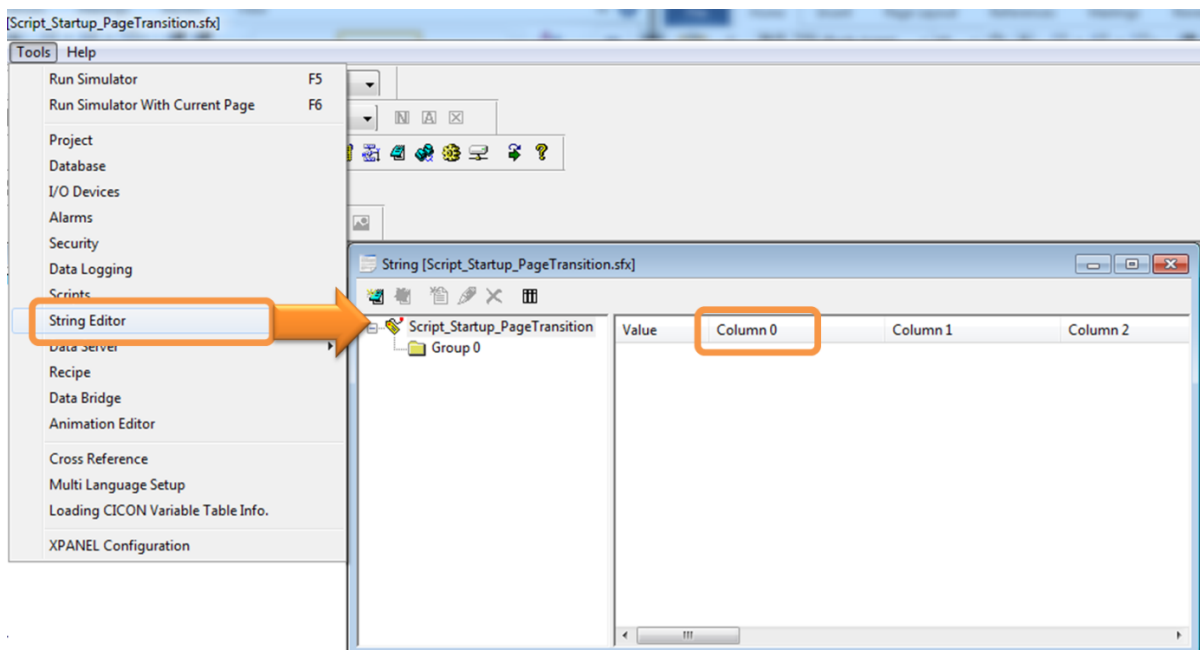
Search the **Tags** used in the Project, then display **where** the Tags are used.



(20) Multi Language Setup

Enter **multi-language** text for each **Column** using the **String Editor**.

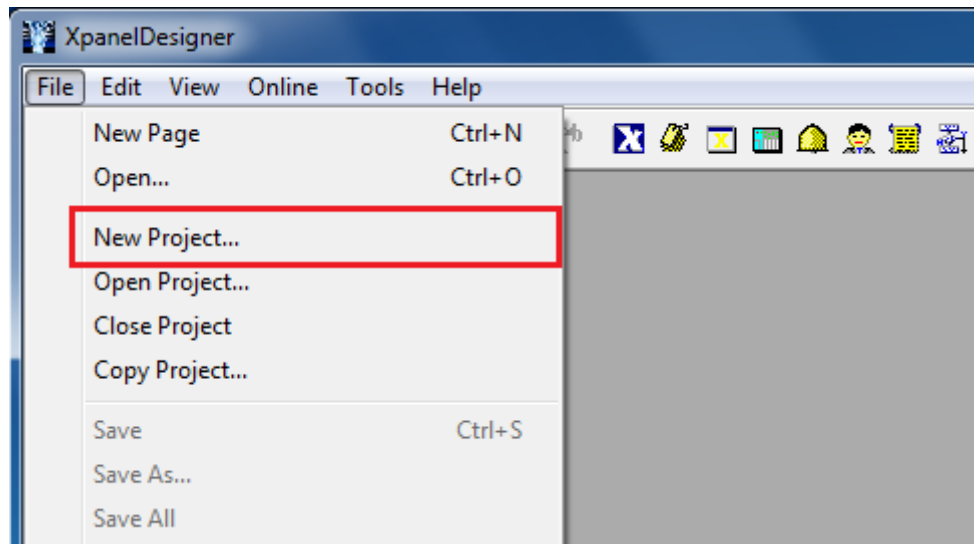
※ To enter **different languages** in an Xpanel Page, use the **Windows Language Bar** on the PC.



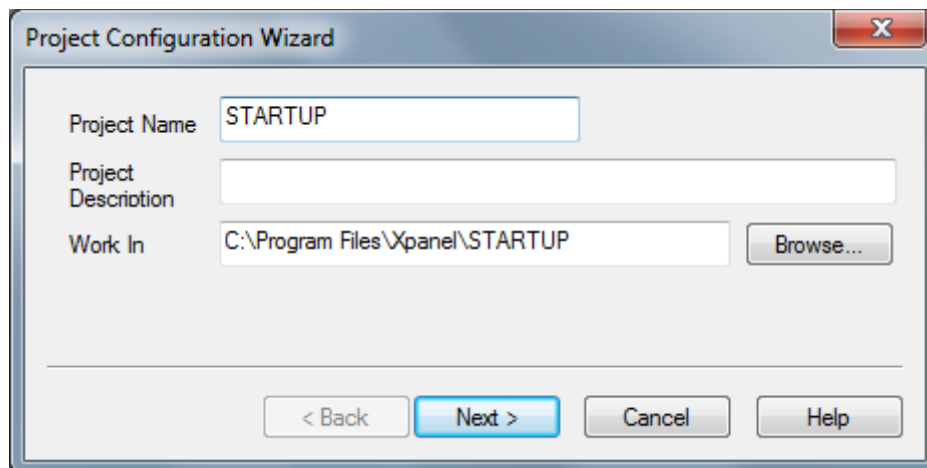
Chapter 3. Edit Tags and Communication

1. Create a new project

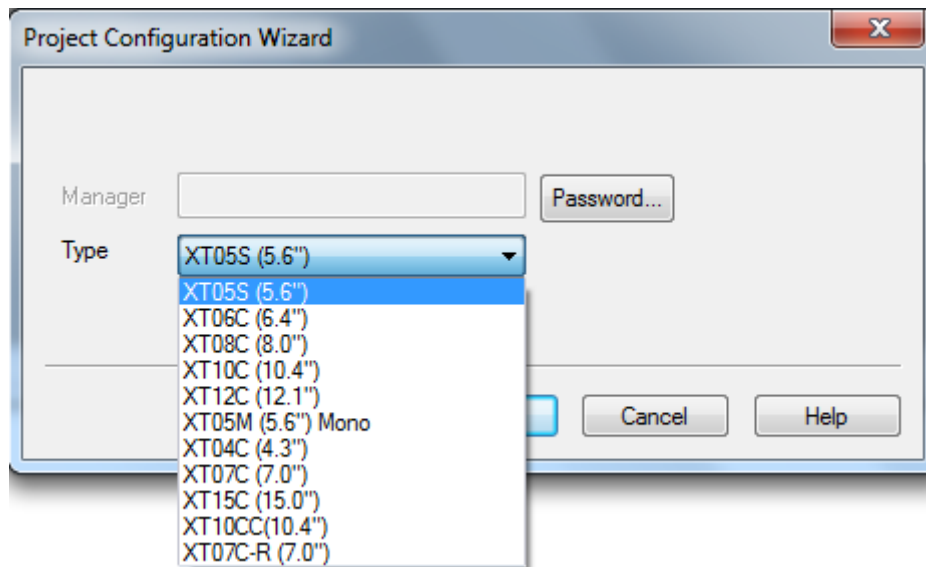
- 1) Select **New Project** from the **File** menu.



- 2) Enter the **Project Name**.

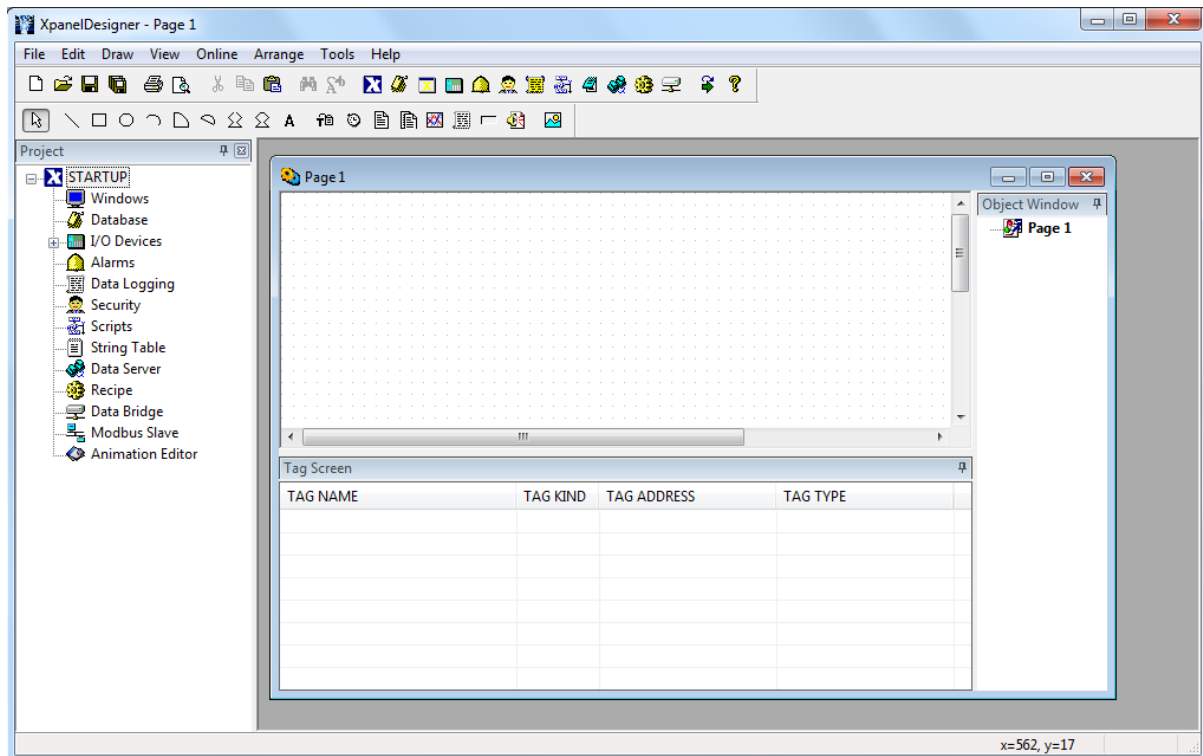


- 3) Select the appropriate **Xpanel Size**.



- ✱ For **XT07C-R(7.0")**, the project display will be rotated by **90°**.
- ✱ For **XT10(10.4")**, **XT10C** is a more recent version, with a higher resolution (800*600).

- 4) After you have stepped through the Project Configuration Wizard, a **new page** will appear.



2. Serial Communication with the CIMON PLC

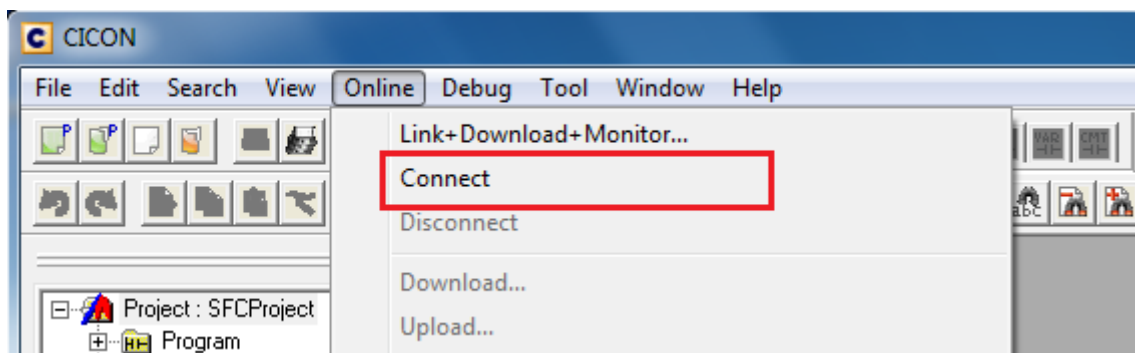
For communication between the PLC and Xpanel, Communication parameters must be configured.

The first step is to configure or verify the PLC communication settings. If you are using a CIMON PLC follow the steps below. If you are using a different brand of PLC please refer to its communication settings documentation.

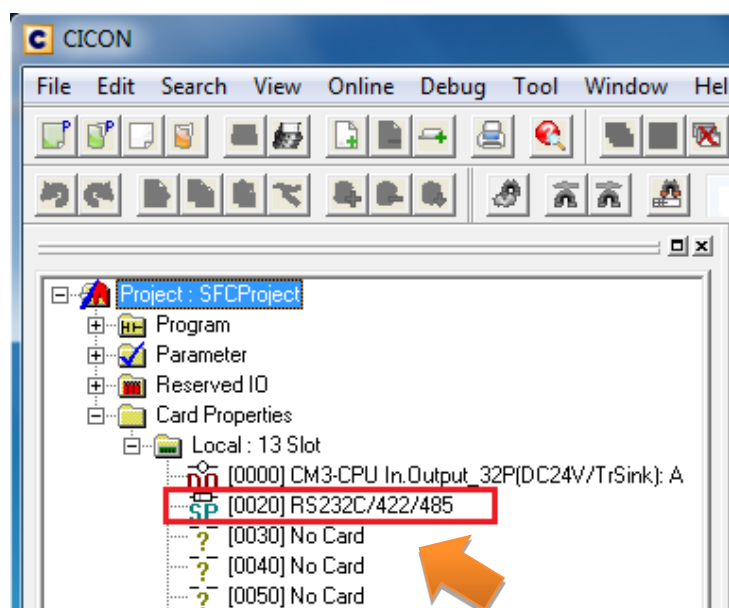
1) Cimon PLC Communication settings (**CM3-MDT** and **CM3-SP02ERS**)

(a) Check **CIMON's** Communication parameters.

- Select **Connect** from CIMON's **Online** Menu



If CIMON connects to the PLC **properly**, you will see module information in the “**Work space**,” as shown below.



To check the communication setup, double-click on the **CM3-SP02ERS(RS232C/422/485)** module.

RS232C/422 Module Setup

Base: Local Slot: Slot 1 Help

CH 1 CH 2 Common

Comm Type: Null

Operation Mode
Protocol: Protocol Program
Station No. 3

Comm Parameter
Baud Rate: 9600
Parity: None
Data Bit: 8
Stop Bit: 1
Response Delay (mSec): 50

Dialup Modem
MODEM initializing commands

Modem Timeout (sec): 0
Initialization Retry: 0
Phone No.:
Dialing Retry: 0
Dialing Interval: 0

Write Read Status Close

As shown above, the PLC communication parameter settings are:

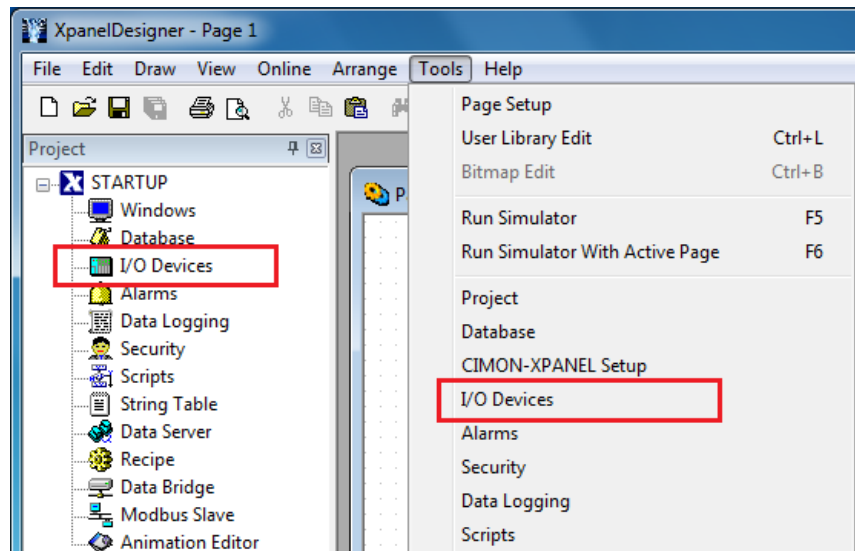
Station No.: 0,
Baud Rate: 9600,
Parity: None
Data Bit: 8
Stop Bit: 1

Xpanel's communication settings must **match** the **PLC parameters** settings.

2) CIMON **XPANEL** Communication settings

(1) I/O Device settings

Select **I/O Devices** from the **Tools** menu.

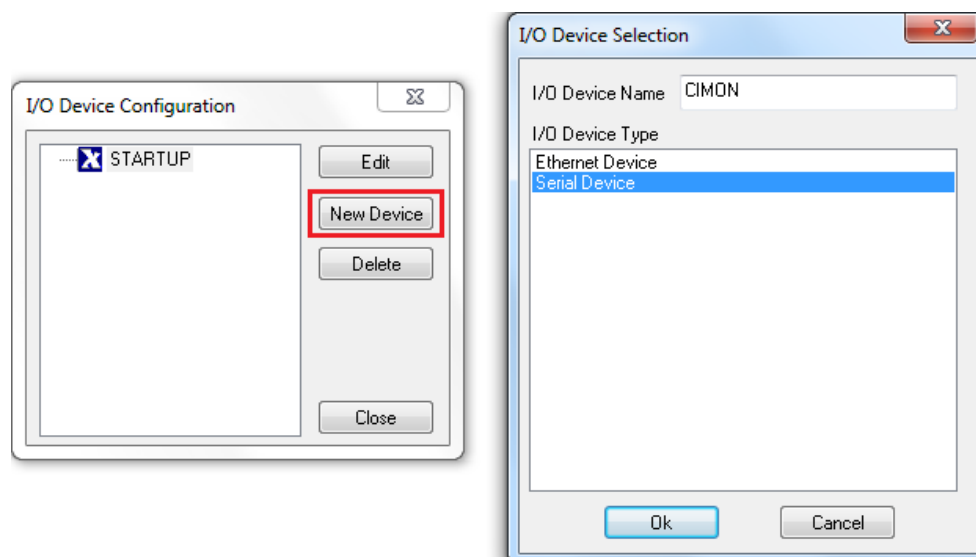


Communication **parameters** are set in **I/O Devices**.

Select the PLC **type** and enter **parameter settings** that **match** the **PLC** communication parameter settings.

(2) I/O Device Name and Type

Click on **New Device** and select the Device **type**.

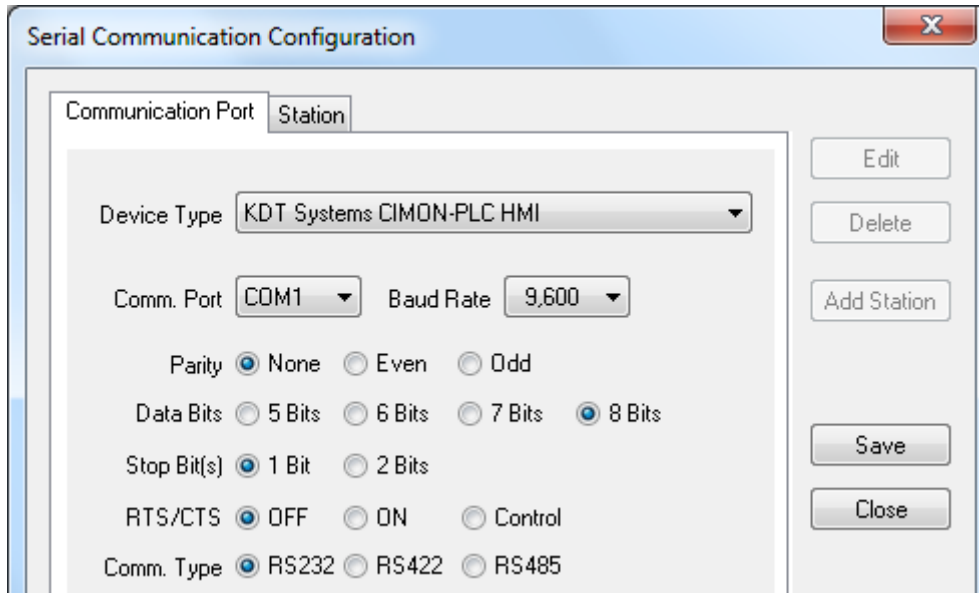


If Xpanel communicates with **several PLCs**, I/O Device Names will help to **classify** them.

Click “**OK**” to bring up the “**Serial Communication Configuration**” dialog box.

(3) Communication Port

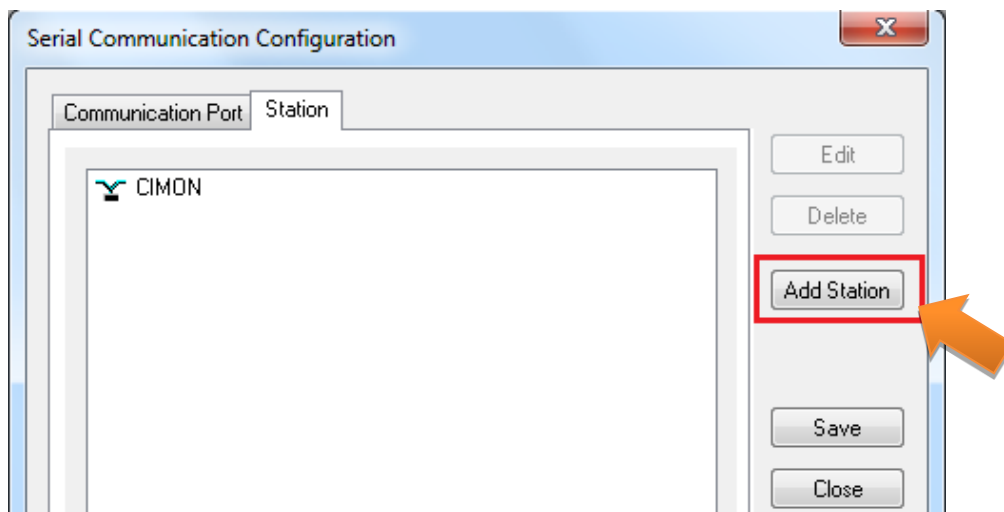
Enter the **same parameter settings** as those for the **PLC**. The communication type is **RS232** in this example.



Click “**Station**” to move to the next step.

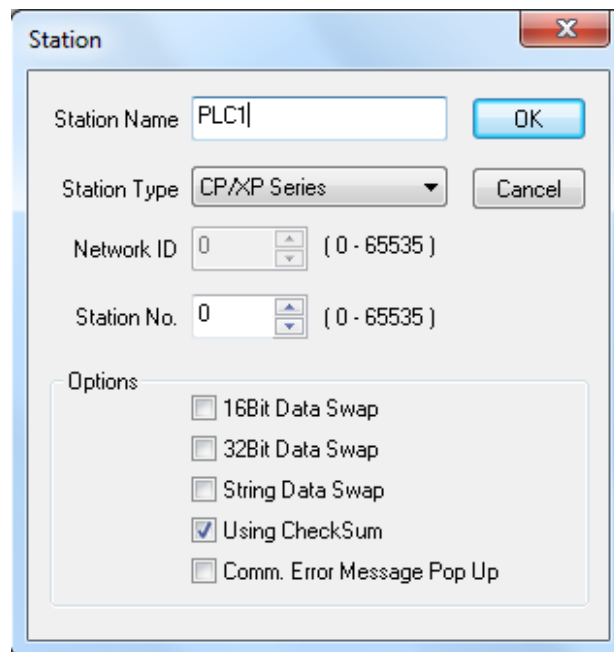
(4) Station

Click on **Add Station** to create a New Station.



(5) Station Configuration

Enter a **Station Name** and select the Station **Type** (PLC type).



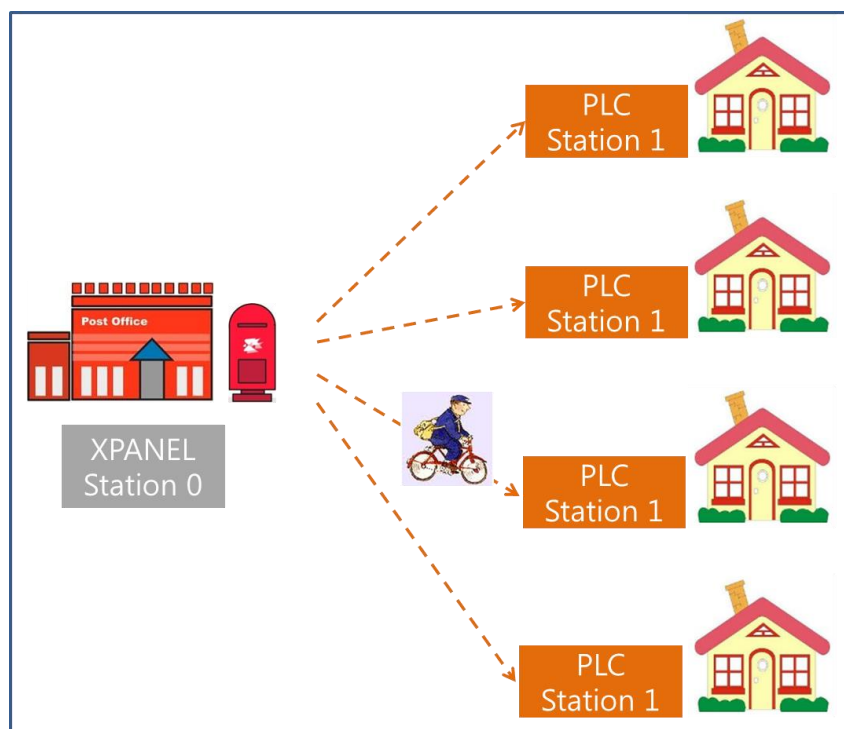
The dialog box titled "Station" contains the following fields and options:

- Station Name:** A text input field containing "PLC1".
- Station Type:** A dropdown menu showing "CP/XP Series".
- Network ID:** A numeric input field showing "0" with a range of "(0 - 65535)".
- Station No.:** A numeric input field showing "0" with a range of "(0 - 65535)".
- Options:** A group box containing five checkboxes:
 - ☐ 16Bit Data Swap
 - ☐ 32Bit Data Swap
 - ☐ String Data Swap
 - ☒ Using CheckSum
 - ☐ Comm. Error Message Pop Up

Buttons for "OK" and "Cancel" are located on the right side of the dialog.

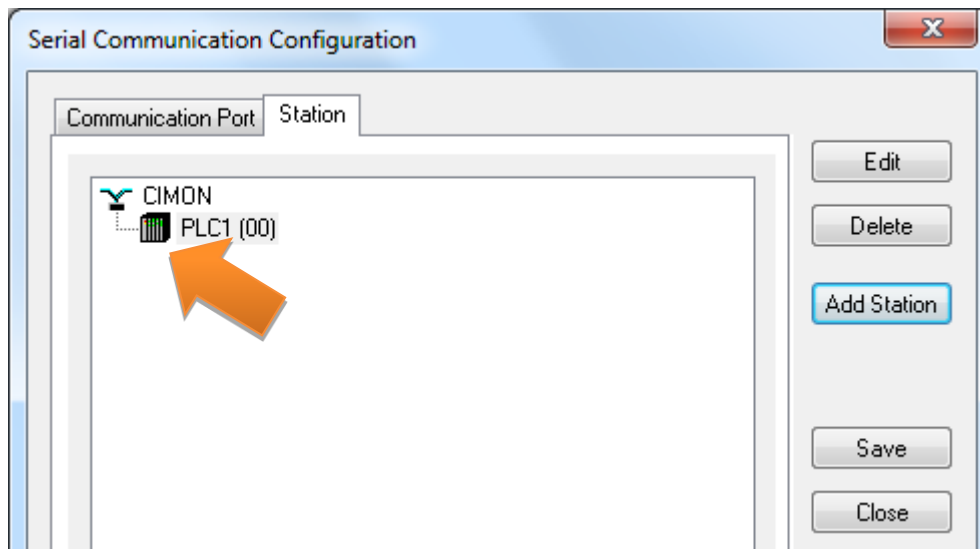
The **Station number** must be the **same** as the **CICON Station number**.

※ What is a **Station number**?



The **Station Number** is used by the **Master device** (Xpanel) to identify the **Slave device** (PLC) during **Serial Communication**. This allows Xpanel to keep track of multiple PLCs.

Click on “OK” to save the configuration.



As you can see, the PLC1 station has been added.

The next step is to save the **PLC address** in XpanelDesigner.

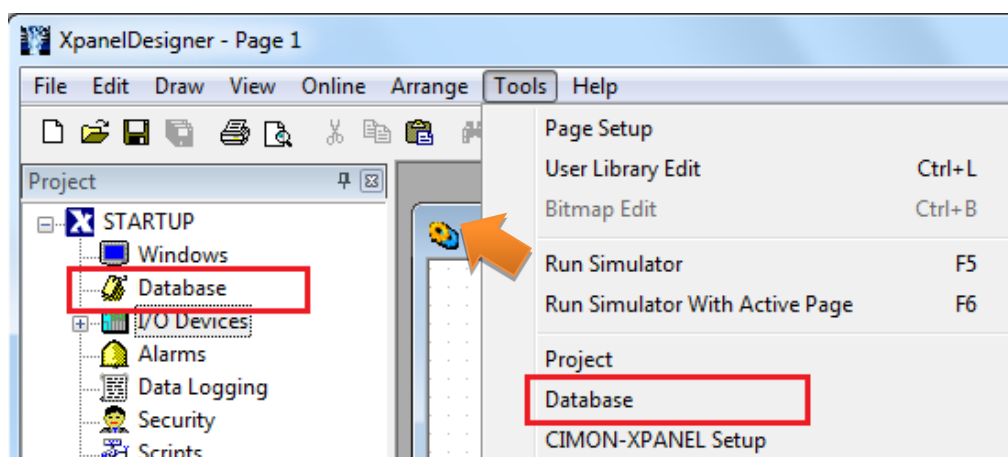
3. Database Configuration

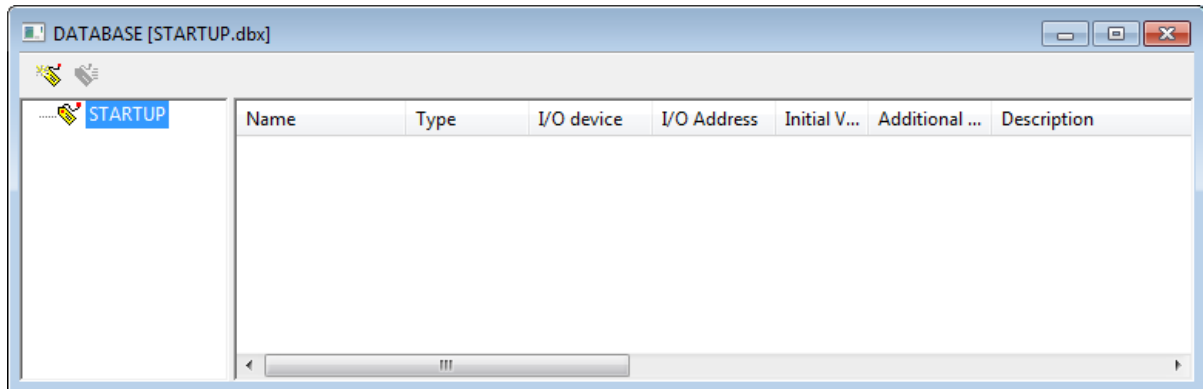
✳ Xpanel recognizes two types of PLC address: **Database Virtual** and **Real Address tags**.

For **Database** addressing, the Address must be saved to the Xpanel Database in advance. The Xpanel Database requires a name (**TAG**) for each address.

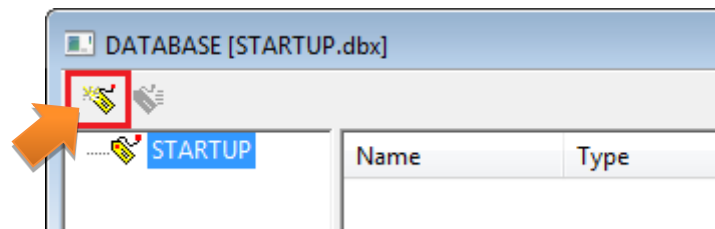
1) Open a Database

Select **Database** from the **Tools** menu.





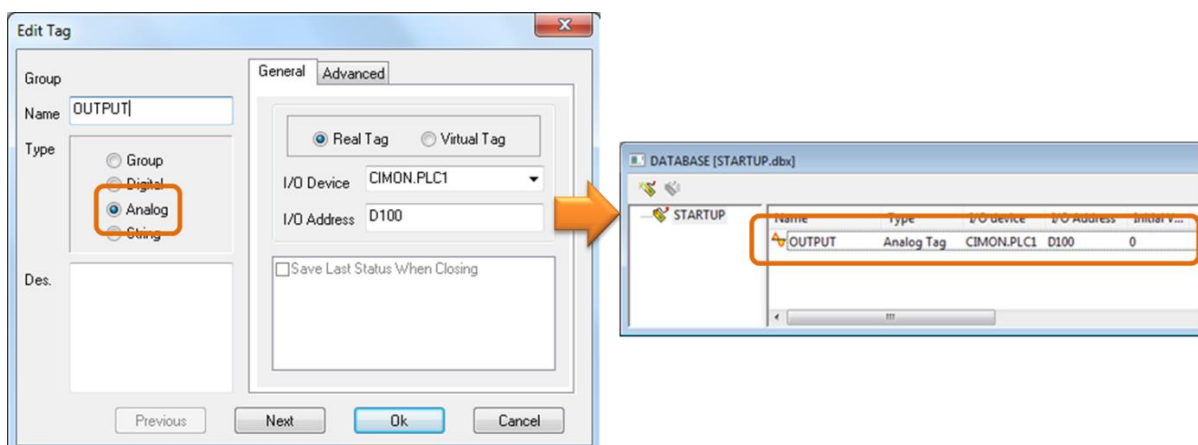
2) Create a New Tag



Click on the **Tag icon** in the left-upper corner.

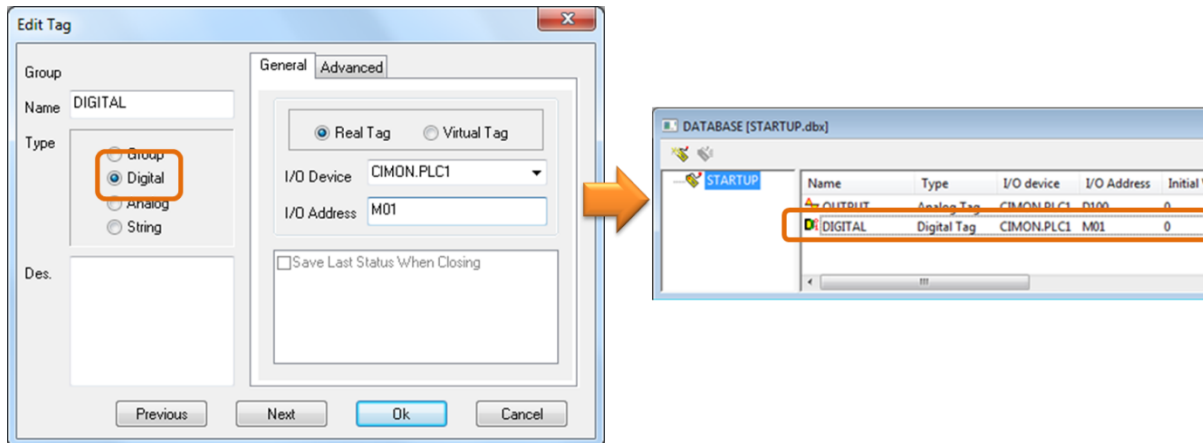
a) Analog Tag

Enter “OUTPUT” as the **name** and select **Analog** as the type. An Analog Tag is required for a PLC **Word** address. Select “**Real Tag**”, then select CIMON.PLC1 (the station that you had previously created) as the **I/O Device**. Enter “D100” as the I/O Address and click “OK”. You will see the “OUTPUT” tag listed in the Database.



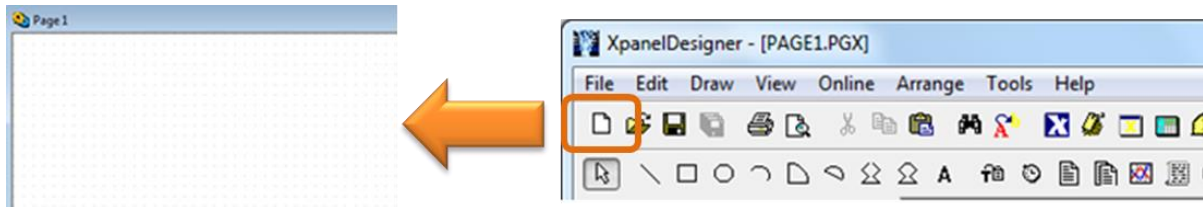
b) Digital Tag

Enter "DIGITAL" as the **name** and select Digital as the type. A **Digital Tag** is required for a PLC **Bit** address. Select "**Real Tag**", then select CIMON.PLC1 (the station that you had previously created) as the **I/O Device**. Enter "D100" as the I/O Address and click "OK". You should now see both the analog and the digital tag in the database. This completes the communications settings.

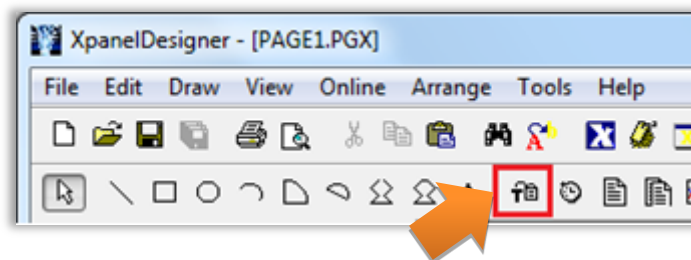


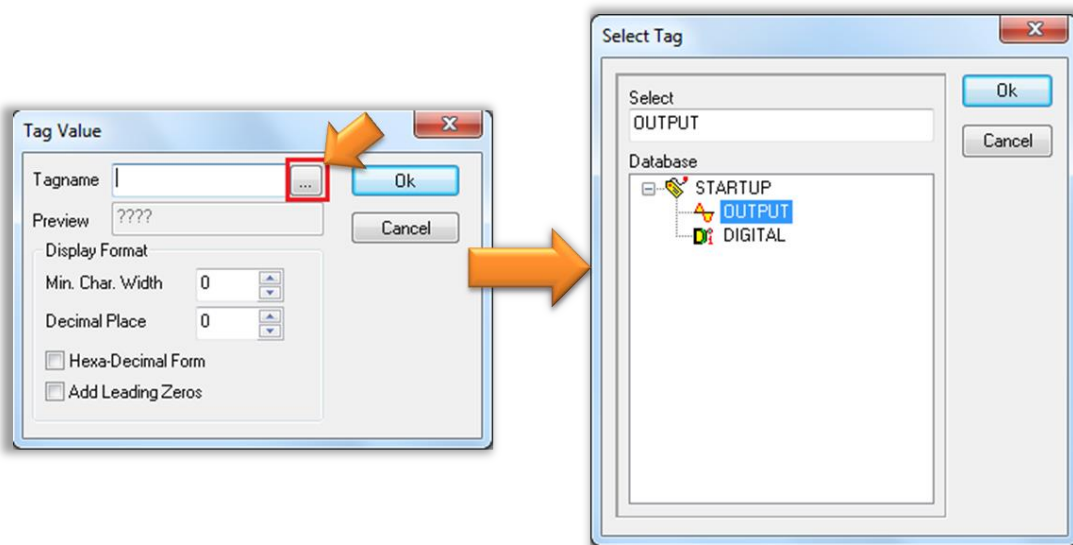
4. Dynamic Tag

Select **New Page** from the **File** menu.



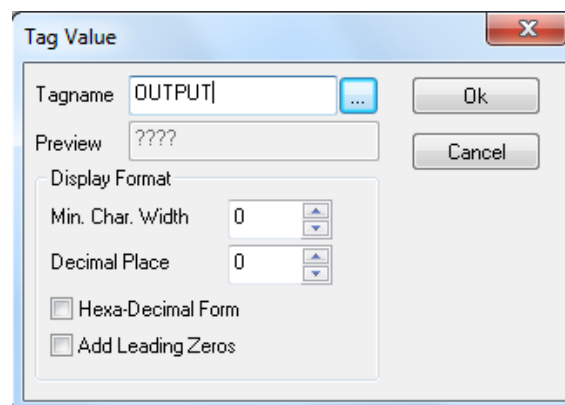
Select Dynamic Tag from the Draw menu and click on the Dynamic Tag icon. Move the mouse to location on the page where you want to put the tag value. When you **click** on the page, the "**Tag Value**" window will appear, as shown below. Click on the icon shown in the red box to **select the Tag**.



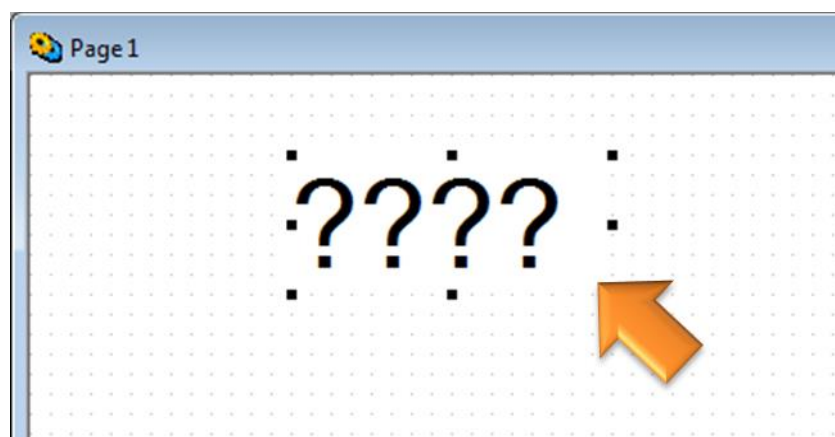


Select the “OUTPUT” Tag and click on “OK”

“OUTPUT” will appear as the **Tagname**. Click on “OK” to save the value.



An object with **question marks [????]** will appear on the page. The **question mark** indicate that the connection between Xpanel and the Device (PLC) is **not ready**. When communication works **properly**, the question marks will disappear and the real device **value** will be displayed.

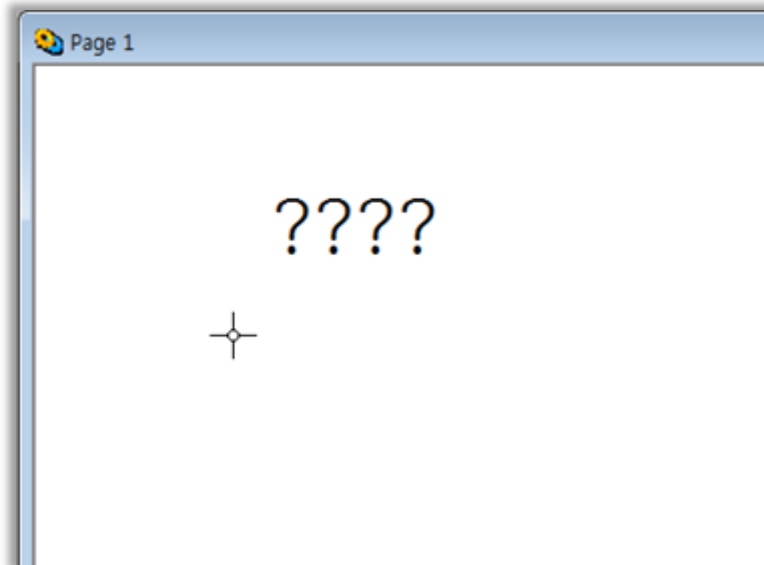


5. Entry Data

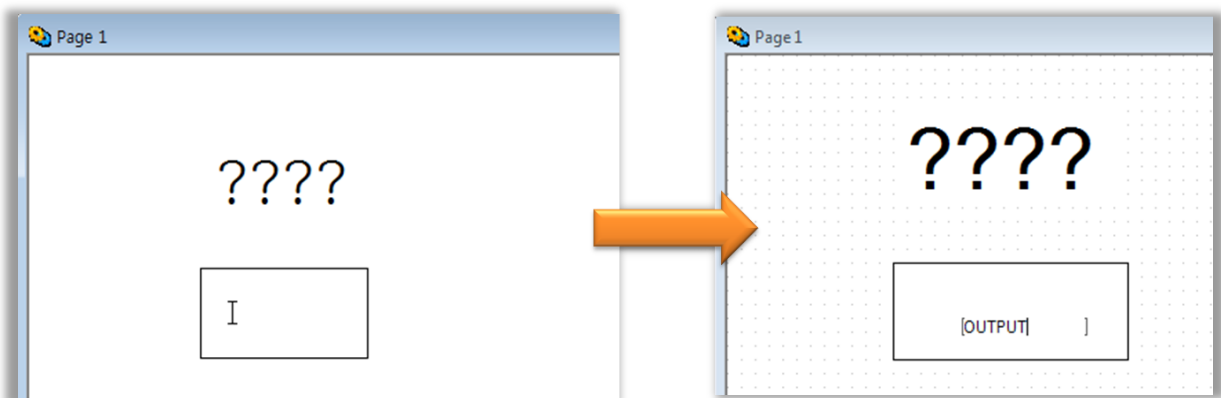
The Entry Data setting in the Object Config dialog box is used to input or change the Tag Value. First, create a button for entering the Tag Value.

Select **Rectangle** from the **Draw** menu.

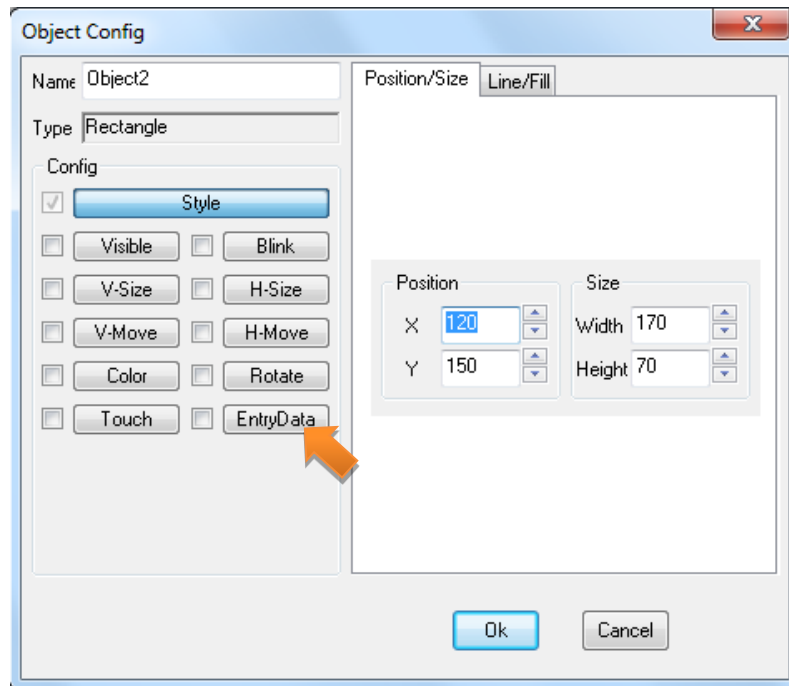
Find the **cross** mark on the page, then select it using the **mouse left** button and drag it.



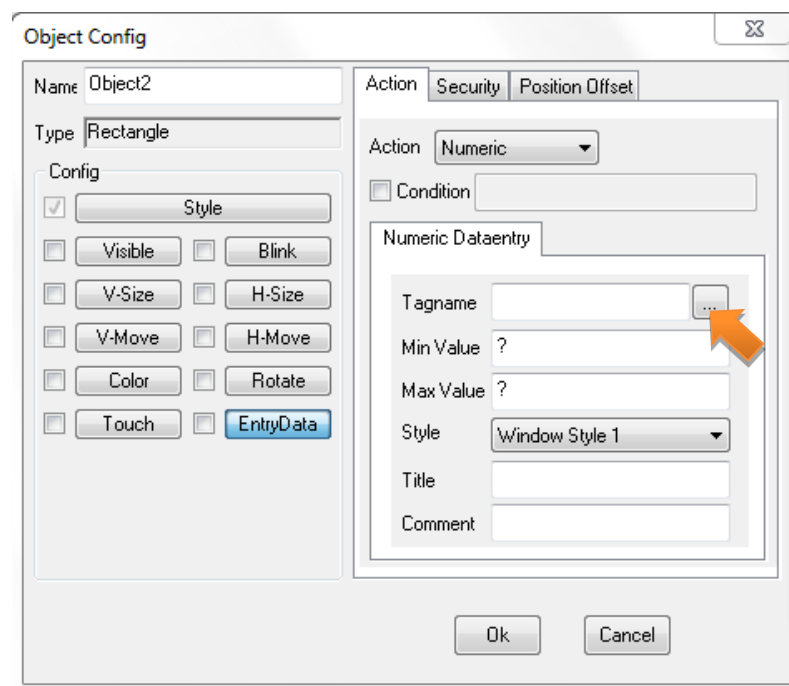
Click the Text icon or select **Text** from the **Draw** menu. Click inside the box, and enter "OUTPUT".



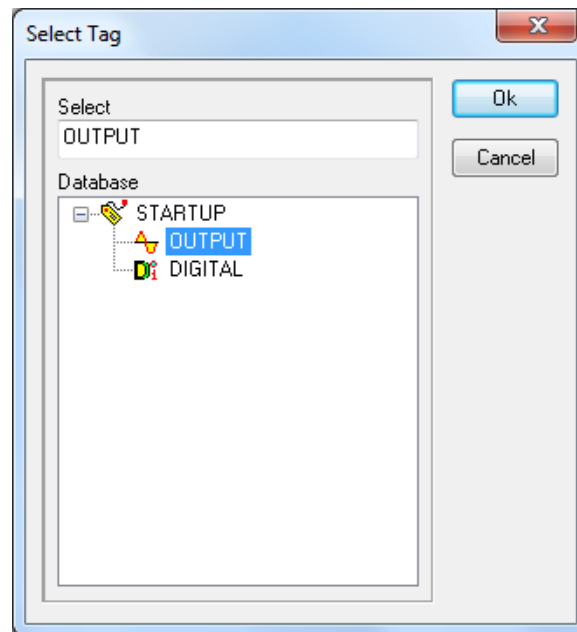
Double-click on the Text Object to bring up the "**Object Config**" dialog box.



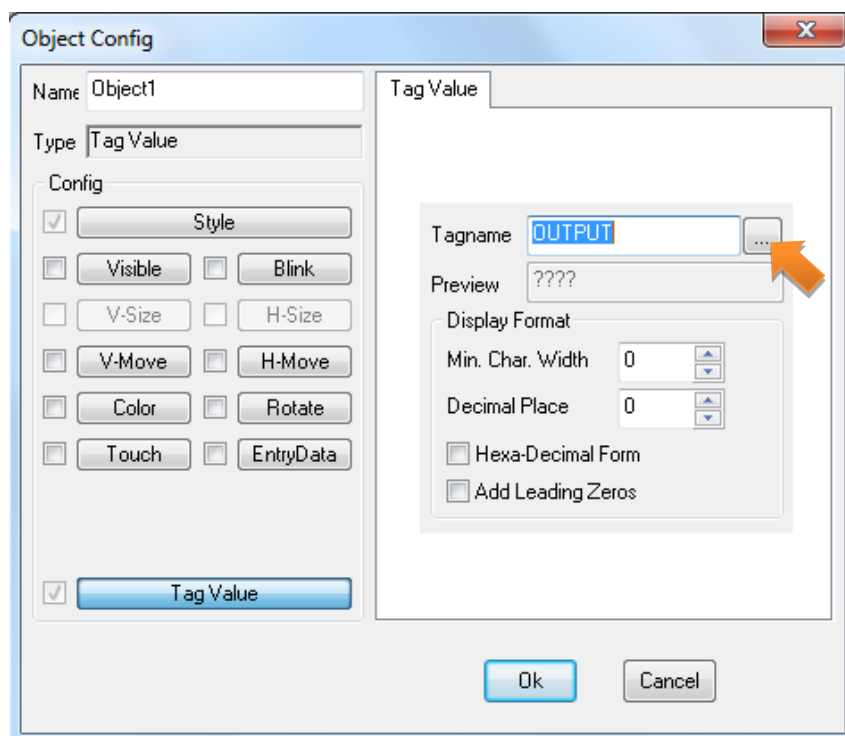
Click on EntryData, then select Tagname.



Select the “OUTPUT” Tag and click “OK”.



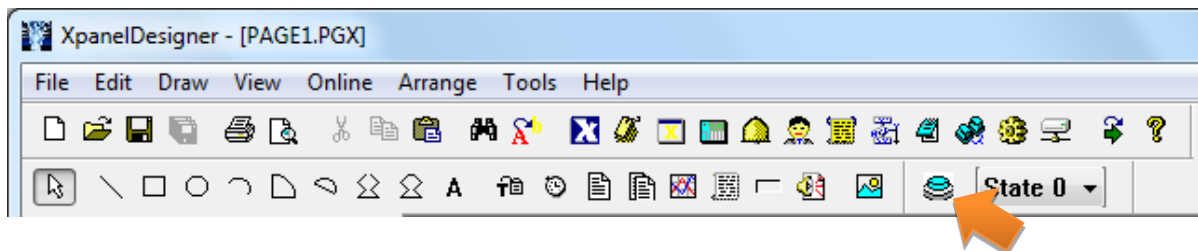
The Tagname field will display the “OUTPUT” Tag. Click “OK” to save the configuration.



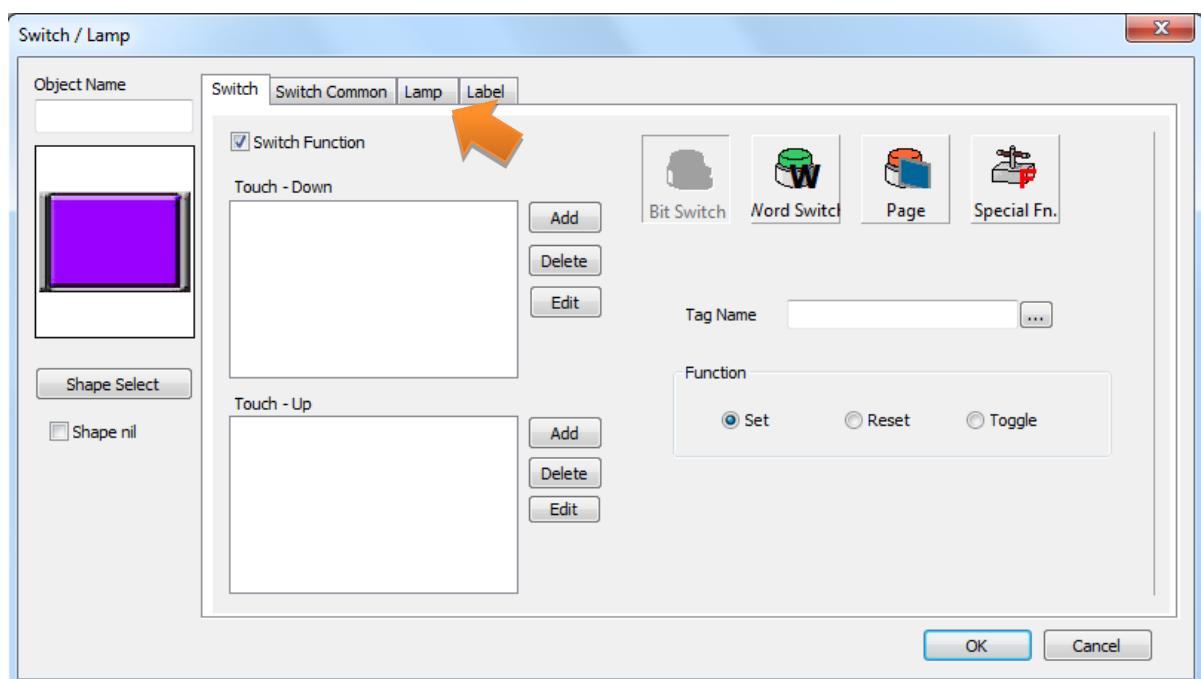
6. ON/OFF button (Switch/Lamp)

Switch/Lamp is used to create a button for changing lamp status when the tag value is turned On or Off.

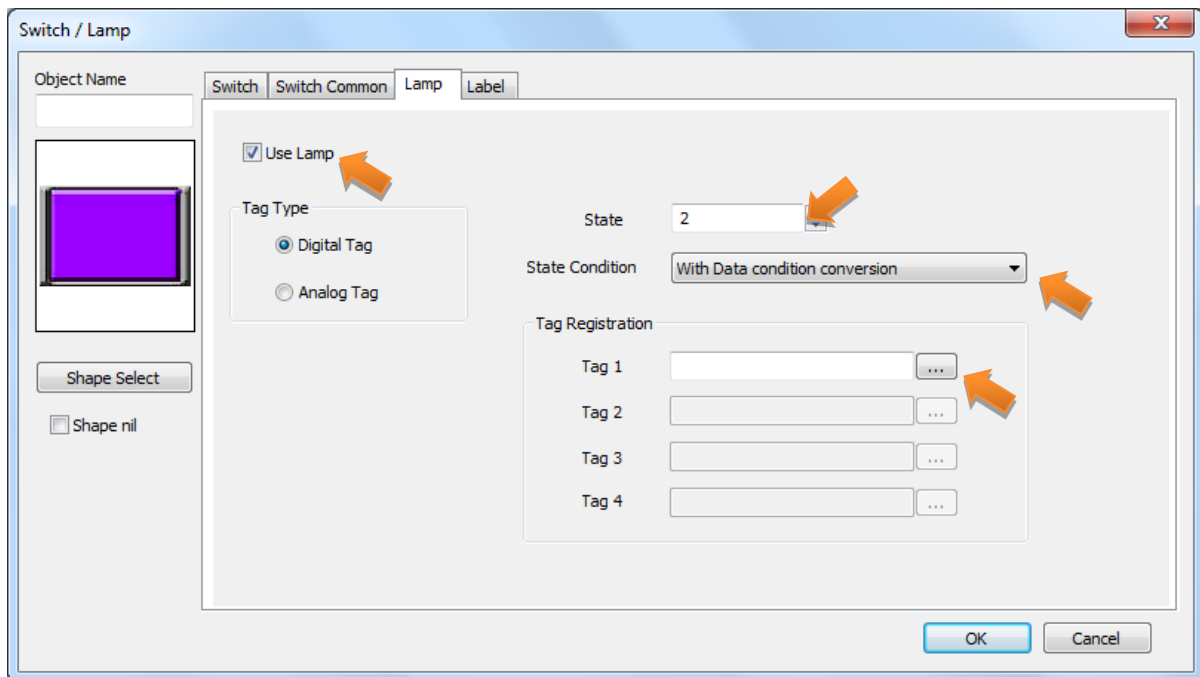
Click on the icon shown below or select **Switch/Lamp** from the **Draw** menu.



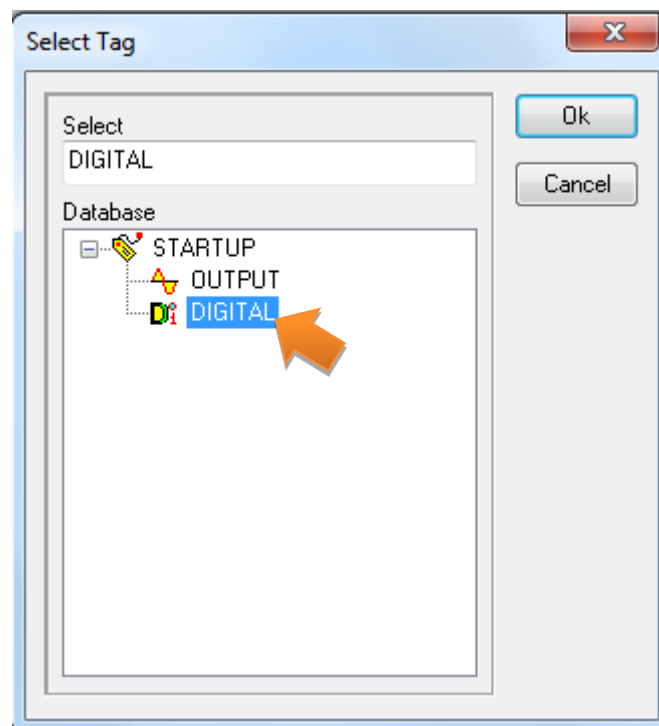
Click on **"Lamp"** to select the lamp options.



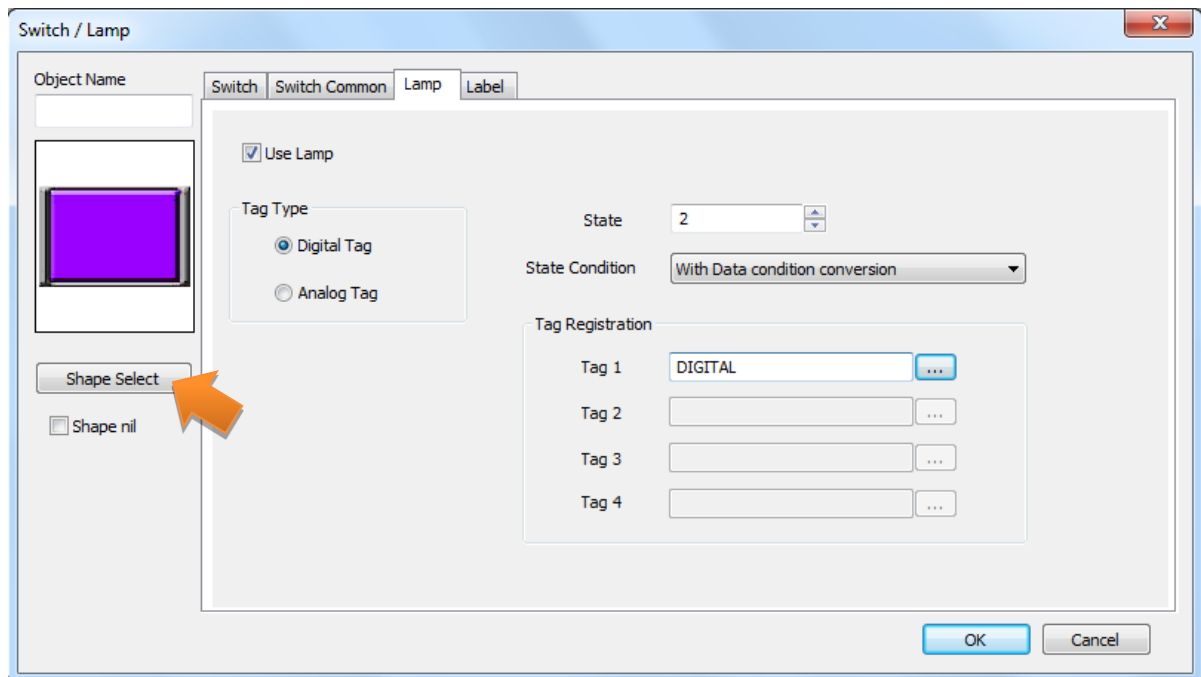
Select **“Use Lamp”**, **“Digital Tag”** and other options as shown below.



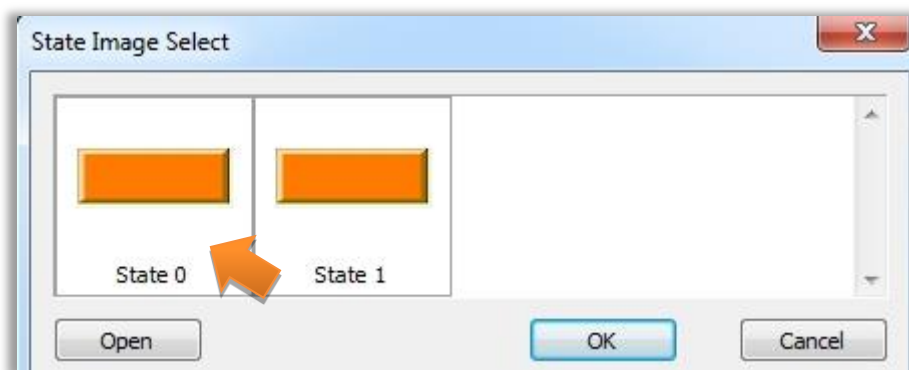
Click on **“Tag 1”**. Select **“DIGITAL”** for indicating ON/OFF status.



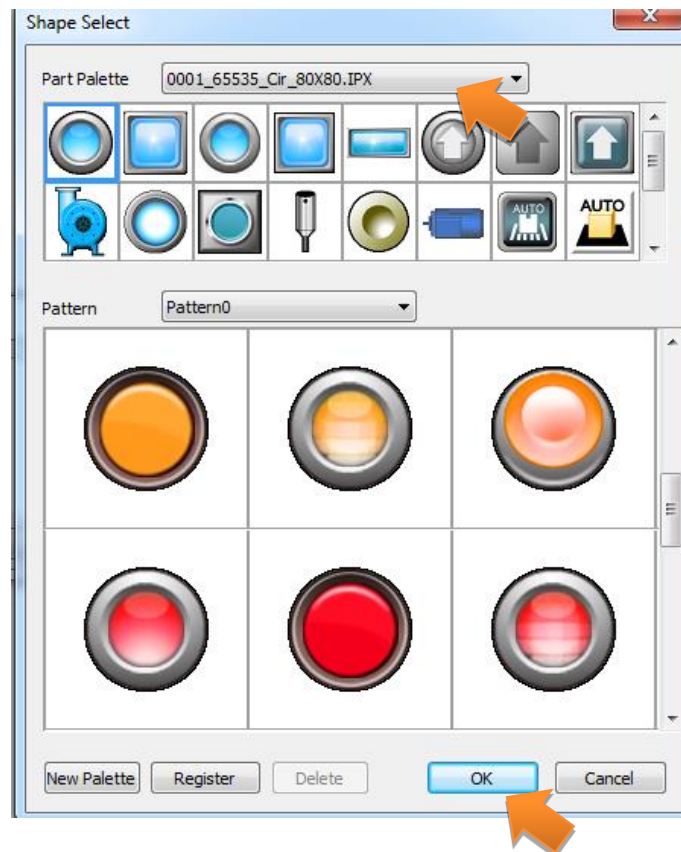
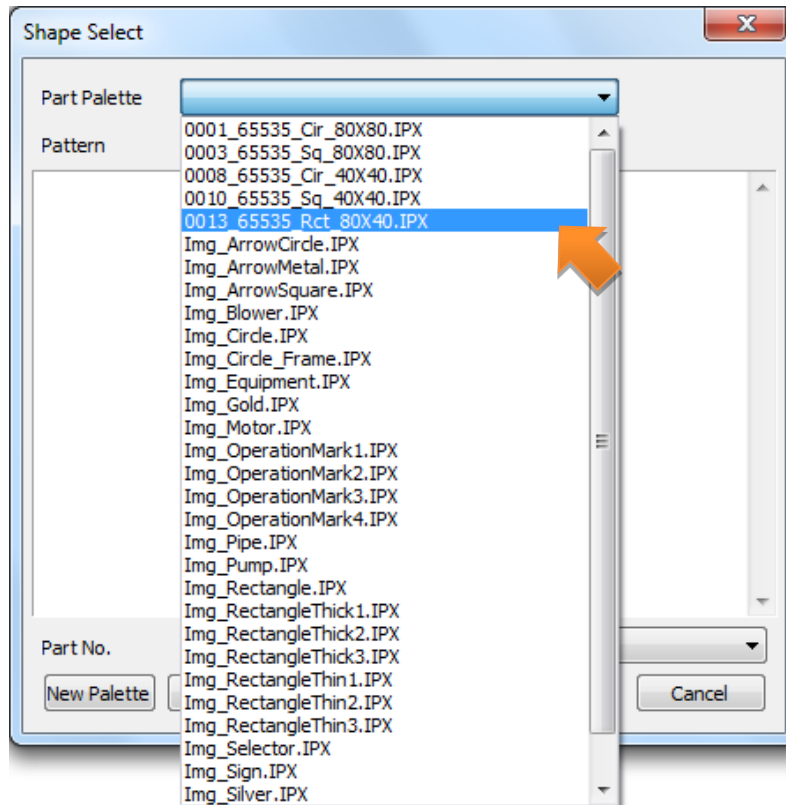
Click on “**Shape Select**” to choose a switch **design**.



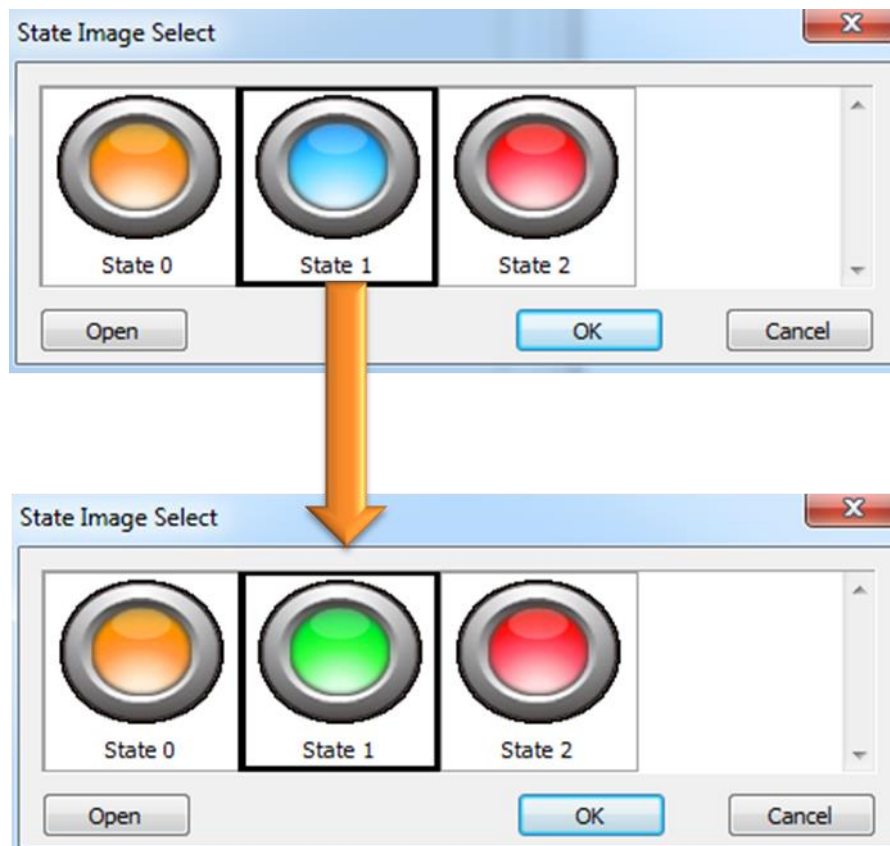
‘**State 0**’ is the image that will be displayed when the switch is **OFF**. ‘**State 1**’ is the image displayed when it is **ON**. Double click ‘State 0’ to select an image. Select one of the images in the Part Palette.



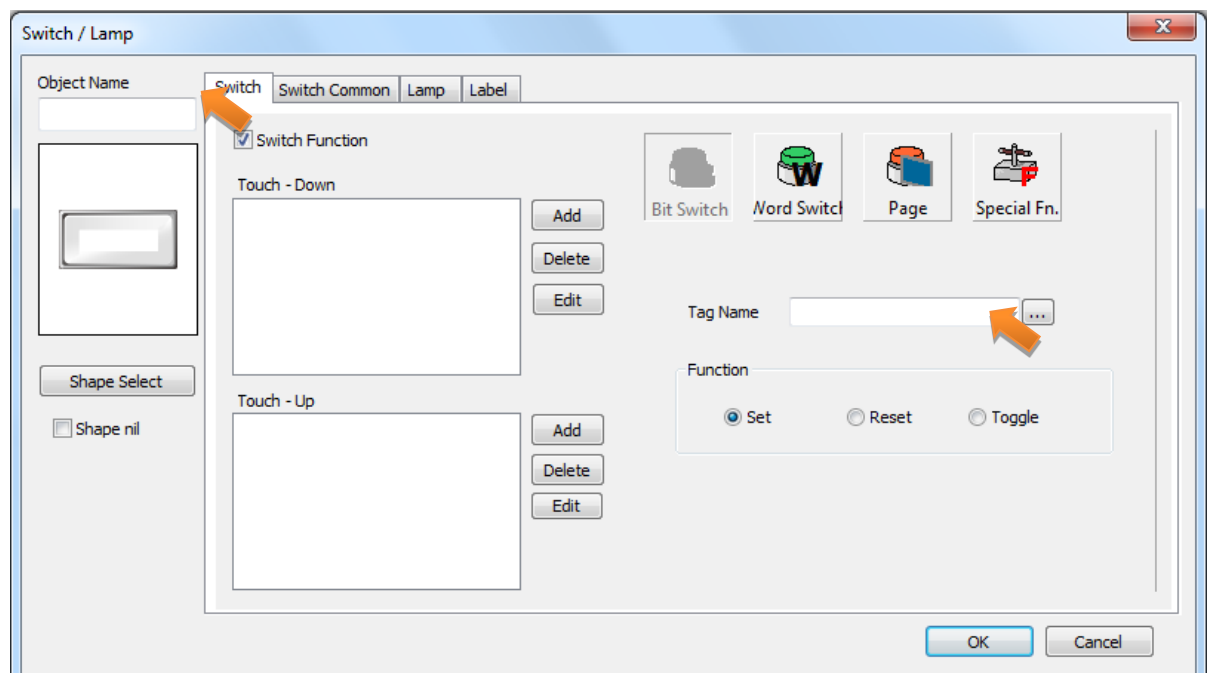
Select a Switch/Lamp **Pattern**.



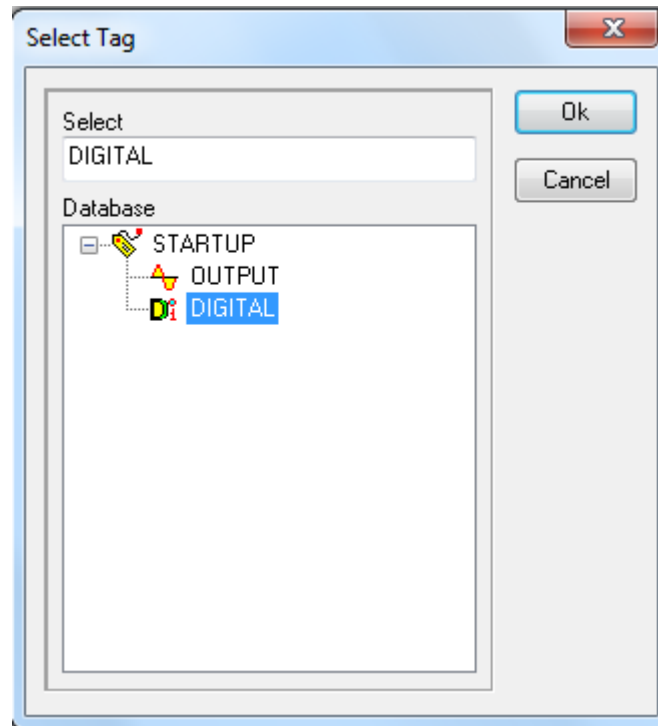
Double click 'State 1' and select an image, as shown above. Click 'OK' to save the switch image.



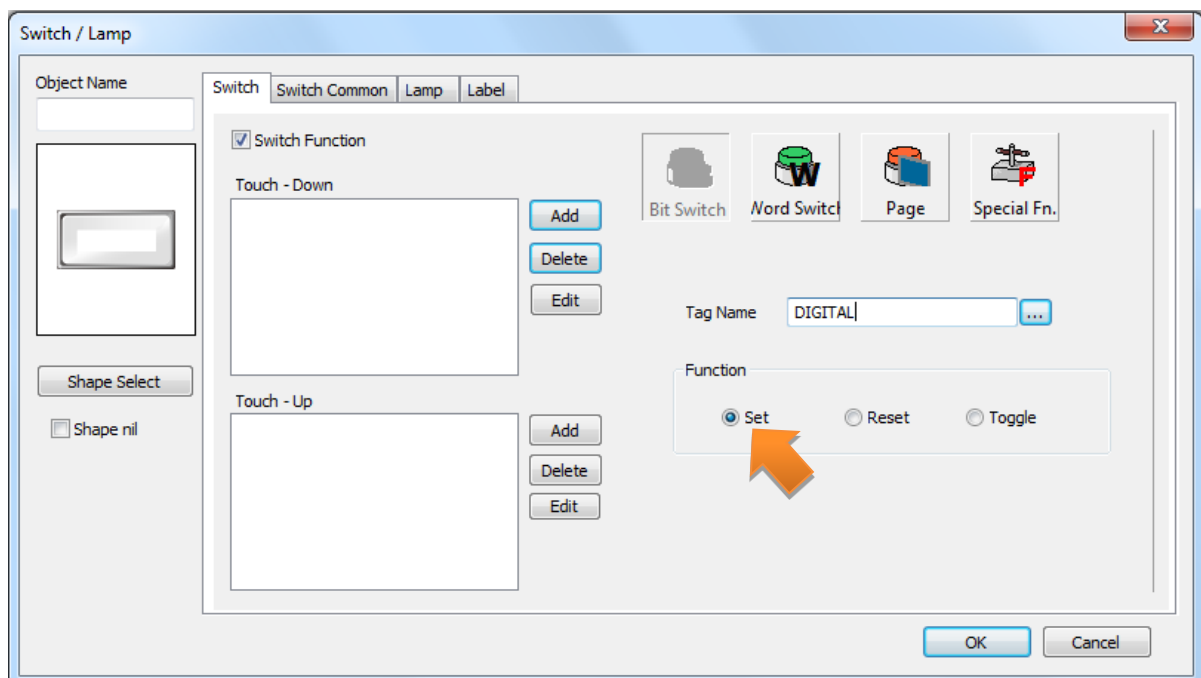
Click on 'Switch', then click 'Tag Name'.



Select the “**DIGITAL**” Tag.

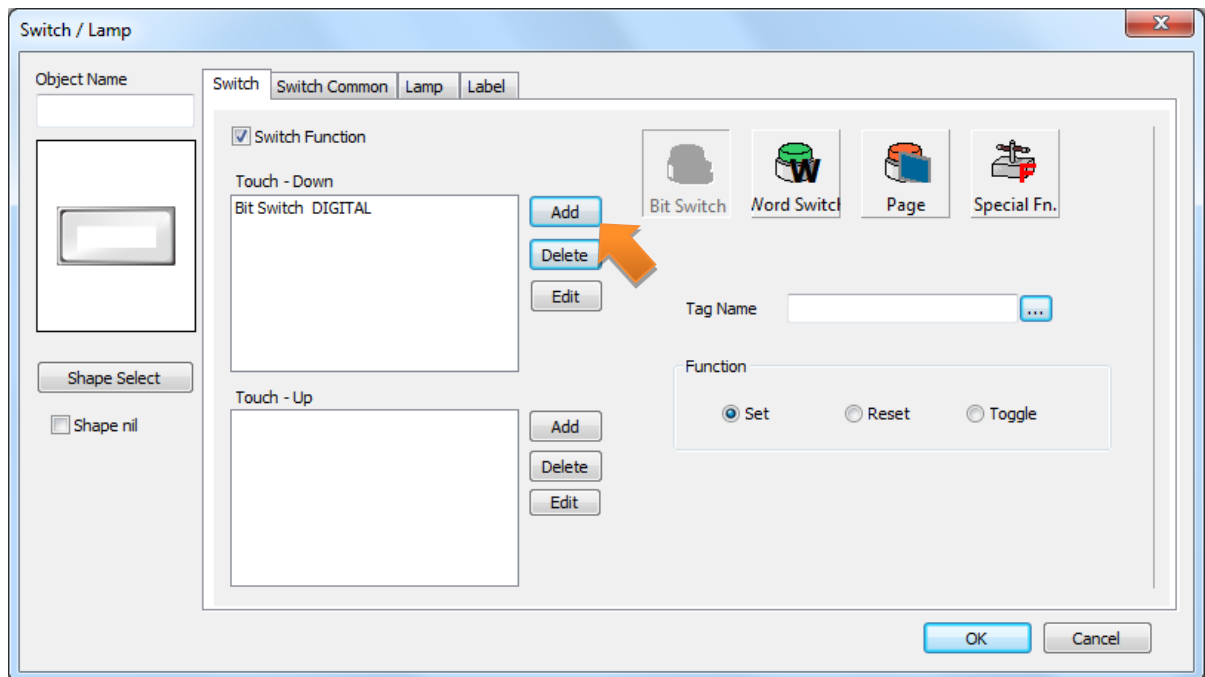


Select ‘Set’ as the “**Function**”, as shown below.

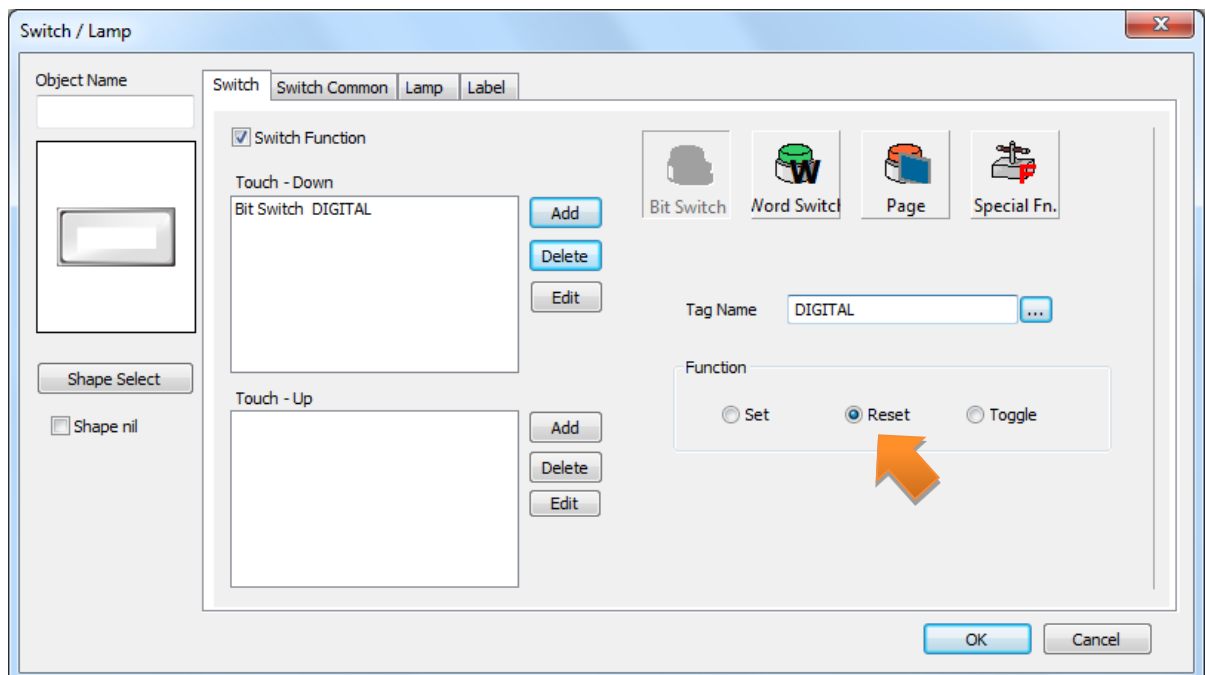


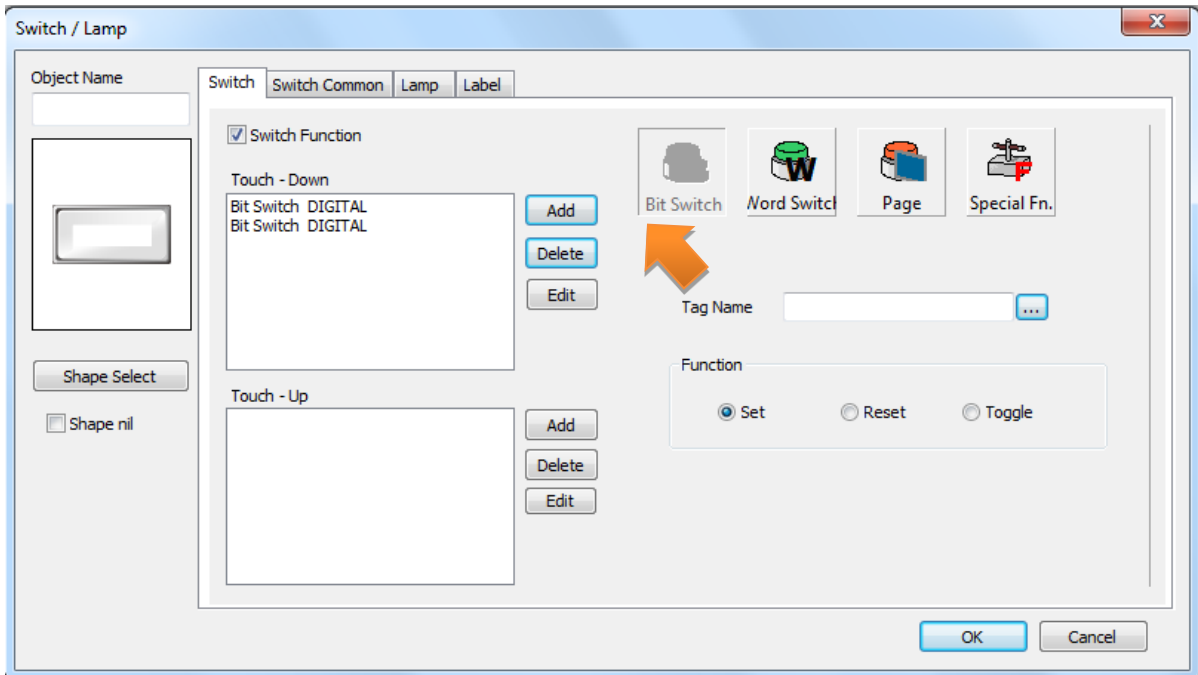
- Set : The Digital tag is turned ON when you push the button.
- Reset : The Digital tag is turned OFF when you push the button.
- Toggle : The Digital tag changes ON to OFF or OFF to ON when you push the button.

Click on “**Add**” to add a switch feature which will be activated when the mouse button is down.

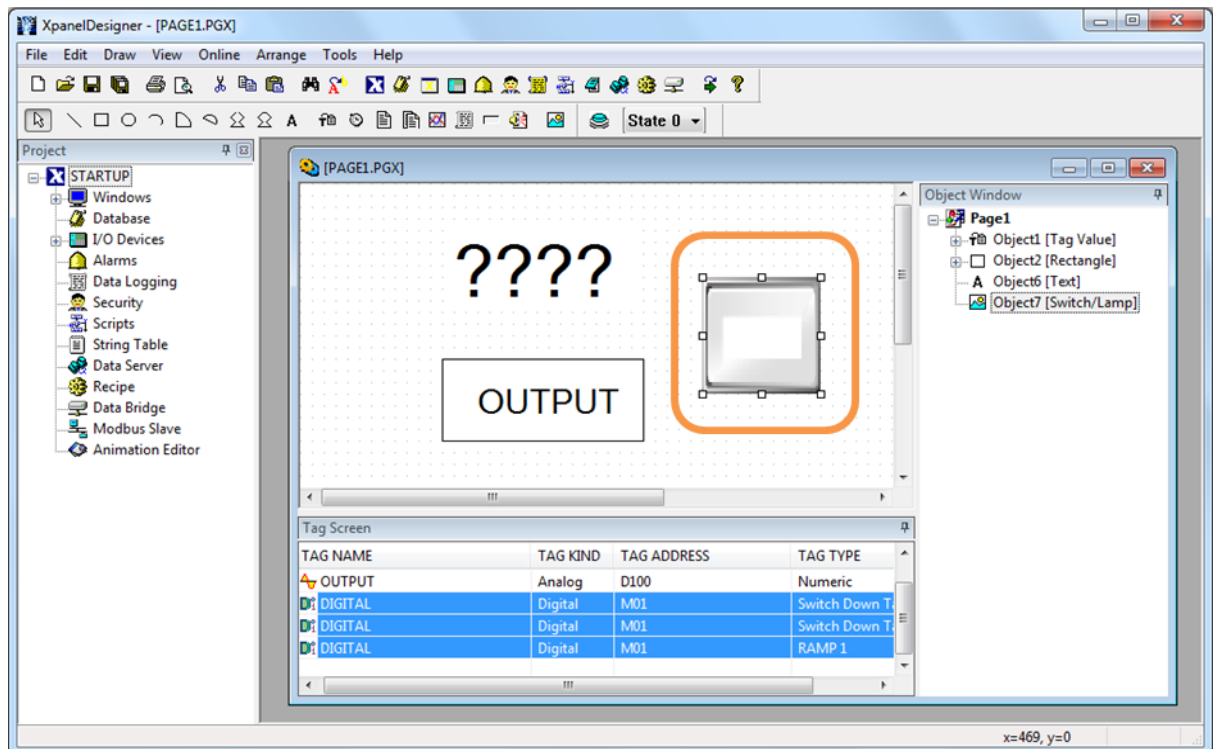


Add one more button, with the “**Reset**” feature, then click on **Add**.





Click “OK” to display the **Switch/Lamp** Object one the page, as shown below.



7. Downloading a Project

There are **3 options** for downloading a project **to** Xpanel.

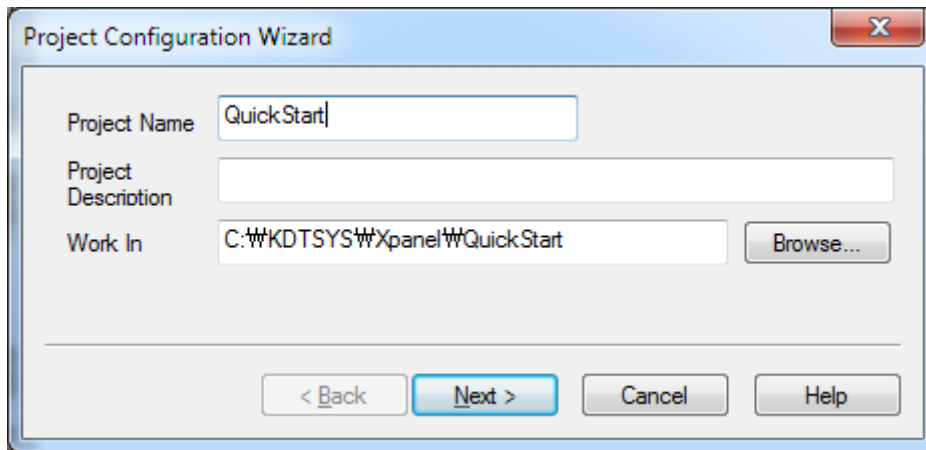
1. USB mini (B) cable
2. Ethernet cable
3. USB/SD memory card

► Downloading a project from a **PC** to **Xpanel** using a **USB cable** is covered in the next chapter.

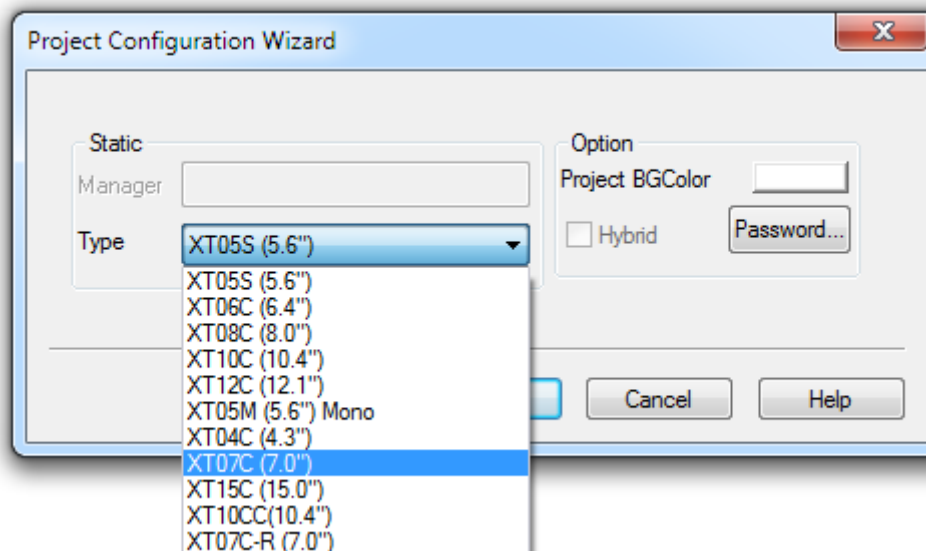
Chapter 4. Screen and Graphic Development

1. New Project

Select New Project from the File Menu.



Select the Xpanel model.



Click on Finish to create the new project.

(For **Hybrid Xpanel**, Select XT07C, then select the Hybrid checkbox in the Options section of the dialog box.)

※ The page size will be the same as the Xpanel screen size.

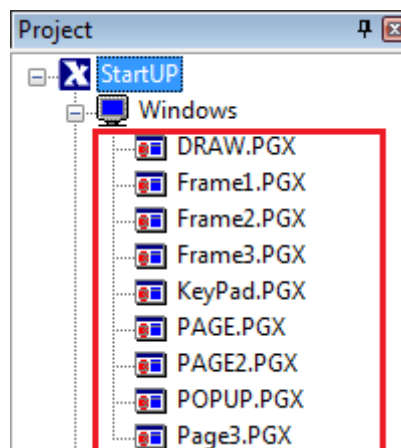
- Screen size & Resolution

Resolution of the Xpanel screen		
XT04	480 X 272	262K Color
XT07	800 X 480	262K Color
XT08	800 X 600	262K Color
XT10	800 X 600	262K Color
XT12	800 X 600	262K Color
XT15	1024 X 768	16.7M Color

2. New Page

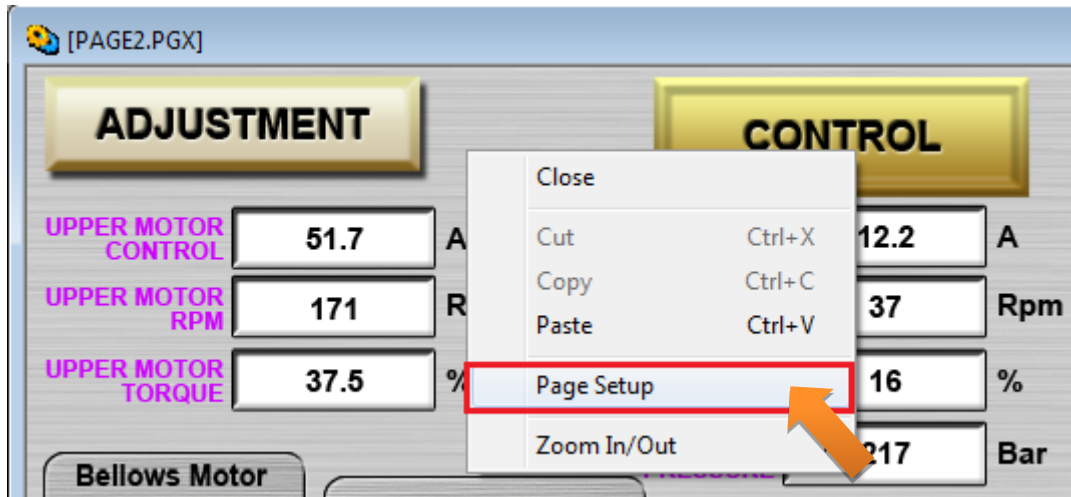
1) Normal Page

When you create new page, the default is **Normal Page**. The page size will be the same as the Xpanel screen size when you create a new project. Page information will appear in the Workspace section, as shown below.

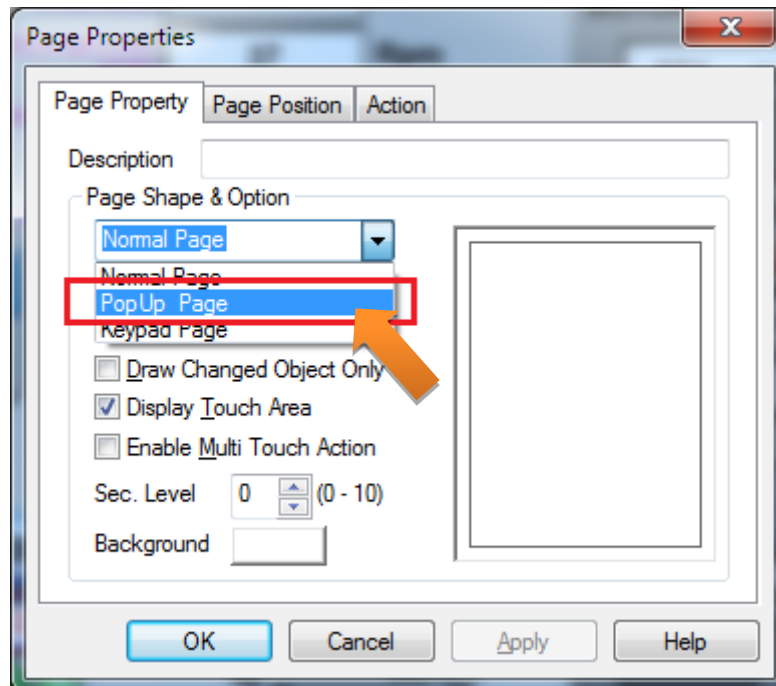


2) Pop Up Page

To create a Pop Up page, select Page Setup from the Tools menu, right-click on the page, then select Page Setup from the right context menu. In the Page Properties dialog box, select Pop Up Page.

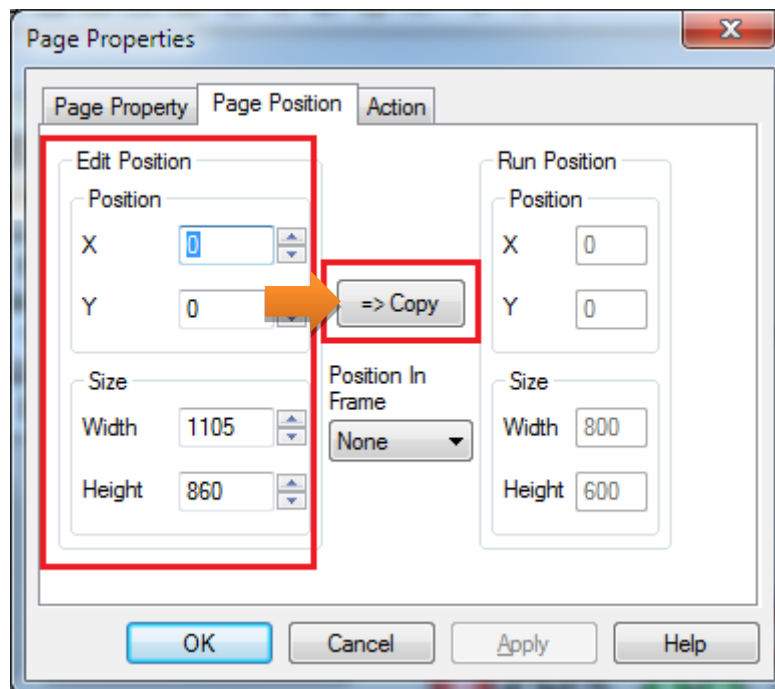


< Page type selection using the page's **mouse right click** menu >



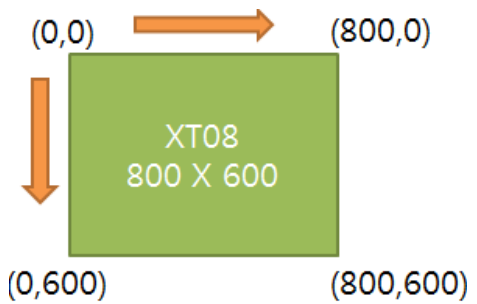
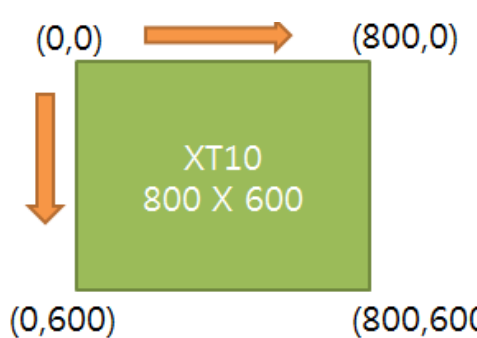
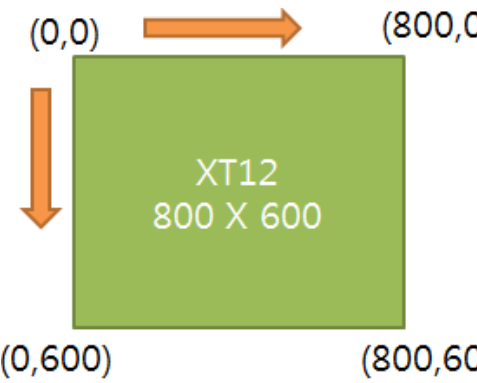
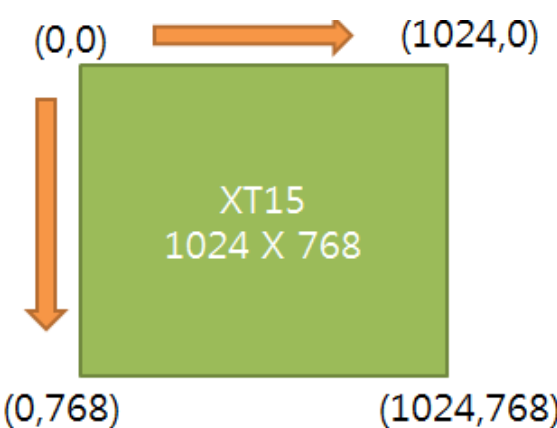
< Page type selection from the tools menu **Tool Menu**>

Enter the **Size** of the PopUp page. Its Position and Size are both measured in **Pixels**. After setting the Position and Size, click on Copy, then OK.



