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## Proclamation

Thank you for purchasing Shihlin Electric's Human Machine Interface. Please follow the order of the chapters to read the instructions and operate the device.

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**A.** The genuine copy of "EU Program Editor 2.0" software includes programs and manuals, all belonging to the copyright of Shihlin Electric & Engineering Corporation. The company only grants authorized persons to use the software. Any person who contravenes any of the above copyrights will be prosecuted in accordance with the laws of Taiwan.

**B.** If users apply the HMI to a non-industrial controlled product, Shihlin Electric shall bear no responsibility on any damage whatsoever.

**C.** The software will be updated irregularly to add in new features. If users find the actual functions are somewhat different from the manual contents, please go to the Shihlin Electric's website to download the latest information.

**D.** Even if the information or the HMI implies intangible or intellectual property rights of Shihlin Electric or of a third party, Shihlin Electric does not guarantee or grant any user and/or the third party the use of the HMI.

**E.** Although this manual has been proofread many times, imperfection is inevitable. We look forward to your opinions. If you have any questions or suggestions, please contact us and we'll very appreciate it.

## Attentions

To properly and safely operate “EU Program Editor 2.0”, please read this manual and relevant guide carefully to fully understand the features of the software and the correct way of using it.

- Touch panel switch should not be used under ON / OFF wire abnormalities that may result in personnel injury or equipment damage, even lead to serious incidents.
- Output signal may lead to serious incidents, thus must be equipped with monitoring circuits, such as a limiter; and the system must be designed to have reset mechanism, so that conduction can be controlled by means other than the HMI, to prevent incidents resulting from malfunctions or failure of the touch panel switch.
- The control switch of the HMI should not be used as an emergency stop switch. To the health and safety conerns, the labor requires all industrial machinery systems be equipped with a mechanical, manually operated emergency stop switch; and for other types of systems, similar mechanical switches must also be provided to ensure safe operations.
- "EU Program Editor 2.0" is installed through the CD-ROM. Do not play the installation CD on an audio CD device, for it can produce unexpected audio volume that may cause hearing problems or damage to speakers.

- Please do not shut down you computer, close the editor software or switch off the HMI, when a program is being edited or a HMI project is being transmitted. Doing so may crash the project program.
- Do not use a document editing software or any other types of editing software to modify the project structure of this product. Doing so may crash the project program and result in disabled execution.
- Do not remove the external memory module when the HMI is running. Doing so may corrupt the files inside the external memory device.
- When you use a USB to transfer data, a disk will appear in the file manager. Do not operate this disk in order to prevent HMI from transferring data mistakenly. If data cannot transfer normally because your PC is incompatible with the HMI USB device, PC will ask you to format the disk. Choose either “FAT32”or “FAT” to format the disk.
- In editing EUEditor 2.3.15 version or below editor software , do not update OS_04.04 version or above OS software , and this action may cause the OS software is corrupted.

This manual is divided into three sections, allowing you to quickly learn the functions of the editing screens after reading the manual.

# Chapter 1 Introduction to Editing Software

The Shihlin HMI product includes a software installation CD. The EC series follows the EU Editor software, added with new features of options of EC models. The functions and features of the EC series are shown in the following Table 1-1-1.

Table 1-1-1 List of Features

| Feature | Description |
|---|---|
| **Toolbar Shortcut** | Provides graphical user interface for quick clicking of toolbars of standard, view, format, image, object, and edit. |
| **Graph Drawing** | Provides basic graph drawing objects and a variety of libraries for screen editing. |
| **Data Elements** | Provides various objects including switch, lamp, data entry, data display, message display, chart display, meter, level chart and time display. |
| **Multiple Languages** | Supports Traditional Chinese, Simplified Chinese, English and Russian. |
| **Storage Device** | Supports SD memory / USB disk card to read and write the screen. |
| **Data Transfer** | Supports Ethernet and USB to transfer screen data, and provides the By-Pass function to transfer programs from the HMI's COM port to PLC. |
| **Operation Monitoring** | Allows direct editing and monitoring of the PLC programs via the HMI interface.<br>Uses the operation resume to view the devices used. |

# Chapter 2 Software Installation and Screen Introduction

## 2.1. Installation

### 2.1.1. Recommended Computing Environment

The recommended computing environment for installing the EU Editor software is shown in Table 2-1-1.

Table 2-1-1 List of the Computing Environment

| Component | Specification |
|---|---|
| **Processor** | 1GHZ or above |
| **Memory** | 1 GB or above |
| **Disk Space** | 1.5 GB |
| **Screen Resolution** | 1024*768 High Color(16-bit) |
| **Network Card** | 10/100Mbps |
| **Operating System** | Windows 2000 Service Pack 3 / Windows XP Service Pack 2 / Windows XP Service Pack 3 |

### 2.1.2. Software Installation

Place the CD that comes with the package into the CD-ROM drive, and then click the

icon to start the software installation. The screen displayed is as shown in Figure 2-1-2. Click the “Next” button.

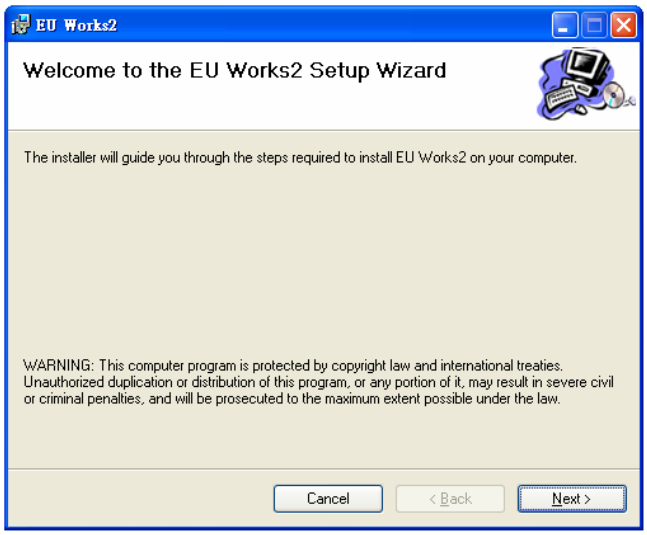



Fig. 2-1-2 Installation Screen

If an old version is installed, all the files under the old installed path will be removed. Please backup your project files first, if they were saved in the path. If no any old one is installed，go to the next step. See the figure2-1-3 below:

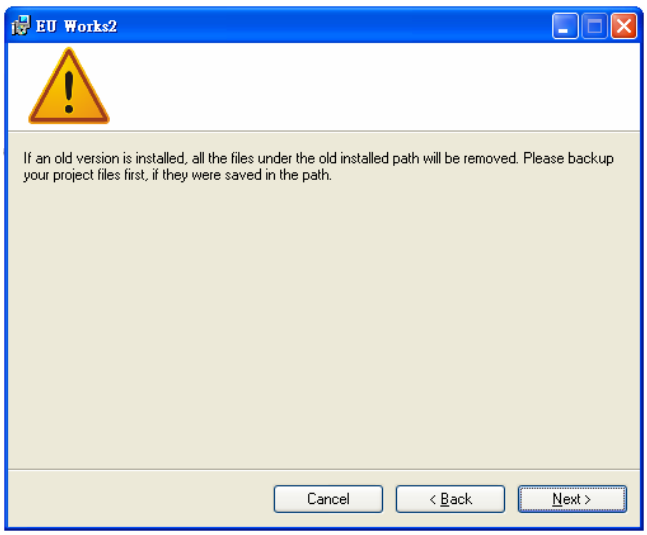



Fig. 2-1-3 Remove the old version

The system default installation path is C:\ShihlinElectric\ EUEditor2.0\. This path is user-definable. The screen displayed is shown in Figure 2-1-4. After the path is confirmed, click the “Next” button to proceed.

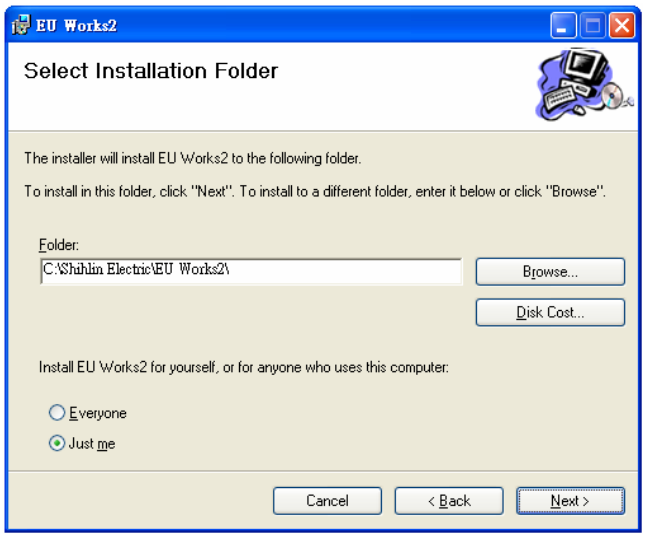



Fig. 2-1-4 Installation Path Setup

Then, enter the user name and the organization name. Confirm the settings and click the “Next” button to process. This is shown in Figure 2-1.5

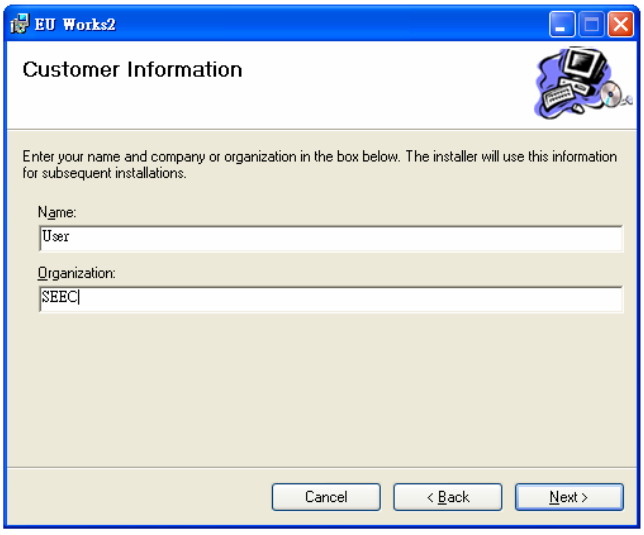



Fig. 2-1-5 User Information

Before installing the software, please read the license agreement. If you accept all the terms and conditions, click “I Agree”, then click “Next” to continue. Otherwise click Cancel to exit installer. See the figure 2-1-6 below:

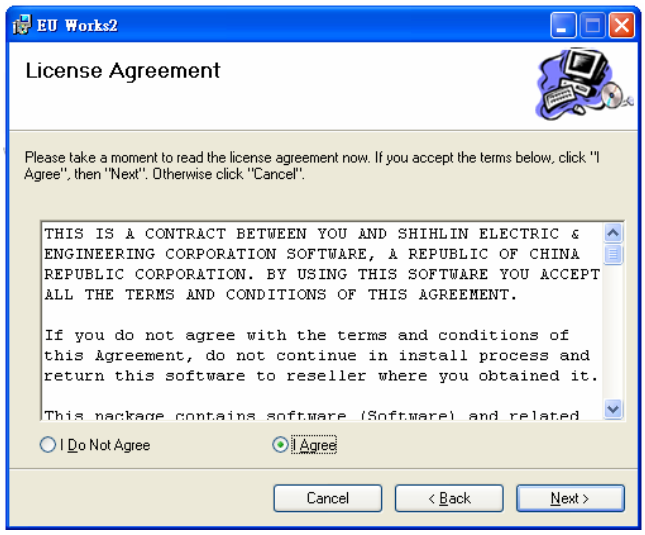
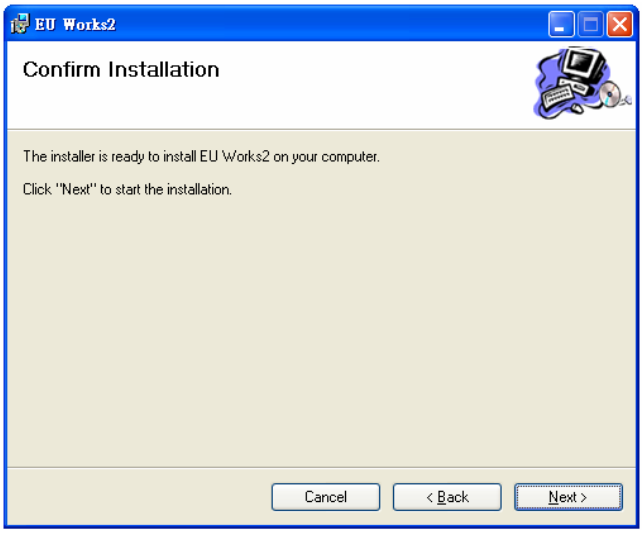
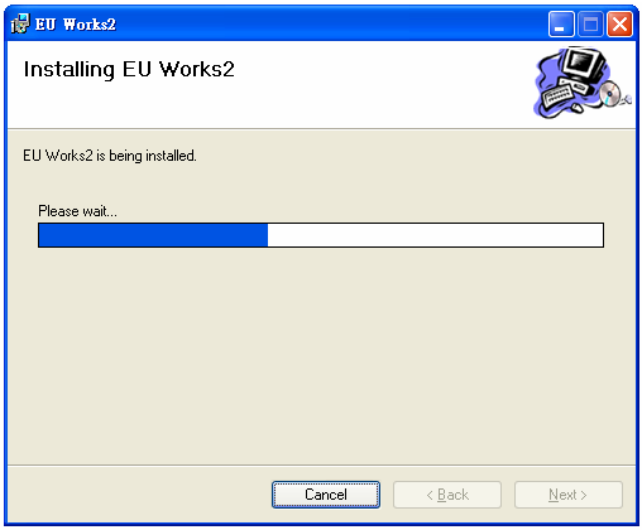



Fig. 2-1-6 License agreement

Then, click the “Next” button to start the installation. The installation software will install the EU Editor to your computer, as shown in Figure 2-1-7.