※ Xpanel Size and Position Table

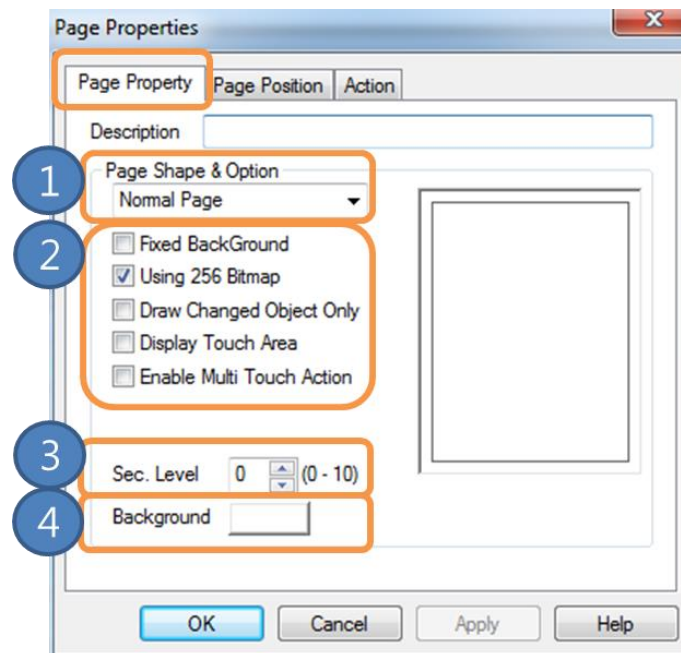
Model	Position
XT04	<div style="text-align: center;"> <p>(0,0) → (480,0)</p> <div style="display: inline-block; text-align: center;"> ↓ <div style="background-color: #92d050; padding: 10px; border: 1px solid black;"> XT04 (480X272) </div> </div> <p>(0,272) → (480,272)</p> </div>
XT07	<div style="text-align: center;"> <p>(0,0) → (800,0)</p> <div style="display: inline-block; text-align: center;"> ↓ <div style="background-color: #92d050; padding: 10px; border: 1px solid black;"> XT07 (800X480) </div> </div> <p>(0,480) → (800,480)</p> </div>

XT08	
XT10	
XT12	
XT15	

3. Page Properties.

1) Page Properties

(1) Page Type (Shape)



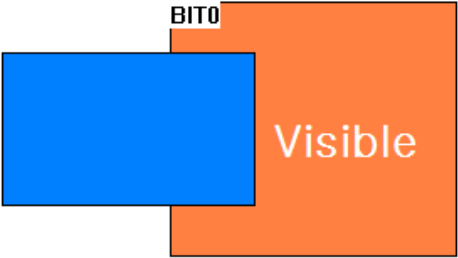
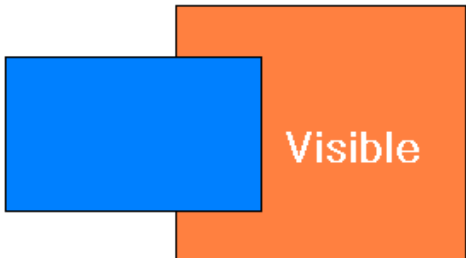
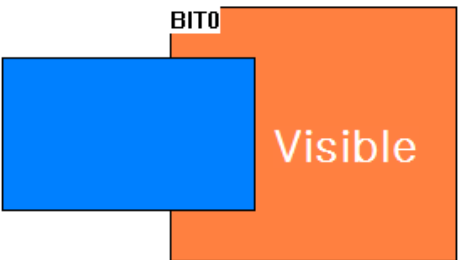
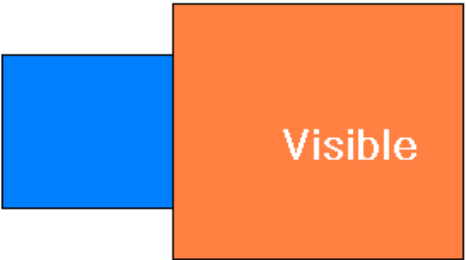
- (a) Normal Page : This is the **default page**, with a size the **same** as the **Xpanel device** that you select when you create a New Project.
- (b) PopUp Page : This displays a **PopUp** page on Normal Page.
- (c) Keypad Page This displays a user-created **Keypad** Page.

(2) Page Option

(a) Fixed BackGround

You can set an object as a fixed background for faster graphic processing. However, if the Object has a **function**, such as Blink, Visible, Move etc., it will always be brought to the **foreground**.

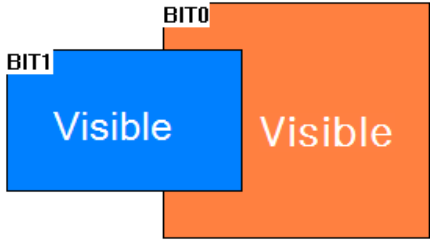
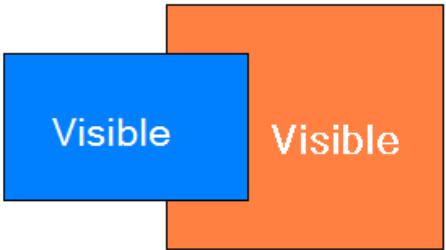
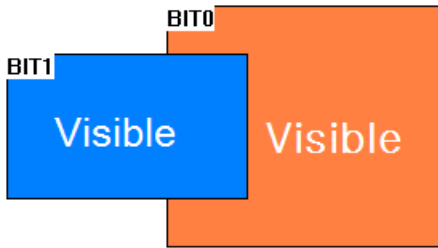
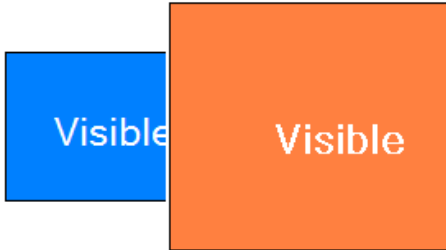
For example, If the **Orange** object has function, Visible, and is beneath the **Blue** object, the **Orange** object will be brought in front of the **Blue** object.

Xpanel Designer		Xpanel actual screen
Fixed BackGround turned off		 Even if the Visible feature is SET, the Orange Object is still behind the Blue object, just like the XpanelDesigner screen.
Fixed BackGround		 If the Visible feature is SET, the Orange Object is displayed in front of the Blue object.

(b) Draw Changed Object Only

This will **speed up** graphic processing. When an Object's status is **changed**, Xpanel recognizes only the **changed object** in order to speed up Page Refresh (Xpanel normally recognizes all objects displayed on the screen). In this case, the position of the object will be changed.

✳ Even if the **Orange** object is under the **Blue** object, the **Orange** object will be displayed in front of the **Blue** when the status of the Orange object is changed, as shown below.

To set the Visible feature on the Blue Object first, then on the Orange Object		
	Xpanel Designer	Xpanel actual screen
Draw Changed Object Only (Disable)		
Draw Changed Object Only (Enable)		 <p>If the Orange object is Visible, it will be displayed in front of the Blue object.</p>

(c) Using a 256 color Bitmap

Change the image to a **256 color Bitmap** automatically. This decreases color depth, in order to not take up as much **Page capacity**.

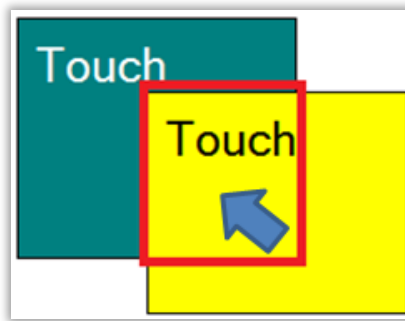
(d) Display Touch Area

When the user **clicks** on a button object, the button will be outlined, to confirm that it has been clicked.



(e) Enable Multi Touch Action

If two different objects are **overlapped**, **both** objects (Touch function) are **activated** when the user clicks the overlapped part.

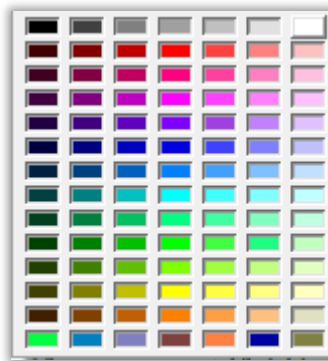


(3) Security level

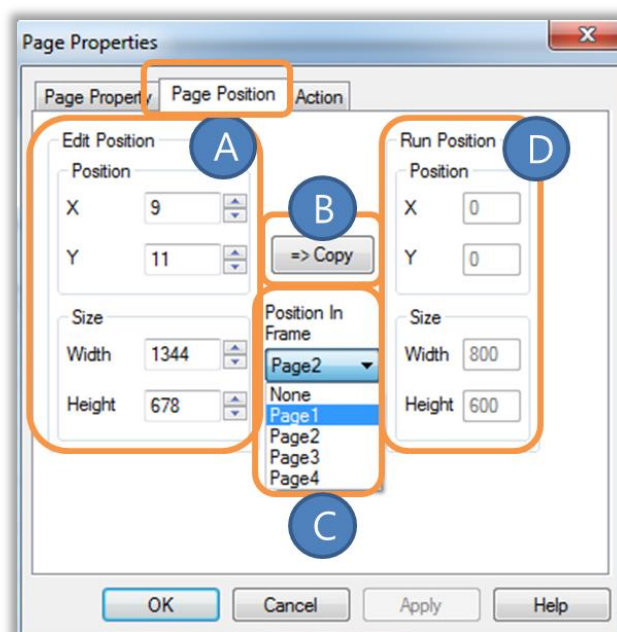
Set up Security Levels, from 0 to 10. The **maximum** security level is **10**.

(4) Background

Select the page Background color.



2) Page Position



A. Edit Position

Control the **size** and **position** of page. The default page size and position are **automatically** set when you create a project. If you create a page inside a frame, you can **adjust** the size of the page. When using a **Popup** Page, you need to set the **page size** and **position** in order to display it in the right location in Xpanel.

※ For Size and Position, look at the (X,Y) **Coordinate**.



B. Copy

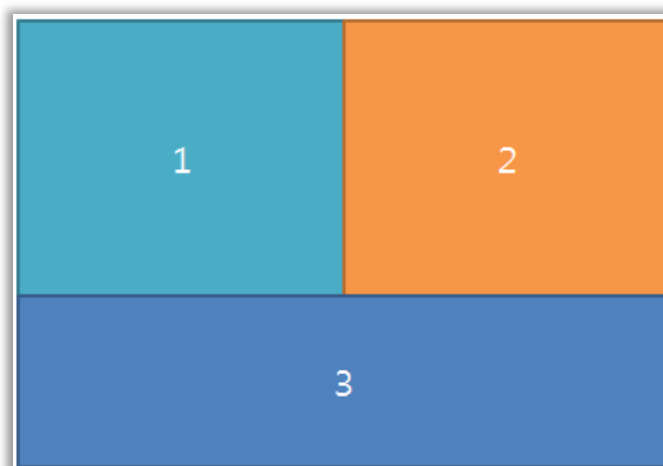
After setting the size and position of the page, click on **Copy** to apply the settings to the Xpanel device.

C. Position in Frame

If the Page is comprised of several frames, each frame must have a number designation.

D. Run Position

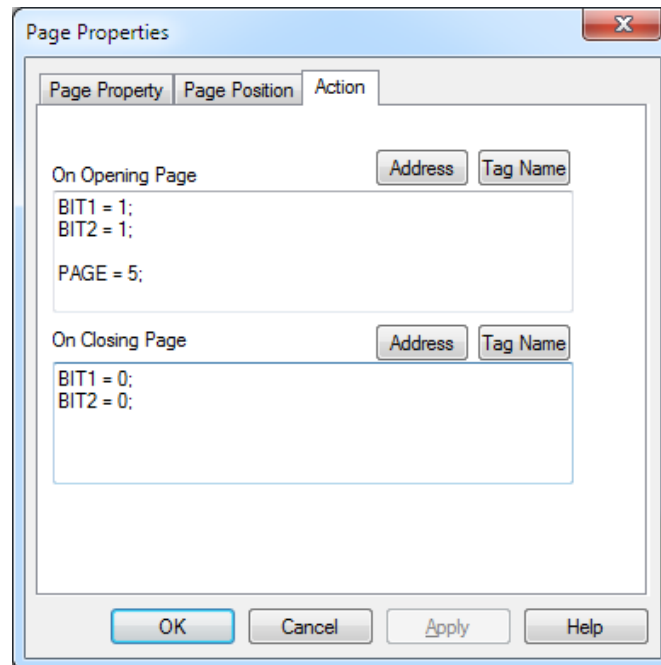
Test the position settings by displaying the page in Xpanel.



3) Action

Execute a **command** when opening or closing a Page.

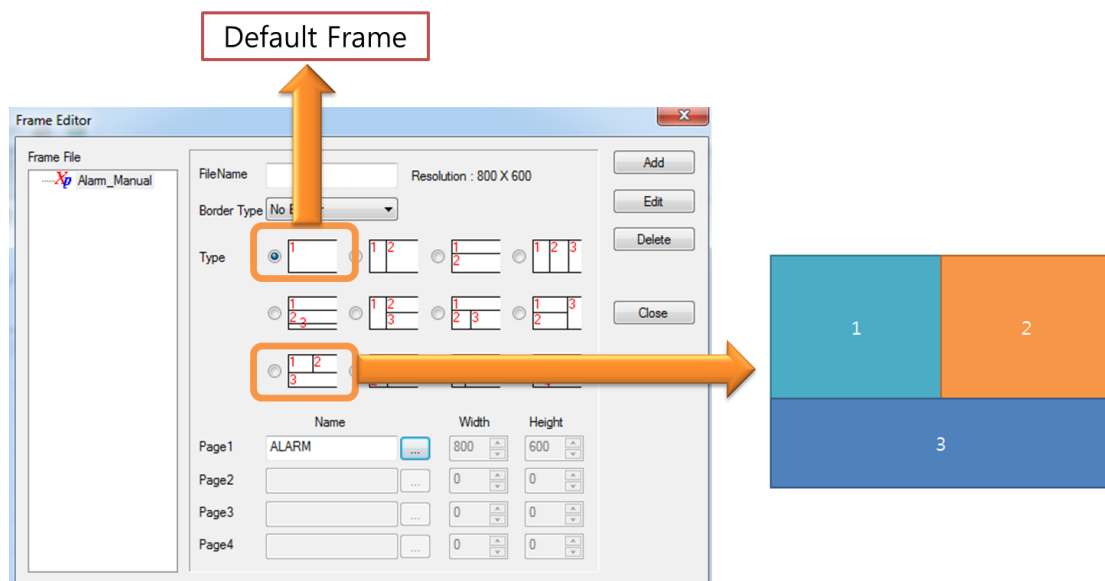
Giving each page a different number allows the PLC to recognize the page **currently opening** during page transitions.



4. Frame Editor

Divide a page into **several Pages**.

Dividing the Page into frames allows you to change each frame individually. For example, Frame#1 changes while Frame#2 and #3 are fixed. In this case, Xpanel only needs to refresh Frame #1.



※ **Default Frame** : Frame with only one page in it.

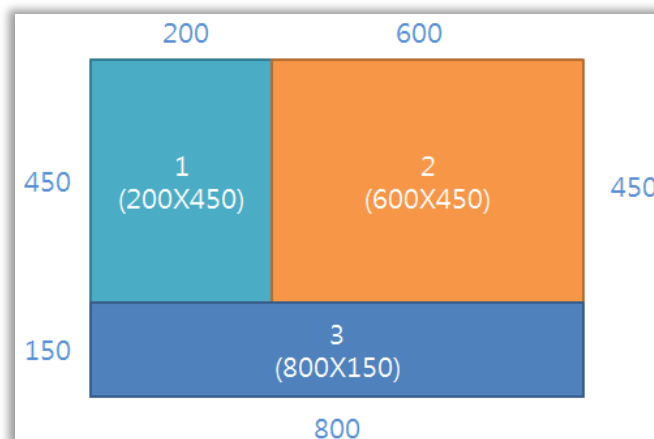
1) Create a Page with a Number and Size.

First, create each page for the #1, #2 and #3 locations. Each Page **size** can be controlled using the Edit Position tab of the Page Setup dialog box. Set each Page **number** using Position In Frame on the Edit Position tab.

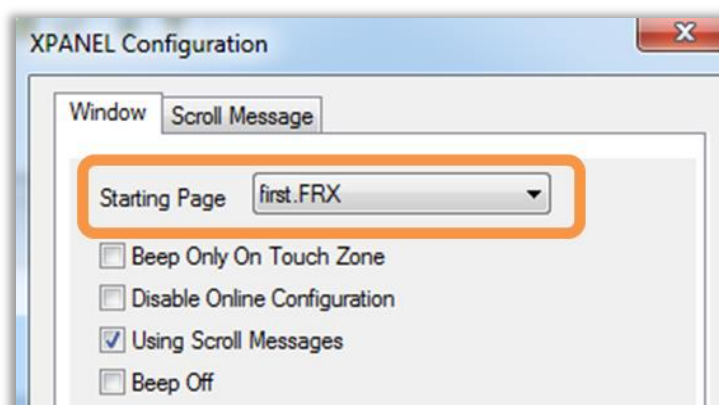
2) Frame Configuration (Frame Editor)

- A. Enter a FileName.
- B. Select a Border Type.
- C. Select a **Frame Type**.
- D. Select a page for each Frame, with the appropriate **Width** and **Height**.

After Frame configuration is completed, a file will be created with the Extension ***.FRX**.



※ To set the Xpanel **Starting Page** to be a **Frame**, select Xpanel Configuration from the Tools menu, then select the appropriate frame file with the extension ***.FRX**.



3) Position in Frame (Page Setup)

Pages are labeled **Page1**, **Page2**, **Page3** or **Page4** for the purpose of Frame Configuration (with a maximum of four pages).

※ Page Transition in Frame

To open a new page in a frame, use the function **PageOpen**. The Target Page must have the same **Position in the Frame** as the current Page.

❖ File Types in an XpanelDesigner Project

Extension	Description	Notice
[Project Name].PRJ	Default project properties are saved.	
*.PGX	Page File	File name modification or deletion is allowed.
*.FRX	Frame Configuration File	File name modification or deletion is allowed.
[Project Name].DBX	Database File	
*.DVX	I/O Device Configuration File	
[Project Name].LOX	Database Configuration File	
[Project Name].SCX	Script File	
[Project Name].SFX	String File	
[Project Name].MBS	MODBUS SLAVE Configuration File	
[Project Name].RXC	Recipe Configuration File	
[Project Name].BRX	Data Bridge File	


❖ File Type in Xpanel Device

Extension	Description	Notice
[Project Name].XPR	Project File	
*.XPG	Page File	
*.RCP	Recipe Configuration File	
*.DBF	Data Bridge File	
*.LGR		
*.LGT	Log Trend File	
*.SEC	Security File	
*.MBS	MODBUS Slave File	
*.XPR	Frame Configuration File	
*.XED	Project Upload File	This file is created when the Download The Editing project feature is enabled while Downloading a Project.
*.LGR	Datalogging Configuration File	
*SIF	Script File	
*.XSF	String Table File	
*.XDV	I/O Device Configuration File	
*.AIF	Alarm Configuration File	
*.SCO	Scope Trend File	
*.SPC	SPC Trend File	
*.TRA	ST Trend File	
*.XYT	XY Trend File	

Chapter 5. How to Draw Objects

1. Line

1) Drawing a Line

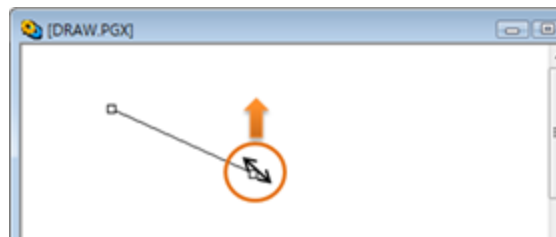
Select Line from the Draw menu, or click on the line icon  in the **Drawing Toolbar**. The process is the same as drawing a line in a standard graphics program: click on the starting point of the line, hold the left mouse button down while you draw the line, then release it at the end point of the line.



2) Editing a Line

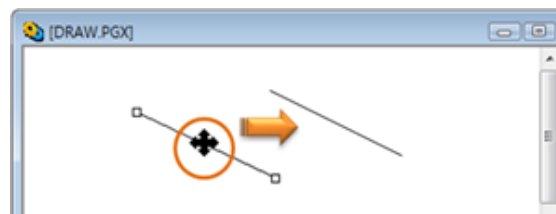
(1) Line Direction/Length Control

When you click on an end-point of a line, a **Left-Right arrow** will appear. you can use the mouse to change the length and direction of the line.



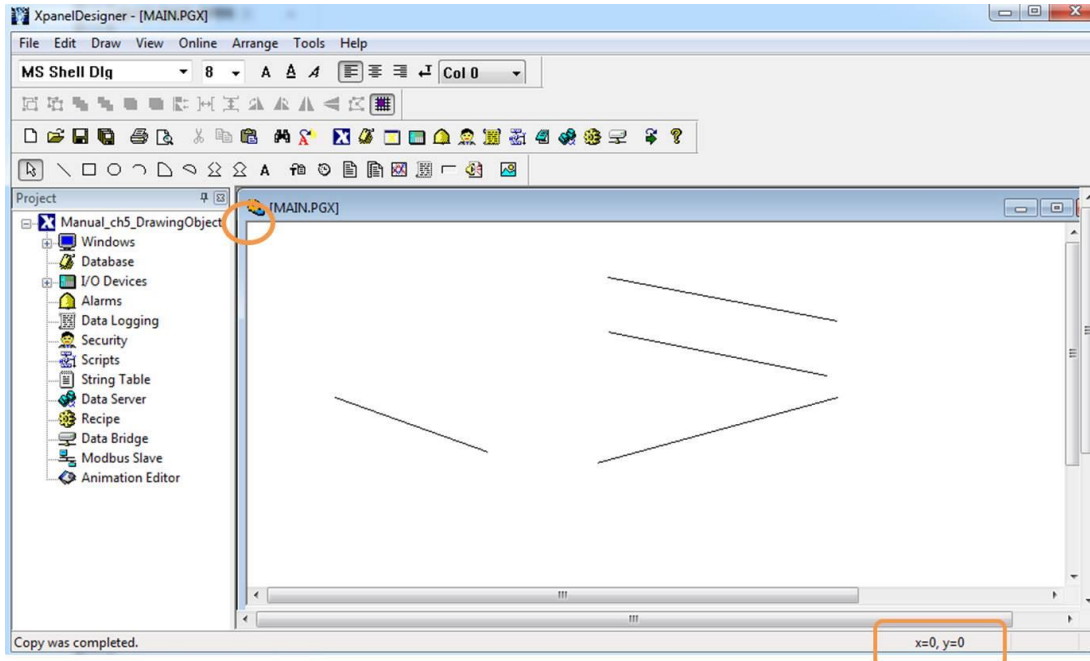
(2) Moving the Line Object

Click between the end points of a line, and you will see a four-arrow cursor; move it to move the line.



(3) Position/Size & Line/Fill

✳ The Reference Coordinate is in the **upper left** corner of the Page (X=0,Y= 0).

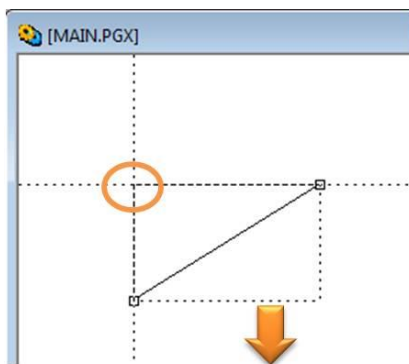


■ Position

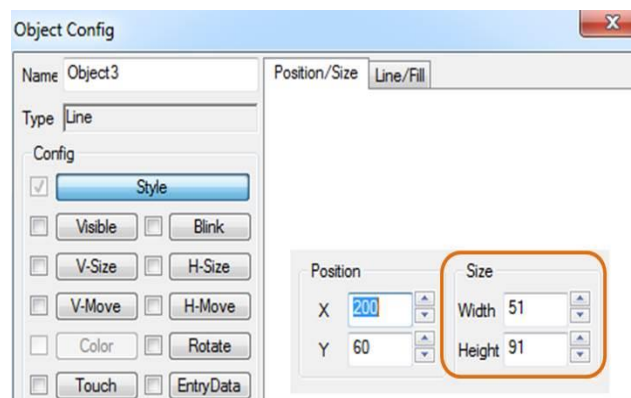
Set the line position by entering its coordinates. The X and Y value indicate the **upper-left** corner of a rectangle for which the **line** would be the **diagonal**.

■ Size

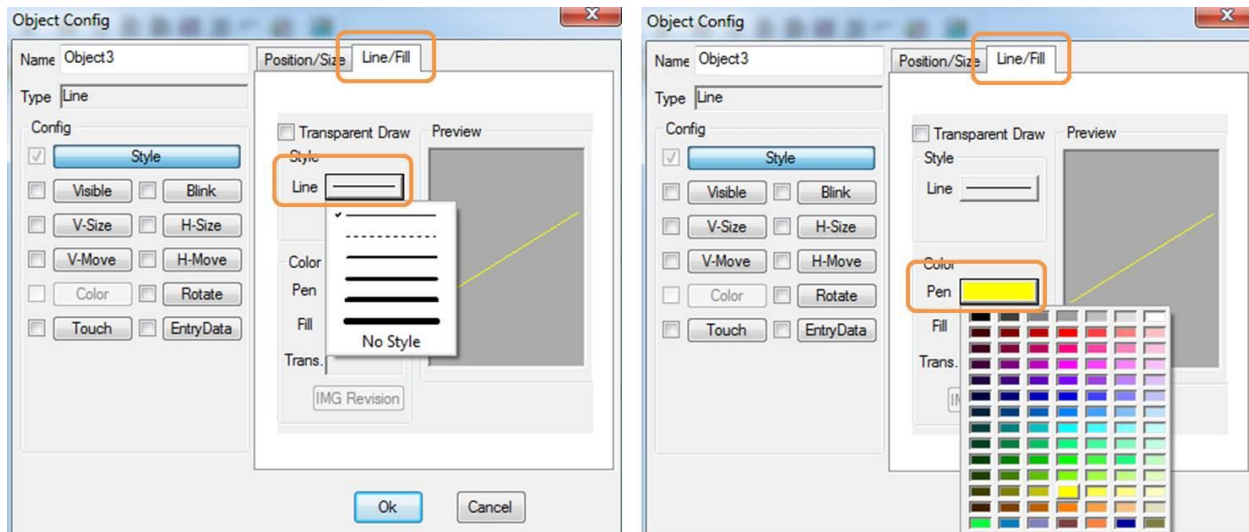
The Width is the horizontal distance between the two ends, and the Height is the vertical distance.



Left-upper corner of Virtual Rectangle that has a **line** as **diagonal**



- Line
Select the line style and thickness.
- Fill
Select the line color.

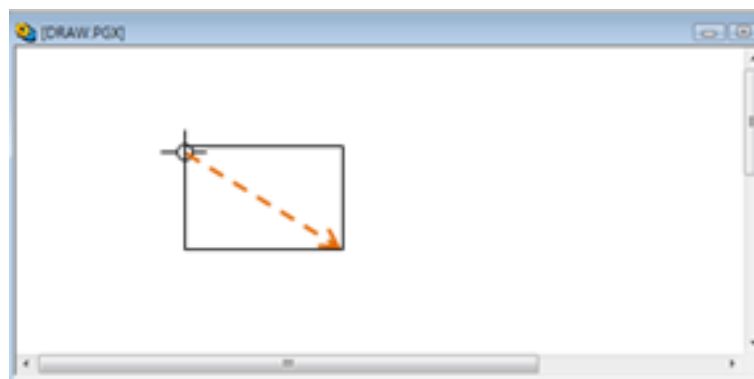


2. Rectangle

1) Drawing a Rectangle



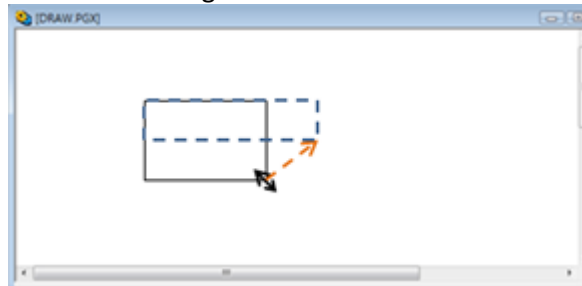
Select Rectangle from the Draw menu, or click on the rectangle icon in the **Drawing Toolbar**. The process is the same as drawing a rectangle in a standard graphics program: click on a corner of the rectangle, hold the left mouse button down while you move it to the diagonally opposite corner, then release the mouse button.



2) Editing a Rectangle

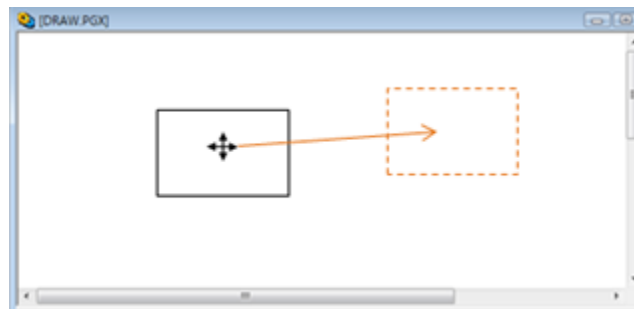
(1) Rectangle Size and Shape Control

Select an edge or a corner of the rectangle, and the **Left-Right arrow** will appear. Drag it to change the shape or size of the rectangle.



(2) Moving the Rectangle Object

Click in the center of the rectangle, and you will see a four-arrow cursor; move it to move the rectangle.



(3) Position/Size & Line/Fill

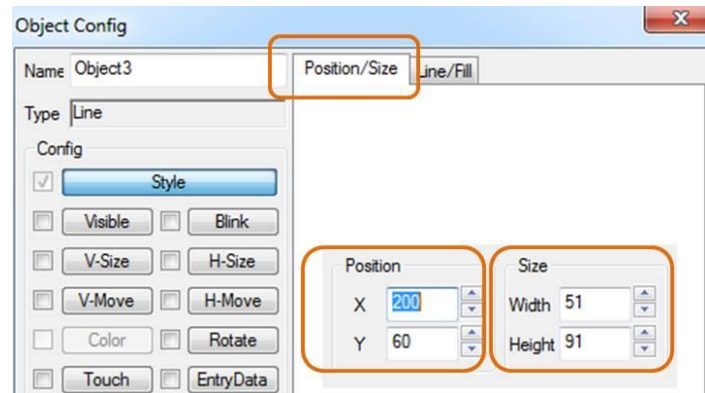
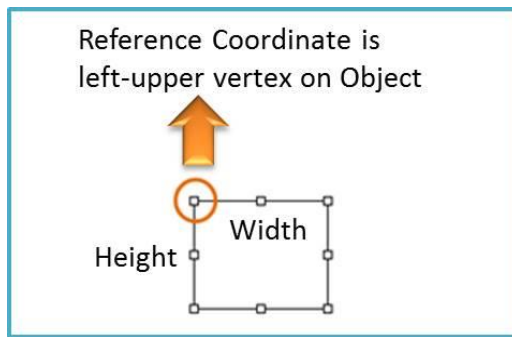
※ The Reference Coordinate is in the **upper left** corner of the Page (X=0,Y= 0).

■ Position

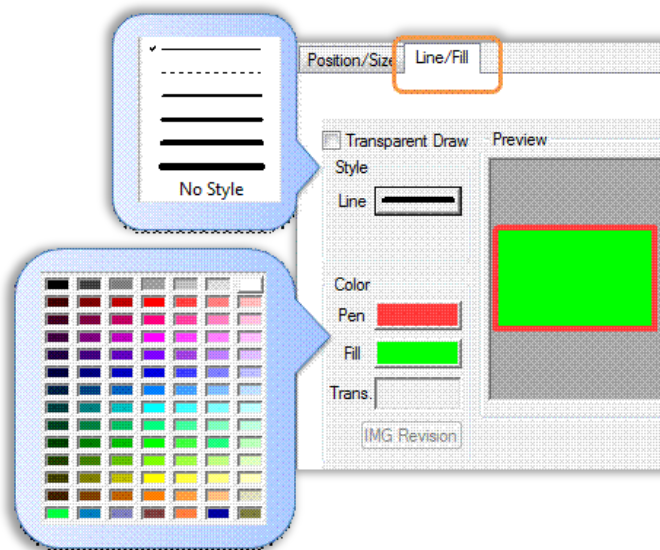
Set the rectangle position by entering its coordinates. The X and Y value indicate the **upper-left** corner of the rectangle.

■ Size

The width is the horizontal distance between two corners, and the height is the vertical distance.



- **Line**
Select border thickness and style.
- **Fill**
 - A. Select the border color.
 - B. Select the fill color.

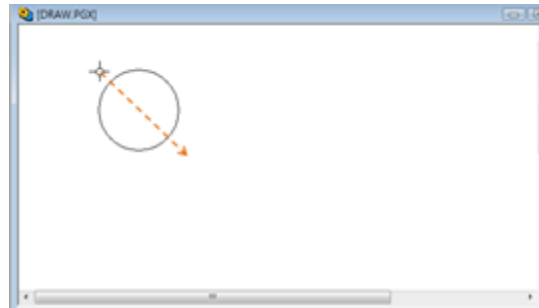


- **Transparent Draw**
This makes the background transparent.

3. Ellipse

1) Drawing an Ellipse

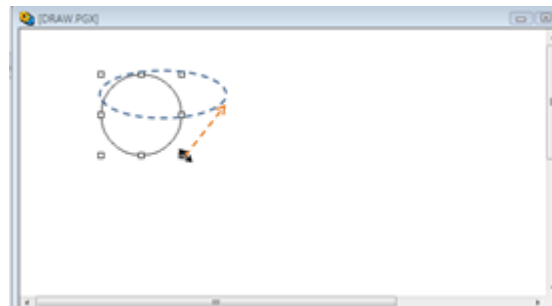
Select Ellipse from the Draw menu, or click on the ellipse icon in the toolbar. The ellipse has the correct size and shape.



2) Editing a Ellipse

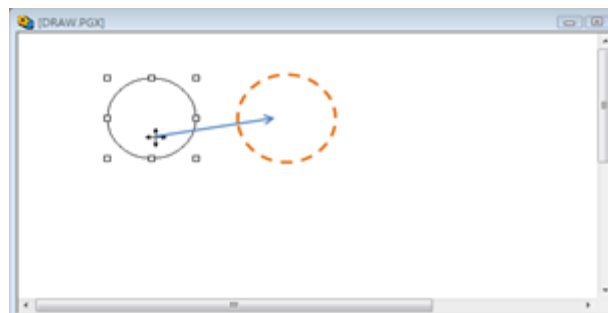
(1) Ellipse Size and Shape Control

Select an area near the border of the ellipse, and the **Left-Right arrow** will appear. Drag it to change the shape or size of the ellipse.



(2) Moving the Ellipse Object

Click in the center of the ellipse, and you will see a four-arrow cursor; move it to move the ellipse.



(3) Position/Size & Line/Fill

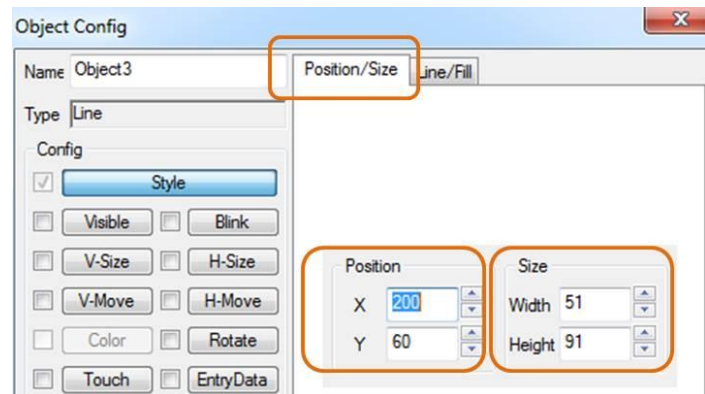
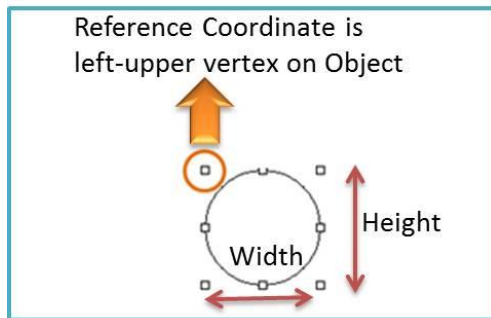
※ The Reference Coordinate is in the **upper left** corner of the Page (X=0,Y= 0).

■ Position

Set the ellipse position by entering its coordinates. The X and Y value indicate the **upper-left** corner of the imaginary rectangle bounding the ellipse.

■ Size

The width is the greatest horizontal distance across the ellipse, and the height is the greatest vertical distance.

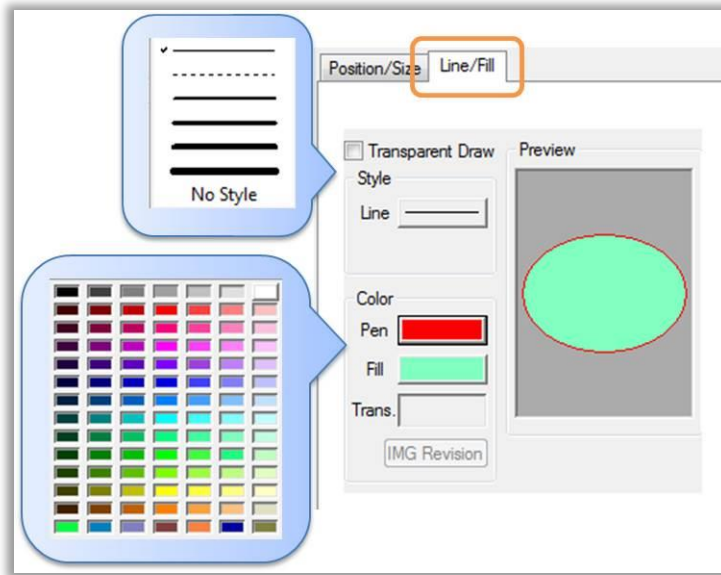


■ Line

Select border thickness and style.

■ Fill

- Select the border color.
- Select the fill color.



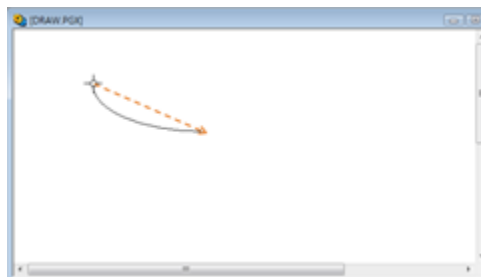
- **Transparent Draw**
This makes the background transparent.

4. Arc

1) Drawing an Arc



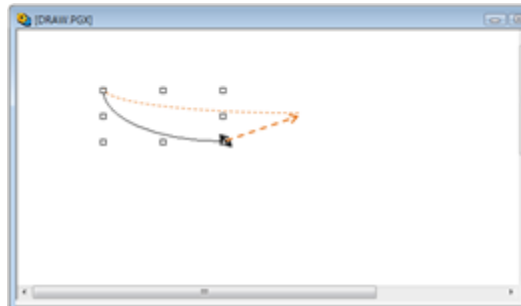
Select Arc from the Draw menu, or click on the arc icon in the **Drawing Toolbar**. The process is the same as drawing an arc in a standard graphics program: click on the starting point of the arc, hold the left mouse button down while you draw the arc, then release it at the end point of the arc.



2) Editing an Arc

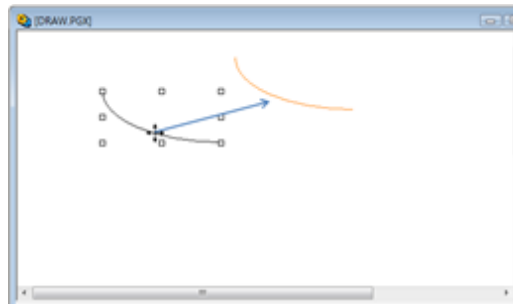
(1) Arc Size and Shape Control

Click on the Arc Object and move the mouse cursor to the end of the imaginary rectangle containing it, then a **Left-Right arrow** will appear. Drag it to change the shape or size of the arc.



(2) Moving the Arc Object

Click on the arc, and you will see a four-arrow cursor; move it to move the arc.



(3) Position/Size & Line/Fill

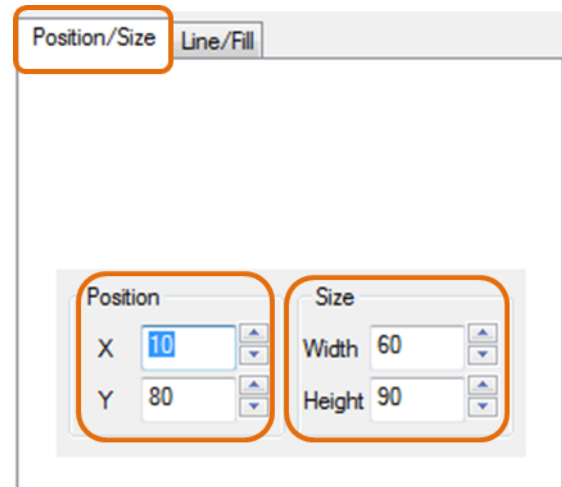
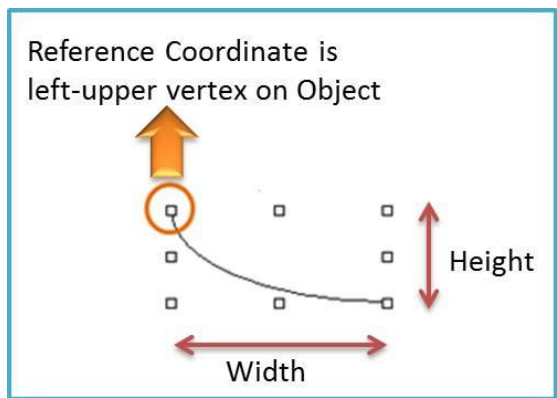
※ The Reference Coordinate is in the **upper left** corner of the Page (X=0,Y= 0).

■ Position

Set the arc position by entering its coordinates. The X and Y value indicate the **upper-left** corner of a rectangle which would contain the arc.

■ Size

The Width is the horizontal distance between the two ends, and the Height is the vertical distance.

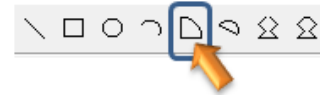


- Line
Select the arc's line style and thickness.
- Fill
Select the arc's line color.

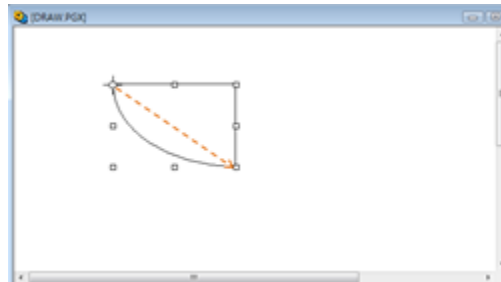


5. Sector

1) Drawing a Sector



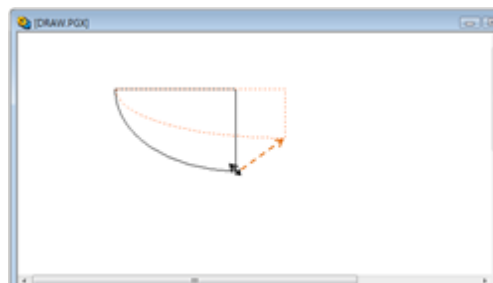
Select Sector from the Draw menu, or click on the sector icon in the **Drawing Toolbar**. The process is the same as drawing a sector in a standard graphics program: click on the starting point of the sector, hold the left mouse button down while you draw the sector, then release it at the end point of the sector.



2) Editing a Sector

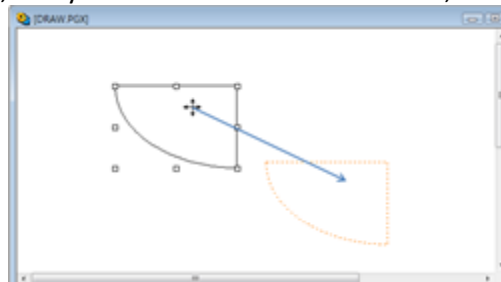
(1) Sector Size and Shape Control

Click on the Sector Object and move the mouse cursor to the end of the imaginary rectangle containing it, then a **Left-Right arrow** will appear. Drag it to change the shape or size of the sector.



(2) Moving the Sector Object

Click on the sector, and you will see a four-arrow cursor; move it to move the sector.



(3) Position/Size & Line/Fill

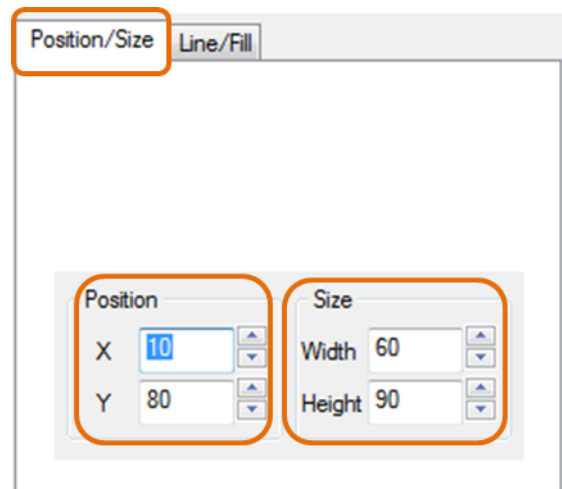
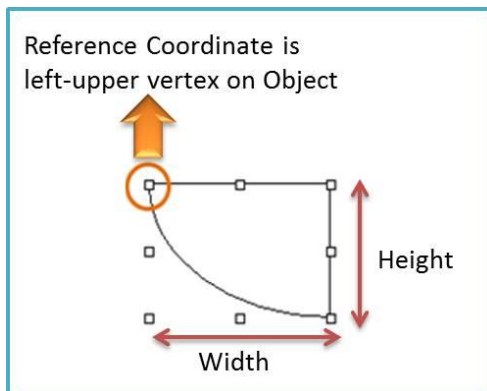
※ The Reference Coordinate is in the **upper left** corner of the Page (X=0,Y= 0).

■ Position

Set the sector position by entering its coordinates. The X and Y value indicate the **upper-left** corner of a rectangle which would contain the sector.

■ Size

The Width is the horizontal distance across the sector, and the Height is the vertical distance.



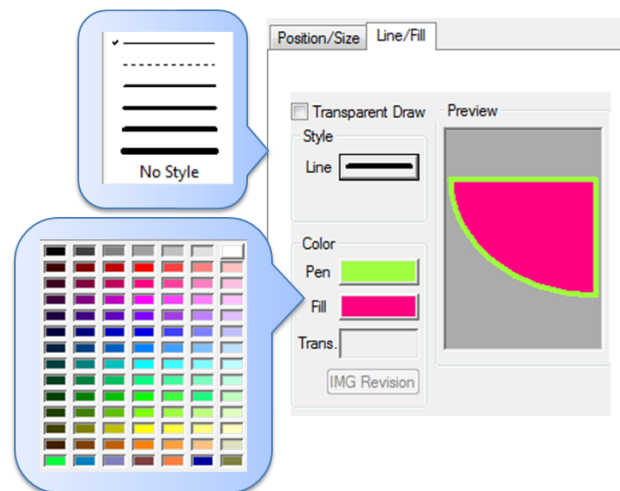
■ Line

Select border thickness and style.

■ Fill

A. Select the border color.

B. Select the fill color.




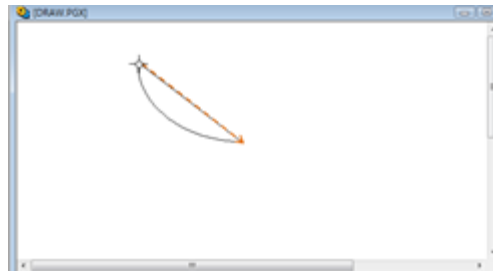
■ Transparent Draw

This makes the background transparent.

6. Chord

1) Drawing a Chord

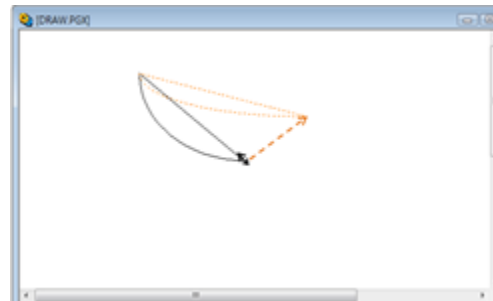
Select Chord from the Draw menu, or click on the chord icon  in the **Drawing Toolbar**. The process is the same as drawing a chord in a standard graphics program: click on the starting point of the chord, hold the left mouse button down while you draw the chord, then release it at the end point of the chord.



2) Editing a Chord

(1) Chord Size and Shape Control

Click on the Chord Object and move the mouse cursor to the end of the imaginary rectangle containing it, then a **Left-Right arrow** will appear. Drag it to change the shape or size of the chord.



(2) Moving the Chord Object

Click on the chord, and you will see a four-arrow cursor; move it to move the chord.

(3) Position/Size & Line/Fill

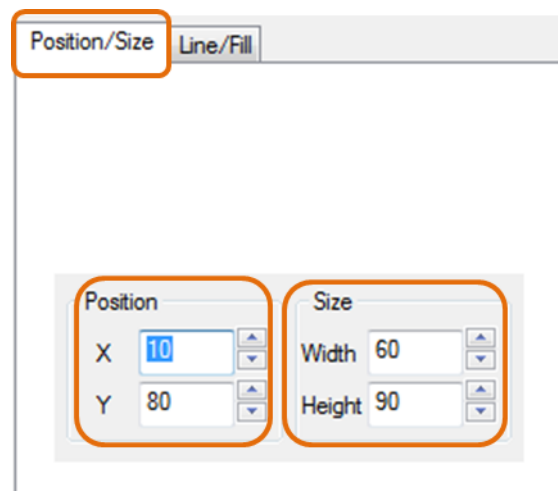
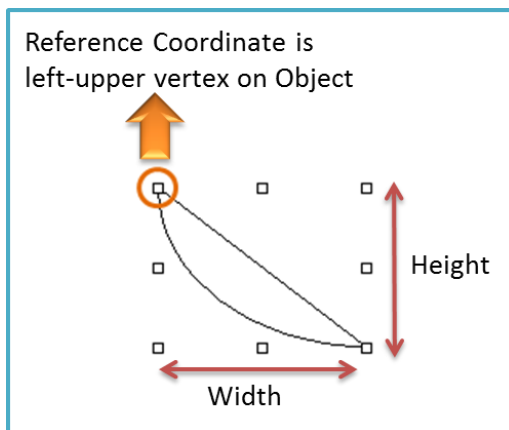
※ The Reference Coordinate is in the **upper left** corner of the Page (X=0,Y= 0).

■ Position

Set the chord position by entering its coordinates. The X and Y value indicate the **upper-left** corner of a rectangle which would contain the chord.

■ Size

The Width is the horizontal distance across the chord, and the Height is the vertical distance.



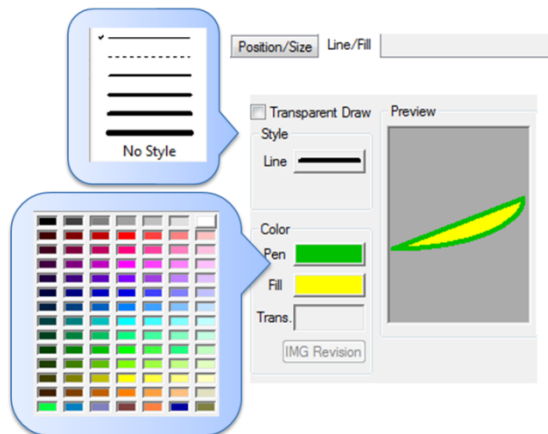
■ Line

Select border thickness and style.

■ Fill

A. Select the border color.

B. Select the fill color.



■ Transparent Draw

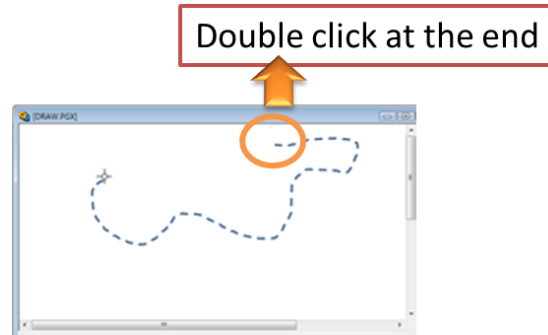
This makes the background transparent.

7. Multiline

1) Drawing a Multiline



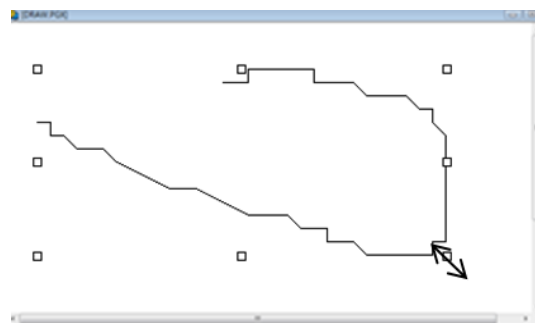
Select Multiline Object from the Draw menu, or click on the multiline icon in the **Drawing Toolbar**. The process is the same as drawing a similar object in a standard graphics program: click on the starting point, hold the left mouse button down while you draw it, and then release it at the end point.



2) Editing a Multiline

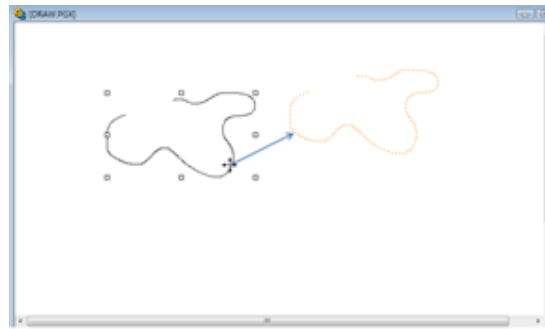
(1) Multiline Size and Shape Control

Click on the Multiline Object and move the mouse cursor to the end of the imaginary rectangle containing it, then a **Left-Right arrow** will appear. Drag it to change the shape or size of the object.



(2) Moving the Multiline Object

Click on the multiline, and you will see a four-arrow cursor; move it to move the multiline.



(3) Position/Size & Line/Fill

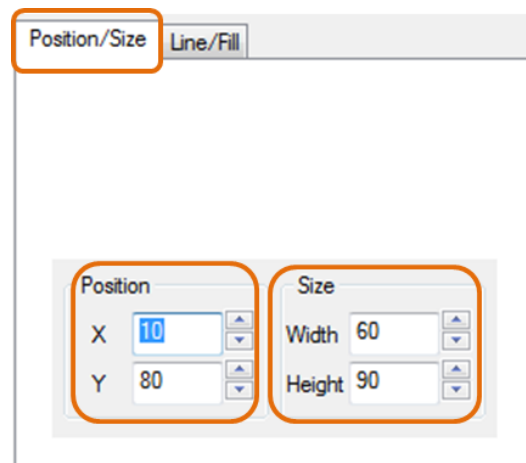
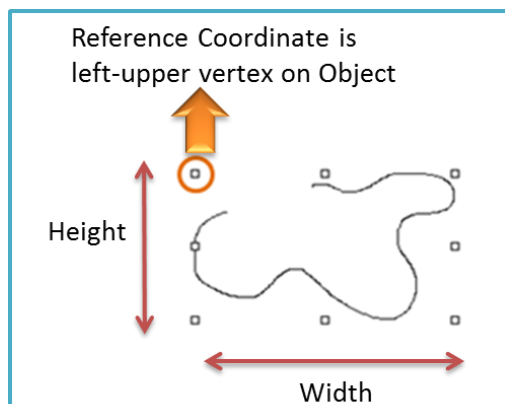
※ The Reference Coordinate is in the **upper left** corner of the Page (X=0,Y= 0).

■ Position

Set the object's position by entering its coordinates. The X and Y value indicate the **upper-left** corner of a rectangle which would contain it.

■ Size

The Width is the horizontal distance across, and the Height is the vertical distance.

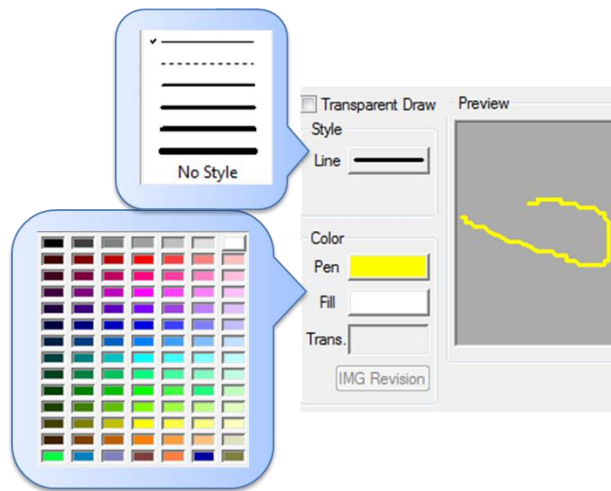


■ Line

Select the line style and thickness.

■ Fill

Select the line color.



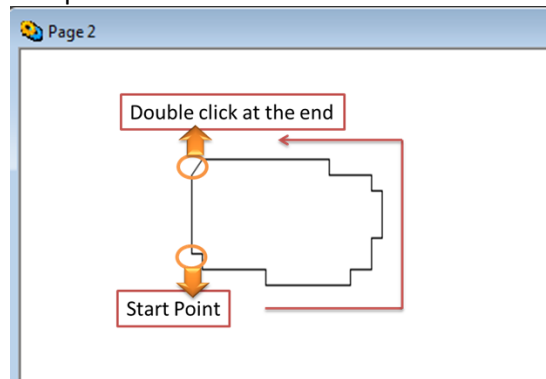
■ Transparent Draw

This makes the background transparent.

8. Polygon

1) Drawing a Polygon

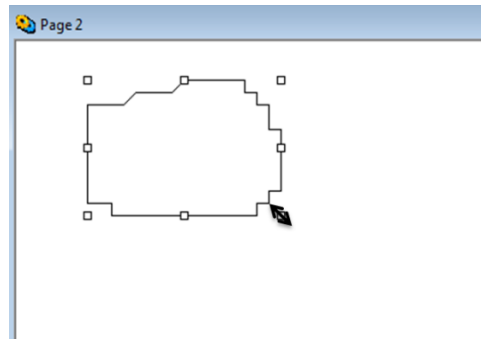
Select Polygon from the Draw menu, or click on the polygon icon in the **Drawing Toolbar**. The process is the same as drawing a similar object in a standard graphics program: click on the starting point, hold the left mouse button down while you draw it, and then release it at the end point.



2) Editing a Polygon

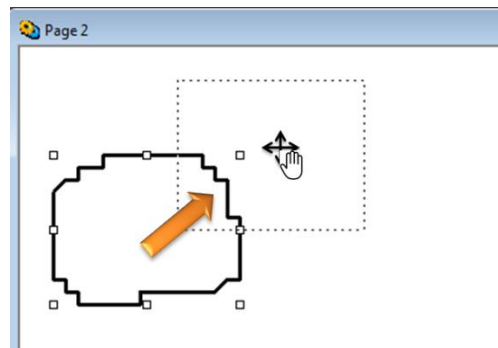
(1) Polygon Size and Shape Control

Click on the Polygon Object and move the mouse cursor to the end of the imaginary rectangle containing it, then a **Left-Right arrow** will appear. Drag it to change the shape or size of the object.



(2) Moving the Polygon Object

Click on the polygon, and you will see a four-arrow cursor; move it to move the object.



(3) Position/Size & Line/Fill

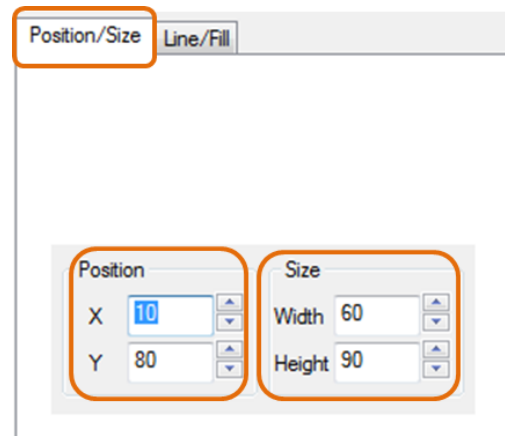
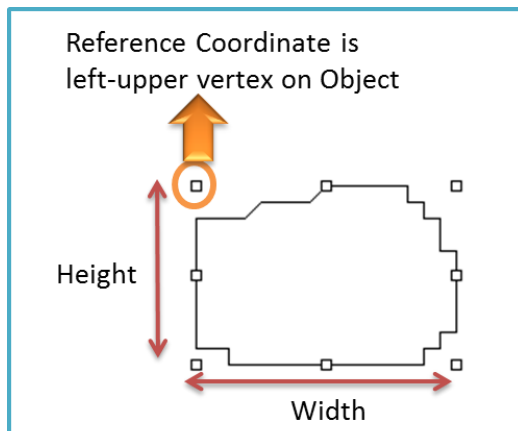
※ The Reference Coordinate is in the **upper left** corner of the Page (X=0,Y= 0).

■ Position

Set the object's position by entering its coordinates. The X and Y value indicate the **upper-left** corner of a rectangle which would contain it.

■ Size

The Width is the horizontal distance across, and the Height is the vertical distance.



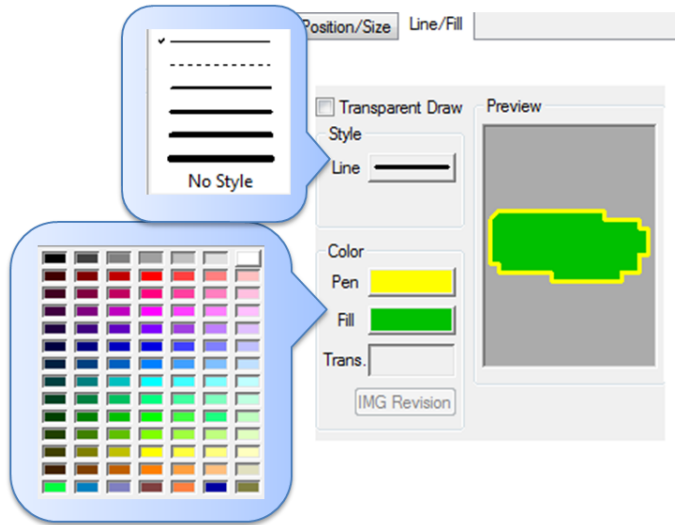
- Line

Select border thickness and style.

- Fill

A. Select the border color.

B. Select the fill color.

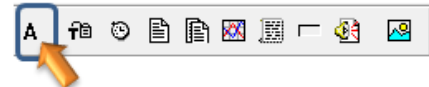


- **Transparent Draw**

This makes the background transparent.

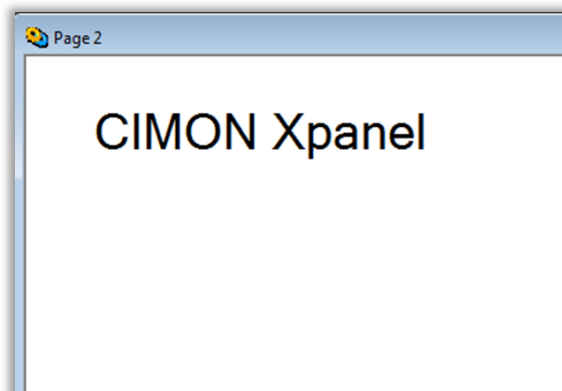
9. Text

1) Writing Text



Select Text from the Draw menu, or click on the text icon

in the **Drawing Toolbar**. The process is the same as entering text in a standard graphics program: click on the location where you want to put the text, and a text-entry dialog box will appear. Enter the text in the dialog box.



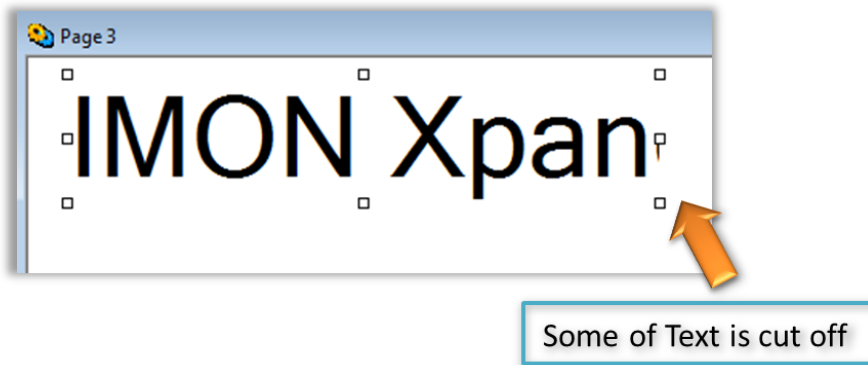
2) Editing a Text

(1) Text Object Size and Shape Control

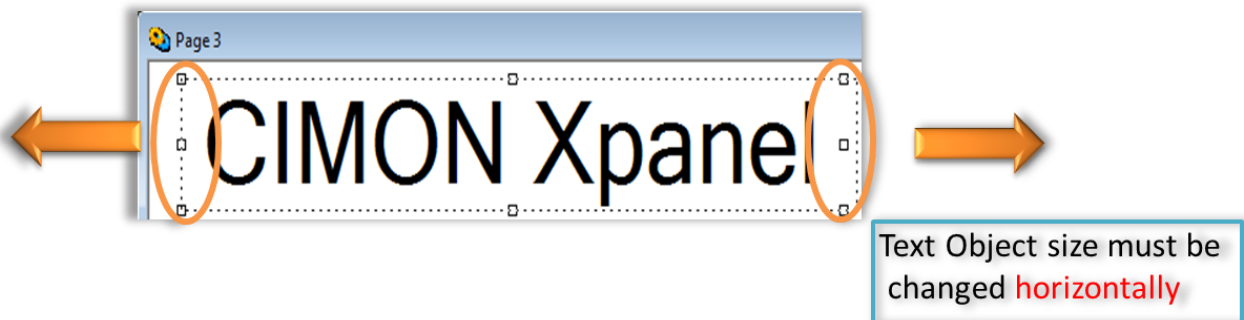
Click on the Text Object and move the mouse cursor to the end of the imaginary rectangle containing it, then a **Left-Right arrow** will appear. Drag it to change the shape or size of the object.

※ **Text size** changes by moving the Text object **vertically**.

If you change the text size, it may become too large for the object.

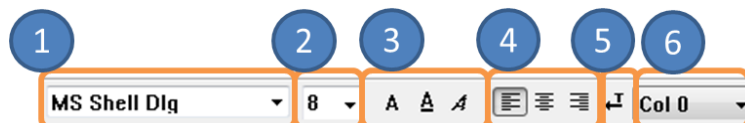


Click on either the left or right end of the Text Object, and drag it horizontally to display all of the Text.



(2) Font

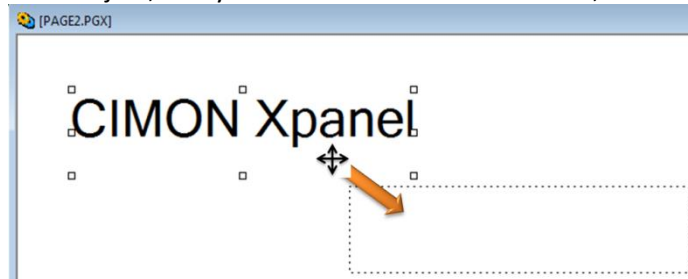
Select Font Tool from the View menu.



1. Select the Font type.
2. Select the Font size.
3. Select Underline, Bold and Italic.
4. Select the Alignment (Left,Center,Right).
5. Select RTL language (Text is typed from right to left, as in Hebrew or Arabic)
6. Select the column when displaying multiple strings.

(3) Moving the Text Object.

Click on the text object, and you will see a four-arrow cursor; move it to move the object.



(4) Position/Size & Line/Fill

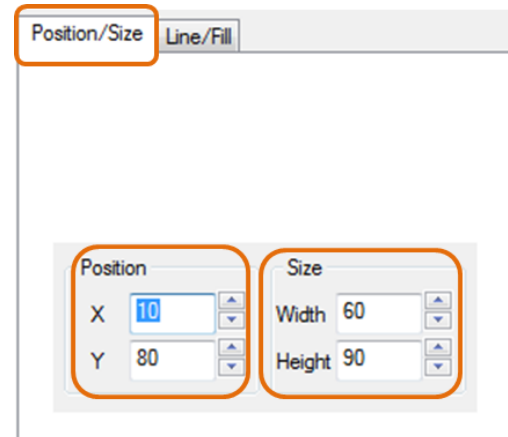
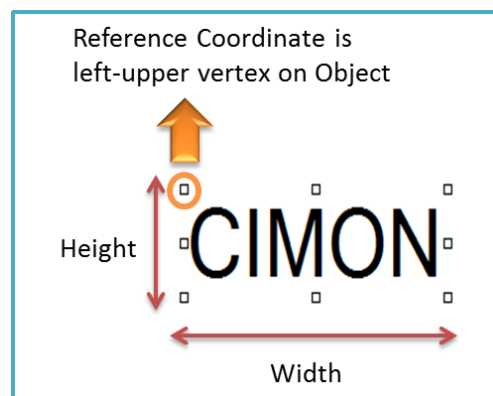
※ The Reference Coordinate is in the **upper left** corner of the Page (X=0,Y= 0).

■ Position

Set the object's position by entering its coordinates. The X and Y value indicate the **upper-left** corner of a rectangle which would contain it.

■ Size

The Width is the horizontal distance across, and the Height is the vertical distance.

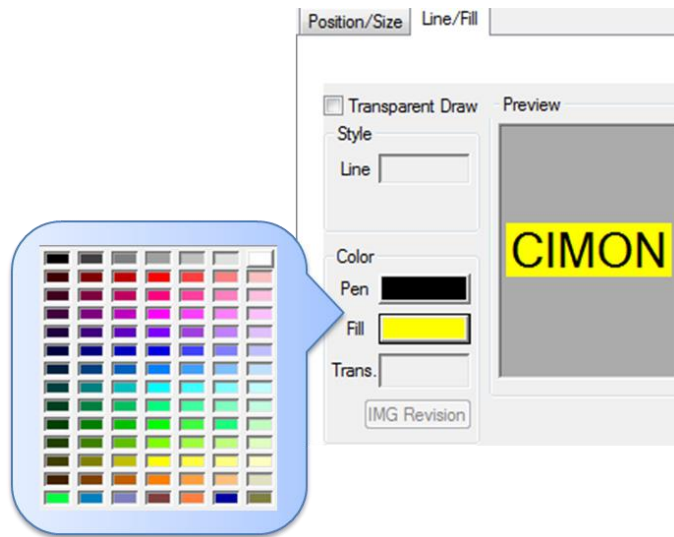


■ Line

Not applicable

■ Fill

- A. Select the text color.
- B. Select the fill color.

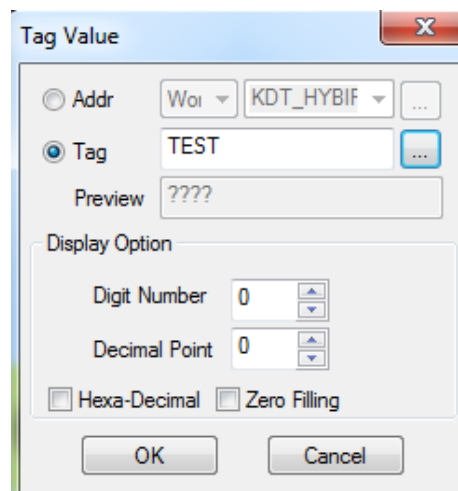


- **Transparent Draw**
This makes the background transparent.

10. Dynamic Tag

1) Drawing Dynamic Tag

Select Dynamic Tag from the Draw menu, or click on the Tag icon in the **Drawing Toolbar**. Click on the location where you want to put the tag, then select the tag from the list.

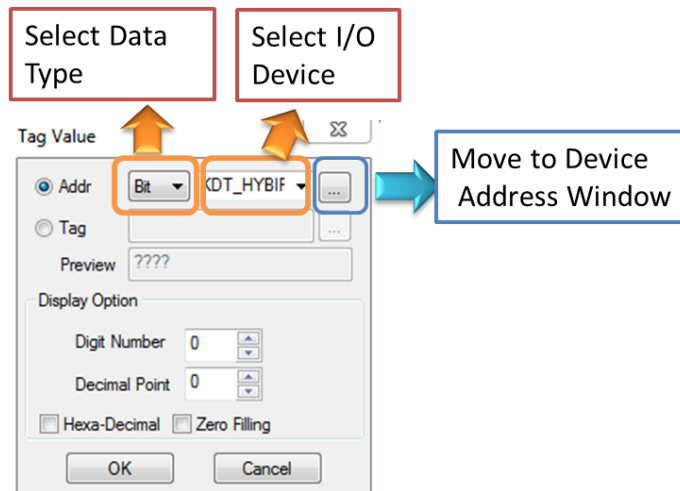


(1) Display Tag Value by Real Address.

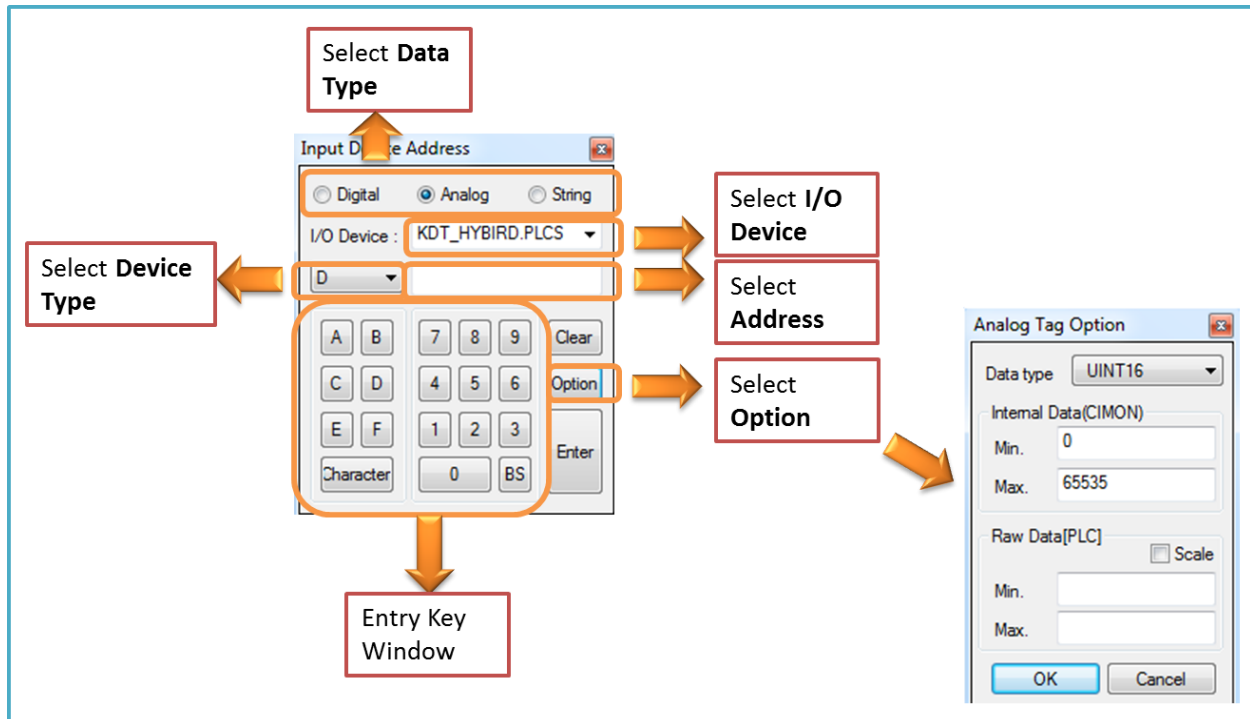
The tag value will be displayed by using its Real Address. Tag selection is not needed when using the Real Address. Select the **Addr** feature, and click on [...] to open the **Input Device Address** dialog box. Select the **data type** (Digital, Analog, String), and enter the Device Address.

A. Select Data Type and Device Address

Choose **Addr (Real Address)**, and select the Data type and I/O Device. Click on [...] to bring up the **Input Device Address** dialog box.

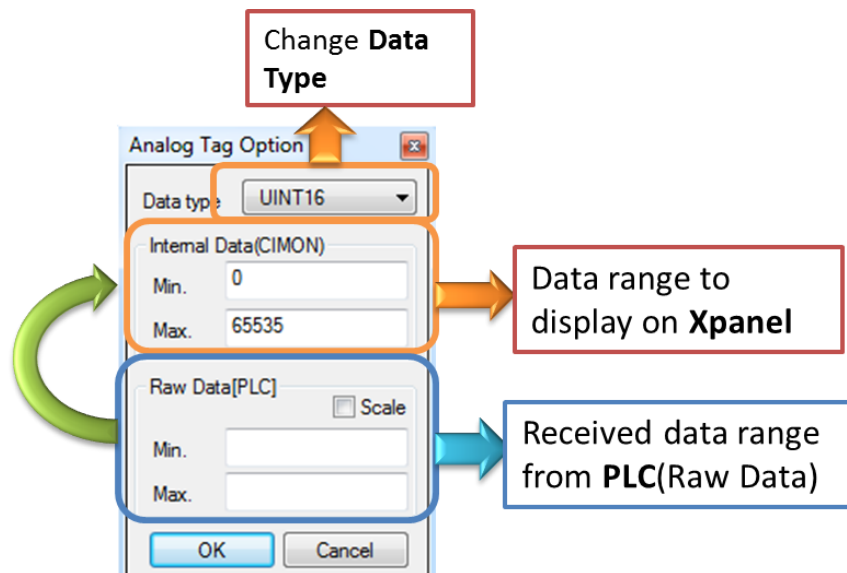


B. Input Device Address Dialog Box



- i. **Data Type:** Select a Digital/Analog/String type. The detailed Option dialog box selections will depend on the type that you select.
- ii. **I/O Device:** Display all devices in the system.
- iii. **Device Type:** Device types are listed by I/O Device and Data type.
- iv. **Address:** Enter the Device Address. An error message will appear if the input value is out of range.
- v. **Entry Key:** You can click on the entry keys to enter the device address.
- vi. **Clear:** Delete the contents of the Address field.
- vii. **Option:** Bring up the detailed Option dialog box.

C. Analog Tag Options



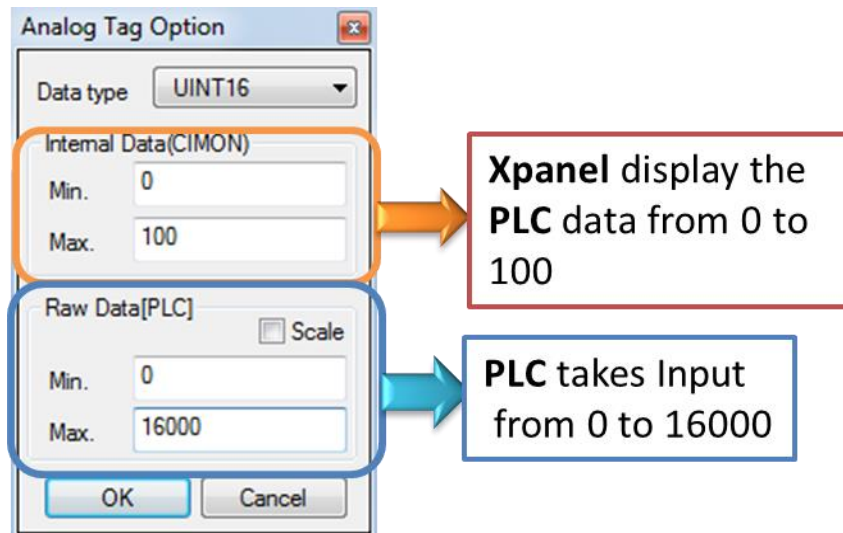
i. Data Type

- Select the Analog data type (UINT8, UINT16, UINT32, INT8, INT16, INT32, UBCD8, UBCD16, UBCD32, BCD8, BCD16, BCD32, or Float).

ii. Raw Data / Internal (Xpanel) Data

- PLC raw data will be scaled or changed to Xpanel Data for screen display.

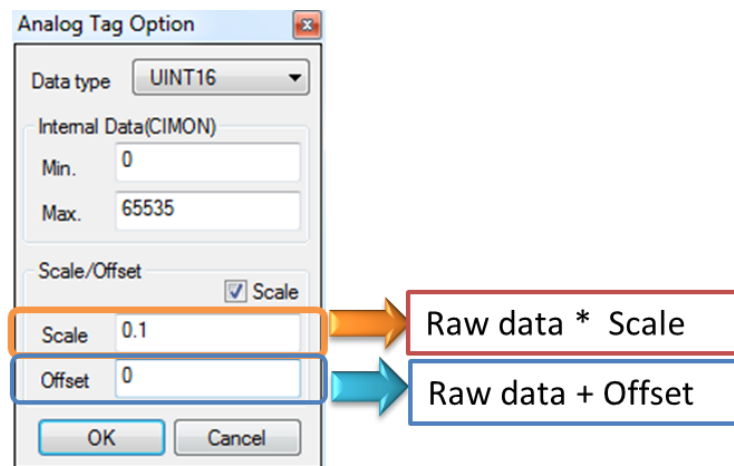
Ex) If the PLC takes analog input with a range of 0~16000, Xpanel will display PLC data using a range of 0~100.



iii. SCALE configuration

The SCALE feature scales PLC data for Xpanel display.

Ex) If the PLC raw data is 256, Xpanel divides 256 by 10 and displays it as 25.6.



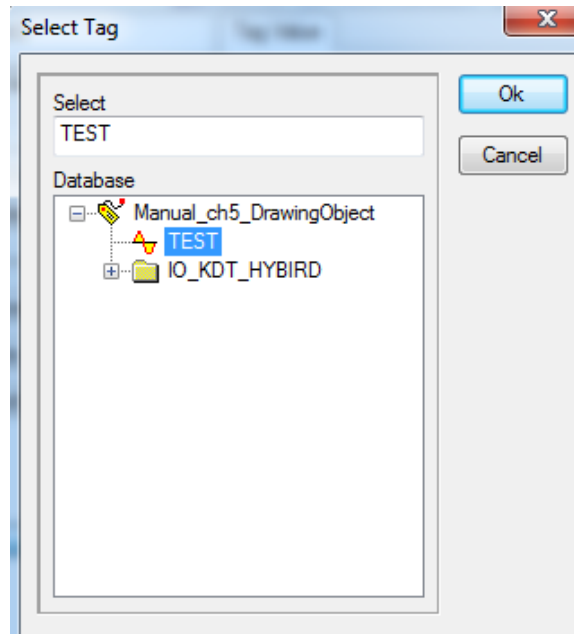
Scale Result = (Raw data * Scale) + Offset

Ex) 256 → 25.6

$$25.6 = (256 * 0.1) + 0$$

(2) Display Tag value by Tag

To display a Tag value using a Tag from the Database. Select a Tag name, and click on [...] to bring up the Database dialog box.

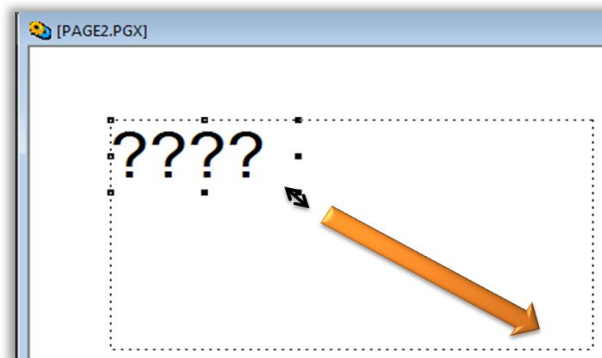


Select the desired Tag, then click on **OK**.

2) Editing Dynamic Tag

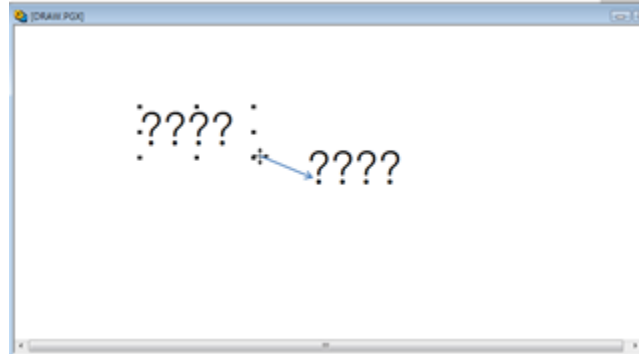
(1) Size and Shape Control

Click on the Dynamic Tag Object and move the mouse cursor to the end of the imaginary rectangle containing it, then a **Left-Right arrow** will appear. Drag it to change the shape or size of the object.



(2) Moving the Dynamic Tag

Click on the Dynamic Tag Object, and you will see a four-arrow cursor; move it to move the multiline.



(3) Position/Size & Line/Fill

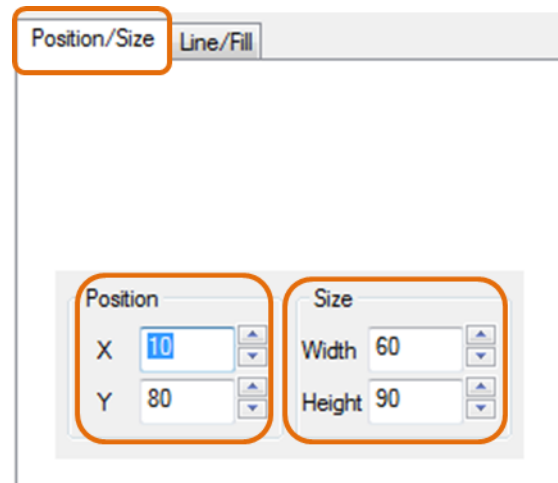
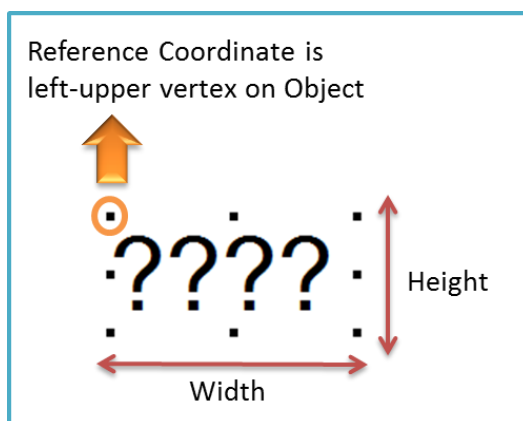
※ The Reference Coordinate is in the **upper left** corner of the Page (X=0,Y= 0).

■ Position

Set the object's position by entering its coordinates. The X and Y value indicate the **upper-left** corner of a rectangle which would contain it.

■ Size

The Width is the horizontal distance across, and the Height is the vertical distance.

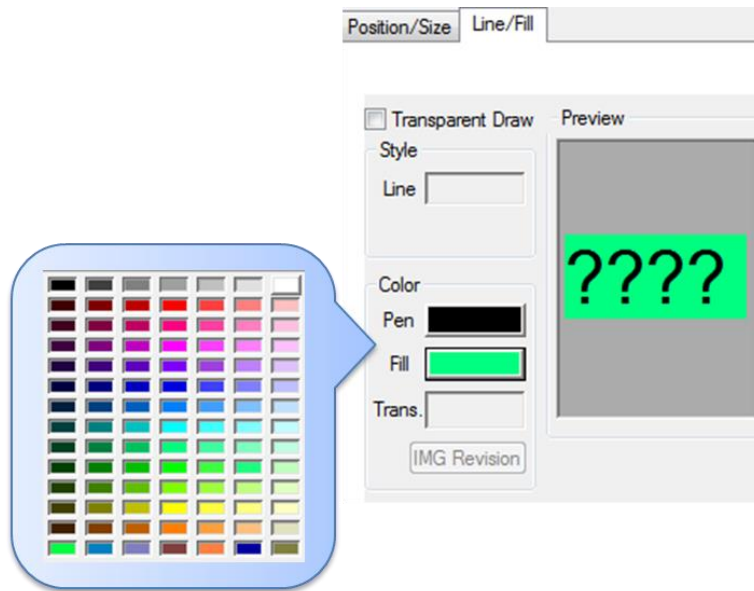


■ Line

Not applicable.

■ Fill

- A. Select the text color.
- B. Select the fill color.



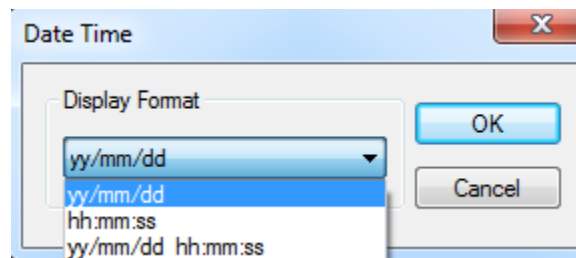
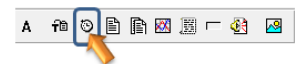
■ Transparent Draw

This makes the background transparent.

11.Date/Time

1) Drawing Date/Time Object

Select Date/Time from the Draw menu, or click on the Date/Time icon in the **Drawing Toolbar**. Click on the location where you want to put the Date/Time Object.



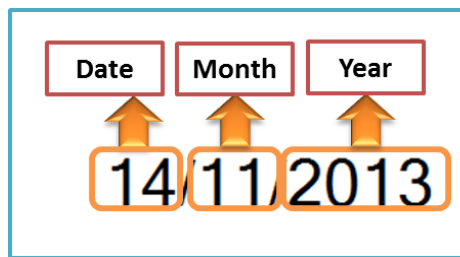
- 1) **yy/mm/dd** : Display the Date in 'year/month/day' format.
- 2) **hh/mm/ss** : Display the Time in 'hour/min/sec' format.
- 3) **yy/mm/dd hh/mm/ss** : Display the Date & Time in 'year/month/day hour/min/sec' format.

- ※ The Time & Date display is based on **Windows information** from **Xpanel** itself.
- ※ You can create a **different Time & Date** format using Scripts and Functions ("**NumToStr**", "**GetTime**")

Ex) Display the Date format as **dd/mm/yy** using a **Script** and the **String Tag** (DATE).

In the Script,

```
DATE = NumToStr(GetTime(3),_UINT_,"02") + "/" + NumToStr(GetTime(2),_UINT_,"02")
+ "/" + NumToStr(GetTime(1),_UINT_,"04");
```



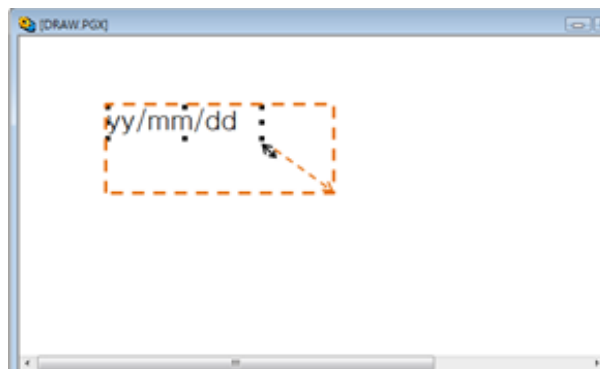
2) Editing a Date/Time Object

(1) Size and Shape Control

Click on the Date/Time Object and move the mouse cursor to the end of the imaginary rectangle containing it, then a **Left-Right arrow** will appear. Drag it to change the shape or size of the object.

- ※ **Text size** changes by moving the Date/Time object **vertically**.

If you change the text size, it may become too large for the object.



Click on either the left or right end of the Date/Time Object, and drag it horizontally to display all of the Text.

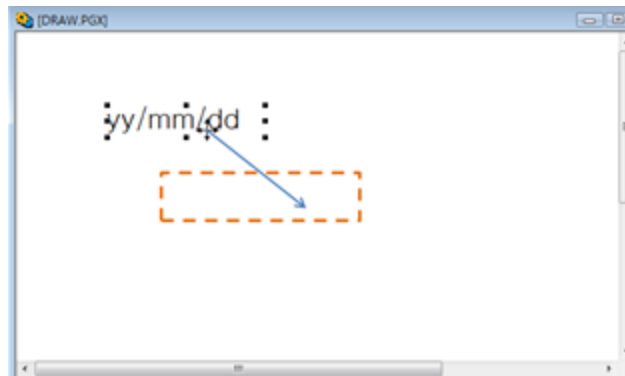
(2) Font

Select Font Tool from the View menu, and select the font and size.



(3) Moving the Date/Time Object.

Click on the Date/Time Object, and you will see a four-arrow cursor; move it to move the object.



(4) Position/Size & Line/Fill

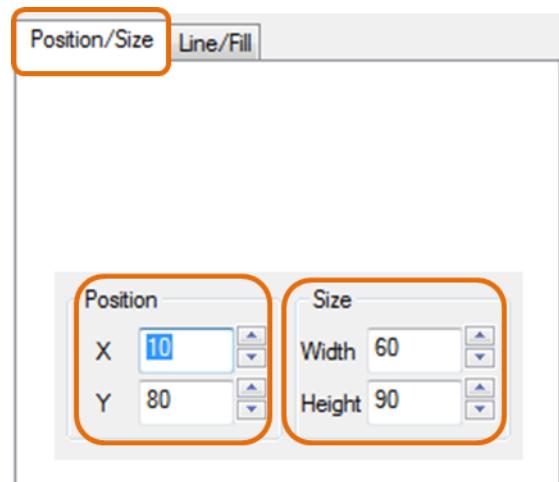
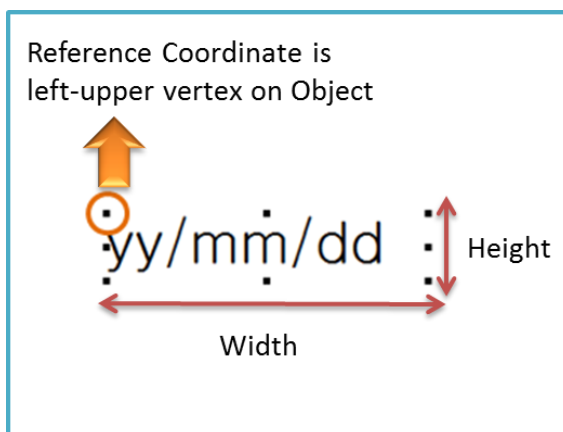
※ The Reference Coordinate is in the **upper left** corner of the Page (X=0,Y= 0).

■ Position

Set the object's position by entering its coordinates. The X and Y value indicate the **upper-left** corner of a rectangle which would contain it.

■ Size

The Width is the horizontal distance across, and the Height is the vertical distance.



Not applicable.

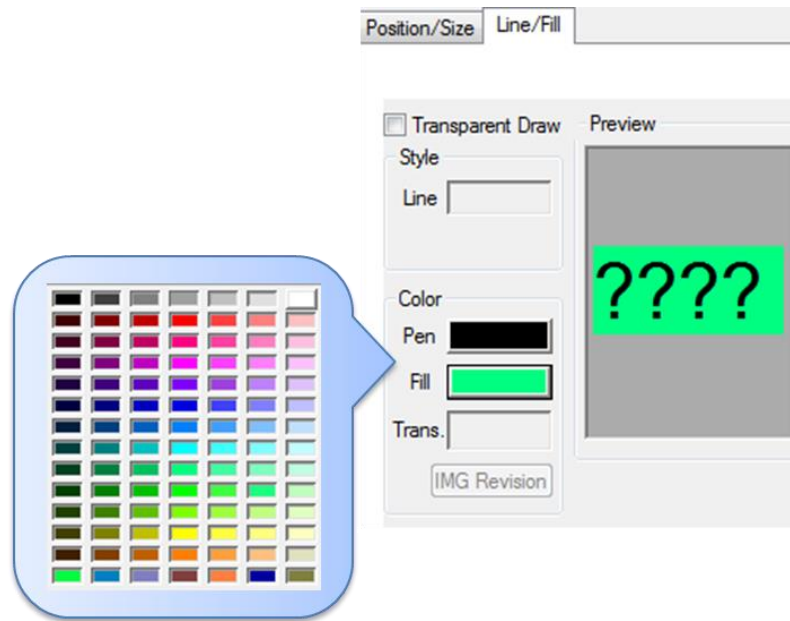
■ **Fill**

A. Select the text color.

B. Select the fill color.

■ **Transparent Draw**

This makes the background transparent.

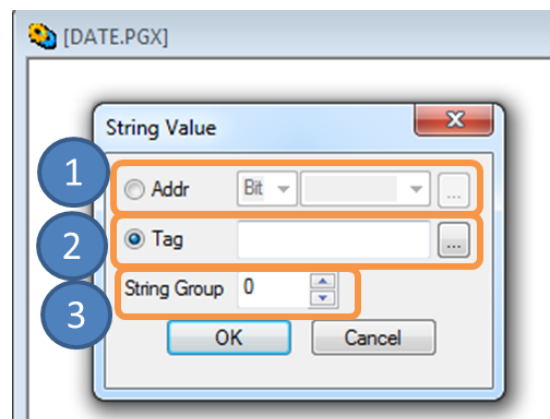


12.String Value

1) Drawing String Value Object

Select String Value from the Draw menu, or click on the String Value

icon in the **Drawing Toolbar**. Click on the location where you want to put the String Value Object.

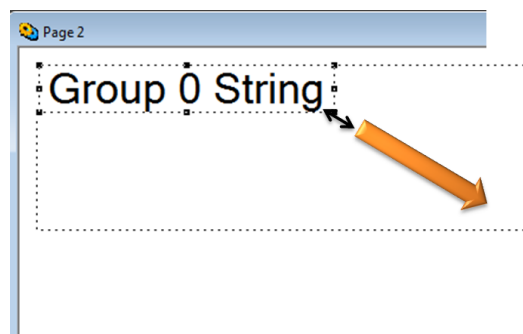


- (1) Addr: Enter the string by Real Address.
- (2) Tag: Use a String Tag from the Database.
- (3) String Group: Select a String Group.

2) Editing a String Value Object

(1) Size and Shape Control

Click on the String Value Object and move the mouse cursor to the end of the imaginary rectangle containing it, then a **Left-Right arrow** will appear. Drag it to change the shape or size of the object.



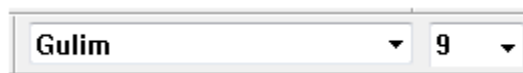
※ **Text size** changes by moving the String Value object **vertically**.

If you change the text size, it may become too large for the object.

Click on either the left or right end of the String Value Object, and drag it horizontally to display all of the Text.

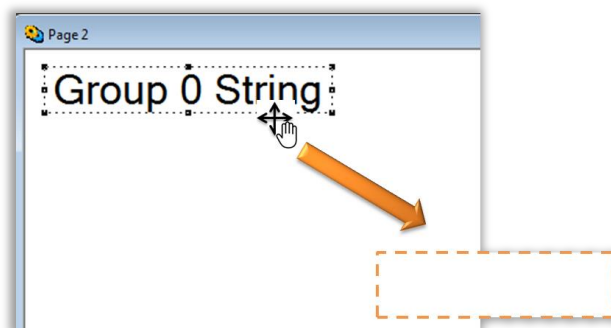
(2) Font

Select Font Tool from the View menu, and select the font and size.



(3) Moving the String Value Object.

Click on the String Value Object, and you will see a four-arrow cursor; move it to move the object.



(4) Position/Size & Line/Fill

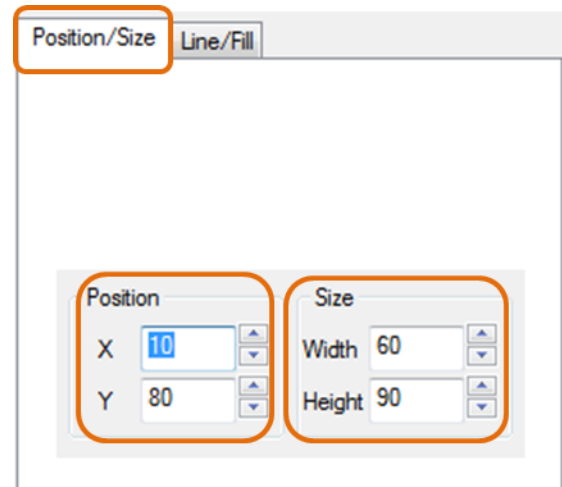
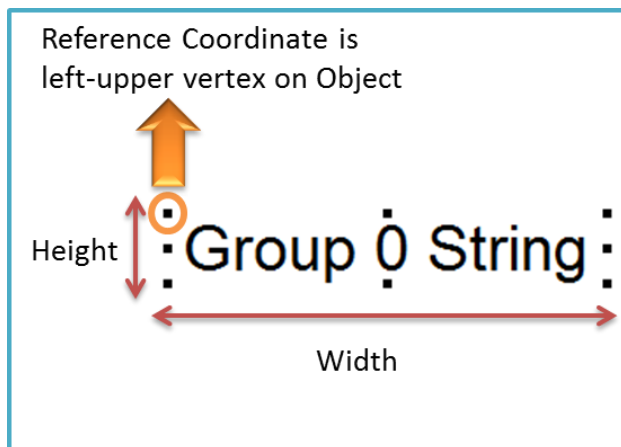
※ The Reference Coordinate is in the **upper left** corner of the Page (X=0,Y= 0).

■ Position

Set the object's position by entering its coordinates. The X and Y value indicate the **upper-left** corner of a rectangle which would contain it.

■ Size

The Width is the horizontal distance across, and the Height is the vertical distance.

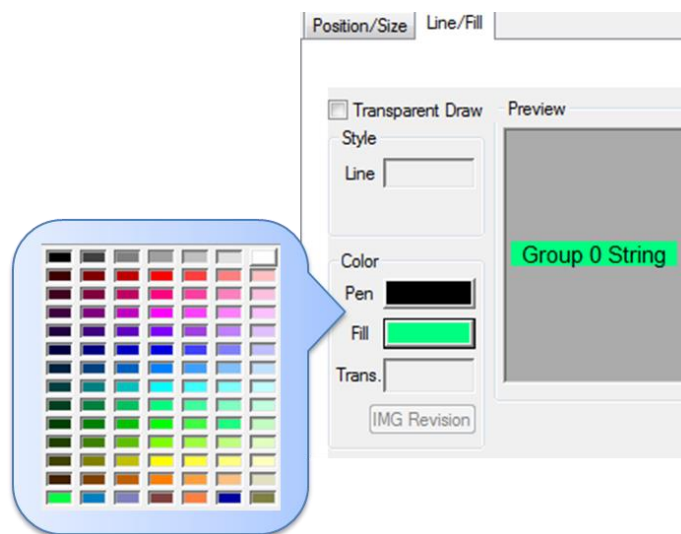


■ Line

Not applicable.

■ Fill

- Select the text color.
- Select the fill color.



■ Transparent Draw


This makes the background transparent.

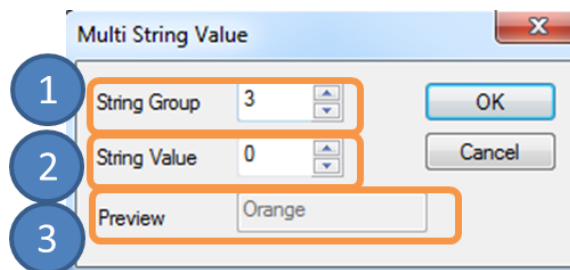
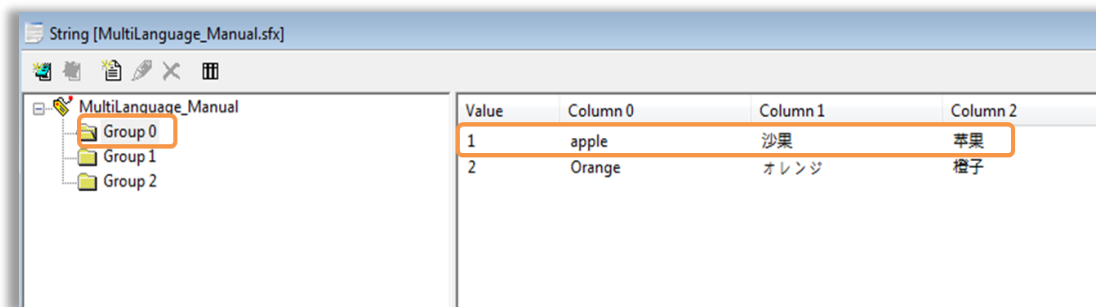
13. Multi Language String

1) Drawing MultiString Object

※ To use a Multi-Language String, you must already have set up the **Multi Language Table**.

(See Chapter 19, **Multiple Language** for detailed information)

Select Multi Language String from the Draw menu, or click on  the Multi Language String icon in the **Drawing Toolbar**. Click on the location where you want to put the Multi Language String.

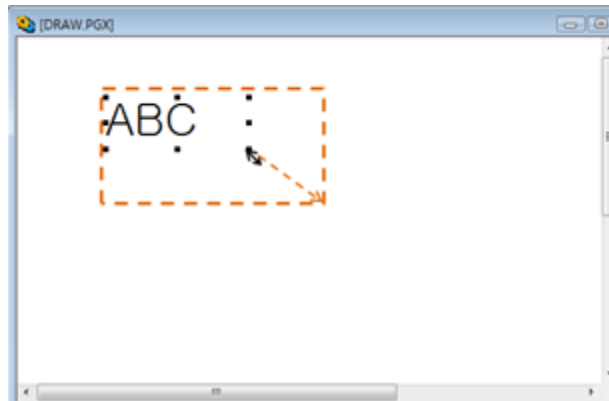


- 1) String Group: Select the desired String Group.
- 2) String Value: Select the desired String Value in the String Group.
- 3) Preview: Display the selected String.

2) Editing the Multi Language String Object

(1) Size and Shape Control

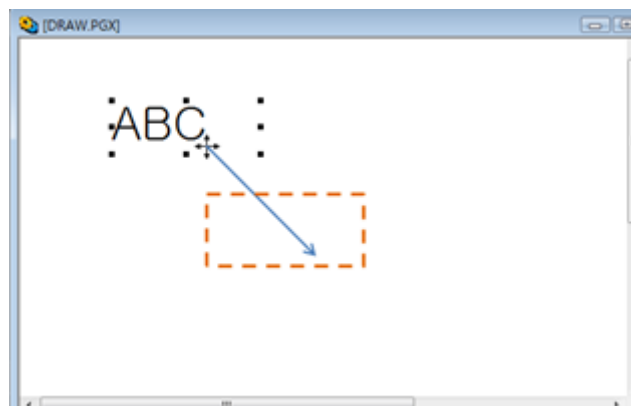
Click on the Multi Language String Object and move the mouse cursor to the end of the imaginary rectangle containing it, then **Left-Right arrow** will appear. Drag it to change the shape or size of the object.



※ The **Vertical Object** control changes both the **Text** and **Object** size. Click on either the left or right end of the Multi Language String Object, and drag it horizontally to display all of the Text. Because the String size is **undefined**, you will need to control the Multi String Object size using the **Max. String length** in the String Table.

(2) Moving the Multi Language String Object.

Click on the Multi Language String Object, and you will see a four-arrow cursor; move it to move the object.



(3) Position/Size & Line/Fill

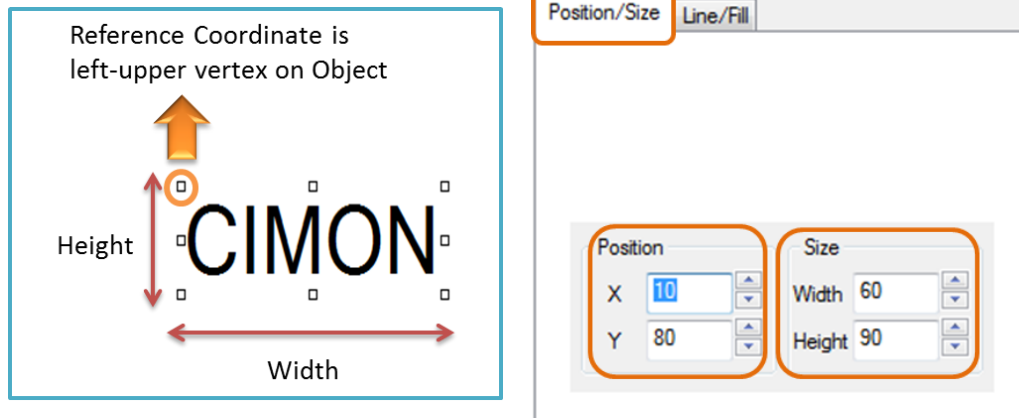
※ The Reference Coordinate is in the **upper left** corner of the Page (X=0,Y= 0).

■ Position

Set the object's position by entering its coordinates. The X and Y value indicate the **upper-left** corner of a rectangle which would contain it.

■ Size

The Width is the horizontal distance across, and the Height is the vertical distance.

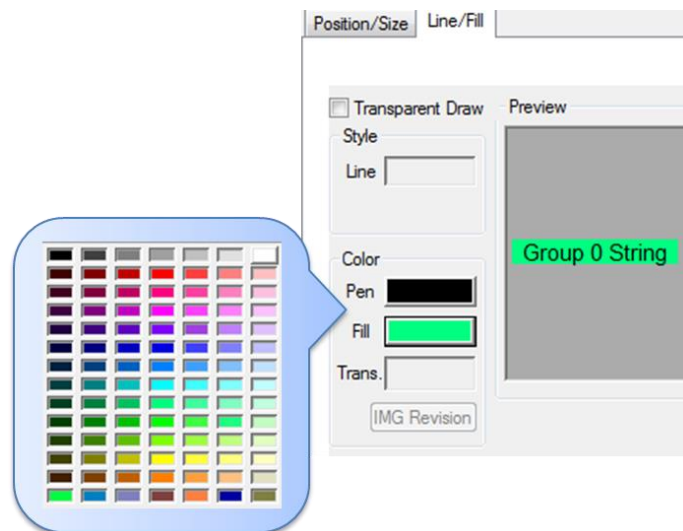


■ Line

Not applicable.

■ Fill

- Select the text color.
- Select the fill color.



■ Transparent Draw

This makes the background transparent.

(4) String Modification

To modify a string, select String Editor from the Tool Menu.

(5) Language Modification

To modify the language setup, select Multi language Setup from the Tool Menu.

14. Key Input Window

1) Where to use the Key Input Window

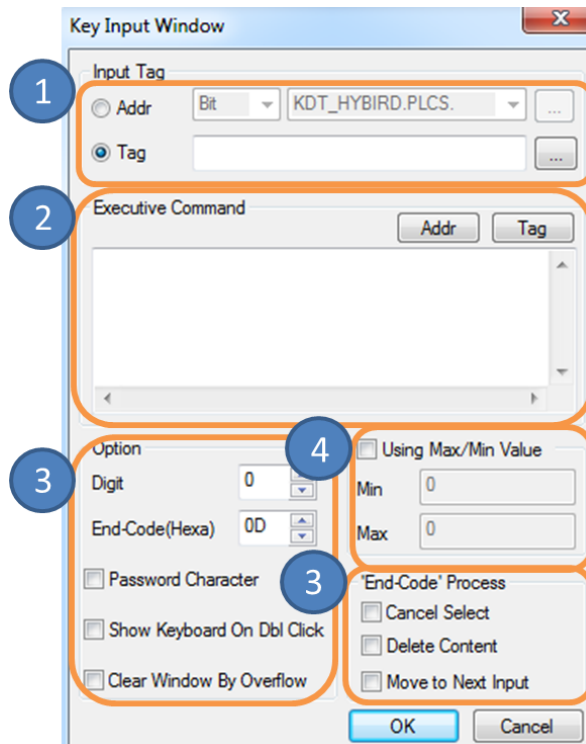
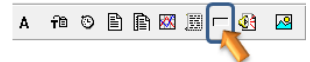
The Key Input Window takes a Number or String as input when using a Keyboard. Input can be from either a real Keyboard connected to Xpanel or a Soft (Virtual) Keyboard.

2) Applicable Tag Types

- Digital/Analog Tag: Both Tag types take numbers as Input.
- String Tag: The String Tag takes Strings as Input.

3) Drawing Key Input Window

Select Key Input Window from the Draw menu, or click on the Key Input Window icon in the **Drawing Toolbar**. Click on the location where you want to put the Key Input Window.



- (1) Input Tag/Address: Select a Tag or Address to take input from the Key Input Window.
- (2) Action on Input: When Key input is complete, execute a Command Expression.
- (3) Option
 - A. Display Digit: Enter the maximum number of digits. 0 = unlimited.
 - B. End-Code(Hexa) : Enter the hexadecimal code for ending **Key Input**. The Default, '**OD**', is the '**Enter**' key (see the ASCII Code Table for more information).
 - C. Password Character: Key input will be displayed as an asterisk.
 - D. Show Keyboard on Double Click :
A double-click in the Key Input Window will bring up the Soft (Virtual) Keyboard. The Command Expression "**Softkeyboard()**" will also bring up the Soft keyboard. See **Scripts** for more detailed information.



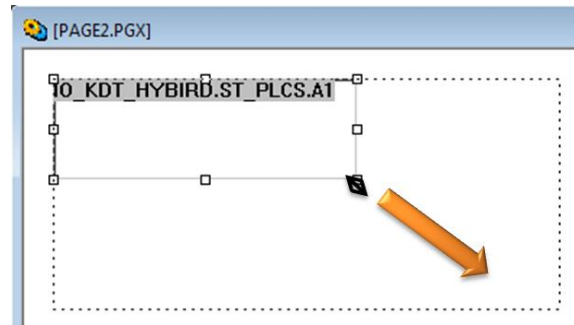
<Soft keyboard>

- E. Clear Window By Overflow:
If the data input exceeds the Maximum Digit length, earlier input will be deleted as the new input is entered.
- (4) Using Max/Min Value
 - Set the **Max/Min** Analog Input values.
 - (5) End-Code Action
 - A. Cancel Select
 - This causes the mouse cursor to **disappear** from the Key Input Window. To enter Key Input again, click on the **Key Input Window**.
 - B. Delete Content
 - When Key Input is entered, the **previous content** will be deleted.
 - C. Move To Next Input
 - When using a **multiple Key Input Window**, the mouse cursor **moves** to the next Key Input Window after the first key Input is entered.

4) Editing the Key Input Window

(1) Size and Shape Control

Click on the Key Input Window Object and move the mouse cursor to the end of the imaginary rectangle containing it, then a **Left-Right arrow** will appear. Drag it to change the shape or size of the object.

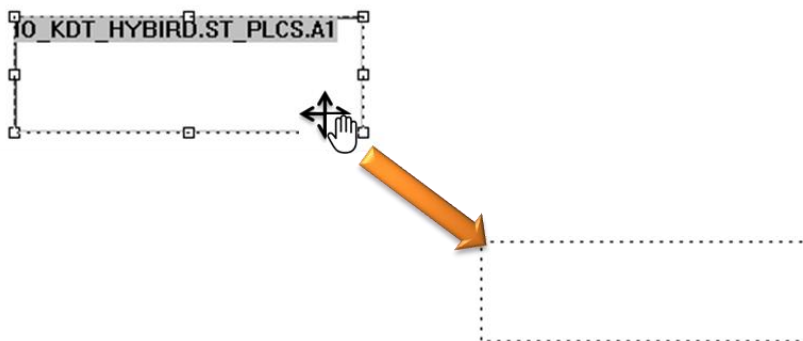


※ For the Key Input Window, the **Font size does not change along with the Object size change**. To change the Font size in the Key Input Window, use the **Font Tool**.



(2) Moving the Key Input Window Object.

Click on the Key input Window Object, and you will see a four-arrow cursor; move it to move the object.




(3) Position/Size & Line/Fill

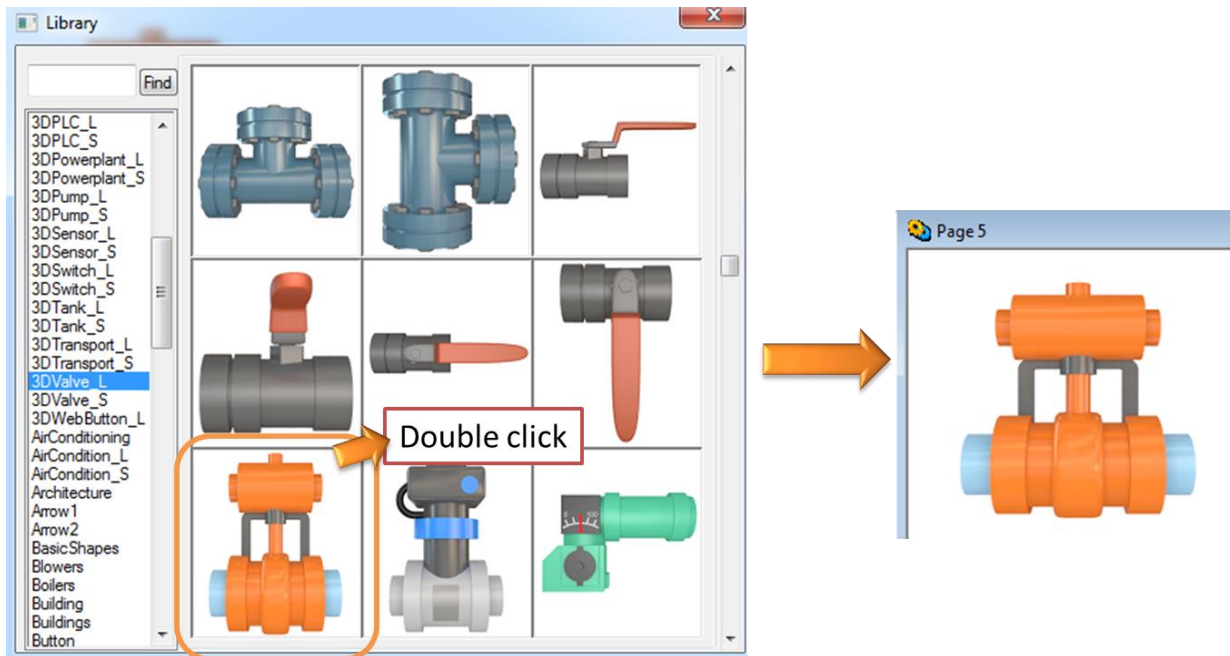
Not Applicable.

15. Library

1) Displaying Library Object

Select Library from the Draw menu, or click on the Library icon  in the Drawing Toolbar.

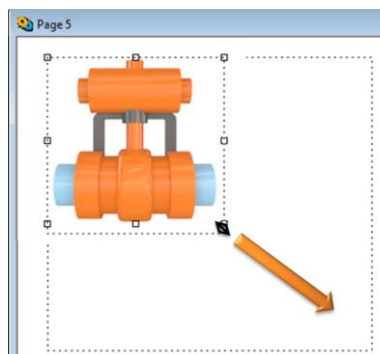
The Library Dialog box will appear. Select the desired Object, and double click to draw it in the center of the Page.



2) Editing Library Object

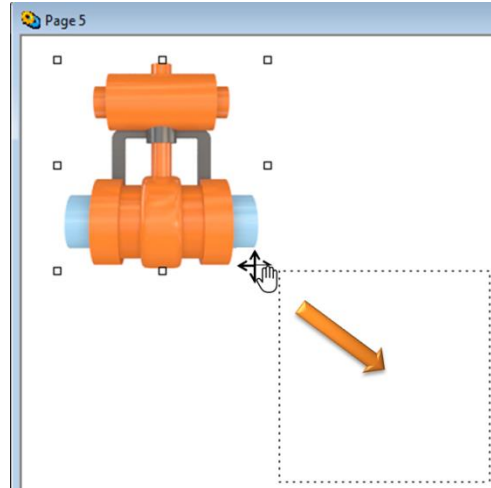
(1) Size and Shape Control

Click on the Library Object and move the mouse cursor to the end of the imaginary rectangle containing it, then a **Left-Right arrow** will appear. Drag it to change the shape or size of the object.



(2) Moving the Library Object.

Click on the Library Object, and you will see a four-arrow cursor; move it to move the object.



(3) Position/Size & Line/Fill

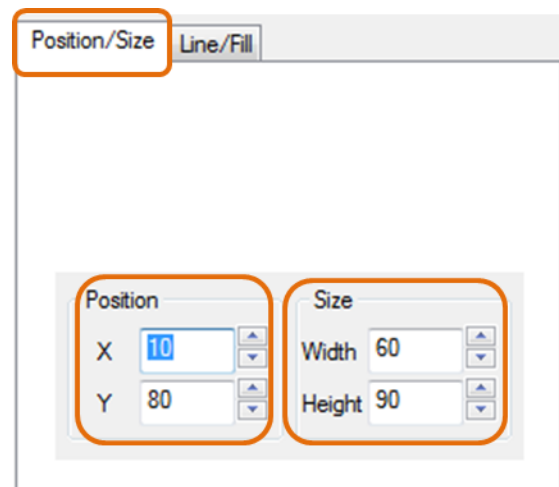
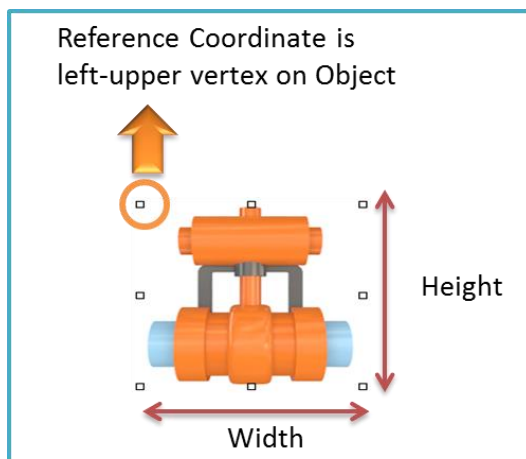
※ The Reference Coordinate is in the **upper left** corner of the Page (X=0,Y= 0).

■ Position

Set the object's position by entering its coordinates. The X and Y value indicate the **upper-left** corner of a rectangle which would contain it.

■ Size

The Width is the horizontal distance across, and the Height is the vertical distance.



■ Line

Not applicable.

■ Fill

Not applicable.

■ **Transparent Draw**

This makes the background transparent.

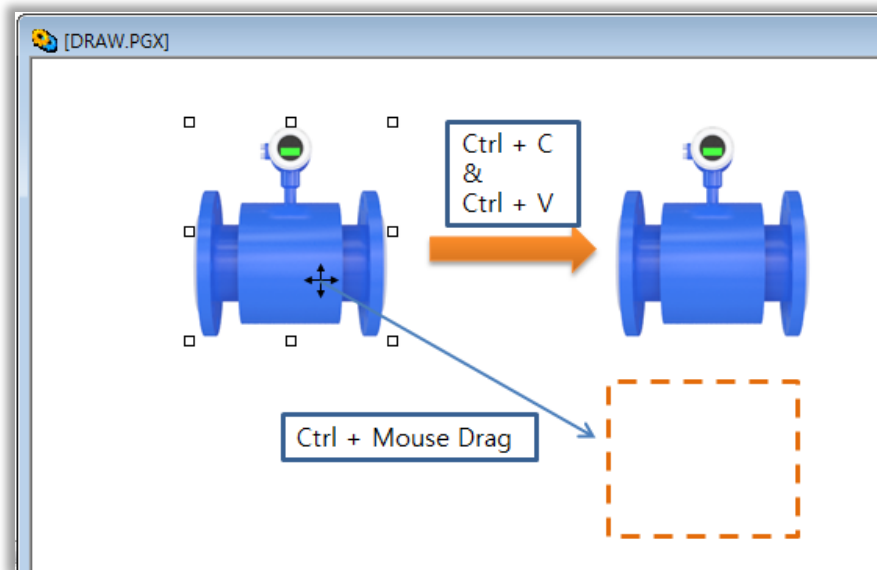
※ Library objects are **Bitmaps**. The user cannot change the Pen or Fill color.

Chapter 6. How to Edit Pages or Screens

1. Page Editing

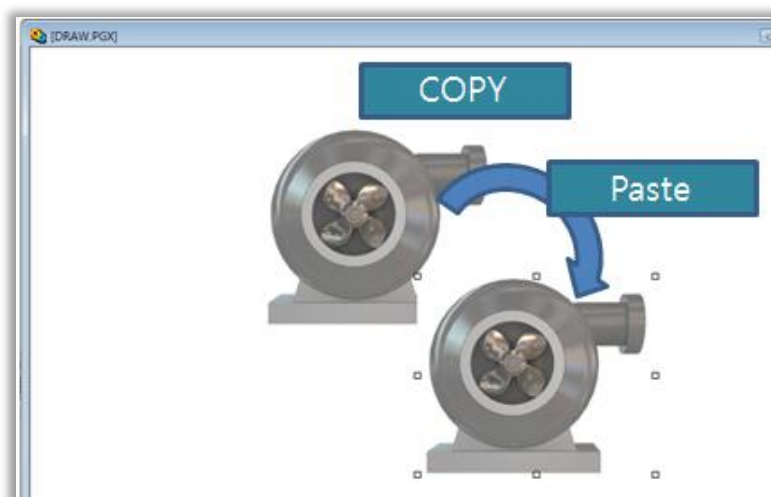
1) Copy Object

To copy an object, select it, then select Copy from the Edit menu or press Ctrl + C, or press Ctrl, then drag the object.

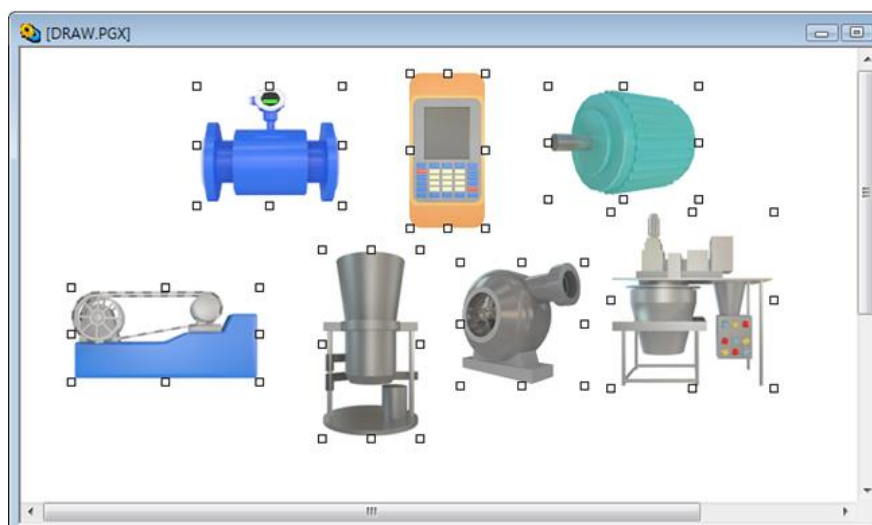


2) Paste object

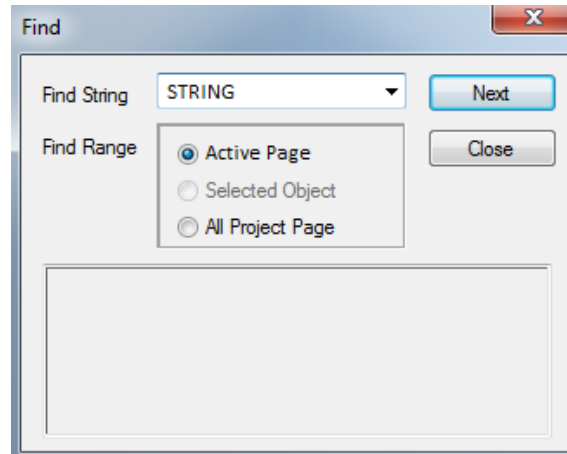
To paste a copied object, use Paste from the Edit menu, or Ctrl + V.



- 3) Undo
Undo the last change.
Select Undo from the Edit menu, or press Ctrl + Z.
- 4) Redo
Reverse the Undo operation.
Select Redo from the Edit menu, or press Ctrl + Y.
- 5) Cut
Remove an Object and copy it to the Clipboard.
Select Cut from the Edit menu, or press Ctrl + X.
- 6) Delete
Remove an Object from the page.
Select Delete from the Edit menu, or press Delete.
- 7) Select All
Select all objects on the page.
Select "Select All" from the Edit menu, or press Ctrl + A.

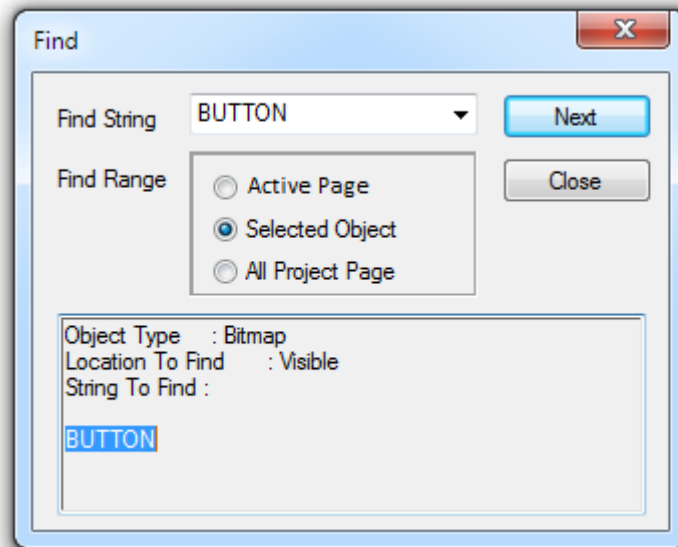


- 8) Find (Ctrl+F)
Search for **String Tag** in the Page or Database.
Select Find from the Edit menu, or press Ctrl + F.



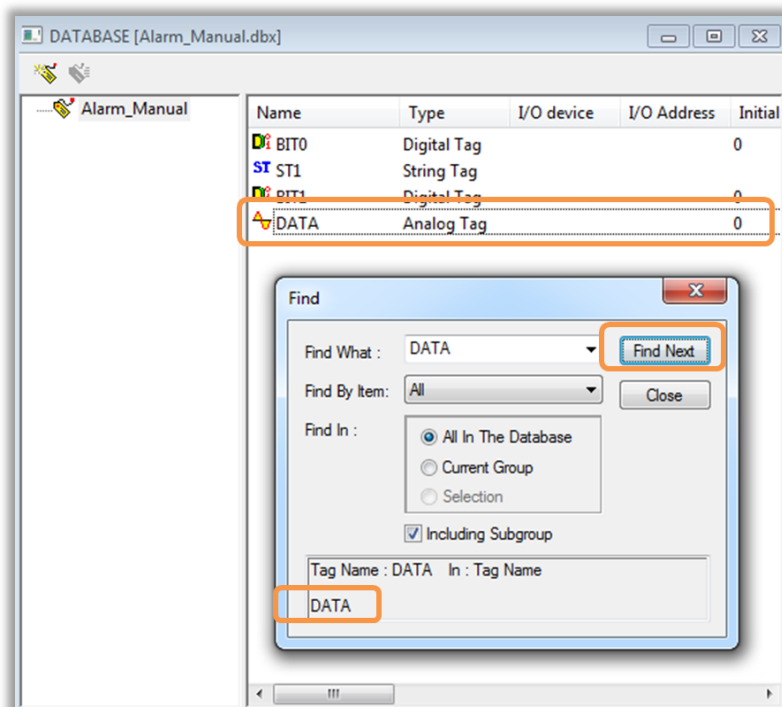
(1) Search for a String in the **Active Page** or in **All Pages**

- Activate Page: Search for a String in the current **active Page**.
- Selected Object: Search for a String in the **selected object**.
- All Project Page: Search for a String in **all Pages** in the Project.



(2) Search for a String in the **Database**

Search for a String in the Database (Tag name, I/O device, Description and Address are included).



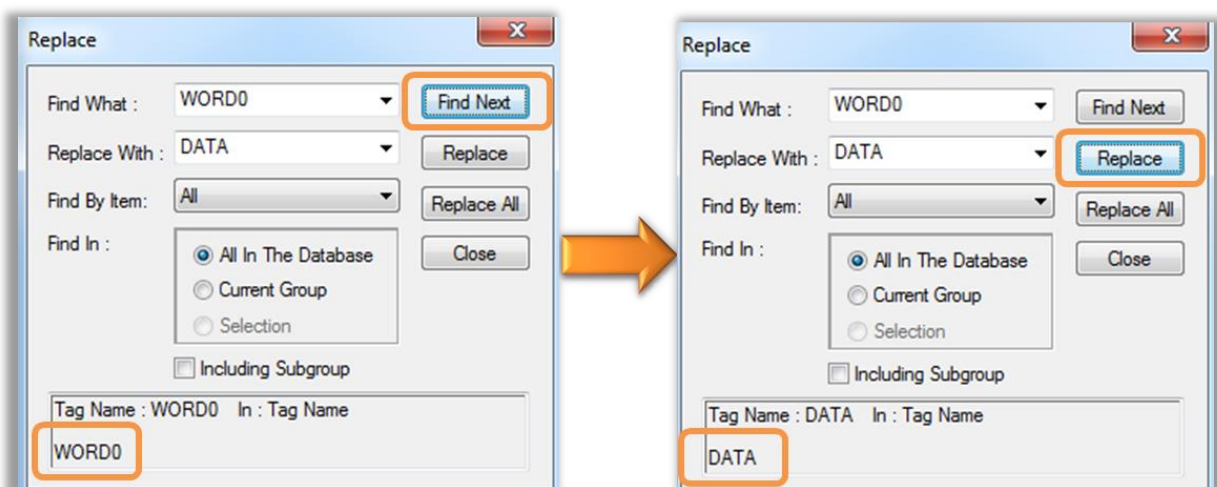
If the **String** is found, the corresponding **Tag** is automatically selected in the Database.

- All in the Database: Search for a String in **all Tags**.
- Current Group: Search for a String in the **current group**.
- Selection: Search for a String only in the **selected Tags**.

9) Replace (Ctrl+H)

Search for a **String** and **Replace** it with another String, either in the **Page** or **Database**. In a Database, this is useful for replacing a **Virtual Tag** with a **Real Tag** or vice versa. Select Replace from the Edit menu, or press Ctrl + H in the Page or Database.

(1) Replace in the **Database**



< Replace in the **Database**>

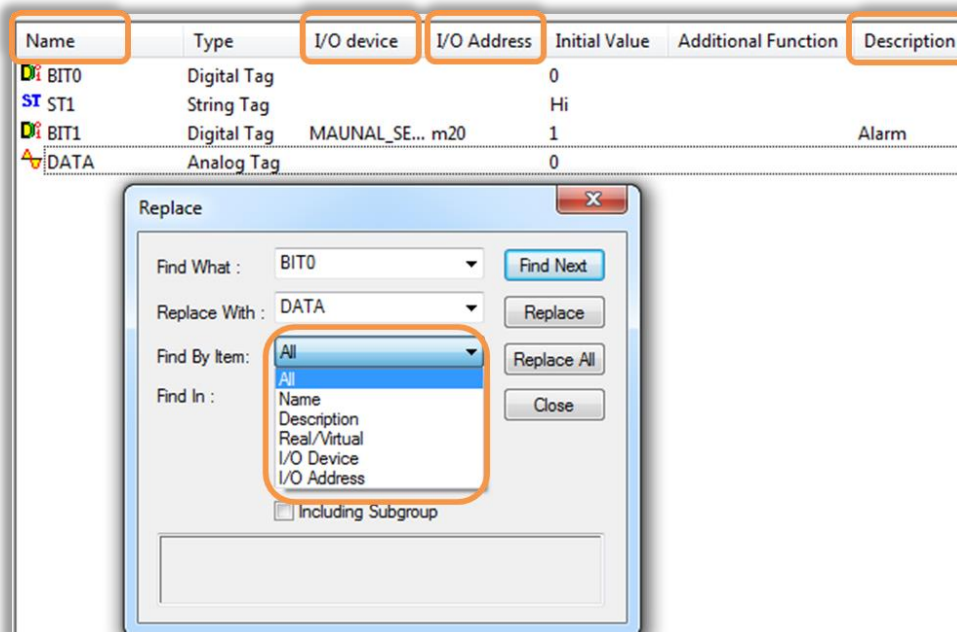
A. Find What

Enter the target String.

B. Replace With

Enter the replacement String.

C. Find by Item (in the Database)

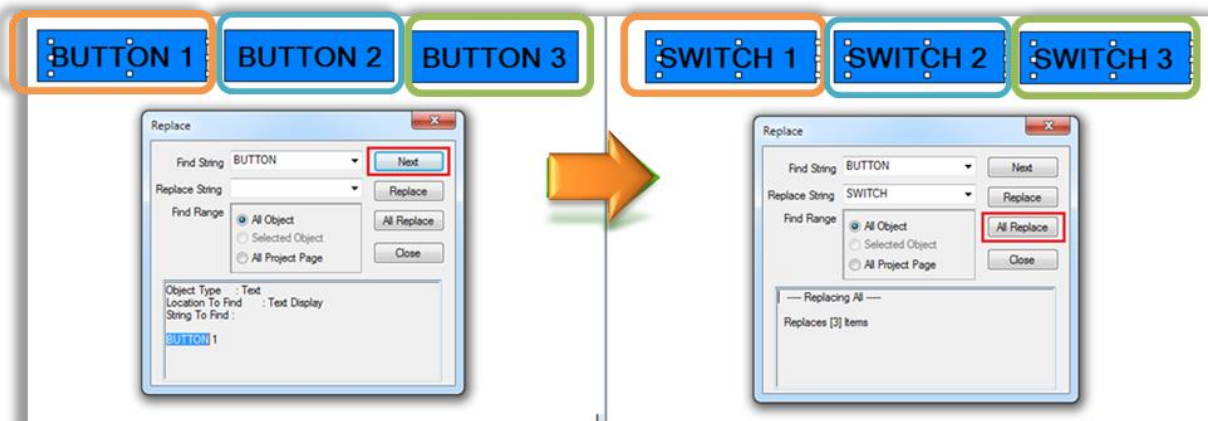


(2) Replace in a **Page**

A. Active Page

Search for a String and replace it in the current active Page.

EX) To replace **Button1~Button3** with **Switch1~Switch3**, enter 'Button' in 'Find String', enter 'Switch' in 'Replace String', then click on "All Replace"



<All Object / All Replace>

B. All Project Page

Search for and replace a string in all pages, including closed pages.

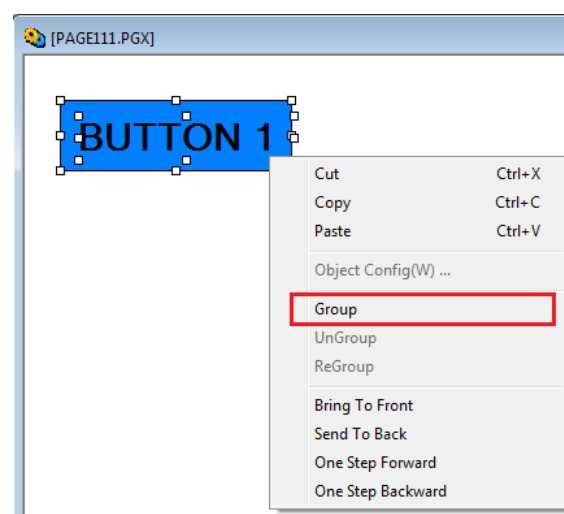
C. Selected Object

Search for and replace a string in the **selected object** only.

2. Arrange

1) Group

Group multiple objects into a **single object**. Select the Objects, then select Group from the Arrange menu, or from the right-click menu.



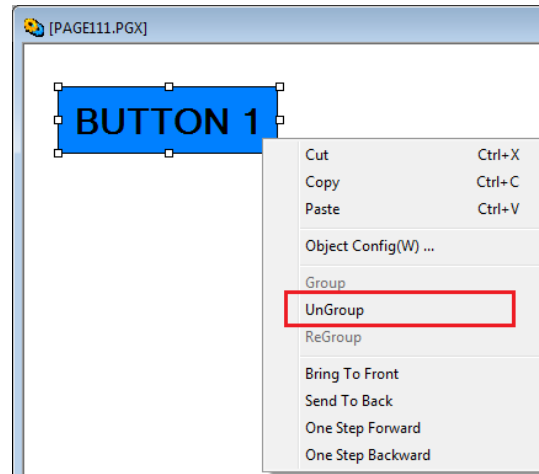
※ Note for the **Group** Feature

When objects are grouped, each object continues to have its existing **properties** (functions such as Visible, Blink, Touch and etc.). This means that if you set **another property** for the group Object as a whole, that function will not work properly.

For example, if Object 1 has the Touch operation property "PageOpen A", and if Object 1 and Object 2 are grouped and given the Touch operation property "PageOpen B", then page A will be still opened.

2) Ungroup

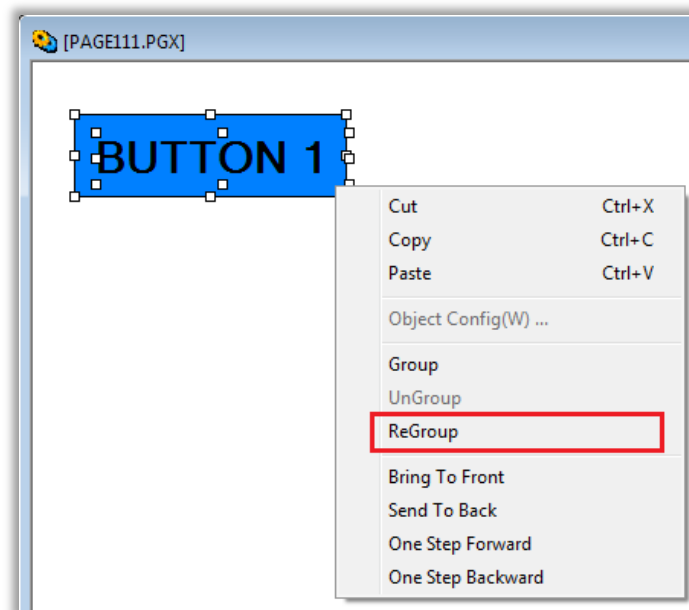
Separate a grouped Object back into individual Objects. Select the grouped object, then select Ungroup from the Arrange menu, or from the right-click menu.



Ungrouping returns the properties of each object to their previous status.

3) Regroup

Select previously grouped objects, then select Regroup from the Arrange menu, or from the right-click menu.



Regrouping returns the properties of the group object to their previous status.

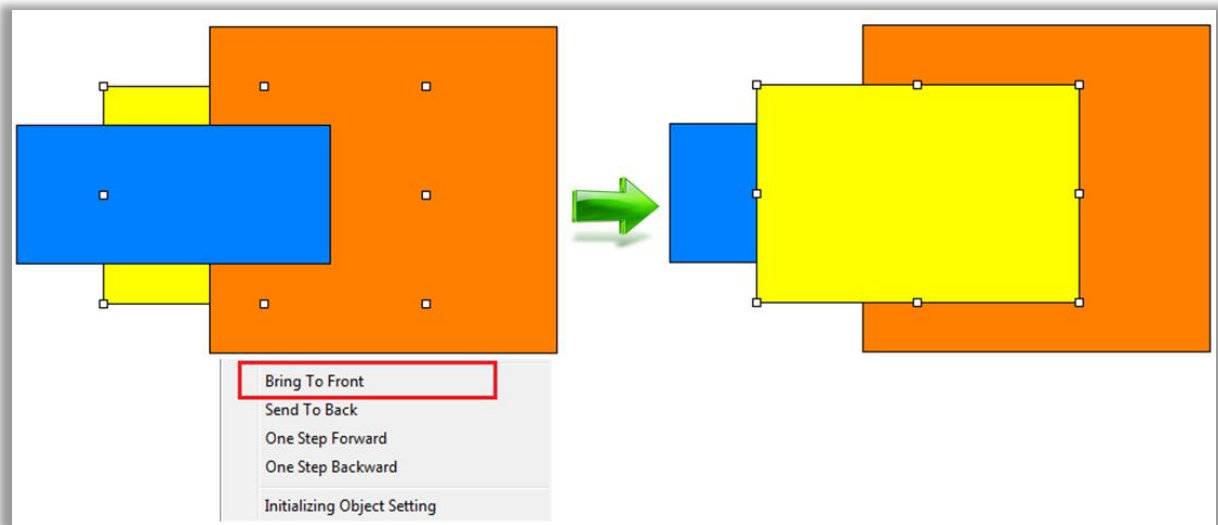
4) Bring to Front

Bring the selected object in front of other objects.

Select object, then select Bring to Front from the Arrange menu, or from the right-click menu, or select the Bring to Front icon



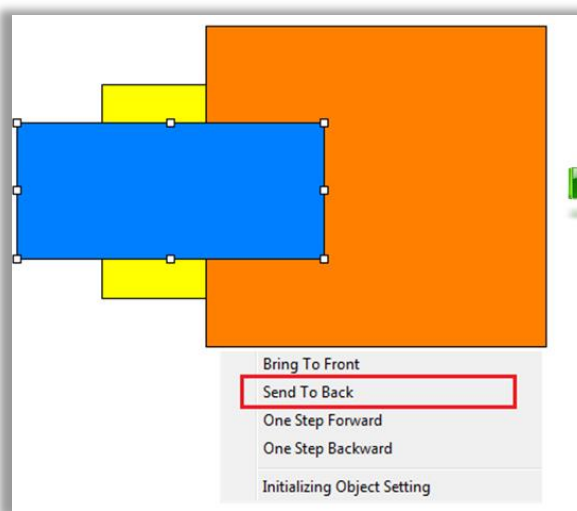
from the toolbar



5) Send to Back

Send the selected object to the back of other objects.

Select object, then select Send To Back from the Arrange menu, or from the right-click menu, or select the Send To Back icon from the toolbar

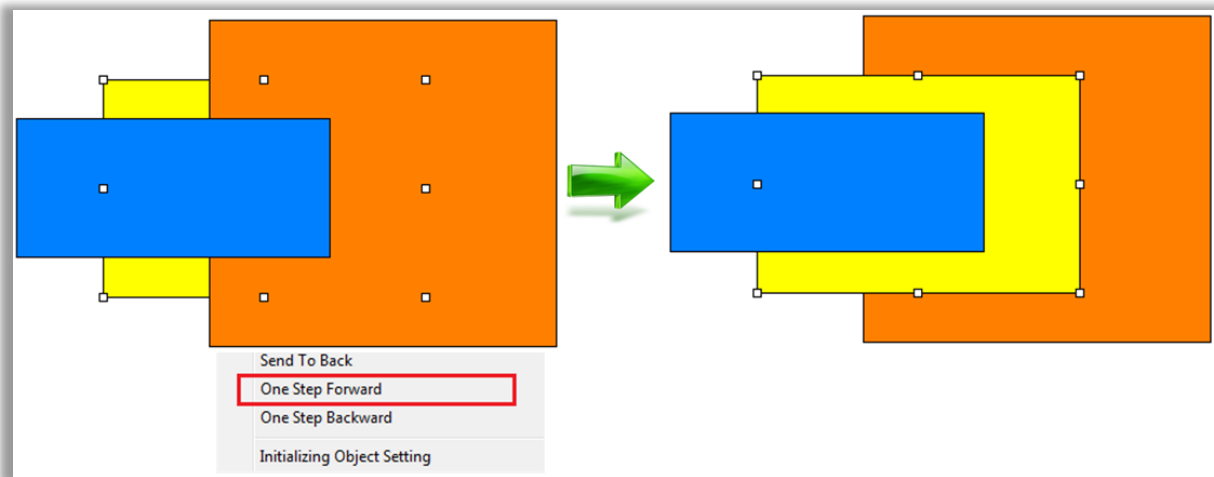


6) One Step Forward

Send the selected object one step forward when objects overlap each other.

Select object, then select One Step Forward from the Arrange menu, or from the right-click menu, or select the One Step Forward icon from the toolbar

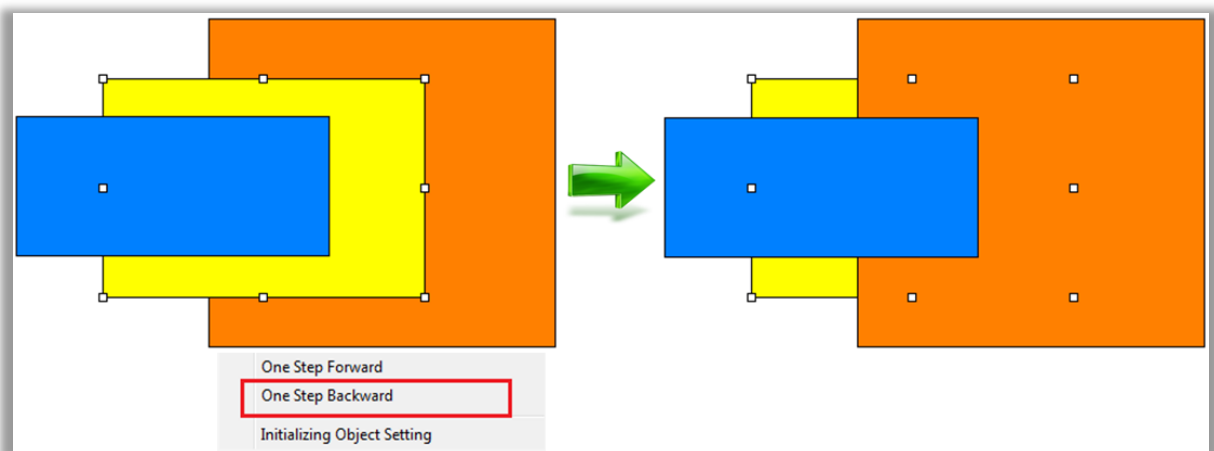




7) One Step Backward

Send the selected object one step backward when objects overlap each other.

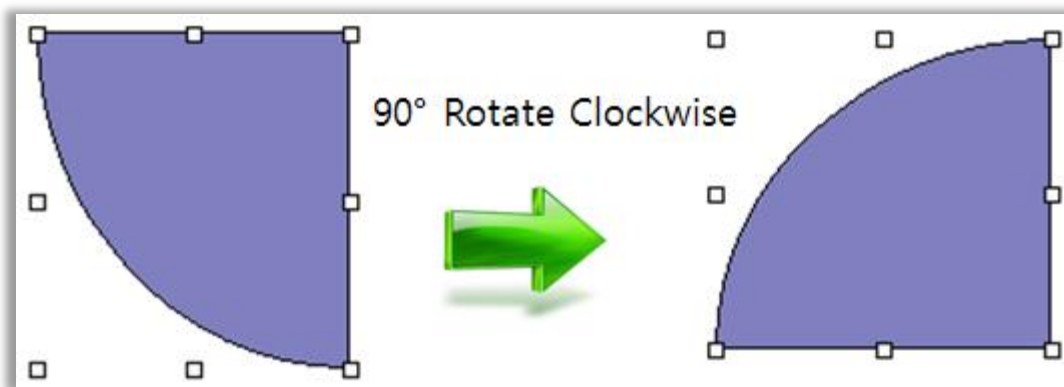
Select object, then select One Step Backward from the Arrange menu, or from the right-click menu, or select the One Step Backward icon from the toolbar



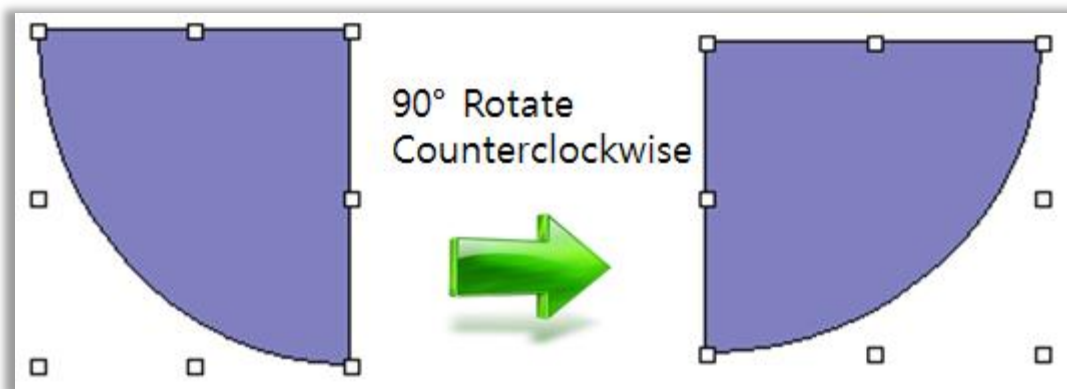
8) Rotate

To rotate an Object 90° clockwise.

Select the object, then select Rotate / 90° Rotate Clockwise from the Arrange menu.



<90°Rotate Clockwise>



<90°Rotate Counterclockwise>

9) Flip

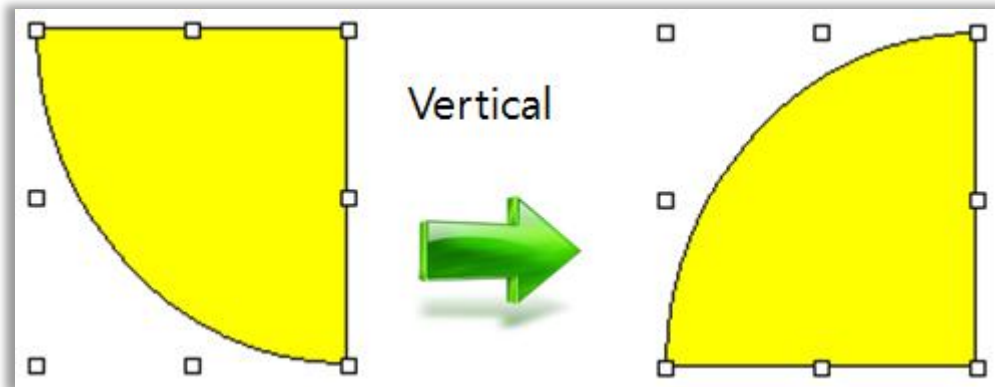
(1) Horizontal Flip

Select the object, then select Flip / Horizontal from the Arrange menu.



(2) Vertical Flip

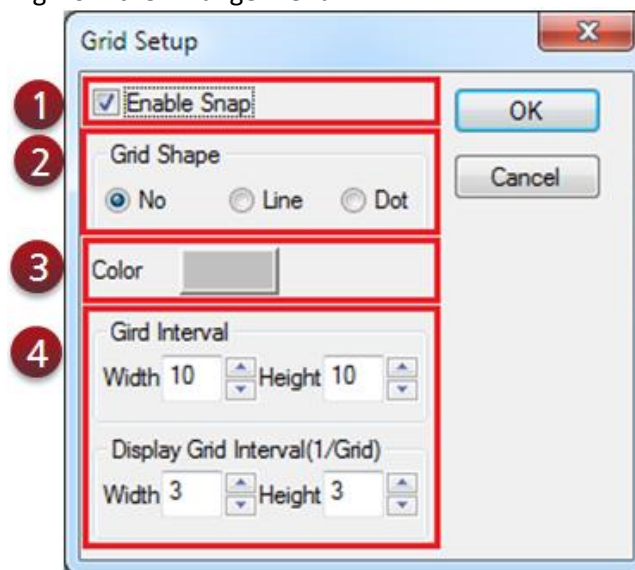
Select the object, then select Flip / Vertical from the Arrange menu.



10) Grid Config

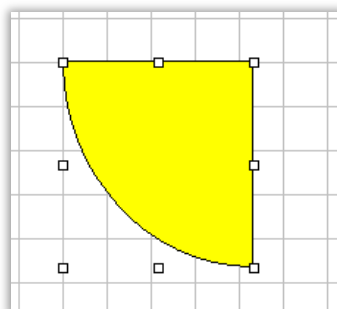
Use Gridlines when arranging Objects. When you create or move an Object, it will be aligned to the gridline automatically. The gridline is only visible in XpanelDesigner, but not in the XPANEL itself.

Select Grid Config from the Arrange menu.



(1) Enable Snap

Snap objects to the gridlines when they move close to them..



(2) Grid Shape

- No: Gridlines are not displayed; objects will still be snapped to the grid.
- Line: The grid is shown by solid lines.
- Dot: The grid is shown by dots.

(3) Color

To select the color of Gridline.

(4) Grid Interval

Set the **width** and **height** of the gridline.

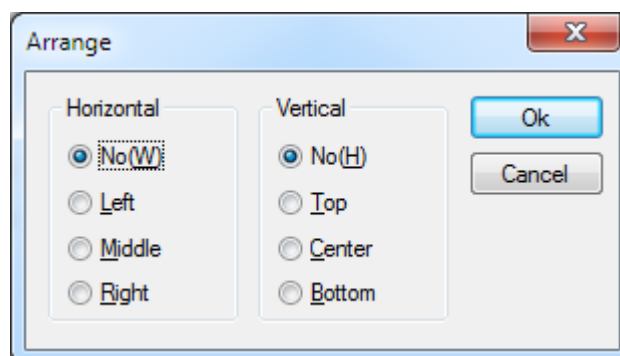
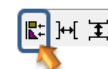
(5) Display Grid Interval (1/Grid)

Set the width and height of the grid display as a fraction of the actual grid interval.

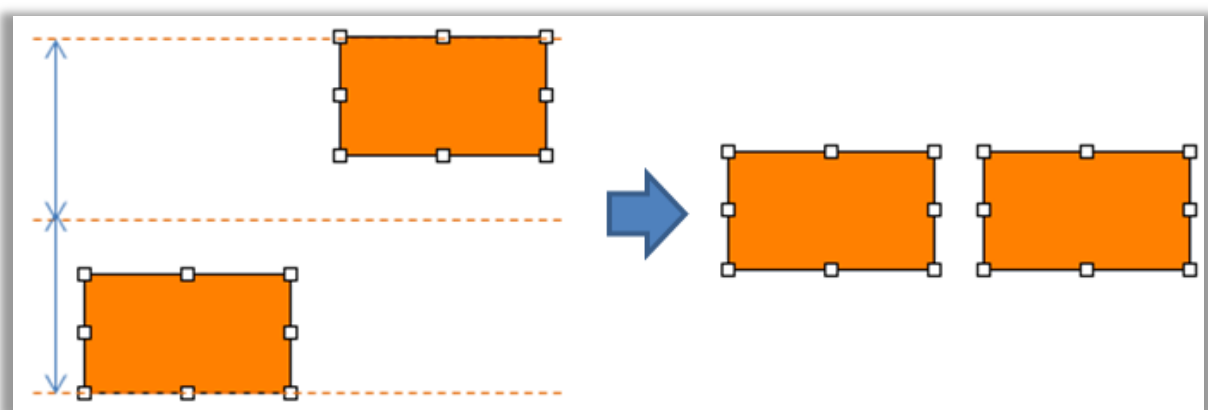
11) Align

Align the selected objects.

Select Align from the Arrange menu, or click on the Align icon.



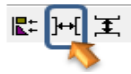
Ex) Vertical → Center



12) Distribute Horizontally

Evenly distribute the selected objects horizontally.

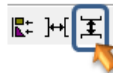
Click the Horizontal Distribution Icon



13) Distribute Vertically

Evenly distribute the selected objects vertically.

Click the Vertical Distribution Icon




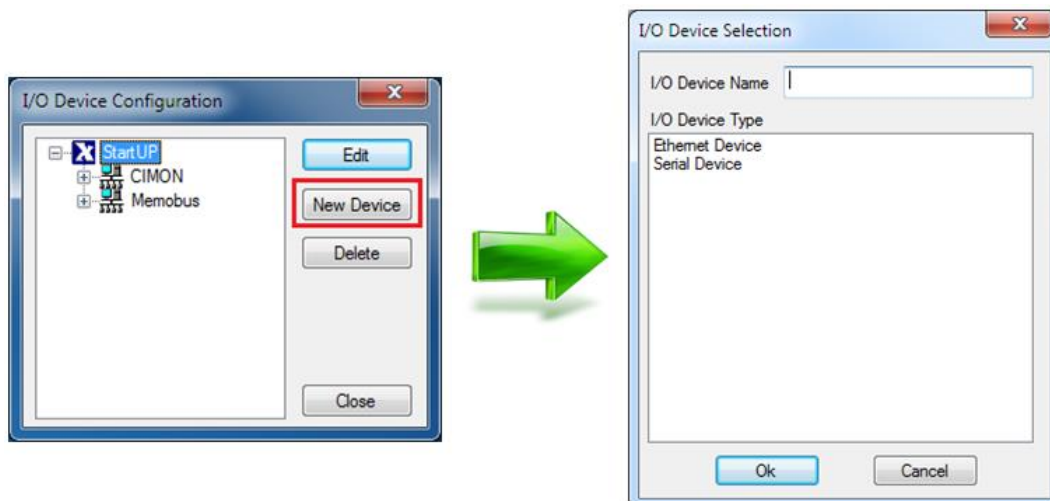
Chapter 7. Communication Configuration

1. Communication Configuration

1) I/O Devices

Set up communication between **Xpanel** and **other devices**, users must create a **New Device** using the I/O Device menu option. All **Drivers** and **Protocols** are listed in **I/O Device Configuration**.

Select I/O Devices from the Tools menu or click on the  I/O icon. Select New Device. Select the **Ethernet** or **Serial** Device type, then enter the I/O Device name.



2) Serial Communication Configuration

(1) Communication Port

■ Device Type: Select a Protocol.

■ Comm. Port

Select a Serial Communication port for each Xpanel. The **Port will vary** depending on the **Xpanel model**.

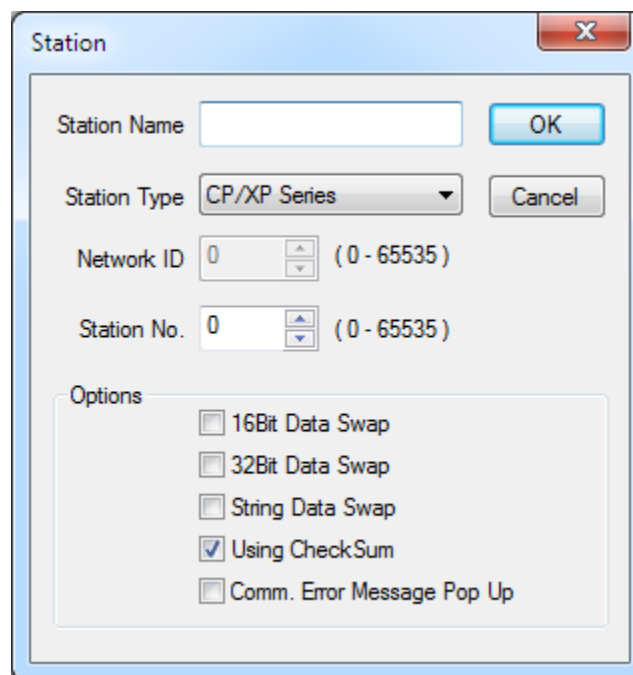
	XT04	XT07	XT08	XT10	XT12	XT15
COM1	RS232	RS232	RS232	RS422/485	RS422/485	RS422/485
COM2	RS422/485	RS422/485	RS422/485	RS232	RS232	RS232
COM3	None	None	None	RS232	RS232	RS232

<Communication Port >

■ Communication options

- Baud Rate: **300 ~ 115200bps** is supported.
- Parity: Select the **same Parity** (None, Even, Odd) as the Device.
- Data Bits: Select the **same Data Bit setting** (5,6,7,8) as the Device.
- Stop Bit: Select the **same Bit setting** (1Bit or 2Bit) as the Device.
- RTS/CTS: Select the proper signal control type for the Device.
- Comm. Type: Select the same Comm. type (RS232 or RS422/485) as the Device.
Please check to see if the Xpanel **Com Port** supports the **Comm. Type**.
- Retry Number: Set the **number of retries** for sending a frame when communication **fails**.
- Time Out: The maximum time to wait with no response before assuming a communication failure.
- Using Transmission Delay: TSet a **delay time** before sending data.
- Initialize the Tx Frame When Timeout Occurs: **Initialize** the **sending frame** when a Time Out occurs.

(2) Station



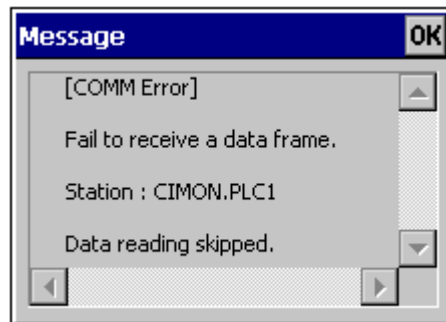
The image shows a 'Station' configuration dialog box. It contains the following fields and options:

- Station Name:** A text input field.
- Station Type:** A dropdown menu currently showing 'CP/XP Series'.
- Network ID:** A numeric input field with a range of '(0 - 65535)'.
- Station No.:** A numeric input field with a range of '(0 - 65535)'.
- Options:** A group box containing five checkboxes:
 - ☐ 16Bit Data Swap
 - ☐ 32Bit Data Swap
 - ☐ String Data Swap
 - ☒ Using CheckSum
 - ☐ Comm. Error Message Pop Up

Buttons for 'OK' and 'Cancel' are located on the right side of the dialog.

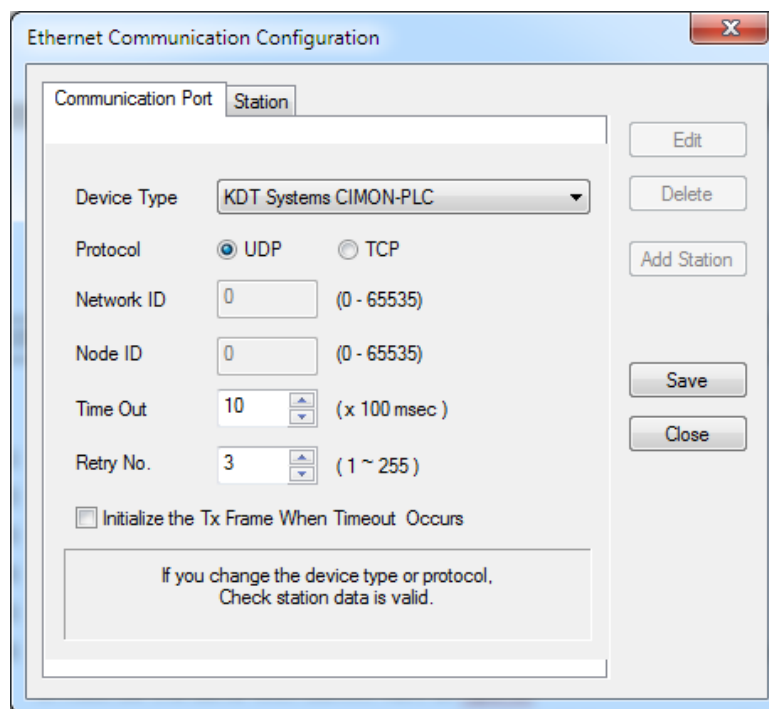
- Station Name: Enter the station name for the I/O Device.
- Station Type: Select the Device model or CPU which will be connected to Xpanel.
- Station Number: Set the station number.
- Options
 - 16Bit Data Swap: Swap between the **upper** and **lower Bytes** in a Word.
Ex) 0x1234 -> 0x3412
 - 32Bit Data Swap: Swap between the **upper** and **lower Words** in a Double Word.
Ex) 0x12345678 -> 0x56781234

- String Data Swap : Swap the **Bytes** of **String Word Data** (applies to limited Comm. Driver only)
- Using CheckSum: Use a CheckSum in Comm. Protocol.
- Comm. Error Message Pop Up: Use a **Pop-up message** when a Comm. error occurs.



(3) Ethernet Communication Configuration

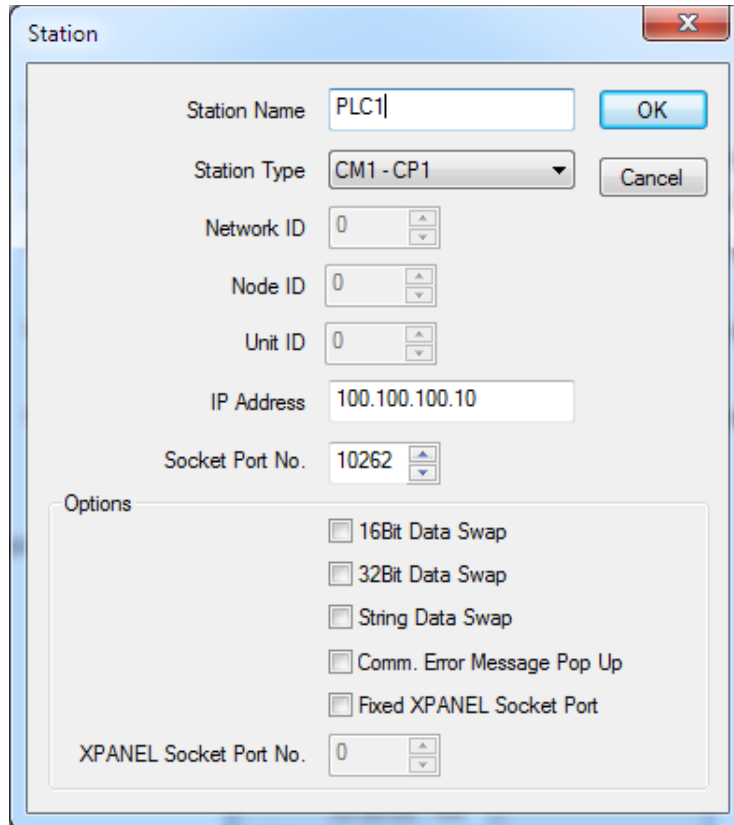
A. Communication Port



- Device Type: Select the Comm. Protocol.
- Protocol: Select UDP or TCP.
- Network ID: Enter the Network ID, if required.
- Node ID: Enter the Node ID, if required.
- Time Out: The maximum time to wait with no response before assuming a communication failure.
- Retry Number: Set the **number of retries** for sending a frame when communication fails.

- Initialize the Tx Frame When Timeout Occurs: **Initialize** the **sending frame** when a Time Out occurs.

B. Station



The image shows a 'Station' configuration dialog box with the following fields and options:

- Station Name:** Text box containing 'PLC1'.
- Station Type:** Dropdown menu showing 'CM1 - CP1'.
- Network ID:** Spin box showing '0'.
- Node ID:** Spin box showing '0'.
- Unit ID:** Spin box showing '0'.
- IP Address:** Text box containing '100.100.100.10'.
- Socket Port No.:** Spin box showing '10262'.
- Options:**
 - ☐ 16Bit Data Swap
 - ☐ 32Bit Data Swap
 - ☐ String Data Swap
 - ☐ Comm. Error Message Pop Up
 - ☐ Fixed XPANEL Socket Port
- XPANEL Socket Port No.:** Spin box showing '0'.

Buttons: OK, Cancel.

- Station Name: Enter the station name for the I/O Device.
- Station Type: Select the Device model or CPU which will be connected to Xpanel.
- Network ID: Enter the Network ID, if required.
- Node ID: Enter the Node ID, if required.
- Unit ID: Enter the Unit ID, if required.
- IP Address: Enter the IP address for connecting to Xpanel.
- Socket Port No. : Enter the socket port number of the device which will be connected to Xpanel.
- Options
 - 16Bit Data Swap: Swap between the **upper** and **lower Bytes** in a Word.
Ex) 0x1234 -> 0x3412
 - 32Bit Data Swap: Swap between the **upper** and **lower Words** in a Double Word.
Ex) 0x12345678 -> 0x56781234
 - String Data Swap: Swap the **Bytes** of **String Word Data** (applies to limited Comm. Driver only)
 - Comm. Error Message Pop Up: Use a **Pop-up message** when a Comm. error occurs.



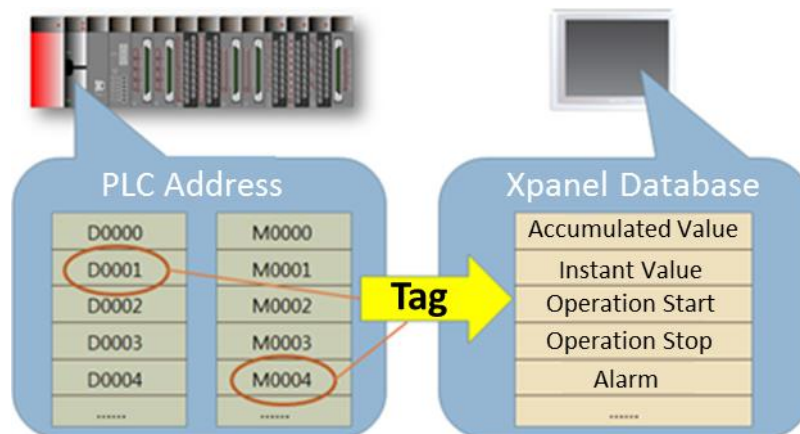
- Fixed XPANEL Socket Port: Use a Fixed socket port for Xpanel.
- Xpanel Socket Port Number: If Fixed XPANEL Socket Port is checked, select the socket port number that Xpanel will send.

Chapter 8. Database

1. Database outline

1) Database Concepts

The Xpanel Database is used to **manage Tags**, which are in turn used to communicate with other devices.



※ The Database supports two communication methods (**Tag** or **Real Address**).
Using a **Real Address** allows communication to be established without Tags.

2) Tags in the Database

In general, Xpanel designates a **Tag name** for the **Address** of the Device which will be used for I/O, and saves the Tag in the Database. Xpanel will use tags for objects in the project. Users can also create **Virtual Tags** for their own purposes.

3) Xpanel Communication

Xpanel communicates with devices using the tags from the **currently opened Page**, so neither the number of tags in the project nor the number of pages affects communication speed. The number of tags used by the current page, however, can affect communication speed.

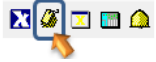
4) Tags in the Database

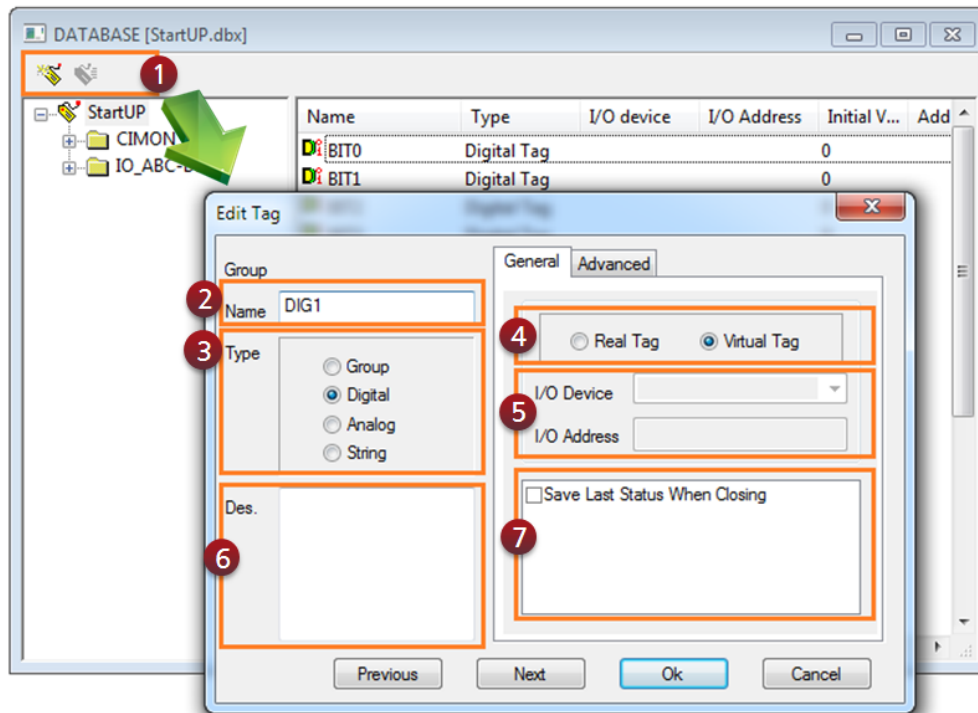
The Xpanel Database supports **several types of Tags**, for processing different types of **data**.

- The **Digital Tag** has a Bit address value, with a status of 0 or 1.
- **Analog Tag** data can be in **Word** or **Double Word** format.
- The **String Tag** takes text input in **consecutive Word Address** format.
- The **Group Tag** creates a Group folder in the Database. The user can save new tags in the folder -- the Tag name will be in the format **[Group name].[Tag name]**.

2. Building a Tag Database

1) Create a New Tag

Select Database from the Tools menu, or click on the  Database icon.



(1) General

- A. New Tag, Edit Tag : Create a New Tag or edit a Tag. When you click on the Icon, the Edit Tag Window will appear.
- B. Name: Enter the Tag name. Below are the **rules** for **naming** a Tag.

- **Special characters** are not allowed, except “_”.
- There must be **no spaces** between words.
- **Numbers** can be used in Tag names, but not as the first character.
- Tag names must be less than **50 characters**.
- If a Group Tag is used, the full Tag name is in the format **Group name.Tag name**.

C. Type

Select **Digital**, **Analog** or **String**.

※ The Real String Tag type is not supported by some I/O Devices (See “**Driver list for Supporting a String Tag**”).

D. Real Tag, Virtual Tag

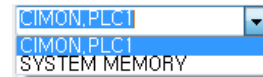
- Real Tag: Xpanel will communicate with an actual I/O device and exchange data with it.
- Virtual Tag: Xpanel will read data from/write data to a space in memory.

E. I/O Device, I/O Address

This becomes available when you select “\Real Tag”. Select the I/O device and enter the device Address.

■ I/O Device

From the drop-down menu, Select an existing I/O Device from the list.



※ SYSTEM MEMORY is an area of Xpanel memory used for scripts or recipes.

■ I/O Address

Enter the **Address** which will be used by the Device. If you enter ‘D001’, the ‘00’ is automatically **filtered out**. As a result, both ‘D001’ and ‘D0001’ will be recognized as the same Address.

F. Description

Enter a description of the Tag.

G. Save Last Status When Closing

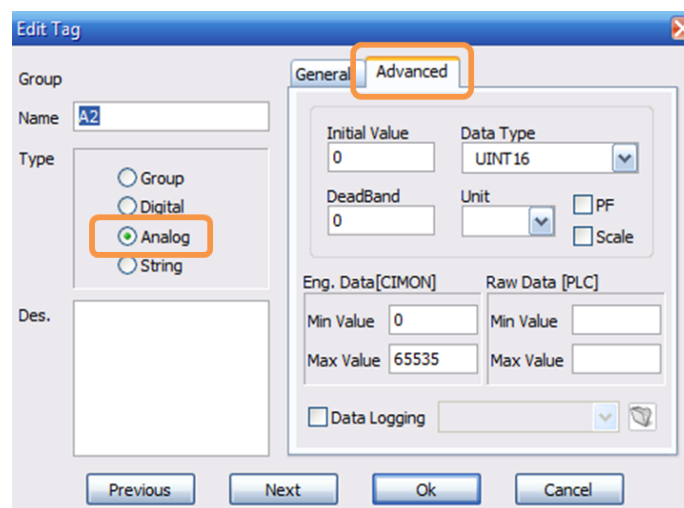
This is used by **Virtual Tags** only. The last Tag value is **stored** after Xpanel is turned off, then restored when Xpanel is turned ON.

(2) Advanced

A. Digital Tag

The user can enter an Initial value for a Virtual Tag.

B. Analog Tag



■ Initial Value

This is used for **Virtual Tags** only. The initial Value is set as the tag value when Xpanel starts.

■ Data Type

In order to correctly display PLC data, the **Xpanel Data type** must be the same as the **PLC data type**.

❖ Most Common Data Types

Type	Size	Display Range
UINT8	1 Byte	0 ~ 255
UINT16	2 Byte(1Word)	0 ~ 65535
UINT32	4 Byte(2Word)	0 ~ 4294967296
INT8	1 Byte	-128 ~ 127
INT16	2 Byte(1Word)	-32768 ~ 32767
INT32	4 Byte(2Word)	-2147483648 ~ 2147483647
FLOAT	4 Byte(2Word)	-3.40282346638529e+038 ~ 3.40282346638529e+038

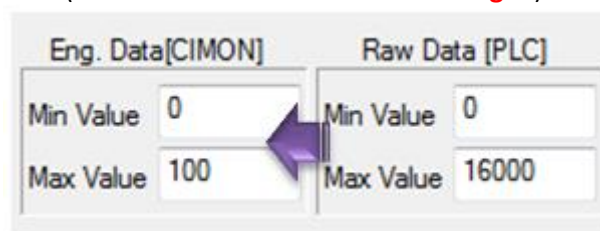
❖ BCD Data Types (less frequently used)

Type	Size	Display Range
BCD8	1 Byte	-79 ~ 79
BCD16	2 Byte(1Word)	-7999 ~ 7999
BCD32	4 Byte(2Word)	-79999999 ~ 79999999
UBCD8	1 Byte	0 ~ 99
UBCD16	2 Byte(1Word)	0 ~ 9999
UBCD32	4 Byte(2Word)	0 ~ 99999999

■ CIMON (Engineering) Data/PLC (Raw) Data

Set the display **range** for **Xpanel (Engineering)** Data, which is converted from PLC (raw) data. The Min. and Max. values of the PLC (raw) data are converted to the Min. and Max values of the Engineering (Xpanel) data.

For example, the PLC takes an Analog input of 0~16000, and Xpanel displays data with the range of 0~100 (**Note that the real data is not changed**).



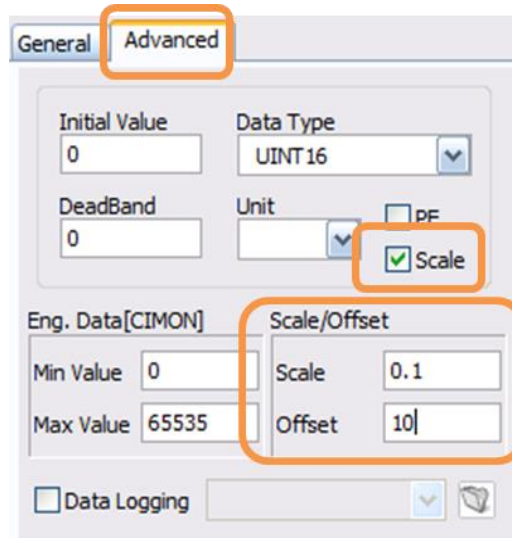
< PLC (Raw data) → XPANEL (Eng. Data) >

※ **Scale/Offset** and **Max/Min value Conversion** cannot both be applied at the same time.

■ Scale & Offset

For performing **arithmetic operations** on PLC data and displaying the results on the **Xpanel** screen.

$$\text{Xpanel Value} = (\text{PLC data} \times \text{Scale}) + \text{Offset}$$



The screenshot shows the 'Advanced' configuration tab for a data point. Key settings include:

- Initial Value:** 0
- Data Type:** UINT16
- DeadBand:** 0
- Unit:** (empty)
- Scale/Offset:** Scale = 0.1, Offset = 10 (highlighted with an orange box)
- Eng. Data[CIMON]:** Min Value = 0, Max Value = 65535
- Scale checkbox:** Checked (highlighted with an orange box)
- Data Logging:** Unchecked

※ **Scale/Offset** and **Max/Min value Conversion** cannot both be applied at the same time.

C. String Tag

The initial Value can be set (Max 22); this applies to **Virtual Tags** only.

❖ Driver list for Supporting String Tags

Device Name	Communication Type
KDT SYSTEMS CIMON-PLC	Ethernet
KDT SYSTEMS Xpanel	Ethernet
KDT SYSTEMS CIMON-PLC HMI	Serial
KDT SYSTEMS CIMON-PLC Loader	Serial
Allen Bradley DF1	Serial
FUJI Micrex SX	Ethernet
LSIS Master-K S-Series Enet	Ethernet
LSIS Master-K S-Series PLC Cnet	Serial
LSIS XGT Series FEnet	Ethernet
LSIS XGT/XGB Series PLC Cnet	Serial
LSIS Inverter Starvert -Series	Serial
LSIS RFID Reader	Serial
mitsubishi MELSEC 1E	Ethernet
mitsubishi MELSEC 3E	Ethernet
mitsubishi MELSEC 3E(ASCII)	Serial
mitsubishi MELSEC 1C (AnA/AnU CPU)	Serial
mitsubishi MELSEC 1C (ACPU)	Serial
mitsubishi MELSEC FX	Serial
mitsubishi MELSEC-Q Loader(Q00/01)	Serial
mitsubishi MELSEC-Q Loader(Q02/06/12/25)	Ethernet
MODBUS TCP	Ethernet
MODBUS ASCII Protocol	Serial
MODBUS RTU Protocol	Serial
NTBank LT100A	Serial
SAIA S-BUS	Serial
SIEMENS S7 Ethernet	Ethernet
SIEMENS S7 MPI	Serial
SIEMENS S7 PPI Direct	Serial

Chapter 9. Object Properties

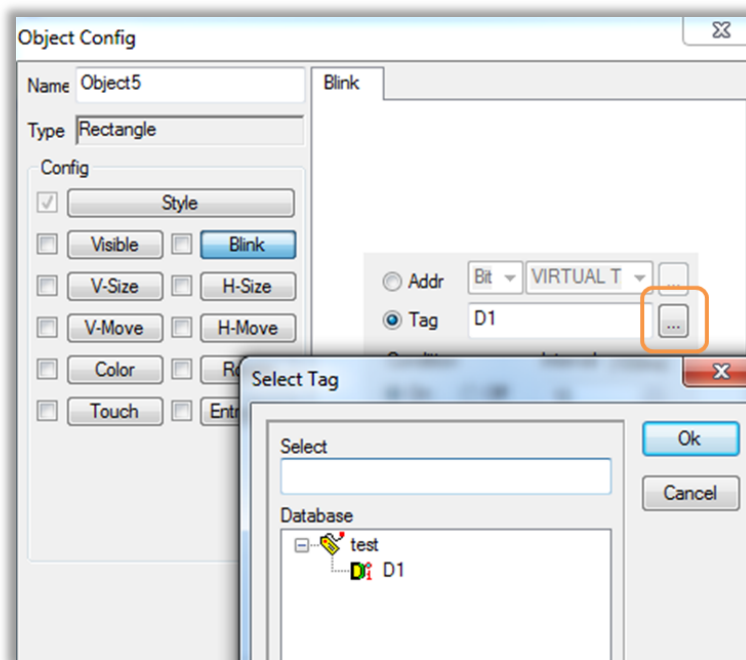
1. Object Configuration

How To Configure Objects

Object Configuration sets Object properties, including Touch operations. When an Object is double-clicked, the Object Configuration window will appear. In the Database, **Tags** and **Real Addresses** are used to store object data.

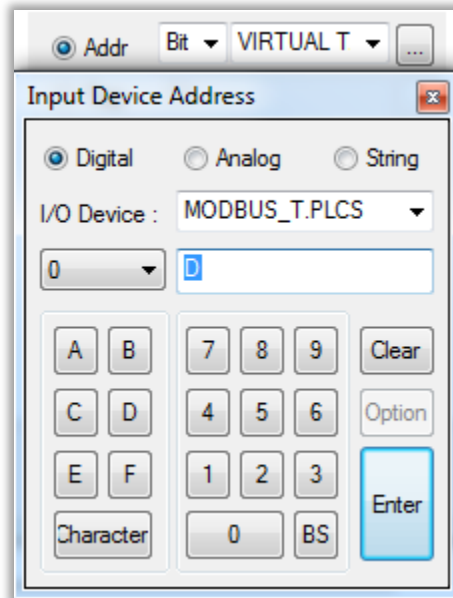
■ Tag Name

To open a tag for use, click on the  button, then select the Tag.



■ Real Address

You can enter the **PLC Address** directly into the Xpanel Database directly, rather than using a tag.



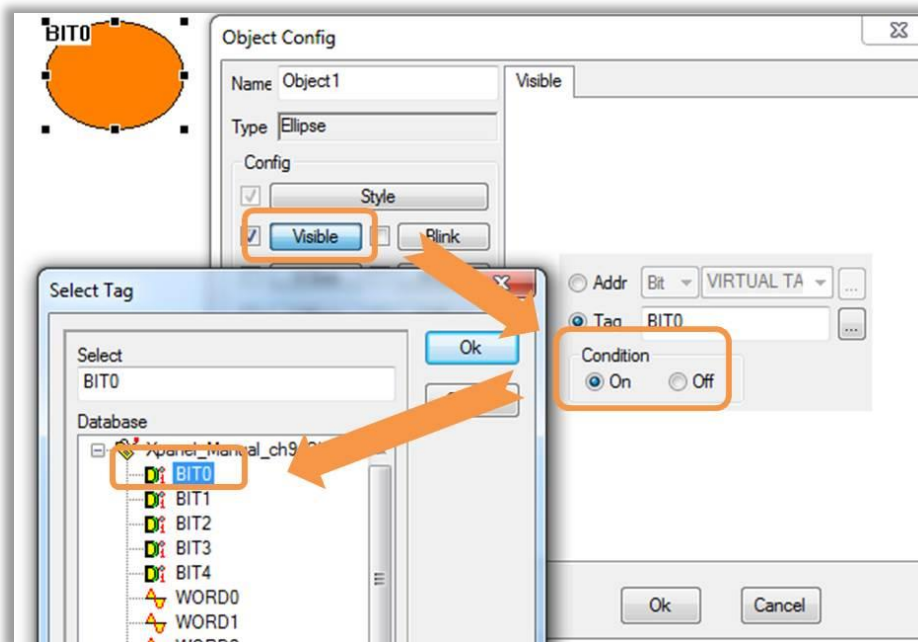
※ Either Tags or Real Addresses produce the same results.

(1) Visible

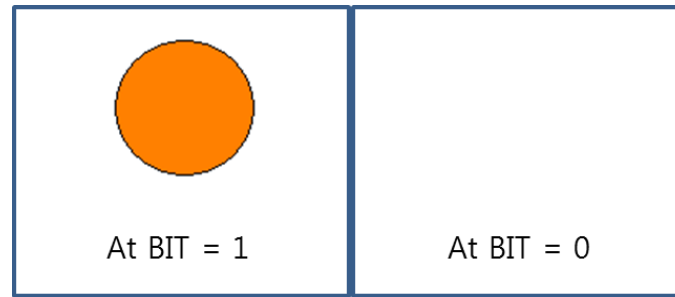
Display or hide the Object, based on the **condition**.

This operation is controlled by a **Digital Tag**.

- When the condition is **ON** and the Tag value is **1** (ON), the Object is displayed on the Screen.
- When the Condition is **ON** and the Tag value is **0** (OFF), the Object is not displayed.



Click on the Visible option button in the Object Config dialog box, then select the tag and set the Visible Condition.



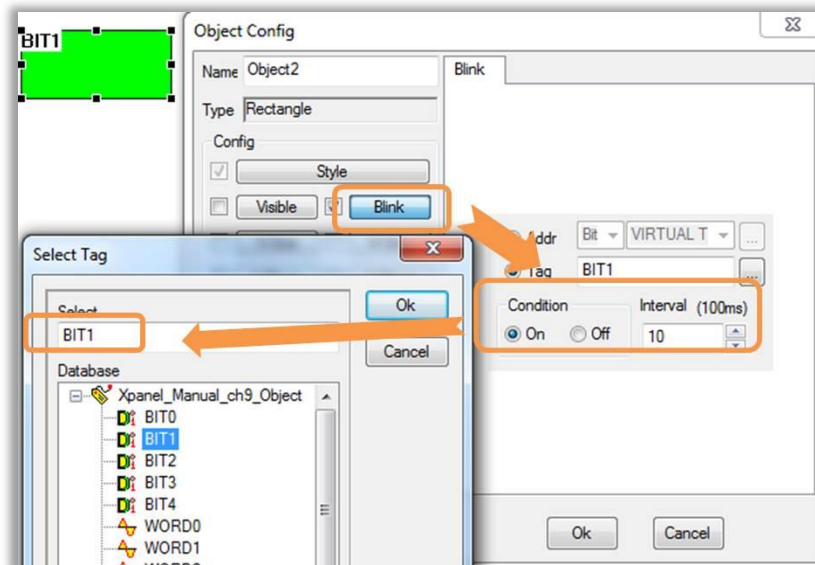
<At Visible Condition is ON>

(2) Blink

The Object blinks, based on the **condition**.

This operation is controlled by a **Digital Tag**.

- When the condition is **ON** and the Tag value is **1** (ON), the Object blinks.
- When the Condition is **ON** and the Tag value is **0** (OFF), the Object does not blink.



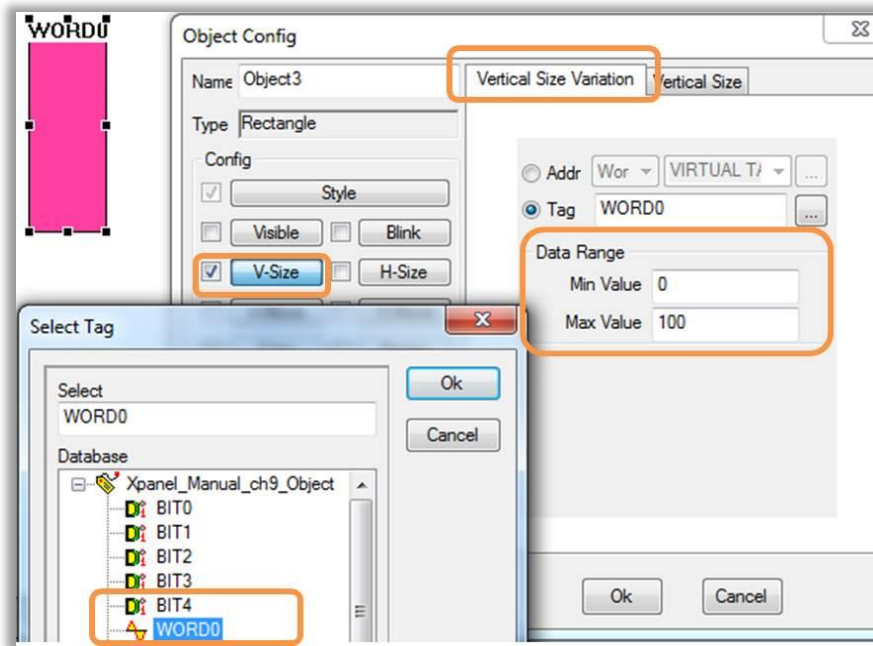
Click on the Blink option button in the Object Config dialog box, then select the tag and set the Blink Condition. The blink Interval unit is **100 ms**.

Ex) With the Interval set to 10, the Object blinks at a 1000 ms (1 sec) interval.

(3) V-Size(Vertical Size Change)

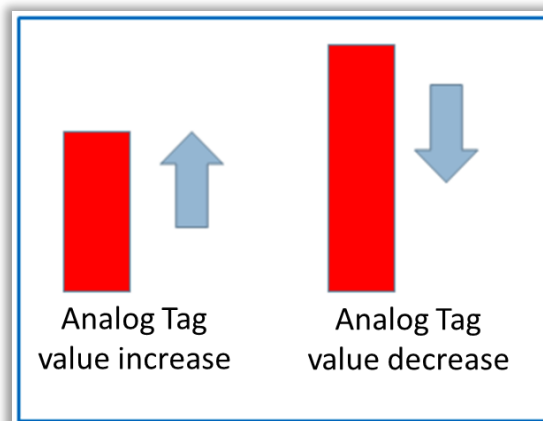
A. Vertical Change

The vertical size of the object changes, based on the Data value.



Click on the V-Size option button in the Object Config dialog box, then select the tag and set the Max. and Min. Data Range values.

When the Tag value is the minimum as set in the Data Range, the Object will be displayed at its minimum size. When the tag value is at the maximum, it will be displayed at its maximum size. Between the minimum and the maximum, its size will change proportionally.



<Base Position = Bottom>

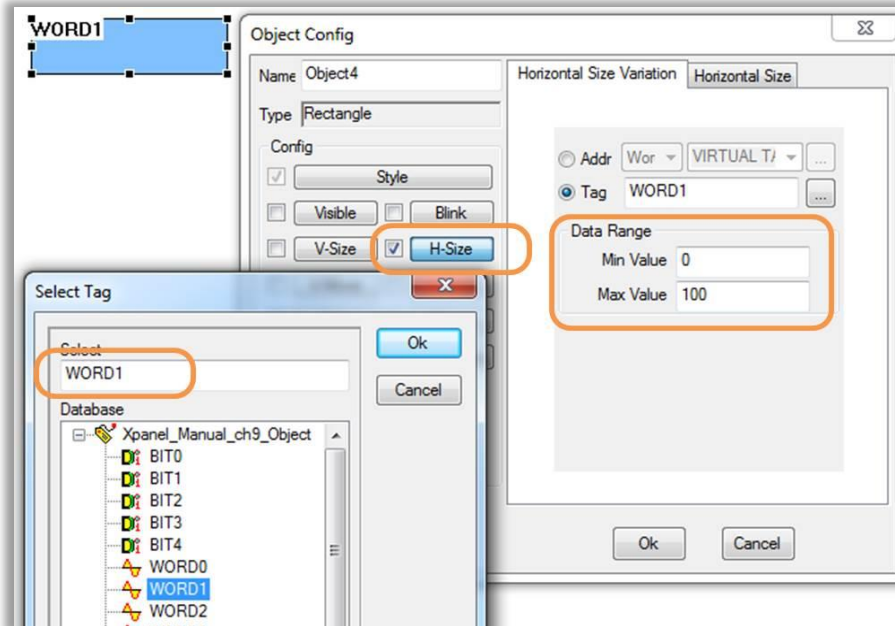
B. Base Position

You must set the base position for **vertical size change**. With the Bottom as the Base Position, the Object becomes taller as its tag value increases.

(4) H-Size (Horizontal Size Change)

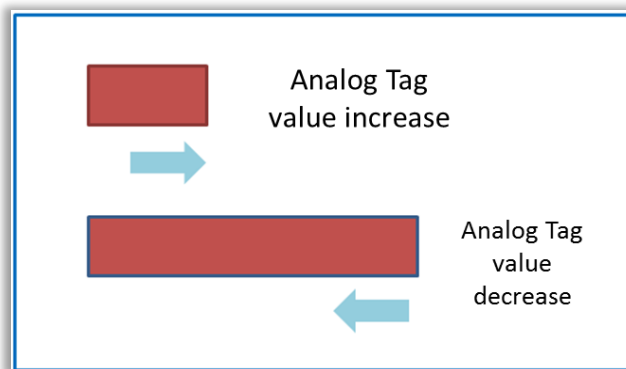
A. Horizontal Change

The horizontal size of the object changes, based on the Data value.



Click on the H-Size option button in the Object Config dialog box, then select the tag and set the Max. and Min. Data Range values.

When the Tag value is the minimum as set in the Data Range, the Object will be displayed at its minimum size. When the tag value is at the maximum, it will be displayed at its maximum size. Between the minimum and the maximum, its size will change proportionally.



B. Base Position

You must set the base position for **horizontal size change**. With the left as the Base Position, the Object grows toward the right as its tag value increases.

(5) V-Move (Vertical Move)

A. Feature

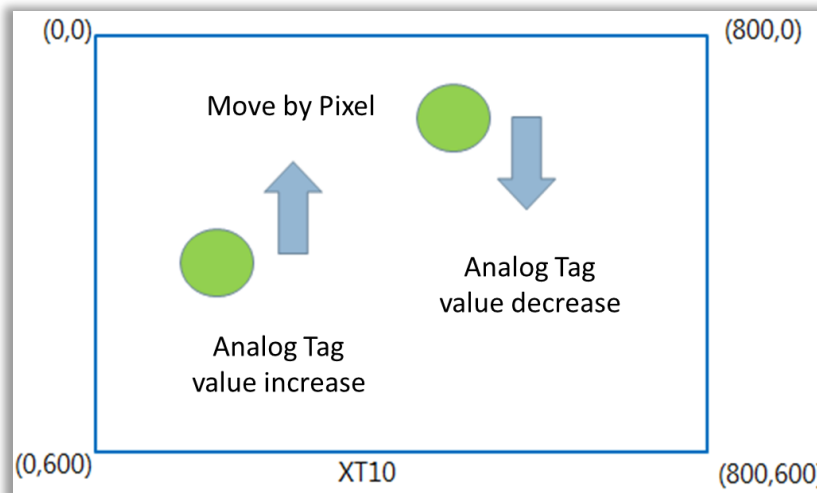
Move the object up or down based on the Data value.

■ Base Position

The Base Position can be set to either the Top or Bottom.

■ Distance

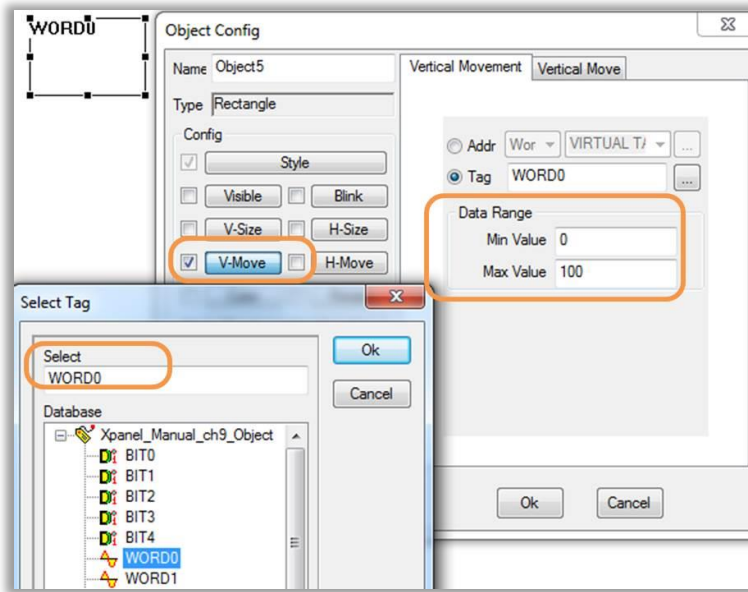
The distance is set in **Pixels** (Units). A distance of '100' moves the Object by 100 Pixels on the Xpanel Screen, based on the Xpanel Screen Resolution. If the Object moves out of the display range, it will disappear from the screen.



< Resolution and Coordinates of XT 10>

B. Vertical Move

Click on the V-Move option button in the Object Config dialog box, then select the tag and set the Max. and Min. Data Range values.

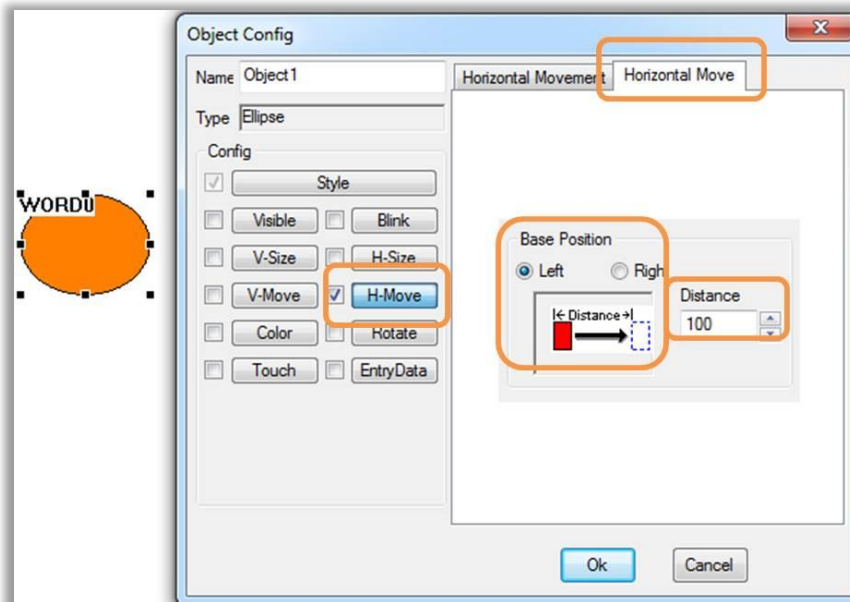


When the Tag value is the minimum as set in the Data Range, the Object will be in its original position (the Base Position). When the tag value is at the maximum, it will move the maximum Distance in Pixels.

(6) H-Move (Horizontal Move)

A. Feature

Move the object left or right based on the Data value.

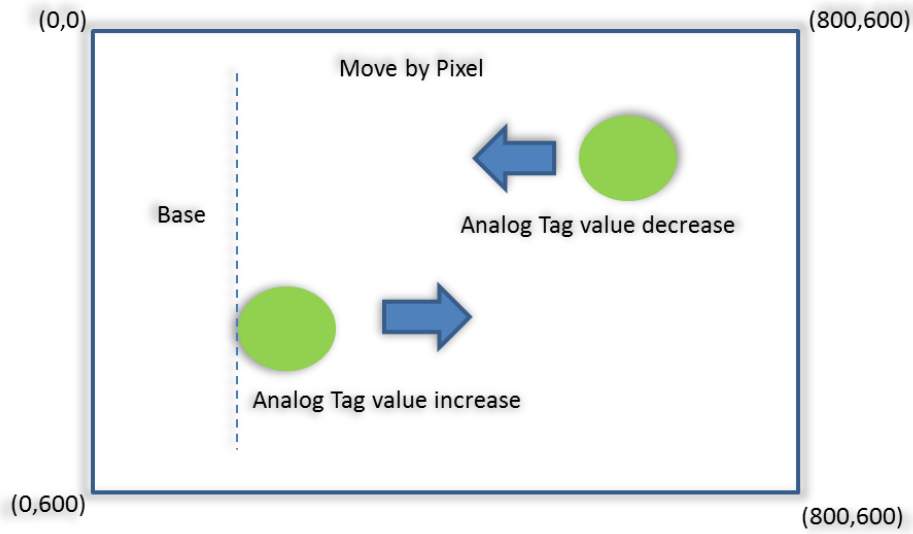


■ Base Position

The Base Position can be set to either the **Left** or **Right**.