(a)




(b)

Fig. 2-1-7 Installation Confirmation (a) Start Installation (b) Installation in Progress

Finally, the installation completion screen will be shown. Click the "Close" button to finish the EU Editor installation. See Figure 2-1-8 below.

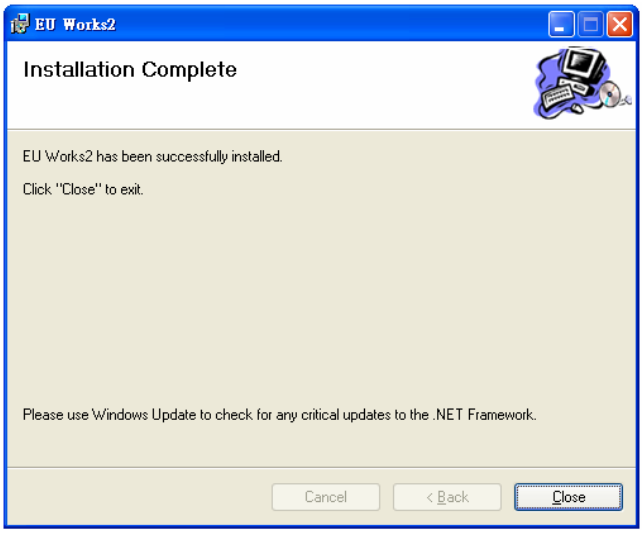



Fig. 2-1-8 Installation Completed

NOTE

- To update the editor software, please remove the old version from your computer first, and then proceed to install the new version.

## 2.2. Repair and Removal

### 2.2.1. Software Repair

If you need to have the software repaired, click “start”→”all programs(P)”→”ShihlinElectric”→”EUEditor2.0”, and then click the

icon to start the repair. The screen displayed is shown in Figure 2-2-1. The repair process will first remove the software and then re-install it.

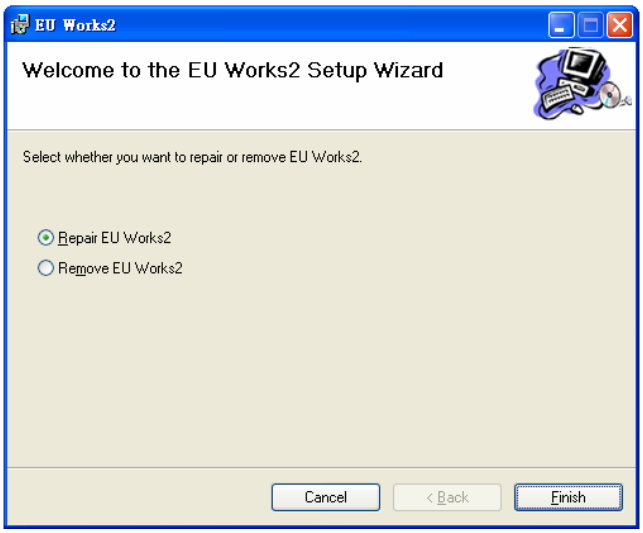
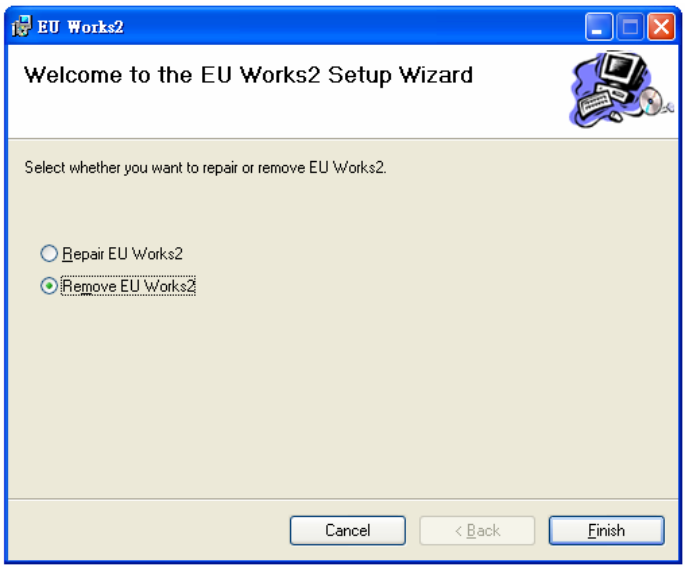



Fig. 2-2-1 Software Repair

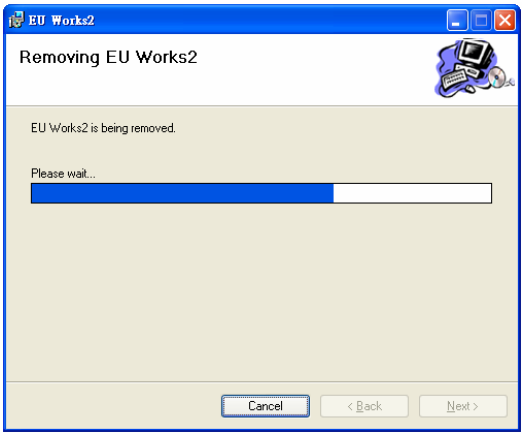
### 2.2.2. Software Removal

If you need to remove the software, click “start”→”all programs(P)”→”ShihlinElectric”→”EUEditor2.0”, and then click the

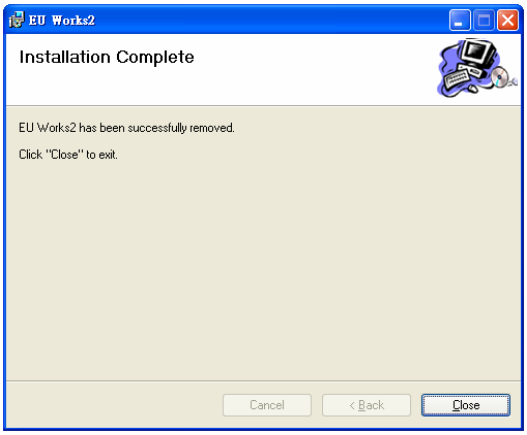
icon, the screen displayed is shown in Figure 2-2-2. The removal process will automatically delete the software.




(a)




(b)




(c)

Fig. 2-2-2 Software Removal (a) Select Removal (b) Removal in Progress (c) Removal Completed

## 2.3. Software Environment

### 2.3.1. Introduction of the Operating Window

When the software is executed, it displays the operating window as shown in Figure 2-3-1. The window contains the title toolbar, menu toolbar, shortcut toolbar, screen list, property window, error list, status toolbar, and editing window.

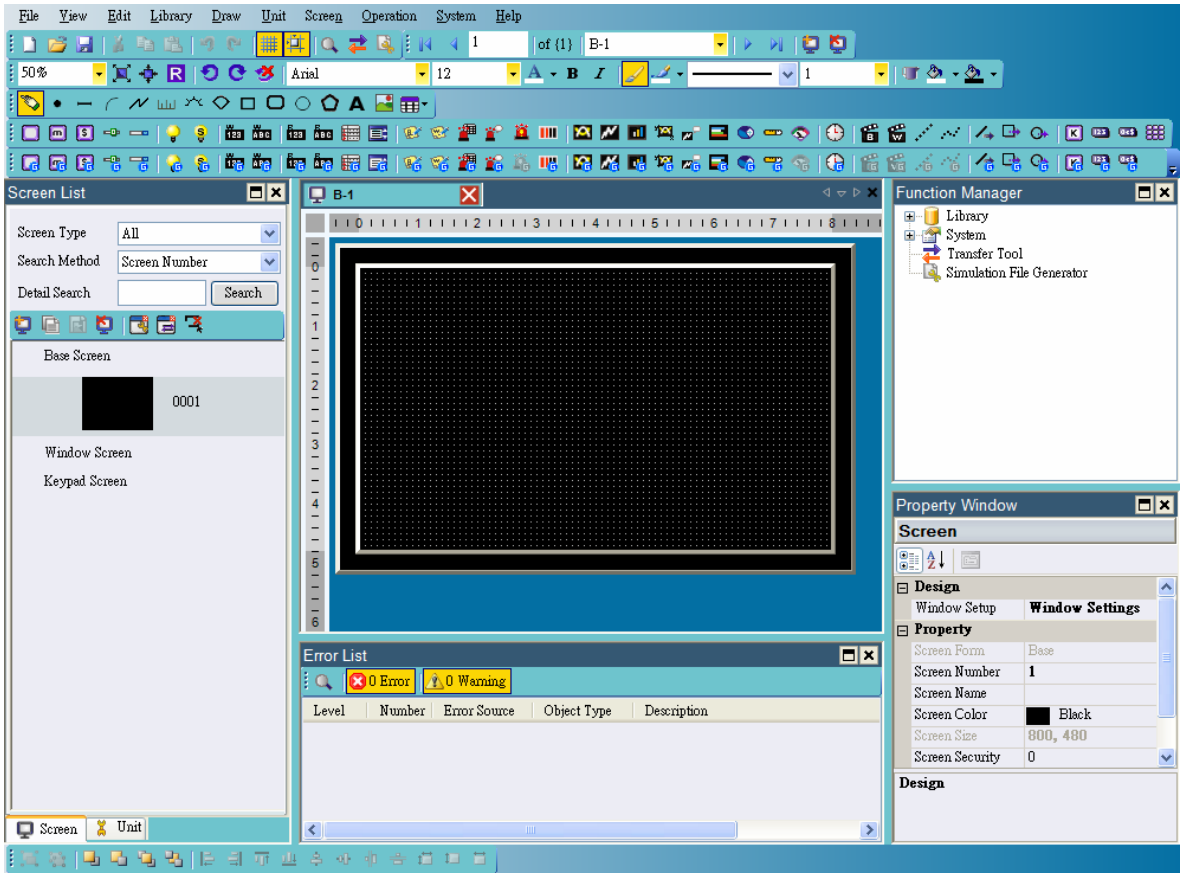



Fig. 2-3-1 Operating Interface

### 2.3.2. Introduction of Shortcut Toolbar

Figure 2-3-2 shows the shortcut toolbars included in the software. From top to bottom, the toolbars are Standard, View, Format, Image, Object, Status, Language, and Edit. The corresponding switches can also be selected from the menu bar options. For details, please refer to relevant descriptions in the following chapters.