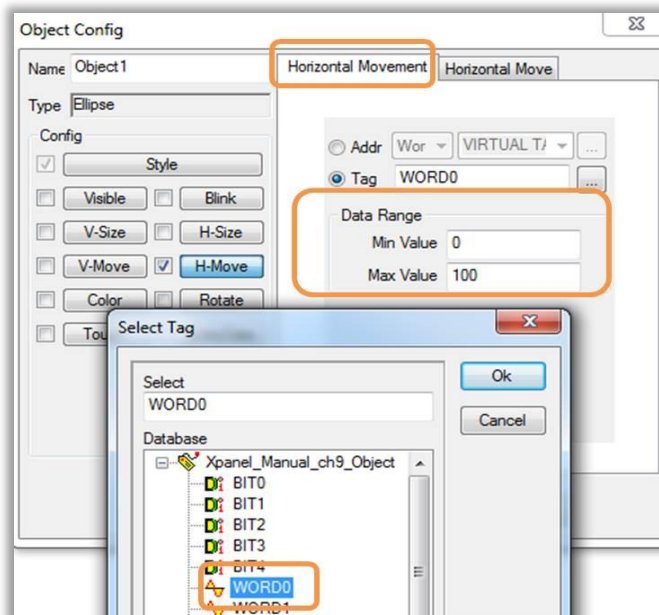
■ Distance

The distance is set in **Pixels** (Units). A distance of '100' moves the Object by 100 Pixels on the Xpanel Screen, based on the Xpanel Screen Resolution. If the Object moves out of the display range, it will disappear from the screen.



B. Horizontal Move

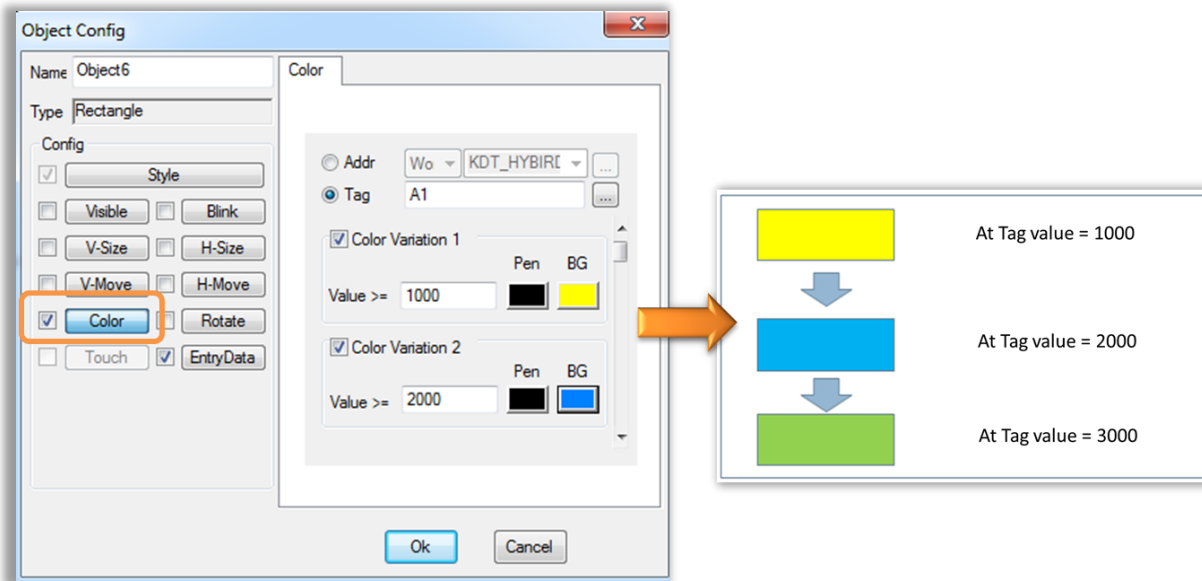
Click on the H-Move option button in the Object Config dialog box, then select the tag and set the Max. and Min. Data Range values.



When the Tag value is the minimum as set in the Data Range, the Object will be in its original position (the Base Position). When the tag value is at the maximum, it will move the maximum Distance in Pixels.

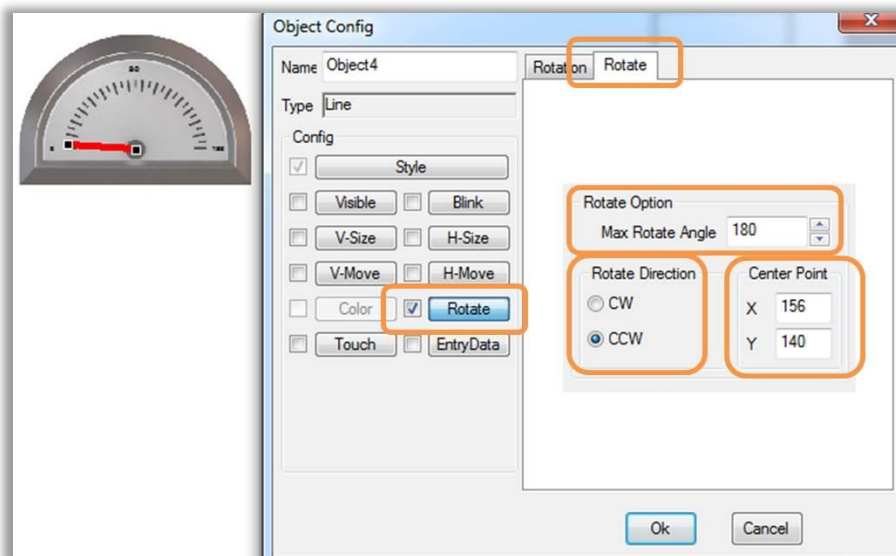
(7) Color

An **Object's Color** can be changed based on tag data value. Click on the Color option button in the Object Config dialog box, then select the tag. Enter up to eight increasing tag values, and assign a color to each. For example, Color 1 < Color2 < Color3....



(8) Rotate

The object will rotate based on the Analog Tag value.



A. Rotate

■ Max. Rotate Angle

Enter the maximum rotation angle for the Object.

■ Rotate Direction

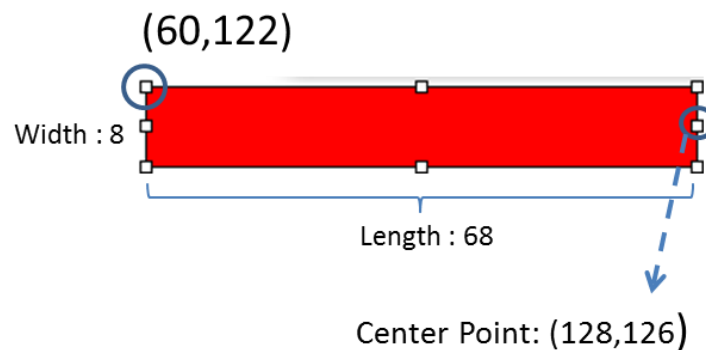
Enter the rotation direction: CW (Clock-wise) or CCW (Counter Clock-wise).

■ Center Point

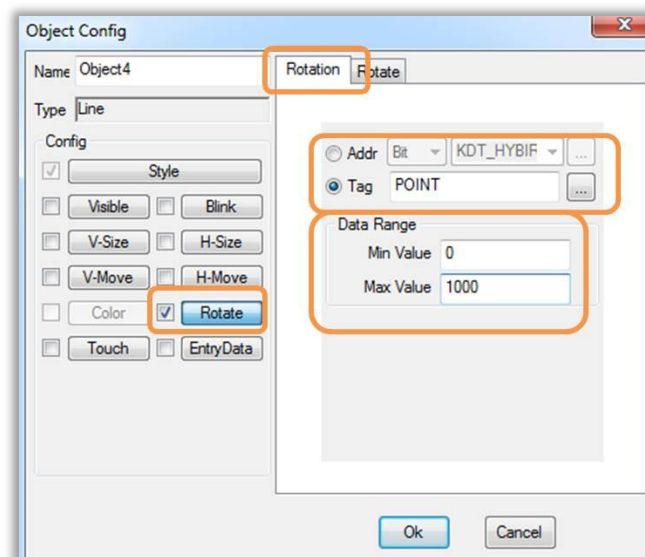
Set the center point for rotation.

To set the rotation Center Point, select Position/Size from the Style menu, and note the object's Position and Size. For example, if the **Position** is (60,122) and **Object's size** is (L:68, W:8), the user defined Center Point might be (60+68, 122+4) → (128,126).

※ The X and Y coordinate values of the **Position** indicate the **left-upper vertex** of an imaginary rectangle containing the **Object**.



B. Rotation



■ Tag Name / Address

The Tag or Address providing the data used to control the rotation angle.

■ Data Range

Enter the Data Range values. At the maximum value, the object will have rotated to its maximum angle, as set in **Rotate**.



Max. value :1000
Min. value : 0
At Data value = 250, Object rotate 45°

(9) Touch

This sets all Xpanel touch functions except EntryData (for entering Analog Data).

● Action Script

■ Operation

Xpanel supports **8 Touch operations**.

Operation	Description
Open Page	Open a page.
Close Page	Close a Pop-up or Keypad page.
Write Tag Value	Write a pre-set value into a Tag when the Object is touched.
Write Digital Value	Write 1 or 0 into a Tag when the object is touched.
Write Momentary	Write in a pre-set value when the object is touched, and reset when the touch is released.
Command Expression	Use Script Commands.
Key Input	Execute a Key Input.
Open Keypad Page	Open a Keypad page.

■ Condition

The User sets the condition for executing an operation when the Xpanel screen is touched.

Logical Comparison Operations are used to set the conditions.

Ex1) Comparison Operation

Execute "Write Digital value" operation when "Bit1" Tag = 1.



Comparison Operators can be used to set Conditions. Instructions for using Conditions are given below.

[Tag Name or Address], [Operator], [Data Value]

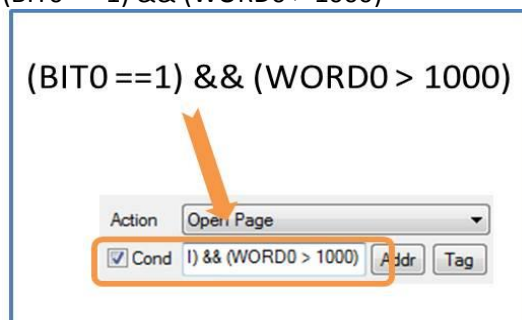
EX) D0001 >= 1000 (If D0001 is bigger or equal to 1000)

※ Applicable Comparison Operator

Comparison Operator	Description	Example
==	Equal	A == B
>= or =>	Bigger or Equal	A >= B
>	Bigger	A > B
<= or =<	Smaller or Equal	A <= B
<	Smaller	A < B
!=	Different	A != B

Ex2) Both Comparison and Logical Operation

When “Bit” Tag = 1 and “WORD0” Tag > 1000, execute the “OpenPage” Operation.
(BIT0 == 1) && (WORD0 > 1000)

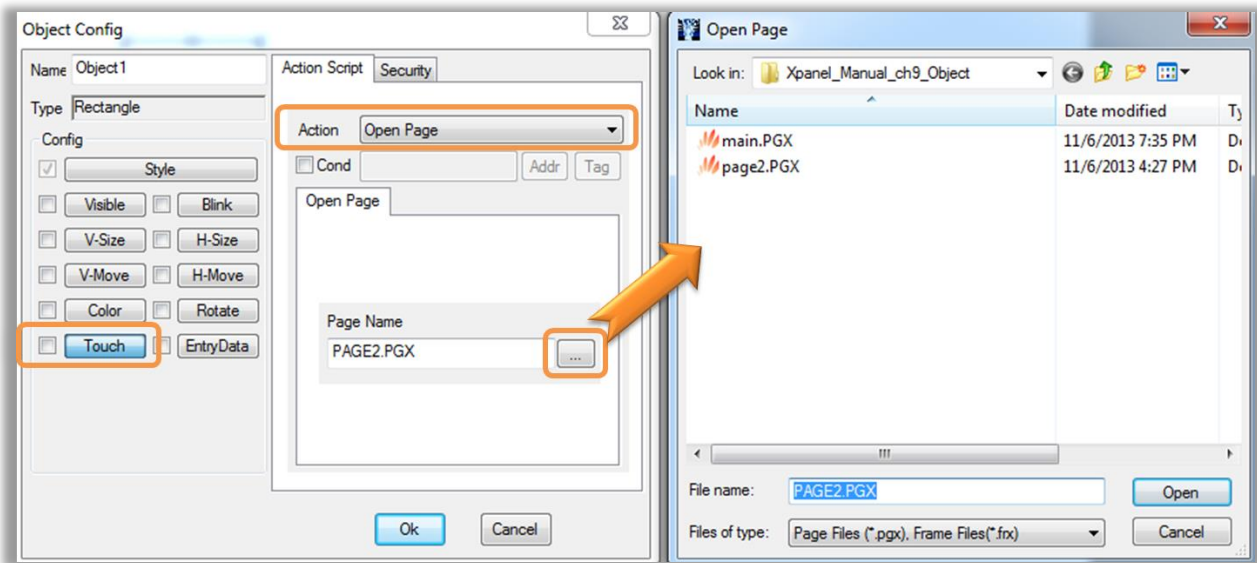


※ Applicable Logical Operators

Logical Operator	Description	Example
&&	And	A && B
	Or	A B
!	Reverse	!A

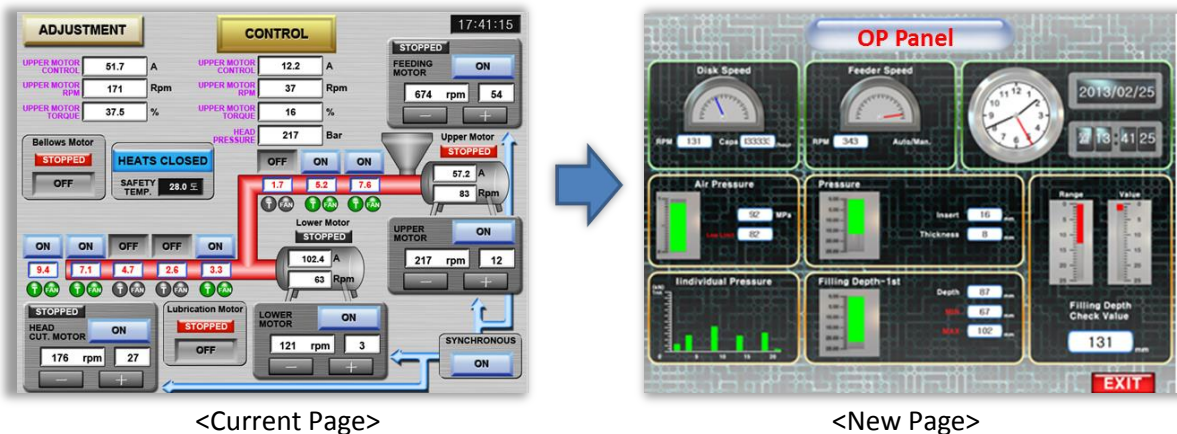
A. Open Page

Move from one page to another. This **closes** the currently **opened** page automatically, and opens a new page.



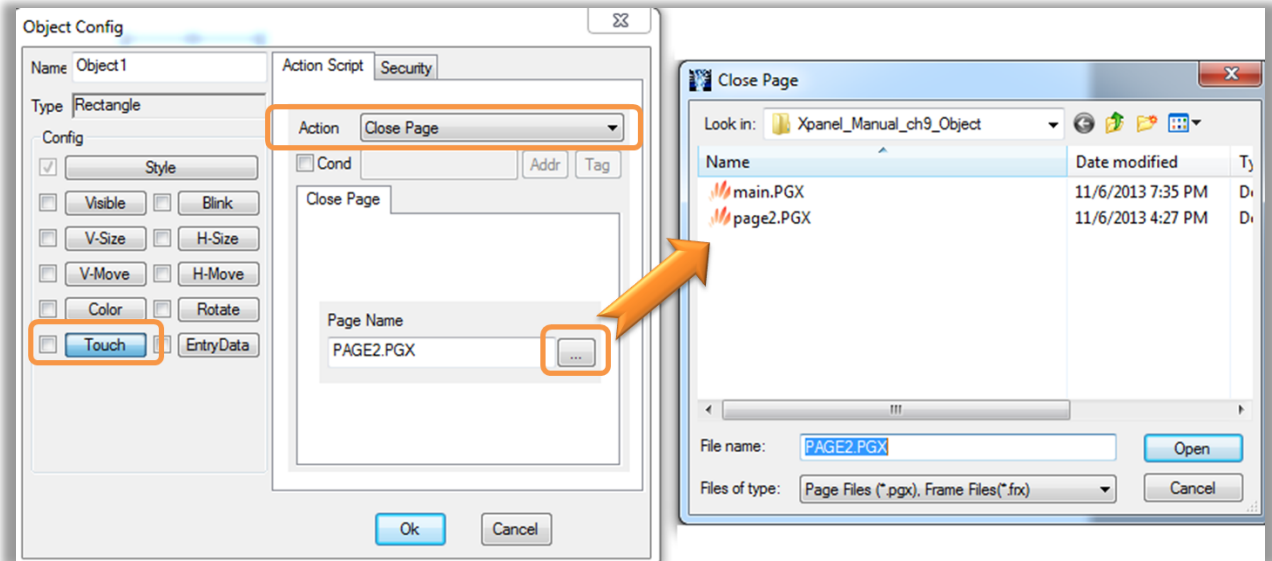
Click on the Touch button, select Open Page as the Action, then enter a Page Name and extension.

You can also click on the  button, then select a page.



B. Close Page

Close the current page. This is generally used for **Pop-up** and **Keypad** pages. **Normal** pages usually close automatically when Open Page” is executed.

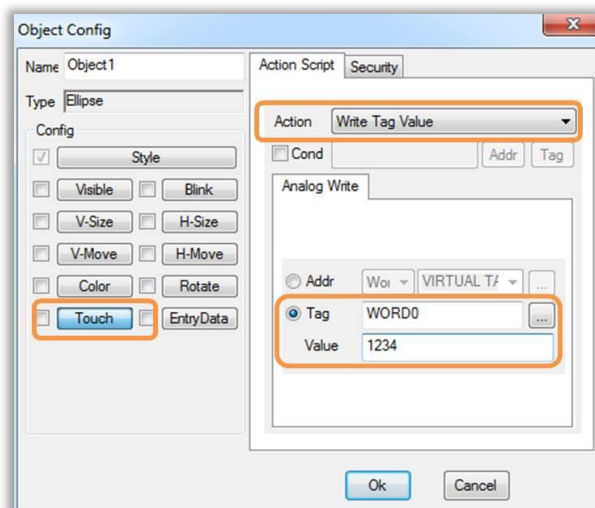


Click on the Touch button, select Close Page as the Action, then enter a Page Name and extension.

You can also click on the  button, then select a page.

C. Write Tag Value

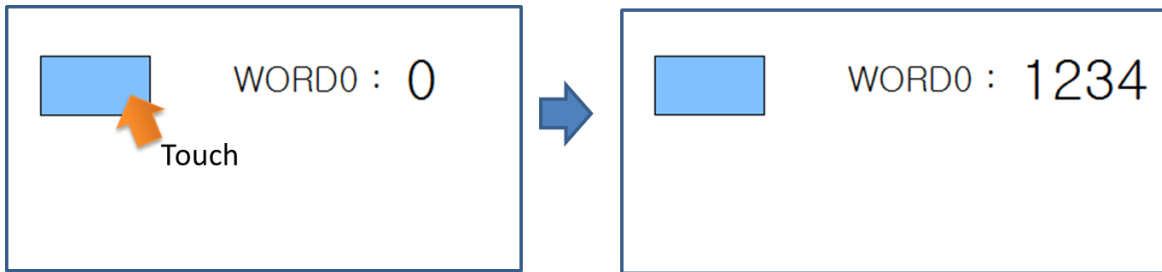
Write a preset Analog **data value** to an **Analog Tag** using a Touch operation.



Click on the Touch button, select Write Tag Value as the Action, then enter a Tag Name or Address.

You can also click on the  button, then select a tag.

In the Value field, enter the value that will be written to the tag as a result of the touch operation.

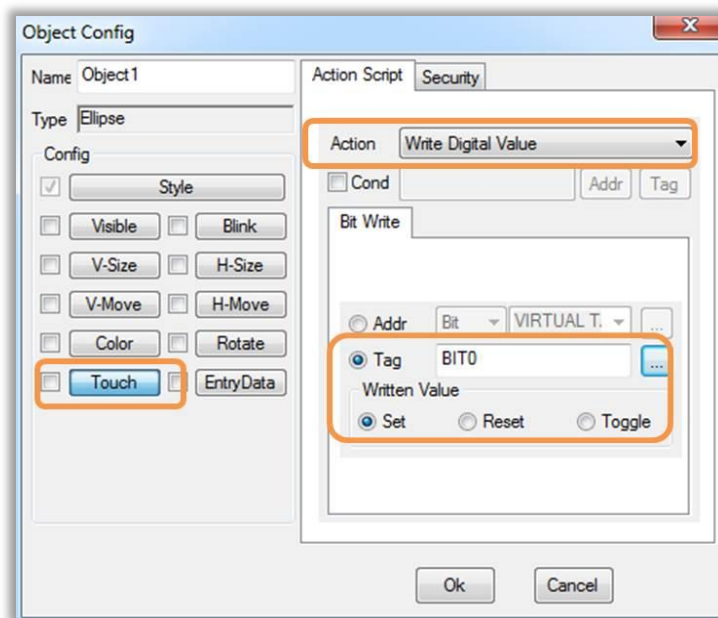


<Before the Touch Operation>

<After the Touch Operation>

D. Write Digital Value

Write a value of 0 or 1 to a **Digital Tag** using a Touch operation.



Click on the Touch button, select Write Digital Value as the Action, then enter a Tag Name or Address.

You can also click on the  button, then select a tag.

■ Set

Write a Digital Value of '1'(ON).

■ **Reset**

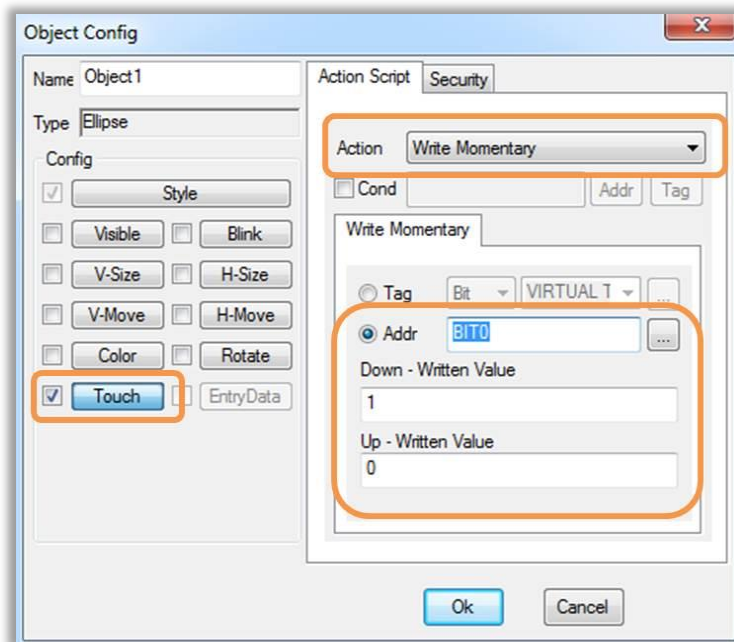
Write a Digital Value of '0'(OFF).

■ **Toggle**

Change the Digital Tag or Address value. That is, the value changes from **1→0** or **0→1** as a result of the Touch operation.

E. Write Momentary

Write a value when the Object is touched, then return it to the original status when the Touch operation is released.



Click on the Touch button, select Write Momentary as the Action, then enter a Tag Name or Address.

You can also click on the  button, then select a tag.

■ **Down – Written Value**

The value to be written to the tag when the object is touched.

■ **Up – Written Value**

The value to be written to the tag when the object is released.

F. Command Expression

Execute a **simple Script Command** as the result of a Touch operation. Command expression use is described below.

- Xpanel commands include simple Operational and Conditional Scripts based on the C-Language.
- Command Expressions are **not Case-sensitive**.
- **Basic Script command can be used**
- Xpanel can call a pre-written Script.

Command Expressions have the **highest priority** in operation; other Object operations will wait until the Command Expression is finished. A Command Expression also can call a **Script**, which will have the same priority as the Command Expression.

A Simple Script created using Command Expressions can be called; it will create a new independent process. This process will operate separately from the current Command Expression. The **Runscript** command is used to call a Script, as shown below:

`'Runscript [Script Name]();'`

■ Examples of Command Expressions

Example	Description
<code>Runscript SupplyCount();</code>	Call the script "SupplyCount".
<code>WORD0 = 100;</code>	Change the 'WORD0' Tag value to 100.
<code>WORD0 = 100; PageOpen("Main");</code>	Change the 'WORD0' Tag value to 100, and Open a page named 'Main'.
<code>WORD0 = WORD0 + 1;</code>	Increase value of the 'WORD0' Tag by 1.
<code>WORD0 = 100; BIT0 = 1; RunScript SupplyCount(); WORD1 = 200;</code>	To change the 'WORD0' Tag value to 100, and change the 'BIT0' Tag value to 1. Then run the 'SupplyCount()' Script. Whether or not the 'SupplyCount()' Script is finished, change the 'WORD1' value to 200. ※ A script called using the 'Runscript' feature runs separately from the Command Expression.

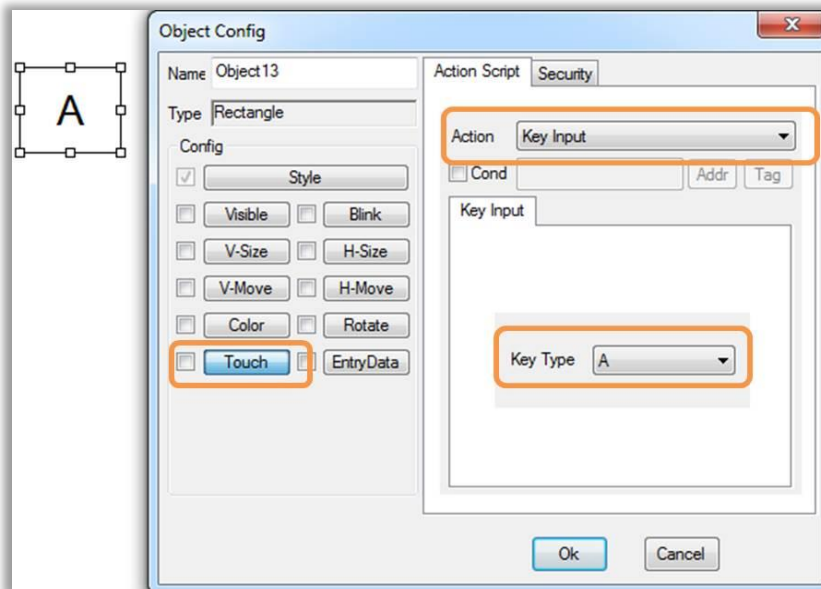
G. Key Input

Create a Keyboard button for entering a number or character using a touch operation.

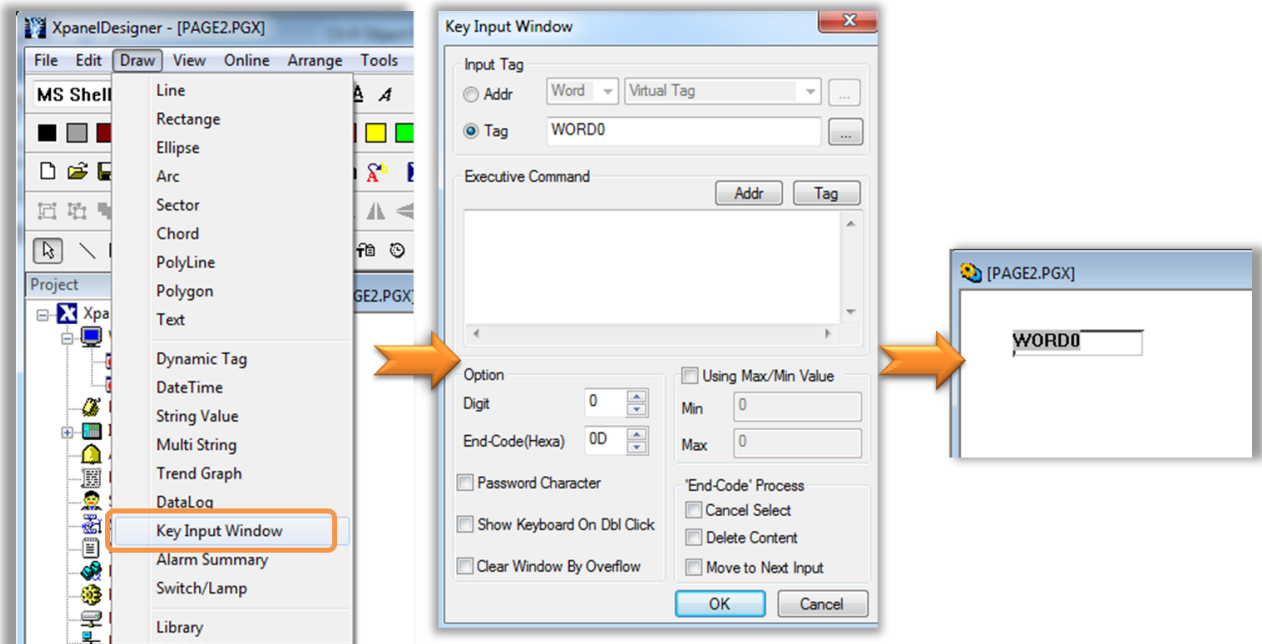
83 Keyboard buttons are supported.

Click on the Touch button, select Key Input as the Action, then select the **Key type**. Key types are the same as on a keyboard

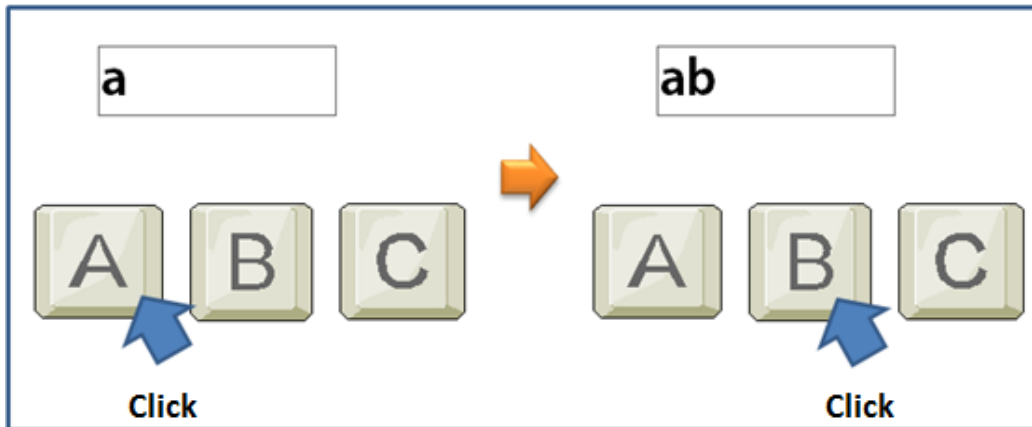
Key Input cannot be used alone; it must be used with **Key Input Window**.



<Key Input in the Database>



<Key Input Window in the Draw Menu>



<Key Input Example>

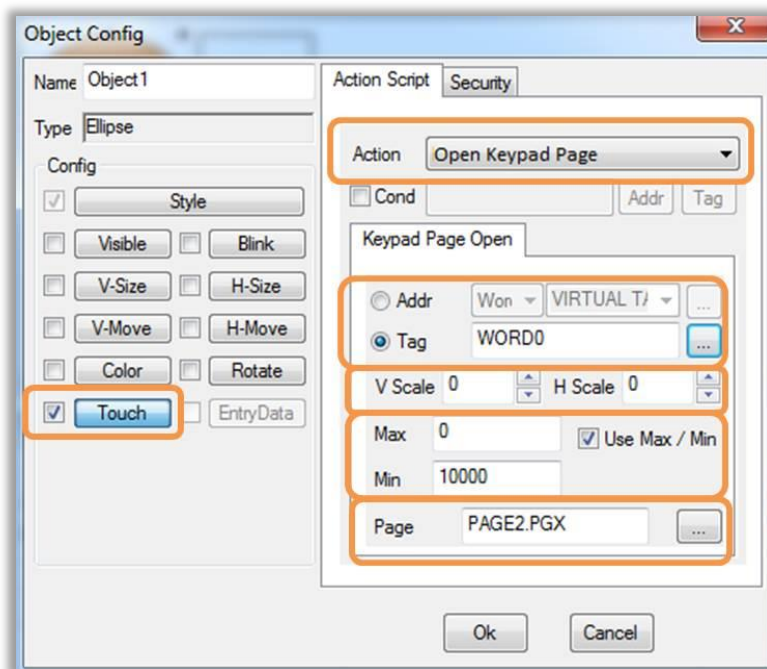
When the focus is on the **key Input Window**, a character will be entered if the user clicks on the Key button.

H. Open Keypad Page

Open a **Keypad** page.

Without using EntryData to enter Analog data, the user can create a **Data Entry window**.

A keypad page must be opened using the **Keypad Page Action**.



Click on the Touch button, select Open Keypad Page as the Action.

■ Tag Name or Address

Enter the Tag or Address which will receive input from the Keypad.


■ H Scale/V Scale

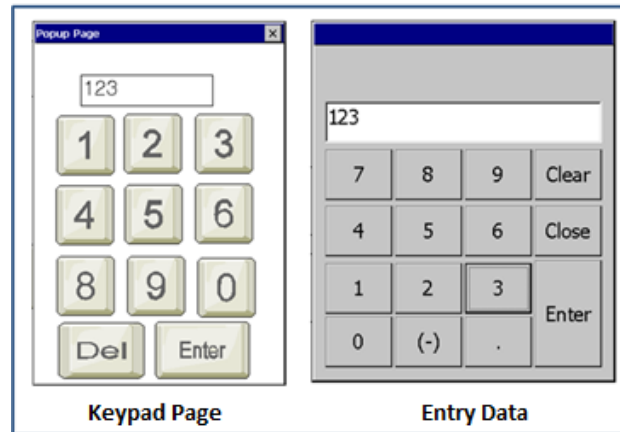
Set the location of the Keypad page. Based on the resolution of the Xpanel model.

■ Max/Min

Set the Maximum or Minimum input values.

■ Page Name

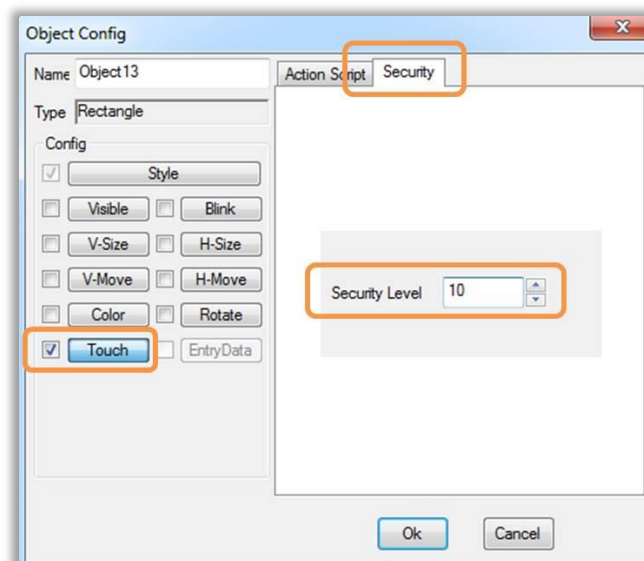
Enter the Keypad Page name. Click on the button  to bring up the page list.



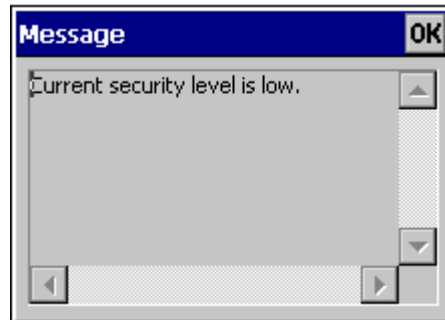
I. Security

Security controls access to **Touch Operations**. Security Levels are from 0 ~10. Level 10 is the highest. If the user's Security Level is lower than the Security Level of the Touch operation, the Touch operation is not executed.

(Please see Chapter. 18, Security)



Click on the Touch button, select Security as the Action. Level 0 is the lowest, and Level 10 is the highest security. The default Security Level is 0.



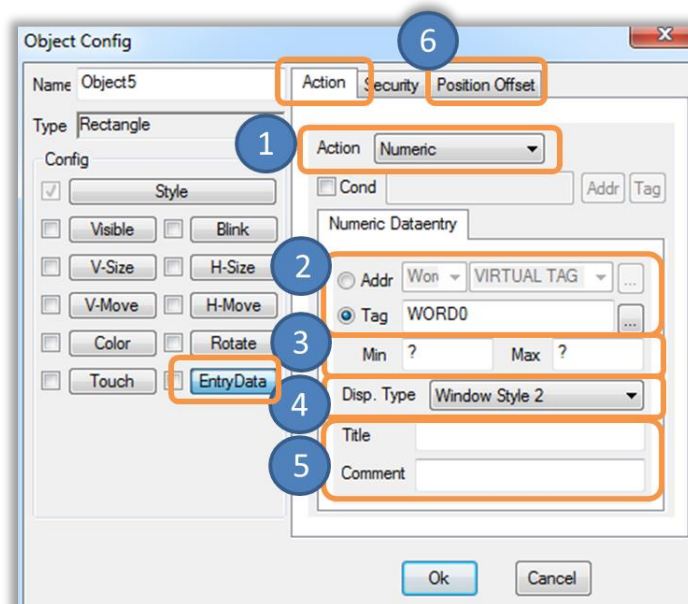
< When the user's security level is low>

J. Data Entry

Enter Data in a **Word Address**. There are two types of word address data: **Analog numeric** and **String data**. The keypad is used to enter numeric data. The string keypad is used to enter a string.

■ Analog Data Entry

To enter Analog data, click on the EntryData button, select Numeric as the Action.



a. Action: Numeric

Enter **Analog data**, rather than String data.

b. Numeric DataEntry

Select the Tag or Address for Data Entry.

c. Max/Min

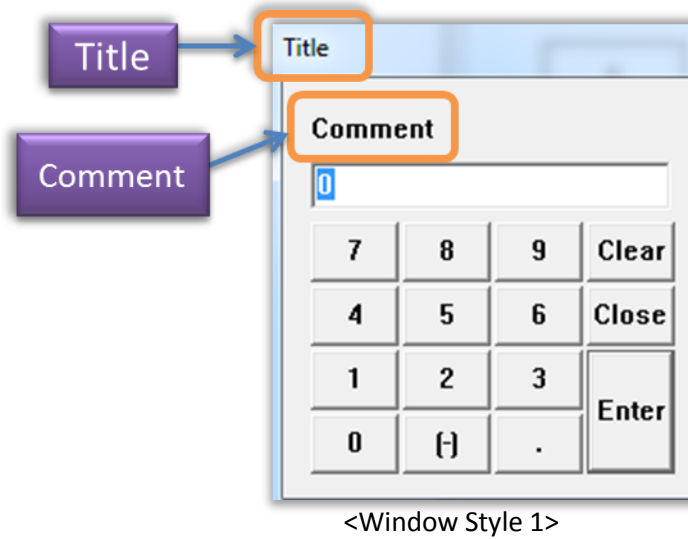
Set the Max. and Min. value for Data Entry

d. Display Type

- Window Style 1 (7") : Create a keypad window for a **7"** screen.
- Window Style 2 (10") : Create a keypad window for a **10"** screen.
- Window Style 3 (4") : Create a keypad window for a **4"** screen.

e. Title / Comment

Enter a Title and Comment to be displayed in the Keypad window.



f. Position Offset

Enter the **coordinates** where the Data Entry window will be located on the screen.

■ String Data Entry

To enter String data, click on the EntryData button, select Text as the Action.

a. Action: Text

Enter **String data**, rather than Analog data.

b. String Data Entry

Select the Tag or Address for Data Entry.

c. Password

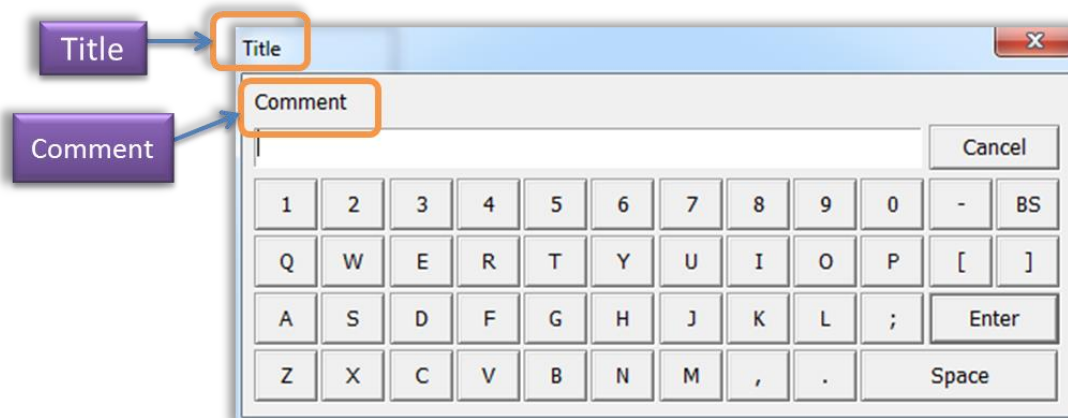
To protect password input, it will be displayed as [●●●●].

d. Display Type

- Window Style 1 (7") : Create a string entry window for a **7"** screen.
- Window Style 2 (10") : Create a string entry window for a **10"** screen.
- Window Style 3 (4") : Create a string entry window for a **4"** screen.

e. Title / Comment

Enter a Title and Comment to be displayed in the string entry window.



<Window Style 2>

f. Position Offset

Enter the **coordinates** where the Data Entry window will be located on the screen.

Chapter 10. Project Download

1. Downloading a Project

Xpanel supports three methods of downloading a project.

1. USB Cables
2. Ethernet
3. USB/SD Portable Storage Devices

1) Download a Project From a PC to Xpanel using a USB Cable

(1) Requirements for Downloading

A **USB-Mini(B)** type cable is required. To use a USB cable, Xpanel must be synchronized with the PC. Either **ActiveSync** or the **Mobile Device Center** must be used for synchronization, depending on the version of Windows being used.

USB Cable Type	Environment	Requirement
USB-Mini(B)	Windows XP	ActiveSync
	Windows Vista/Win7/Win8	32 Bit : Mobile Device Center 32bit
		64 Bit : Mobile Device Center 64bit

※ **ActiveSync** and **Mobile Device Center** can be downloaded from Microsoft.

(www.microsoft.com)



(2) Connecting To Xpanel from **Windows XP**

- A. Install the latest XpanelDesigner (available from the CIMON web site).
- B. Download **ActiveSync**, from Microsoft and install it.
- C. After installing ActiveSync, connect a USB cable to Xpanel. Select **No** in the New Hardware Search Wizard.

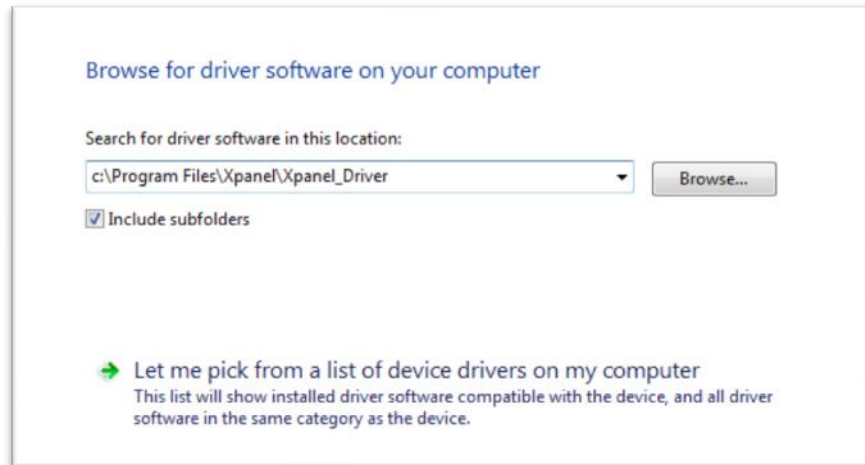


- D. Search for a Driver. Select **Advanced**.



- E. **Default Installation Path** for the Driver

- Ver 2.31 : C:\Xpanel\USB_Driver\XT04SyncDrv\
- Ver 2.30 or earlier : C:\ProgramFiles\Xpanel\USB_Driver\XT04SyncDrv\



F. Installation is Complete

(3) Connecting to Xpanel from **Window 7**

- A. Install the latest XpanelDesigner (available from the CIMON web site).
- B. Download the **Mobile Device Center**, from Microsoft and install it.
- C. After installation, connect a USB cable to Xpanel.
- D. With an Internet connection, the **Device Manager** will synchronize with Xpanel automatically (**Internet access is required**).
- E. Installation is complete.

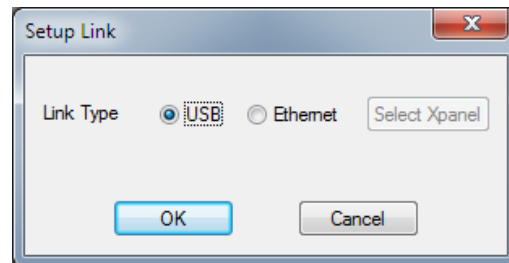


< Windows Mobile Device Center >

2) Download a Project From XpanelDesigner to Xpanel By USB Cable

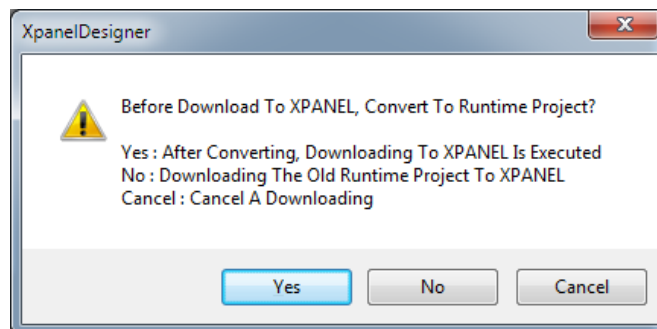
(1) Select a ConnectionType

Go to the Menu tab, and select [Online]→[Setup Link]→[USB].



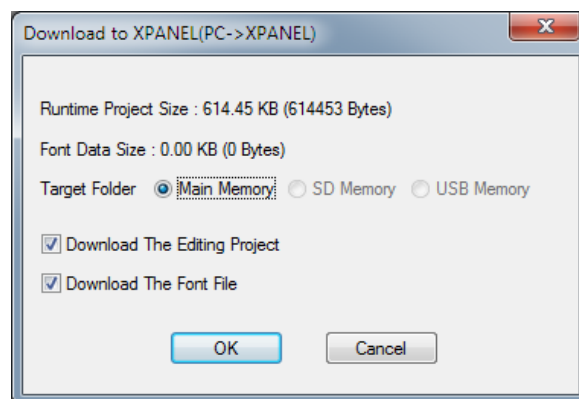
(2) Convert To a Runtime Project

For **USB**, select [Online]→[Download To Xpanel]. When the **Converting To Runtime Project** dialog appears, click on **YES**.



(3) Download a Project from XpanelDesigner (PC) To Xpanel

A. First Time Download



For the initial download, the download dialog box will appear, as shown above.

▪ RunTime Project Size

Display the **size** of the project download in **Bytes**.

Model	Max. Project Size	Built in Flash Size
XT04CD/XT07CD/HP07CD/XT08CD	Up to 80 MB	128 MB
XT10CD/XT12CD/XT15/CD	Up to 50 MB	128 MB

※ The Max. **project size** may be lower if Xpanel's internal memory is being used by **other operations**, such as a Screen Capture. Additionally, an OS or XpanelDesigner version **upgrade** can reduce Xpanel's Internal memory. Flash memory size can be modified by manufacturers for performance improvement without any official notice.

▪ Font Data Size

If the **Download The Font File** option is selected, the **Font File size** will be displayed.

▪ Download The Editing Project

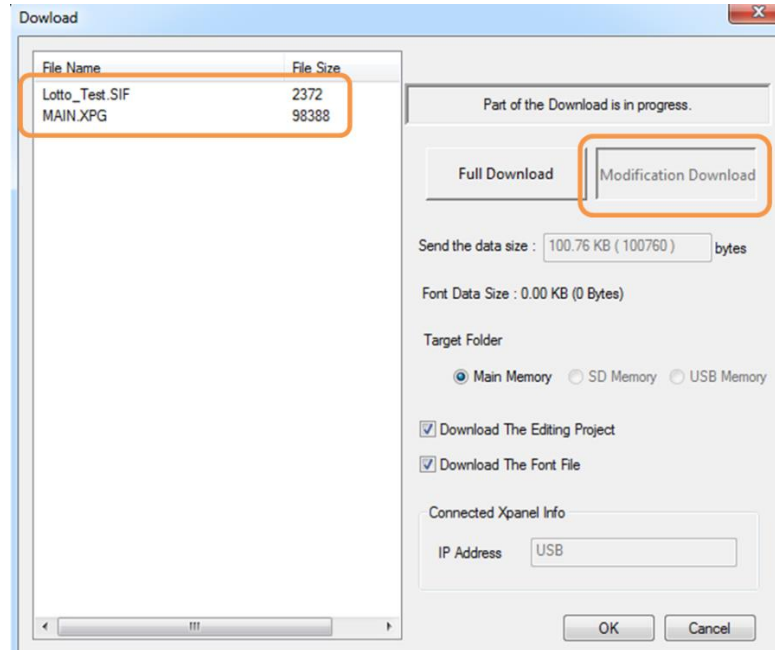
The Editing project is required when **uploading a project** from Xpanel to the PC. With **Download The Editing Project** feature unchecked, uploading a project from Xpanel to the PC will not be possible.

▪ Download The Font File

The project's **Text Font** will be used by Xpanel. If the **Download The Font File** feature is unchecked, Text is displayed in Xpanel's **default Font**. The Default Font is **Tahoma** for Xpanel's Windows CE installation (English version) and '굴림' for Windows CE (Korean version).

B. Redownload

When a project is modified, then downloaded again, you can download only the modified part of the project in order to save time.



▪ Full Download / Modification Download

Select either **Full project** or **modified part only**. Using **Modification Download** will reduce the download time.

▪ Downloading Data Size

The Downloading Data Size will be displayed.

▪ Font Data Size

If the **Download The Font File** option is selected, the **Font File size** will be displayed.

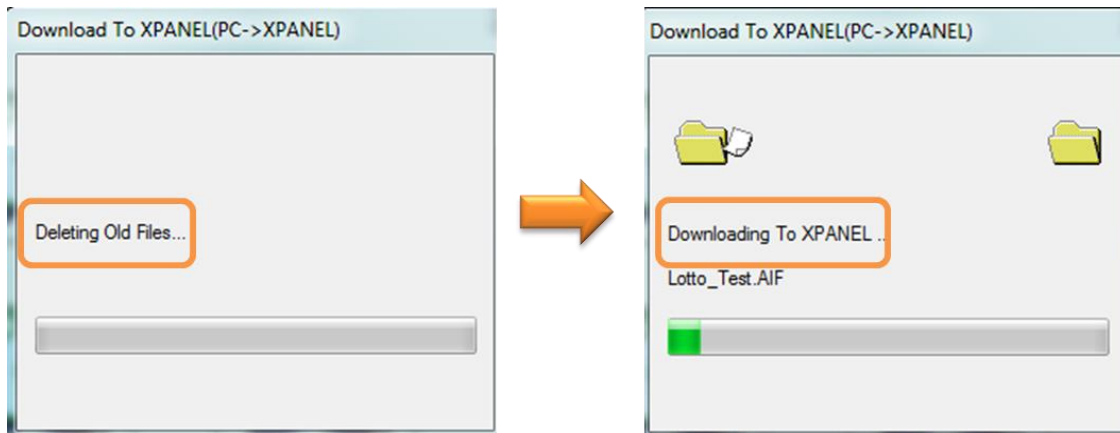
▪ Connected Xpanel Info

The Xpanel IP address is displayed.

(4) Project Download Process

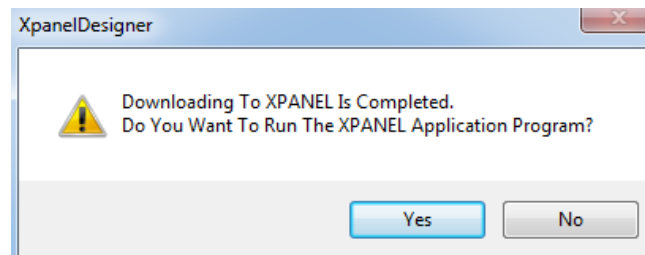
The steps of the project download process are as follows:

- The existing project in Xpanel is deleted, and the new project downloaded.
- Check the **Xpanel Application Program** version, and install the current version if the installed version is older.



(5) Run the Xpanel Application Program

After downloading is completed, the **Xpanel Application Program** will be executed.



Rather than running the **Xpanel Application Program** immediately, the user can double-click on the **Xpanel** icon on the Xpanel Desktop in order to run it.

3) Download Project By Ethernet

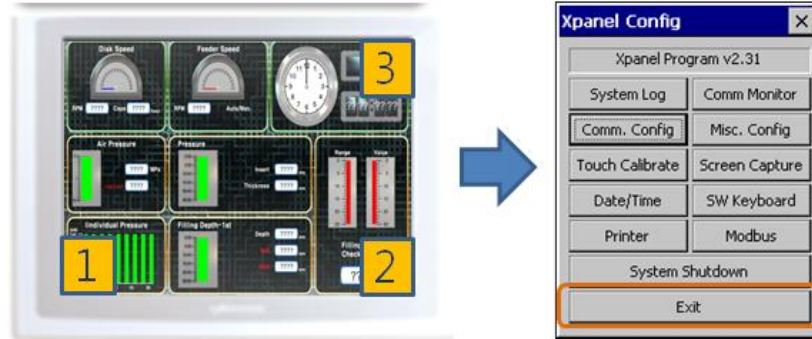
Projects can also be downloaded to Xpanel by Ethernet (the Xpanel Ethernet option required). The **Ethernet Loader** (a built-in program) is used for downloading by Ethernet. The Ethernet Loader must be running throughout the download process. If the Ethernet Loader is forced to quit, the download will be interrupted. You will then have to either run the Ethernet Loader again, or restart Xpanel.

(1) Setting the Xpanel IP address

A. Using an Ethernet Loader

a. Terminate the Xpanel Application Program (Active Project)

If you touch the three corners of the Xpanel display in the order shown below, the **Xpanel Config** Dialog box will appear. Click on **Exit** to shut down the Xpanel Application Program and bring up the Desktop.

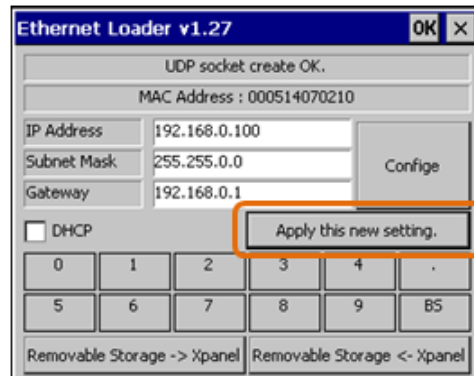


b. Checking the Ethernet Loader

The Ethernet Loader should always be running. If the Ethernet Loader is forced to quit, the download will be interrupted. If this happens, the Ethernet Loader must be started again. To do this, go to **[My Device] → [Xpanel]**, and click on **"Eldr.exe"**.

c. Apply the IP setting To Xpanel.

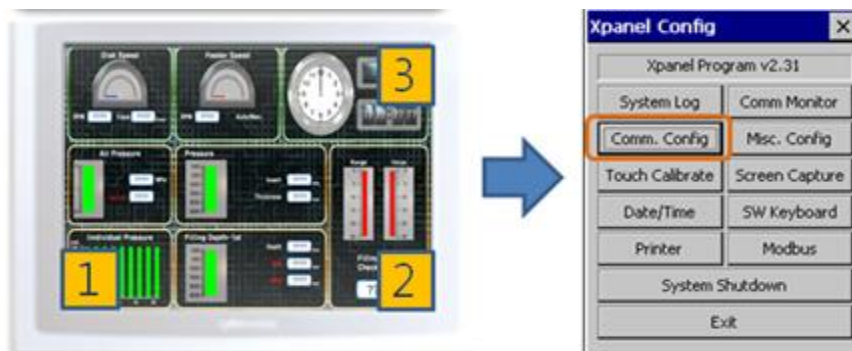
Enter the Xpanel **IP address**, **Subnet Mask** and **Gate Way** then click on **Apply this new setting** to restart Xpanel (the modified setting will be applied only after restarting).



B. Using Xpanel Config

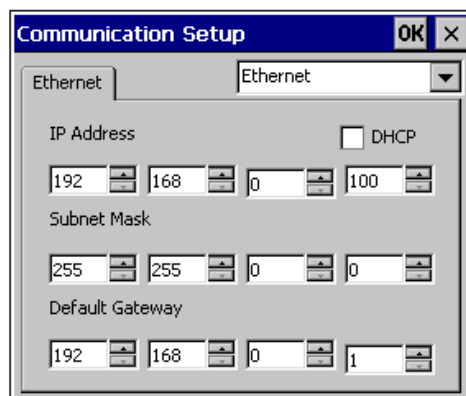
a. Open the Xpanel Config Dialog box

If you touch the three corners of the Xpanel display in the order shown below, the **Xpanel Config** Dialog box will appear. Click on **Comm Config** to bring up the IP setting dialog box.



b. Communication Setup

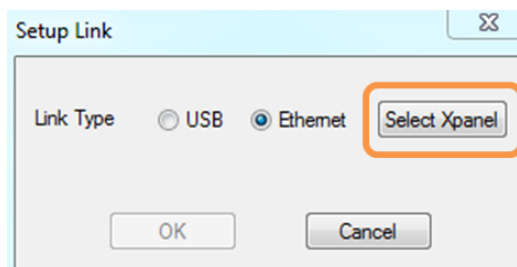
Select **Ethernet** from the Drop-Down menu. Enter the **IP address** for Xpanel and click on **OK** to execute a **System Shutdown**. After the System Shutdown, the modified IP setting will be applied to Xpanel.



(2) Download a Project From XpanelDesigner By **Ethernet**

A. Select a Connection Type

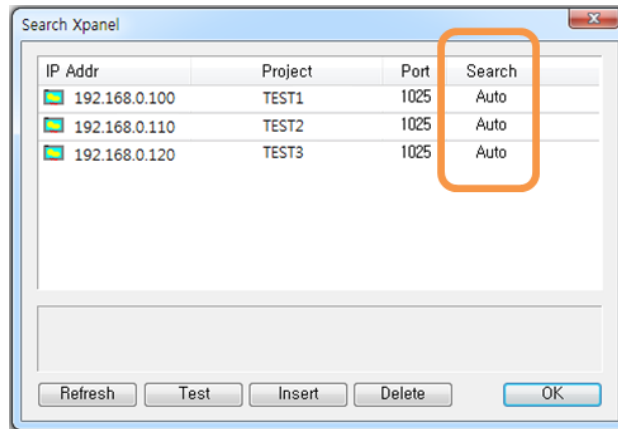
Select [Online] → [Setup Link] → [Ethernet].



B. Select and Search for Xpanel

Click on **Select Xpanel** to bring up the list of **Xpanel IPs** currently connected to the PC (by Ethernet).

Select the desired Xpanel IP and click on **OK**.



▪ Refresh

Refresh the Xpanel IP list for a new selection.

▪ Test

Test the selected Xpanel IP connection to see if it can be used for downloading.

▪ Insert

Enter an Xpanel IP manually.

▪ Delete

Delete the selected Xpanel IP from the list.

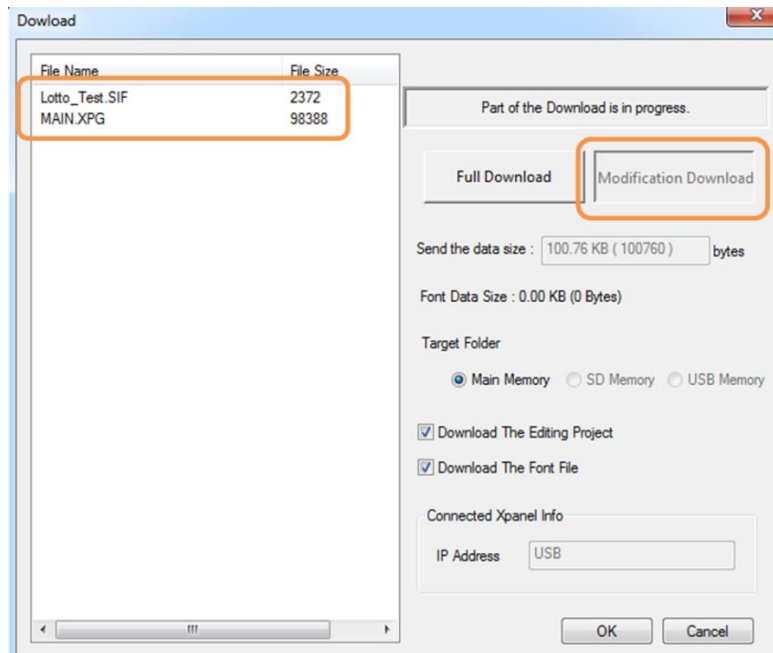
※ Ethernet Connection Notes

- If **Auto** is displayed in the Search field, the status of the target Xpanel is **download-ready** (Local Network).
- If **Manual** is displayed in the Search field, the target Xpanel is on a **different** Network from the PC.
- If **multiple** XpanelDesigners are currently open, the PC might not find the target Xpanel. You should have only **one** XpanelDesigner open when connecting to Xpanel by Ethernet.

C. Download To Xpanel

Select [Online] → [Download To Xpanel].

The project is converted to an **Editing Project**, and the rest of the the download procedure is the same as it is for **Download by USB Cable**.



(See **Download by USB Cable** for the detailed information about downloading)

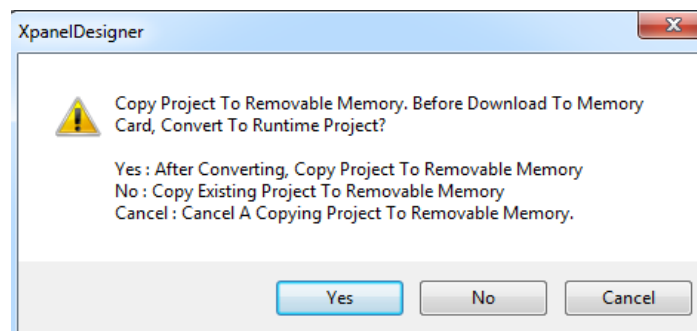
4) Download a Project To Xpanel using USB/SD/MMC

(1) Preparing for USB/SD/MMC

(2) Download a project to a USB/SD/MMC Device.

A. Download a project into USB/SD/MMC memory.

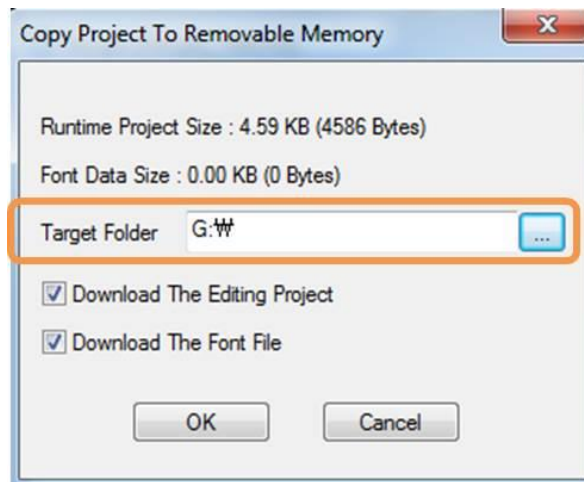
Select [Online] → [Copy Project to Removable Memory]. Convert the project to a Runtime Project.



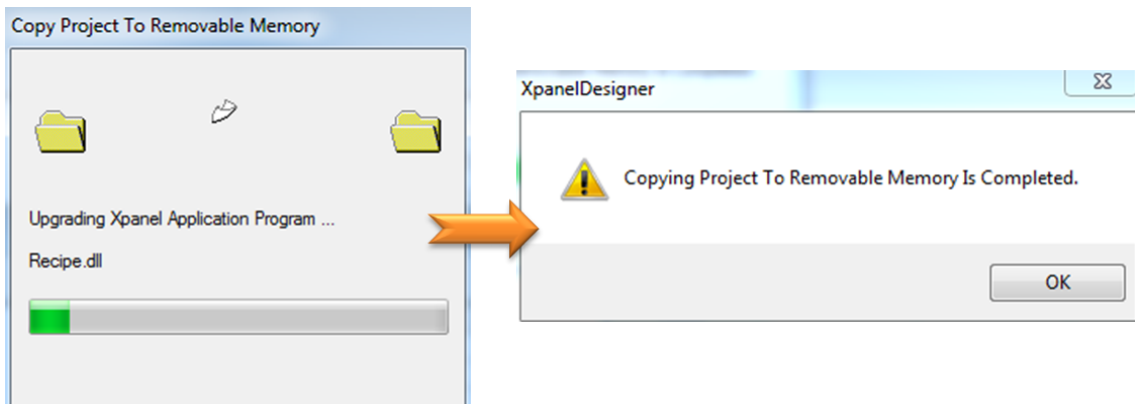
B. Select the Target USB/SD/MMC Device

Enter the location of the target USB/SD/MMC device; it **must be in the Root Folder** (Directory). Xpanel cannot recognize Subfolders (Subdirectories).

Click on **OK** to download the project to Xpanel.



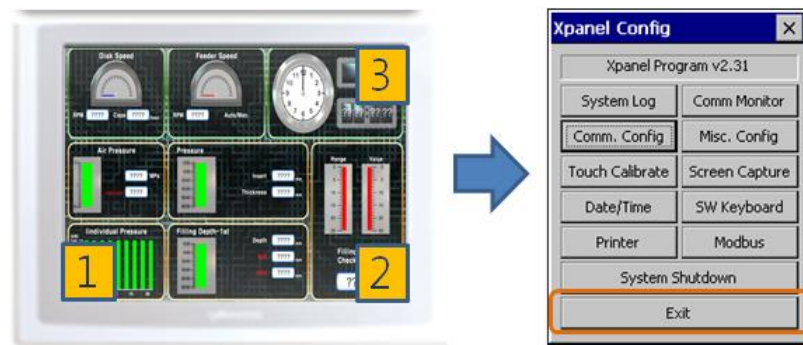
C. Writing a project to a USB/SD/MMC Device



D. Plug the Portable Memory Device into Xpanel

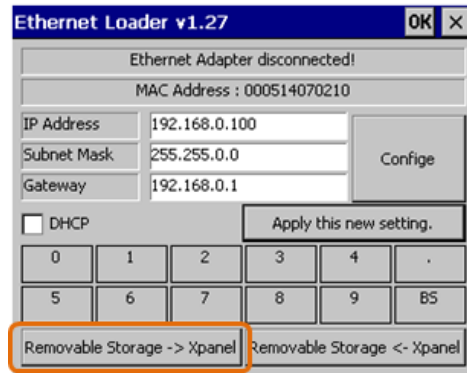
E. Close Xpanel Application Program

If you touch the three corners of the Xpanel display in the order shown below, the **Xpanel Config** Dialog box will appear. Click on **Exit** to shut down the Xpanel Application Program and bring up the Windows CE Desktop.

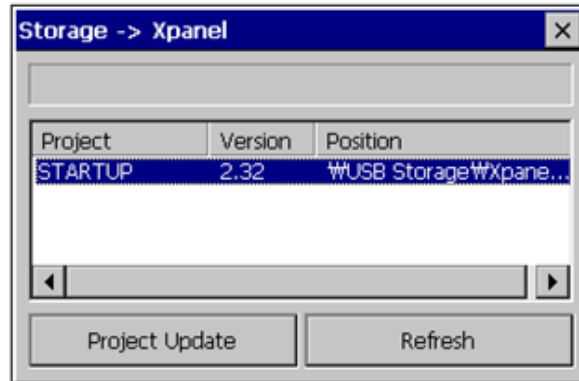


F. Writing a Project into Xpanel by **Ethernet Loader**

On the Windows CE Desktop, the **Ethernet Loader** will normally be running. The Ethernet Loader supports not only project Up/downloading via Ethernet, but also project Up/downloading via Removable Storage Device.

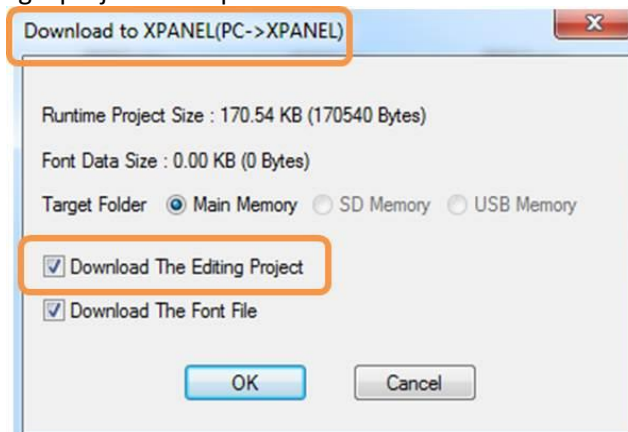


Select [**Removable Storage → Xpanel**] on the Ethernet Loader.



2. Uploading a Project from Xpanel To a PC

Users can upload a project from a Xpanel to PC. **Three types** of uploading are supported. For a successful upload, the **Download the Editing Project** feature must have been **enabled** when previously downloading a project into Xpanel.



■ 3 Ways to Upload Project From Xpanel to a PC

1. By USB mini port cable
2. By Ethernet
3. By USB/SD Removable Storage Device

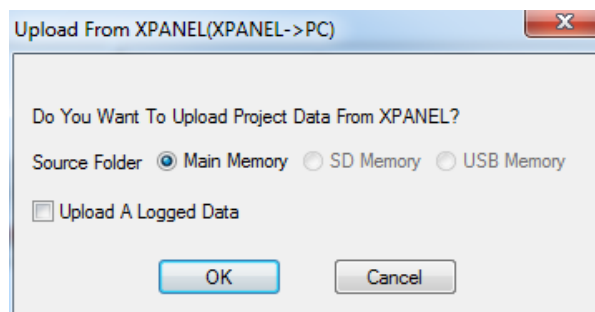
1) Uploading a project While Xpanel is connected to a PC

(1) Connection (Link) Type

Either a **USB mini cable** or **Ethernet** can be used to connect Xpanel to a PC.
(See **Download Project** for detailed information)

(2) Upload a Project from Xpanel to a PC using XpanelDesigner

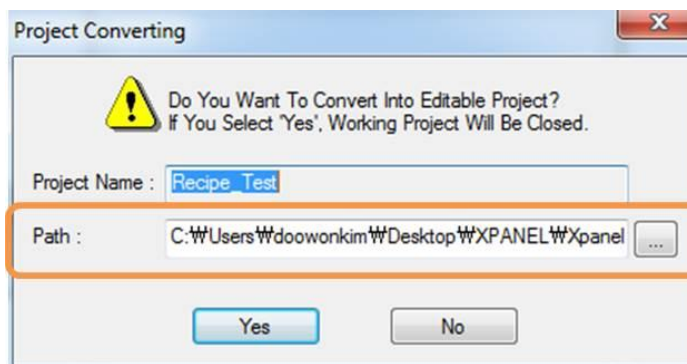
Go to [Online] → [Upload From Xpanel(Xpanel→PC)].



- Source Folder : Select the project folder to upload **from**. The default location is Xpanel Main Memory.
- Upload A Logged Data : The logged data can be uploaded with the project.

(3) Select the Destination

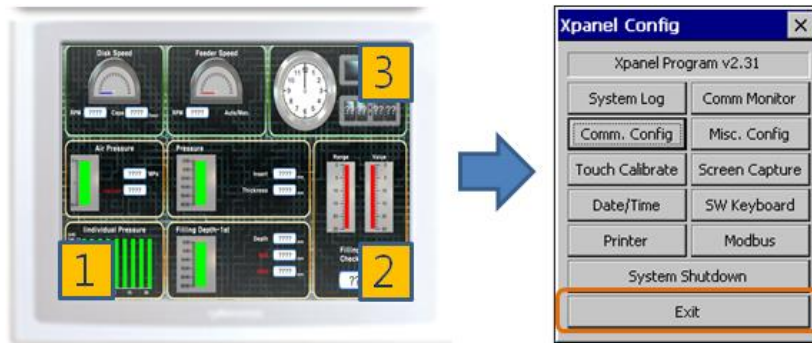
Next, select the location to upload to. When the upload is complete, the current project will be closed and the uploaded project will be opened.



2) Uploading a Project by using a Removable Storage Device (Xpanel→PC).

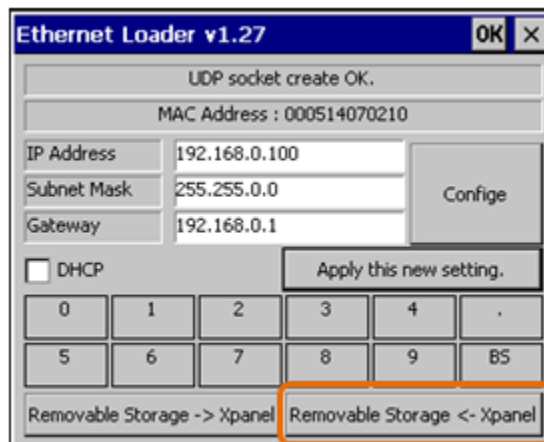
- (1) Plug the USB/SD/MMC Device into Xpanel
- (2) Close the current Xpanel Application Program

If you touch the three corners of the Xpanel display in the order shown below, the **Xpanel Config** Dialog box will appear. Click on **Exit** to shut down the Xpanel Application Program and bring up the Windows CE Desktop.

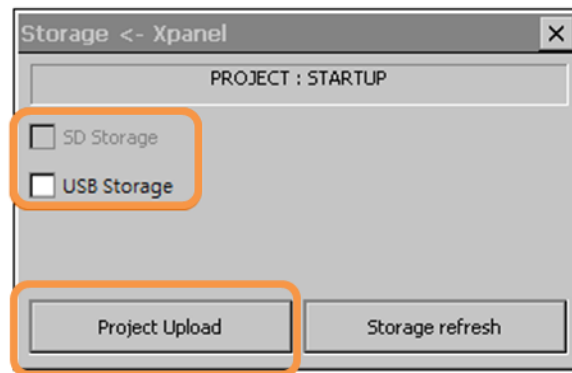


- (3) Copy the project from Xpanel to Removable Storage using the Ethernet Loader.

Select [**Removable Storage ← Xpanel**] in the Xpanel Ethernet Loader.

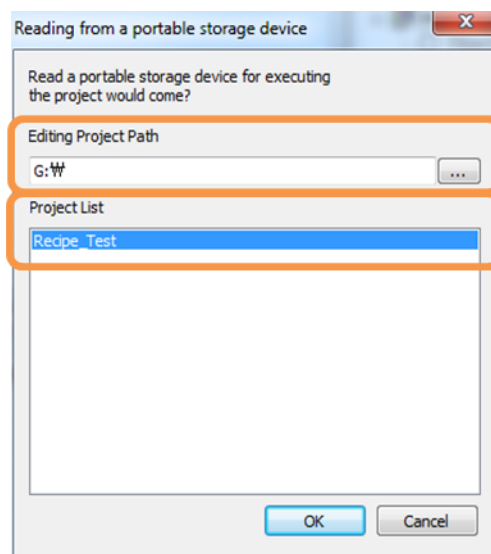


Select the desired Removable Storage device, then click on **Project Upload**.
Once uploading is complete, the **Success to copy upload data** message appears.



(4) Copy the project from Removable Storage to a PC

After copying a project from Xpanel to Removable Storage, plug the device into the PC. In XpanelDesigner, go to [Online] → [Upload From Storage(Storage→PC)].



■ Editing Project Path

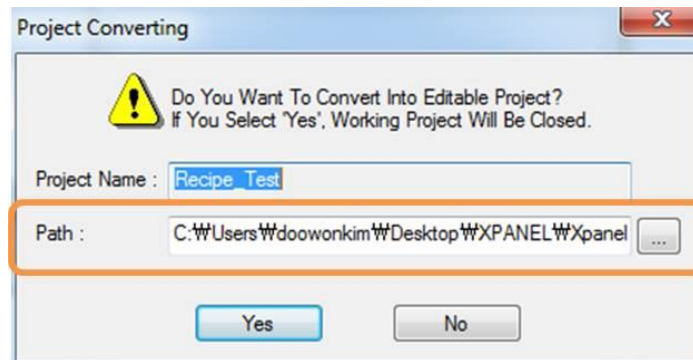
Set the project path for the Removable Storage device; it **must be in the Root Folder** (Directory). Xpanel cannot recognize Subfolders (Subdirectories).

Ex) D:\, E:\, F:\

■ Project List

Select the desired project on the Removable Storage device.

- (5) Choose the destination on the PC
Next, select the location on the PC to upload to.



3) Executing a Project Directly from Removable Storage Device.

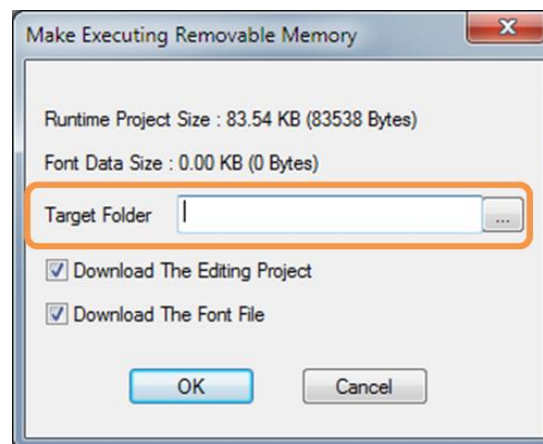
Xpanel supports running a project directly from Removable Storage. This is useful when the Project is too large to download to Xpanel memory.

※ A **Project in Removable Storage Device** has a **higher priority** than a project in Xpanel's internal memory.

When Xpanel starts (is turned on), it scans for projects in Removable Storage Devices first. If no project file is found in any Removable Storage Device, then Xpanel will run the project in its internal memory.

- (1) Save a project to a Removable Storage Device

Select [Online] → [**Make Executing Removable Memory**]. Select the target folder (Root path) where the project will be saved.



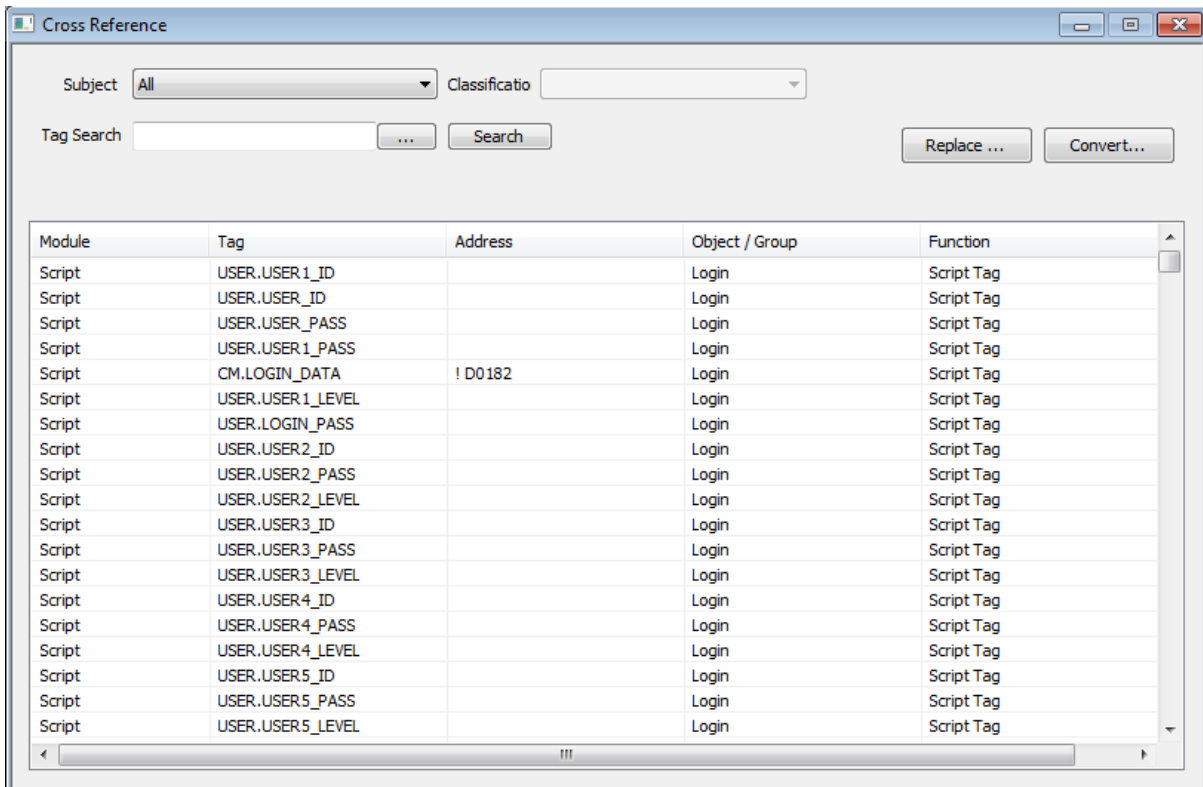
(2) Execute the project directly from Removable Storage Device

Plug the Removable Storage Device into Xpanel, and then restart it. You can also close the currently running Xpanel Application program, then double click on the Xpanel Application program on the Desktop.

Chapter 11. Useful Functions

1. Cross Reference

This is used to **search** for **Tags** or **Address** by Page or Module. Users can find where a tag is used and **move** to that page to edit the Tag. Because **Tag Batch Conversion** is supported, the user can convert **multiple Tags** to different Tag formats all at once. Tag Search results can be saved as a **CSV** file, which can be opened in **Excel**.



The screenshot shows the 'Cross Reference' window. It has a 'Subject' dropdown set to 'All' and a 'Classification' dropdown. Below these is a 'Tag Search' text box with a search button and a 'Replace...' button. A 'Convert...' button is also present. The main area is a table with the following data:

Module	Tag	Address	Object / Group	Function
Script	USER.USER_1_ID		Login	Script Tag
Script	USER.USER_ID		Login	Script Tag
Script	USER.USER_PASS		Login	Script Tag
Script	USER.USER_1_PASS		Login	Script Tag
Script	CM.LOGIN_DATA	! D0182	Login	Script Tag
Script	USER.USER_1_LEVEL		Login	Script Tag
Script	USER.LOGIN_PASS		Login	Script Tag
Script	USER.USER2_ID		Login	Script Tag
Script	USER.USER2_PASS		Login	Script Tag
Script	USER.USER2_LEVEL		Login	Script Tag
Script	USER.USER3_ID		Login	Script Tag
Script	USER.USER3_PASS		Login	Script Tag
Script	USER.USER3_LEVEL		Login	Script Tag
Script	USER.USER4_ID		Login	Script Tag
Script	USER.USER4_PASS		Login	Script Tag
Script	USER.USER4_LEVEL		Login	Script Tag
Script	USER.USER5_ID		Login	Script Tag
Script	USER.USER5_PASS		Login	Script Tag
Script	USER.USER5_LEVEL		Login	Script Tag

1) Subject / Classification

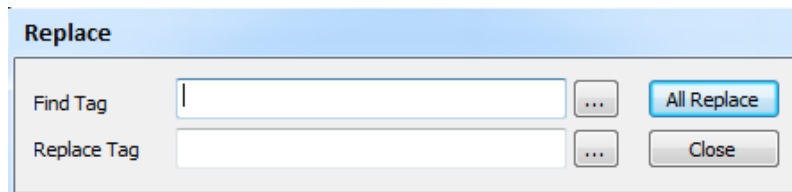
- All: Search for all Tags in project.
- Module: Search for Tags in functional modules of Xpanel. Select the module in "Classification".

2) Tag Search

Search for a Tag by **Tag name**.

3) Replace

Use Tag **Batch (multiple)** Conversion to replace Tags. This applies to the whole project.

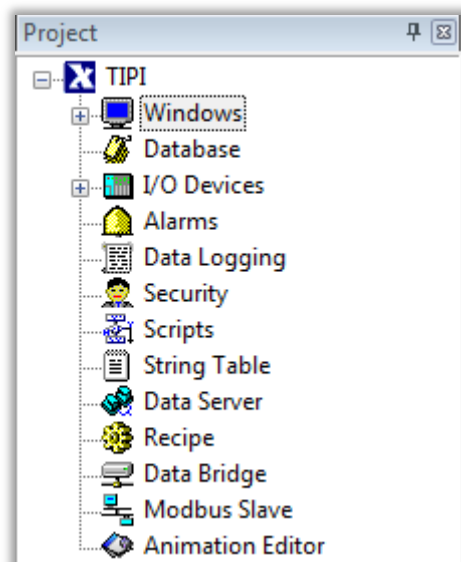


4) Conversion To CSV File

Convert the Tag list in the Cross Reference window to a **CSV file**.

2. Project Workspace

The Project Workspace is a convenient tool for configuring and editing project **functions**. It displays project features in **Tree view**. Double-click on an item to configure it. The changes will be reflected in the tree view after you save them.



3. Tag View Tool

Display the **Tag name** or **Address** of an Object. The Background and Font color can be changed.



■ BG color / Font color

Change the background color or the font color of a Tag.

■ [N], [A], [X]

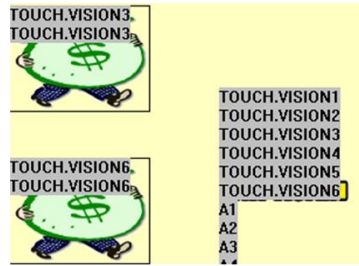
[N] : Display the **Tag name**.

[A] : Display the **Address**.

[X] : No Tag name or Address is displayed.



< No Tag name or Address>



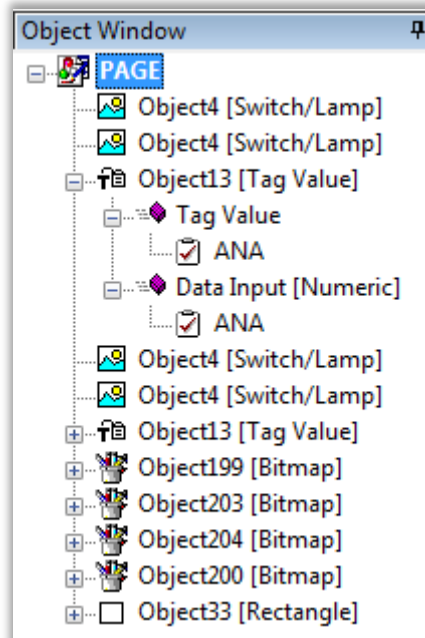
< Tag Name is displayed>



< Address is displayed>

4. Object Window

Display **Object properties** in the Tree view. If the user clicks on a function, the corresponding **Object Config** window will appear.



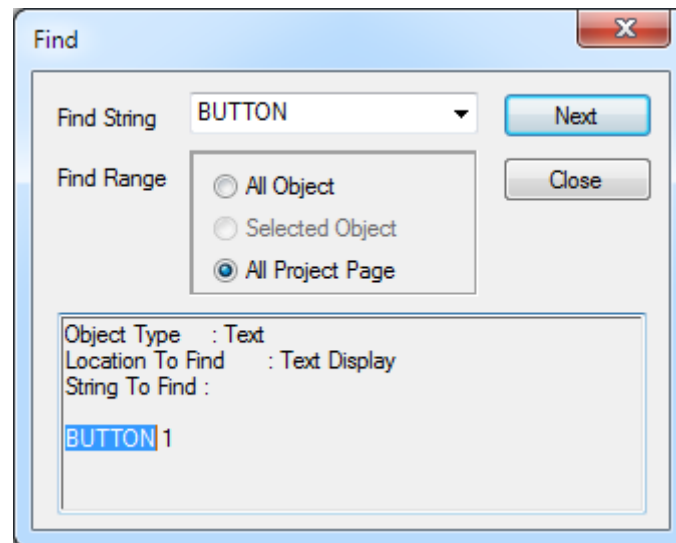
5. Tag Screen

Display all the Name, Type, and Address of each Tag used on a page. If you double click on a Tag, the **Object Config** window dialog box will appear, allowing you to edit Tag settings directly.

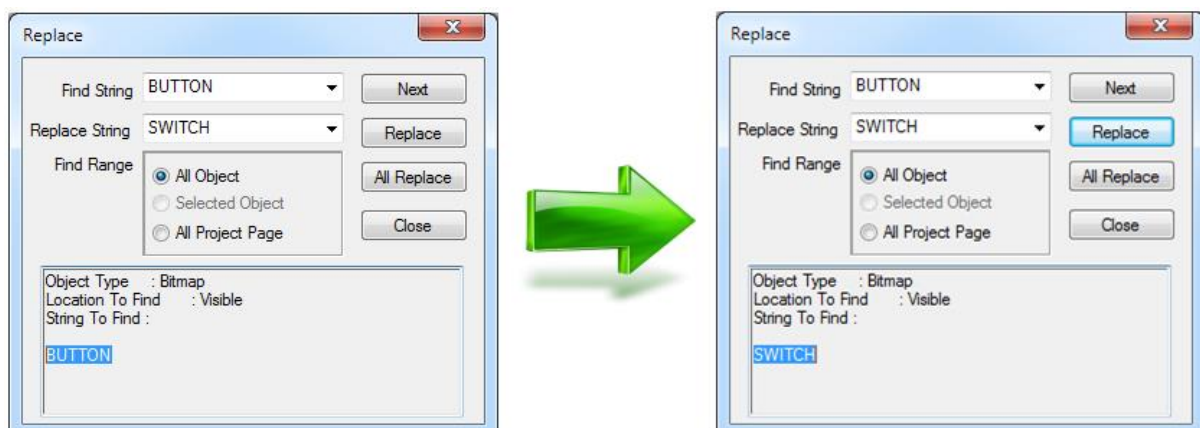
Tag Screen				
TAG NAME	TAG KIND	TAG ADDRESS	TAG TYPE	
ANA	Analog		Switch Down Tag	
DIG2	Digital		RAMP 1	
ANA	Analog		Tag Value	
ANA	Analog		Numeric	
DIG1	Digital		Visible	
DIG1	Digital		Visible	
DIG2	Digital		Visible	
DIG2	Digital		Visible	

6. Find / Replace

- 1) Find / Replace in **Project** ([Edit] → [Find]/[Replace])
Search for a String in a page or in the whole project. The string can be an Object name, Tag name, Script, etc.
- Find (Shortcut Key: Ctrl+F)
Find a String. Click on the Next button to find the next matching string.



- Replace (Shortcut key : Ctrl+H)
Find and replace a string. This operation can be applied to the current active page, or to all project pages. (Active Page/All Project Page).

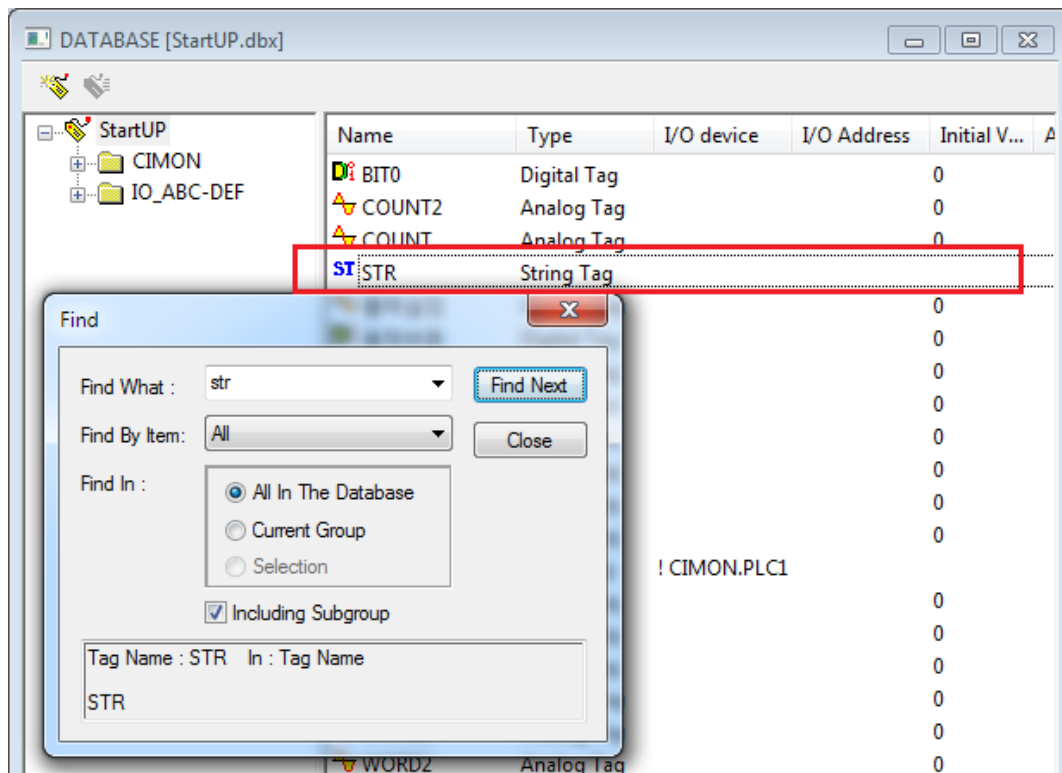


- Find String
Enter the search string.
- Replace String
Enter the replacement string.

2) Find / Replace in **Database** ([Edit] → [Find] or [Replace])

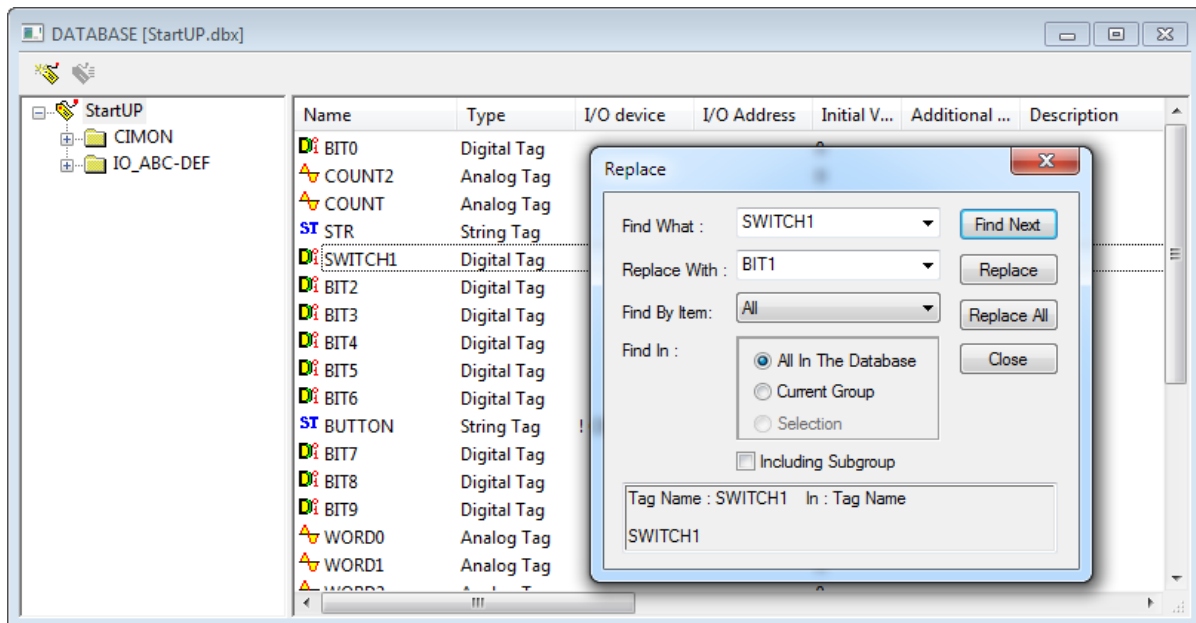
Search for a tag and replace it based on a Tag property (name, Description, Real/Virtual, I/O Device and I/O Address). In order to use this function, you must first open the **Database**, then select [Edit] → [Find] or [Replace].

- Find (Short key : Ctrl+F)
Search for a String in the **Database**.



- (1) All
Search for a Tag in all Databases.
- (2) Name
Search for a String (Tag) by Name.
- (3) Description
Search for a String (Tag) by Description.
- (4) Real / Virtual
Enter "1" to search Real Tags. Enter "0" to search Virtual Tags.
- (5) I/O Device
Search for a String in I/O Devices.
- (6) I/O Address
Search for a String in I/O Addresses.

- Replace (Shortcut key : Ctrl+H)
Search for String in Database, and replace with another String. You can search for the String in all Databases or in a selected Group. Click on Find Next to search for the next instance of the string.



- Find What
Enter the search string.
- Replace With
Enter the replacement string.
- Find By Item

All – Search and replace in all tag fields.

Name - Search and replace in the Name field.

Description - Search and replace in the Description field.

Real/Virtual Tag - Enter “1” to search Real Tags. Enter “0” to search Virtual Tags. Enter “1” in “Find What” and “0” in “Replace With” to change **Real Tags** into **Virtual Tags**.

I/O Device – Search and replace Strings in I/O Devices.

I/O Address – Search Strings in I/O Addresses

7. Editing Database in Excel

Database can be modified using Microsoft **Excel**.

1) Tag editing with Excel

❖ **Tag Properties in Excel**

Rows	Digital Tag	Analog Tag	String Tag	Description
A	Tag name	Tag name	Tag name	
B	Tag type(1)	Tag type (2)	Tag type (3)	
C	Description	Description	Description	
D	Real/Virtual tag	Real/Virtual tag	Real/Virtual tag	Real Tag = 1 Virtual Tag = 0
E	I/O Device	I/O Device	I/O Device	
F	I/O Address	I/O Address	I/O Address	
G	Initial value	Initial value	Initial value	
H				
I		Data type 0 : INT8 1 : INT16 2 : INT32 3 : UNIT8 4 : UNIT16 5 : UNIT32 6 : BCD8 7 : BCD16 8 : BCD32 9 : UBCD8 10 : UBCD16 11 : UBCD32 12 : Float	Length of String	
J				
K				
L				
M		Scale		Use Scale = 1 Not use Scale = 0
N		Min. value of Eng. Data		
O		Max. value of Eng. Data		
P		Min. value of Raw Data or Scale value		Scale Value when "Use Scale" is enabled
Q		Max. value of Raw Data or Offset value		Offset Value when "use Scale" is disabled
R	Save last status when closing	Save the last status when closing	Save last status when closing	Use = 1 Not use = 0

If you copy (Ctrl+C) a Tag from the Xpanel Database and paste (Ctrl+V) it into Excel, the data will be displayed as shown below.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	WORD0	2			1	CIMON.PLD0000	0		4	0		0	0	0	65535
2	BIT0	1			1	CIMON.PLM0000	0								
3															
4															
5															
6															

EX) Create Multiple Tags in Excel

- (1) Create a Tag with a Tag name that ends with a number, and copy it into Excel (WORD0).
- (2) Create consecutive Tag Names.
Click on "WORD0", and drag it downward (Ex: WORD0 ~ WORD10).

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	WORD0	2			1	CIMON.PLD0	0		4	0		0	0	0	65535
2															
3															
4															
5															
6															
7															

- (3) Click on all **data columns** except column A (Tag Name), and drag them downward.

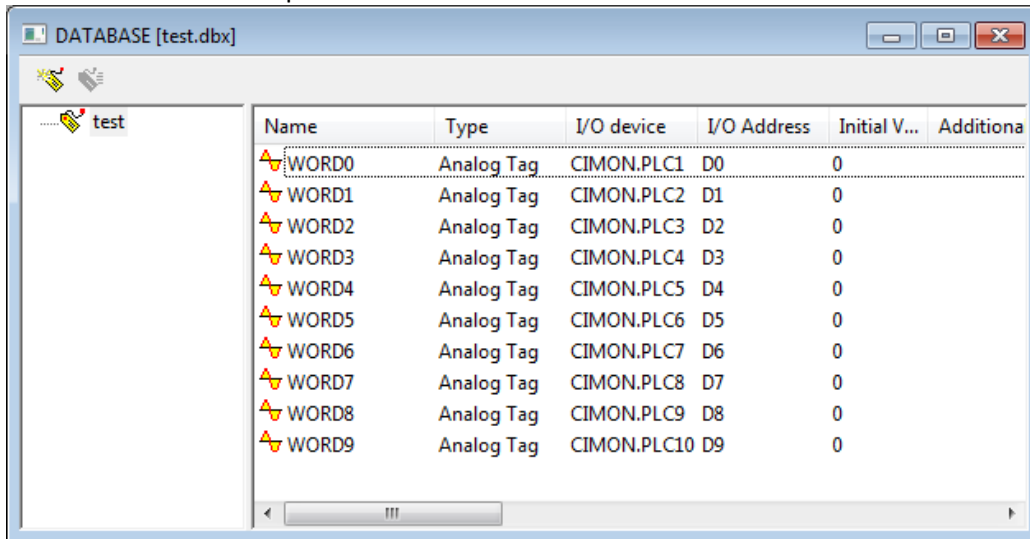
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	WORD0	2			1	CIMON.PLD0	0		4	0		0	0	0	65535
2															
3															
4															
5															
6															
7															

※ All data will be the **same** except in column A.