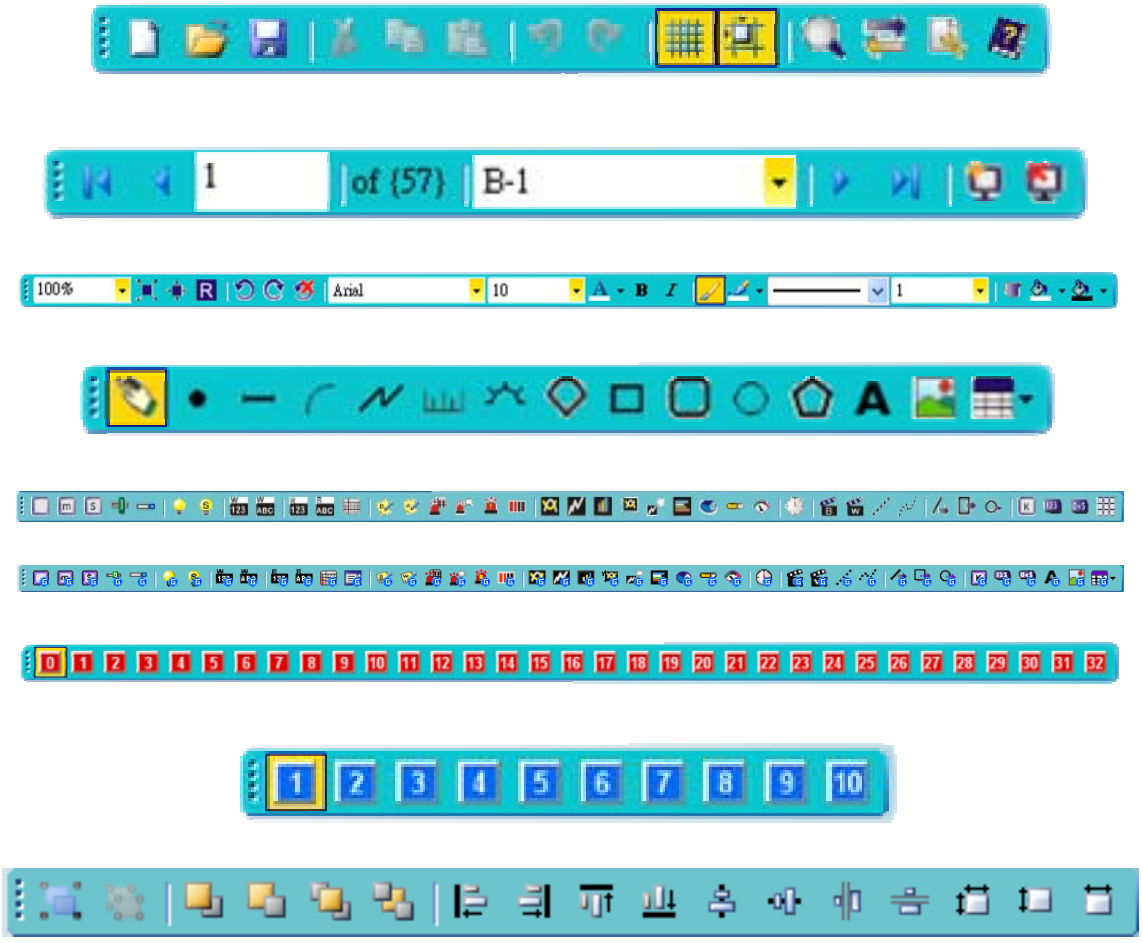


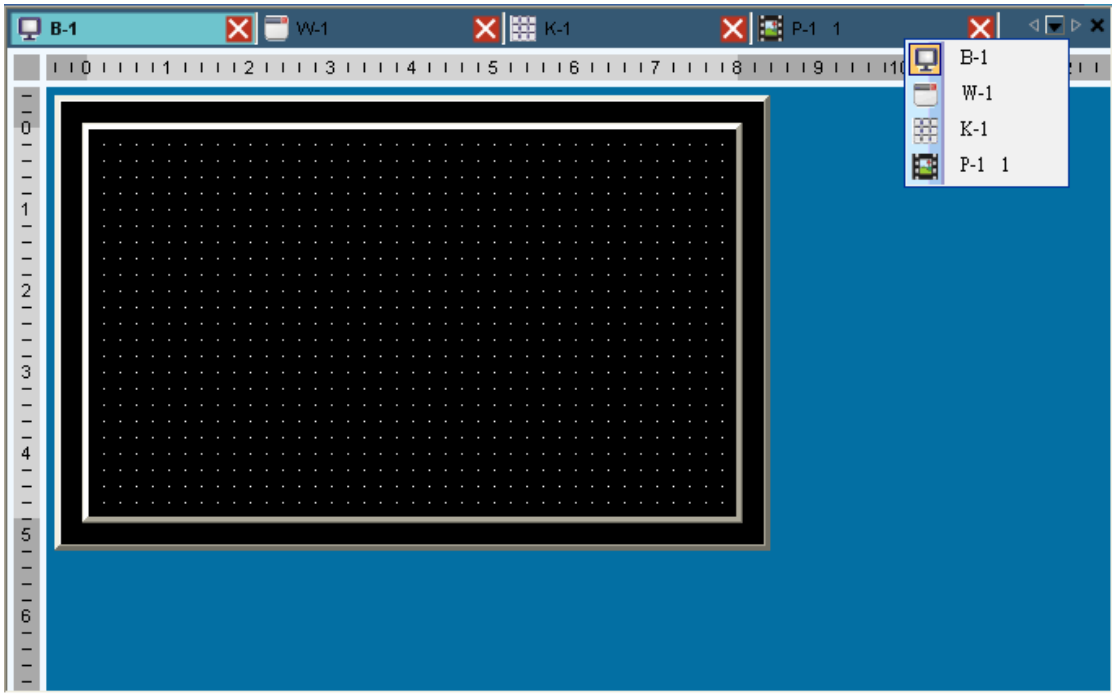

Fig. 2-3-2 List of Shortcut Toolbars



EC series

### 2.3.3. Introduction of Editing Window

The editing window is shown in Figure 2-3-3 below,Use the window to view and draw images, and set up objects.




| Model | resolution |
|---|---|
| EC205-CT0A | 480×272 pixel |
| EC207 series | 800×480 pixel |
| EC208 series | 800×600 pixel |
| EC210 series | 800×480 pixel |

Fig. 2-3-3 Editing Window

# Chapter 3 Menu of Tools

## 3.1. File Menu

### 3.1.1. File Functions

All the file functions of File are listed in Table 3-1-1 below.

Table 3-1-1 File Functions

| Name | Function |
|---|---|
| New | Start a new project. |
| Open... | Open an old project. |
| Close | Close a project. |
| Save | Save the project. |
| Save As... | Save the file as another project. |
| Export | Export to library. |
| Import | Import from library. |
| Print Setup... | Print the settings. |
| Print Preview... | Preview the settings. |
| Print... | Set the printing range and content. |
| Exit | Close the EU editor. |

### 3.1.2. New Project

Click File and then click New, or directly click the shortcut, or use the hotkey Ctrl+N, to establish a new project. If the window is having a project in edit, the system will pop up the dialogue box to ask about saving the project. Confirm to establish a new project. See Figure 3-1-2 below.

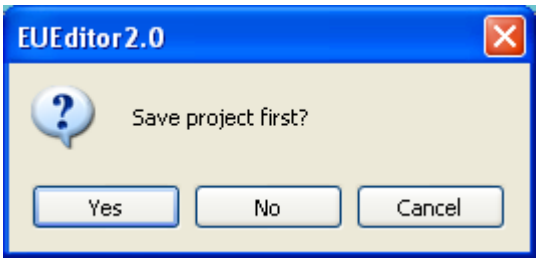
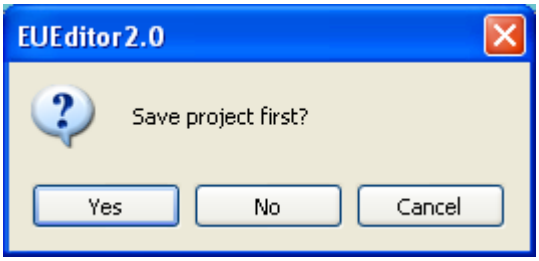