- (4) Copy the Tags from Excel into the Xpanel Database
After the Tags have been created, select all Columns and rows, and copy them as shown below.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	WORD0	2			1	CIMON.PLD0	0		4	0		0	0	0	65535
2	WORD1	2			1	CIMON.PLD1	0		4	0		0	0	0	65535
3	WORD2	2			1	CIMON.PLD2	0		4	0		0	0	0	65535
4	WORD3	2			1	CIMON.PLD3	0		4	0		0	0	0	65535
5	WORD4	2			1	CIMON.PLD4	0		4	0		0	0	0	65535
6	WORD5	2			1	CIMON.PLD5	0		4	0		0	0	0	65535
7	WORD6	2			1	CIMON.PLD6	0		4	0		0	0	0	65535
8	WORD7	2			1	CIMON.PLD7	0		4	0		0	0	0	65535
9	WORD8	2			1	CIMON.PLD8	0		4	0		0	0	0	65535
10	WORD9	2			1	CIMON.PLD9	0		4	0		0	0	0	65535

Paste them into the Xpanel Database.



The screenshot shows a window titled 'DATABASE [test.dbx]'. On the left, there is a tree view with a folder icon and the name 'test'. The main area displays a table with the following data:

Name	Type	I/O device	I/O Address	Initial V...	Additional
WORD0	Analog Tag	CIMON.PLC1	D0	0	
WORD1	Analog Tag	CIMON.PLC2	D1	0	
WORD2	Analog Tag	CIMON.PLC3	D2	0	
WORD3	Analog Tag	CIMON.PLC4	D3	0	
WORD4	Analog Tag	CIMON.PLC5	D4	0	
WORD5	Analog Tag	CIMON.PLC6	D5	0	
WORD6	Analog Tag	CIMON.PLC7	D6	0	
WORD7	Analog Tag	CIMON.PLC8	D7	0	
WORD8	Analog Tag	CIMON.PLC9	D8	0	
WORD9	Analog Tag	CIMON.PLC10	D9	0	

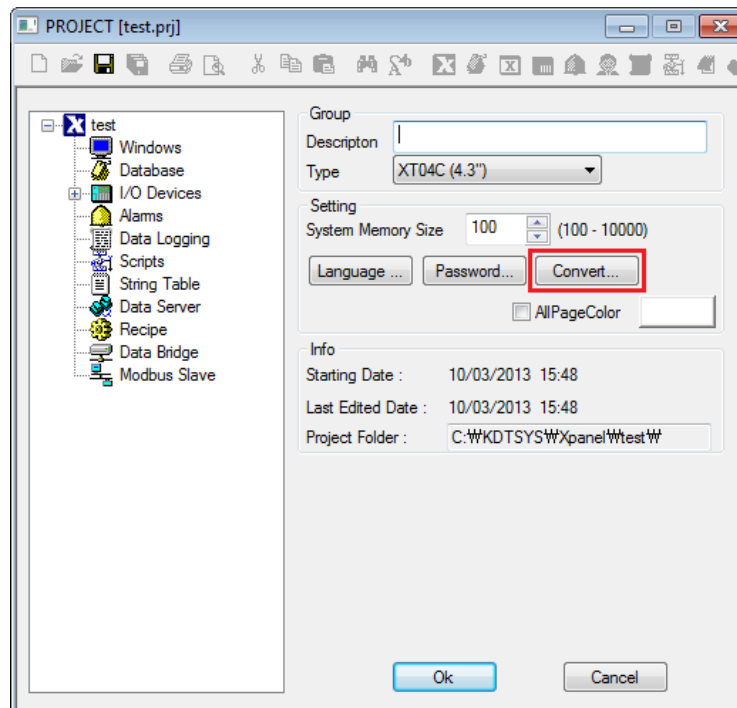
The names and properties of the copied tags will be saved in the Xpanel Database.

8. Converting the Project Model (the **Screen Size** of the Project)

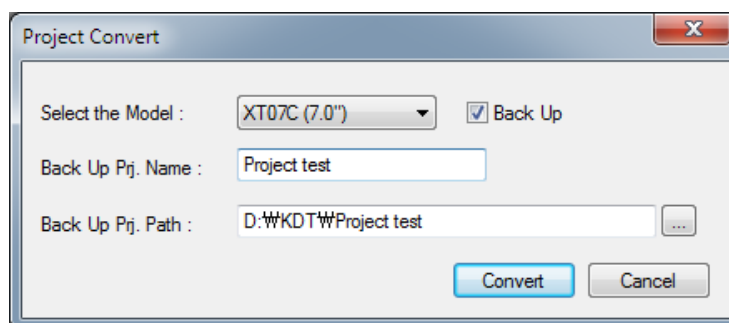
Convert the **current project screen** to another size. For example, if the current project is for XT04 (4" screen size), you can convert it to XT07 (7" screen size). The monitor size will be converted automatically (if the user zooms-in on the BMP image object, it will be displayed at lower resolution).

1) Converting the Screen Size of a Project.

(1) Go to [Tools] → [Project] → [Convert]



(2) Select the Desired Model(Screen Size)



- **Select the Model**
Select the model (Screen Size) that you want to convert to.
 - **Back Up Project Name**
Back up the current Project file. You can change the project name.
Enable the Back Up feature before entering the Project Name.
 - **Back Up Project Path**
Enter the Back-up file location.
Click on Convert to convert the project.
All pages and objects will be converted and displayed in XpanelDesigner.
- ※ Some Objects may be **distorted** in **size**. Please check each Object's size after conversion.

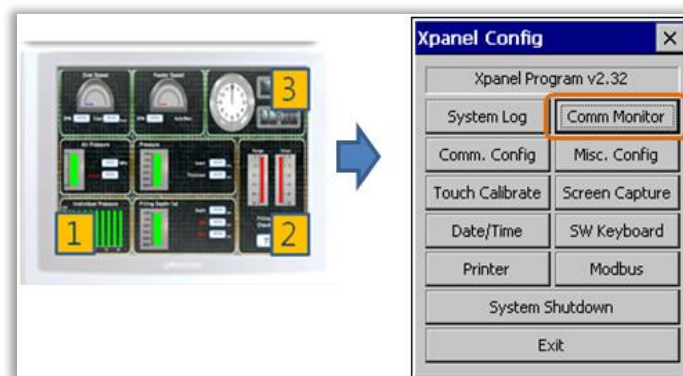
9. Communication Monitoring

Comm Monitor is used to monitor the **Communication status** between Xpanel and the Device (PLC). This allows the Comm. frame, Comm status and quality to be monitored. Generally, both Xpanel and the PLC exchange [TX] and [RX] frames. If there is no [RX] response to a [TX], the [TX] frame is sent back to the PLC after the **Retry Time**. If there is still no [RX] response to a series of [TX] requests, it may constitute a **Communication Failure**.

1) How To Monitor Communication Status

(1) Open "Xpanel Config" feature on Xpanel Device

If you touch the three corners of the Xpanel display in the order shown below, the **Xpanel Config** Dialog box will appear. Click on Comm Monitor.

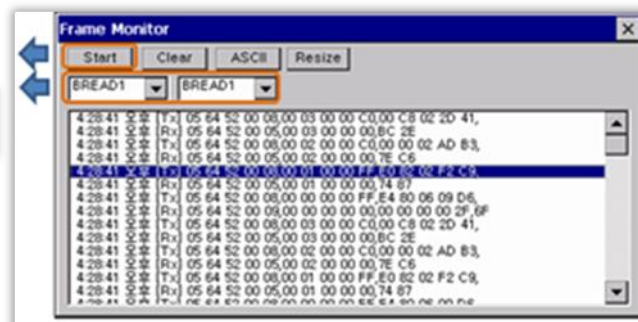


(2) Start Monitoring

Select the desired I/O Device, then click **Start** to monitor the Comm. frame. If communication is **normal**, [TX] and [RX] frames will be shown alternating with each other. In case of a **Communication Failure**, only [TX] frames will be displayed (See the PLC protocol manual for the exact Communication Status).

Start Comm.
Monitoring

Select I/O Device



Chapter 12. Simulator

1. Simulator

The Simulator is used to test projects currently under development by running them in a virtual environment. This allows rapid, efficient testing without using Xpanel or a PLC.

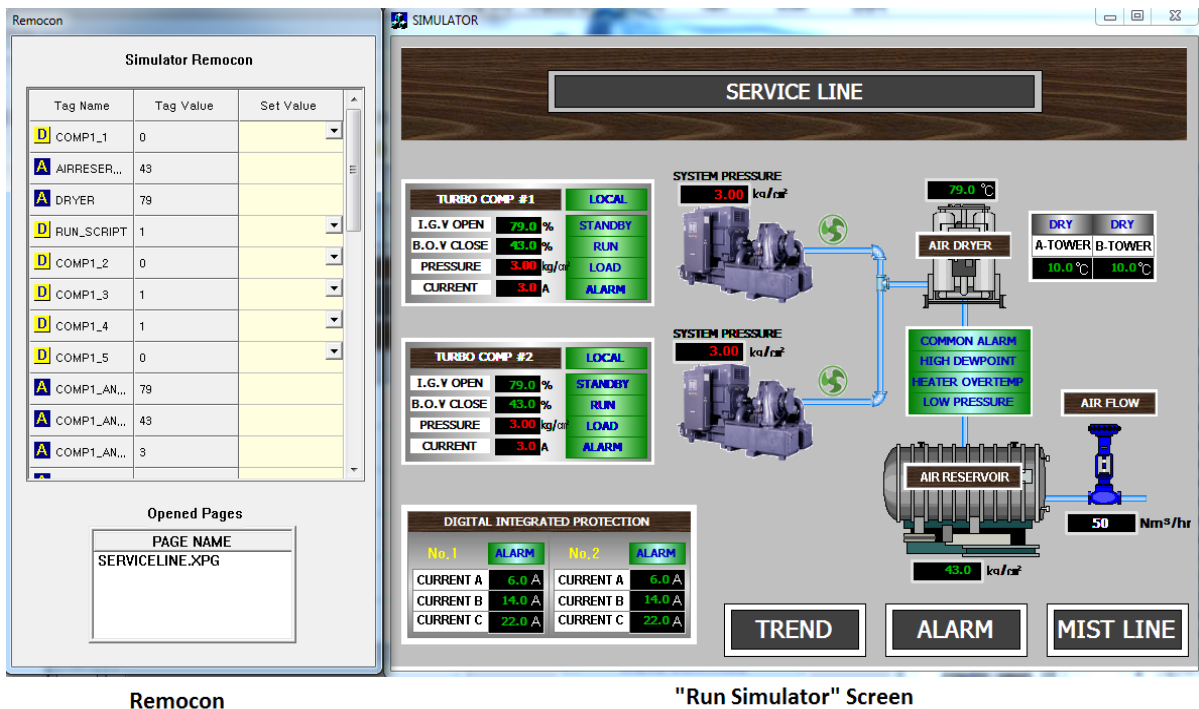
(1) Configuration of Simulator

The Simulator runs on a PC, and does not need Xpanel or a PLC. It uses Virtual Tags. Tag value can be modified randomly by using the Simulator function. The Simulator operates exactly like Xpanel, with a few exceptions.

(2) Run Simulator (Shortcut Key F5 or F6)

Click [Tools] → [Run Simulator] or press “F5” to run the simulator with the starting page.

Click [Tools] → [Run Simulator with active page] or press “F6” to run the simulator with the current page.



The screenshot displays the 'Remocon' simulator interface. On the left, a 'Simulator Remocon' window shows a list of virtual tags with their names, values, and set points. Below this, 'Opened Pages' lists 'SERVICE LINE.XPG'. The main 'SIMULATOR' window shows a detailed process diagram for a 'SERVICE LINE'. It includes two 'TURBO COMP' units, an 'AIR DRYER', an 'AIR RESERVOIR', and an 'AIR FLOW' meter. Each component has associated status indicators (LOCAL, RUN, ALARM, LOAD) and numerical data. A 'DIGITAL INTEGRATED PROTECTION' section at the bottom left shows alarm status for two units. At the bottom right, there are buttons for 'TREND', 'ALARM', and 'MIST LINE'.

Tag Name	Tag Value	Set Value
COMP1_1	0	
AIRRESER...	43	
DRYER	79	
RUN_SCRIPT	1	
COMP1_2	0	
COMP1_3	1	
COMP1_4	1	
COMP1_5	0	
COMP1_AN...	79	
COMP1_AN...	43	
COMP1_AN...	3	

TURBO COMP #1		LOCAL
I.G.V OPEN	79.0 %	STANDBY
B.O.V CLOSE	43.0 %	RUN
PRESSURE	3.00 kg/cm²	LOAD
CURRENT	3.0 A	ALARM

TURBO COMP #2		LOCAL
I.G.V OPEN	79.0 %	STANDBY
B.O.V CLOSE	43.0 %	RUN
PRESSURE	3.00 kg/cm²	LOAD
CURRENT	3.0 A	ALARM

DIGITAL INTEGRATED PROTECTION			
No. 1	ALARM	No. 2	ALARM
CURRENT A	6.0 A	CURRENT A	6.0 A
CURRENT B	14.0 A	CURRENT B	14.0 A
CURRENT C	22.0 A	CURRENT C	22.0 A

When the Simulator is run, the Simulator window appears on the left side, and the page screen runs on the right side. Use the mouse to interact with the page screen. The Simulator window displays Tags which are used both in the current page and in other areas (Script, Alarm and etc.).




(3) Virtual Control by Simulator Remote Control

- Changing Analog Tag values (Address value)

Simulator Remocon		
Tag Name	Tag Value	Set Value
 A1	28	1000
 BIT1	0	

Enter the desired value into the [Set Value] field of the Simulator. [Tag Value] displays the current Tag value.




- Changing Digital Tag values (Address value)

Tag Name	Tag Value	Set Value
 BIT1	0	0
 BIT2	0	1
 BIT3	0	

Select 0 or 1 by clicking on the [Set Value] Combo Box in the Simulator.

- Changing
value)

String values (Address

 IO_CIMON,S...	0	
 IO_CIMON,S...	0	
 STR	abc	ABCD

Enter the desired String into the [Set Value] field of the Simulator.

[Tag Value] displays the current String value.

When entering an Address directly in the Database, the Tag name is displayed as [IO_ 'DeviceName'.ST_ 'StationName'. 'Address'].

(4) Limitations of the Simulator

Some functions of Xpanel do not operate on the Simulator.

The Trend, Alarm History, Scroll Message, Recipe and Data Logging functions are not displayed on the Simulator.

Those functions work with real tags after, the project file is downloaded to Xpanel.

Chapter 13. Switch/Lamp

1. Switch/Lamp

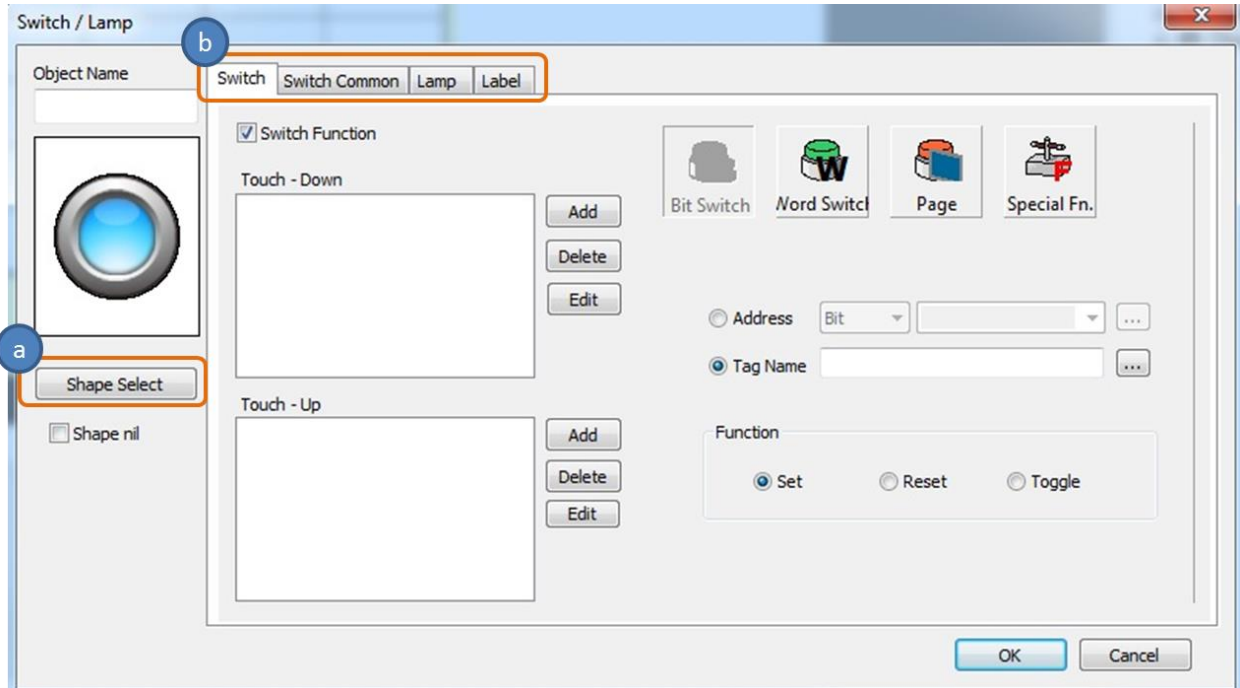
Switch/Lamp is a convenient feature for creating switches and lamps using a library, and for adding commands to a switch function.

1) Create a Switch/ Lamp

(1) Switch/Lamp Selection

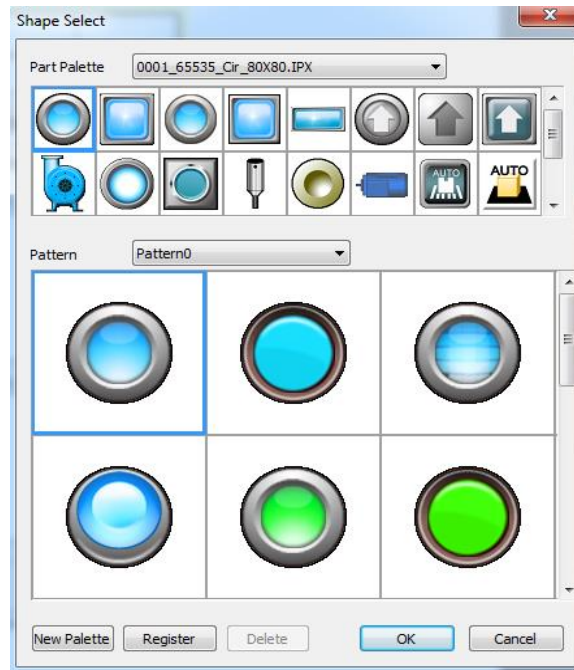
Click [Draw] → [Switch/Lamp]. Click on the page where the Switch/Lamp will be placed.

The Switch/Lamp Configuration dialog box will appear.



2) Switch/Lamp Settings

(1) Shape Select (without using the Lamp feature)



Select Shape can work in two different ways, depending on whether the Lamp feature is disabled or enabled. When the Lamp feature is disabled, only the Switch Shape will be selected. A complementary color is used to indicate that the Switch has been pressed. (When the Lamp feature is enabled, the user can select images to display to indicate the status.)

(2) Switch Function

- Touch-Down

The function that is activated when the Switch is pressed down.

- Touch-Up

The function that is activated when the Switch is released.

☒ Switch Function

Touch - Down

Bit Switch	BIT1
Bit Switch	BIT2

Add Delete Edit

Touch - Up

Bit Switch	BIT1
Bit Switch	A1

Add Delete Edit

A. Bit Switch

- Set

The Bit Tag or Address value is 1 (ON)

- Reset

The Bit Tag or Address value is 0 (OFF)

☐ Address ☐ Tag Name

Bit VIRTUAL TAG ...

BIT1 ...

Function

☒ Set ☐ Reset ☐ Toggle

B. Word Switch

- Switch Operation

1. Write Analog Value

Write an Analog value to a Tag or Address.

a. Address/Tag name
Select a Tag or Address

b. Value
Hexa : Write a Tag value in Hex format.
Using Tag: Use the value of another Tags or Address as the Write Value.

2. Tag Operation

Write value or operation results from other tags or addresses to the assigned tag.
+, -, AND, OR, XOR **Operators** are supported.

- a. Page
Move other pages, or open Popup and Keypad pages.
- b. Special Function
Write Commands, Key Inputs and Momentary values by means of the Switch function.

(3) Switch Common

Switch **Switch Common** Lamp Label

☒ Use Touch

Touch Condition Setting

Condition: (BIT0==1&&BIT1==1) || (BIT2==1) [Addr] [Tag]

☒ Use Security Function

Security Setting

Security Lv. 5 (1~10)

■ Use Touch

Logical Operations can be used to control touch features. When the result of a Logical Operation is True, the touch feature operates; otherwise it doesn't.

■ Use Security Function

The **Security Level** can be set for the Touch feature. The Security Level has a range from **1** to **10**. Level 1 has the **lowest** authority, and Level 10 has the **highest** authority.

(4) Lamp

Switch / Lamp

Object Name: Object1

Switch Switch Common **Lamp** Label

☒ Enable Lamp

Tag Type

☐ Digital Tag

☒ Analog Tag

Number of States: 4

Condition of State: Change by Bit Value

Tag Registration

Address	Tag Name	Value	...
<input type="radio"/> Address1	Word	VIRTUAL TAG	...
<input checked="" type="radio"/> Tag Name1	ANA1		...
<input type="radio"/> Address2	Bit	VIRTUAL TAG	...
<input checked="" type="radio"/> Tag Name2	BIT2		...
<input type="radio"/> Address3	Bit	VIRTUAL TAG	...
<input checked="" type="radio"/> Tag Name3	BIT3		...
<input type="radio"/> Address4	Bit		...
<input checked="" type="radio"/> Tag Name4			...

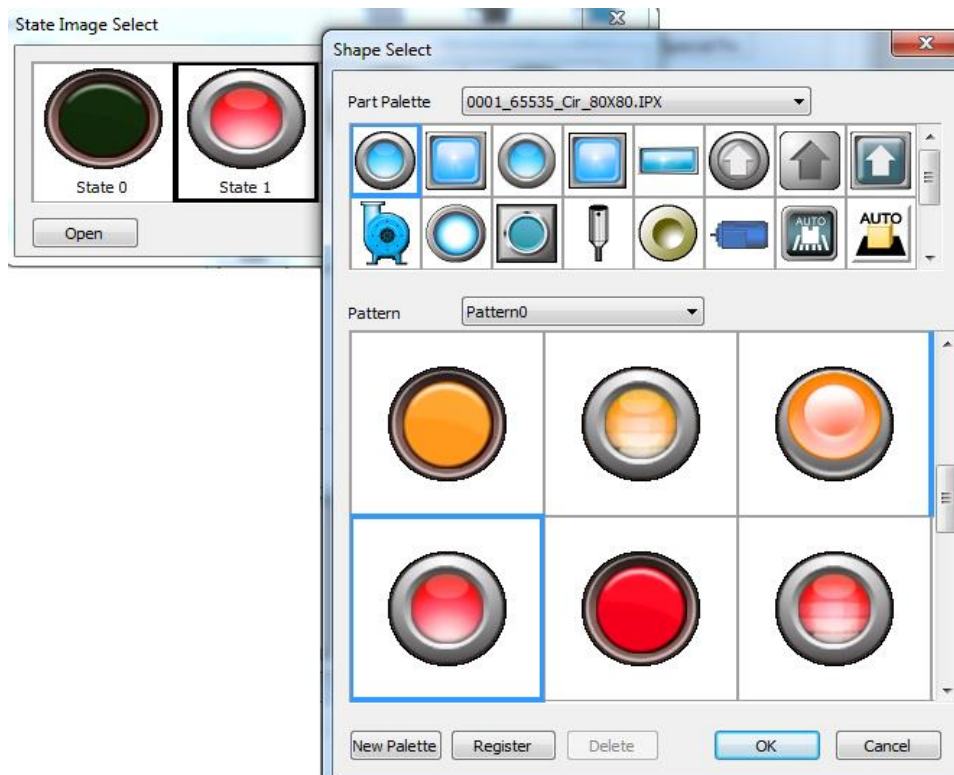
Shape Select

☐ Nil Shape

Change the lamp appearance based on a condition.

If Enable Lamp is not selected, Xpanel will only show switch designs.

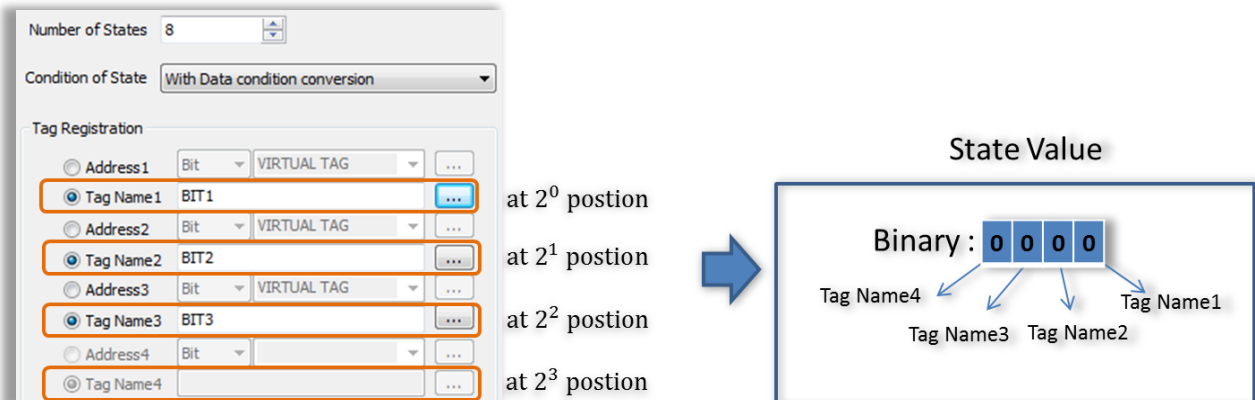
- A. Enable Lamp
Click [Enable Lamp] to activate the Lamp **configuration lists**.
- B. Tag Type
Select a Tag type to control the Lamp State.
- C. Number of State
Set the number of Lamp States that will be displayed on the page.
- D. Condition of State
Select the type of data that will control the lamp state.
(Data Input or Bit value)
- E. Shape Select
Select the Lamp Shape and State.



(A) For a Digital Tag

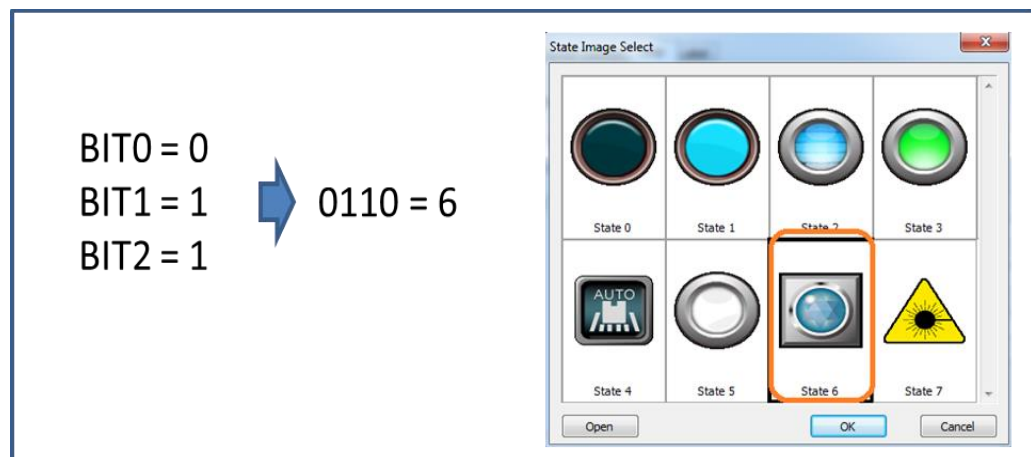
■ State Change by Data Input

Each digit of a **Binary** number is set by the contents of a Bit Tag or **Tag Address**. The Lamp State is set by the resulting Binary value.



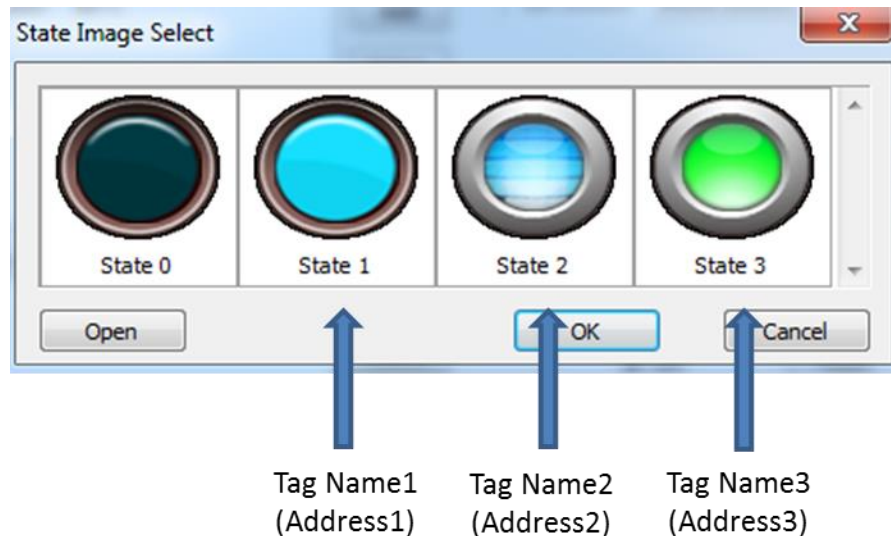
Since a Digital Tag has two states, 0 and 1, 3 tags are needed to display 8 states ($2 \times 2 \times 2 = 8$). In the example shown above, the bit from **Tag Name1** will be placed at the 2^0 position, the **Tag Name2** bit will be at the 2^1 position, the **Tag Name3** bit will be at the 2^2 position and the Tag Name 4 bit will be at the 2^3 position. This allows each Digital Tag to set a digit of the Binary number.

Ex) Setting Tag Name1 = 0, Tag Name2 = 1 and Tag Name3 = 1, the combined of **Binary value** of 0110 is 6 in decimal. This displays State 6 on the Screen.



■ State Change by Bit Value

The state of the device is set by the combined contents of the Bit Tags or **Tag** Addresses. When all Tags are 0, State 0 is displayed. State 1 is displayed when Tag Name 1 = 1, Tag Name 2 = 1 and Tag name 3 = 1. If both Tag Name 1 and Tag Name 2 are 1, the **lower State** takes priority, so State 1 will be displayed.



(B) For an Analog Tag

■ State selection by Data Input

States can be displayed based on an Analog Tag or Address value. This process takes a single Analog tag, and displays up to 256 States.

■ State Selection by Bit Change

States can be selected based on an Analog Tag or Address value. Since **Analog data** consists of a **single word**, a total of **16 Bits** can be used to display States. When all Bits are 0, State 0 is displayed. Each state requires 16 bits; a **total of 17 States** can be displayed. At least one Bit must be ON; the lower Bit will be displayed if multiple Bits are ON.

WORD = 16Bit = 0000 0000 0000 0000

Each Bit takes each State

If Analog Tag value is 3, State 1 and State 2 are ON, but the lower State, State 1, takes priority.

0000 0000 0000 0110



(5) Label

Enter a name to be used for the Switch, based on its state.

A. State Select

Select the state in order to display the label.

B. Direct Input

Enter the name which will be displayed for the selected State.

C. Input type

- Direct Input: Enter the name (word) directly
- String Table: Select a word (string) from the **String Table**.

D. String Table Setup

This feature is available when **String Table** is selected as the **[Input Type]**.

Strings must have already been saved in the String Table.

When a String Group and String are selected for the the State, the String will be displayed in **[Preview]**.

E. Font Set

Fonts can be configured for Font type, size, color etc.

F. Apply Label To All State

The current **Label setting** will be applied to all States.

G. Apply Font To All State


The current **Font setting** will be applied to all States.

Chapter 14. Alarms

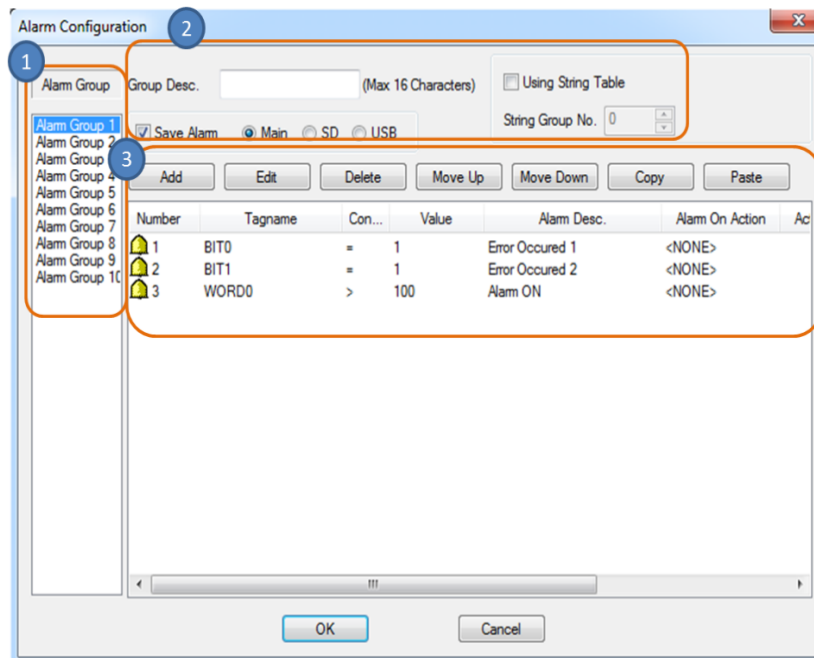
1. Alarms

Alarms are used to monitor tags or address and display warning messages or information about specific operating conditions. Alarm messages can be displayed in the Alarm summary or as Scroll messages.

2. Alarm Configuration

Select [Tools] → [Alarm] or click on the Alarm icon  in the Drawing Toolbar.

You can set alarm conditions and actions in Alarm Configuration.



1) Alarm Group

Alarms can be organized into groups based on the types of alarms. There is no limit to the number of alarms that can be registered in one group.

2) Alarm Option

(1) Alarm Description

Enter a Description for each Alarm. The maximum number of characters is 16.

(2) Using String Table

To use a String Table to display Alarm messages, select “Using String Table”

(3) Save Alarm

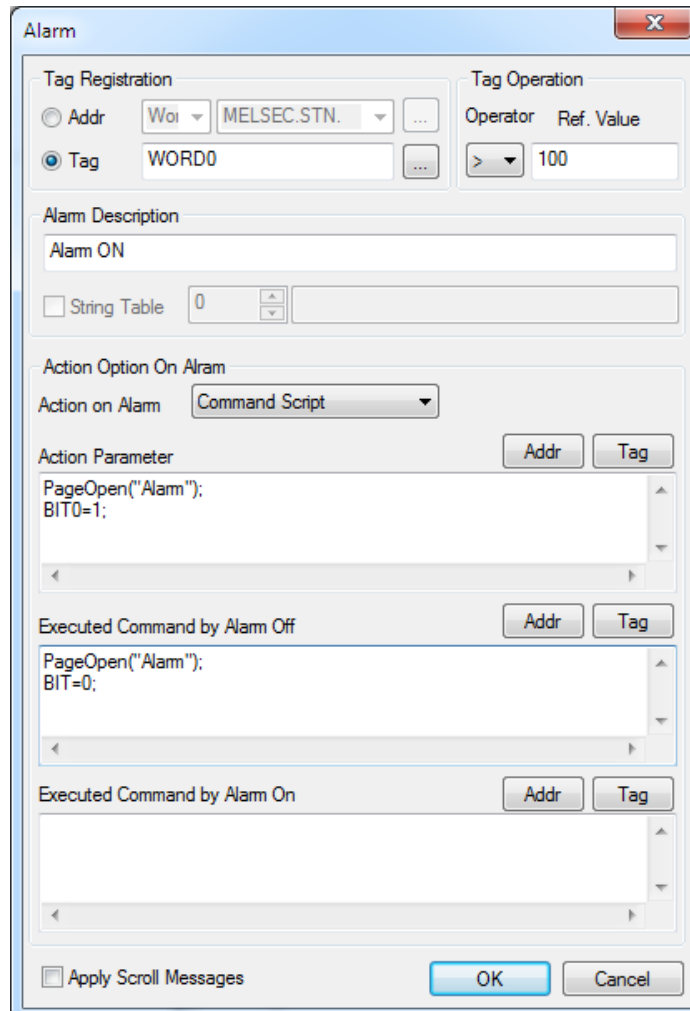
Maximum 500 Alarm History entries can be kept and displayed again when Xpanel device is turned Off → On. If the number exceeds 500, the oldest item is deleted and current item is saved. To save an Alarm History, it must be converted to CSV format and saved (either to Xpanel's Main memory, SD memory or USB memory).

3) Edit Alarm Registration

Click [Tools] → [Alarms] to edit an Alarm. You can copy alarms and paste them to Excel, or copy Excel data and paste it to Alarm feature back, in much the same way as you can copy and paste Tag in Database.

- Add

Add an alarm.



The screenshot shows the 'Alarm' configuration dialog box. It has a title bar with a close button. The dialog is divided into several sections:

- Tag Registration:** Contains radio buttons for 'Addr' and 'Tag'. The 'Tag' option is selected. The 'Addr' field shows 'W01' and 'MELSEC.STN.'. The 'Tag' field shows 'WORD0'.
- Tag Operation:** Contains 'Operator' and 'Ref. Value' fields. The 'Operator' is set to '>' and the 'Ref. Value' is '100'.
- Alarm Description:** A text field containing 'Alarm ON'.
- String Table:** A checkbox labeled 'String Table' is unchecked, followed by a numeric field set to '0'.
- Action Option On Alarm:** A dropdown menu set to 'Command Script'.
- Action Parameter:** A text area containing 'PageOpen("Alarm");' and 'BIT0=1;'. There are 'Addr' and 'Tag' buttons to the right.
- Executed Command by Alarm Off:** A text area containing 'PageOpen("Alarm");' and 'BIT=0;'. There are 'Addr' and 'Tag' buttons to the right.
- Executed Command by Alarm On:** An empty text area with 'Addr' and 'Tag' buttons to the right.
- Footer:** A checkbox labeled 'Apply Scroll Messages' is unchecked, followed by 'OK' and 'Cancel' buttons.

(1) Tag Registration

Enter the alarm condition. When a Tag or Address meets the alarm condition, the Alarm will be ON. Available operators (condition) are '=', '>' and '<'.

(2) Alarm Description (Content)

Enter the warning message which will be displayed when the Alarm occurs. Alarm Descriptions can be seen in the Alarm Summary or the Scroll Message.

(3) Action Option on Alarm

When an alarm is generated, two types of action are possible:

■ Open Page

Open the designated Page when the alarm occurs. Without needing to use a command Script such as "PageOpen()", the user can just add a page name from the page list. Just enter the page name without any extension.

Ex) In case of "ALARM.PGX", write "ALARM".

■ Command Script (Expression)

When the Alarm is generated, a Command Expression is executed.

(4) Action Parameter

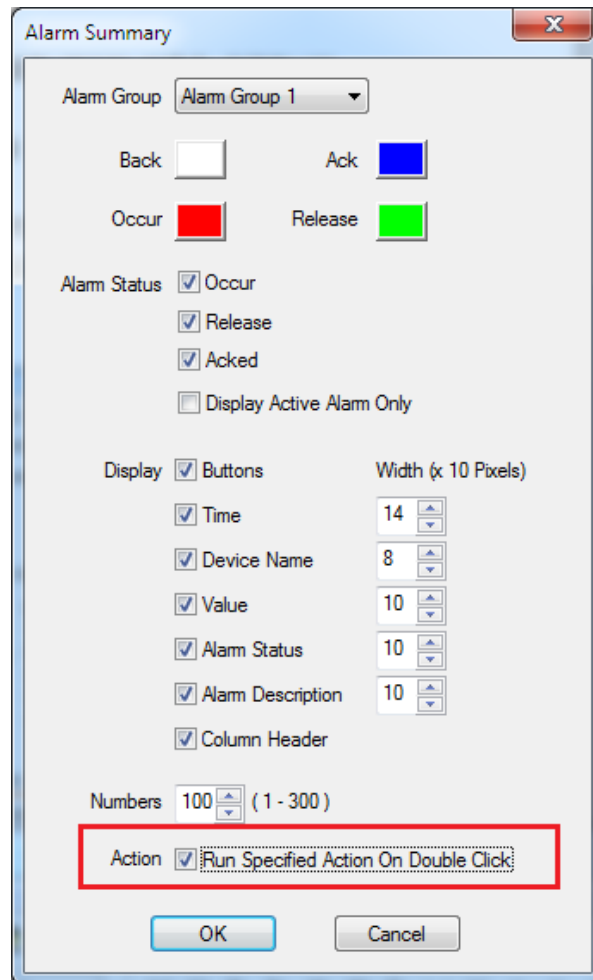
Enter the Command Expression to be run when the Alarm is ON.

(5) Executed Command by Alarm Off (Command Expression)

When the Alarm is off, Command Expression is executed.

(6) Executed Command by Alarm On (Command Expression)

Enter the Command Expression to be run when the alarm is ON. This functions is related to the Alarm Summary; Run Specified Action On Double Click in the Alarm Summary must be selected in order for it to operate.



The 'Alarm Summary' dialog box is shown with the following settings:

- Alarm Group: Alarm Group 1
- Back: [White square]
- Ack: [Blue square]
- Occur: [Red square]
- Release: [Green square]
- Alarm Status:
 - ☒ Occur
 - ☒ Release
 - ☒ Acked
 - ☐ Display Active Alarm Only
- Display:
 - ☒ Buttons
 - ☒ Time: 14
 - ☒ Device Name: 8
 - ☒ Value: 10
 - ☒ Alarm Status: 10
 - ☒ Alarm Description: 10
 - ☒ Column Header
- Numbers: 100 (1 - 300)
- Action: ☒ Run Specified Action On Double Click

Buttons: OK, Cancel

Click on [ACK] on the Alarm Summary page, or double-click the Alarm message in order to run the Command.

Alarm Time	Device	Value	Alarm Type	Description	
2013/05/14 14:34:48	0000000000	0.0000	Clear	Error 1	
2013/05/14 14:34:44	0000000000	1.0000	Warning	Error 1	
2013/05/14 14:34:05	0000000200	12.0000	Clear	Alarm	
2013/05/14 14:34:00	0000000200	1000.0000	Warning	Alarm	Double Click

Buttons: Stop, Stamp, ACK, Delete, Setup, Config

(7) Apply Scroll Messages

When the Alarm is On, Scroll messages will be displayed on the screen. If this feature is applied to alarms for all pages, Alarm contents can be viewed without looking at the Alarm Summary window.

■ How to use Scroll Messages

A. Select Apply Scroll Messages

Select the Alarm and click on Apply Scroll Messages.

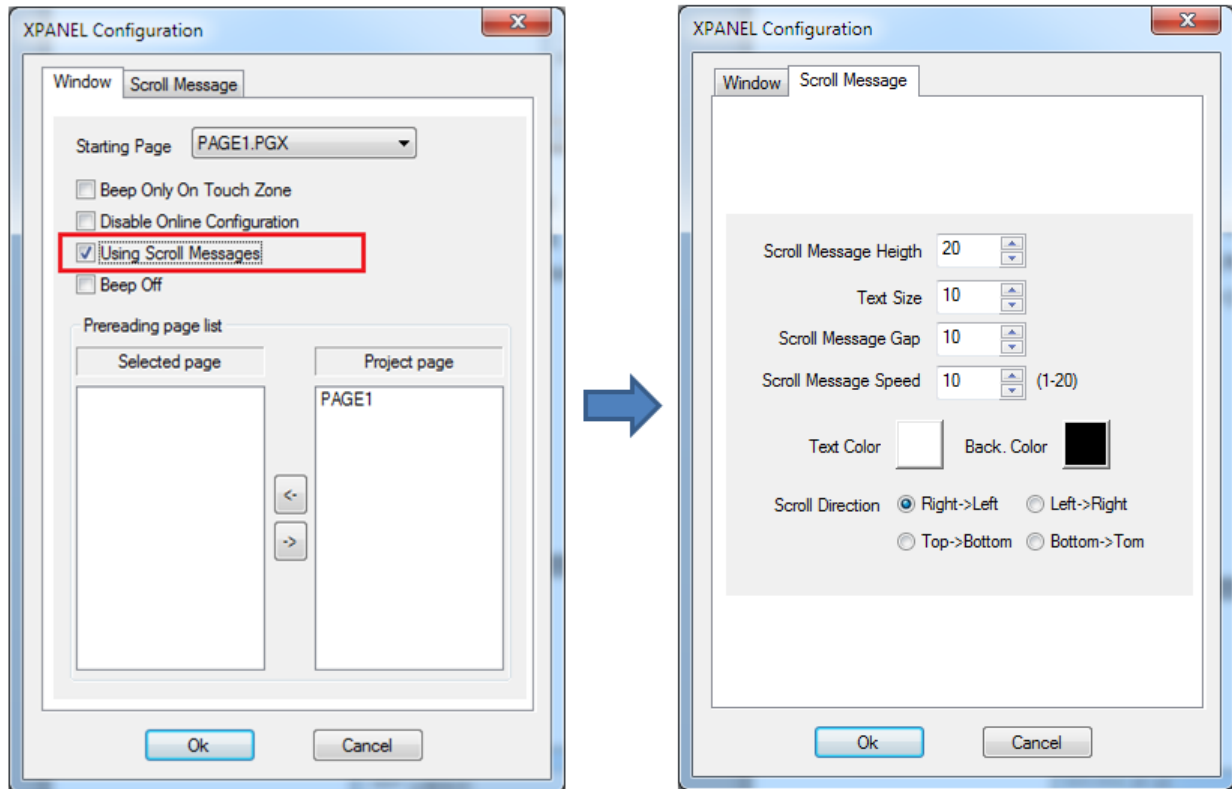
The screenshot shows the 'Alarm' configuration window with the following details:

- Tag Registration:**
 - Addr: Bit, Virtual Tag
 - Tag: DIG1
- Tag Operation:**
 - Operator: >
 - Ref. Value: 1
- Alarm Description:** Error 1
- String Table:** 0
- Action Option On Alarm:** <None>
- Action Parameter:** (Empty text area)
- Executed Command by Alarm Off:** (Empty text area)
- Executed Command by Alarm On:** (Empty text area)
- Bottom Section:**
 - ☒ Apply Scroll Messages (highlighted with a red rectangle)
 - OK button
 - Cancel button

B. The Using Scroll Messages option

In order to use Scroll Messages on the Xpanel device, You must select Using Scroll Messages in [XPANEL Configuration].

Click [Tools] → [XPANEL Configuration].




When you select Using Scroll Messages, it brings up the [Scroll Message] Tab.

C. Scroll Message

The Scroll Message will be displayed as shown below.

Alarm Time	Device	Value	Alarm Type	Description
2013/05/14 16:35:27	0000000100C	0.0000	Clear	Error 2
2013/05/14 16:35:25	0000000000C	0.0000	Clear	Error 1
2013/05/14 16:35:21	0000000000C	1.0000	Warning	Error 1
2013/05/14 16:35:16	0000000100C	1.0000	Warning	Error 2
2013/05/14 16:35:11	0000000200C	200.0000	Warning	Alarm



Stop Stamp ACK Delete Setup Config

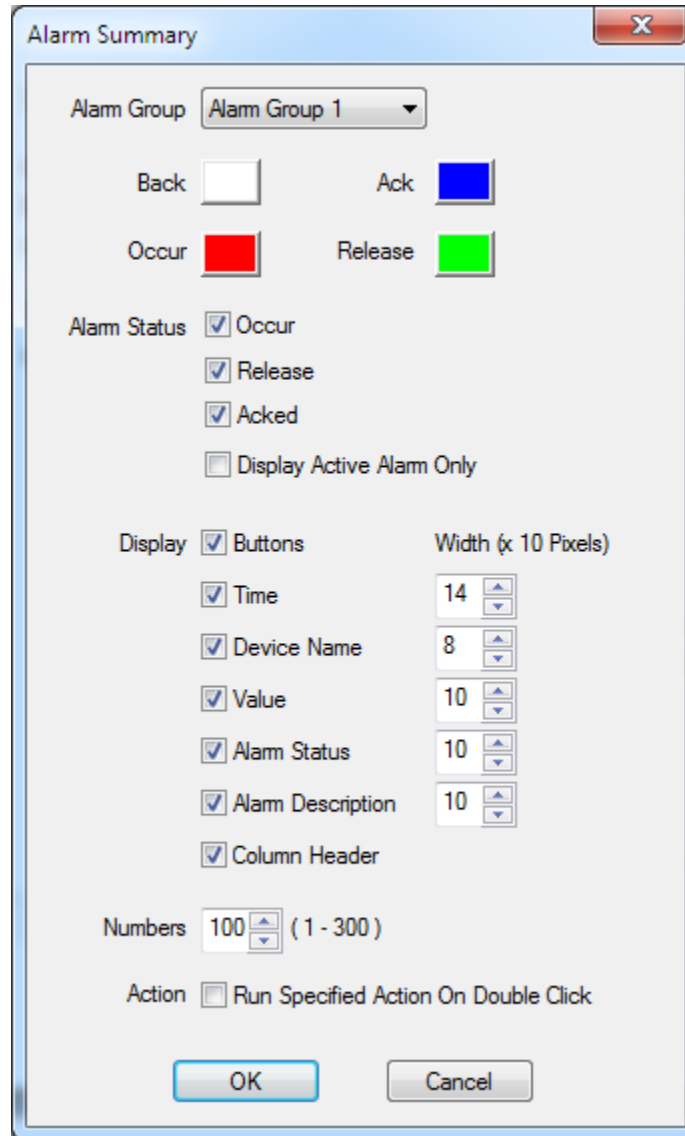
2013/05/14 16:35:11 Alarm 2013/05/14 16:35:11 Alarm 2013/05/14 16:35:11 Alarm 2013/05/14 16:35:11 Alarm 2013/05/14 16:35:11 Alarm

3. Alarm Summary

The Alarm Summary displays a summary of all Alarm information on the page. The Alarm Summary Object displays it on the screen. Up to 500 Alarm messages entries can be displayed. If the number exceeds 500, the oldest item is deleted and current item is displayed.

Click [Draw] → [Alarm Summary] then click on the page, and the Alarm Summary Configuration window will appear.

1) Alarm Setting



The **Alarm Summary** dialog box is used to configure the alarm summary window. It includes the following settings:

- Alarm Group:** A dropdown menu currently set to "Alarm Group 1".
- Color Selection:** Four color swatches for "Back" (white), "Ack" (blue), "Occur" (red), and "Release" (green).
- Alarm Status:** A group of checkboxes where "Occur", "Release", and "Aked" are checked, and "Display Active Alarm Only" is unchecked.
- Display:** A section with checkboxes for "Buttons", "Time", "Device Name", "Value", "Alarm Status", "Alarm Description", and "Column Header", all of which are checked. To the right, a "Width (x 10 Pixels)" column shows values for each: 14, 8, 10, 10, and 10.
- Numbers:** A numeric input field set to "100" with a range of "(1 - 300)".
- Action:** A checkbox for "Run Specified Action On Double Click" which is currently unchecked.
- Buttons:** "OK" and "Cancel" buttons at the bottom.

(1) Alarm Group

Select the Alarm Group to be displayed; only alarms from that group will appear in the summary window.

(2) Color Setting of Alarm Summary

Select the colors to be used in Alarm Summary window functions, such as Background, Ack (Acknowledgment), Occur (Alarm On), and Release (Alarm OFF).

(3) Alarm Status

Select the Alarm statuses which will be displayed in the Alarm Summary.

- Occur (Alarm On): When the Alarm is ON, "Warning" will be displayed in red (default) on the screen.
- Release (Alarm OFF): When the Alarm is Off, "Clear" will be displayed in green (default) on the screen.
- Ack (Alarm Acknowledge): The user acknowledges the Alarm by clicking on the Ack button or double clicking on the Alarm Message. The message color changes to blue (default), but the Alarm status doesn't change.
- Display Active Alarm Only: Display only messages for alarms that are currently ON. When an Alarm is Off, its Alarm Messages will not be shown on the screen.

(4) Display

Select the items which will be displayed in the Summary Window

- Buttons: these are used to control alarms; they appear at the bottom of the summary window.



A. Stop : Stop displaying messages.

B. Stamp : Record the time when the alarm was viewed.

Alarm Time	Device	Value	Alarm Type	Description
2013/05/14 16:35:27	00000001000	0.0000	Clear	Error 2
2013/05/14 16:35:25	00000000000	0.0000	Clear	Error 1
2013/05/14 16:35:21	00000000000	1.0000	Warning	Error 1
2013/05/14 16:35:16	00000001000	1.0000	Warning	Error 2
2013/05/14 16:35:11	00000002000	200.0000	Warning	Alarm

< Alarm Summary Window >

C. ACK: Check the Alarm information. If Run Specified Action on Double Click is selected, the specified Command expression will run.

D. Delete: Delete the alarm message from the Alarm Summary Window.

※ Alarm status will be maintained even if the Alarm Message is deleted.

E. Setup



F. Config : Open the Xpanel Config window.



2) Alarm Summary Object

After you have finished the Alarm Summary Configuration, the Alarm Summary Object will appear on the page.

You can adjust the size of the Alarm Summary Object.

Alarm Time	Device	Value	Alarm Type	Description
2013/04/01 10:50:04	Device	31,0000	Clear	Alarm Descript..
2013/04/01 10:50:04	Device	30,0000	Warning	Alarm Descript..
2013/04/01 10:50:04	Device	29,0000	Clear	Alarm Descript..
2013/04/01 10:50:04	Device	28,0000	Warning	Alarm Descript..
2013/04/01 10:50:04	Device	27,0000	Clear	Alarm Descript..
2013/04/01 10:50:04	Device	26,0000	Warning	Alarm Descript..
2013/04/01 10:50:04	Device	25,0000	Clear	Alarm Descript..
2013/04/01 10:50:04	Device	24,0000	Warning	Alarm Descript..
2013/04/01 10:50:04	Device	23,0000	Clear	Alarm Descript..
2013/04/01 10:50:04	Device	22,0000	Warning	Alarm Descript..
2013/04/01 10:50:04	Device	21,0000	Clear	Alarm Descript..
2013/04/01 10:50:04	Device	20,0000	Warning	Alarm Descript..
2013/04/01 10:50:04	Device	19,0000	Clear	Alarm Descript..
2013/04/01 10:50:04	Device	18,0000	Warning	Alarm Descript..
2013/04/01 10:50:04	Device	17,0000	Clear	Alarm Descript..
2013/04/01 10:50:04	Device	16,0000	Warning	Alarm Descript..
2013/04/01 10:50:04	Device	15,0000	Clear	Alarm Descript..
2013/04/01 10:50:04	Device	14,0000	Warning	Alarm Descript..
2013/04/01 10:50:04	Device	13,0000	Clear	Alarm Descript..
2013/04/01 10:50:04	Device	12,0000	Warning	Alarm Descript..
2013/04/01 10:50:04	Device	11,0000	Clear	Alarm Descript..
2013/04/01 10:50:04	Device	10,0000	Warning	Alarm Descript..
2013/04/01 10:50:04	Device	9,0000	Clear	Alarm Descript..

Stop Stamp ACK Setup Config

Adjust size by clicking with mouse, and dragging the corner of Object.

The alarms will be displayed in a window of the selected size.

4. Script Functions for Alarms

1) AlarmCsvWr(R1, S2, R3, R4, R5)

This script converts an Alarm history to a CSV file.

R1 : Alarm Group number (1~10)

S2 : The name of the CSV file to which the alarms will be saved (the Extension and Save location are not required)

R3 : Date and Time format (See HELP for detailed information)

R4 : Output option (See HELP for detailed information)

R5 : Location where the CSV file will be saved

0 : Xpanel's Local Memory

1 : SD/MMC Memory

2 : USB Memory

Example) AlarmCsVWr(1, "Alarm", 0, _ALMPRT_ALL_, 2);

Save all Alarm history from Group 0 in the format (YYYY/MM/DD HH:MM:SS) to USB memory.

2) AlarmPrint(R1, R2, R3, R4, R5)

Print out the Alarm history.

R1 : Alarm Group number (1~10)

R2 : Number of Alarm history entries to be printed out (0~500, all current Alarm history is printed out if R2 is 0)

R3 : Date and Time format (See HELP for detailed information)

R4 : Font Size

R5 : Output option (See HELP for detailed information)

Example) AlarmPrint(1, 10, 1, 10, _ALMPRT_ALL_);

The most recent 10 Alarms from Group 1 are printed out in font size 10 with the format (DD/MM/YYYY HH:MM:SS).

3) ClearAlarmLog(R1)

Delete all Alarm history entries for Group R1.

Example) ClearAlarmLog(1);

Deletes all Alarm history entries for Group 1.

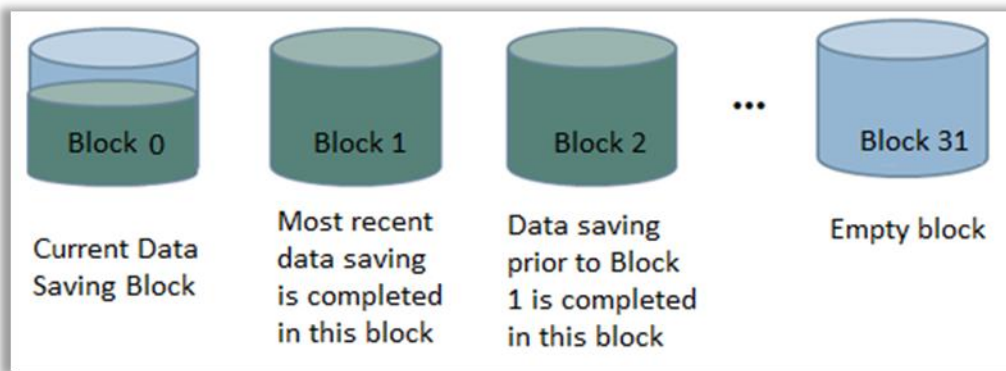
Chapter 15. Data logging

1. Data logging

Data logging is used to save a log of Xpanel Tag or Address Data. The collected data can be displayed on the screen, and it can be saved to a CSV file. Using Scope Trend, you can also view data as a graph.

1) Data logging Block

To use the Data logging feature, you must first understand Data logging Blocks. Logging Blocks are the units that Xpanel uses internally for saving and administering logged data. Because of Xpanel's limited memory capacity, data is divided into blocks to be saved.



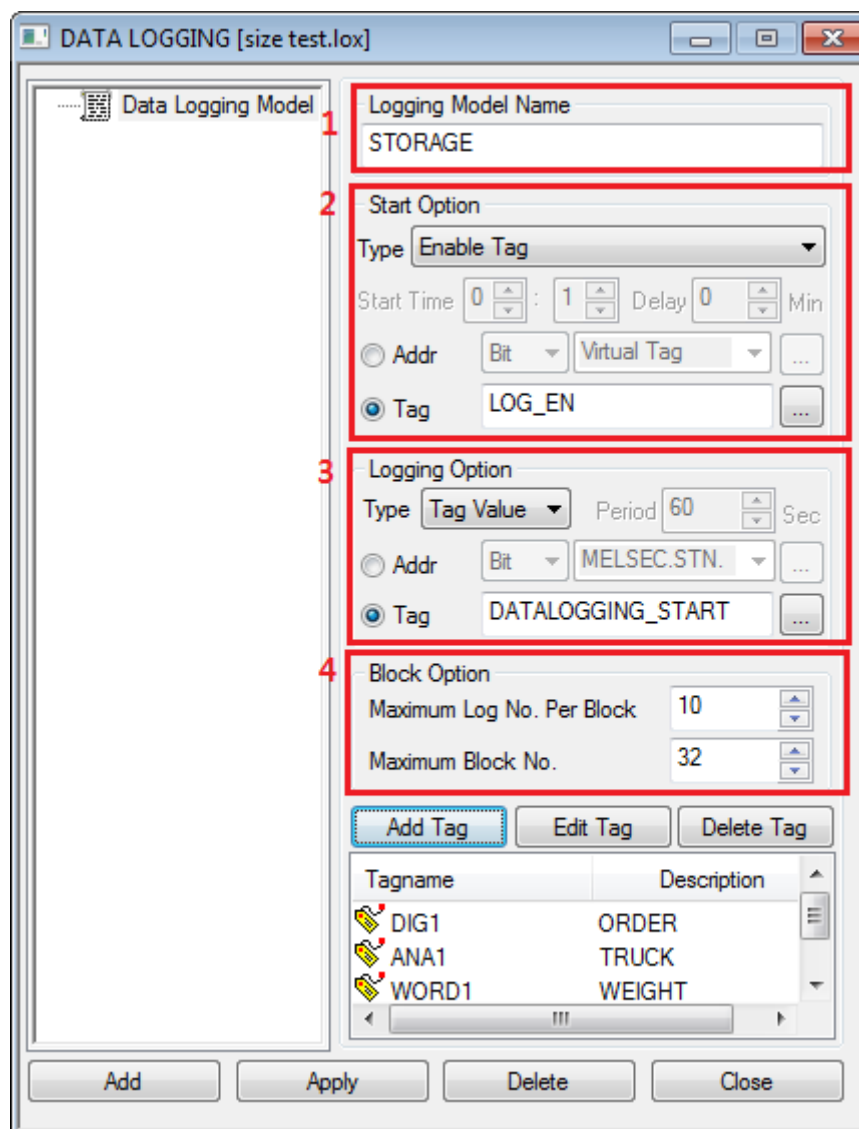
The maximum number of blocks is 32, and a maximum of 2048 units of data can be saved to a block. Currently incoming Data is saved in Block 0, and the most recently completed Block is Block 1.

Once a Block is created, Data logging actions are based on the Logging Option settings. The Start Option settings control the creation of Blocks, and Data writing and saving are controlled by Logging Options.

Since the Maximum Block is 32, the oldest Block (number 31) will be deleted when all 32 Blocks are full. In this way, the 32 Blocks are recycled. To store data permanently, you need to convert it to CSV format and save it before all 32 Blocks are used.

2) DATA LOGGING Configuration

Select [Tools] → [Data logging] or click on the Data logging icon in the Standard Toolbar.

DATA LOGGING [size test.lox]

1 Logging Model Name
STORAGE

2 Start Option
Type: Enable Tag
Start Time: 0 : 1 Delay: 0 Min
Addr: Bit Virtual Tag
Tag: LOG_EN

3 Logging Option
Type: Tag Value Period: 60 Sec
Addr: Bit MELSEC.STN.
Tag: DATALOGGING_START

4 Block Option
Maximum Log No. Per Block: 10
Maximum Block No.: 32

Add Tag Edit Tag Delete Tag

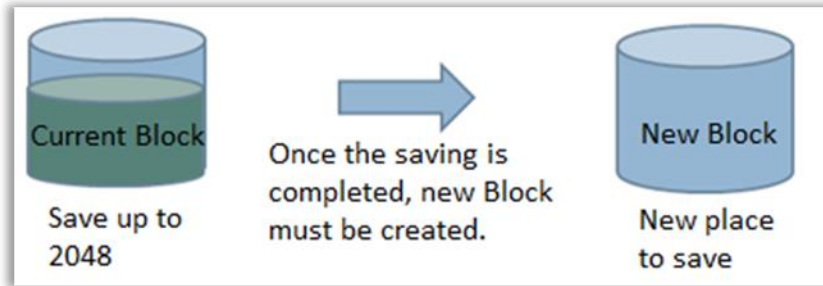
Tagname	Description
DIG1	ORDER
ANA1	TRUCK
WORD1	WEIGHT

Add Apply Delete Close

(1) Logging Model Name

Enter the name which will be used to identify the Data Logging Model.

(2) Start Option



Start Option determines how a new Data Block will be created. A Block is a space for saving Data. Data is saved to a Block based on the Logging Option settings (Tag Value or Periodic).

When a Block is full, a new Block must be created, based on the Start Option settings. When the Start Option conditions are met, even if current block is not full, Xpanel will start saving data in a new block.

A. Periodic

Xpanel creates a new Block periodically, based on the Start Time interval. At the Start time, it closes the current block and starts saving data in a.

■ Start Time

Enter the interval for creating a new Logging Block.

Example) 0 hour and 5 minute

New Blocks are created every 5 minutes (5min, 10min, 15min...55min).

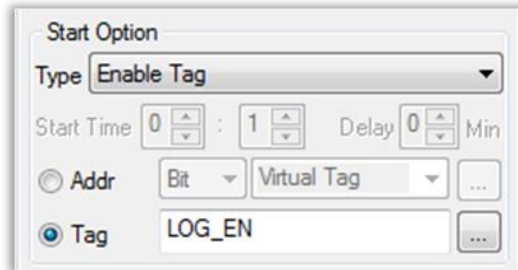
Example) 1 hour and 7 min,

New Blocks are created every 1 hour and 7 minutes (00:00, 01:07, 02:14, 03:21 ... 10:20, 11:27).

■ Delay

When a Block is created, Xpanel will wait for the delay period before saving data to it.

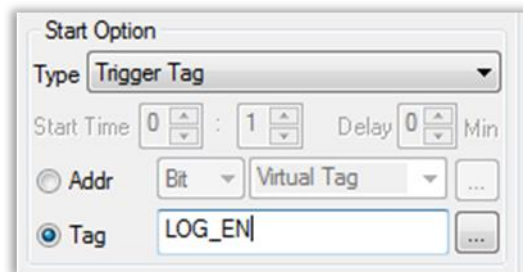
B. Enable Tag



When the Enable Tag or Address value is ON, a new Logging Block is created. When Enable Tag or Address value is OFF, the Block is closed and Data logging stops. If Enable Tag or Address value is turned ON again, Data logging begins with a new Block.

If the Type is Enable Tag and the tag is ON, Xpanel will save the maximum amount of data to a block. When each Block is full it will create a new block.

C. Trigger Tag



A New Block is created when the Trigger Tag or Address value is changed from OFF to ON.

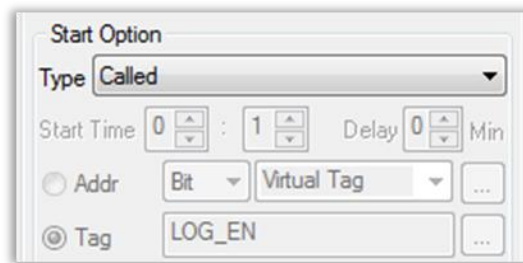


When the Trigger Tag changes its status from OFF to ON, a new Block is created. Even if the Trigger Tag returns to OFF status, Data will still be logged.

Here are the differences between Enable Tag and Trigger Tag operation:

- a. An Enable Tag can create or close a Block based on its ON or OFF status. A Trigger Tag can only create a Block.
- b. If the Enable Tag is ON, it can create a new Block automatically whenever the amount of data being logged exceeds the Maximum Logging Data. However in Trigger Tag mode, the user must change the Trigger Tag status from OFF→ON when a Block is full.
- c. If Xpanel begins operation with the Enable Tag ON, a Data Block is created and Data logging starts. But, if Xpanel begins operation with the Trigger Tag ON, a Data Block is not created, because condition is not OFF→ON, so Data logging does not start.

D. Called (By Script or Command Expression)



Called starts Data logging in response to the internal function Datalog() in a Script or Command Expression.

- How to use DataLog()

■ DataLog(S1, R1);

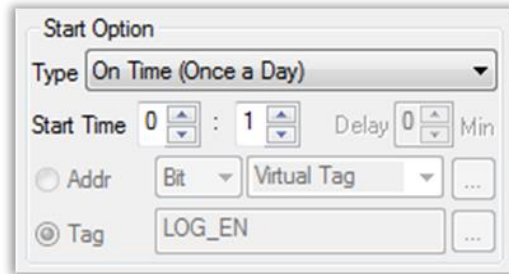
S1 : the Logging Model Name

R2 : 1 or 0 - create a Logging Block, or close it.

Example) Datalog("Log", 1); : Create a new Block and starts Data logging.

Datalog("Log",0); : Close a Block and terminate Data logging.

E. On Time (Once a Day)



Start Option

Type: On Time (Once a Day)

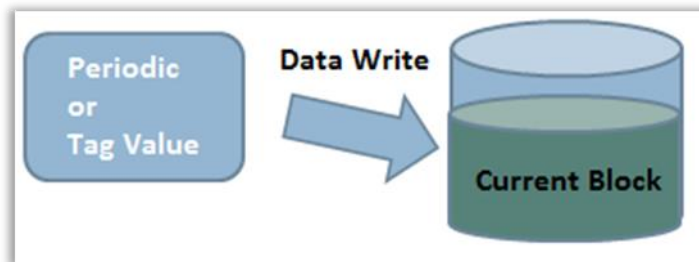
Start Time: 0 : 1 Delay: 0 Min

☐ Addr Bit Virtual Tag ...

☒ Tag LOG_EN ...

Create and save data to a single block per day. Since only one block is created per day, Data logging is terminated when the maximum amount of data is saved in that Block. If you use this option, you should set the Maximum Log number Per Block under Block Option based on the expected data logging requirements for a single day.

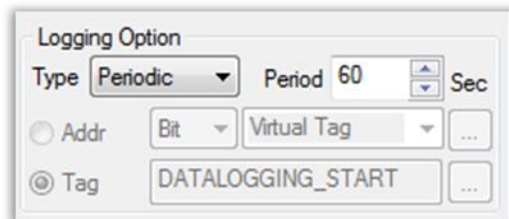
(3) Logging Option



Logging Option controls the way that data is written to a Block. Data can be saved based on the Logging Option settings only when the Block is created in advance.

There are two Type selections: Periodic and Tag Value. Periodic periodically saves data after a set interval, or Period. Tag Value saves data whenever the Tag Value is changed.

A. Periodic



Logging Option

Type: Periodic Period: 60 Sec

☐ Addr Bit Virtual Tag ...

☒ Tag DATALOGGING_START ...

Data is written to the Block after a set interval, or Period. The Logging Block must be created in advance.

B. Tag Value

Logging Option

Type: Tag Value Period: 60 Sec

☐ Addr Bit Virtual Tag ...

☒ Tag DATALOGGING_START ...

Data is written to the Block when the Tag or Address value changes from 0 to 1, any other value except 0. This functions very much like the Trigger operation.

(4) Block Option and Logging Tag Setup

A Block is Xpanel memory space used for Data logging, as explained above. The maximum number of blocks is 32, and a maximum of 2048 units of data can be saved to a block. The 2048 Maximum Data means that a maximum of 2048 units of data per tag can be written to a log. If the user has 10 Tags to log, 2048 units of Data can be saved for each Tag.

Block Option

Maximum Log No. Per Block: 2048

Maximum Block No.: 32

Add Tag Edit Tag Delete Tag

Tagname	Description
ORDER	ORDER
TRUCK	Truck
W	WEIGHT

2. Scripts for Data logging

- 1) DataLog(S1, R2) : A Data logging block is created and closed regardless of the Start Option setting.

S1 : Logging Model Name

R2 : Logging Block Control (0 : Stop creating Block, 1 : Create new Block)

Example)

DataLog("Log", 1) : Create a new Block and start Data logging.

DataLog("Log", 0) : Close a Block and terminate Data logging.

- 2) MakeCsv(S1, R2) : The Data Block is converted to a CSV file and saved to SD/MMC memory.

S1 : Logging Model Name

R2 : Block Number (0~31)

Example)

MakeCsv("Log", 10) : Block number 10 of the "Log" logging Model is converted to a CSV file and saved into SD/MMC memory.

- 3) MakeLogCsv(S1, R2, R3) : The Data Block is converted to a CSV file and saved to a designated location.

S1 : Logging Model Name

R2 : Block Number (0~31)

R3 : Save location (0: Local, 1 : SD/MMC, 2 : USB)

Example)

MakeLogCsv("Log", 10, 2) : Block number 10 of the "Log" logging Model is converted to a CSV file and saved to USB memory.

- 4) MakeLogCsvEx(S1, S2, R3, R4) : The Data Block is converted to a CSV file and saved to a designated location. The header name is saved in the A1 cell of the CSV file.

S1 : Header Name

S2 : Logging Model Name

R3 : Block Number (0~31)

R4 : Save location (0: Local, 1 : SD/MMC, 2 : USB)

Example)

MakeLogCsvEx("Header", "Log", 10, 2);

Block number 10 of the “Log” logging Model is converted to a CSV file and saved to USB memory. The Header string "Header" is saved in the A1 cell of the CSV file, as shown below.

	A	B	C	D
1	Header			
2	Time	Data 1	Data 2	Data 3
3	2013-04-05 0:34	1	1	1
4	2013-04-05 0:34	2	2	2
5	2013-04-05 0:34	3	3	3

3. Notes for Data Logging

- 1) The Block must be created before Data logging starts, since Data must be saved to an existing Block.
- 2) A New Block must be created for saving new Data when the quantity of of saved data in the block exceeds the Maximum Data per Block quantity.
- 3) Available block numbers are from 0 to 31 (total 32). The oldest Block, 31, will be removed and a new Block is created when all 32 Blocks have been used.
- 4) When saving a CSV file locally (i Xpanel), make sure that Xpanel has enough available memory. If the available memory in Xpanel is not sufficient, consider saving the Data in USB or SD memory.
- 5) Earlier log files (Blocks) will be deleted if the user downloads a project after modifying the Data logging Model configuration (CSV files are not deleted). Therefore, you should back up important files before downloading a project.

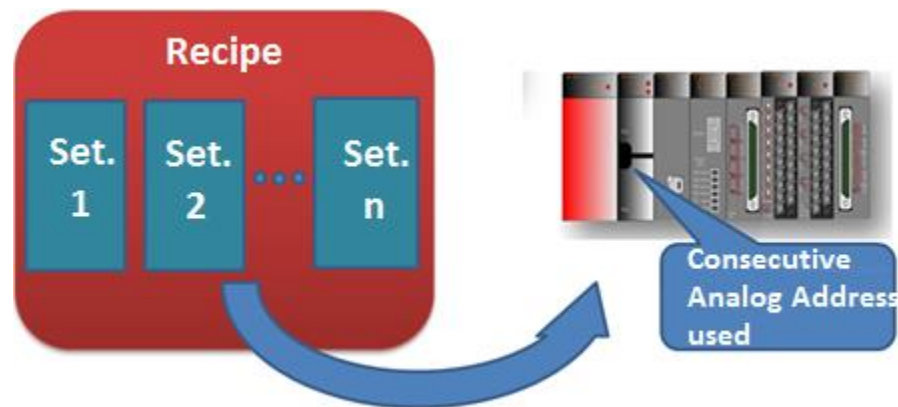
※The location in Xpanel where logged files are saved is as follows:

(\Xpanel\Log\“Logging Model Name”\)

Chapter 16. Recipes

Recipe

The Recipe feature allows you to select one of many settings in a Model, and transfer it to the PLC. You can simultaneously send settings to several PLCs based on their Model types. This is a useful feature when you need to change settings frequently for many model types.

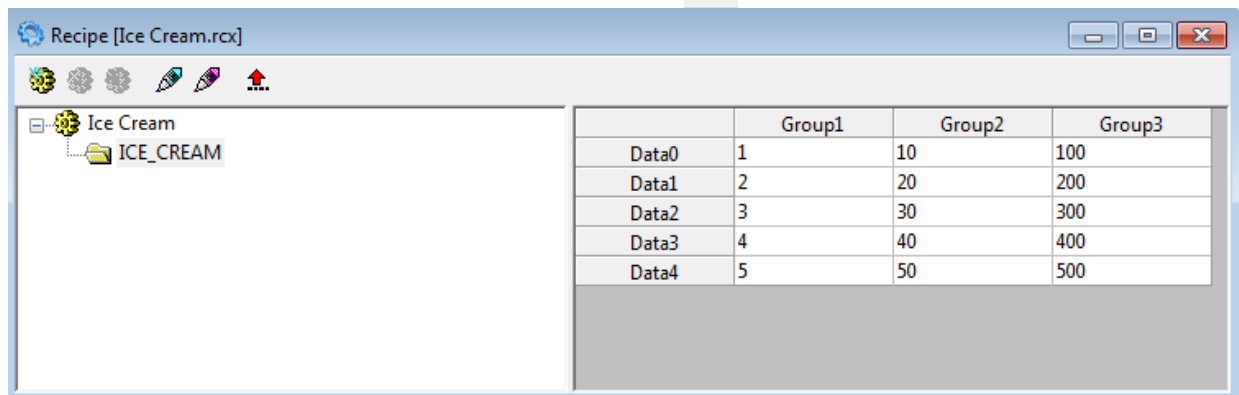


1. Principal of Recipe Operation

After you save a Recipe Setting file, the Recipe feature sends the Recipe Model's Setting Group to the target PLC. The Recipe feature requires consecutive Addresses, since each setting value is written in consecutive Addresses. Additionally, the Block Write feature must be supported, in order to transfer consecutive Addresses rapidly. This means that some PLCs may not support the Recipe feature (see the PLC list below). Models and group setting values can be modified while Xpanel is operating, but adding a model or group is not allowed.

2. Recipe Feature Settings

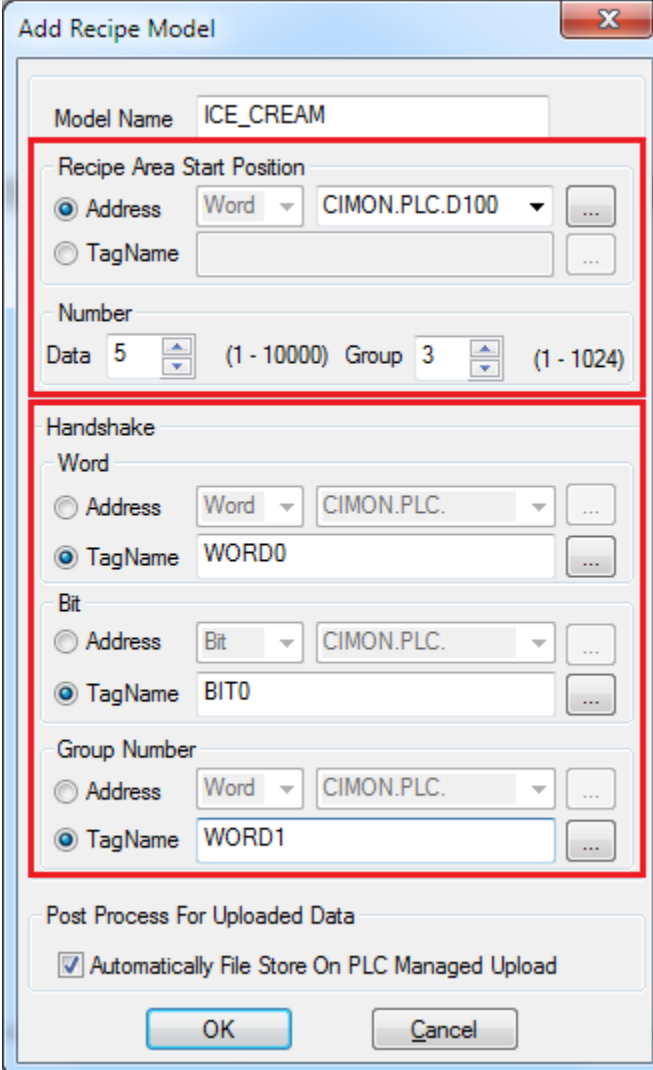
Select [Tools] → [Recipe] or click on the Recipe  icon from the Standard Toolbar.



1) Add a Recipe Model

Click on the  icon to create a Recipe Model.

Enter the Recipe Model Name.



Add Recipe Model

Model Name: ICE_CREAM

Recipe Area Start Position

☒ Address Word CIMON.PLC.D100

☐ TagName

Number

Data: 5 (1 - 10000) Group: 3 (1 - 1024)

Handshake

Word

☐ Address Word CIMON.PLC.

☒ TagName WORD0

Bit

☐ Address Bit CIMON.PLC.

☒ TagName BIT0

Group Number

☐ Address Word CIMON.PLC.

☒ TagName WORD1

Post Process For Uploaded Data

☒ Automatically File Store On PLC Managed Upload

OK Cancel

(1) Recipe Area Start Position

A. Starting Address

Recipes use consecutive Addresses for PLCs. Enter starting Addresses in the Recipe Area Start Position. Direct Addresses or Tag names can be used. The Tag Address is set as the Starting Address if the Tag name is used. The Address or Tag data must be in WORD or DWORD (INT16, UINT16, INT32, UINT32, Float) format. All Address or Tag data must be of the same type.

B. Data Number & Group Number

Group Number			
	Chocolate	Strewberry	Vanilla
Sugar	1	10	100
Milk	2	20	200
Syrup1	3	30	300
Syrup2	4	40	400
Syrup3	5	50	500

Data Number

- The Data Number is the number of Data items used in each Group. It should be sufficient for the number of settings per group.

The Consecutive Address count begins with the Starting Address, and goes up to the Data Number. If the Starting Address is in WORD format starting from D0000 and the Data Number is 5, the addresses will be from D0000 to D0004. If the Starting Address is in DWORD format (INT32, UINT32, Float), the addresses would be from D0000 to D0009. The Group Number does not affect the Consecutive address.

- The Group Number is the unit for saving Settings data. A single group can include many Data items, and each Group comprises different settings. A Group is modified when the overall settings are changed.

(2) Handshake

Note: The Xpanel Recipe system takes care of the Handshake process automatically. Unless you know that you have a specific reason to change handshake settings, you should leave them as-is.

A. WORD

Xpanel uses a Word Address or Tag for Recipes. This feature is used to control uploading and downloading. A WORD address can be either WORD or DWORD type; no Scale setting is needed.

- Bit 0 : This bit is Set when Xpanel downloads group data. When the operation is complete, the 0 Bit is reset automatically.
- Bit 1 : This bit is Set when Xpanel uploads group data from the PLC. When the operation complete, the 1 Bit is reset automatically.

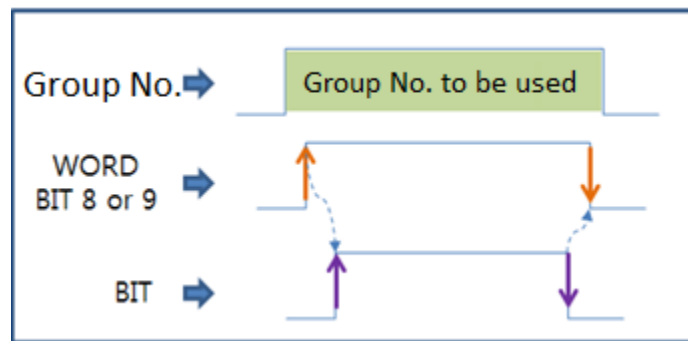
- Bit 8 : This bit is Set when the Device (PLC) requests that Xpanel download. The 0 Bit is not Set, and is automatically Reset when the operation is complete.
- Bit 9 : This bit is Set when the Device (PLC) requests that Xpanel upload. The 1 Bit is not Set, and is automatically Reset when the operation is complete.

B. BIT

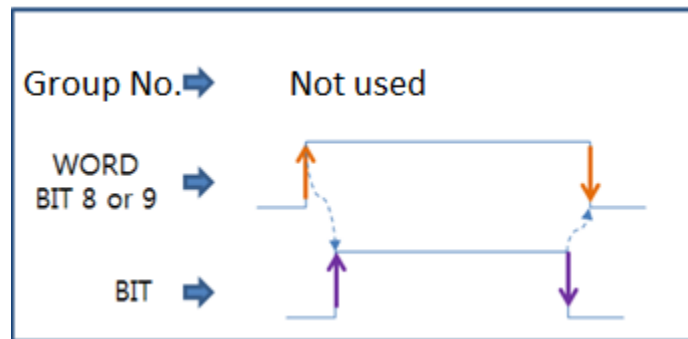
BIT is used to check the status of the current Download or Upload. BIT must be a Digital Tag or Address. Its status is shown as Set during the upload or download operation.

C. Group Number

When the PLC requests a Recipe operation, the Tag Name or Address of Group Number is used to Upload or Download. After the Group Number is set, Xpanel starts the operation, and the HandShake BIT is SET if Bit 8 or Bit 9 of the Handshake WORD is Set. When the operation complete, both the HandShake WORD and BIT are Reset automatically.



<Recipe HandShake **Timing** for **PLC** request >



<Recipe HandShake **Timing** for **Xpanel** request >

※ The HandShake Group No. is not used for Xpanel requests.

(3) Post Processing For Uploaded Data

A. Automatic File Store For a PLC Managed Upload

If you change and upload downloaded Group data from a PLC, the Recipe Group settings are changed. As long as Xpanel Power is On, changes to the group data will remain in memory; they will disappear when power is turned off. This means that modified setting should be saved to the Recipe Setting file in order to keep the changes.

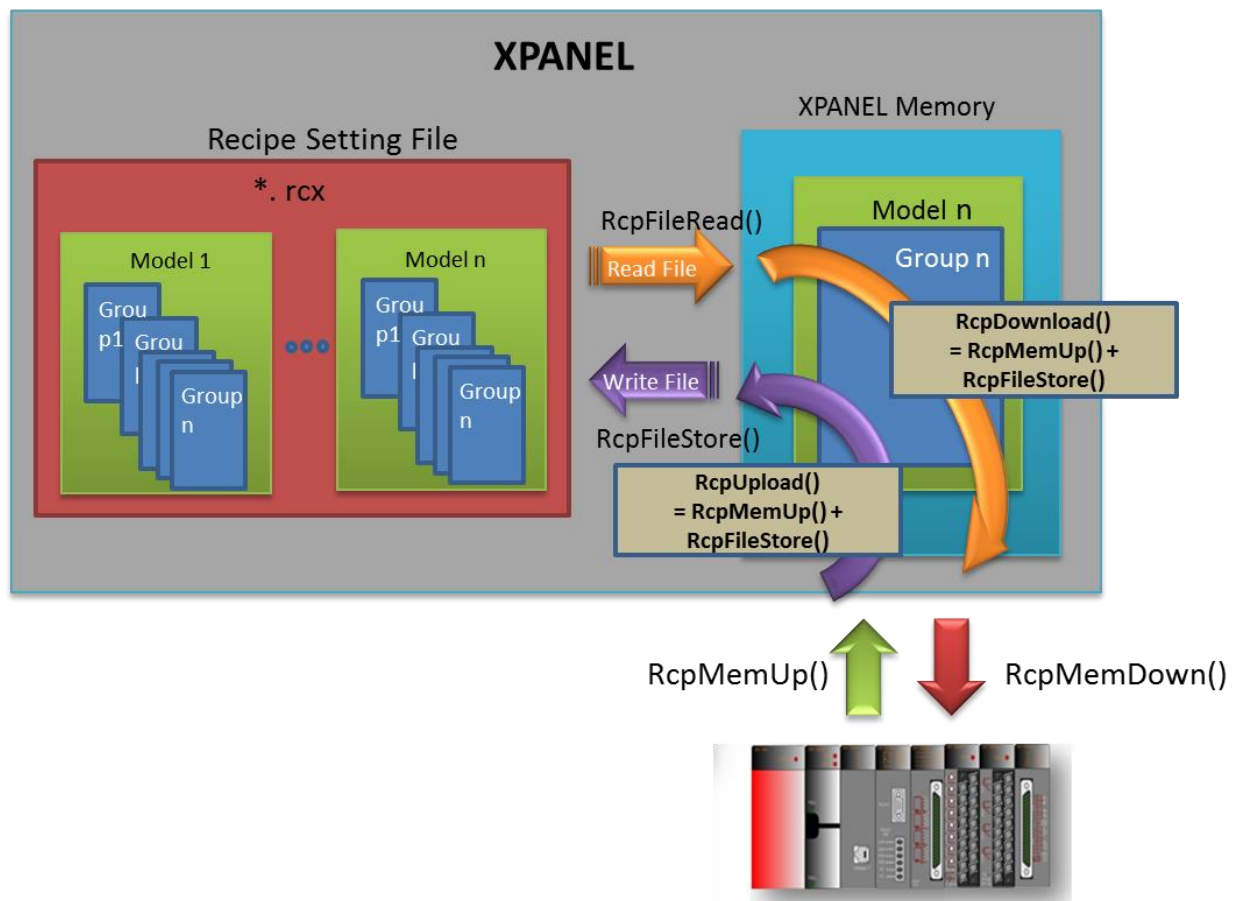
If this feature is used, changes to PLC group data will be uploaded and saved to a file automatically.

3. Script for Recipe

Recipe scripts operate as follows:

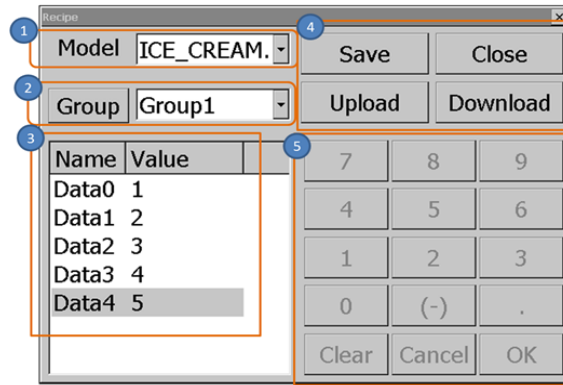
The Recipe Model, including Groups and Data, must be defined first. While Xpanel is running only Group data can be modified. Adding or deleting Recipe Models, Groups, or Data is not allowed.

(See Script in XpanelDesigner Help for more information on Recipe Scripts)



1) RcpConfig()

This script brings up the Data Manipulation Window (DMW). In the DMW, you can select the Recipe Model and Group, and use the Recipe control buttons. Recipe Group data can be modified using the Digit Keypad.



<Data Manipulation Window (DMW)>

(1) Model

Change the current Model.

(2) Group

Change the current group to another group.

(3) Group Data

You can change the Data name and value by double-clicking on the screen.

(4) Control Button

▪ Download

Transfer Recipe Mode Group Data to the PLC.

This is the same as the RcpmemDown () script.

▪ Upload

Read Data from the PLC, and save it in Recipe Model Group Data.

This is the same as the RcpmemUp() script.

▪ Save

The modified Recipe Model Group Data is saved in a Recipe File (*.rcx).

This is the same as the RcpFileStore() script.

- Close

Close the RcpConfig window (DMW).

(5) Keypad

The Keypad can be used to change Recipe Data values.

2) RcpFileRead(S1, R2) : Read Group Data from a Recipe File.

S1 : Recipe Model name

R2 : Model Group number

Ex) RcpFileRead("ICE_CREAM", 1);

To read Group1 Data of the "ICE_CREAM" Model saved in the Recipe File in Xpanel internal Memory.

3) RcpFileStore(S1, R2) : Save Model Group Data in a Recipe File.

S1 : Recipe Model name

R2 : Model Group number

Ex) RcpFileStore("ICE_CREAM", 1);

To save "ICE_CREAM" Model Group1 data from Xpanel internal Memory to a file.

4) RcpMemDown(S1) : To transfer a Group Data in Xpanel internal memory to a PLC.

The Recipe group data must be saved in XpanelDesigner internal memory before RcpMemDown is executed.

S1 : Recipe Model name

Ex) RcpMemDown("ICE_CREAM");

Transfer "ICE_CREAM" Group Data from Xpanel internal memory to the PLC. Before using this script, Group Data must be saved in Xpanel internal Memory using RcpFileRead() or RcpMemUp(). It is also possible to execute RcpMemDown() after selecting a Group in RcpConfig().

5) RcpMemUp(S1) : Upload PLC Data to Xpanel internal Memory.

S1 : Recipe Model name

Ex) RcpMemUp("ICE_CREAM")

Upload ICE_CREAM group data from the PLC to Xpanel internal memory before executing RcpMemDown() or RcpFileStore().

6) RcpDownload(S1, R2) : Read a Recipe File's Model Group Data and transfer it to the PLC immediately.

S1: Recipe Model name

R2: Group number (0~n)

Ex) RcpDownload("ICE_CREAM", 0)

Read the ICE_CREAM "0 Group" and transfer it to the PLC. This is the same as using RcpFileRead() and RcpMemDown() in sequence.

7) RcpUpload(S1, R2) : Read PLC Data and save it to the Recipe File.

S1 : Recipe Model name

R2 : Group number (0~n)

Ex) RcpUpload("ICE_CREAM", 0);

Upload Data from the PLC and save it to Group 0 of the "ICE_CREAM" Model in the Recipe File. This is the same as using two RcpMemUp() and RcpFileStore() consecutively.

8) RcpCsvRd(S1, S2, R3) : Read Recipe Model Group Data saved in a CSV file and save it in Xpanel internal memory.

S1 : Recipe Model name

S2 : CSV file name

R3 : CSV file location(0 : Local, 1 : SD/MMC, 2 : USB)

Ex) RcpCsvRd("ICE_CREAM", "Recipe", 2);

Read "ICE_CREAM" model group data from the "Recipe.CSV" file saved in USB storage, and save it in Xpanel internal Recipe Memory.

9) RcpCsvWr(S1, S2, R3) : Save Group Data saved in Xpanel internal Recipe Memory as a CSV file.

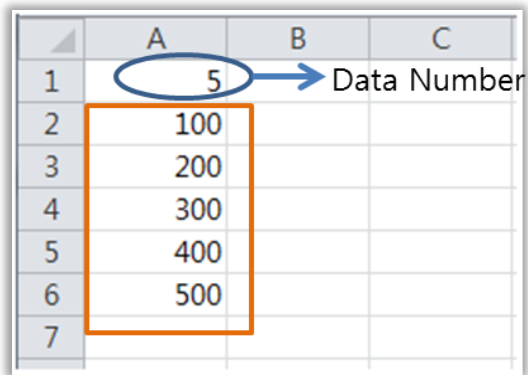
S1 : Recipe Model name

S2 : CSV file name

R3 : CSV file location(0 : Local, 1 : SD/MMC, 2 : USB)

Ex) RcpCsvWr("ICE_CREAM", "Recipe", 2);

Save Group Data which was uploaded from Xpanel internal memory to the "Recipe.CSV" file.



	A	B	C
1	5		
2	100		
3	200		
4	300		
5	400		
6	500		
7			

<CSV File Output Result>

10) RcpGetSysMem : Copy one block of System Memory to Xpanel internal Recipe Memory.

S1 : Recipe Model name

R2 : System Memory Address

Ex) RcpGetSysMem("ICE_CREAM", 100);

Copy Data starting from System Memory 100 and the size of the Data used by "ICE_CREAM" into Xpanel internal Recipe Memory.

11) RcpSetSysMem : Copy Data from Xpanel internal Recipe Memory to System Memory.

S1 : Recipe Model name

R2 : System Memory Address

Chapter 17. Trend Graphs

17.1 Trend Graphs

The Trend feature displays **Address** or **Tag data** that is being monitored on Xpanel as Trend Graphs. It consists of **6 types**.

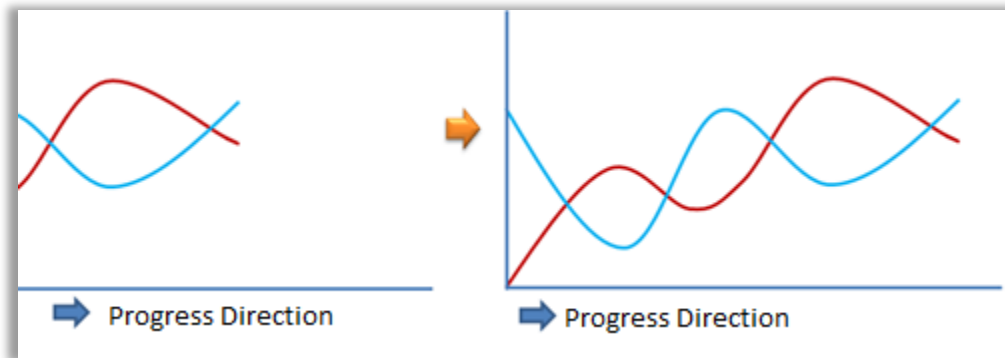
- 1) **YT Trend** : Display a general Trend Graph based on **Time**.
- 2) **Scope Trend** : Display all data saved either in the **PLC** or by the **Datalogging** feature.
- 3) **SPC Trend** : Display data saved in the PLC by **XY Coordinates**.
- 4) **ST Trend** : ST Trend allows **comparison** between a **Reference** Graph and **Real-Time** Trends. The Reference Graph is based on a sequence of saved data. Real-Time data is displayed along with the Reference Trends.
- 5) **Log Trend** : Data is **logged** (collected) and displayed as **Trends** in real time. Multi-channel data acquisition is supported. Datalogging can be **Period** or **Trigger**. The logged data can be easily exported to a **CSV** file.
- 6) **XY Trend** : Data is **logged** (collected) and displayed as **Trends** in **XY Coordinates** in real time. The difference between Log Trend and XY Trend is that **XY Trend** has an **XY Coordinate** data.

※ **Log Trend** and **XY Trend** data is logged separately from Xpanel Datalogging.

Type	Real-Time Monitor	Historical Feature	CSV File Conversion	Feature
YT Trend	O	O	Δ	
SCOPE Trend			Δ	Datalogging Model used
SPC Trend				
ST Trend				Reference Graph used
LOG Trend	O		O	MultiChannel used, CSV File Conversion
XY Trend	O	O		

17.1.1 YT Trend

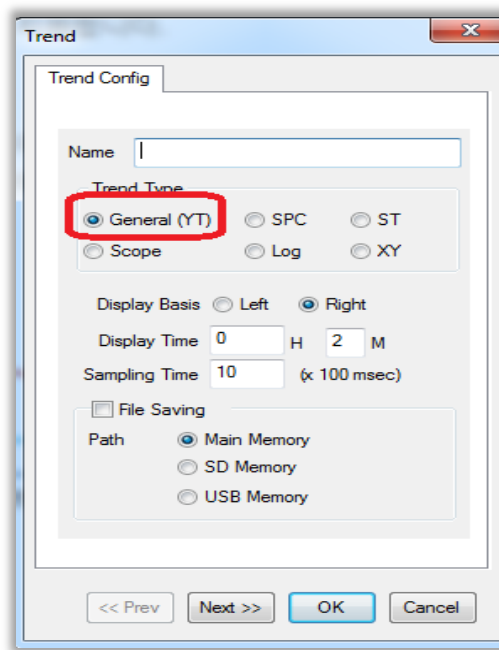
The YT Trend graph displays a general Trend with the X-axis representing **Time** and the Y-axis representing **Data**.



1. Draw a YT Trend

Select [Draw] → [Trend Graph]. The **Trend Config** dialog box will appear.

1) Trend Configuration : General (YT)



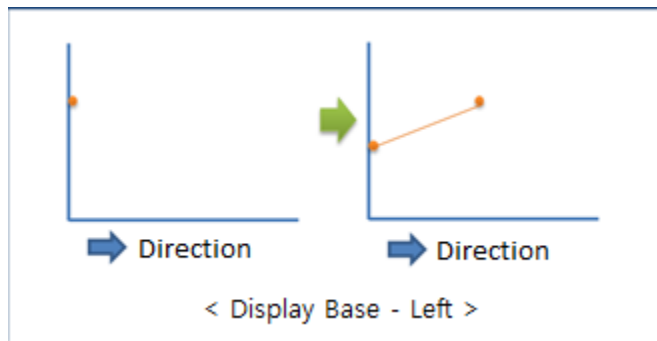
■ Trend Type

Select **General (YT)**.

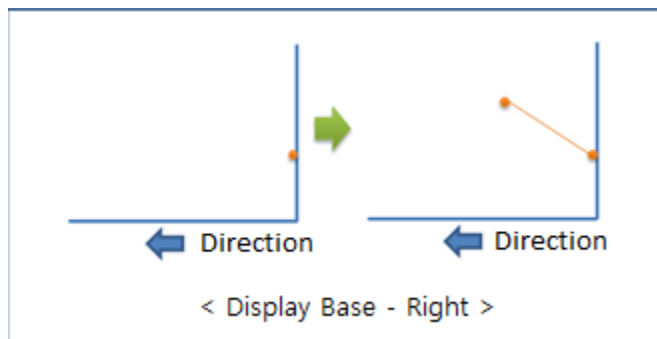
■ Display Base (Direction)

Select the data progress direction for the X-axis.

A. Display Base – Left

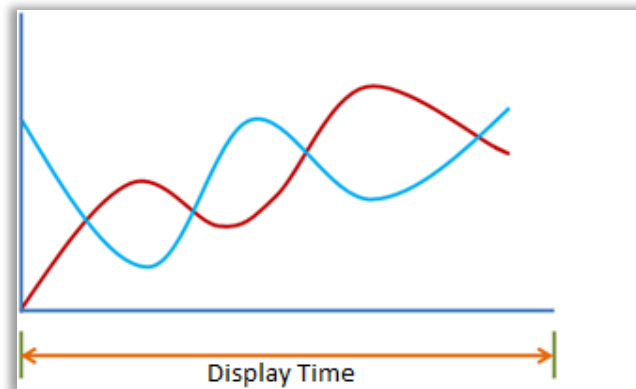


B. Display Base – Right



■ Display Time

Display Time is the time range of the X-axis. A **long** Display Time is useful for showing a long period of operation. A **short** Display Time is useful for analyzing a dynamic situation during a short period of time.



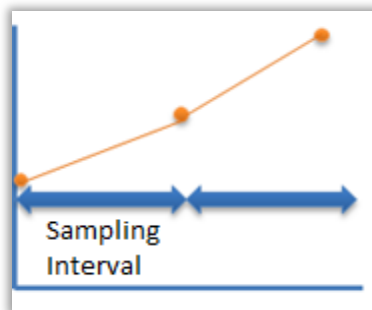
■ Sampling Time

Data is displayed on a Trend Graph using an **interval**. A **smaller** Sampling Time allows **more detail** to be displayed.

The Sampling Time Unit is **100 ms**.

Ex) A sampling time of 1 equals 0.1 sec.

A sampling time of 10 equals 1 sec.



■ File Saving

File Saving is used to support the **Historical** feature. Past Trend Graphs are available only if the data is saved to a **file**. The maximum storage capacity for a Tag is **5000** units of data. If the sampling time is 1 sec, Historical Trends up to a maximum of 5000 seconds can be viewed. The storage location can be **internal Memory**, **SD Memory**, **USB Memory**. If stored data exceeds 5000 units, the oldest data is deleted.

If the File Saving feature is **disabled**, only fresh trend data will be used whenever Xpanel is restarted.

■ File Saving

To convert the saved data to a **CSV** file, a **Script function** is used (this applies to the **YT Trend only**).