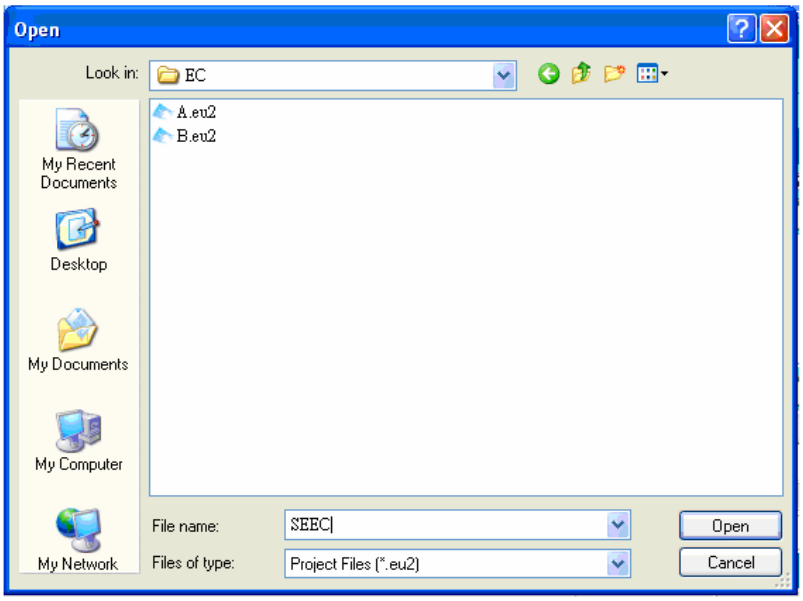

Fig. 3-1-2 Dialogue Box for Saving Project

### 3.1.3. Open Project

Click File and then click Open... or directly click the shortcut , or use the hotkey Ctrl+O, to open an old project. If the window is having a project in edit, the system will pop up the dialogue box to ask about saving the project. Confirm and then select a project to be opened. The file's extension is *.eu2. Click the file to open it. See Figure 3-1-3 below.




(a)




(b)

Fig. 3-1-3 Opening Project (a) Saving Project in Edit (b) Selecting Old Project

### 3.1.4. Close Project

Click File and then click Close to close the edit window. If the window is having a project in edit, the system will pop up the dialogue box to ask about saving the project. Confirm to close the edit window. See Figure 3-1-4 below.

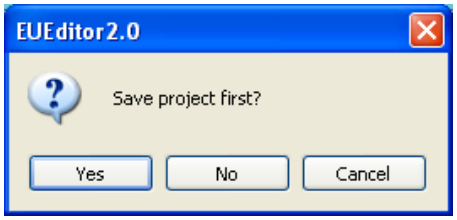



Fig. 3-1-4 Closing Edit Window

### 3.1.5. Save Project

Click File and then click Save, or directly click the shortcut, or use the hotkey Ctrl+S, to save the project. If this is a new project, the system will pop up the dialogue box to ask for a filename. Enter the filename and click the "Save" button to finish it. See Figure 3-1-5 below. If this is an old project, the system will directly save it without asking.

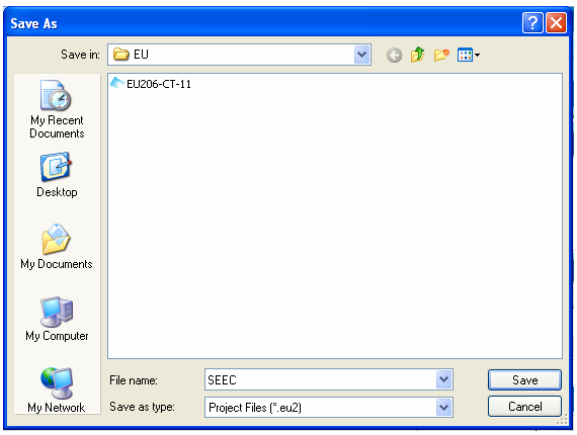



Fig. 3-1-5 Dialogue Box for Saving New Project

### 3.1.6. Save as Another File

Click File and then click Save As... to save the project as another file. The system will pop up the dialogue box. Enter the filename and click the “Save” button to finish it. See Figure 3-1-6 below.

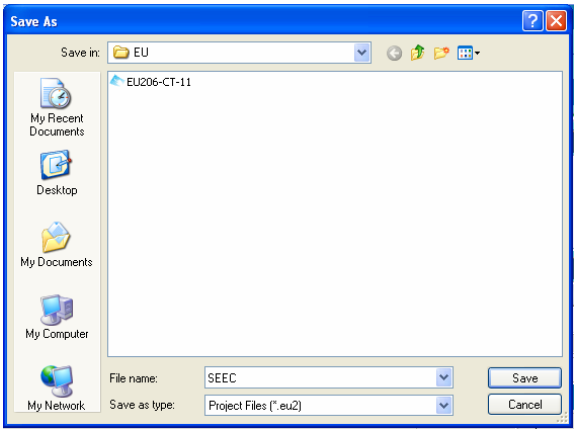



Fig. 3-1-6 Dialogue Box for Saving Project as Another File

### 3.1.7. Export

To export images, parts or comments of the editing software, click File and then click Export to execute the export. The file extensions corresponding to the various libraries are listed in Table 3-1-7 below. Confirm to finish the export. See Figure 3-1-8 below.

Fig. 3-1-7 File Extensions in Libraries

| Library Name | Extension |
|---|---|
| Screenshots... | *.png |
| Image Library... | *.gfc |
| Parts Library | *.pdb |
| Comment Library... — Basic Comment... | *.bcm |
| Comment Library... — Comment Group... | *.gcm |
| Sound Library... | *.sdb |

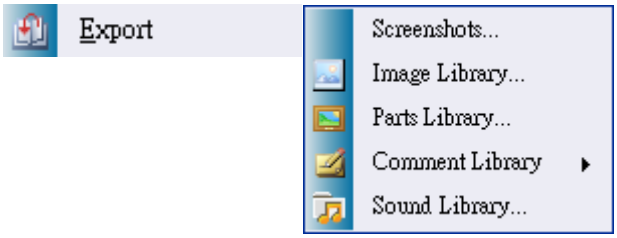



Fig. 3-1-8 Export Menu

### 3.1.8. Import

To import images, parts or comments of the editing software, click File and then click Import to execute the import. See Figure 3-1-9 below.

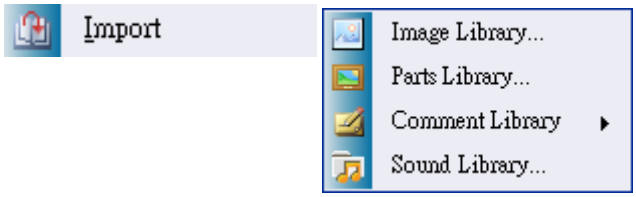



Fig. 3-1-9 Import Menu

### 3.1.9. Printing Setup

To print the edit contents, click File and then click Print Setup... to open a dialog box. You can select any items and other print settings. See Figure 3-1-10 below.