Ex1) TrendCsvWr(S1, R2);

S1 : Trend Name

R2 : CSV file location (0: Local, 1: SD/MMC, 2: USB)

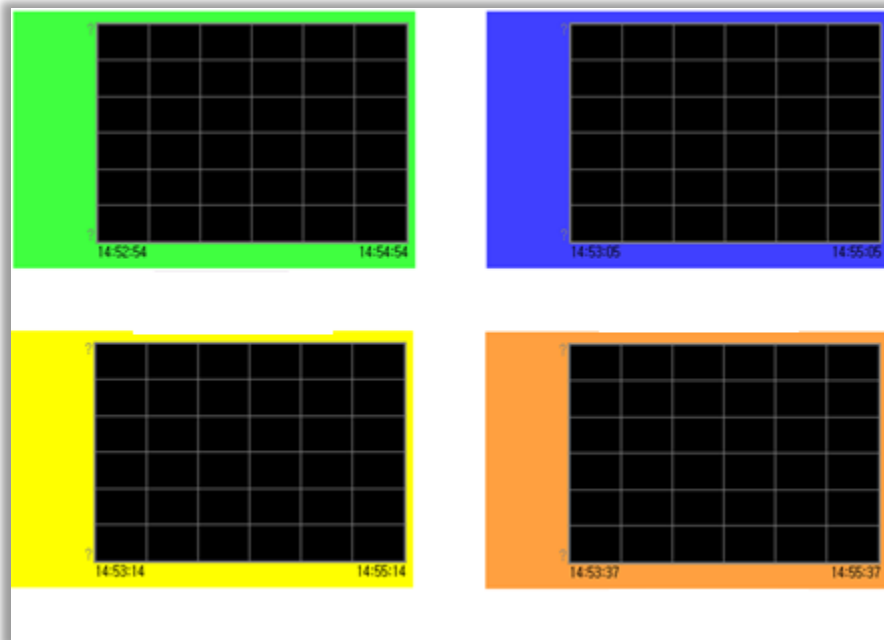
Ex2) TrendCsvWr("YT_Trend", 2);

Convert the saved file to a CSV file on a USB memory stick.

2) Object Style

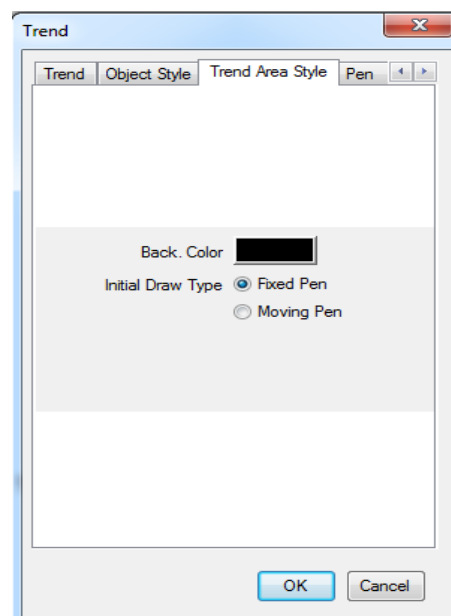


Object Style changes the **external Background Color**. Below are some examples.

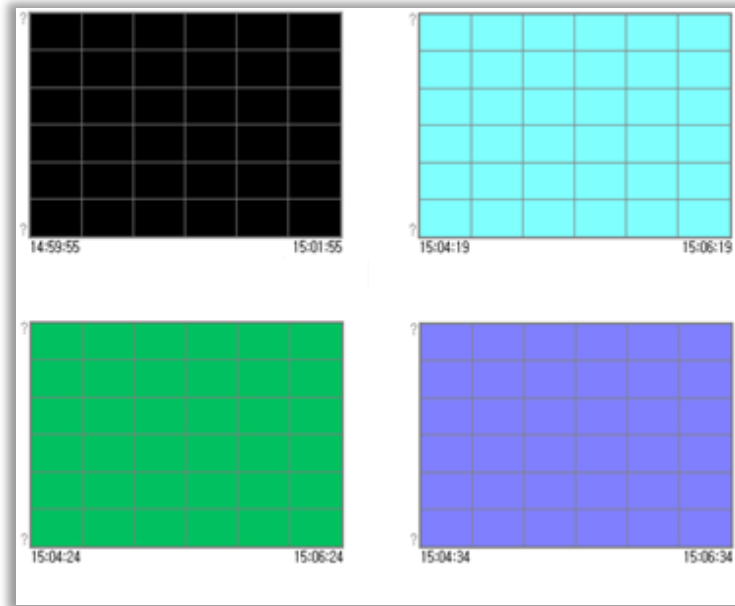


< External Background Color >

3) Trend Area Style



Trend Area Style changes the **internal Background** Color of the Graph. Below are some examples.



(1) Initial Drawing Type

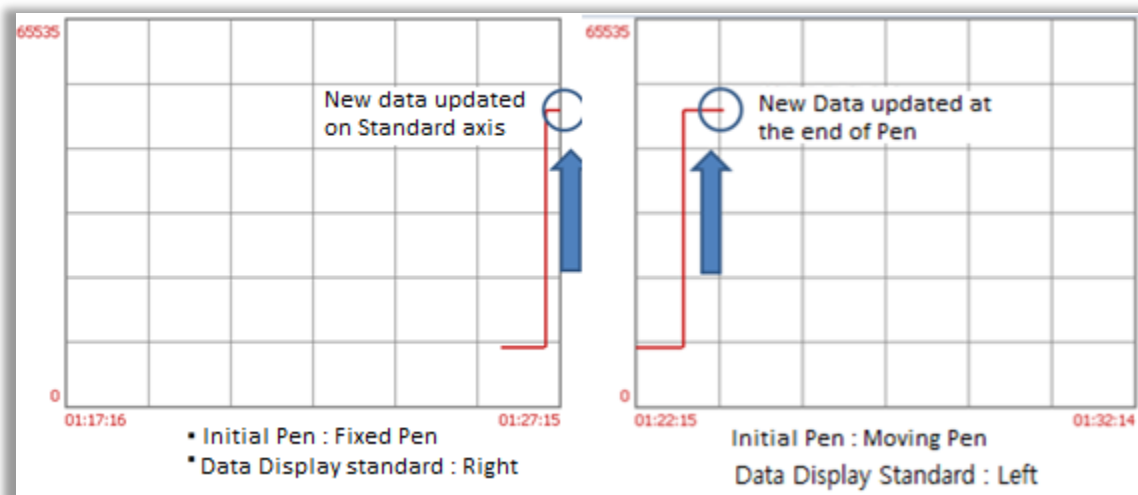
The Initial Drawing Type can be **Fixed Pen** or **Moving Pen**. This affects the initial appearance of the graph, but eventually, the difference will no longer be apparent.

A. Fixed Pen

-The **latest Data** is updated on the **Display Base** axis.

B. Moving Pen

- The **latest Data** is updated at the **end of the Pen**.



< Fixed Pen >

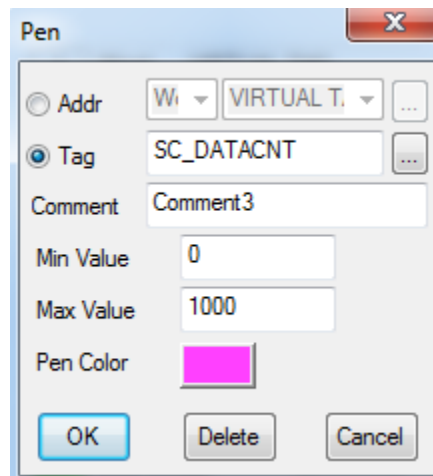
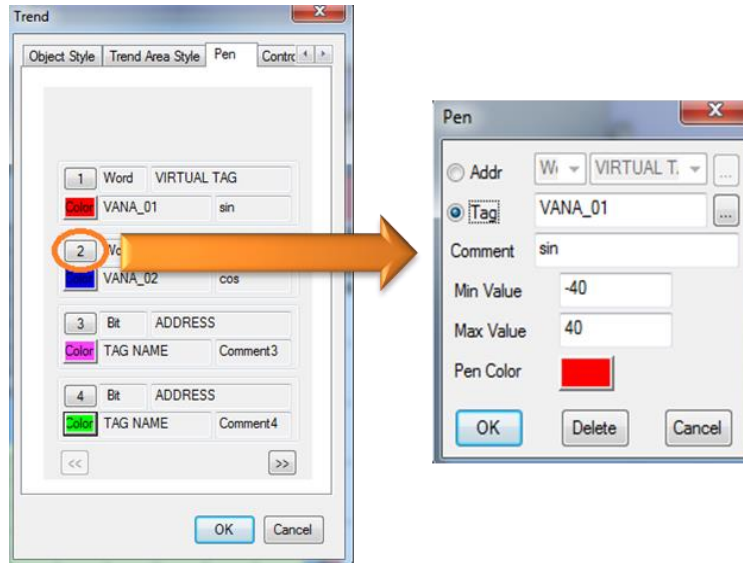
< Moving Pen >

4) Pen

The Pen Settings **select the Tags or Real Addresses** to be monitored.

■ Pen Setting

Select Pen **number** from Pen Settings to select the Tag or Address.



A. Address or Tag

A **Real Address** or **Tag** can be selected for each Pen.

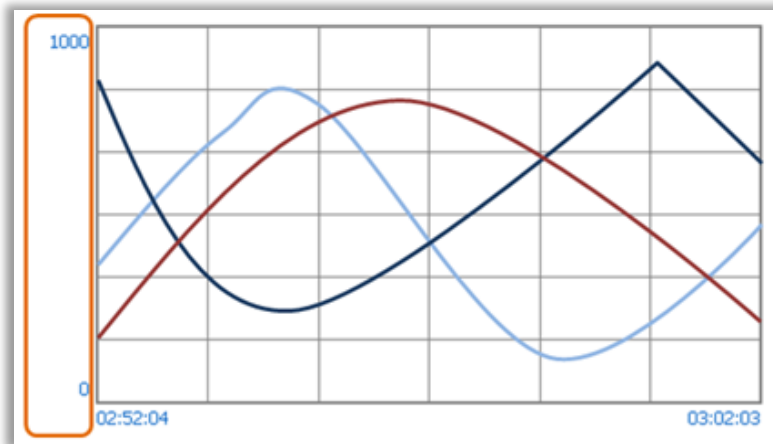
B. Comment

The comment will be used instead of the Tag name when displaying the **Tag value**.

C. Max/Min value

Set the **Max.** and **Min.** values on the **Y-axis** of the Trend graph. The Max/Min value of each Pen will be used on the Trend Graph, but only the **#1 Pen's** Max/Min value will be displayed on the Y-axis. If the Max/Min Value is not set in the Pen Settings, the Max/Min Value from the **Engineering Data [CIMON]** in the Xpanel Database will be used.

(With Addresses, the Max/Min value depends on then **Data Type**).



Only the # 1 Pen is displayed on Y-axis

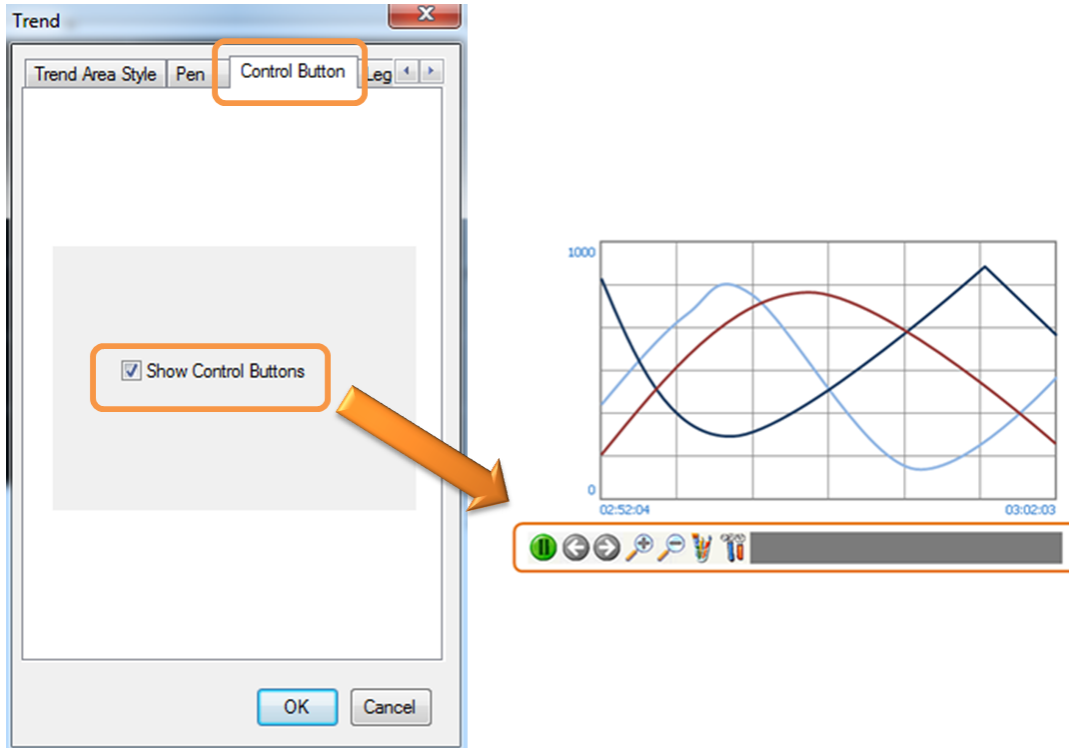
D. Pen Color







Select the Pen color. Click on the color to bring up the color palatte.



5) Control Button

The Control Button is used to control the Trend Graph. This feature is used to bring up **Historical Data** in Historical Mode. It also supports **Zoom-In**, **Zoom-out** and **Pen Color**.



Control Button	Description
	Switch from Real-Time to Historical Mode.
	Switch from Historical to Real-Time Mode.
	Move forward or backward by Display Time in Historical mode.
	One click will decrease Display Time by 50%. Zoom-in resolution cannot be less than the Sampling Time.
	One click will increase Display Time by 50%. Zoom-out resolution cannot be greater than the Sampling Time X 5000.
	Change the Pen which displays the Max/Min value.



Open the **Trend Setting Window**. Standard Time, Time Width and the Display Pen can be set.

Trend Setup

Time

1601 / 1 / 1

0 : 0 : 0

Time Width : 2 **Min.**

☒ Pen1 ☒ Pen2 ☒ Pen3 ☒ Pen4

☒ Pen5 ☒ Pen6 ☒ Pen7 ☒ Pen8

6) Legend

Trend

Pen Control Button Legend Grid Y-Axis

☒ Show Tag Value

☒ Show Date

Format yy/mm/dd

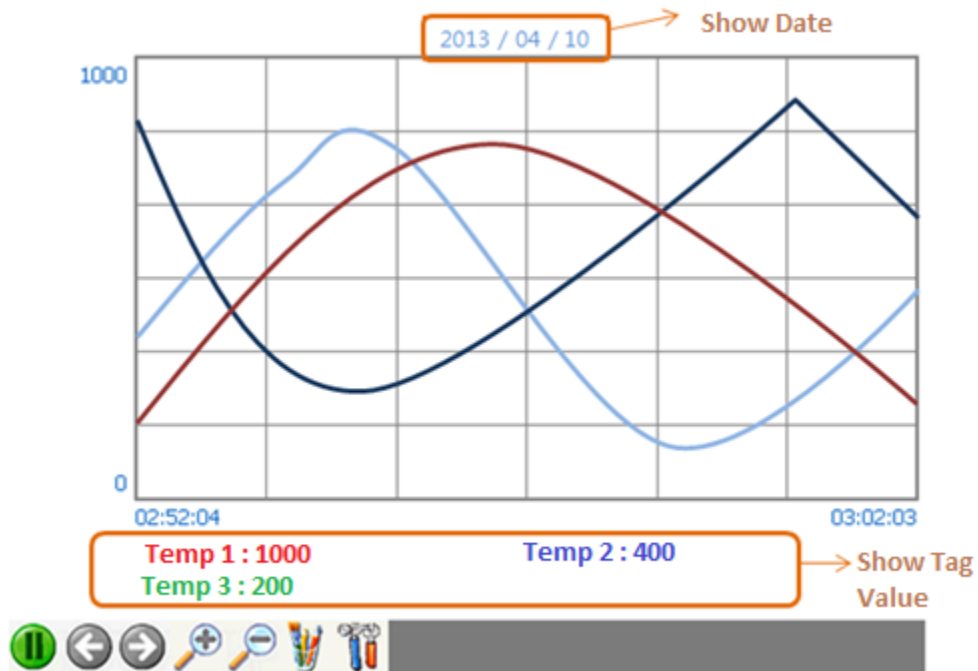
OK Cancel

■ Show Tag Value

Display the Tag or Address value set in the Pen Settings. The **Comment** from the Pen Settings will be displayed rather than the Tag Name.

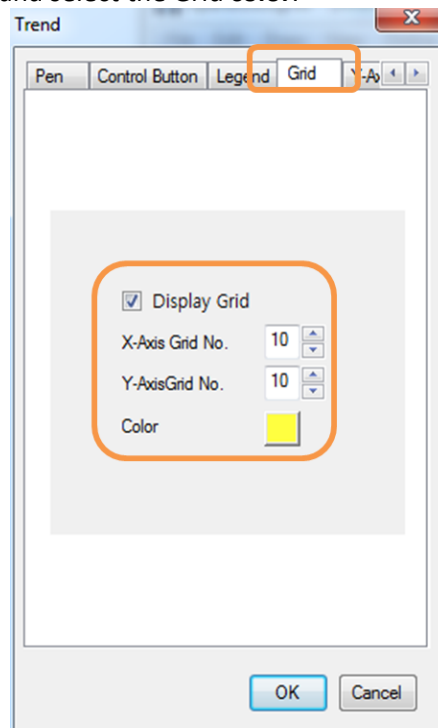
■ Show Date

Display a Date above the Graph.



7) Grid Settings

A Grid can be included in a Trend Graph. You can set the **Number** of Grid lines on the X or Y Axis up to a **Maximum of 99**, and select the Grid **color**.

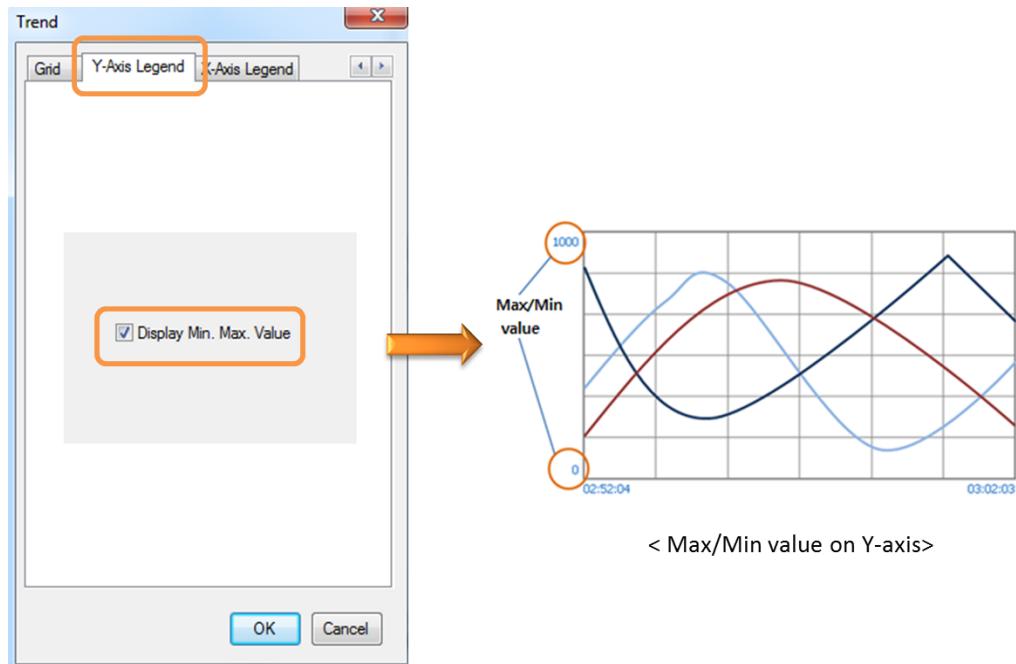


■ Display Grid

When the **Display Grid** feature is enabled, the Grid Number and Color can be set.

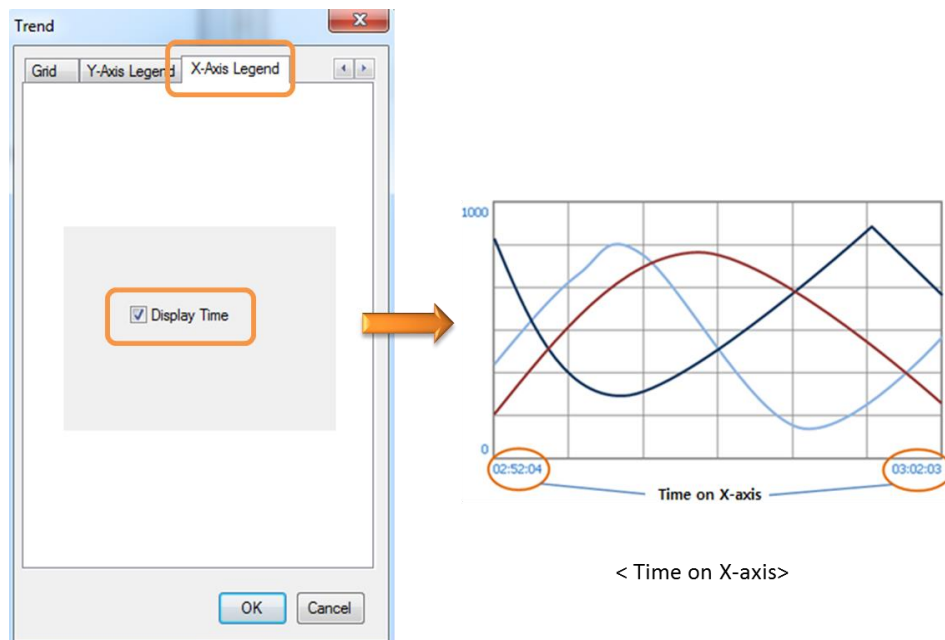
8) Y-Axis Legend

Display the Max/Min values on the Y-axis.



9) X-Axis Legend

Display Time information on the X-axis.

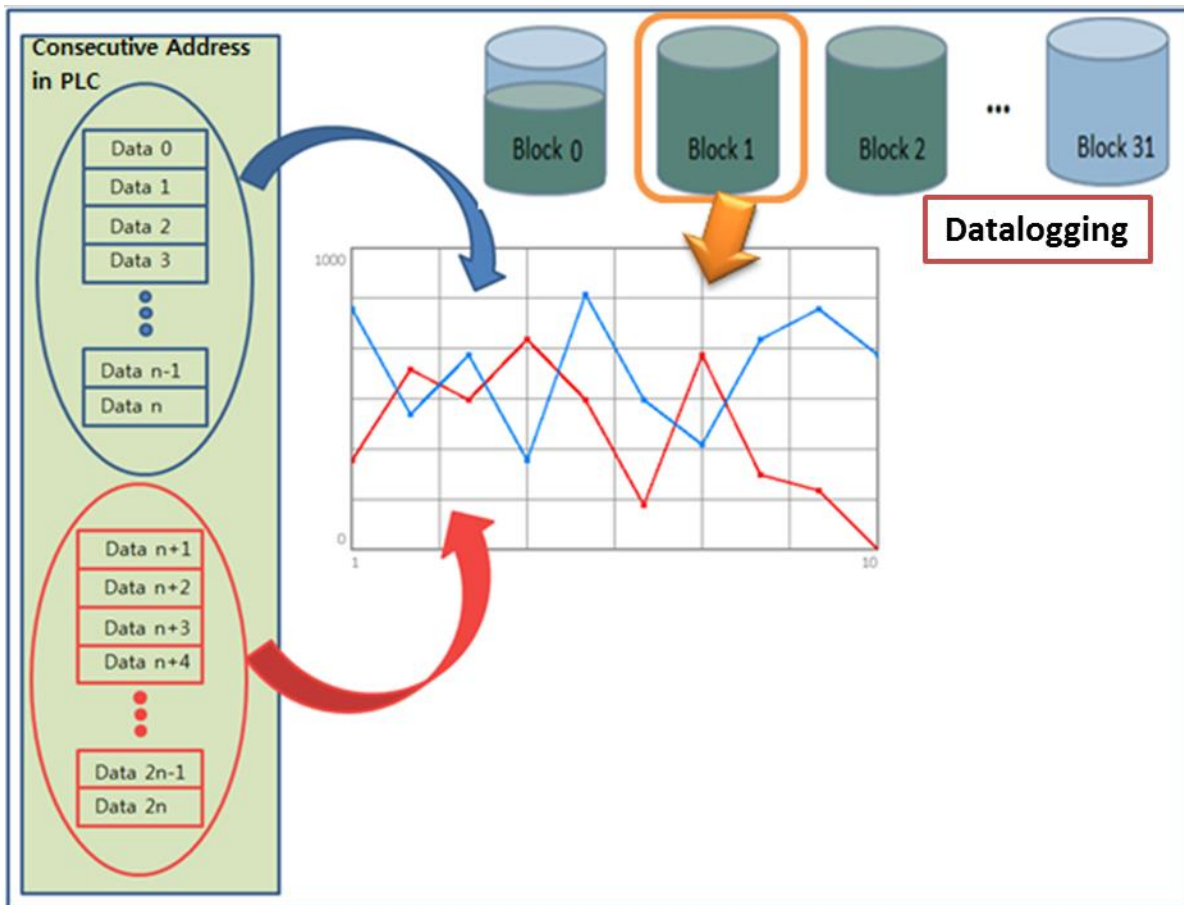


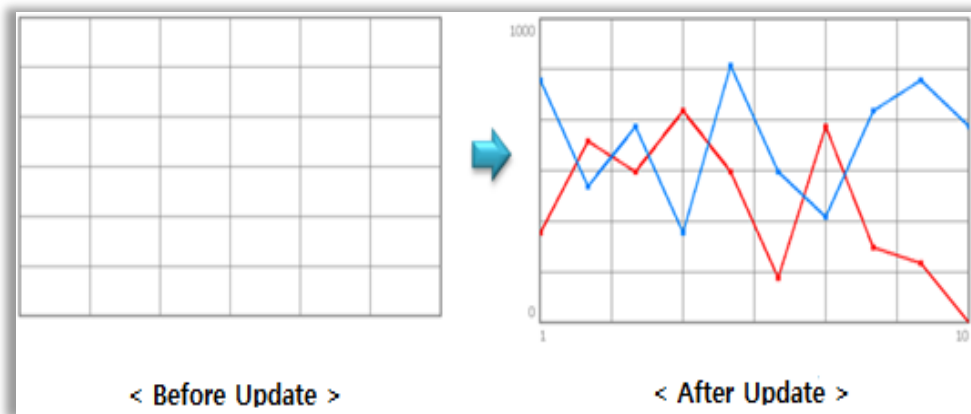
※ Notes

- When using the **Control Button** (Key Input), **only one** Trend Graph Object can be included on a **Page**.
- Using more than **2 Trend Graphs** with the **Alarm Summary**, **Data logging**, and **Key Input Object** may cause a Trend Graph error.

17.1.2 Scope Trend

The Scope Trend displays an aggregate of previously **saved Data**. This requires the **Xpanel Data logging** feature. If Xpanel Data logging is not used, **consecutive address** from the PLC or Device can be read and displayed on the Trend Graph.





1. Draw Scope Trend

Select [Draw] → [Trend Graph]. The **Trend Config** dialog box will appear.

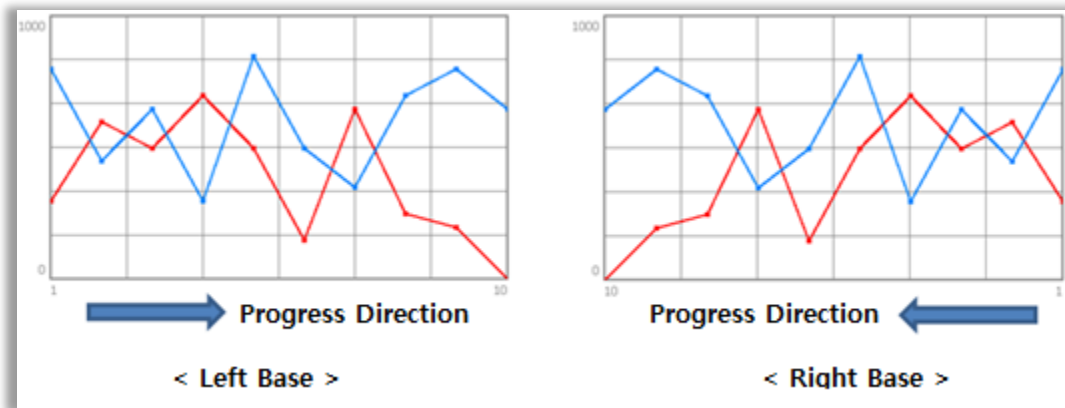
1) Trend Configuration : **Scope**

■ Trend Type

Select **Scope**.

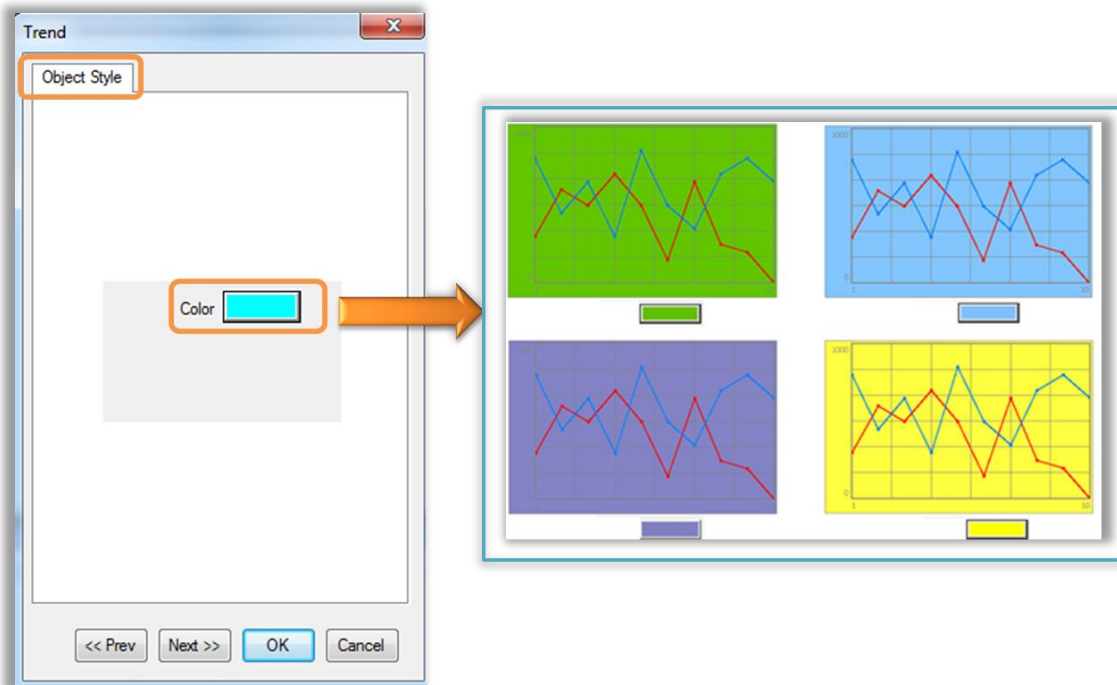
■ Display Base

Select the data progress direction for the X-axis.



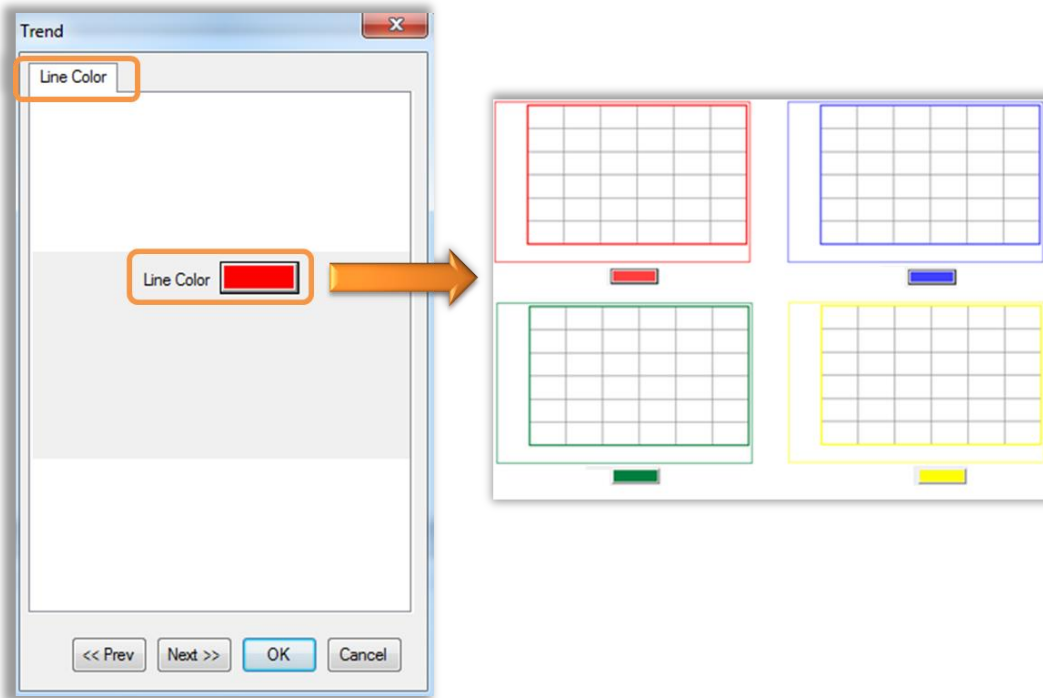
2) Object Style

Object Style changes the **Background Color**. Below are some examples.



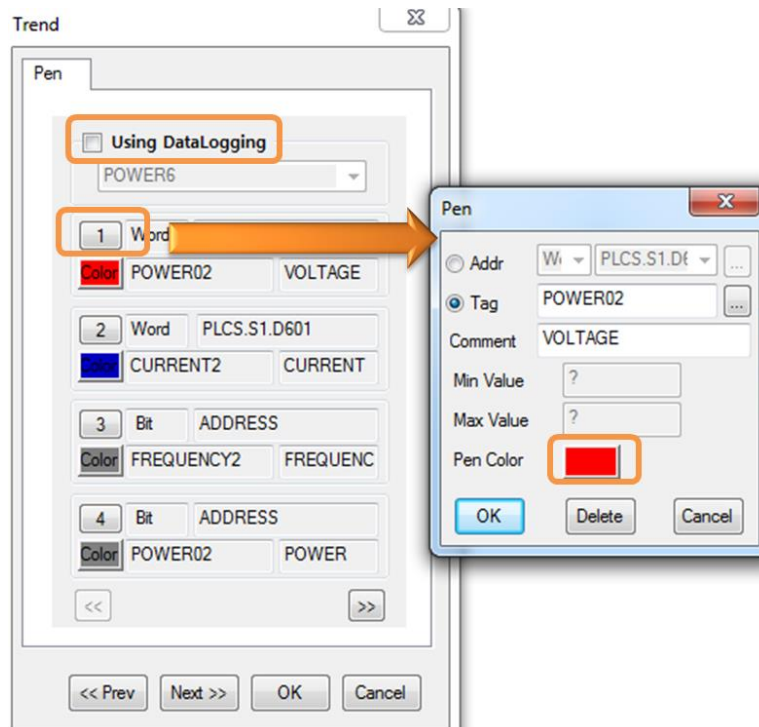
3) Line Color

Line color changes the color of the graph outline.



4) Pen

The Pen Settings **select** the **Tags** or **Real Addresses** to be monitored.



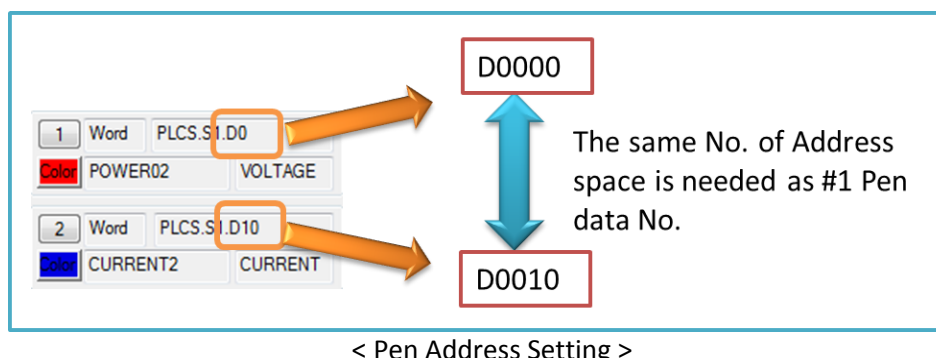
■ With **Using Data logging** Enabled

The data that is logged is read and displayed on the Graph.

With this feature enabled, **Pen** configuration is linked automatically to the Tag or Address of the **Datalog Model**. The **Maximum** number of pens is **8**. If the Datalog Model contains **more than 8** Tags or Addresses, Scope Trend can display only the first 8 Pens.

■ With **Using Data logging** Disabled

A **Real Address** or **Tag** can be selected for each Pen. The **Maximum** number of pens is **8**.



When you enter pen address settings, you must take into account the amount of data represented by each pen.

Ex) **#1 Pen** represents **10 Data units** at address **D0**, and **#2 Pen** is at address **D8** (No. of Data units = 10, Address Gap = 8).

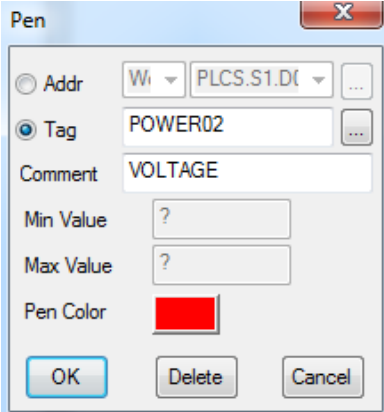
► The Scope Trend graph **does not** display correctly.

※ Note

The Address is determined by the **Pen data type**.

Ex) #1 Pen's data type is INT32, and its Data Count is 10 data units.

Those 10 Data units are INT32, so the Address is determined by 10 units of INT32 data.



< Pen Configuration >

■ Address or Tag

Select the Address or Tag for each Pen.

■ Comment

The comment will be used instead of the Tag name when displaying the **Tag value**.

■ Max/Min Value

Not Applicable.

The **Scope Trend** feature controls the Max/Min value.

■ Pen Color

Select the Pen color. Click on the color to bring up the color palette.

5) Grid Setting

A Grid can be included in a Trend Graph. You can set the **Number** of Grid lines on the X or Y Axis up to a **Maximum of 99**, and select the Grid **color**.

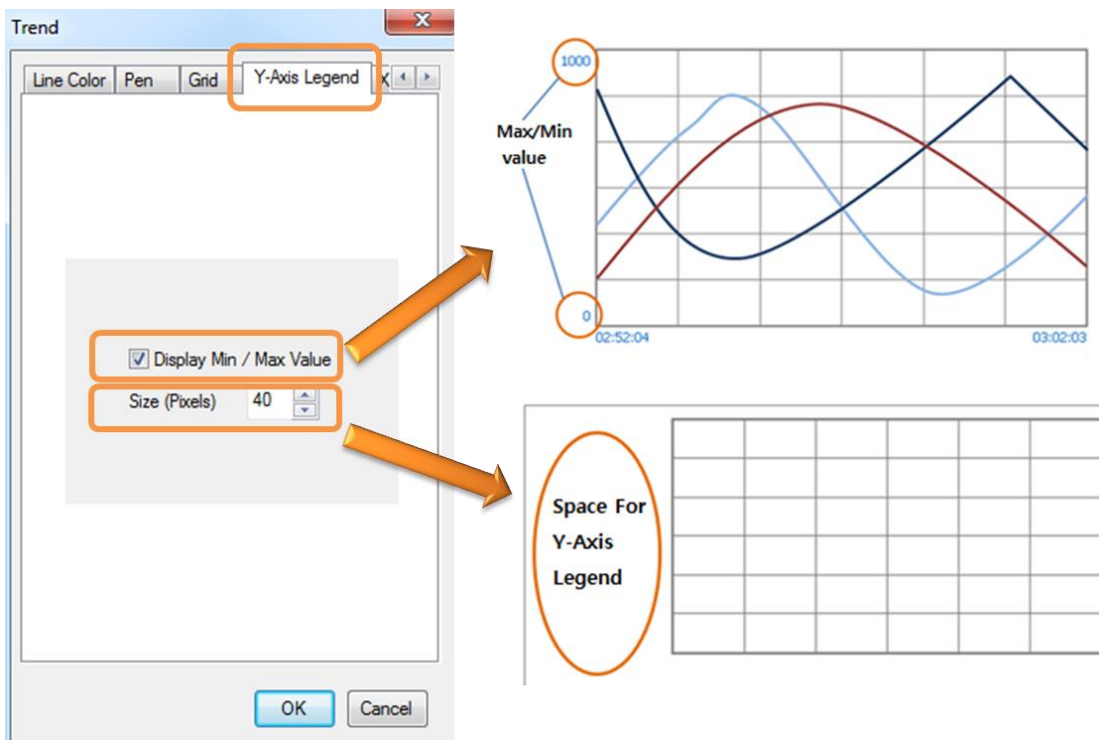
6) Y-Axis Legend

■ Max/Min Value

Display the Max/Min values on the Y-axis.

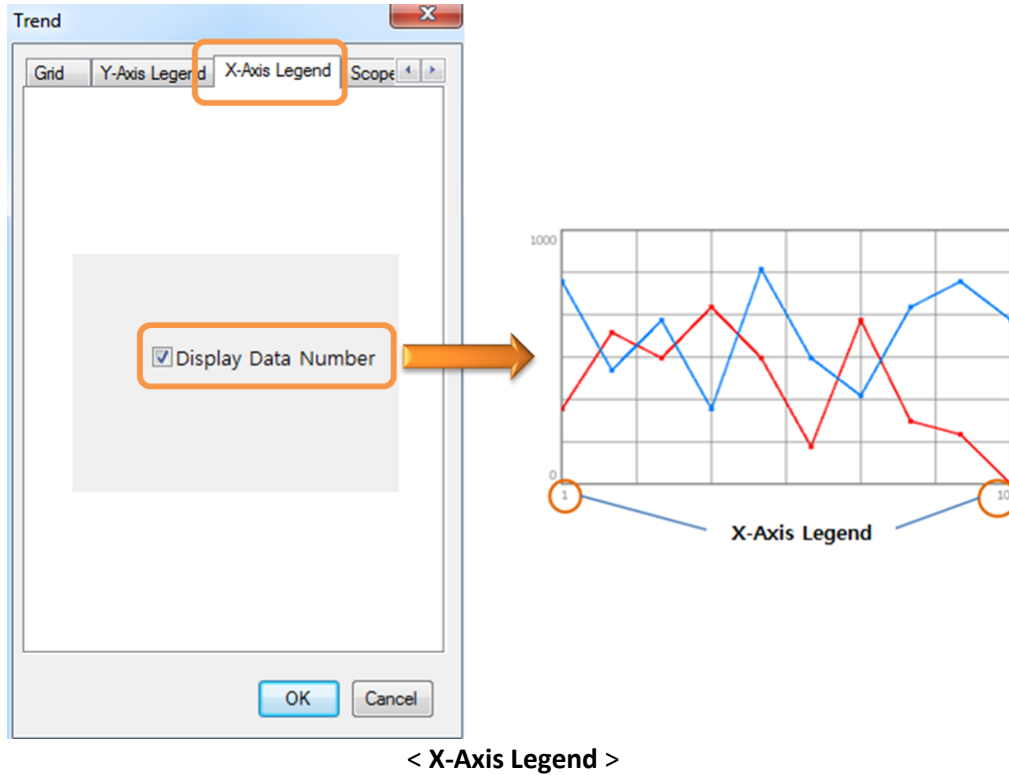
■ Legend Size

Set the **size** for the Y-Axis Legend.



7) X-Axis Legend

Display first and last X-Axis data numbers.



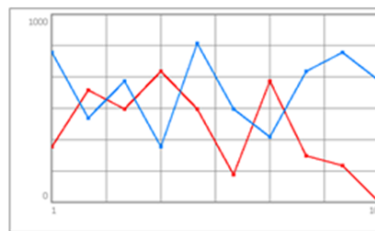
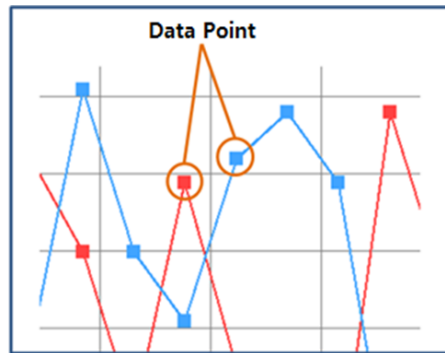
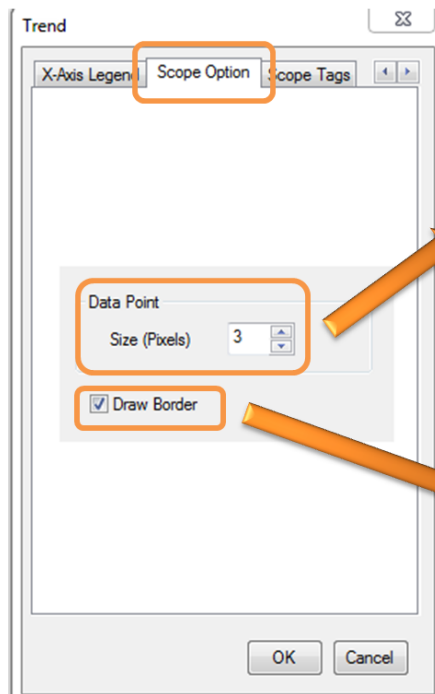
8) Scope Option

■ Data Point

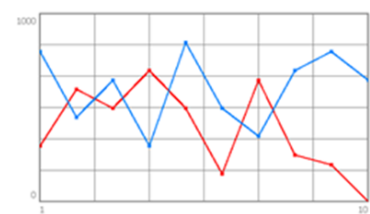
Data is displayed as **Points** on the Trend Graph, connected by the graph lines. The point **size** unit is **Pixels**.

■ Draw Border

An exterior Border is drawn around the graph.



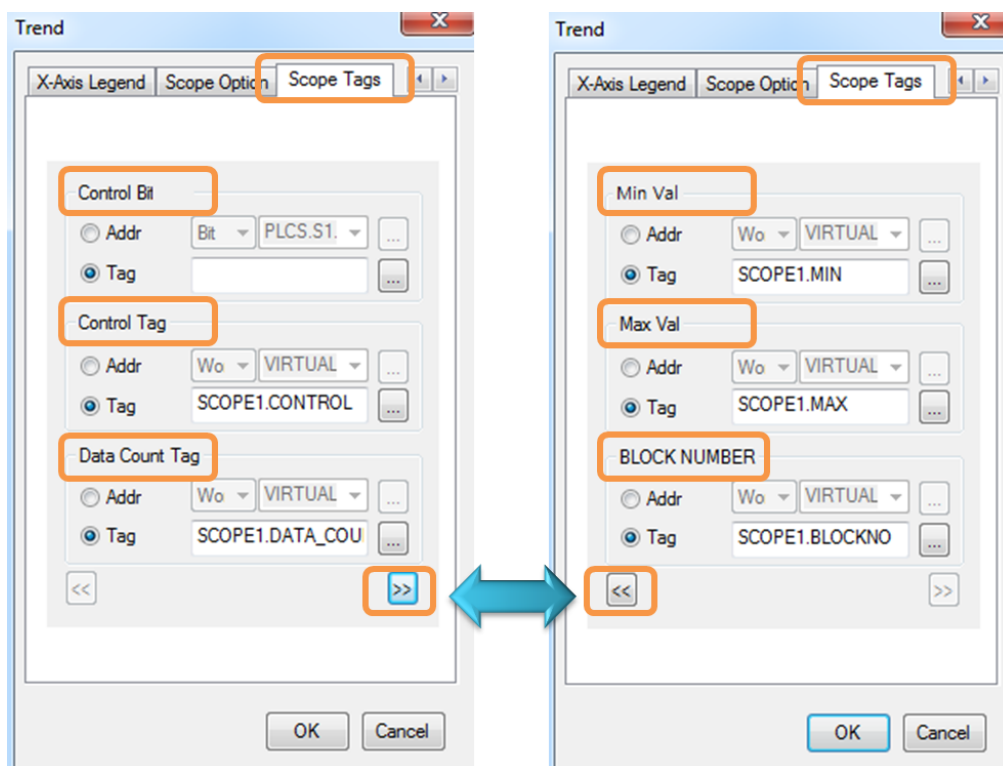
< Draw Border >



< Without Boarder >

< Scope Option >

9) Scope Tag



■ Control Bit

Xpanel uses the **Control Bit** (either Tag or Real Address) for its internal purposes. The Control Bit is **Set** automatically when Xpanel read data from the PLC. The user does not need to change it.

- ※ Leave the Control Bit **blank** when the **Datalog Model** is used.
- ※ The Control Bit must be a **Real Digital Tag** when reading real device (PLC) memory. A **Virtual Tag** cannot be used for a Control Bit.

■ Screen Control

Screen Control is used to **update** or **delete** the Trend Graph. A **Real** Address or Tag must be selected. Screen Control values and operation are shown below.

Screen Control	Operation
2	Clear a Trend Graph
3	Update a new Trend Graph

■ Data Count

Data Count is the number of units of **data** that each pen will display on the Trend Graph. The Maximum Data Count is **2048**. Data Count is not used with Datalogging.

■ Min/Max Value

Select a Tag or Real Address for displaying the Min. or Max. value on the Y-axis.

■ Block Number

Data logging only -- select the number of the Data logging Block that will provide the data used on the Graph. All data from the Data Block will be displayed. The **Maximum** number of pens is **8**. If the Datalog Model contains **more than 8** Tags or Addresses, Scope Trend can display only the first 8 Pens.

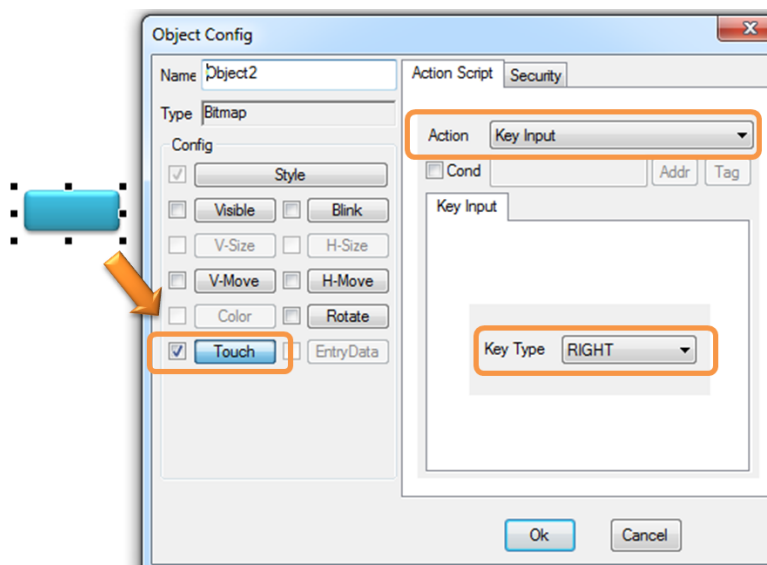
- ※ When using data from a PLC or the Device's memory, the Block Number is not used.

10) User Control Button

To control the Trend Graph, you can create your own control button. The Scope Trend Graph does itself not include any Control Buttons.

■ Control Button(Key Input)

Create a button object, then go to [Touch]→[Key input]. Select Up, Down, Left, Right or Home.



■ Key Input Type

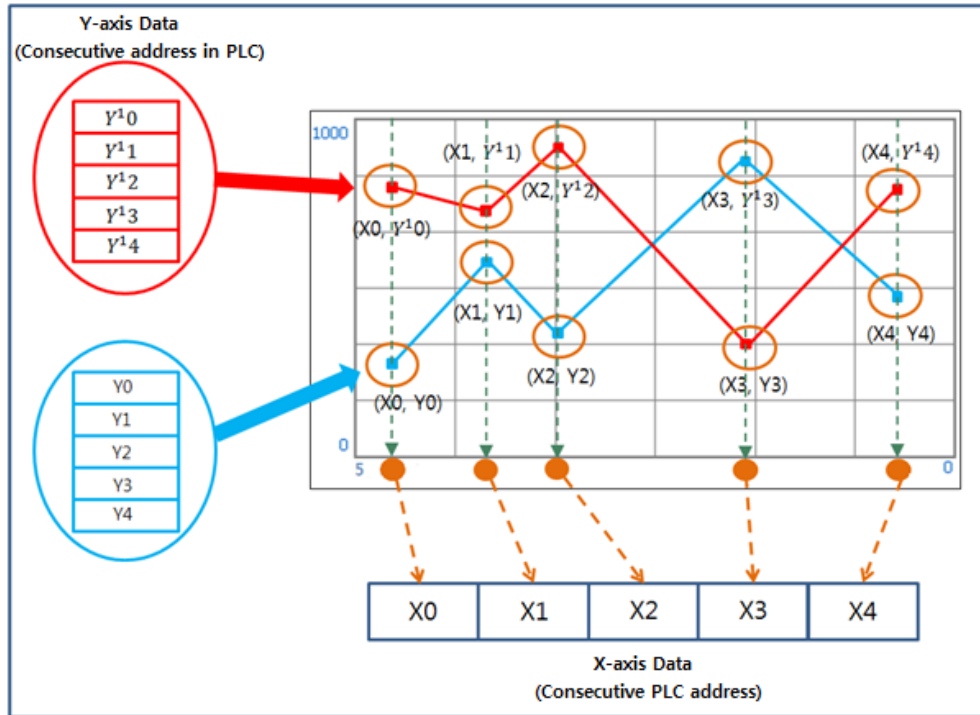
Key Input type	Operation
UP	Zoom in on the X-axis. The range of data shown is decreased by 50%. The maximum Zoom-in is 1000%
DOWN	Zoom out on the X-axis. The range of data shown is increased by 50%. The maximum Zoom-out is 1000%
LEFT	Move back one screen.
RIGHT	Move forward one screen.
HOME	Return to the initial Trend Graph view (No Zoom-in or Zoom-out) .

※ Note

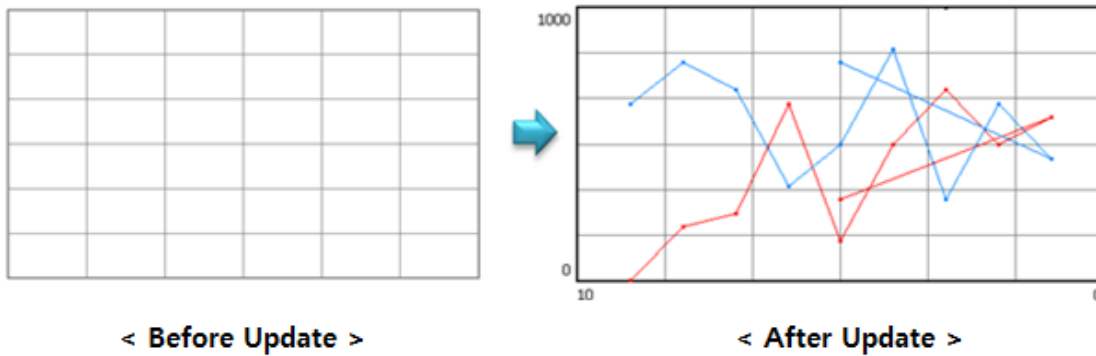
- When the Scope Trend page is in the process of being opened or is already opened, the Scope Trend can be **updated** by changing the **Control Tag Value** to **3**.
- During the time that the Scope Trend is being updated, reading the trend data will have priority as far as communication goes. This means that **Tag operations**, such as **PageOpen**, **Write Tag Value**, etc., may be **delayed** momentarily. Please wait until after the Scope Trend update to execute any touch operations.

17.1.3 SPC Trend

The SPC Trend displays a simultaneous aggregate of **Data**. The main difference is that the Scope Trend displays data sequentially, but the SPC Trend displays it using **X,Y-coordinates**.



✱ After the X,Y coordinates are set, all data is displayed **simultaneously** on the SPC Trend.



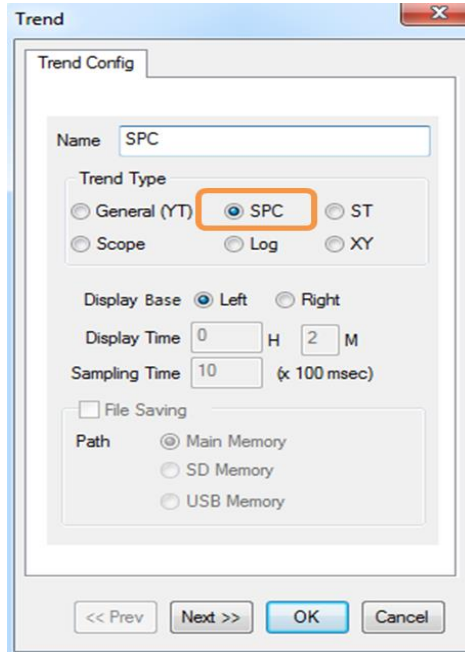
■ Difference between the SPC and Scope Trends

- 1) **X-axis Data** is graphed.
- 2) **The Data logging** feature is **not** used.
- 3) A **Moving Point** is part of the display.

1. Draw a SPC Trend

Select [Draw] → [Trend Graph]. The **Trend Config** dialog box will appear.

4) Trend Configuration : SPC



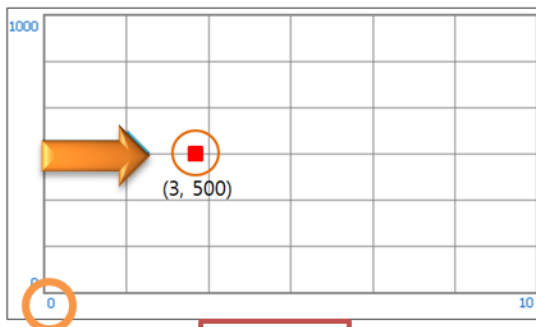
■ Trend Type

Select **SPC**.

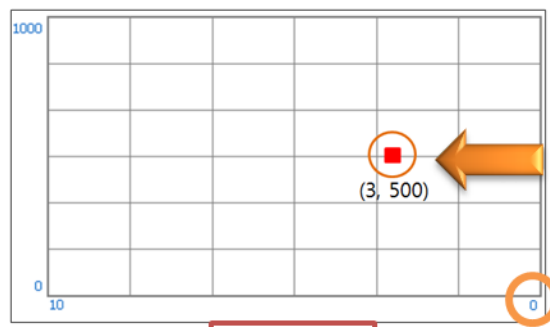
■ Display Base

The **origin** of the X-axis is the Display Base.

Ex) To display data at (X=3, Y=500), the Trend Graph would look like this:



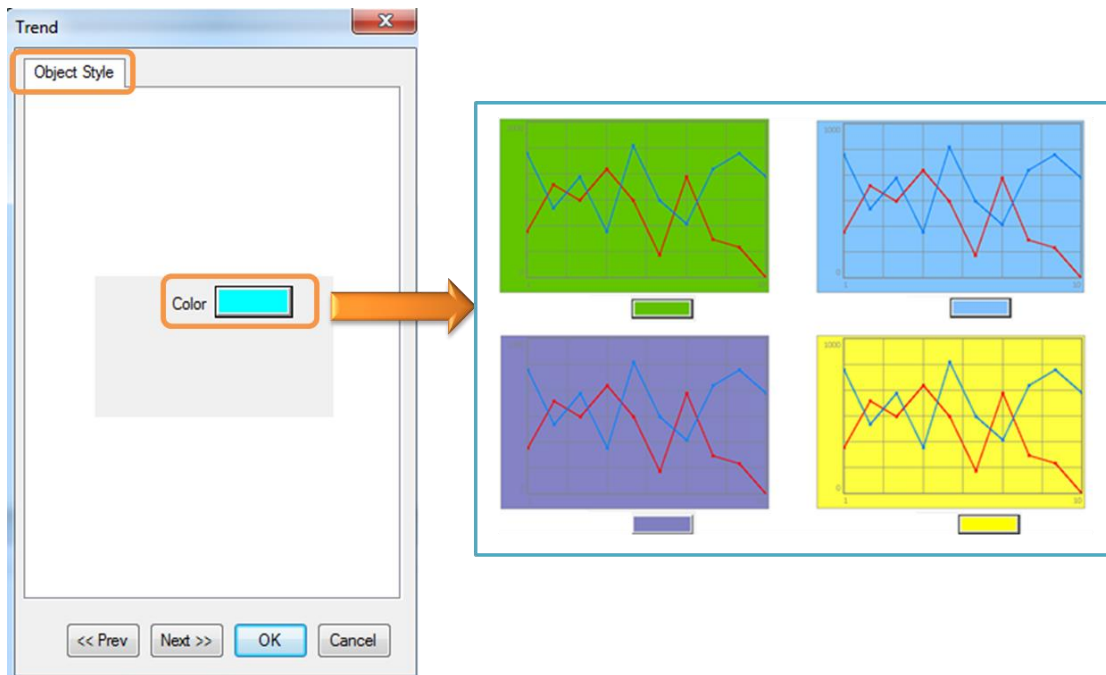
Left Base



Right Base

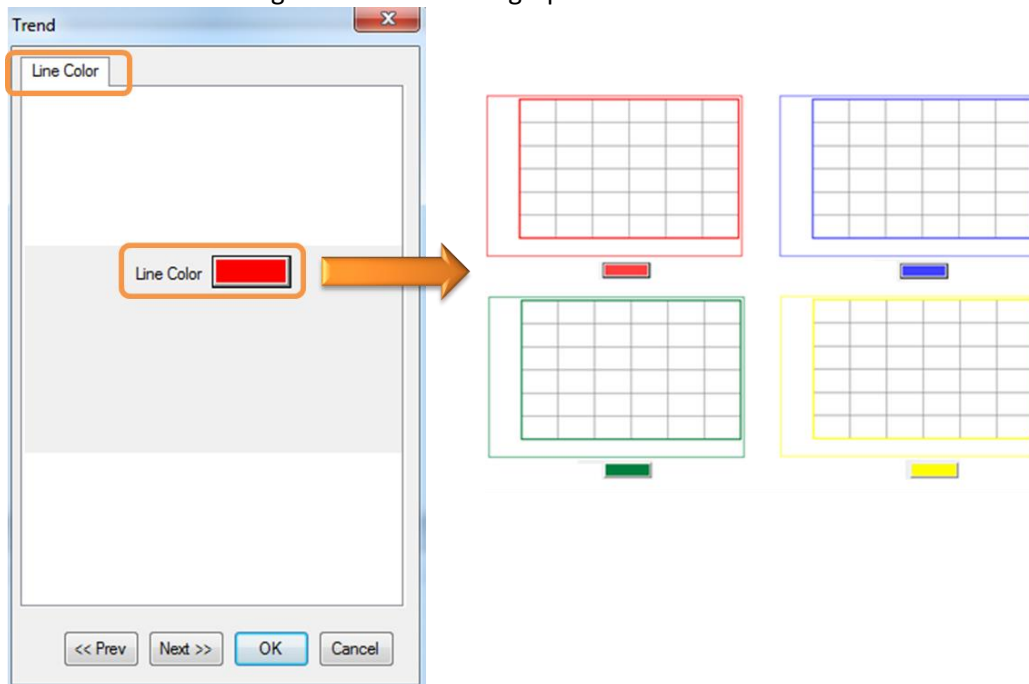
5) Object Style

Object Style changes the **Background Color**. Below are some examples.



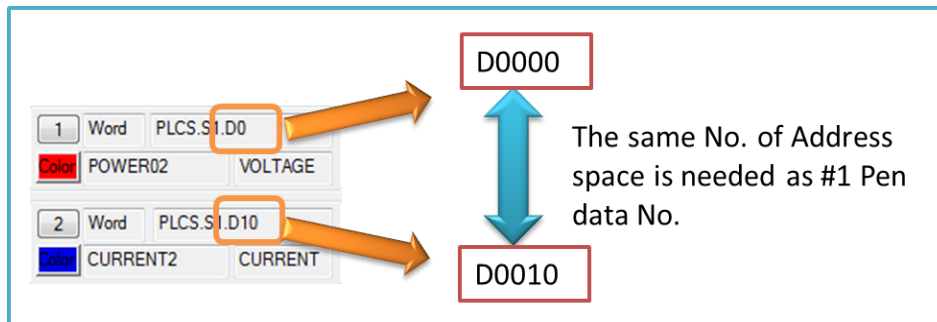
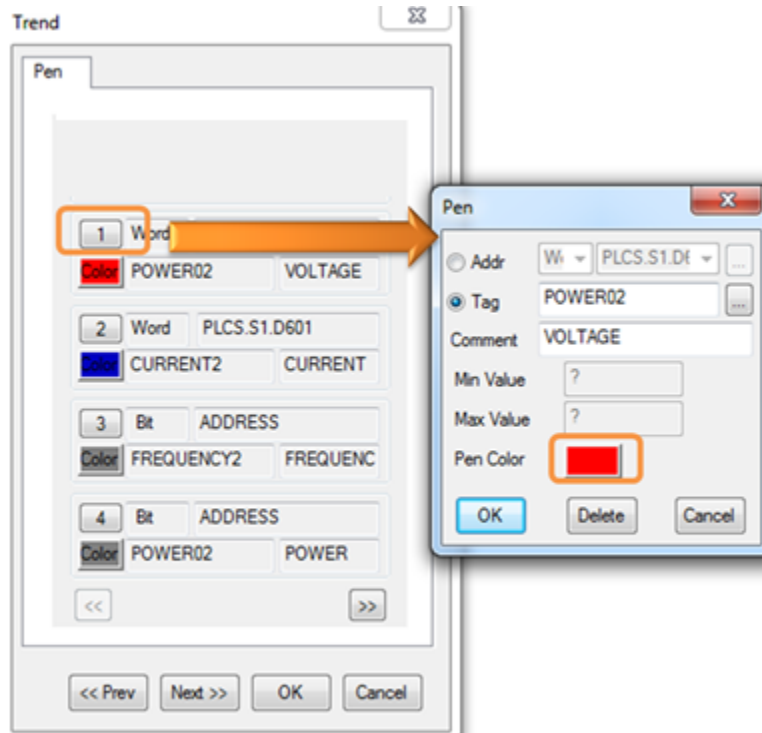
6) Line Color

Line color changes the color of the graph outline.



7) Pen

The Pen Settings **select** the **Tags** or **Real Addresses** to be monitored.



< Pen Address Setting >

When you enter pen address settings, you must take into account the amount of data represented by each pen.

Ex) **#1 Pen** represents **10 Data units** at address **D0**, and **#2 Pen** is at address **D8** (No. of Data units = 10, Address Gap = 8).

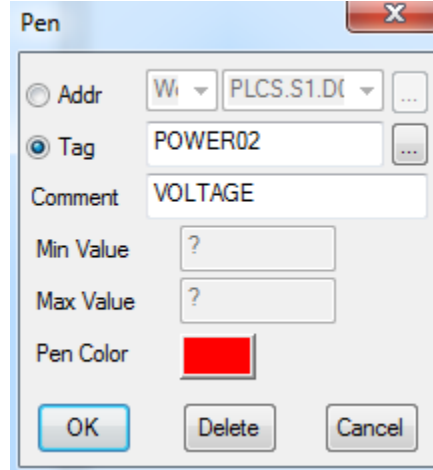
► The Scope Trend graph **does not** display correctly.

※ Note

The Address is determined by the **Pen data type**.

Ex) #1 Pen's data type is INT32, and its Data Count is 10 data units.

Those 10 Data units are INT32, so the Address is determined by 10 units of INT32 data.



< Pen Configuration >

- Address or Tag

Select the Address or Tag for each Pen.

- Comment

The comment will be used instead of the Tag name when displaying the **Tag value**.

- Max/Min Value

Not Applicable.

The **SPC** feature controls the Max/Min value.

- Pen Color

Select the Pen color. Click on the color to bring up the color palette.

8) Grid Setting

A Grid can be included in a Trend Graph. You can set the **Number** of Grid lines on the X or Y Axis up to a **Maximum of 99**, and select the Grid **color**.

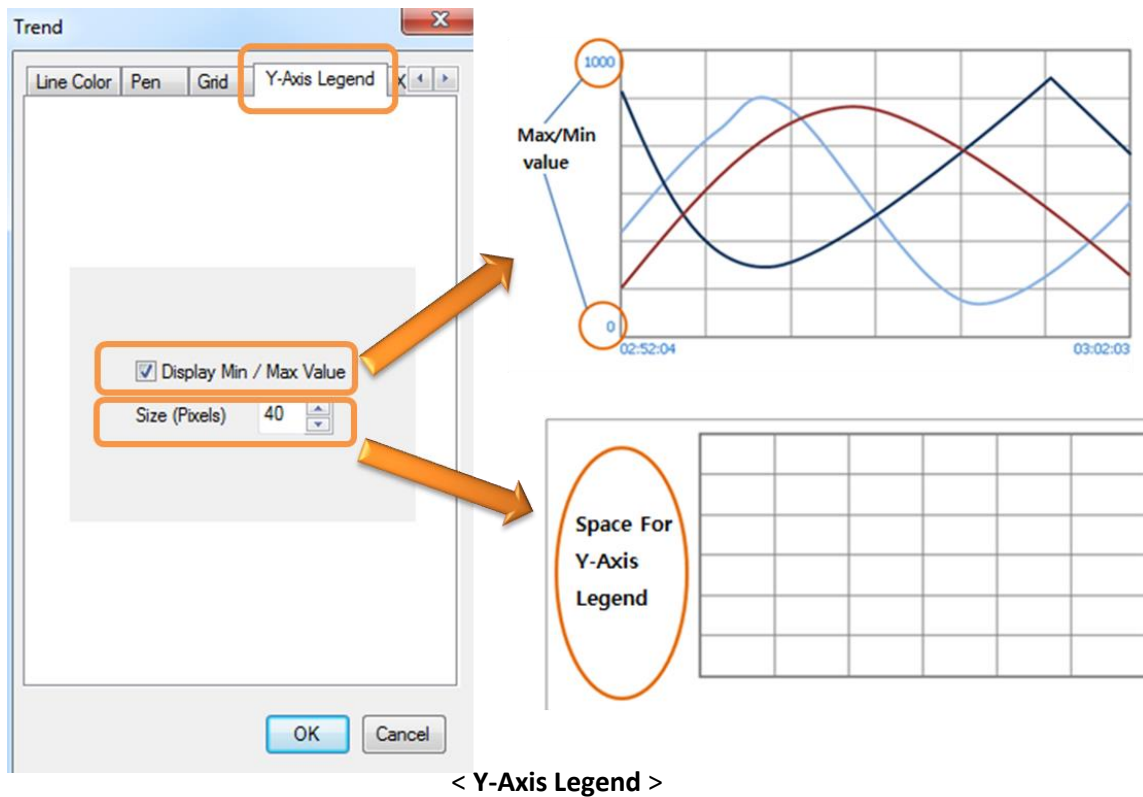
9) Y-Axis Legend

- Max/Min Value

Display the Max/Min values on the Y-axis.

- Legend Size

Set the **size** for the Y-Axis Legend.

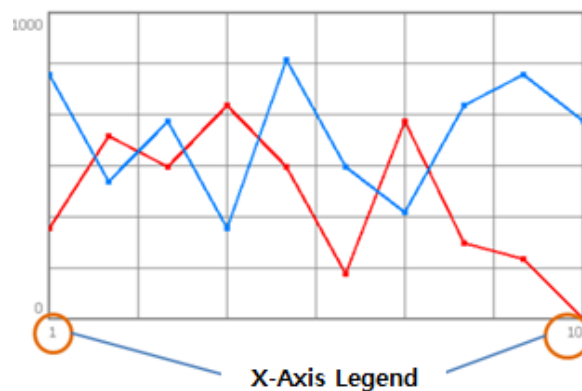


10) X-Axis Legend

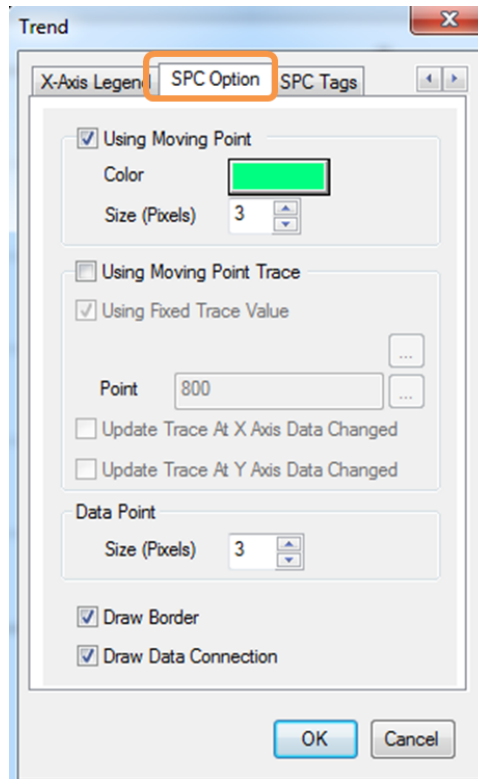
Display the X-axis Data range. The data range is set by the SPC Tag **Data Count**. The minimum and maximum values will appear at the far points of the X-axis. If the data has greater X value than the Maximum, only data up to the Maximum value will be displayed.

Ex) The X-axis Data range is from 1 to 10.

If there is a Data point with the coordinates (X=30,Y=100), then (X=10,Y=100) will be displayed.



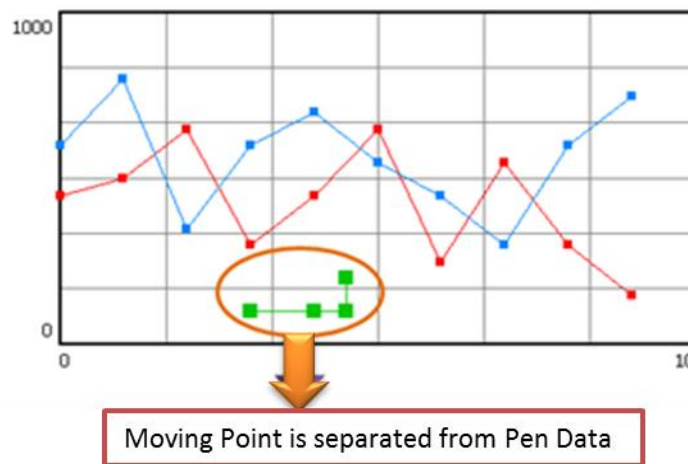
11) SPC Option



■ Using the Moving Point

Besides the Data Pen, **Moving points** can be used to display **moving data** on Graphs. The Maximum number of Moving Points is 800.

When **Moving Point Trace** is enabled, Moving points are supported only with a **pre-drawn** Graph. When Moving Point Trace is disabled, Moving Point can be drawn without a pre-drawn Graph.



A. Color

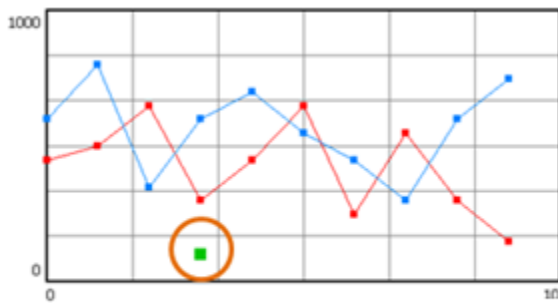
Select the Moving Point Color.

B. Size (Pixels)

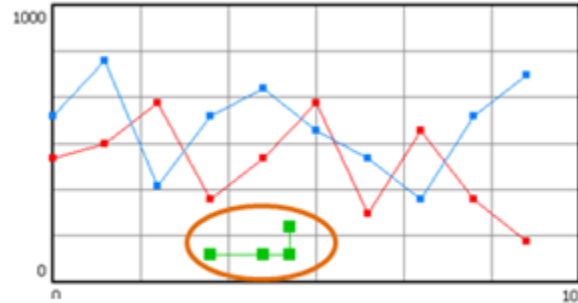
Enter the Moving Point size in pixels.

■ Using Moving Point Trace

With this feature **enabled**, Moving Points can be connected by a **Polyline**. When this feature is **disabled**, only **one point** will be displayed.



< Moving Point Trace disabled >



< Moving Point Trace enabled >

■ Using Fixed Trace Value

● Fixed Trace Value **Enabled**

A maximum of 800 Trace Points can be used. If the number of Trace point exceeds the Max. number, additional Trace Points will not be drawn.

● Fixed Trace Value **disabled**

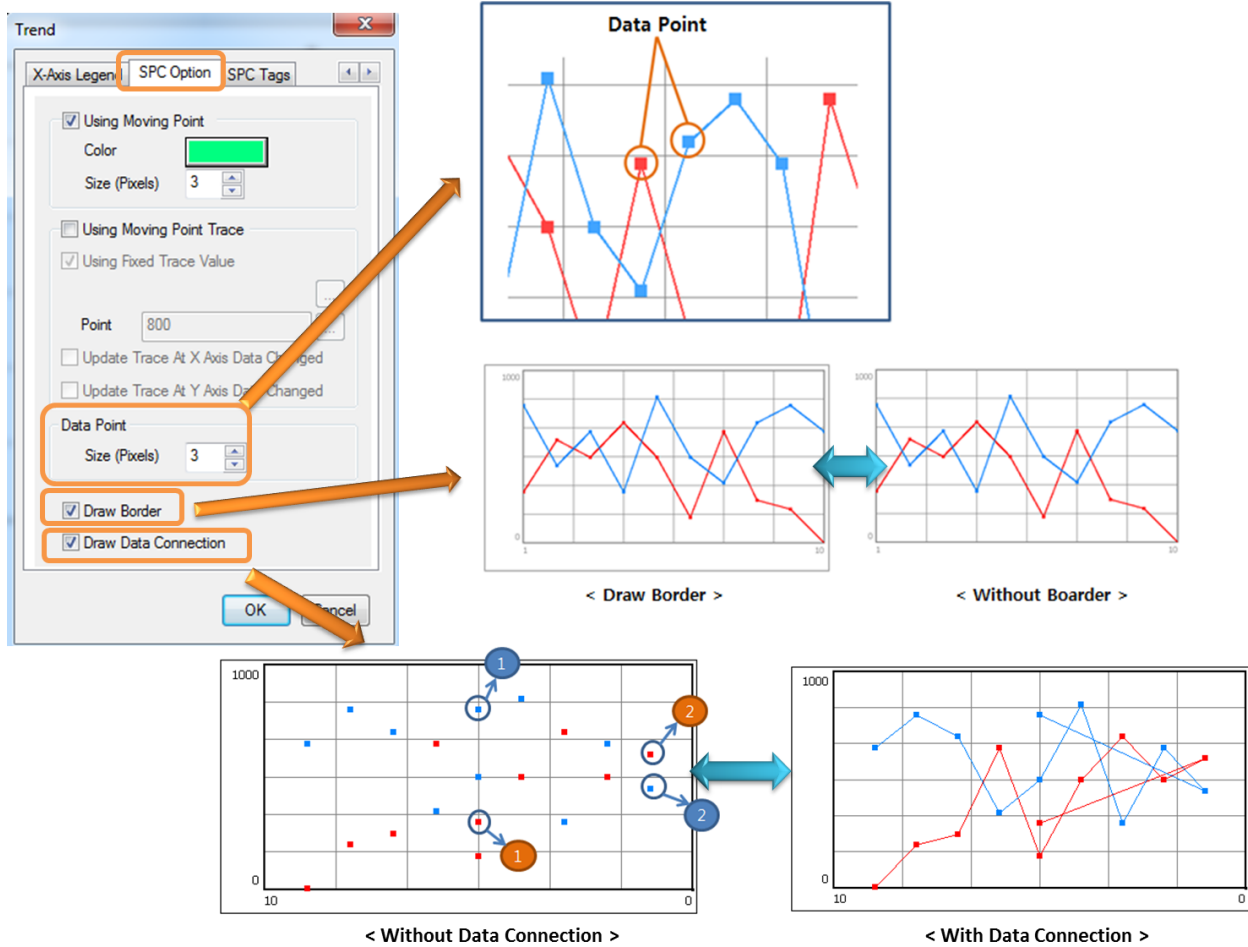
A maximum of 800 Tags or Real Addresses can be used to set the Trace number. When using Tags or Real Addresses, the maximum Trace number can be changed during operation.

■ Update Trace When **X-axis** Data Changed

When the **Control Tag** value is **4**, the Moving Point display is changed when the Moving point **X value** is changed.

■ Update Trace When **Y-axis** Data Changed

When the **Control Tag** value is **4**, the Moving Point display is changed when the Moving point **Y value** is changed.



■ **Data Point**

Data is displayed as **Points** on the Trend Graph, connected by the graph lines. The point **size** unit is **Pixels**.

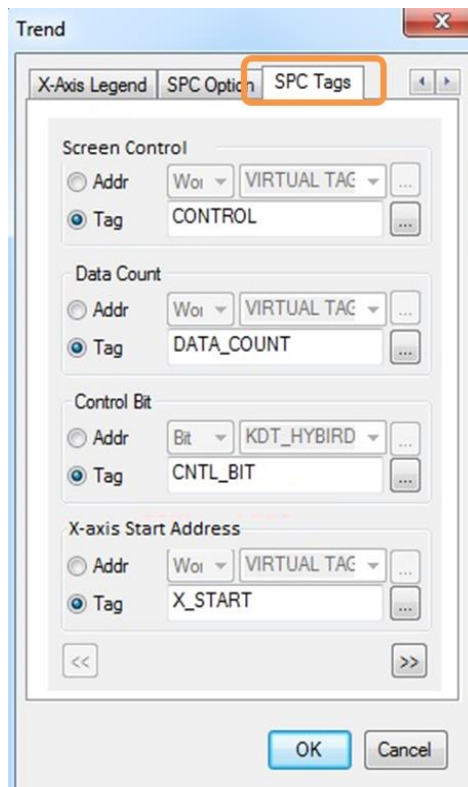
■ **Draw Border**

An exterior Border is drawn around the graph.

■ **Data Connection**

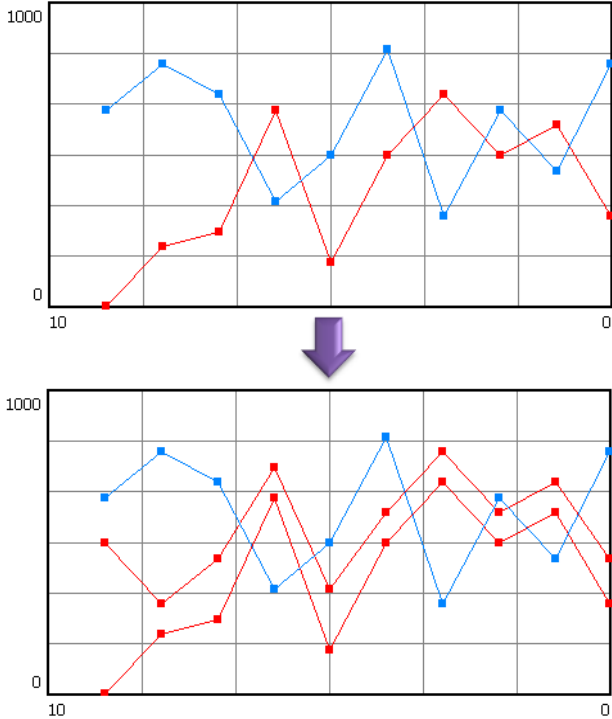
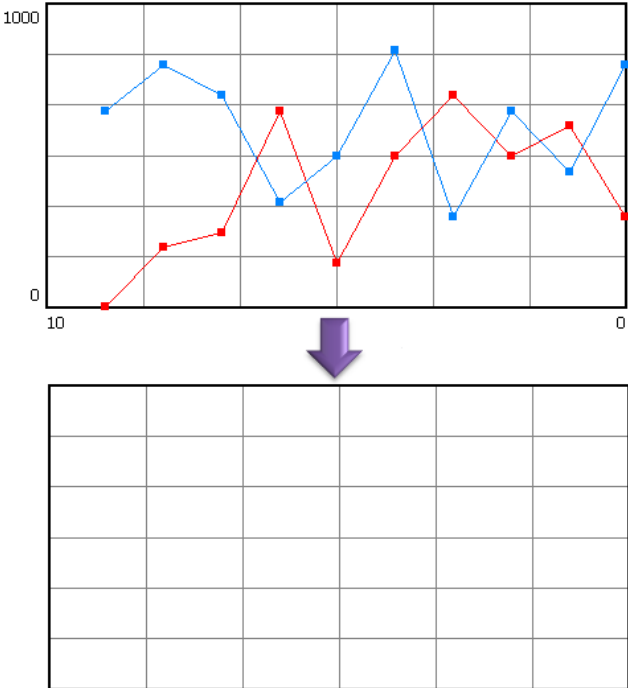
Data is shown either by **dots** or a **polyline**.

12) SPC Tag



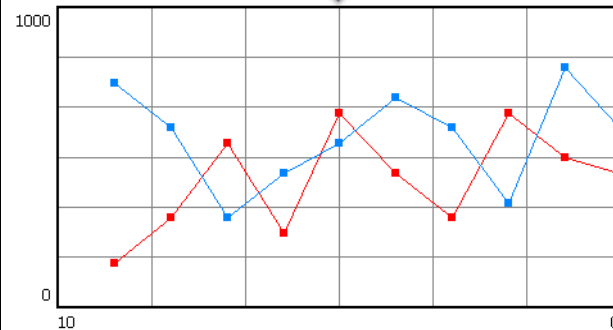
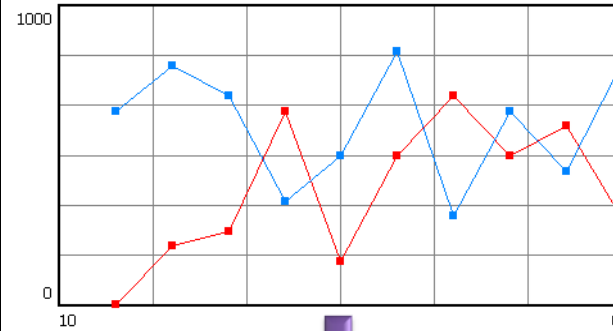
■ Screen Control

This controls Trend Graph **updates**. A Real Address or Tag can be used. This operation is executed **only when** the Screen Control value is **changed**. For example, the Graph is not re-drawn if the Screen Control value stays at 3. The Screen Control value must be changed to another value, then changed back to 3 to update the Graph. The table below shows Screen Control values and operations.

Screen Control Value	Operation
1	<p>Keep the current Graphs, and add a new graph.</p> 
2	<p>Delete the current Graph.</p> 

3

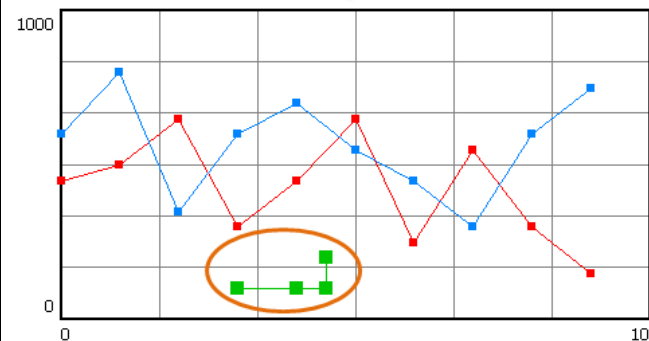
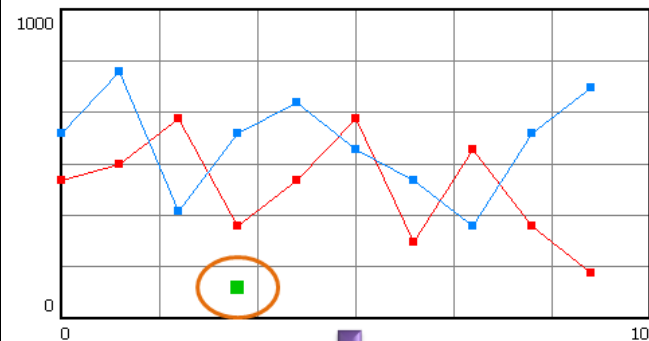
Delete the current Graph, and **redraw** the Graph.



4

Start Moving Point Trace (applicable only when the Moving Point Trace feature is enabled).

Moving Point Trace is executed automatically by **changing the X or Y value** (applicable only when the Update Trace option enabled).



5	pause Moving Point Trace (applicable only when the Moving Point Trace feature is enabled).
6	Stop Moving Point Trace (applicable only when the Moving Point Trace feature is enabled).

■ Data Count

When you enter pen settings, you must take into account the amount of data represented by each pen.

Ex) #1 Pen represents **10 Data units** at address **D0**, and #2 Pen is at address **D8** (No. of Data units = 10, Address Gap = 8).

► The Scope Trend graph **does not** display correctly.

※ Note

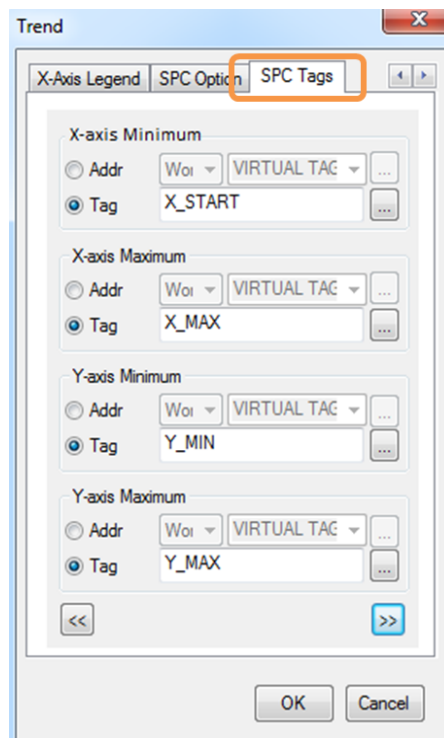
The Address is determined by the **Pen data type**.

Ex) #1 Pen's data type is INT32, and its Data Count is 10 data units.

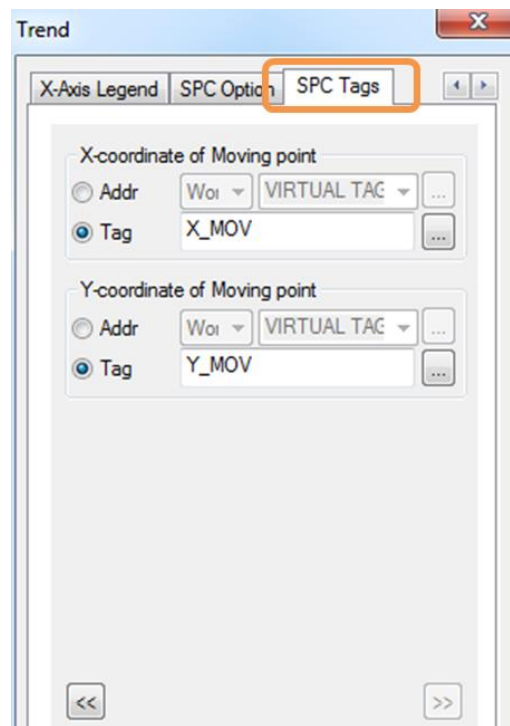
Those 10 Data units are INT32, so the Address is determined by 10 units of INT32 data.

■ X-Axis Start Address

The PLC Address sets the starting point of the X-axis. From that point, Addresses (of the same data type as the start address, and indicating the X value of each point) are in sequence, ending with the **Data Count Number**.



- X-axis Minimum
This sets the minimum X-axis display value.
- X-axis Maximum
This sets the maximum X-axis display value.
- Y-axis Minimum
This sets the minimum Y-axis display value.
- Y-axis Maximum
This sets the maximum Y-axis display value..



- X- coordinate of Moving Point
Set the Tag or Real Address of the Moving Point's X value.
- Y- coordinate of Moving Point
Set the Tag or Real Address of the Moving Point's Y value.

※ Notes

- When the SPC Trend page is in the process of being opened or is already opened, the SPC Trend can be **updated** by changing the **Control Tag Value** to **1** or **3**.
- During the time that the SPC Trend is being updated, reading the trend data will have priority as far as communication goes. This means that **Tag operations**, such as **PageOpen**, **Write Tag Value**, etc., may be **delayed** momentarily. Please wait until after the SPC Trend update to execute any touch operations.

17.1.4 ST Trend

The ST Trend allows **comparison** between a **Reference** Graph and **Real-Time** Trends. The reference Graph is based on a sequence of data saved by the device (PLC). Real-Time data is displayed along with the Reference Trend.



1) Draw a ST Trend

Select [Draw] → [Trend Graph]. The **Trend Config** dialog box will appear.

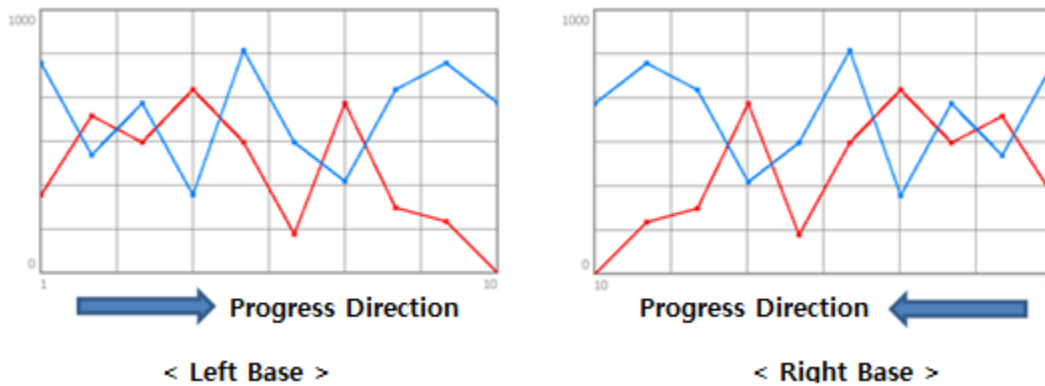
1) Trend Configuration : **ST**

The screenshot shows the 'Trend Config' dialog box. The 'Name' field contains 'ST_Trend'. Under 'Trend Type', the 'ST' radio button is selected and highlighted with an orange box. Other options include 'General (YT)', 'SPC', 'Scope', 'Log', and 'XY'. Under 'Display Basis', the 'Right' radio button is selected. The 'Display Time' is set to 0 H 2 M. The 'Sampling Time' is set to 10 (x 100 msec). The 'File Saving' checkbox is unchecked. Under 'Path', the 'Main Memory' radio button is selected. At the bottom, there are buttons for '<< Prev', 'Next >>', 'OK', and 'Cancel'.

■ Trend Type
Select **ST**.

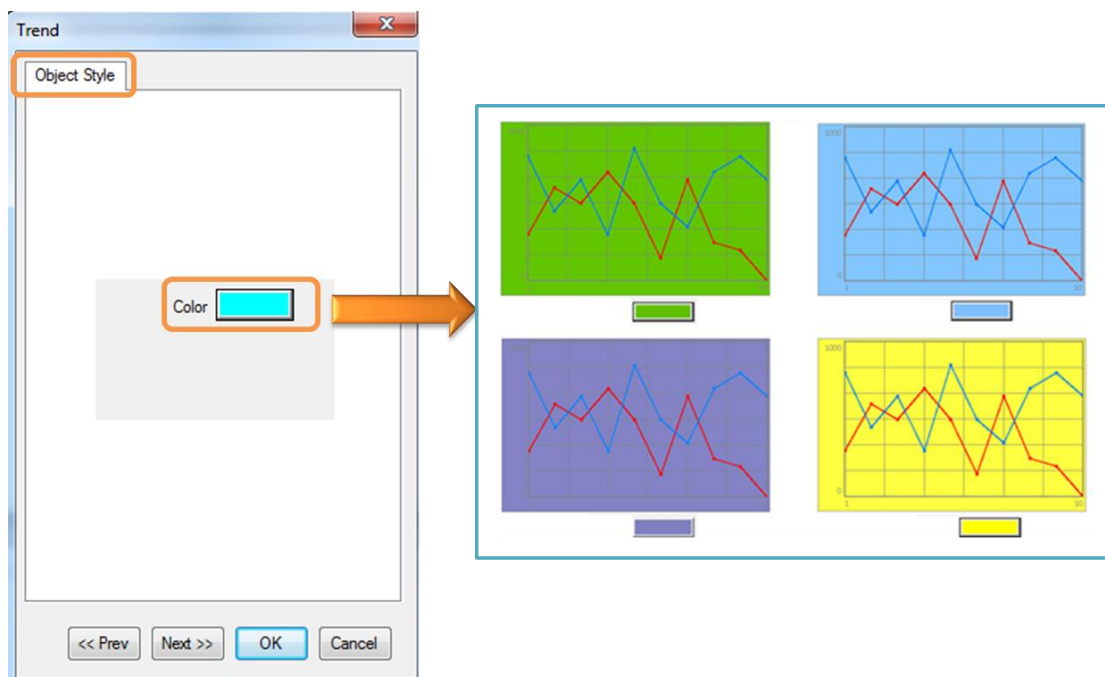
■ Display Base
The **origin** of the X-axis is the Display Base.

Ex) To display data at (X=3, Y=500), the Trend Graph would look like this:



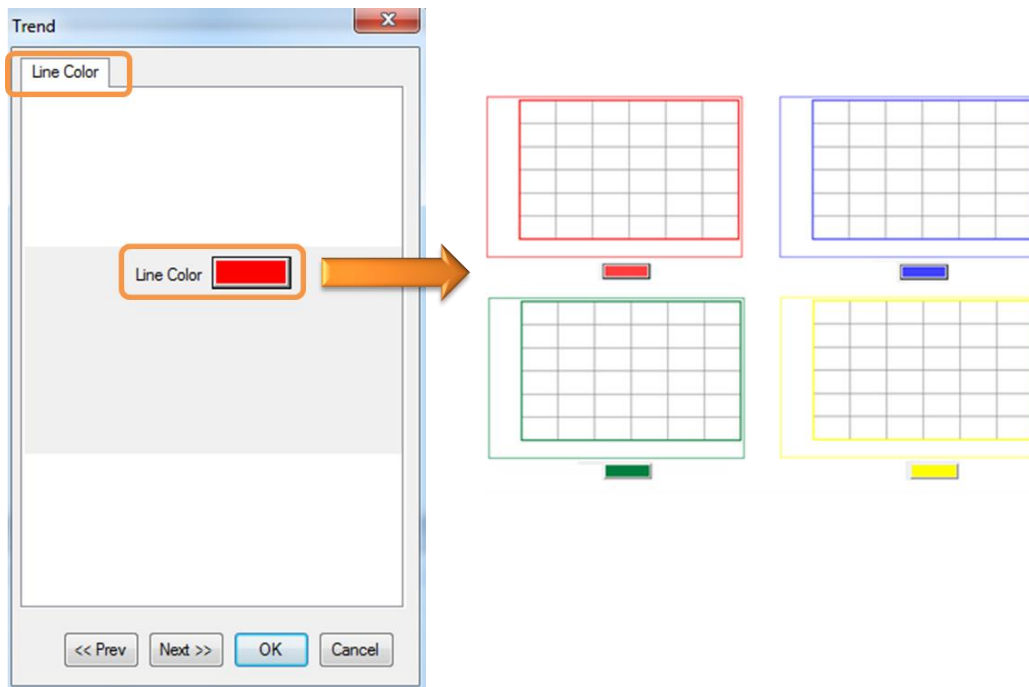
■ Sampling Time
Enter the sampling time for the Pen data.

2) Object Style
Object Style changes the **Background Color**. Below are some examples.



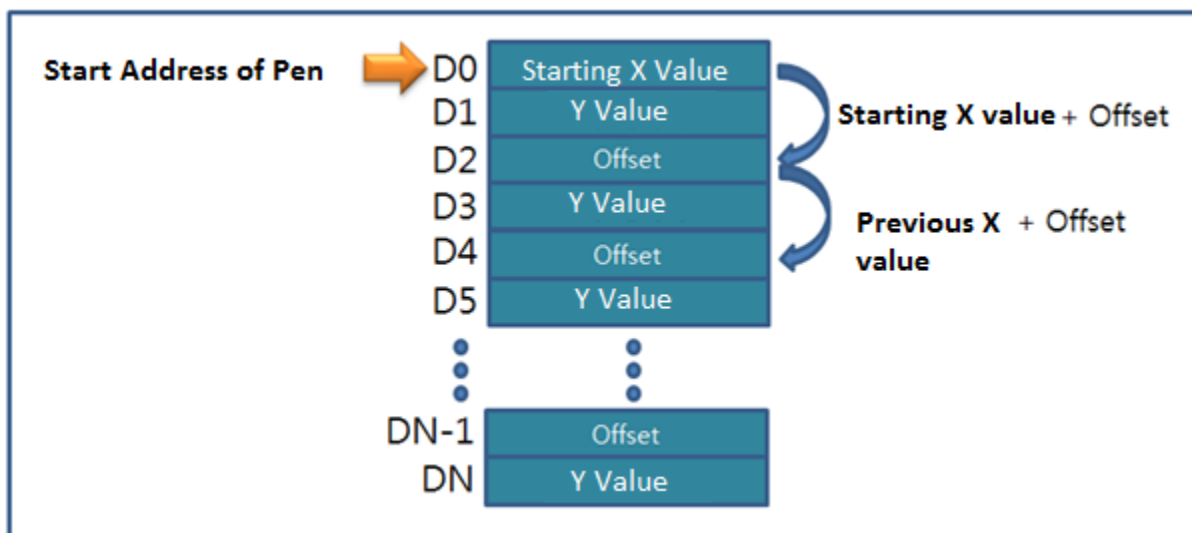
3) Line Color

Line color changes the color of the graph outline.