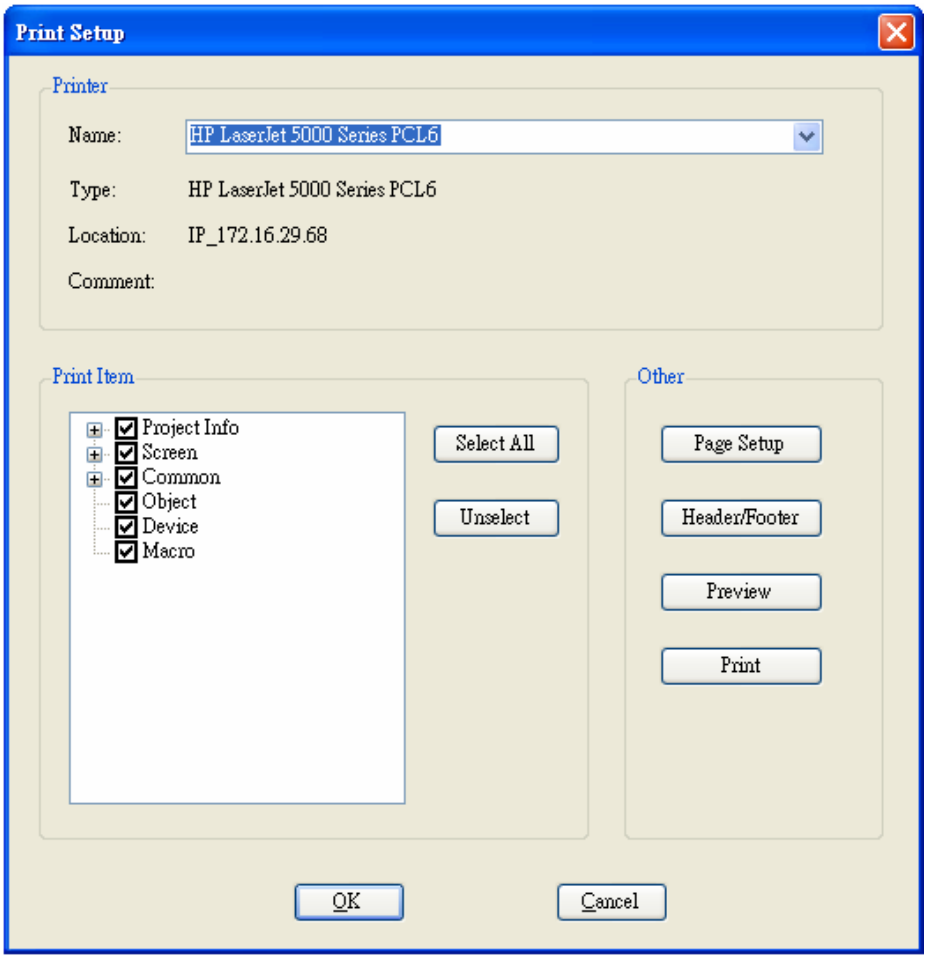



Fig. 3-1-10 Printing Setup

### 3.1.10. Printing Preview

To preview the contents to be printed, click File and then click Print Preview... to open the printing preview dialogue box and set the screen data, page size, and title to be printed. See Figure 3-1-11 below.

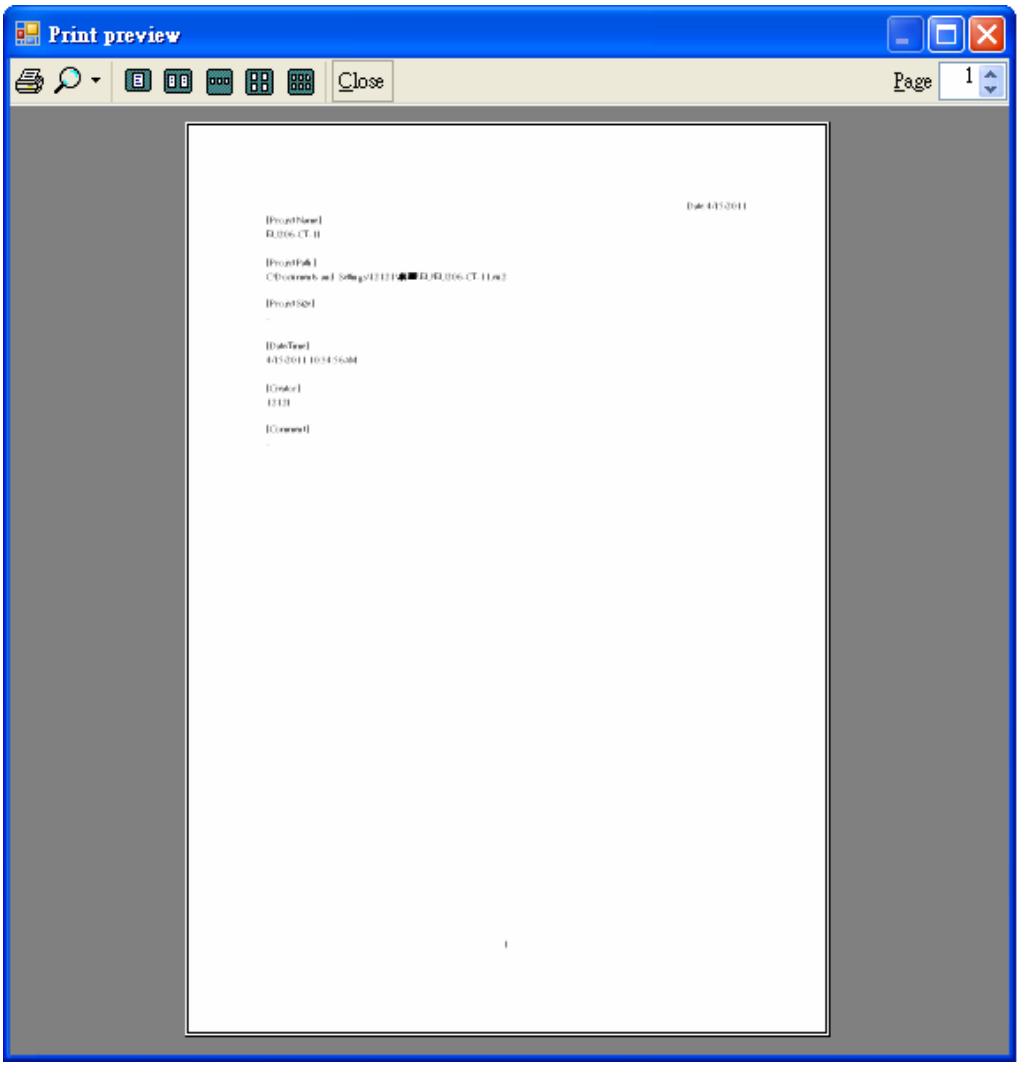



Fig. 3-1-11 Printing Preview

### 3.1.11. Printing

To print, click File and then click Print... to open the dialogue box, and select a printer and set the printing range and number of copies. See Figure 3-1-12 below.