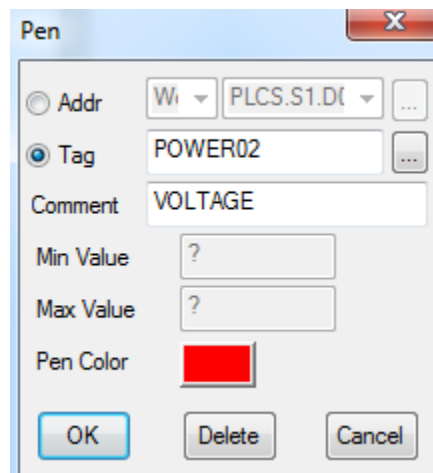
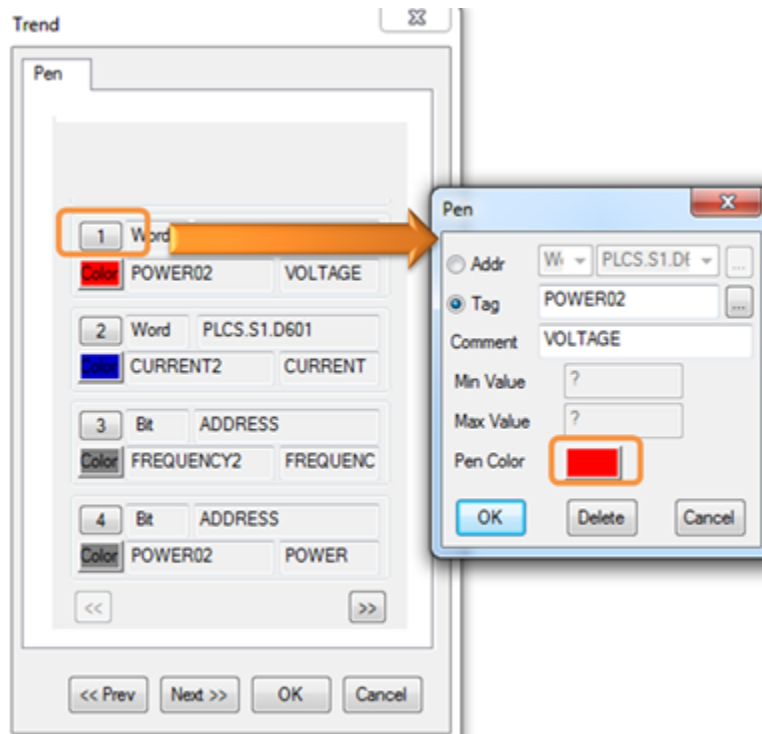
4) Pen

Enter the pen settings for the **Reference Graph**. Pen numbers represent consecutive addresses with offsets, all the way up to the **Data Count**. The Tag type must be **Real**. The Reference Graph has X,Y coordinates. This means that pen addresses consist of **two Words**. Address configuration is shown below.



< Pen Address >

The Pen number that you select in Pen Configuration represents a Tag or Address.



< Pen Configuration >

■ Address or Tag

Select an Address or Tag for each Pen.

■ Comment

The comment will be used instead of the Tag name when displaying the **Tag value**.

■ Max/Min Value

Not Applicable.

The **ST** feature controls the Max/Min value.

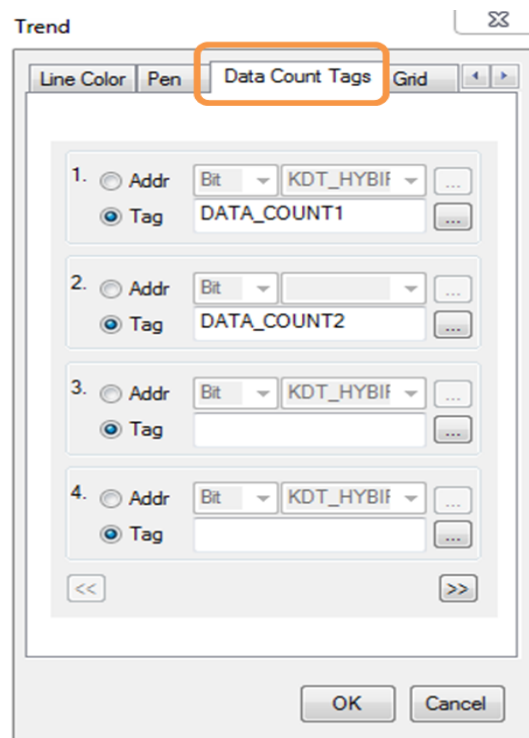
■ Pen Color

Select the Pen color. Click on the color to bring up the color palette.

5) Data Count Tag

The Data Count Tag defines the **consecutive Address numbers** for each pen. The number of **Data Count Tags** increases as the **number of Pens** increases. If 4 Pens are used, then 4 Data Count Tags are used.

The **consecutive address number** of each Pen is based on the **value** of the **Data Count Tag**. The Tag or Address must have an **even** value. This is because each Pen's data has both an X and Y value. If the Tag or Address value is odd, "value -1" will be displayed on the Graph.



6) Grid Setting

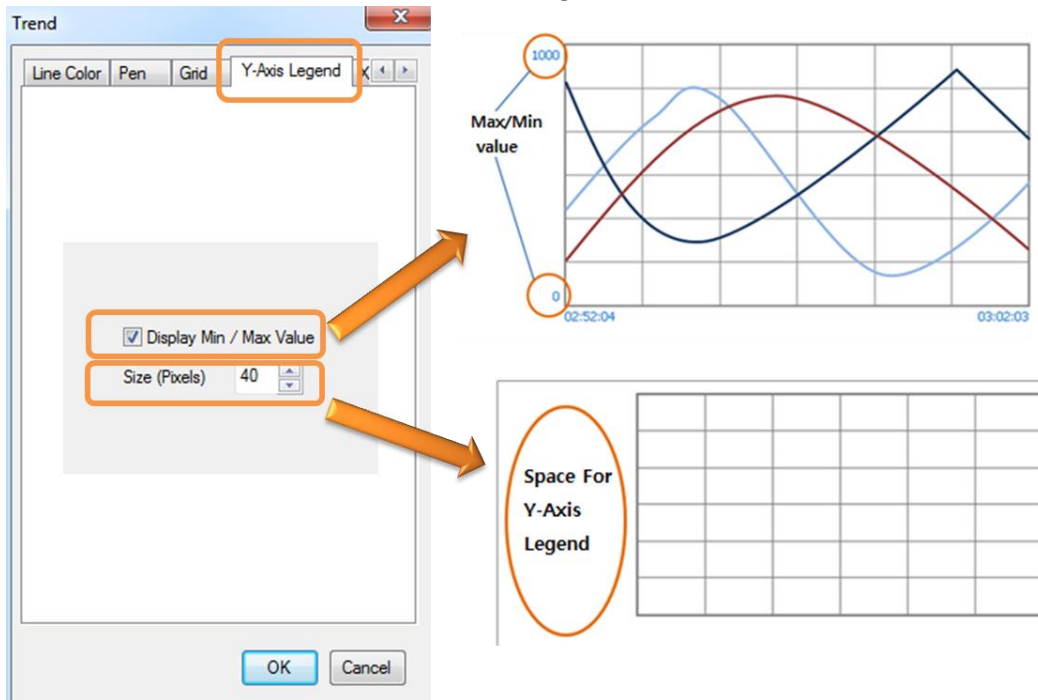
A Grid can be included in a Trend Graph. You can set the **Number** of Grid lines on the X or Y Axis up to a **Maximum of 99**, and select the Grid **color**.

7) Y-Axis Legend

■ Max/Min Value

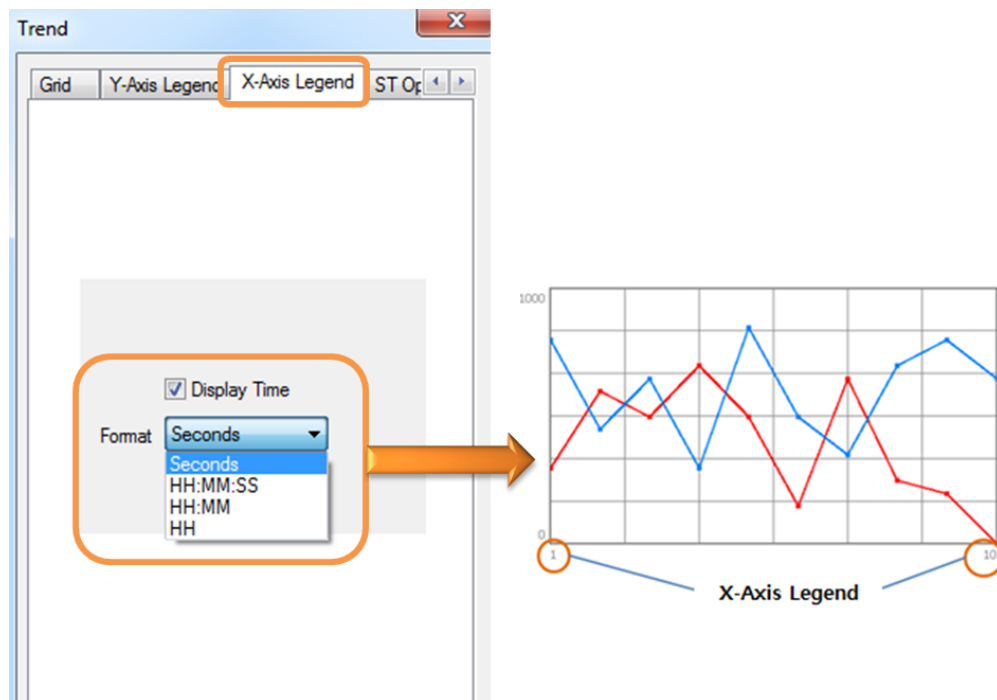
Display the Max/Min values on the Y-axis.

■ Legend Size
Set the **size** for the Y-Axis Legend.



< Y-Axis Legend >

8) X-Axis Legend
Display Time information on the X-axis. A variety of formats are supported.



9) ST Option

■ Trace Point

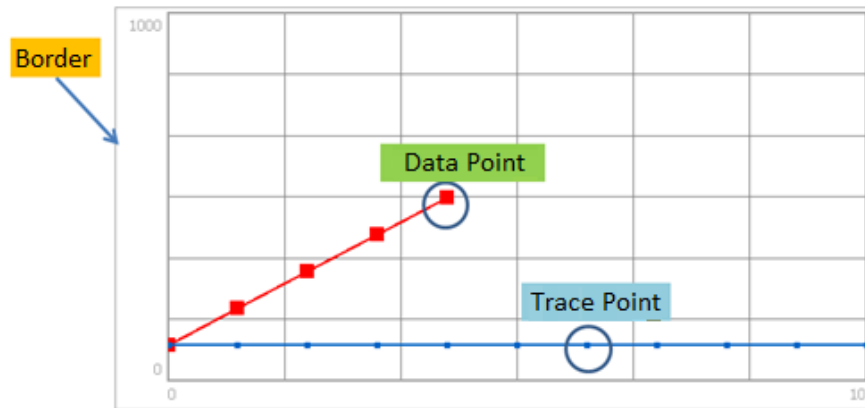
- Color: Select the Trace Point color.
- Size (Pixels) : Select the Trace Point size.

■ Data Point

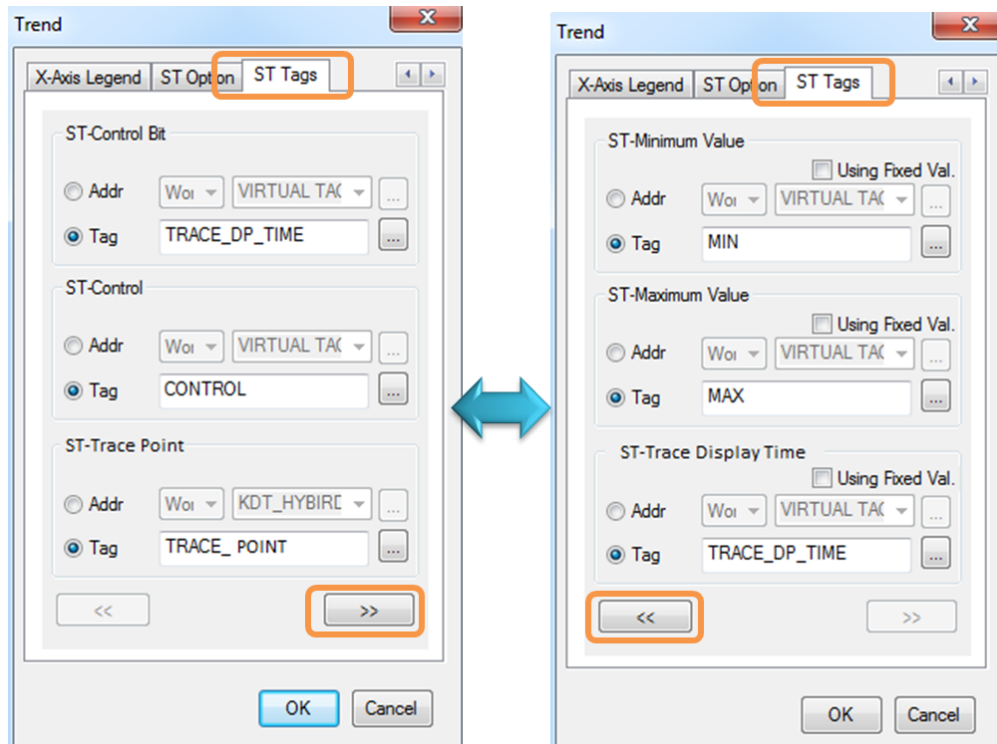
- Size (Pixels) : Select the Data Point size.

■ Draw Border

Draw a border around the graph.



10) ST Tag



■ Control Bit

Xpanel uses the **Control Bit** (either Tag or Real Address) for its internal purposes. The Control Bit is **Set** automatically when Xpanel reads data from the PLC. The user does not need to change it.

※ Leave the Control Bit **blank** when the **Datalog Model** is used.

※ The Control Bit must be a **Real Digital Tag** when reading real device (PLC) memory. A **Virtual Tag** cannot be used for a Control Bit.

■ ST- Control

Update or **delete** the Trend Graph. A Real Address or Tag is selected. The Screen Control codes are shown below:

Control Value	Operation
2	Clear the Trend Graph and initialize the Trace Graph.
3	Update a new Trend Graph and initialize the Trace Graph.
4	Start a Trend Graph. If the Reference Graph has not been drawn, the Trace Graph will not start.
5	Pause a Trace Graph (cumulative data is kept).
6	Finish a Trace Graph (cumulative data is deleted).

■ ST-Trace Point

Select a Trace Point Tag or Address.

■ ST-Minimum

Select a Tag or Address to set the **minimum value** of the Graph. A fixed minimum value can be used.

■ ST-Maximum

Select a Tag or Address to set the **maximum** value of the Graph. A fixed minimum value can be used.

■ ST-Trace Display Time

Select a Tag or Address to set the maximum time on the X-axis.

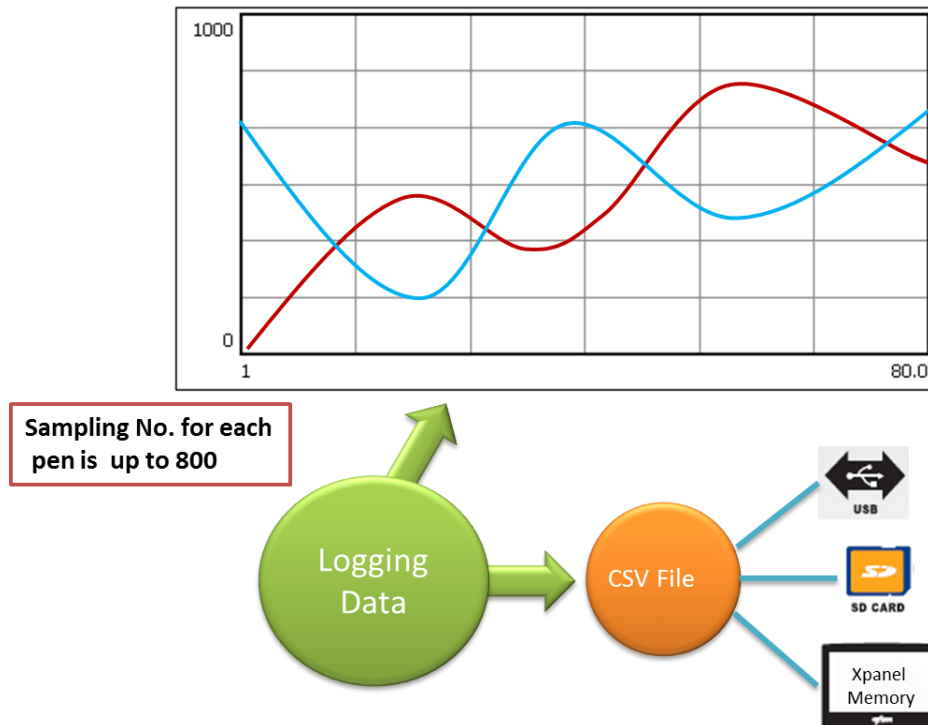
※ Note

- When the ST Trend page is in the process of being opened or is already opened, the ST Trend can be **updated** by changing the **Control Tag Value** to **3**.
- During the time that the ST Trend is being updated, reading the trend data will have priority as far as communication goes. This means that **Tag operations**, such as **PageOpen**, **Write Tag Value**, etc., may be **delayed** momentarily. Please wait until after the ST Trend update to execute any touch operations.

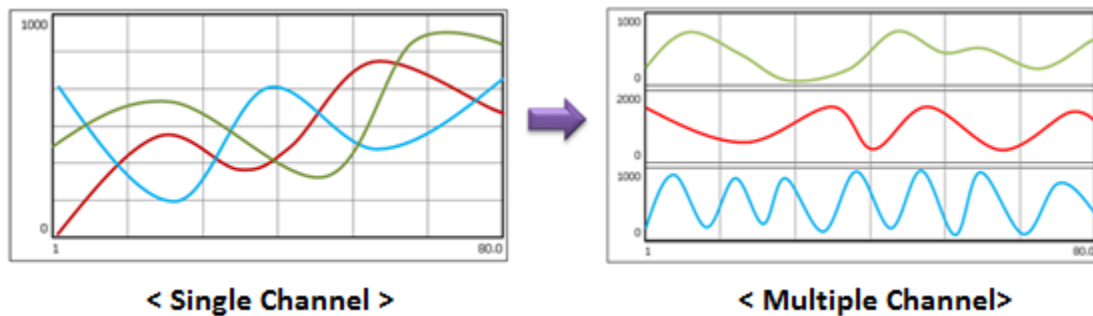
17.1.5 LOG Trend

Real-time data is **logged** and displayed on a **Trend** graph as it comes in. Each pen can support multiple channels, and Data logging can be **Period** or **Trigger**. The logged data can easily be exported as a **CSV** file. The LOG Trend graph is useful when both the Data logging and Trend features are needed.

※ However, the LOG Trend graph **does not** support **Historical Mode** for Data logging. Pre-logged data cannot be read and displayed using the LOG Trend graph.



The LOG Trend graph support a maximum of **16 Pens**. The maximum amount of sampling data for each pen is **800**, so only the most recent 800 units of data will be displayed.



A maximum of 16 channels is supported.

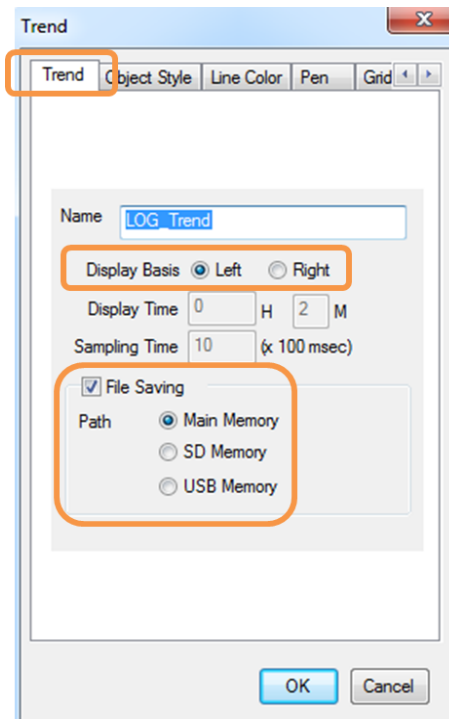
Ex) With **4 pens** used,
The Y axis is divided into 4 areas. The first pen uses the region at the top.

※ A **Control Tag** is used to **update** LOG Trend sampling data.

1. Draw a LOG Trend

Select [Draw] → [Trend Graph]. The **Trend Config** dialog box will appear.

1) Trend Configuration : Log



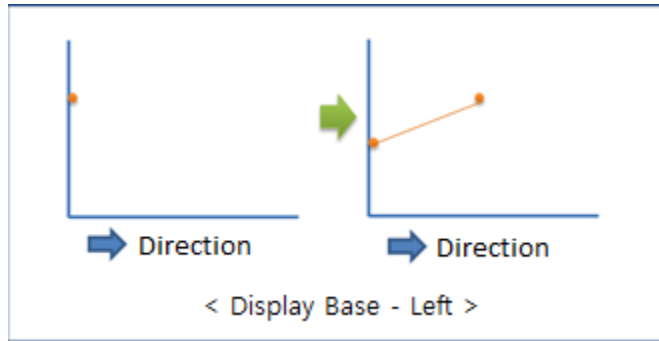
■ Trend Type

Select **Log**.

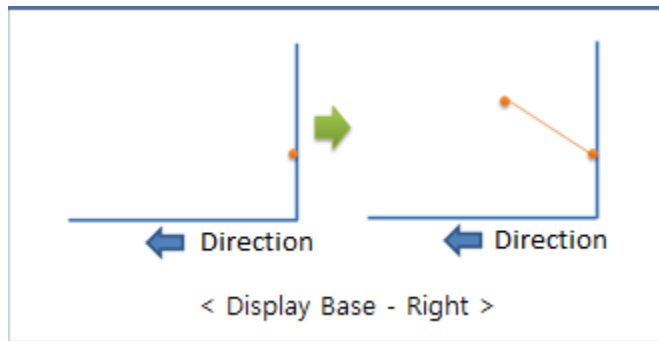
■ Display Base

The **origin** of the X-axis is the Display Base.

A. Display Base – Left



B. Display Base – Right

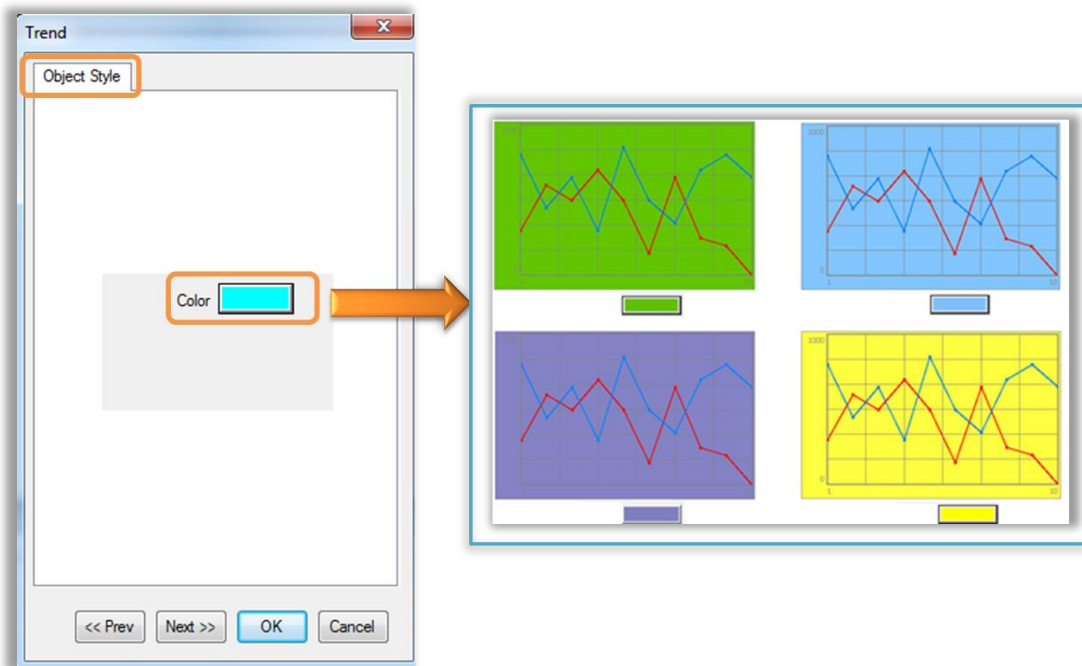


■ File Saving

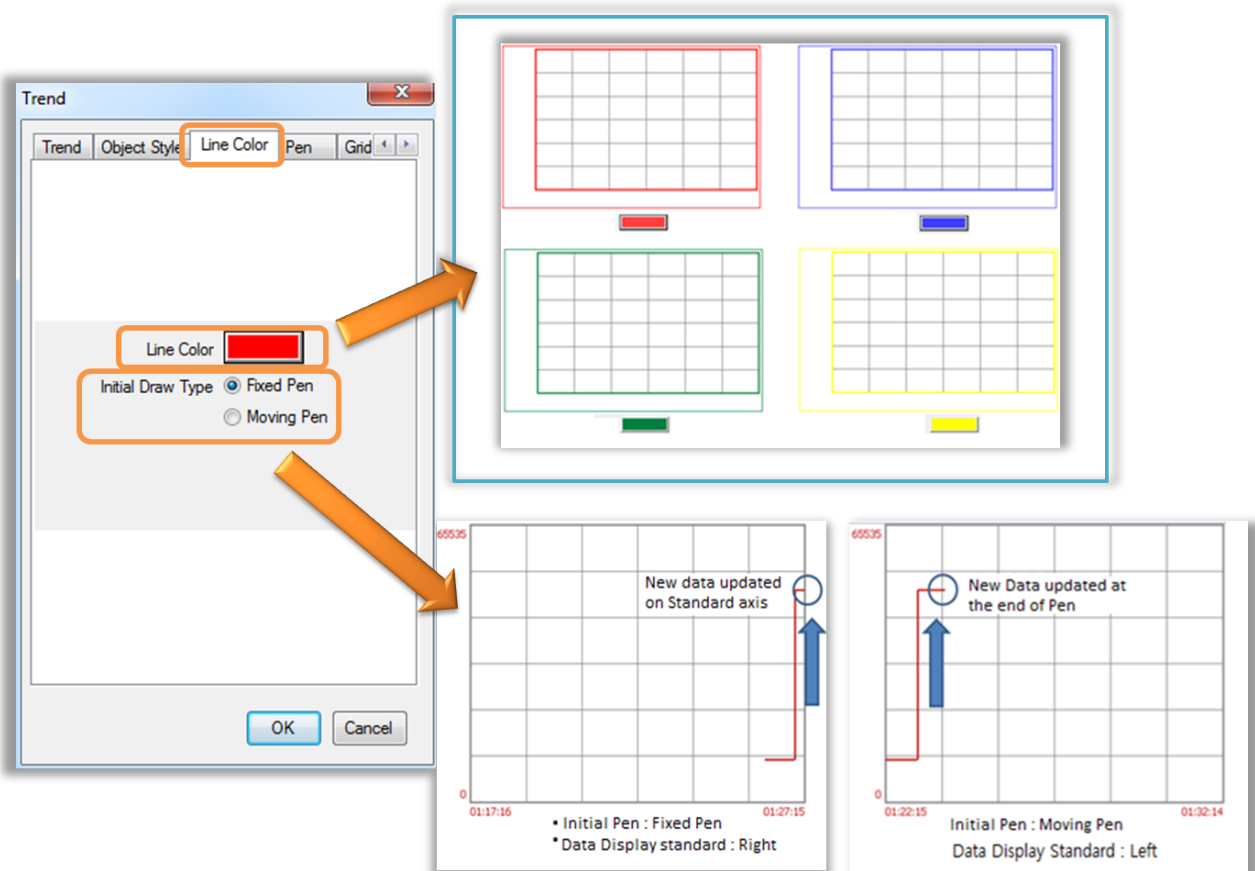
When File Saving is enabled, the logged data is **automatically** saved as a **CSV** file. One CSV file can save **around 30000** units of data. If the data exceed 30000 units, a new CSV file will be created. If storage space is insufficient, the **oldest CSV** file is deleted and the newest file is saved. The storage options are **Internal memory**, **SD Memory**, and **USB Memory**.

2) Object Style

Object Style changes the **Background Color**. Below are some examples.



3) Line color changes the color of the graph outline.



■ Initial Drawing Type

The Initial Drawing Type can be **Fixed Pen** or **Moving Pen**. This affects the initial appearance of the graph, but eventually, the difference will no longer be apparent.

A. Fixed Pen

-The **latest Data** is updated on the **Display Base** axis.

B. Moving Pen

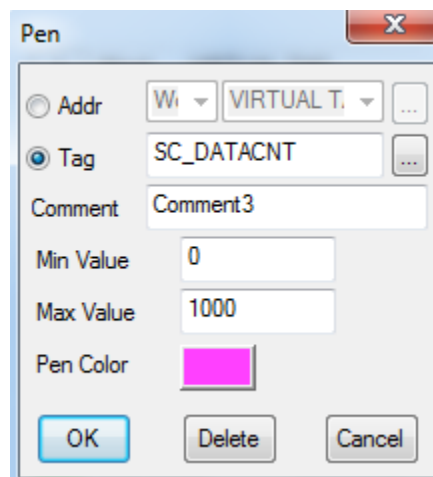
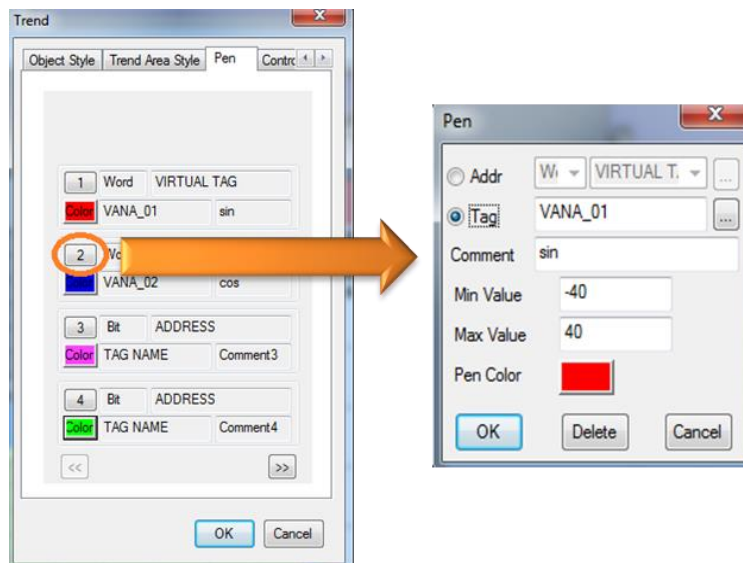
- The **latest Data** is updated at the **end of the Pen**.

4) Pen

The Pen Settings **select the Tags or Real Addresses** to be monitored.

■ Pen Setting

Select Pen **number** from Pen Settings to select the Tag or Address.



A. Address or Tag

A **Real Address** or **Tag** can be selected for each Pen.

B. Comment

The comment will be used instead of the Tag name when displaying the **Tag value**.

C. Max/Min value

Set the **Max.** and **Min.** value of the Trend graph's **Y-axis**.

■ For a Single Channel

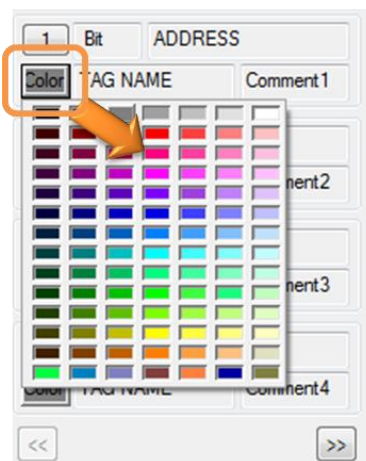
The Max/Min value of each Pen is used in the Trend Graph, but not for the Y-axis display. Only the #1 Pen displays its Max/Min value on the Y-axis.

■ For Multiple Channel

The Max/Min value is displayed on each channel. if the Max/Min Value is not set in the **Tag type** setting, the Max/Min Value from **Engineering Data [CIMON]** in the Database will be used (For Addresses, the Max/Min value is based on the Data Type).

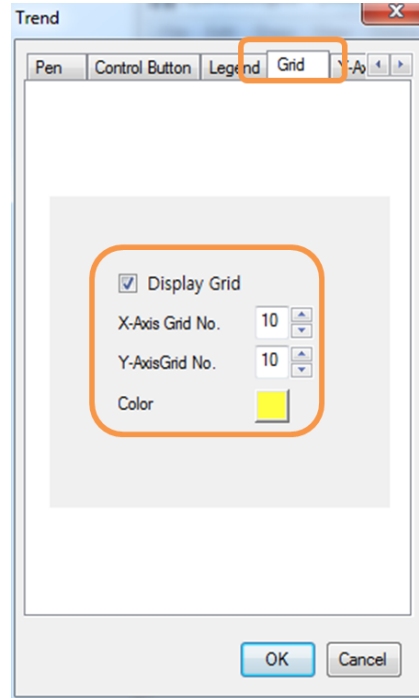
D. Pen Color

Select the Pen color. Click on the color to bring up the color palette.



4) Grid Setting

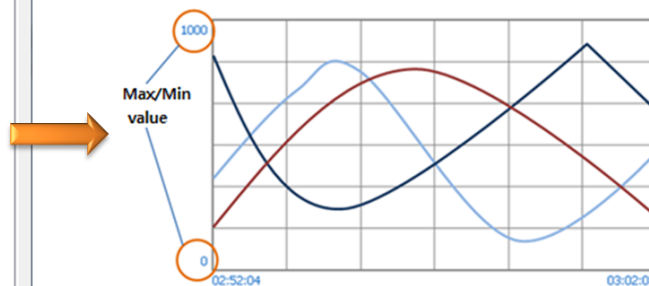
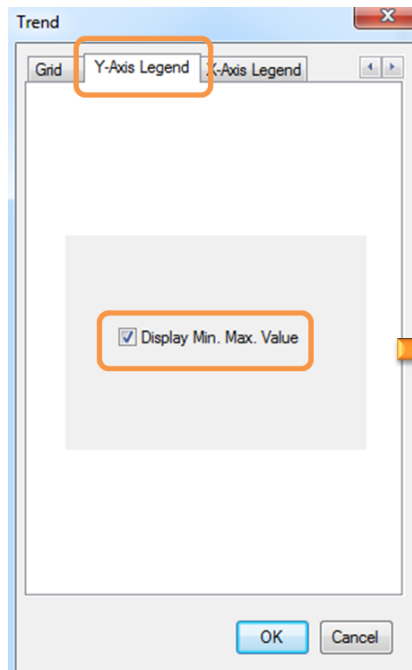
A Grid can be included in a Trend Graph. You can set the **Number** of Grid lines on the X or Y Axis up to a **Maximum of 99**, and select the Grid **color**.



■ Display Grid

With the **Display Grid** feature enabled, the Grid Number and Color can be changed.

5) Y-Axis Legend (Max/Min Value)



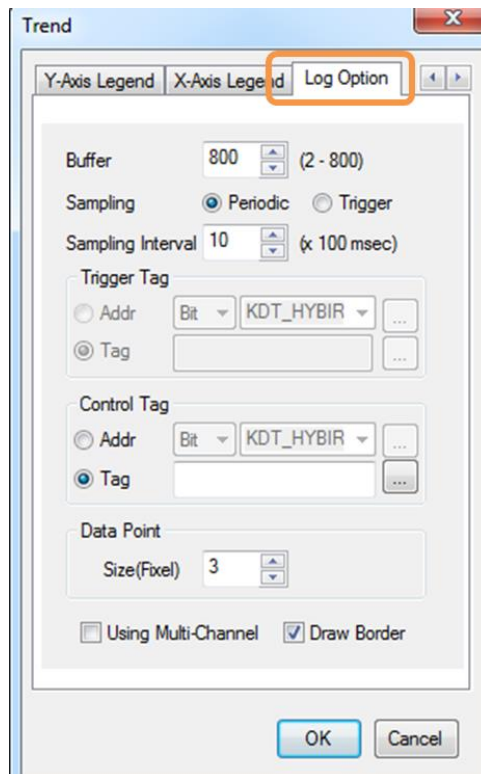
< Max/Min value on Y-axis>

6) X-Axis Legend

The Log Trend graph displays the **Number of Data units** on the X-axis, rather than time.



7) Log Option



■ Buffer Size

This sets the number of **Sampling Data units**. The Trend Graph displays **data** based on the Buffer size.

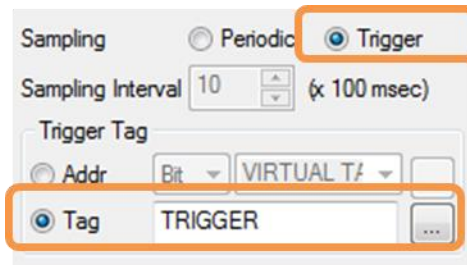
■ Sampling Type

(1) Periodic

Data is sampled and displayed **periodically**.

(2) By Trigger

Each time that the Trigger Tag status changes from **Off**→ **ON**, data is logged and displayed on the graph.



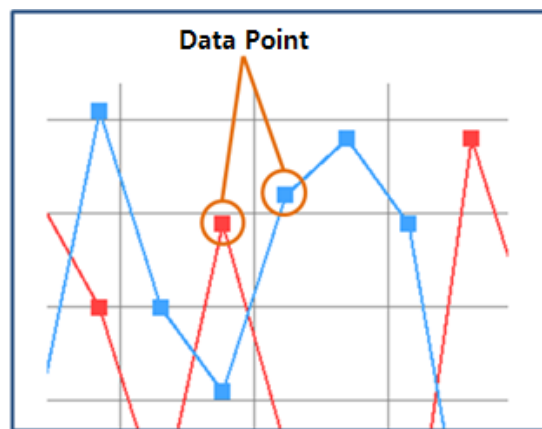
■ Control Tag

The Control Tag is used to control (**Start,Stop,initialize**) the Graph. A Real Address or Tag is used for the Control Tag.

Control Tag Value	Operation
0	Start Data logging & drawing a Trend Graph.
1	Stop Data logging & drawing a Trend Graph.
2	Initialize Data logging & drawing a Trend Graph. Once initialization is executed, Data logging & Drawing the Graph stop .

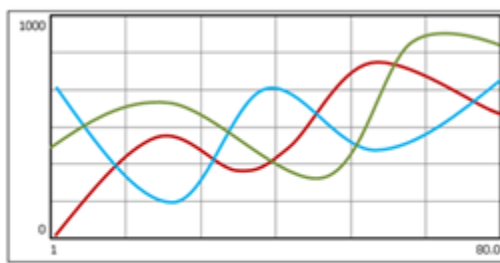
■ Data Point

Data is displayed as **Points** on the Trend Graph, connected by the graph lines. The point **size** unit is **Pixels**.

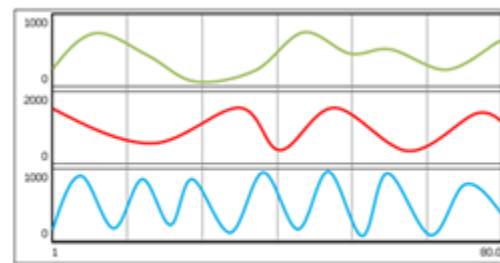


■ Using Multi-Channel

Each Pen can be monitored separately using the Multi-Channel feature.



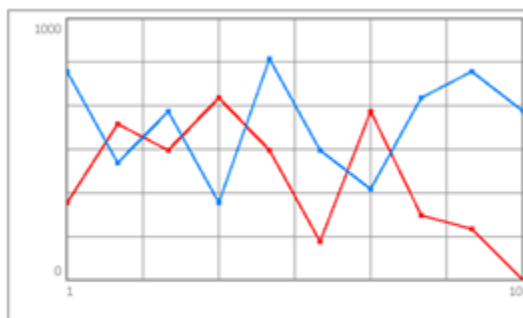
< Single Channel >



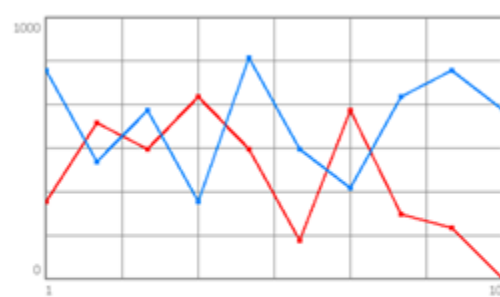
< Multiple Channel >

■ Draw Border

Draw a border around the graph.



< Draw Border >



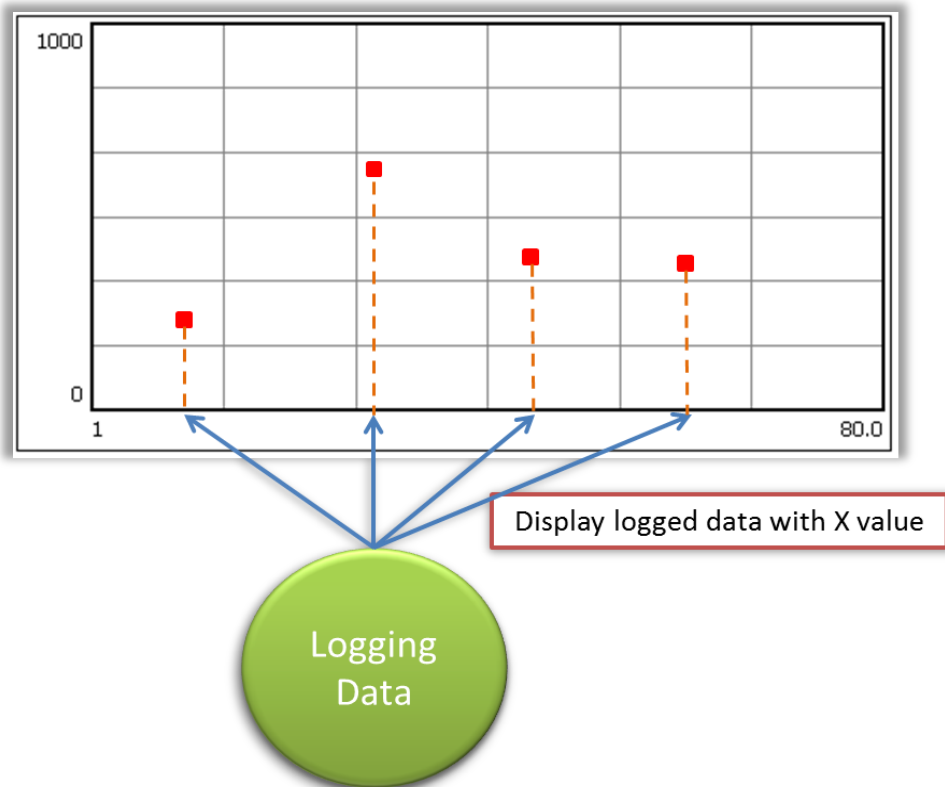
< Without Boarder >

※ Notes

- When there is too much data (Pen * Buffer size) to display on the Screen, the Trend Screen Update can be slowed down.
- The Min/Max value of each Pen can overlap when using many pens with multiple channels.

17.1.6 XY Trend

Real-time data is **logged** and displayed using **XY coordinates** on a **Trend** graph as it comes in. The difference between Log Trend and The XY Trend Graph is that **The XY Trend Graph** includes **X coordinate** information. The XY Trend Graph supports **Historical Mode** by means of the **File Saving** feature; it can read and display previously waved data. The **Zoom In/Out** feature is not supported.



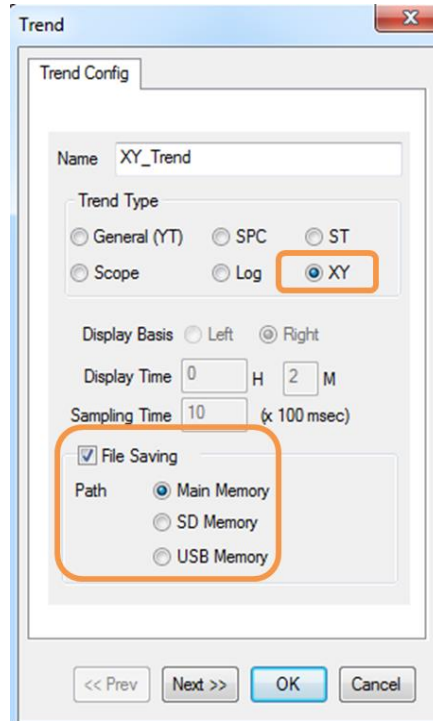
To display logged data on a Trend Graph, an **X coordinate** must be set in the XY Trend Graph. This means that the **logged data** is on the **Y coordinate**. Data is displayed on the Trend Graph using two methods: **Trigger** and **Periodic**.

The **Buffer** sets the **maximum number of data units** to be displayed on the Trend Graph for **each pen**. The maximum Buffer size is **800 units of data**. After the amount of data exceed 800 units, the oldest data is deleted.

1. Draw a XY Trend

Select [Draw] → [Trend Graph]. The **Trend Config** dialog box will appear.

1) Trend Configuration : **XY**



■ Trend Type Select **XY**.

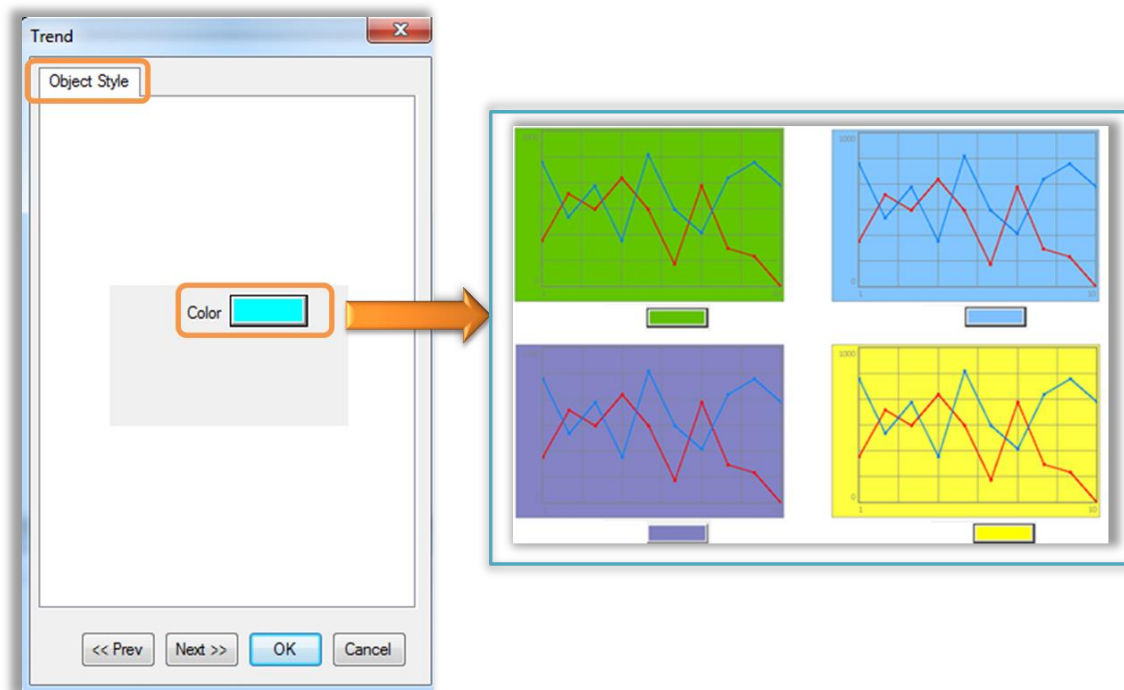
■ File Saving

When **File Saving** enabled, the logged data is saved as a Binary file, providing support for **Historical Mode**. In Historical Mode, previously saved data is read and displayed on the Trend Graph. One Binary file can save up to **10000 samples of data**. If the number of samples 10000, a new Binary file is created. If storage space is insufficient, the oldest file will be deleted and a new file created.

※ **XY Trend** does **not** support saving data as a **CSV file**.

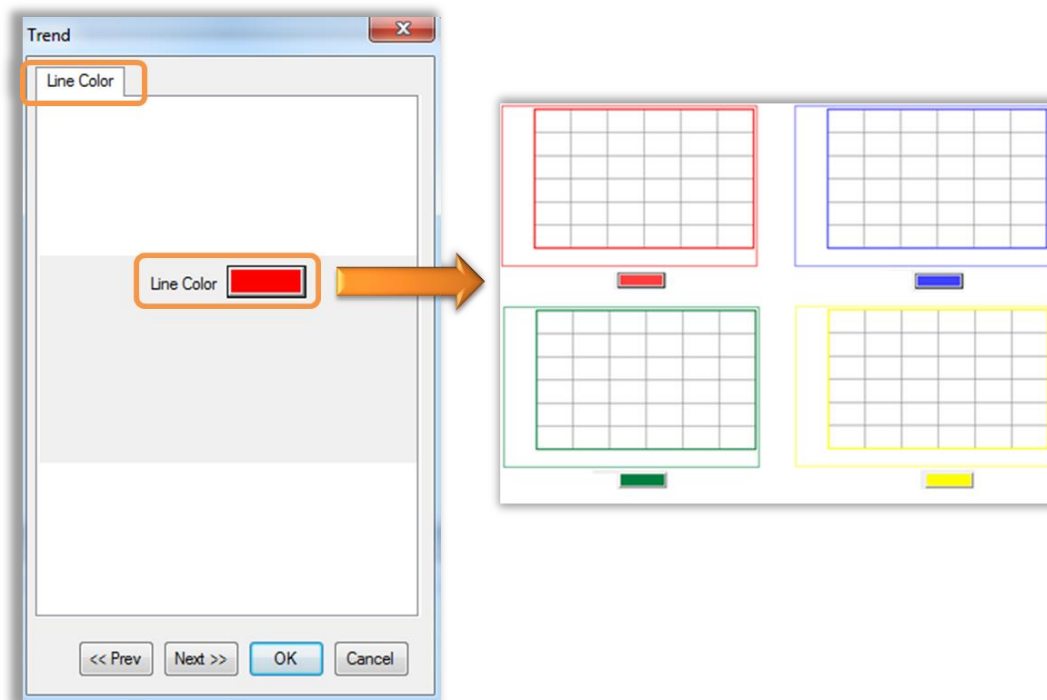
2) Object Style

Object Style changes the **Background Color**. Below are some examples.



3) Line Color

Line color changes the color of the graph outline.

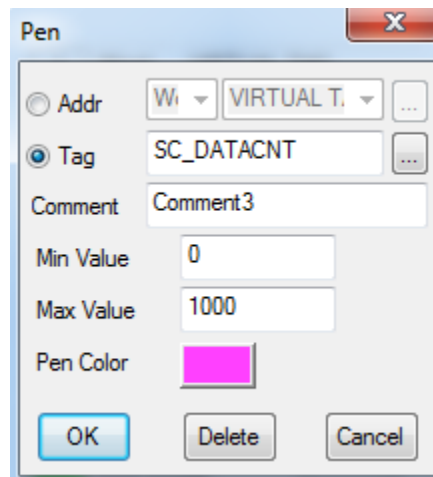
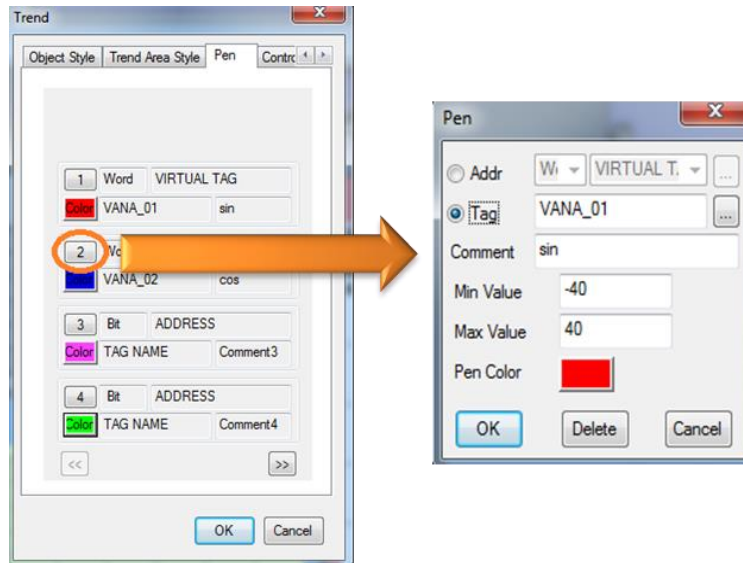


4) Pen

The Pen Settings **select the Tags or Real Addresses** to be monitored.

■ Pen Setting

Select the Pen number, then the Tag or Real Address.



A. Address or Tag

Select the **Real Address** or **Tag** for each Pen.

B. Comment

The comment will be used instead of the Tag name when displaying the **Tag value**.

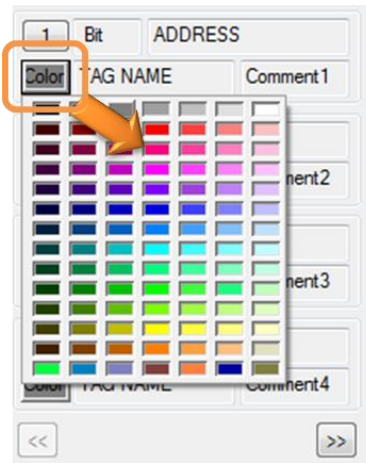
C. Max/Min value

Set the **Max.** and **Min.** values on the **Y-axis** of the Trend graph. The Max/Min value of each Pen will be used on the Trend Graph, but only the **#1 Pen's** Max/Min value will be displayed on the Y-axis. If the Max/Min Value is not set in the Pen Settings, the Max/Min Value from the **Engineering Data [CIMON]** in the Xpanel Database will be used.

(With Addresses, the Max/Min value depends on then **Data Type**).

D. Pen Color

Select the Pen color. Click on the color to bring up the color palette.

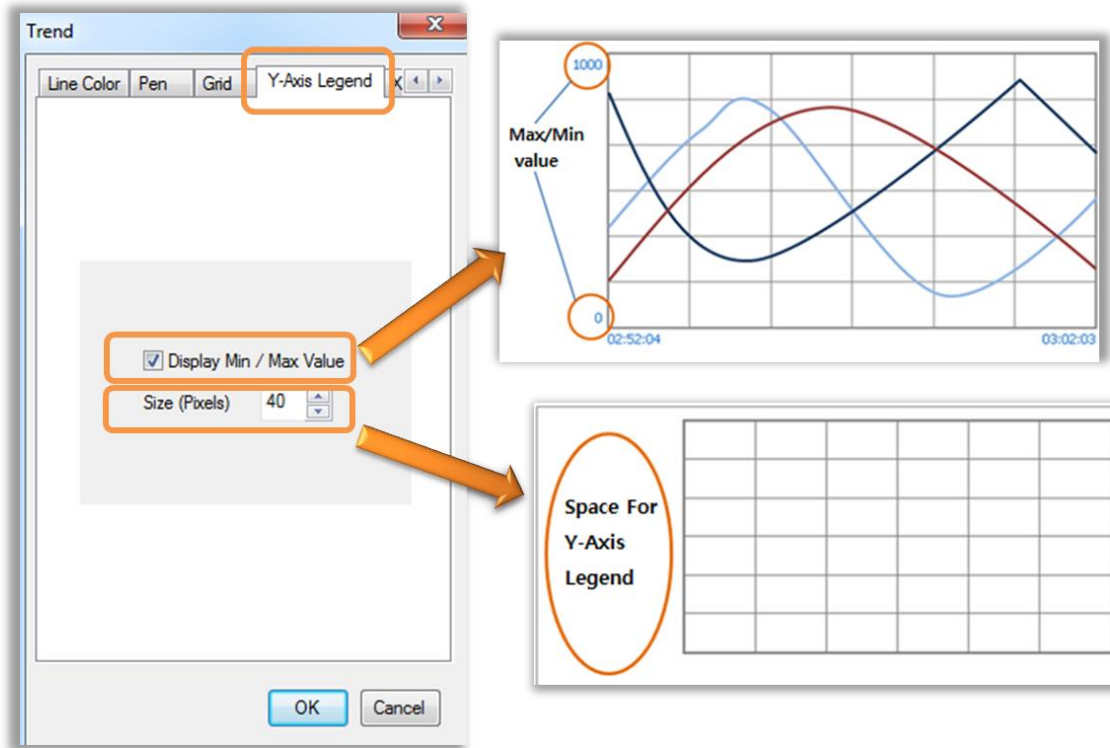


5) Grid Setting

A Grid can be included in a Trend Graph. You can set the **Number** of Grid lines on the X or Y Axis up to a **Maximum of 99**, and select the Grid **color**.

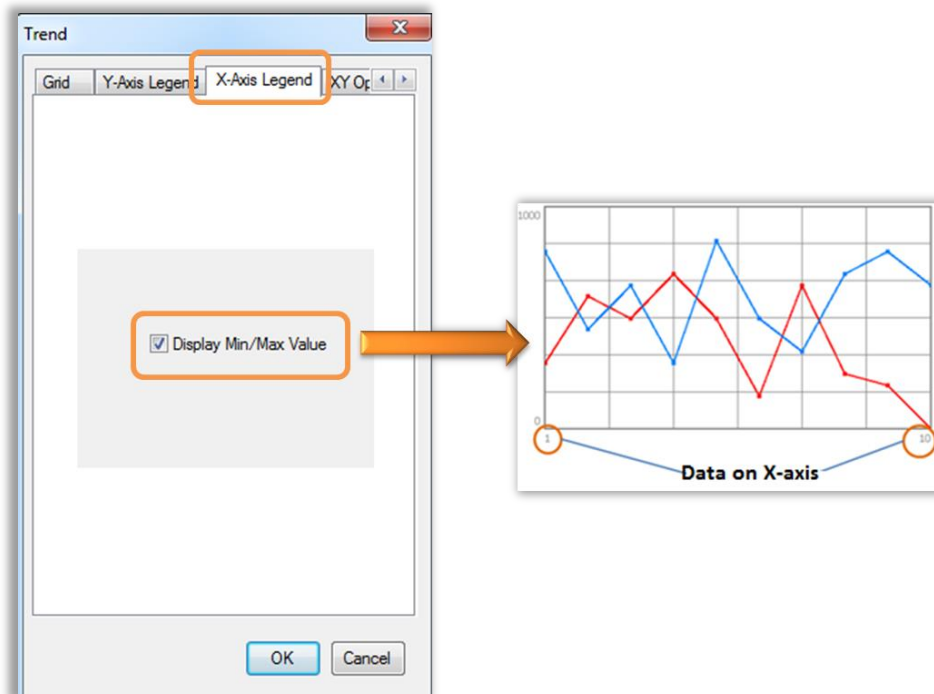
6) Y-Axis Legend

- **Max/Min Value**
Display the Max/Min value on the Y-Axis.
- **Legend Size**
Control the **size** of the Y-Axis Legend.

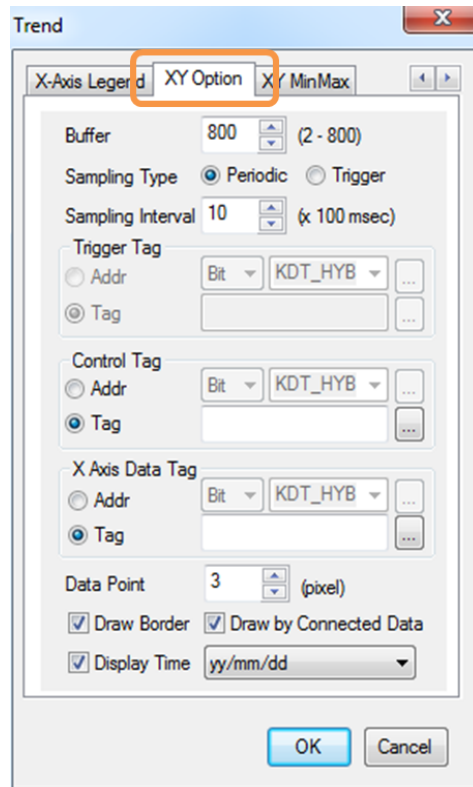


7) X-Axis Legend

Display the Max/Min value on the X-axis.



8) XY Option



■ Buffer Size

The Buffer memory is used for logging data. The Maximum Buffer size is 800 units of data, and a maximum 800 data units can be displayed on one graph. If the data exceeds that limit, the oldest data is deleted.

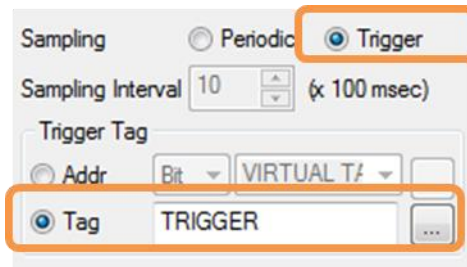
■ Sampling Type

(1) Periodic

Data is sampled and displayed **periodically**.

(2) By Trigger

Each time that the Trigger Tag status changes from **Off** → **ON**, data is logged and displayed on the graph.



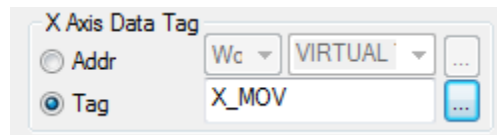
■ Control Tag

The Control Tag is used to control (**Start,Stop,initialize**) the Graph. A Real Address or Tag is used for the Control Tag.

Control Tag Value	Operation
0	Start Data logging & drawing a Trend Graph.
1	Stop Data logging & drawing a Trend Graph.
2	Initialize Data logging & drawing a Trend Graph. Once initialization is executed, Data logging & Drawing the Graph stop .

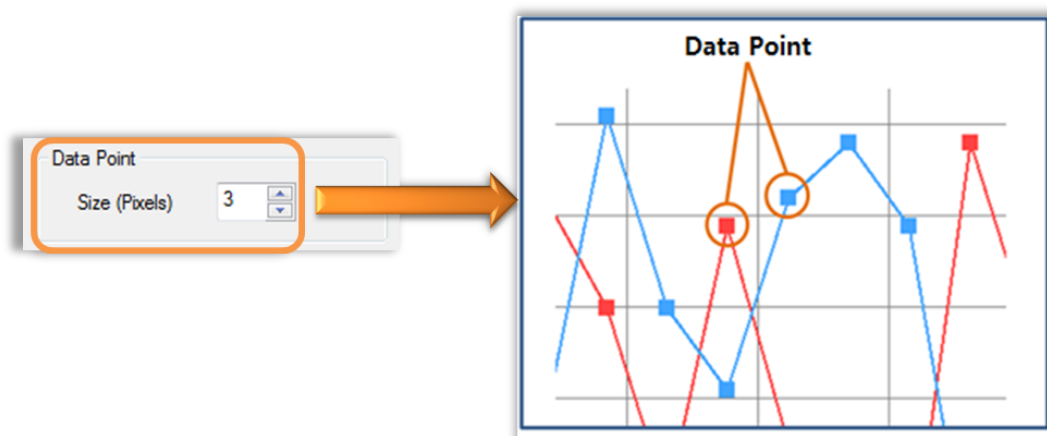
■ X-Axis Data Tag

Designate a Tag or Address for data logging (collecting) data on the X-axis.



■ Data Point

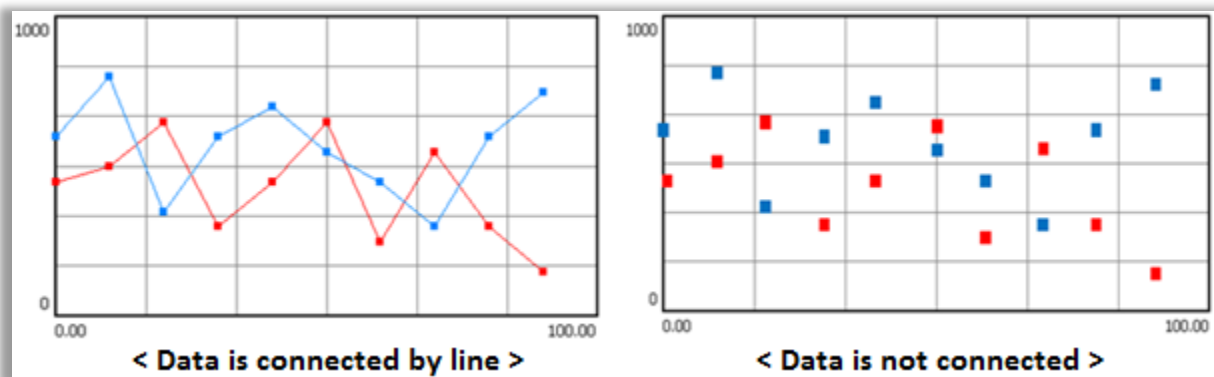
Set the Data point size.



■ Draw Border

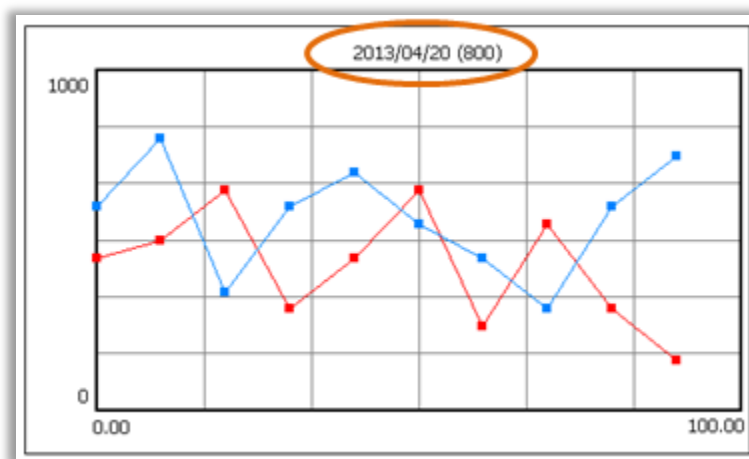
Draw a border around the graph.

■ Data Connection



■ Display Time

Display **Time** information at the **top** of the Graph.



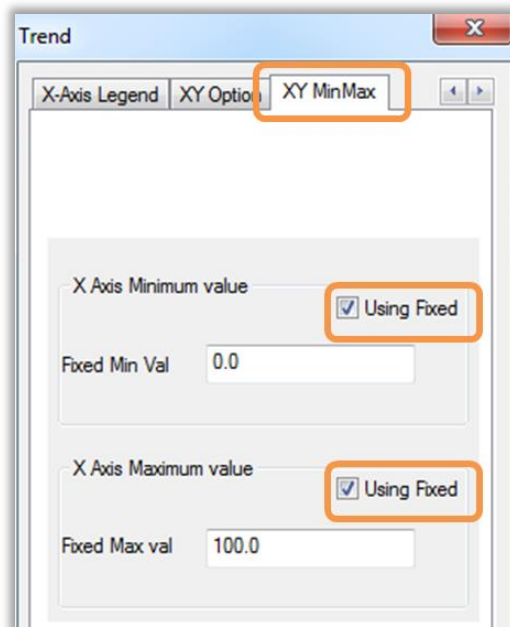
9) XY Min/Max

■ Min/Max value on X-axis

Set the minimum and maximum values of the **X coordinate**.

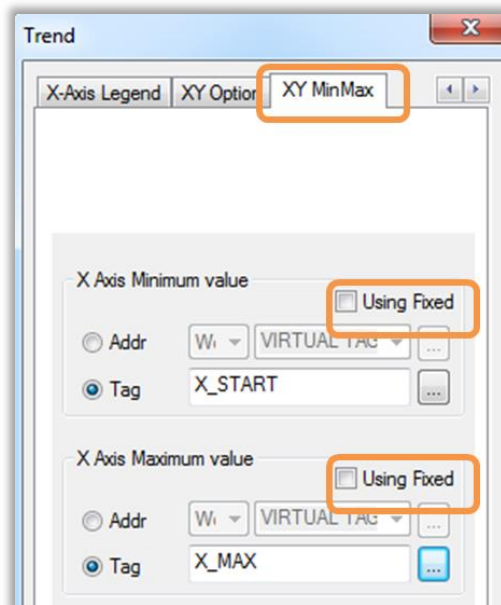
(1) Using Fixed Value

Set the maximum and minimum X coordinates as **Fixed values**.



(2) Tag or Address

To set a Tag or Address as the Min/Max X coordinate. The Min/Max value can be **changed** during an **operation**.

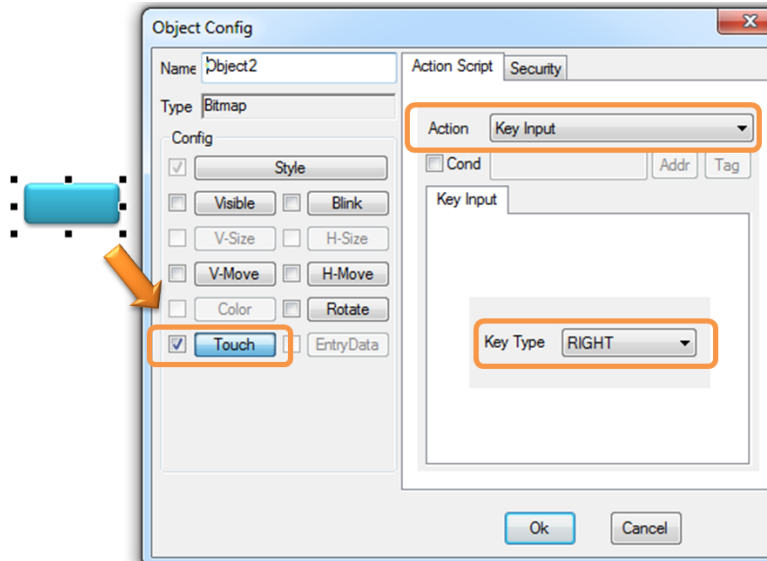


10) Historical Mode

Historical Mode is supported by means of the **Control Button**.

■ Creating a Control Button

Create a button Object, and configure the [Touch]→[Key input] operation. Select Up, Down, Left, Right, or Home as the **Key Type**.



■ Key Input Type

Key Input type	Operation
Tab	Change between Real-Time and Historical Modes.
Right	Move back one screen.
Left	Move forward one screen.

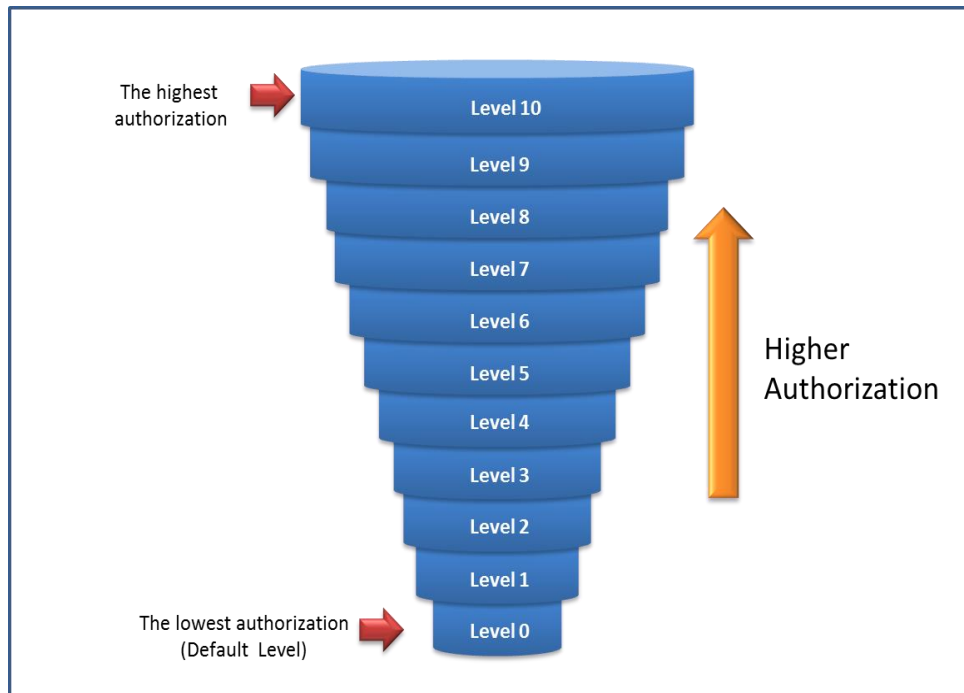
※ Notes

- When there is too much data (Pen * Buffer size) to display on the Screen, the Trend Screen Update can be slowed down.
- When using the **Control Button** (Key Input), **only one** Trend Graph Object can be included on a **Page**.
- Using more than **2 Trend Graphs** with the **Alarm Summary**, **Data logging**, and **Key Input Object** may cause a Trend Graph error.

Chapter 18. Security Configuration

Security

The security system is used to give each logged-in user a security level, and to limit access to control and monitoring functions which require a higher security level than the user has.



Security feature applies to **all Pages** and **Touch** operations. When a user changes pages or performs a Touch operation, Xpanel **compares** the Security level of the logged-in user and of the operation. If the Security level of the logged-in user is lower than that of the operation, the operation is not executed.

18. 1. 1

Select [Tools] → [Security] or click on the icon

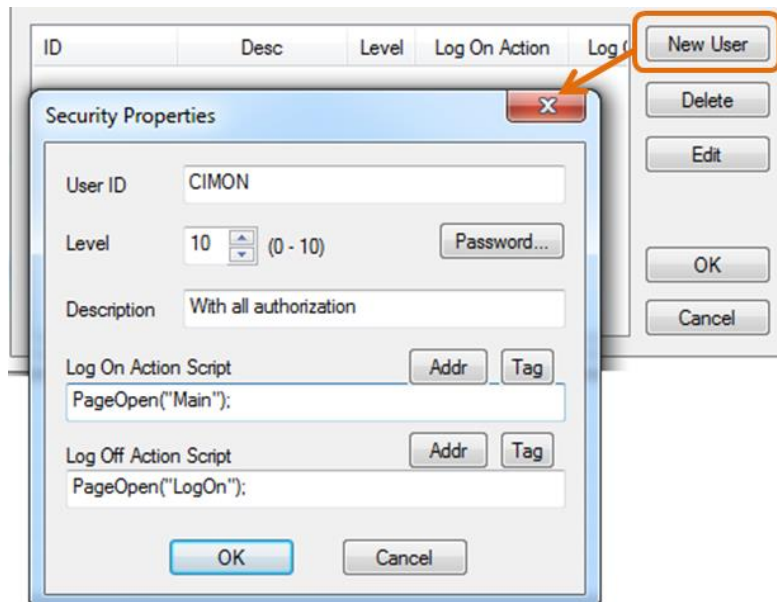


in the **Drawing Toolbar**.

Security configuration allows you to set the **USER**, **Security Level**, **Password** and **Log ON/OFF Action** features.

1. Enter a New User

Select **New User** in Security Configuration to enter a new user.



(1) User ID

Enter the User ID. Duplicate IDs are not allowed.

(2) Level

Select the security level. Level 10 has the highest (greatest) authorization, and Level 0 has the lowest.

(3) Password

Enter the password.

(4) Description

Descriptive information regarding the user.

(5) Log On Action Script

You can enter a Command Expression to be executed when the user logs on.

Ex) PageOpen("Main");

The Main page will be opened when the user logs on.

(6) Log Off Action Script

You can enter a Command Expression to be executed when the user logs off.

Ex) PageOpen("LogOn");

The LogOn page will be opened when the user logs on.

18.1.2 User Log On/Off

The Script Function '**LogOn**' is required in order for users to log on. There are **two** types of "LogOn" function.

1. "**LogOnWin**" script.

With the Script Function "LogOnWin", the user enters a **User ID** and **Password** directly into the LogOn window to log on.

- 1) User Registration

Register a new ID in Security Configuration.

- 2) Run Command Expression

Create a button to run a Command Expression or use a Script Function "**LogOnWin()**".

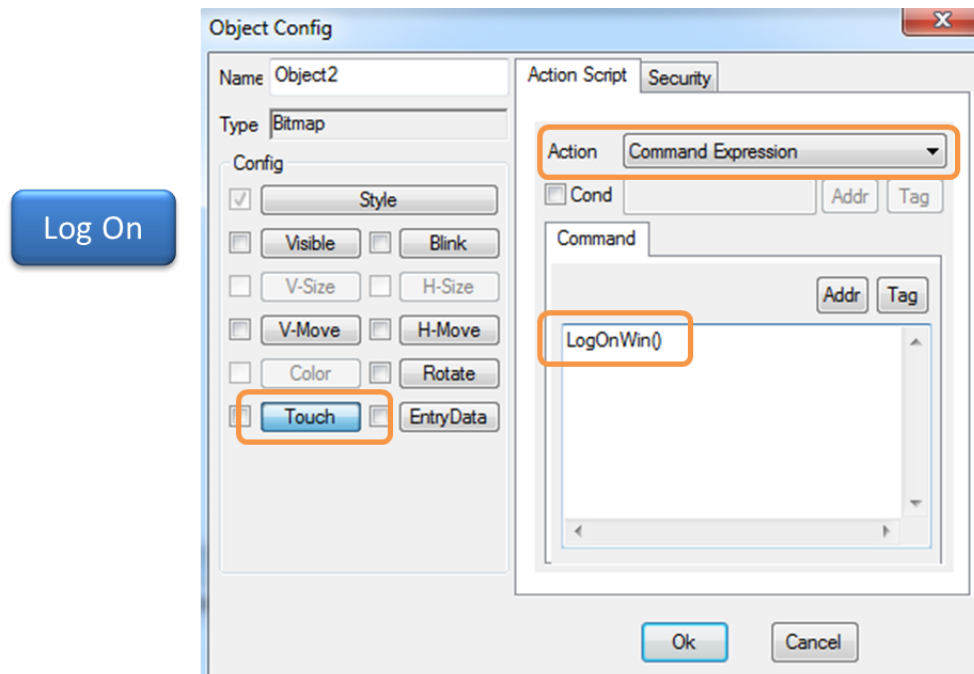
Ex) Create a button by means of a Command Expression

- (1) LogOn button by Command Expression.

Draw a rectangle object (Log On button) and double click on it.

Select [Touch] and [Command Expression] as the Actions.

Enter the script "**LogOnWin()**" in the Command window, as shown below.



(2) Execute LogOn Button

When you click on the Log On button, the Security window pops up.



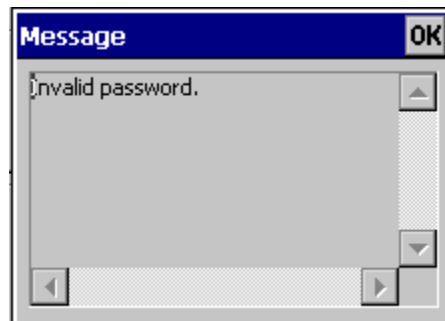
■ User ID

Select the User ID.

■ Password

Enter the password.

If the password is incorrect, the following message will appear:



If the log on process is successful, all features with a security level lower than that of the user will be available.

2. “LogOn” script

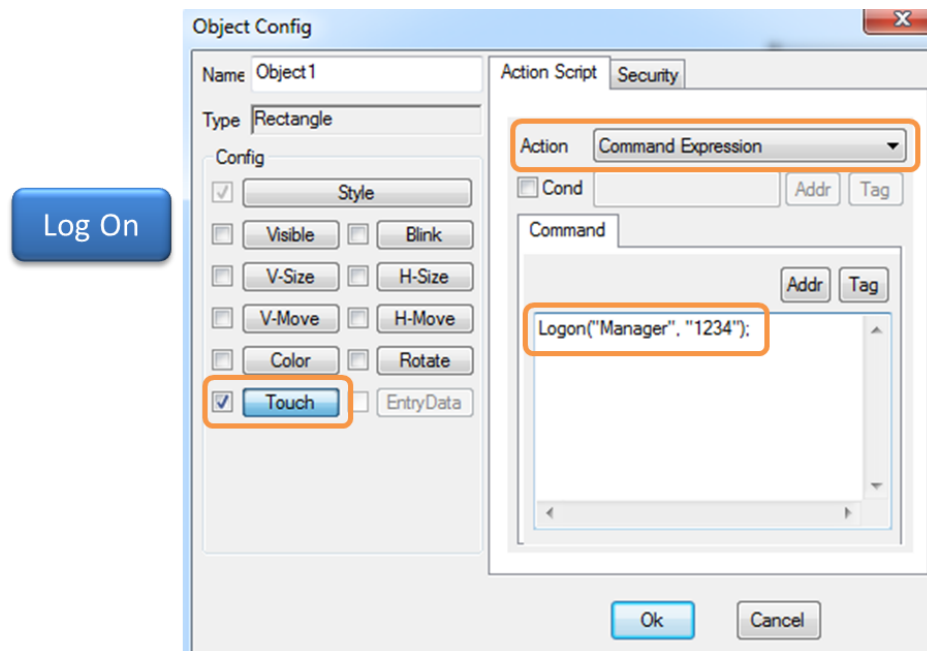
The **LogOn()** Command Expression can be used for entering the **User ID** and **Password** directly.

(1) Create a Button for the Command Expression

Draw a rectangle object (Log On button) and double click on it.

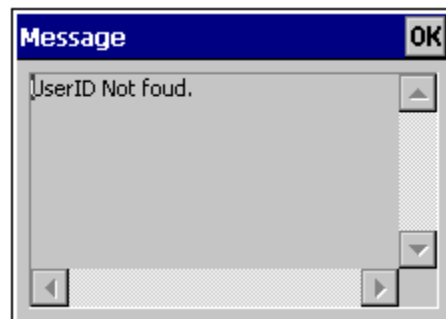
Select [Touch] and [Command Expression] as the Actions.

Enter the script “**LogOn(“Manager”, “1234”);**” in the Command window, as shown below.

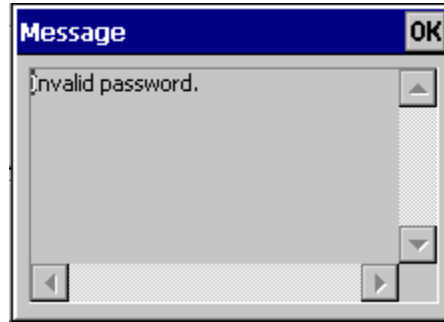


If the log on process is successful, all features with a security level lower than that of the user will be available.

- Without User ID



- With Invalid Password



3. Log off using the “**LogOff()**” script.

The “**LogOff()**” script must be used to log off the user. When the status changes to **log-off**, security returns to **Level 0**.

(1) Create a Button For “**LogOff()**”

Draw a rectangle object (Log On button) and double click on it.
Select [Touch] and [Command Expression] as the Actions.
Enter the script “**LogOff()**” in the Command window.

18.1.3 Security Level Settings

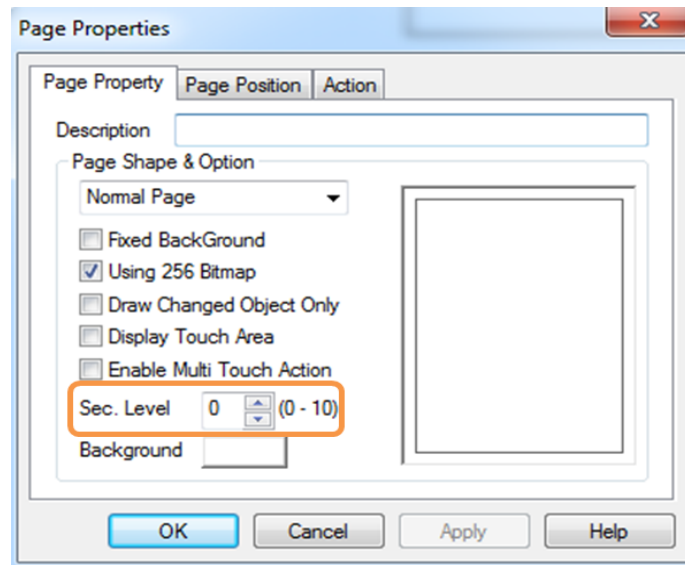
1. Configuring the Page Security Level

Each page of Xpanel can have its own **Security** level. When executing a Page Transition, a User with a lower Security Level will not be able to open a page with a higher Security Level.

1) Modify Page Security Level

Select [Tools] → [Page Setup] or select Page Properties from the right-mouse-click menu.

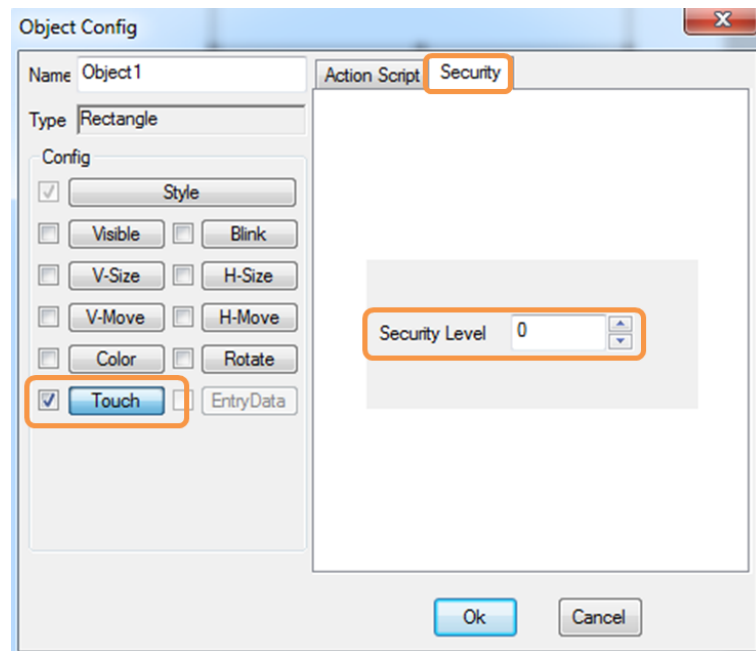
Select a Security level from 0 to 10.



2) Touch and Entry Data Security Configuration

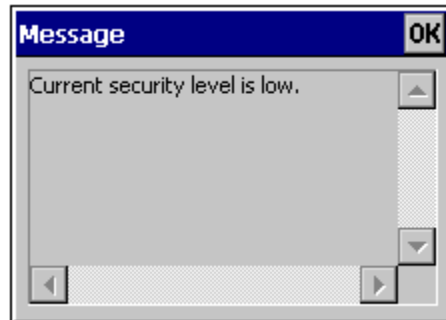
Security levels can be set for any object which has the **Touch** or **Entry Data** property. User with a lower Security level cannot use an object with a higher Security level.

Select **Touch** or **Entry Data** at the **Object Configuration**.



Select the **[Security]** tab and set the Security Level.

The following **Error message** will appear if the Security Level of the User is lower than that of the Touch Object.



Chapter 19. Multiple Language

19. 1 Multi-Language Support

Xpanel Supports multiple languages, and multiple languages can be used on a single page.

오렌지	Orange	橙	オレンジ
사과	Apple	苹果	りんご
바나나	Banana	香蕉	バナナ
파인애플	Pineapple	菠萝	パイナップル
과일주스	Fruit Juice	果汁	フルーツジュース

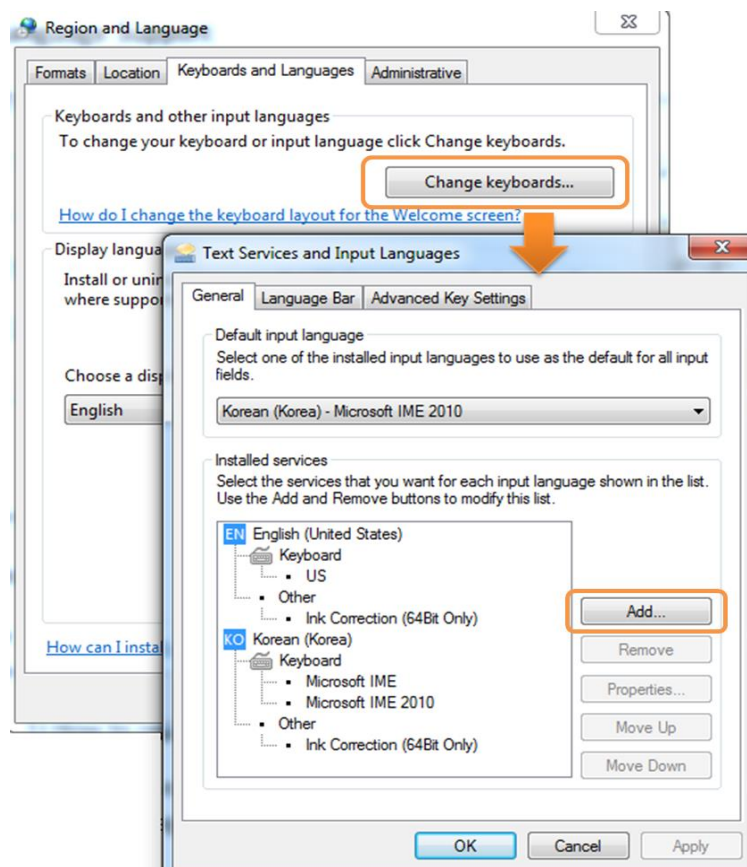
19.1.1 How to enter multiple languages on a page

1. Using the IME

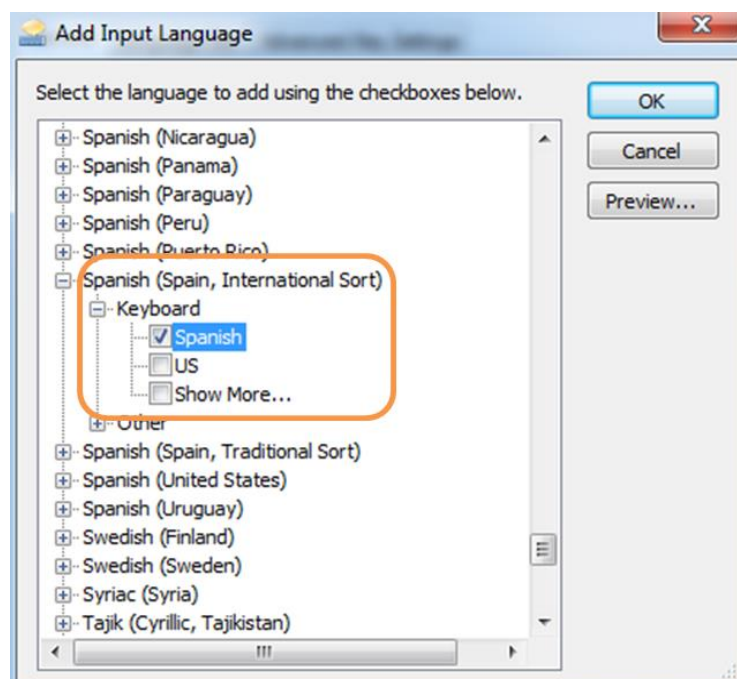
To use multiple languages in Window, you must first add each language in the Region and Language Control Panel.

1) How to add a language (based on Win7)

Select the language to be added from [Control Panel] →[Clock, Language and Region]→[Region and Language]→[Keyboards and Languages]→[Change Keyboards].

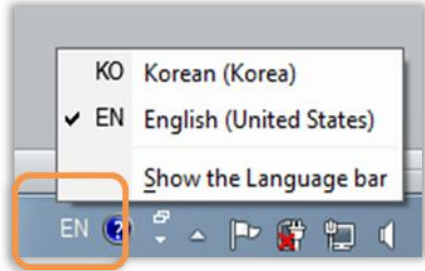


Select the Language and Keyboard to be used under **Add Input Language**.



2) Select the Language

Select one of the language from the Language bar as shown below.



3) Select a Font in XpanelDesigner

To use multiple languages, each language font must be **installed**. Without the installed language font, characters will not display properly.

Select the appropriate font in the **Font Tool's Font setting**.

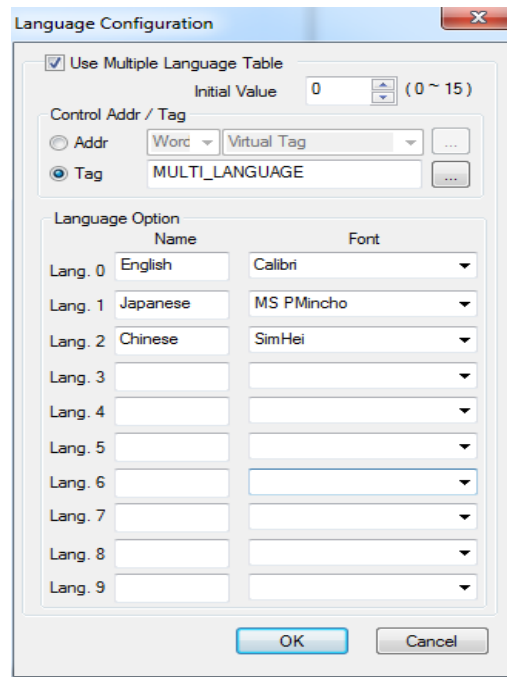


19.1.2 The Multiple Language Table

1) Multiple Language Settings

To use the Multiple Language Table, **Fonts** must be installed **in advance**.

Select [Tools]→[Multiple Language Setup] and select the language and font.

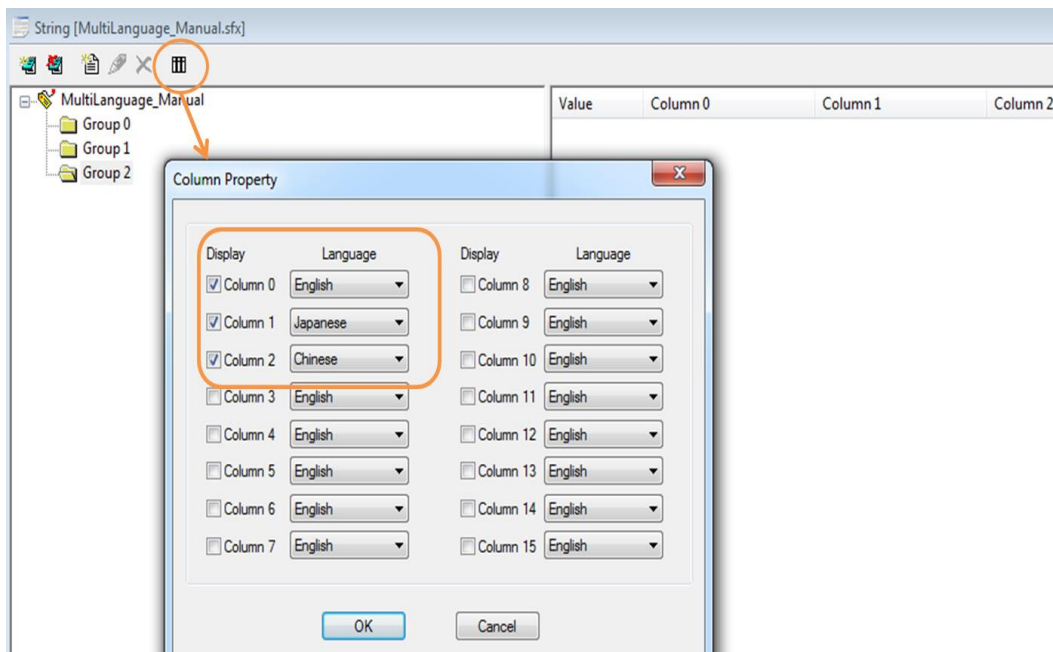


2) Create a Multiple Language Table

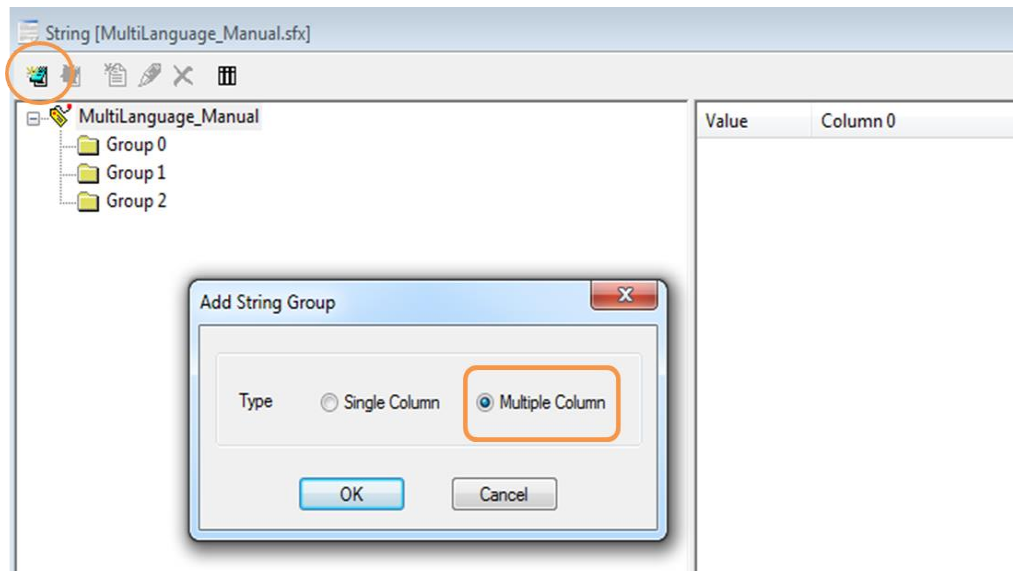
(1) Column Language Settings

The Multiple Language Table uses the **Multiple Column String Table**.

Select [Tools] → [String Editor] and select the language for each column.



(2) Column



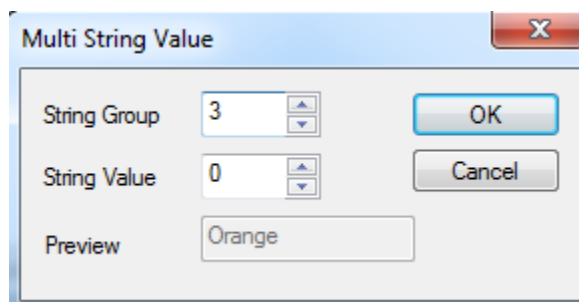
Click **Add String Group**, then **Multiple Column**; a String Group for multiple columns will be created.



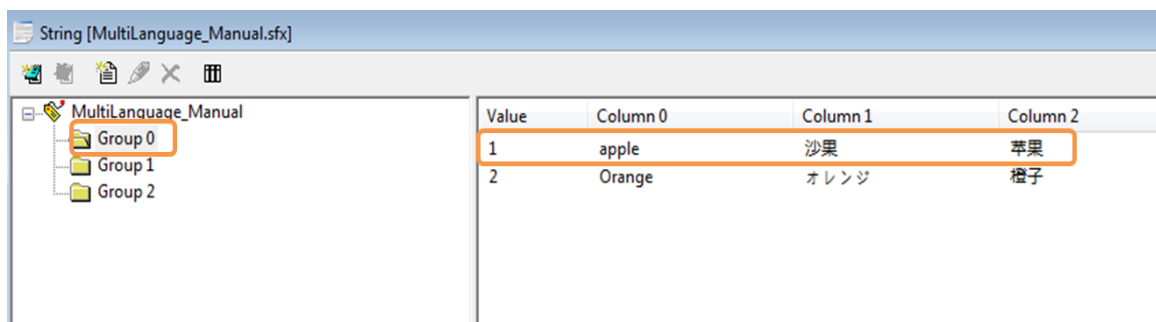
Enter words in the target language using the appropriate font in each Column.

(3) Using a Multiple Language String

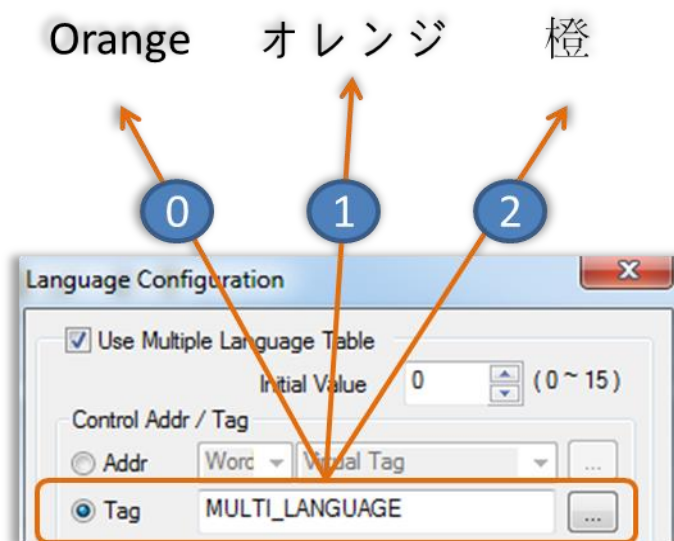
To use a **Multiple Language Table**, select [Draw]→[Multi String].



Select a Multiple Language String Group, then choose the appropriate String value. Each string has a string value.



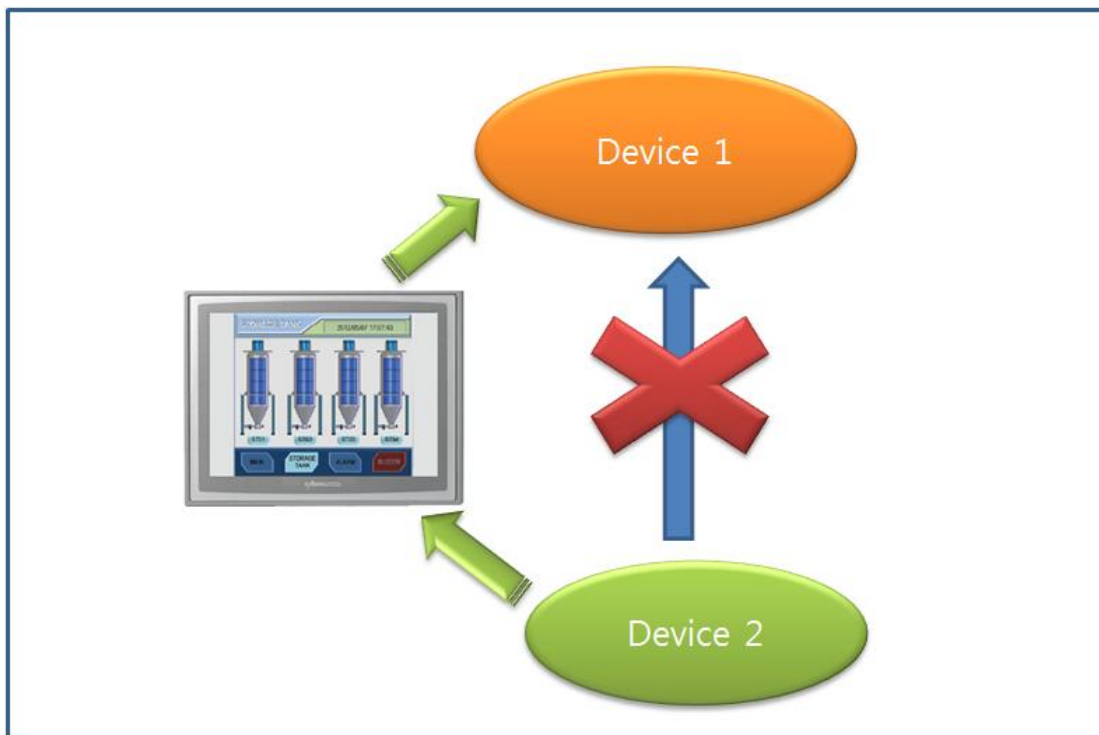
To select a Column, use a tag from [Multi Language Setup].



Chapter 20. Data Bridge

20.1 Data Bridge


Xpanel serves as **Data Transfer Bridge** between two devices when there is **no direct** communication between them. To use the Data Bridge feature, both Devices must communicate with Xpanel at the same time. The **Source** sends Data, and the **Destination** receives the Data. If Xpanel is communicating with the **Source** by RS232C, then Xpanel must communicate with the **Destination** by RS232C, RS422/485 or Ethernet.









20.1.1 Use Data Bridge

Select [Tools]→[Data Bridge] or click on Data Bridge  icon from Main Toolbar.

1. Adding a Data Bridge Model

Go to **Data Bridge Configuration**, and select [Add Data Bridge Model]  to add a new model.

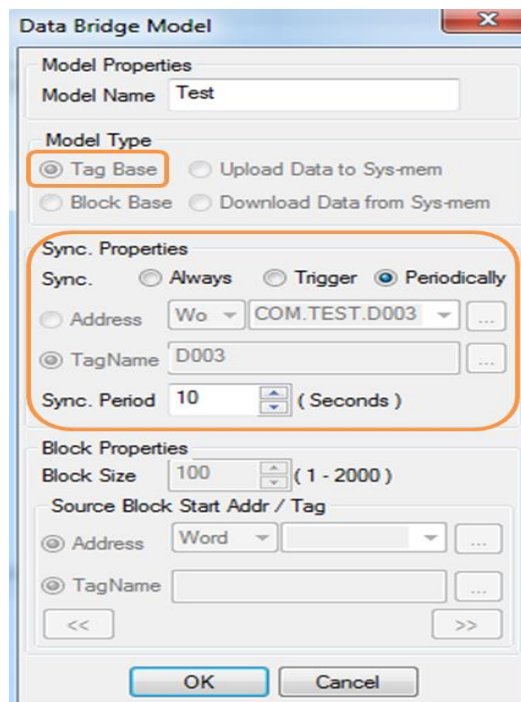
Icon	Menu	Description
	Add Data Bridge Model	Add a new Data Bridge Model.
	Edit Data Bridge Model	Edit the selected Data Bridge Model.
	Delete Data Bridge Model	Delete the selected Data Bridge Model.
	Add Data Bridge Tag	For a Tag-based Model, enter the Tag or Address for the Source and Destination.
	Edit Data Bridge Tag	For a Tag-based Model, edit the Tag or Address for the Source and Destination.
	Delete Data Bridge Tag	Delete the selected Data Bridge Tag.

1) Create a Tag-based Data Bridge

Select The Tags or Addresses to be synchronized **directly** with each other and save the settings.

(This is useful when there isn't much Data to be synchronized)

After you configure the Model, you must enter the Tag or Address of the Source and Destination.



(1) Model Name

Enter the Data Bridge Model name.

(2) Model Type

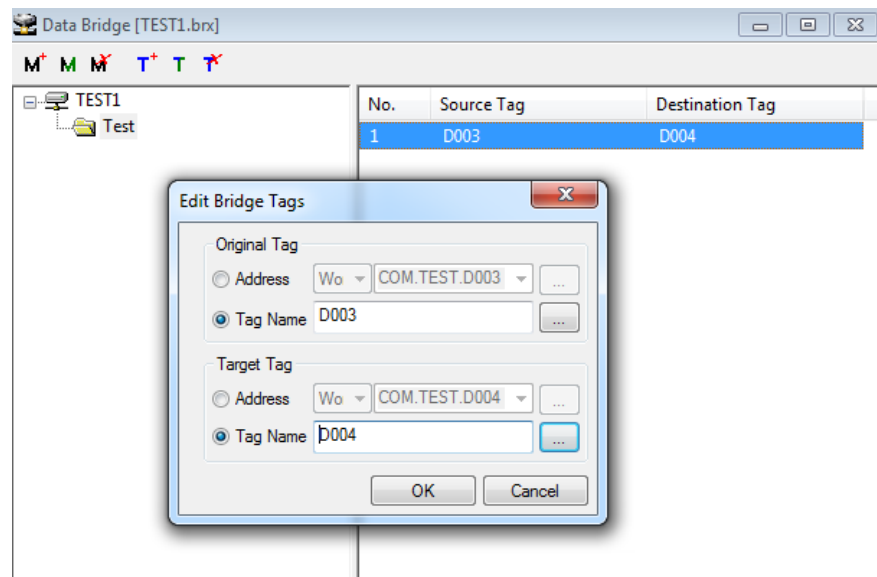
■ Tag Base – Select Tag based Data for synchronizing.

(3) Synchronizing Property

- Always – Source and destination values are synchronized immediately when the Tag or Address Data is changed.
- Trigger - Source and destination values are synchronized when a Trigger Tag or Address changes from OFF→ON.
- Periodical - Source and destination values are synchronized periodically.

(4) Edit Bridge Tags

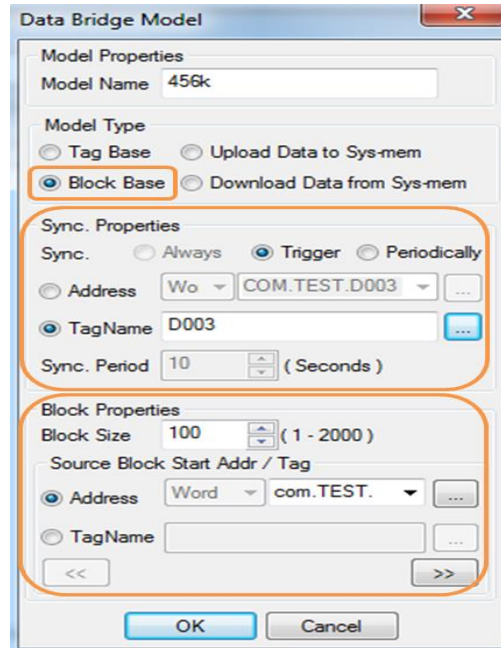
Set the Original tag and the Target tag to match.



The Tag or Address of the **Original** Device is transferred to the **Target** Device, and both are synchronized.

2) Create a **Block-Based** Data Bridge

Set the data to be synchronized by **Block**. With a Block based Model, Blocks (**consisting of consecutive Addresses**) can be transferred **in bulk**. This is useful for Data synchronization in bulk.



(1) Model Name

Enter the Data Bridge Model name.

(2) Model Type

- Block Base – Data is synchronized by Block.

(3) Synchronizing Property

- Trigger - Source and destination values are synchronized when a Trigger Tag or Address changes from OFF→ON.
- Periodical - Source and destination values are synchronized periodically.

(4) Block Properties

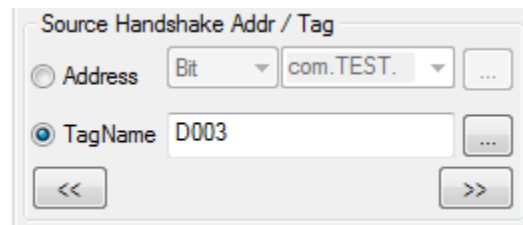
■ Block Size

Enter the consecutive Address size (Block Size) for the Block. This address size will be based on the data type at the beginning of the block. If the Block starts with a DWORD (INT32, Float), the address size will be counted as DWORD. This means that a size of 100 for a block beginning with DWORD data would be the equivalent of a 200 WORD block.

■ Source Block Start

Enter the Start Tag or Address of the consecutively-addressed Block.

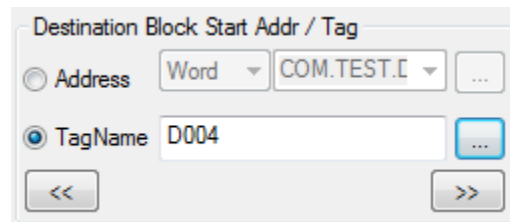
■ Source Handshake



The dialog box is titled "Source Handshake Addr / Tag". It contains two radio buttons: "Address" and "TagName". The "TagName" radio button is selected. Next to "Address" is a dropdown menu showing "Bit" and a text box containing "com.TEST.". Next to "TagName" is a text box containing "D003". At the bottom are two buttons: "<<" and ">>".

Source Handshake is a Data Bit which is used internally when Xpanel transfers Data. The I/O Device and Digital Tag must handshake properly with the Source. (Before reading the Source Block Data, the Data Bit is set as 1. After the reading process, the Data Bit is changed to its initial state, 0)

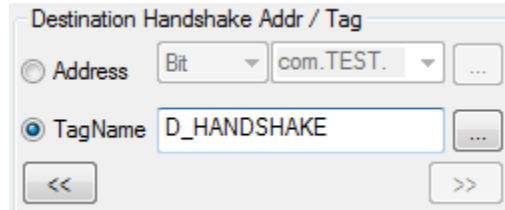
■ Destination Block Start



The dialog box is titled "Destination Block Start Addr / Tag". It contains two radio buttons: "Address" and "TagName". The "TagName" radio button is selected. Next to "Address" is a dropdown menu showing "Word" and a text box containing "COM.TEST.I". Next to "TagName" is a text box containing "D004". At the bottom are two buttons: "<<" and ">>".

Enter the Destination Start Tag or Address for receiving Block Data from the Source.

■ Destination Handshake



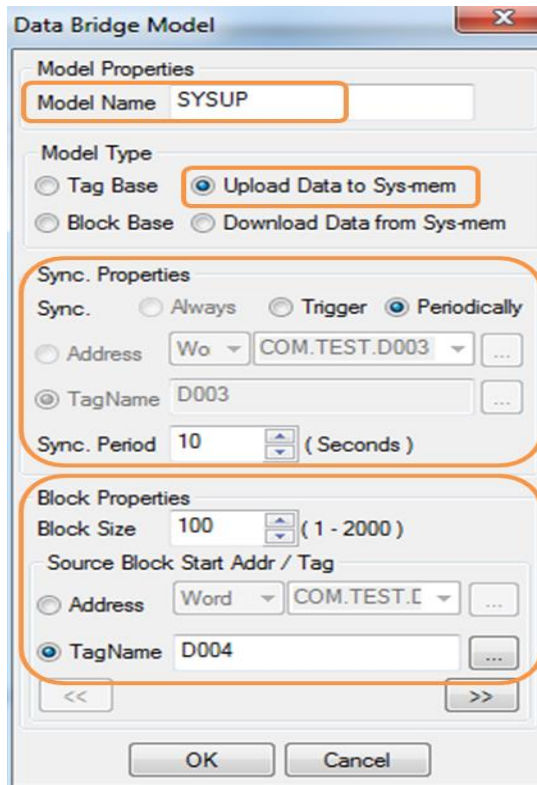
The dialog box is titled "Destination Handshake Addr / Tag". It contains two radio buttons: "Address" and "TagName". The "TagName" radio button is selected. The "Address" dropdown is set to "Bit" and the "TagName" text box contains "D_HANDSHAKE". There are navigation buttons "<<" and ">>" at the bottom.

Destination Handshake is a Data Bit which is used internally when Xpanel writes Data. The I/O Device and Digital Tag must handshake properly with the Destination.

(Before reading the Destination Block Data, the Data Bit is set as 1. After the writing process, the Data Bit is changed to its initial state, 0)

3) Data Bridge For Uploading Device Data To System Memory.

Uploading Data to Sys-Mem reads Data from another Device (**Source**) to Xpanel's System memory and Synchronizes it. **System Memory** becomes the **Destination** and receives the Data.



The dialog box is titled "Data Bridge Model". It has four sections: "Model Properties", "Model Type", "Sync. Properties", and "Block Properties".
 - **Model Properties:** "Model Name" is "SYSUP".
 - **Model Type:** "Upload Data to Sys-mem" is selected.
 - **Sync. Properties:** "Sync." is "Periodically". "Address" is "Wo" and "COM.TEST.D003". "TagName" is "D003". "Sync. Period" is "10" seconds.
 - **Block Properties:** "Block Size" is "100". "Source Block Start Addr / Tag" is "TagName" and "D004".
 Navigation buttons "<<" and ">>" are at the bottom, along with "OK" and "Cancel" buttons.

(1) Model Name

Enter the Data Bridge Model name.

(2) Model Type

■ Upload Data to System Memory – Read data from a PLC or other Device to Xpanel's System Memory and synchronize it.

(3) Synchronizing Property

■ Trigger - Source and destination values are synchronized when a Trigger Tag or Address changes from OFF→ON.

■ Periodical - Source and destination values are synchronized periodically.

(4) Block Property

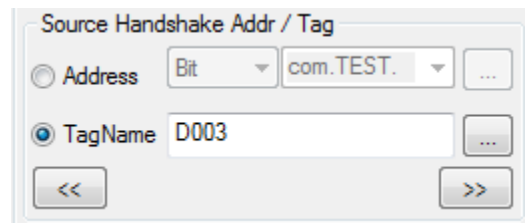
■ Block Size

Enter the consecutive Address size (Block Size) for the Block. This address size will be based on the data type at the beginning of the block. If the Block starts with a DWORD (INT32, Float), the address size will be counted as DWORD. This means that a size of 100 for a block beginning with DWORD data would be the equivalent of a 200 WORD block.

■ Source Block Start

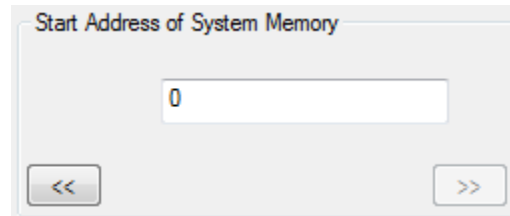
Enter the Start Tag or Address of the consecutively-addressed Block.

■ Source Handshake



Source Handshake is a Data Bit which is used internally when Xpanel transfers Data. The I/O Device and Digital Tag must handshake properly with the Source. (Before reading the Source Block Data, the Data Bit is set as 1. After the reading process, the Data Bit is changed to its initial state, 0)

■ System Memory Start Address

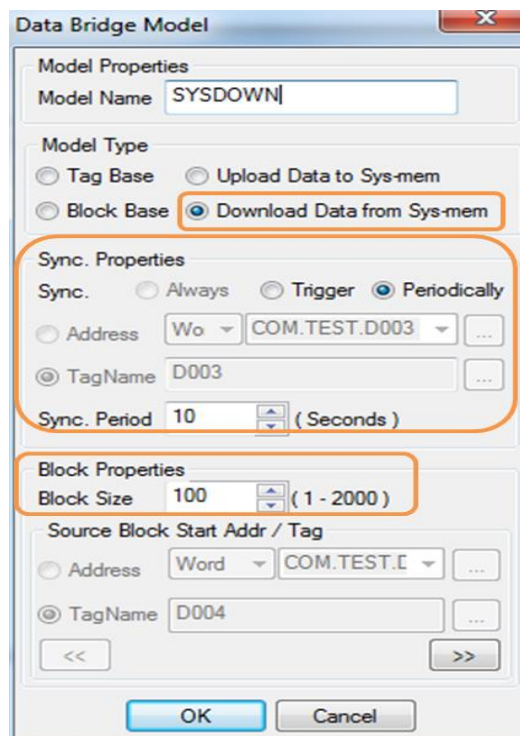


Data is transferred to Xpanel's System Memory and synchronized, beginning with the Start Address of System memory and ending at a location determined by the Block size.

4) Data Bridge for Downloading (Writing) from System Memory to a Device or PLC

The Data Bridge makes it possible to write System memory data to other Devices or PLCs.

Download Data From Sys-Mem writes or transfers Data from System Memory to a **Destination** such as a Device or PLC and synchronizes it. **System Memory** becomes a **Source** and writes Data to the destination device.



(1) Model Name

Enter the Data Bridge Model name.

(2) Model Type

■ **Download Data From System Memory** – Transfer data from Xpanel's system Memory to a PLC or other Device.

(3) Synchronizing Property

- **Trigger** - Source and destination values are synchronized when a Trigger Tag or Address changes from OFF→ON.
- **Periodical** - Source and destination values are synchronized periodically.

(4) Block Property

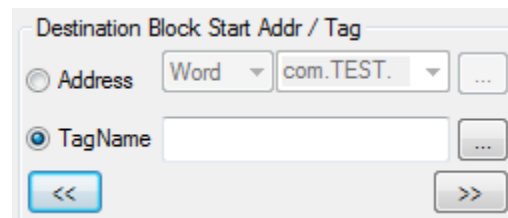
■ Block Size

Enter the consecutive Address size (Block Size) for the Block. This address size will be based on the data type at the beginning of the block. If the Block starts with a DWORD (INT32, Float), the address size will be counted as DWORD. This means that a size of 100 for a block beginning with DWORD data would be the equivalent of a 200 WORD block.

■ Destination Block Start Address

Enter the Start Address of the PLC.

The PLC (Destination Block) receives Data from Xpanel's System Memory.



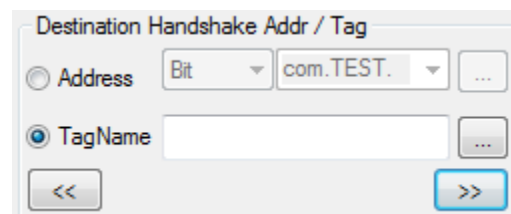
Destination Block Start Addr / Tag

☐ Address Word com.TEST. ...

☒ TagName ...

<< >>

■ Destination Handshake



Destination Handshake Addr / Tag

☐ Address Bit com.TEST. ...

☒ TagName ...

<< >>

Destination Handshake is a Data Bit which is used internally when Xpanel writes Data. The I/O Device and Digital Tag must handshake properly with the Destination.

(Before reading the Destination Block Data, the Data Bit is set as 1. After the writing process, the Data Bit is changed to its initial state, 0)

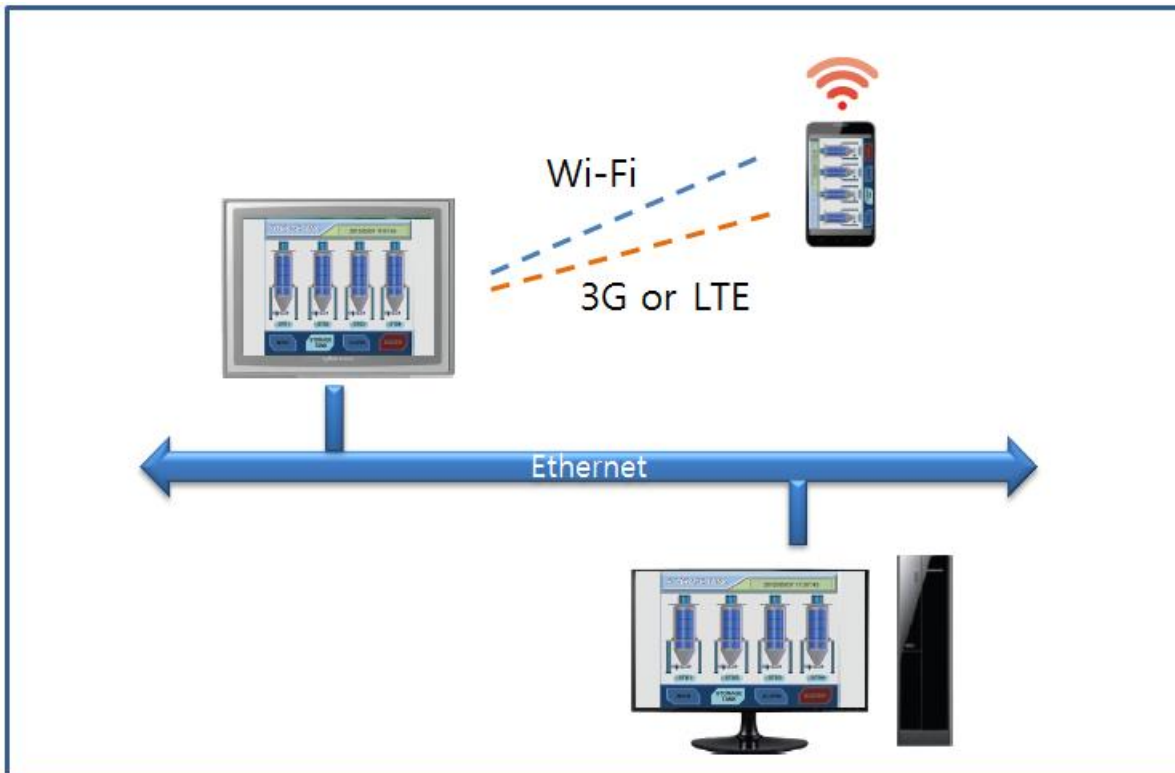
■ System Memory Start Address

Data is transferred to the Destination and synchronized, beginning with the Start Address of System memory and ending at a location determined by the Block size.

Chapter 21. VNC (Remote Control)

21.1 VNC

The **VNC** feature makes it possible to remotely control and monitor Xpanel using an **Ethernet** Network. If a Public IP is assigned to Xpanel, the User can monitor and control Xpanel using a Smart Phone or PC via Wi-Fi, 3G and LTE.



21.1.1 Using the VNC Feature

1. VNC Network Configuration

The VNC feature requires connection to an **Ethernet Network**. VNC allows only **one device** to have a remote connection to Xpanel at a time. This means that only one PC or Smart Phone can access Xpanel (**1:1**). If more than one Smart Phone or PC is connected to Xpanel at the same time, only one of them will be able to access Xpanel.

1) Local Ethernet Network

A Local Ethernet Network uses its own **Ethernet** Network locally without using the Internet. This allows a **Smart Phone** or PC to be connected to Xpanel through a wireless Router using the **same Network IP**.

2) Public IP Ethernet Network

If a **Public IP (THIS IS NOT RECOMMENDED)** is assigned to Xpanel, a PC can access Xpanel **anywhere** using the **Internet**. Using Wi-Fi or **3G or LTE**, a **Smart Phone** can access Xpanel. A portable wireless device (Smart phone or tablet) can access Xpanel using 3G, LTE or Wi-Fi service.

3) The VNC feature on a Smart Phone

The **VNC feature** provided by XpanelDesigner can be used on a PC without requiring **any special program**. For a Smart Phone or tablet, however, the **VNC application** must be installed to connect to Xpanel. The user can download the VNC Applications from the Apps Store, either for **IPhone** or an **Android** Phone (Paid or Free). With free Apps, most VNC features will be supported.

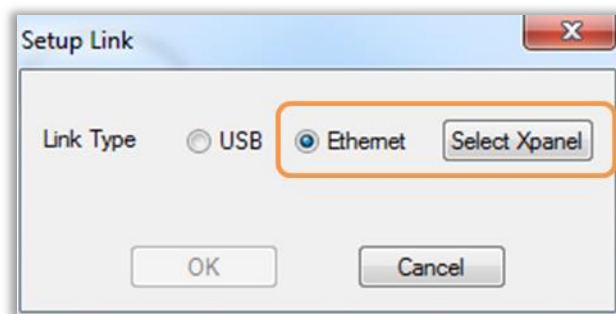
2. VNC Network Configuration

1) Run VNC Server

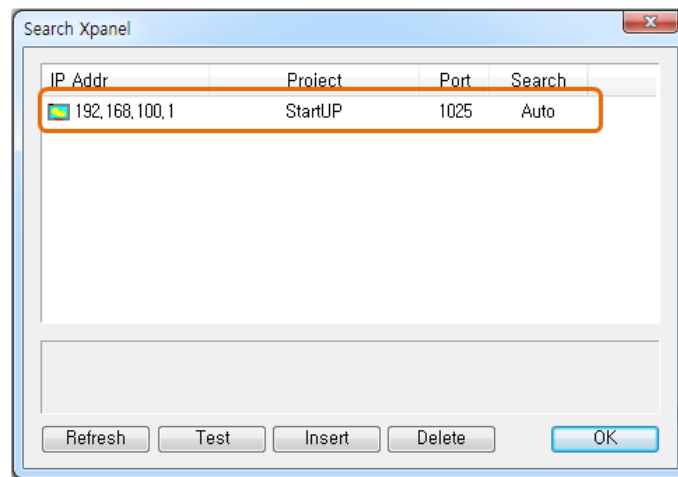
Xpanel's **VNC Server** must be **running** in order to access Xpanel. There are **two methods** of running VNC server.

(1) Run VNC Server on XpanelDesigner

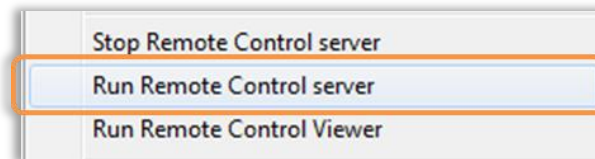
- Click [Online] → [Setup Link].



Select **Ethernet**, and click on [**Select Xpanel**].
Select the Xpanel **IP address** for connecting.

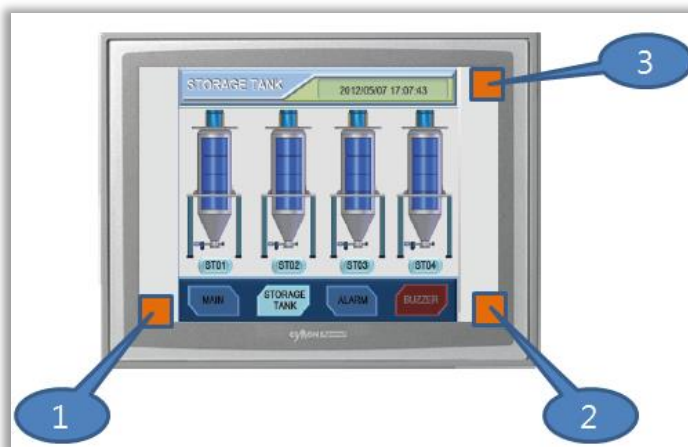


- Click [Online] → [Run Remote Control Server].

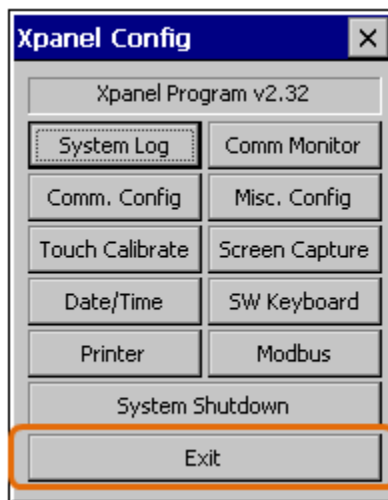


- (2) Run the VNC Server on Xpanel

- Run Xpanel Config

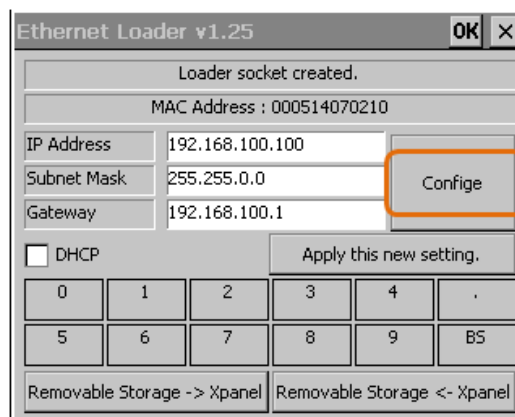


The Xpanel Config window appears when you touch three corners of the screen in the sequence shown above.

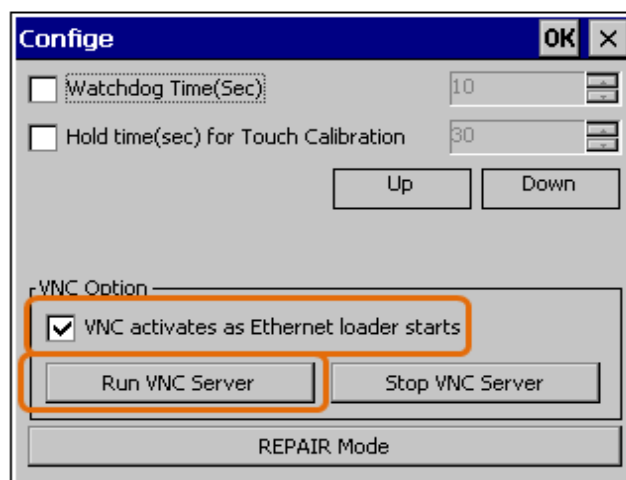


Click on the **[Exit]** button to bring up the Xpanel Desktop.

■ Run Ethernet Loader Config



Click on the **[Config]** button in the **Ethernet Loader** Configuration dialog box.

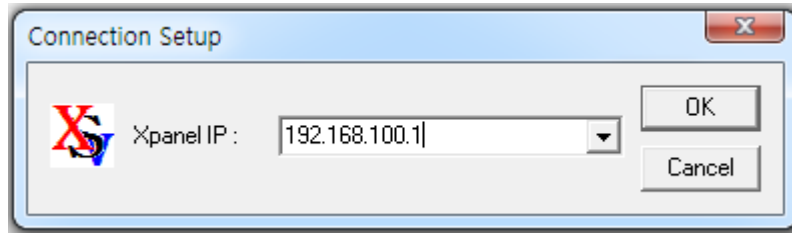


Select **[Run VNC Server]** to run the VNC server.

If **[VNC activates as Ethernet Loader starts]** is selected, the VNC Server runs automatically when Xpanel is turned on.

2) Run VNC Viewer

Click **[Online]** → **[Run Remote Control Viewer]**.



Enter the Xpanel IP address that the VNC server is using.

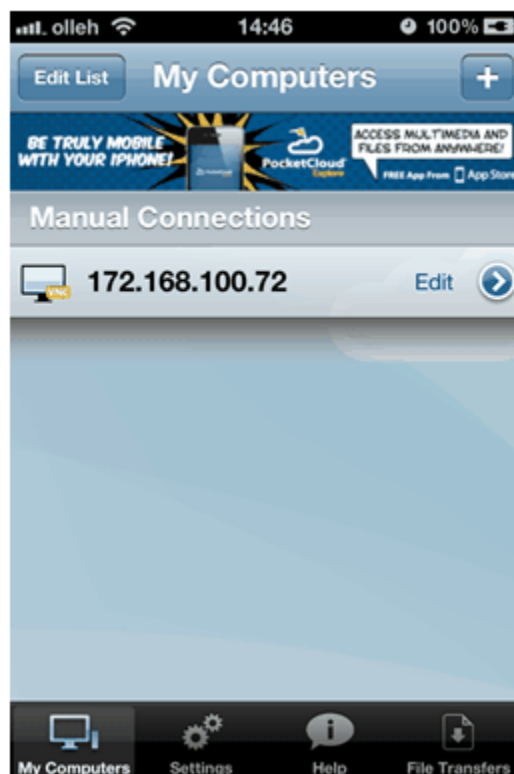
Once connection is successfully established, Xpanel can be controlled and monitored from a PC.



<VNC Connection>

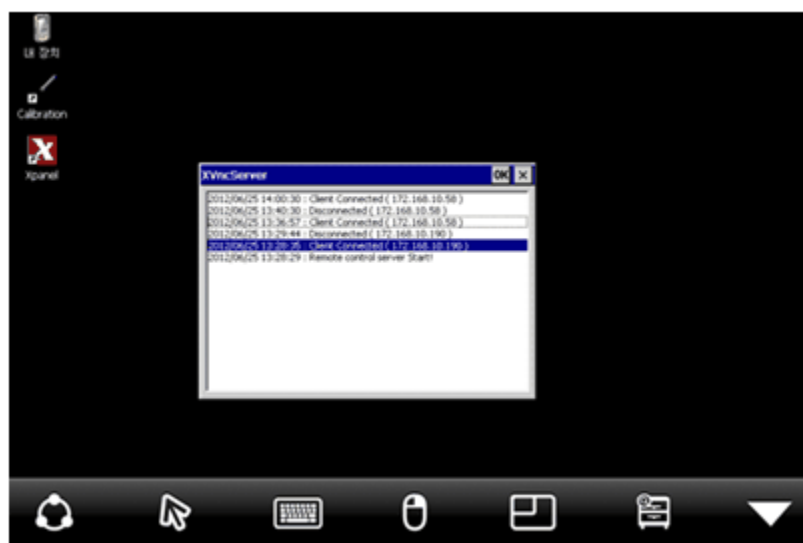
21. 1. 2 VNC Viewer Application Settings

Xpanel Remote control is possible when you install a general-purpose VNC Viewer App on a Smart Phone (Pocket Cloud, etc). This is because Xpanel supports '**VNC**' (Universal Remote Access Interface). Both **Android** and **iOS** have VNC viewer applications. There are different types of VNC viewer applications, and network settings will be different for each one.



<Example of VNC App Configuration>

XpanelDesigner does not support the “Password” function.
Therefore, just click “OK” to connect to the Xpanel VNC Server.



<VNC Viewer Connected>

■ Applicable VNC Applications

All Smart Phone Apps with the Universal Remote Access Interface can access Xpanel. Xpanel does not recommend any special Apps. Some Android VNC Applications, however, do not support **16 Bit Color**, which can cause problems.

These Free Applications have been tested for compatibility:

- iPhone : Pocket Cloud
- Android : Mocha VNC Lite

21. 1. 3 VNC Notes

1. Security

Users must be careful about VNC Security in Xpanel. It is recommended that **VNC access permission** be set up on **Xpanel**. Create a 'VNC Sever ON/OFF' button object with [Touch]→[Command Expression] property. Using this button, the user can run/close the VNC server from Xpanel. If permission is given to access Xpanel from the outside, the VNC server will run. Without permission, the VNC server will close.

- Script (in Command Expression) to close the VNC Server
RunApp("Xpanel\Bin"\"XVncClose.exe", "")
- Script (in Command Expression) to run the VNC Server
RunApp("Xpanel\Bin"\"XVncServer.exe", "")

2. Remote Control

The principle of **VNC is Remote Control**. Remote Control of Xpanel is identical to on-site control. If the user executes a **Page Transition** or **Button Operation** from a remote location, the result will be the same as performing the same operation on site..

3. 1:1 Access

Only one local device is allowed to access the Xpanel VNC Server at a time. If a user logs in to the VNC Server from one location, all other access to VNC Server is denied. Accordingly, the **VNC Viewer** must be shut down in order to allow any other access.

Chapter 22. System Memory

22. 1 System Memory

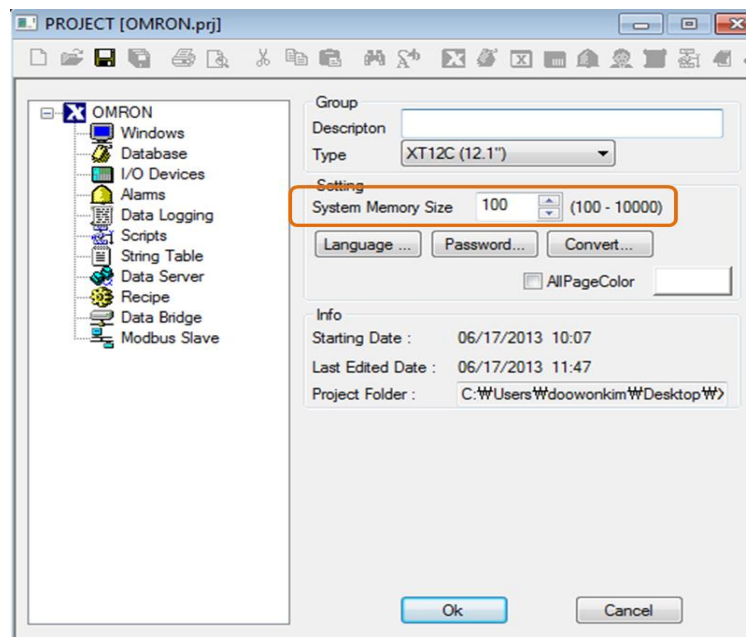
System Memory is virtual memory that consists of consecutive Address. System Memory is set up like a **Real Tag**, but operates like a **Virtual Tag**. Up to 10000 consecutive addresses can be used.

22.1.1 System Memory Settings

1. System Memory Size Settings

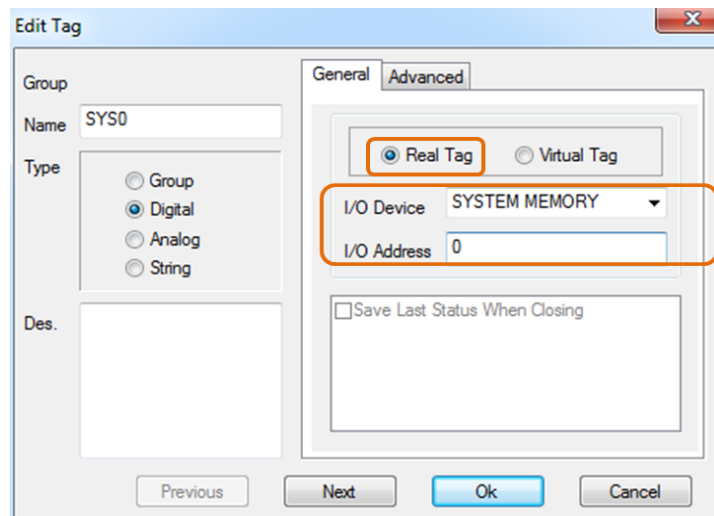
System Memory **size** can be **varied**.

Click [Tools] → [Project] to set System Memory Size.



2. Create a System Memory Tag in the Database

A Tag must be **saved** in the Database in order to set the System Memory data value.



(1) Type

System Memory uses **two** types of Tag (Analog and Digital).

■ Digital Tag

A Digital Tag becomes **1** when the Address value is greater than 0.

■ Analog Tag

An Analog Tag has the same data type as a general Analog Tag.

(2) Real Tag

The Tag type can be set as **Real Tag** even though System Memory uses internal and virtual memory.

■ I/O Device

Select 'System Memory' for the I/O Device. System Memory is listed as the **default**.

■ I/O Address

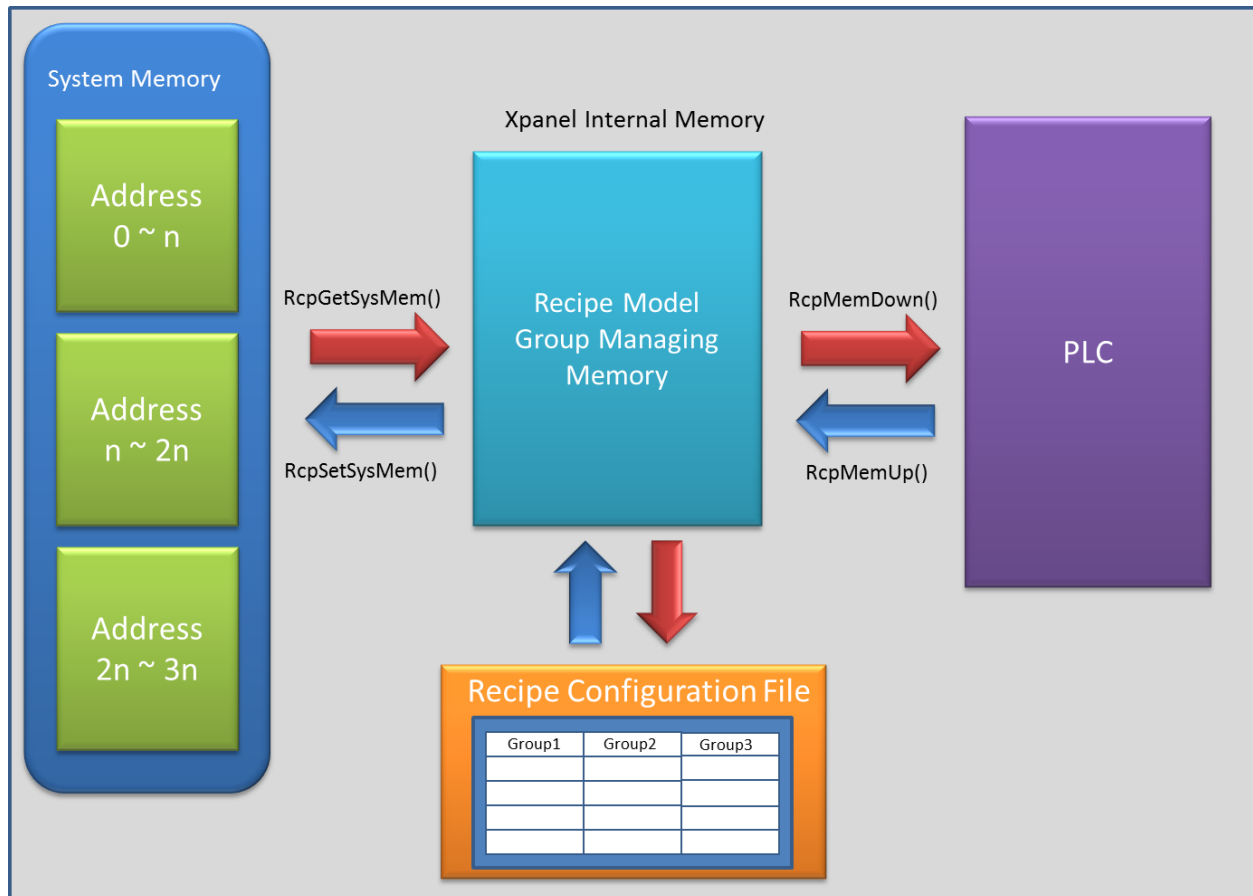
An Address is assigned between **0~9999** (Address range can be vary depending on System Memory Size Configuration).

22.1.1 How to use System Memory

System Memory can be used by itself, but it can be used for a variety of purposes by means of **Script Functions**.

1. Usage as Recipe Data

System Memory can be used for **Recipe Data**. This will allow you to edit Recipe Data more flexibly. In order to edit Recipe Group Data in a Recipe Configuration file, you would otherwise use the Configuration Dialog box Function. But Recipe Group Data editing is possible by modifying the **Tag data** for the corresponding Address in System Memory.



You can use **Script Functions** to control System Memory; this does not require the Recipe Configuration File. To use System Memory for Recipe data, divide consecutive Addresses into Groups. Addresses can then be assigned based on the number of units of data in each group. Data can consist of Tags, which makes data management convenient, since Tag values are easy to change. Additionally, Recipe Group data is backed up.

1) Script Functions for using System Memory for Recipes

■ RcpGetSysMem(S1, R2) : Copy one block of System Memory to Xpanel's internal Recipe Memory. The number of data units to be transferred is equal to the Data Number setting from the Recipe Model Configuration dialog box.

S1 : Recipe Model name

R2 : System Memory Address

Ex) RcpGetSysMem("ICECREAM", 100);

Copy a block of Data into Xpanel's internal Recipe Memory starting from System Memory address 100, with the block size defined by the Data Number setting in "ICECREAM".

■ RcpSetSysMem(S1, R2) : Copy one block of Xpanel's internal Recipe Memory to System Memory. The number of data units to be transferred is equal to the Data Number setting from the Recipe Model Configuration dialog box.

S1 : Recipe Model name

R2 : System Memory Address

2. System Memory Related Functions

1) SysMemMove(R1, R2, R3) : Copy data from one area of system memory to another.

R1 : Starting Address of System Memory to be copied from

R2 : Starting Address of System Memory to be copied to

R3 : Number of Data

Ex) SysMemMove(100, 200, 50) :

Copy 50 units of data (100~149) of System Memory from Address 100 to Address 200.

2) SysMemFill(R1, R2, R3) : Write a value to the specified range of System Memory.

R1 : Starting Address of System Memory

R2 : Writing Value

R3 : Number of Data

Ex) SysMemFill(100, 0 100) :

Write the value (0) to System Memory from Address 100 to 199.

3) GetSysMem(R1) : Return the data value saved in the specified address of System Memory.

R1 : System Memory Address

Ex) Rtn = GetSysMem(100)

Return the data value in System Memory Address 100.

4) SetSysMem(R1, R2) : Write a value into System Memory.

R1 : System Memory Address

R2 : Writing Value

Ex) SetSysMem(100, 100)

Write the value (100) to System Memory Address 100.

5) MakeSysMemCsv(S1, R2, R3, R4, R5) : Save System Memory to a CSV file.

S1 : File header name (S1_Date and Time)

R2 : Starting Address of System Memory

R3 : Number of units of Data to be saved

R4 : The number of rows in the CSV file.

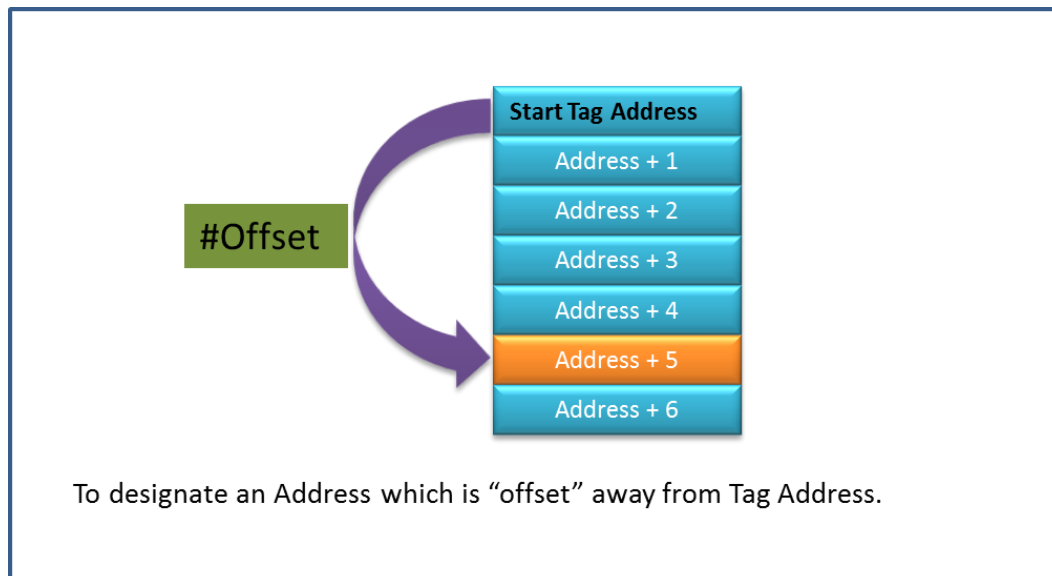
R5 : Saving location (0: Local, 1: SD/MMC, 2 :USB)

Ex) MakeSysMemCsv("SYS", 100, 50, 5, 0);

Copy Xpanel System Memory Data from Address 100 to 149 to a CSV file in internal Memory. Data is arranged into 5 rows. The file name consists of Header+ Date/Time.

22.2.1 Indirect Address

An Indirect Address is used to **read or write data values** at a **noncontiguous address**. The distance between the Tag Address and noncontiguous (Indirect) address is the Offset. Values can be Read or Written using an Indirect Address even if the address is not associated with a Tag.



1. How to use an Indirect Address

Using an Indirect Address requires **two Tags**. One tag contains the Start Address, and the other contains the Offset.

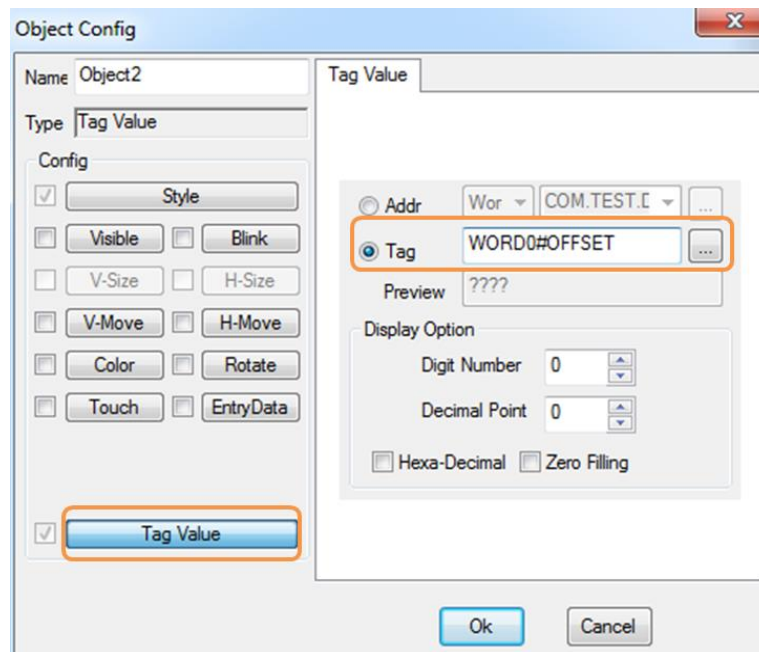
The method for using an Indirect Address is shown below.

If the Offset Tag value is less than 0, it will be ignored. If the Offset Tag value includes a decimal point, it will be rounded down.

$$\text{Indirect Address} = [\text{Start Tag}]\#[\text{Offset Tag}]$$

1) How to display a Tag Value (Dynamic Tag)

- Start Tag Name : WORD0
- Offset Tag Name : OFFSET
- Indirect Address : WORD0#OFFSET



This makes it possible to retrieve data from the Address at the Offset distance from the WORD0 Tag's Address.

2) Indirect Address in Command Expressions

(1) Writing a Tag Value into Indirect Address

WORD0#OFFSET = DATA1;

Write the Tag Value of DATA1 to the Address at the Offset distance from the WORD0 Tag's Address.

(2) Obtaining a Tag value from an Indirect Address

DATA1 = WORD0#OFFSET;

Write the data value from the Offset address to the DATA1 Tag.

2. I/O Device list for Indirect Address

Indirect Addressing supports a variety of I/O Devices, as shown below. If a device is not in the list, Indirect Addressing is not applicable.

Company	I/O DEVICE	Serial	Ethernet
CIMON	CIMON-PLC		O
	CIMON-PLC HMI	O	
	CIMON-PLC loader	O	
	CIMON XPANEL		O
Allen Bradley	Allen Bradley DF1	O	
DELTA	DELTA TAU PMAC Drive	O	
FUJI	FUJI Micrex SX	O	
KEYENCE	KEYENCE PLC (KV mode)	O	
KOYO	KOYO DirectNet	O	
LSIS	LSIS GLOFA PLC Cnet	O	
	LSIS GLOFA PLC Enet		O
	LSIS Master-K S-Series Enet		O
	LSIS Master-K H-Series PLC Cnet	O	
	LSIS Master-K S-Series PLC Cnet	O	
	LSIS Master-K S-Series PLC loader	O	
	LSIS XGT/XGB -Series PLC Cnet	O	
	LSIS XGT Series FEnet		O

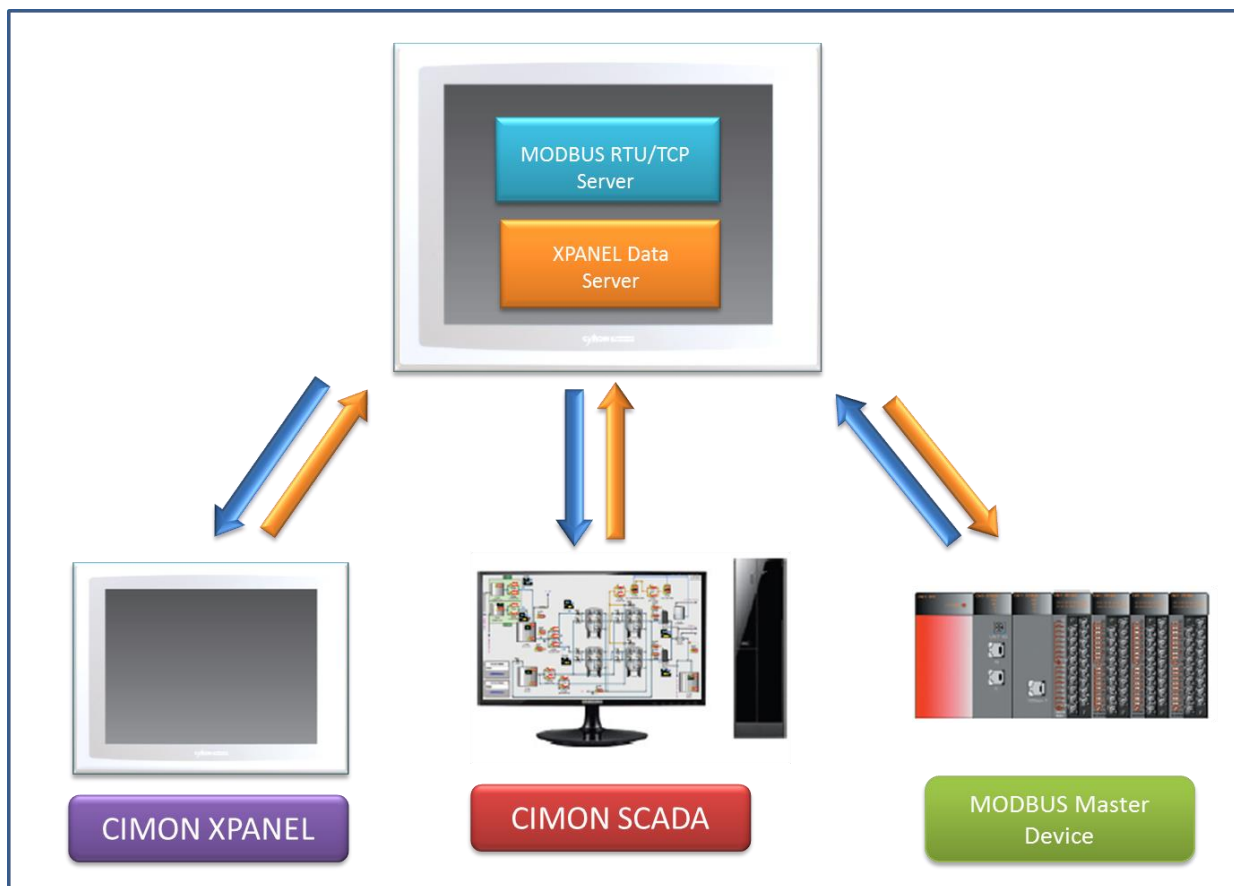
MITSUBISHI	MITSUBISHI MELSEC A Loader	O	
	MITSUBISHI MELSEC 1C (AnA/Anu CPU)	O	
	MITSUBISHI MELSEC 1C (A CPU)	O	
	MITSUBISHI MELSEC FX	O	
	MITSUBISHI MELSEC 1E		O
	MITSUBISHI MELSEC 3E		O
	MITSUBISHI MELSEC 3E (ASCII)		O
	MITSUBISHI MELSEC FX Loader	O	
	MITSUBISHI MELSEC-Q Loader (Q00/01)	O	
	MITSUBISHI MELSEC-Q Loader (Q02/06/12/25)	O	
YASKAWA	YASKAWA MEMOBUS RTU	O	
MODICON	MODBUS ASCII Protocol	O	
	MODBUS RTU Protocol	O	
	MODBUS TCP		O
PANASONIC	NAIS FPO MEWTOCOL-COM	O	
OMRON	OMRON PLC (Host Link)	O	
SIEMENS	SIEMENS RK512/3964R	O	
	SIEMENS S7 Ethernet		O
	SIEMENS S7 MPI	O	
	SIEMENS S7 PPI Direct	O	
SAIA	SAIA S-BUS	O	
YOKOGAWA	YOKOGAWA Computer Link Protocol	O	

Chapter 23. Server Function

23.1 Server Function

Xpanel supports two Server Functions: **MODBUS SLAVE** and **Xpanel Data Server**.

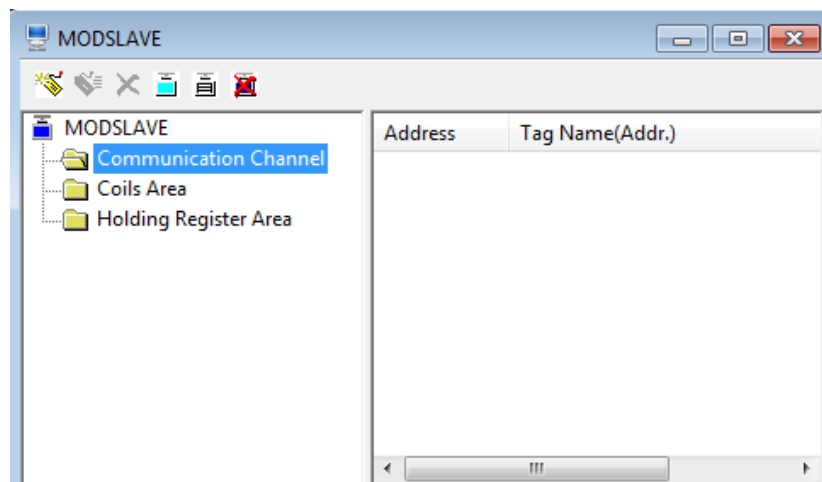
MODBUS supports MODBUS **RTU** and **TCP**. Xpanel Data Server is an **exclusive** method of communicating **between Xpanel installations** or between **Xpanel** and Cimón **SCADA**. Being a Server, Xpanel can request and retrieve Data from another Xpanel installation (Client).









23.1.1 MODBUS SLAVE

Xpanel supports MODBUS RTU and TCP.


Go to [Tool] → [Data Server] → [MODBUS Slave].

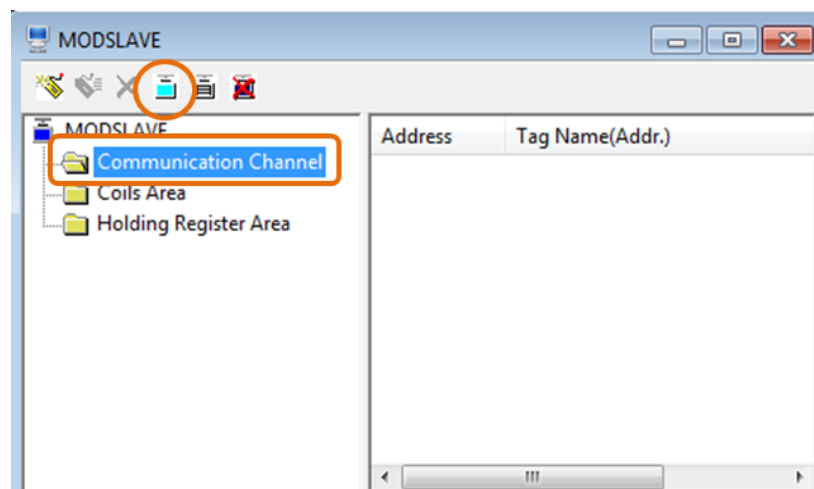


< MODBUS Slave Comm. Setting>

ICON	Description
	Save a Server Tag or Address.
	Edit a Server Tag or Address.
	Delete a Server Tag or Address.
	Open the Comm. Setting window.
	Edit the Communication Settings.
	Delete the Communication Settings.

1. Communication Setting.

In the Communication Setting dialog box, choose MODBUS RTU or TCP, and configure the Slave Comm. Settings. Click on the Comm. Setting icon  to bring up the Communication Settings dialog box.



1) MODBUS RTU Slave

The screenshot shows the 'Communication Setting' dialog box. The 'Slave Type' dropdown is set to 'Modbus RTU'. The 'Unit No.' is set to 0. The 'PORT' is set to 'COM 1' and the 'Baud Rate' is set to 9600. The 'MODE' is set to 'RS232'. The 'Parity' is set to 'None'. The 'Data Bits' are set to 8 Bits. The 'Stop Bit(s)' are set to 1 Bit. The 'RTS/CTS' is set to OFF. The 'OK' and 'Cancel' buttons are visible in the top right corner.

- Slave Type : MODBUS RTU
- Unit No. : Select the Comm. Station number for the Slave.
- Port: Select a COM Port for the MODBUS RTU Slave.
- Baud Rate : 300 ~ 256000 bps.
- Mode : RS232, RS422/485.
- Parameter: Configure Comm. Parameters for communication.


2) MODBUS TCP Slave

The screenshot shows the 'Communication Setting' dialog box. The 'Slave Type' dropdown is set to 'Modbus TCP'. The 'Unit No.' is set to 0 and the 'Socket No.' is set to 502. The 'OK' and 'Cancel' buttons are visible in the top right corner.

- Slave Type : MODBUS TCP
- Unit No. : MODBUS Unit ID for Slave.
- Socket No. : 502

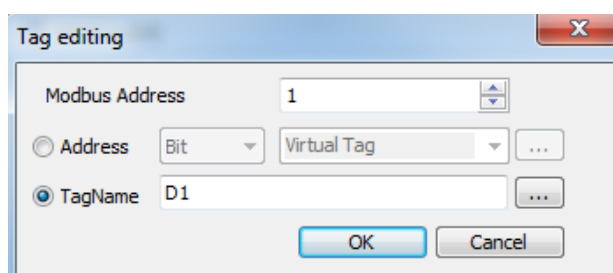
※ The IP address of the **MODBUS TCP Slave** is the same as the IP Address of the **Ethernet Loader** or **Xpanel Config**.

2. Connecting a Tag to the MODBUS Address

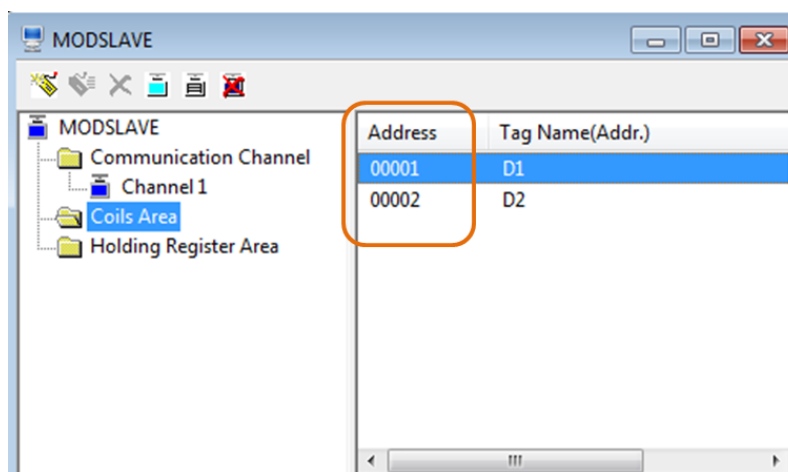
Either a Tag or an Address can be used to connect with the MODBUS Address. The Xpanel MODBUS Slave supports a **Coils** area and a **Holding Register** area. The Coils area is used for **Bit Addresses**, and the Holding Register area is used for **WORD Addresses**. After the Coil or Holding Register is set up, click on the **New Tag** icon .

1) Coils Area

The Coils Area is a **BIT** area which allows both **Reading** and **Writing**, so a **Digital Tag** or Address should be used.

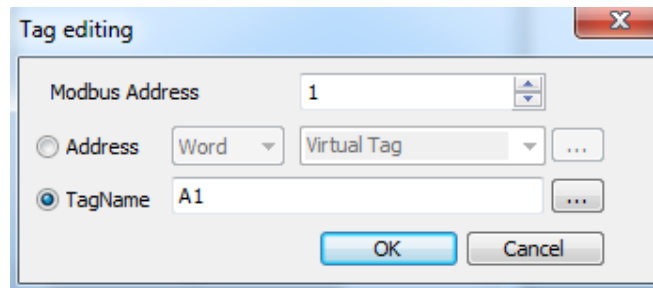


If a Tag is selected in the Coils area, the MODBUS Address starts from “00001”. The Master Device can Read and Write values to the **MODBUS Address** assigned to the Tag.

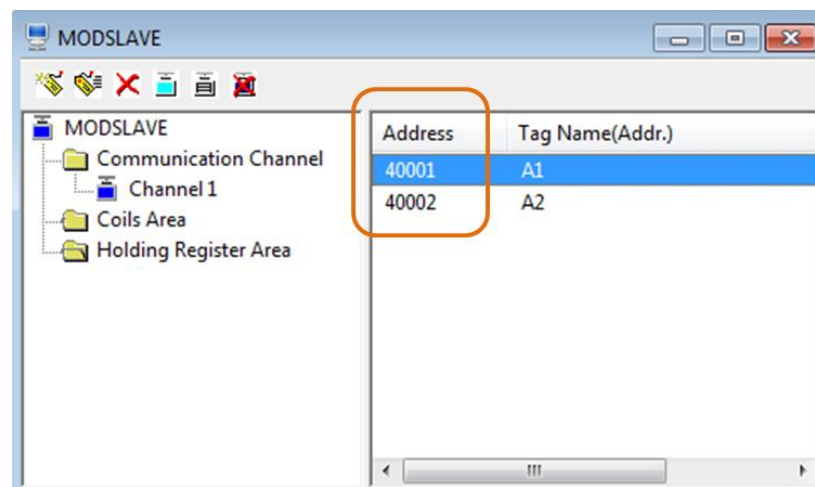


2) Holding Register Area

The Holding Register area is a **WORD** area which allows both **Reading** and **Writing**, so an **Analog Tag** or Address should be used.



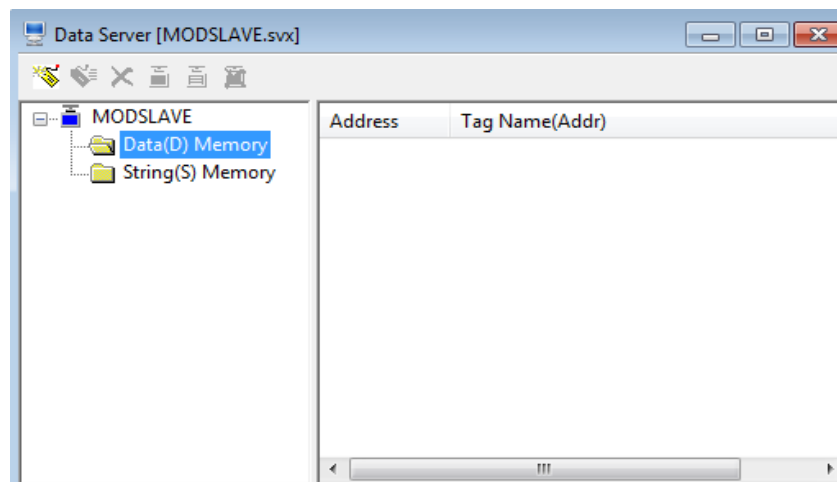
If a Tag is selected in the Holding area, the MODBUS Address starts from “40001”.
The Master Device can Read and Write values to the **MODBUS Address** assigned to the Tag.



23.1.2 Xpanel Data Sever

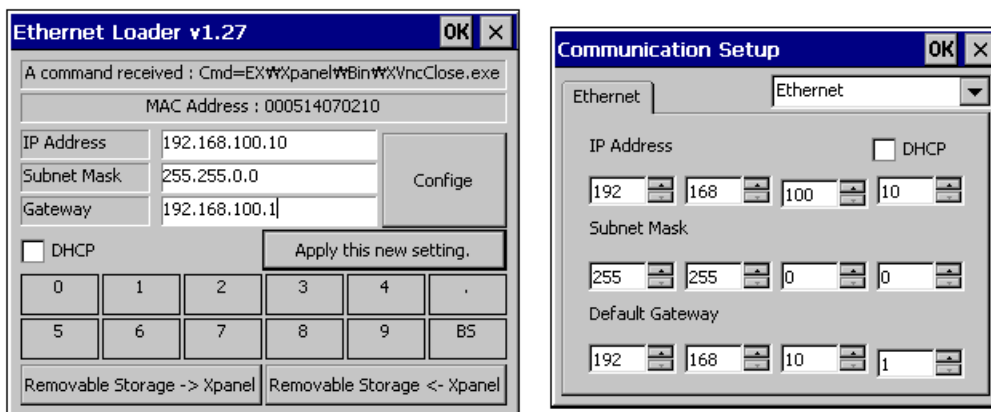
The Xpanel Data Server is an exclusive method of communicating **between Xpanel installations** or between **Xpanel** and **Cimon SCADA**.

Go to [Tool] → [Data Server] → [Xpanel Data Server].




1. Communication Channel Settings

The Xpanel Data Server supports **Ethernet** communication **only**. No Comm. Channel is needed. The Server function uses the IP Address of the **Ethernet Loader** or **Xpanel Config**.



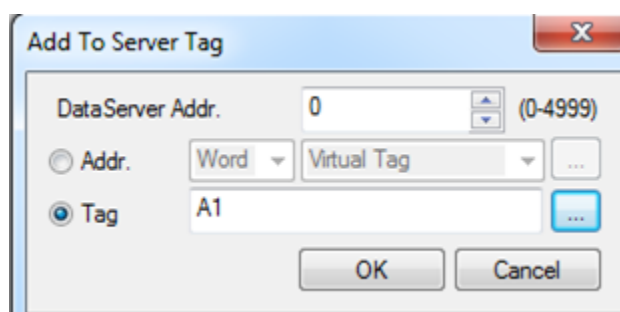
2. Connecting a Tag to the Data Server Address

Select the Tag or Address to be connected to the Data Server Address. Rather than selecting a Bit or WORD area, select the **Data Memory (D)** Area and click on the New Tag icon . For a String Address, a String Tag or the Address of a **String Memory (S)** Area should be selected.

When you save the tag, a new Address is provided for the Server. The Client can use this address to read and Write data.

1) Data Memory (D) Area

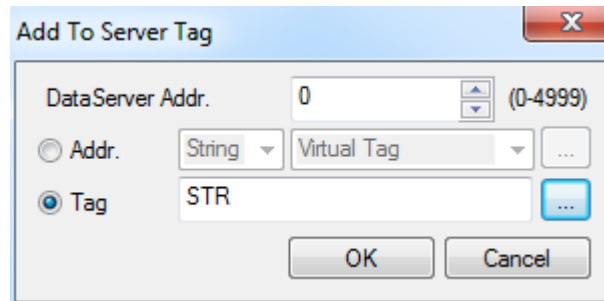
The Data Area can use either a **BIT** or **Analog Tag** (Address).



If a Tag is assigned to the Data Area, the Data Server Address starts from Address **"D0000"**. The Master Device can read and write Tag values using the Data Address.

2) String(S) Area

The String Memory Area can use Sting Tags or Addresses.



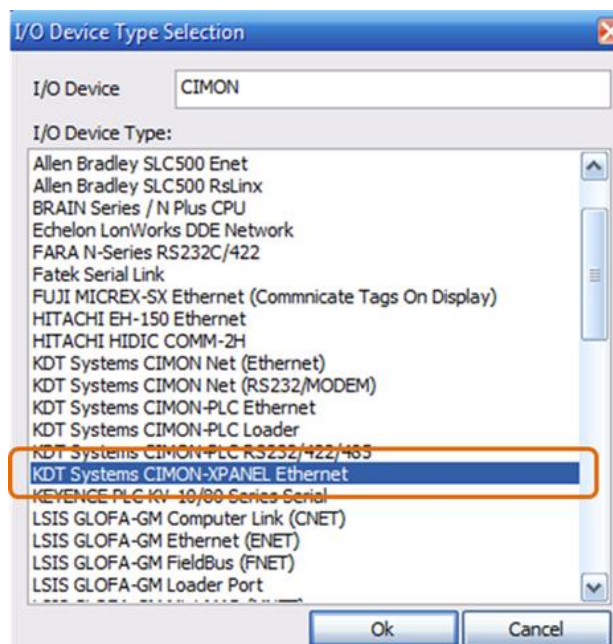
If a Tag is assigned to the String Area, the Data Server Address starts from Address “S0000”. The Master Device can read and write Tag values using the Data Address.

3. Connecting to the Xpanel Data Server with **CIMON-SCADA**

1) I/O Device Setting

Run **CIMON-D**, and go to the I/O Device configuration.

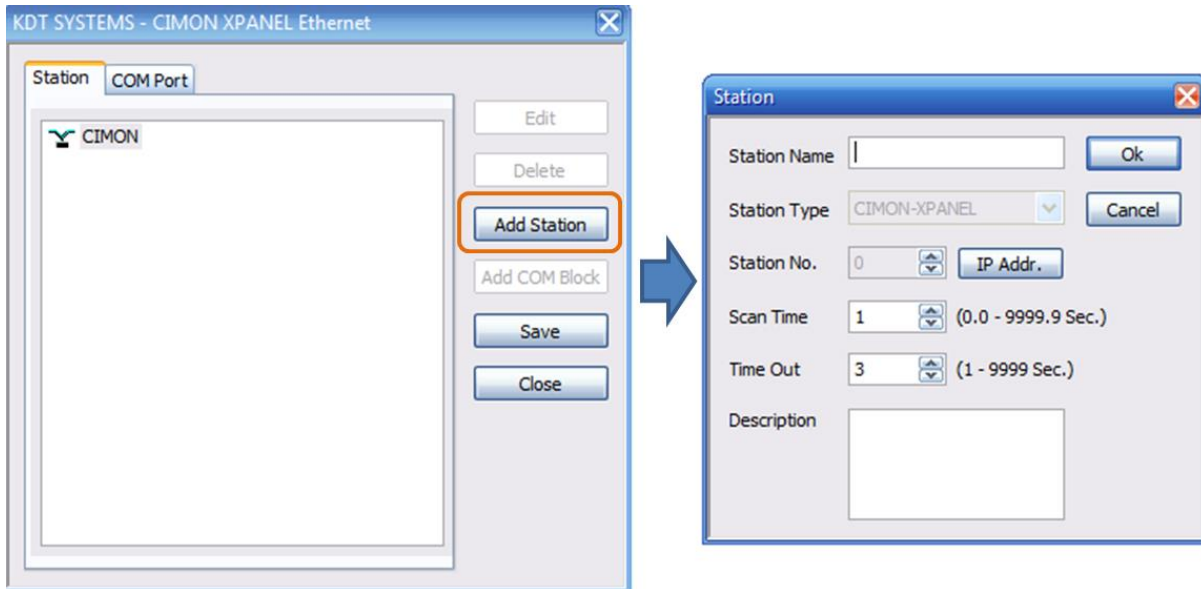
■ I/O Device selection



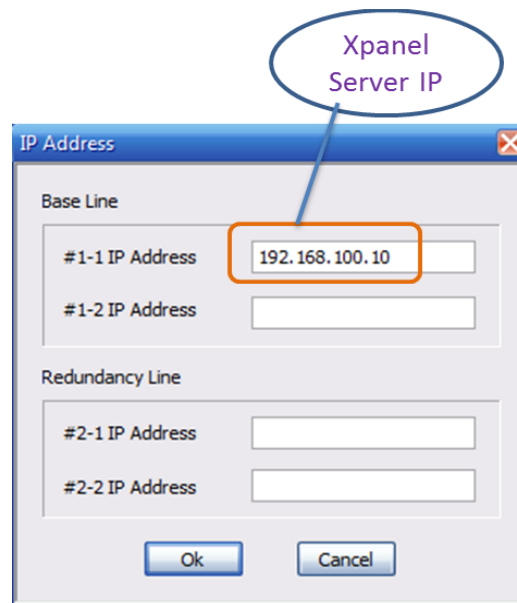
Select “KDT Systems CIMON-XPANEL Ethernet” as the I/O Device.

■ Add a Station

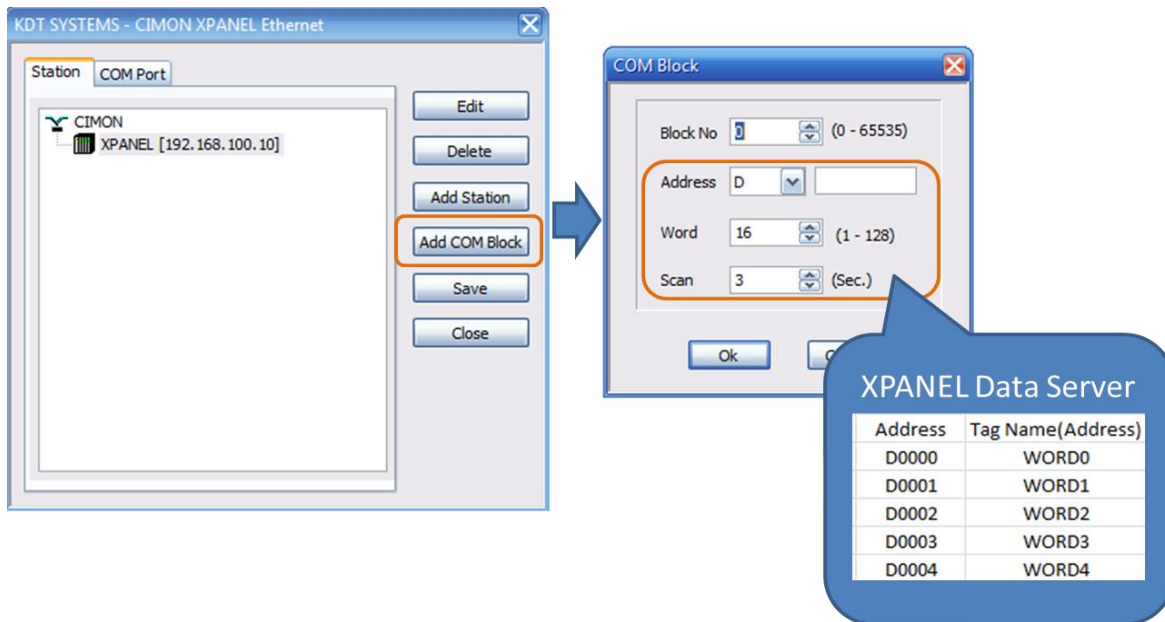
Click on the “**Add Station**” button, and create a new station.



The **Station IP** Address is the same as the Xpanel **Server IP**.



■ Setting Up the Communication Block

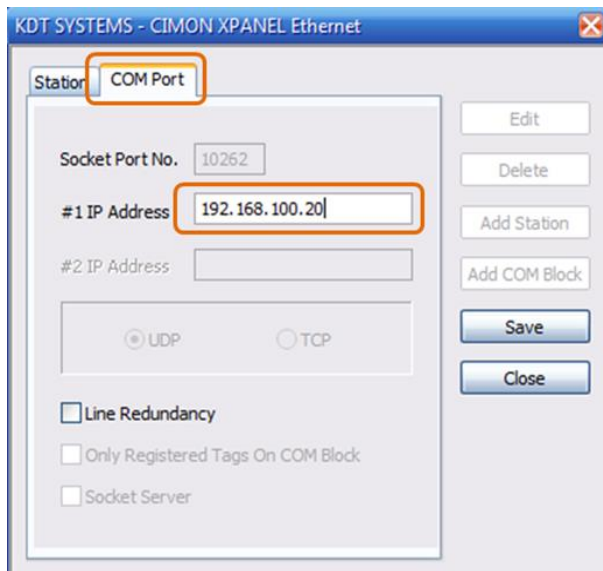


Click on [Add COM Block], and enter the settings for communicating with the Xpanel Data Server.

The Address of the COM Block on SCADA must be the Address in the **Xpanel Data Server**.

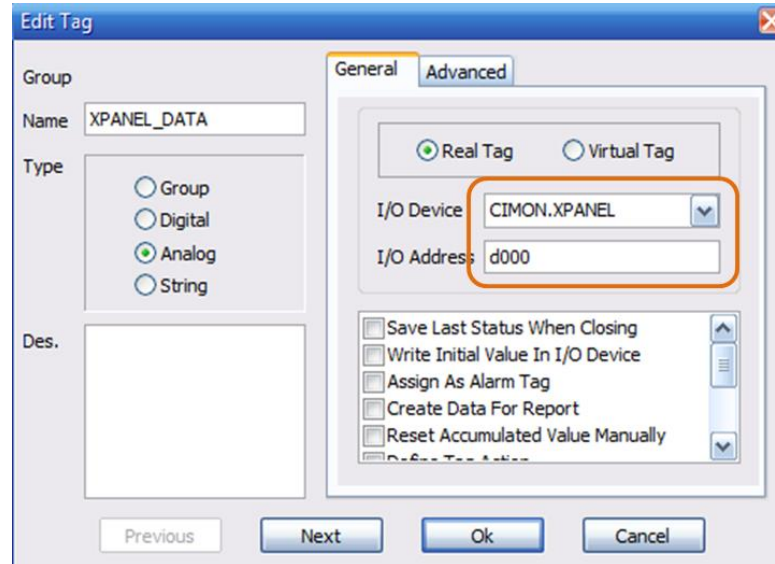
■ Communication Port

The IP Address of the **Communication Port** is the IP Address of the PC on which CIMON SCADA is installed.

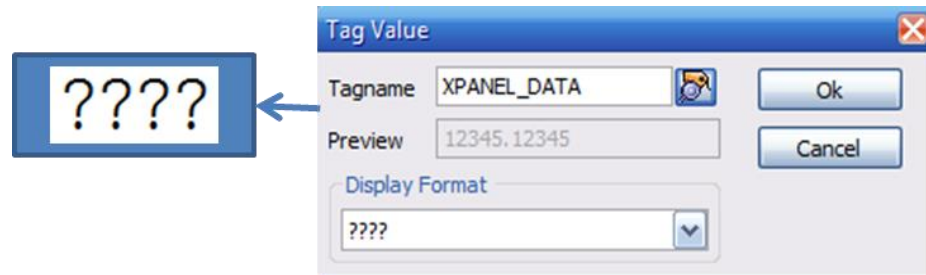


2) Database Entry

Go to [Tool] → [Database] and create a Tag in the Database. Select **Xpanel I/O Device** in the SCADA Database, and save the Tag using the Address in the COM Block.



3) Testing Communication By Dynamic Tag



Communication can be tested by displaying the **Tag Value** on screen. You will be able to see if SCADA is reading the correct data from the Xpanel Data Server.

Chapter 24. Xpanel System Configuration

24. 1 Xpanel Configuration

Xpanel Configuration is used to edit Xpanel settings, and to check Xpanel's status.



24. 2 How to run the Xpanel Configuration Window

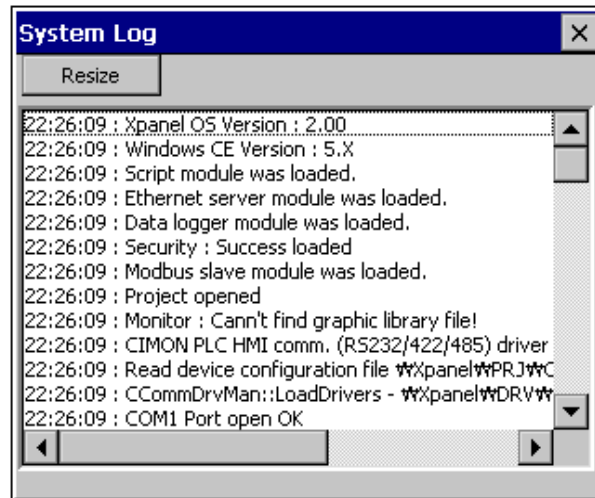
Touch **three corners of the screen** in the **order shown below** to open the Xpanel Configuration dialog box.



24.3 Xpanel Configuration Functions

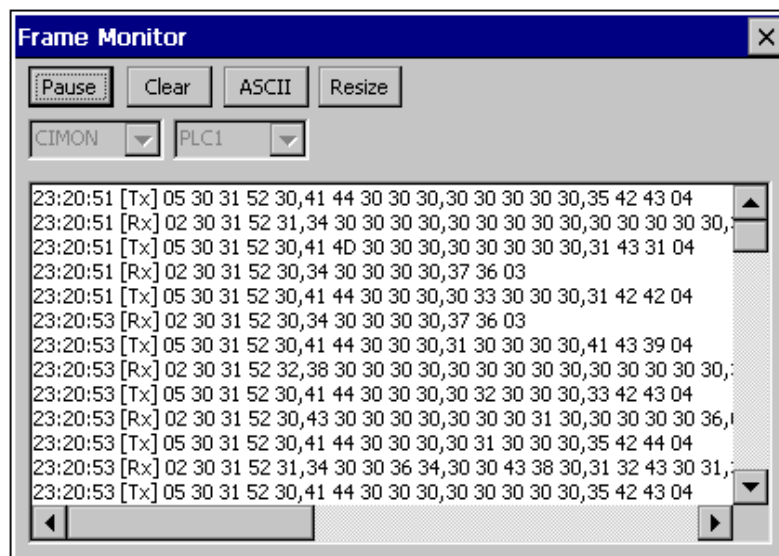
1. System Log

The **System Log** records and displays Xpanel **device status**, **Communication status** and the **operation Log**.



2. Communication (Frame) Monitor

The Comm. Monitor displays Xpanel's Communication status. Displaying Communication **frames** allows you to monitor communication in real time. (Some Slave communication Drivers are not supported).



- Start / Pause : Start or pause **Frame** monitoring.
- Clear : Clear all displayed frames from the screen.
- ASCII : Display all frames in ASCII code.
- Resize : Control the size of the Frame Monitoring window.

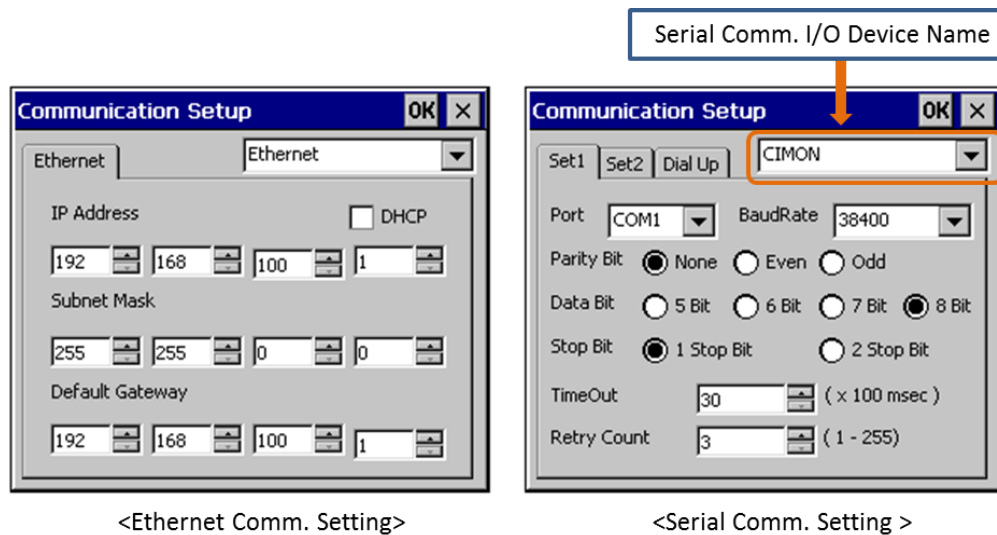
3. Comm. Configuration

Xpanel communication settings can be configured in **Comm. Config**. The Ethernet settings are the same as the settings in the '**Xpanel Ethernet Loader**'. Serial Comm. settings display the Device setting of XpanelDesigners 'I/O Device'. After Comm. settings are modified, the Xpanel Application Program must be restarted in order to apply the changes.

You can modify the Serial Comm. Driver Com Port settings and the Comm. parameter settings along with the Ethernet IP settings. After modification, the system must be shut down and restarted to apply the changes..

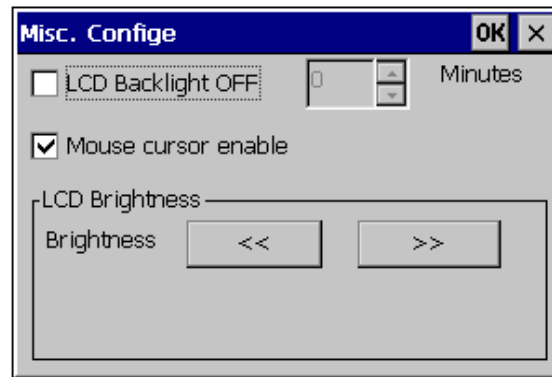
※ Note

If a project is downloaded from XpanelDesigner to Xpanel, the XpanelDesigner **I/O Device Comm. settings** will replace the Xpanel **Comm. settings**.



4. Misc. Configuration

The LCD Backlight On/Off, LCD Brightness and Mouse cursor Enable/Disable settings can be configured in **Misc. Config**.

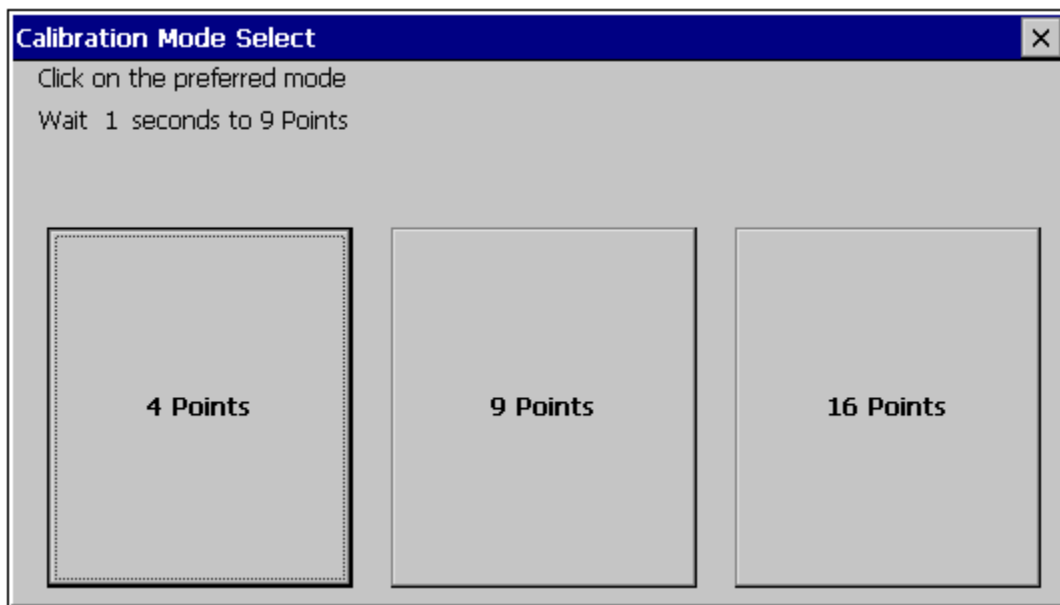


- LCD Backlight OFF : If no Touch operation is executed within the interval set in Minutes, the Backlight automatically shuts off.
- Mouse Cursor Enable : Display the Mouse Cursor on screen.
- LCD Brightness : Set the LCD backlight brightness.

5. Touch Calibration

The touch point can be calibrated.





(Calibration of the type shown above applies to some models (**XT10/12CB**). For more precise calibration, select 16 Points)

Click the Calibration point as shown on the screen.

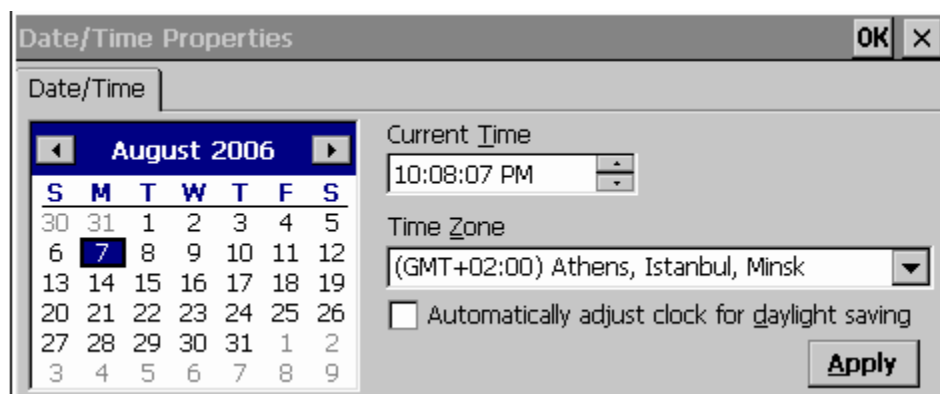
After calibration is complete, selecting [System Shutdown] to restart Xpanel and apply the modifications.

6. Screen Capture

The current Xpanel screen can be saved as a **Bitmap** file. It will be saved to the location '**Xpanel**', with a **file name** made up of the combined **date** and **time**.

7. Date/Time

You can set Xpanel's internal time.



8. SW Keyboard

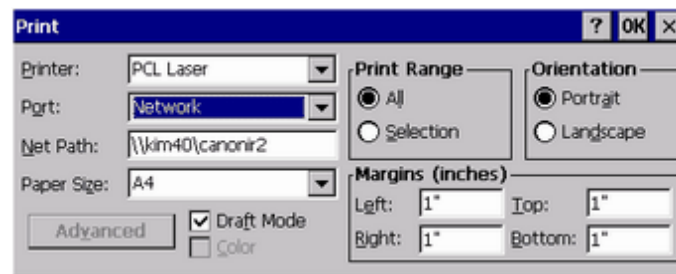
A Virtual Keyboard is supported.



To **close** the SW keyboard, **click** the 'SW Keyboard' button **again**.

9. Printer

You can configure the settings for a printer (connected to Xpanel).



1) Print Setting

- (1) Printer : Two types of Printer are supported (**PCL Laser** and **PCL Inkjet**)
- (2) Port : Select the port that is connected to the Printer.

A. For a **USB Host Printer** : Select [**LPT1:**]

If the USB printer is connected to Xpanel successfully, [LPT1:] is automatically set as the port.

B. For a Network Printer : Select [Network]

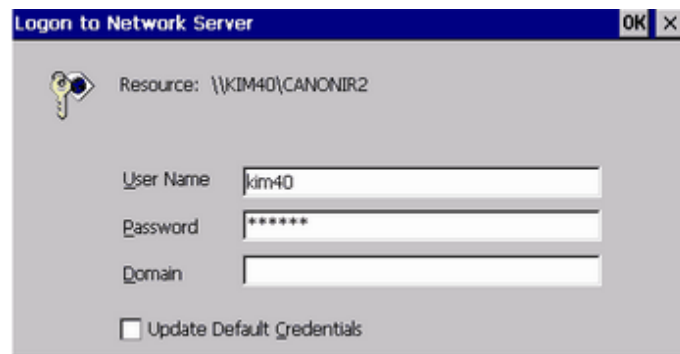
If Network is selected, the Net Path field becomes available. Enter the printer path in the Net Path field.

Ex) \\Shared PC name\\shared Printer Name

- (3) Paper Size: Select the Printer paper size.
- (4) Draft Mode : if this feature is disabled, the image will be printed with better resolution.
- (5) Print Range : select 'all(L)'.
- (6) Orientation : Select the print direction.
- (7) Margins : Control the margin size.

2) For Network Port

If the **port** is set to **Network** with a **valid path**, the 'Network Printer Logon' Dialog box will appear.



Enter the user name **for the shared PC** and the **password** in the "Logon" Dialog box, and then click 'OK'. If the 'Logon' process is successful, the Dialog box will close and the '**Network Password warning**' dialog box will appear.



If 'Yes' is selected, the Dialog box will close. If 'No' is selected, **Password entry** will be required for every attempt at access to the **shared PC**.

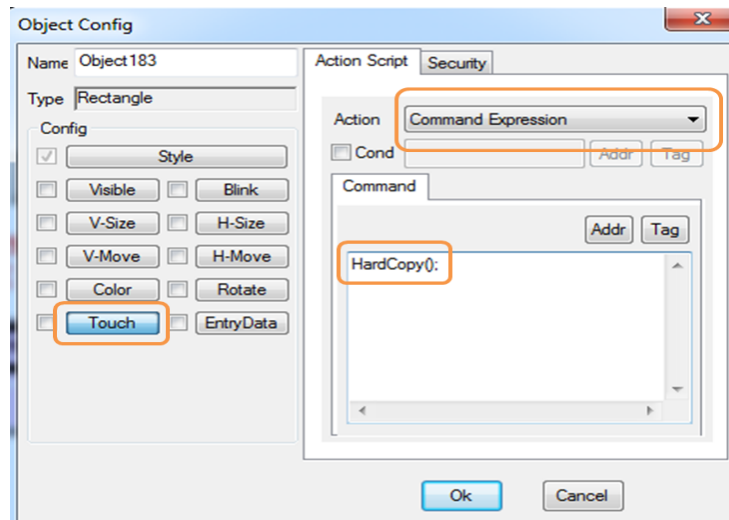
To apply and save the modified settings, click on **[System Shutdown]** in the "Xpanel Config" window to restart the system. Otherwise, the modifications will only apply as long as Xpanel remains turned on.

3) Print Screen

After you have set up the printer, a screen image can be captured and printed out by using the '**HardCopy()**' Function. This function prints out the current screen using the default printer.

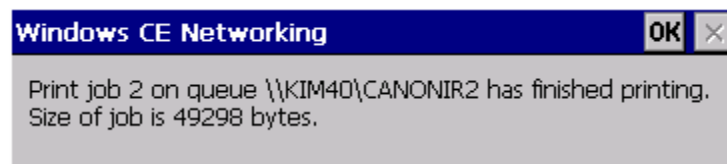
(1) Create a button for Print Screen

- A. Select a Command Expression object.
- B. Go to [Object Config] → [Touch] → [Command Expression].
- C. Enter the Function '**HardCopy()**;' as the Command Expression.



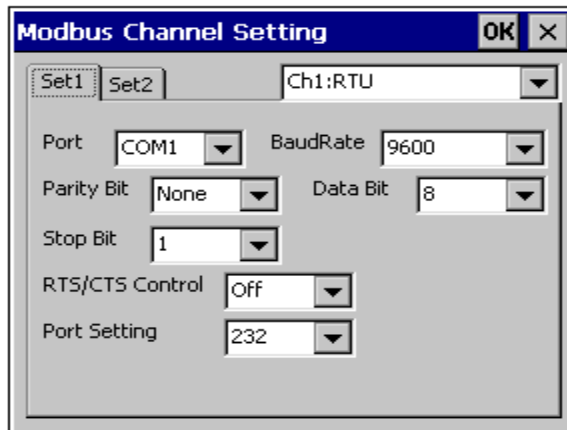
- D. After downloading a project to Xpanel, touch the 'HardCopy()' button.
- E. Check the result.

If the printer settings are OK, print completion message will appear.



10. Modbus

With the **Modbus Slave** feature enabled, Comm. setting can be modified. **Modbus Slave** settings can only be checked or modified after the **Modbus RTU** feature has been enabled in **XpanelDesigner**. The Modbus TCP Slave feature uses an Ethernet IP address set in the 'Ethernet Loader' or 'Comm Config'.



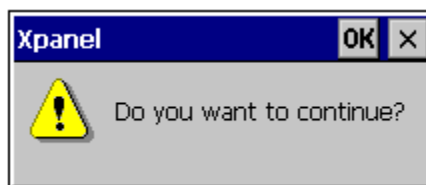
After modification is completed, click [Xpanel Config] → [System Shutdown] to save and apply the modification to Xpanel.

※ For more detailed information, please see **Modbus Slave** in **Ch.23 (Server Function)**.

11. System Shutdown

This feature **saves and applies** the **modifications** made in Xpanel Configuration. Unless modifications are saved using 'System Shutdown', they will no longer apply after Xpanel is restarted.

if you click on '**System Shutdown**', Xpanel will restart. Click on '**OK**' when the confirmation message appears.



After Xpanel restarts, all modifications made before restart will be applied to Xpanel.

12. Exit

The **Exit** feature terminates the **Xpanel Application Program** (project), and returns to the Windows CE Desktop.

- Ethernet Loader

The Ethernet Loader program is always running on the Desktop. If the Ethernet Loader is **forced to quit**, Xpanel will not be able to download any projects using **Ethernet** communication.

- My Device

This is just like **My Computer** on a Windows PC. Users can search for Files or Folders in Xpanel.

※ Deleting or editing the **Xpanel System** file can affect Xpanel's operation.

- Calibration

Calibrate Xpanel Touch operations.

- Xpanel

Execute an Xpanel Application Program (project).



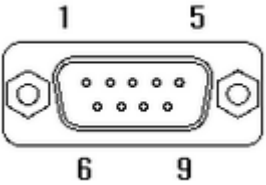
Chapter 25. Communication Port Pinouts

1. Communication Ports

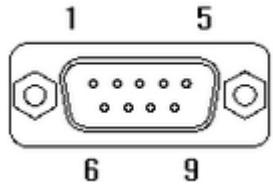
1) Serial Communication Ports

(1) XT04/XT07/XT08 (The same port is used for COM1/COM2)

■ RS232C – COM1

Connector	Pin No	Name	Description
	1		
	2	RD	Receive Data
	3	TD	Transmit Data
	4		
	5	SG	Signal Ground
	6		
	7		
	8		
	9		

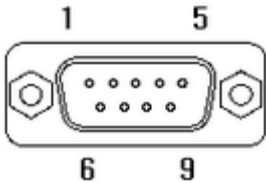
■ RS422/485 – COM2

Connector	Pin No	Name	Description
	1	SDA	Send Data A
	2		
	3		
	4	RDA	Receive Data A
	5	SG	
	6	SDB	Send Data B
	7		
	8		
	9	RDB	Receive Data B


※ **Xpanel Hybrid (7")** uses only the **COM1** port for communication (COM2 is used **internally** to communicate with PLCs). **COM1** supports all three types of Serial communication (RS232/422/485).

(2) XT10/XT12/XT15

■ RS232C – COM2

Connector	Pin No	Name	Description
	1	DCD	Data Carrier Detect
	2	RD	Receive Data
	3	TD	Transmit Data
	4	DTR	Data Terminal Ready
	5	SG	Signal Ground
	6	DSR	Data Set Ready
	7	RTS	Request To Send
	8	CTS	Clear To Send
	9	RI	Ring Indicator

■ RS422/485 – COM1

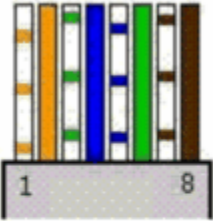
Connector	Pin No	Name	Description
	1	RDB	Receive Data B
	2	RDA	Receive Data A
	3	GND	Ground
	4	SDB	Send Data B
	5	SDA	Send Data A

2) Ethernet

This Ethernet interface complies with IEEE802.3 for 10BaseT/100BaseTX.



Direct Cable: Host <-> HUB

Cable	No	Color	Color	No	Cable
	1	Orange/W	Orange/W	1	
	2	Orange	Orange	2	
	3	Green/W	Green/W	3	
	4	Blue	Blue	4	
	5	Blue/W	Blue/W	5	
	6	Green	Green	6	
	7	Brown/W	Brown/W	7	
	8	Brown	Brown	8	

Crossover Cable: Host <-> Host

Cable	No	Color	Color	No	Cable
	1	Orange/W	Green/W	1	
	2	Orange	Green	2	
	3	Green/W	Orange/W	3	
	4	Blue	Blue	4	
	5	Blue/W	Blue/W	5	
	6	Green	Orange	6	
	7	Brown/W	Brown/W	7	
	8	Brown	Brown	8	