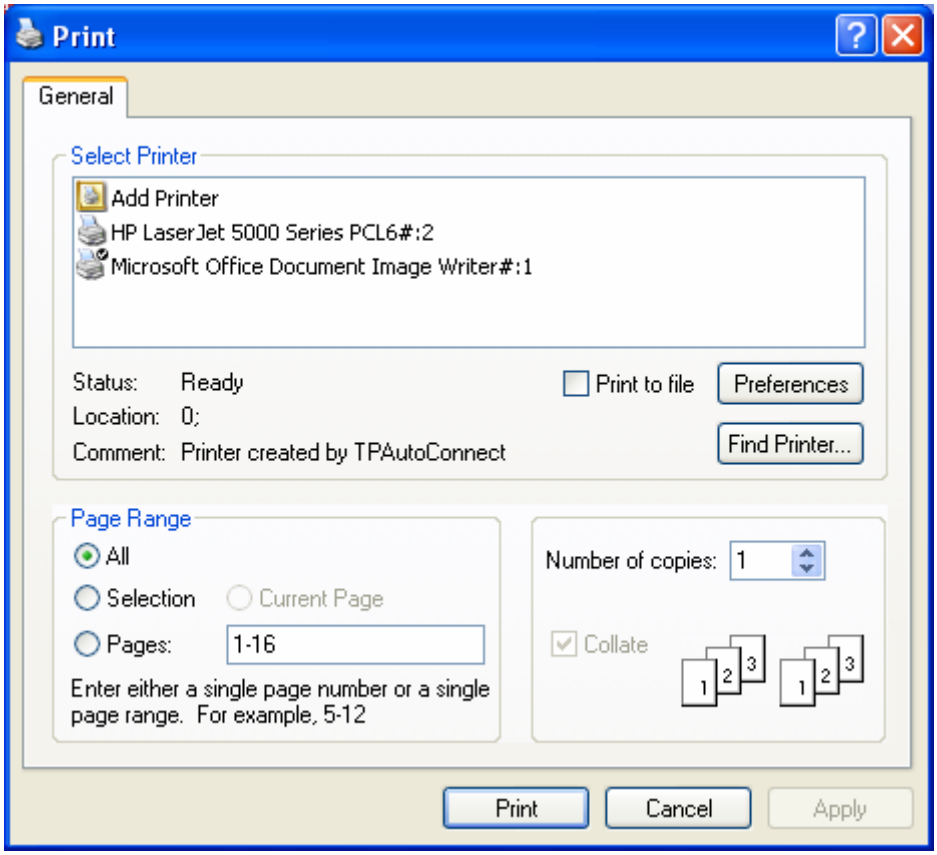



Fig. 3-1-12 Printing

### 3.1.12. Close Editing

Click File and then click Exit to close the editing. If there is any file in edit but not saved yet, the dialogue box will pop up to ask about saving it. Confirm to close the editing software.

## 3.2. Menu Views

### 3.2.1. Function View

Click View to view all the functions in the menu, as shown in Table 3-2-1 below.

Table 3-2-1 Function List

| Name | Function |
|---|---|
| Tool Bar | Open/close all toolbars |
| Status Bar | Open/close status bar |
| Property Window | Open/close property window |
| Screen List | Open/close screen list |
| Error List | Open/close error list |
| Function Manager | Open/close function manager |
| Package | Package user-defined graphs to library |
| Zoom | Change screen size ratio |
| Unit State | Change object status |
| Unit Language | Change language code |
| Show Grid | Open/close grid display |
| Show Major Device | show/hide major device |
| Show Global Unit Tag | show/hide global unit tag |
| Snap to Grid | Open/close snap-to-grid |
| Grid Setup | Set grid |
| SnapLine Setup | Set alignment pattern |
| Unit View All... | View all objects in use |
| Device View All... | View all devices in use |
| Removable Drive Image Directory Setup | Set image library name |
| Memory List... | View memory in use |

### 3.2.2. Toolbars

Click View and then click Tool Bar to select the toolbars to be displayed, as shown in Figure 3-2-2 below.

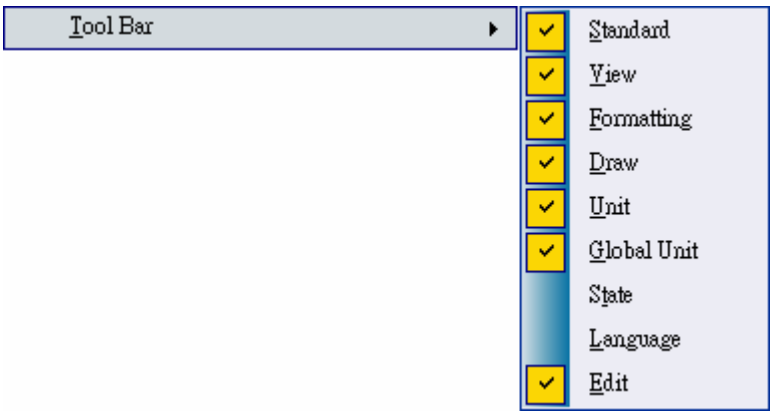



Fig. 3-2-2 Toolbar Menu

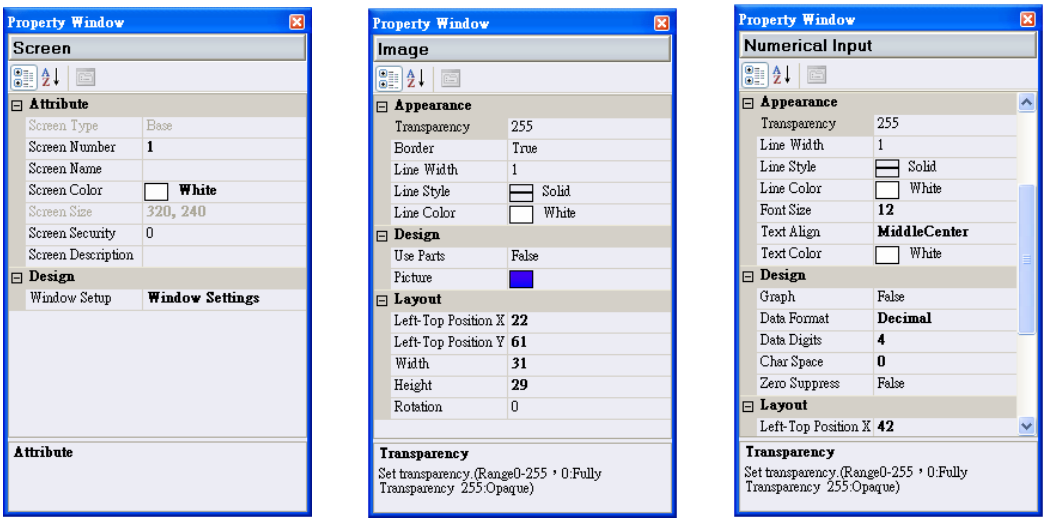
### 3.2.3. Status Bar

Click View and then click Status Bar to open/close the status bar. At the bottom of the editing software screen, the status bar shows the current operating status, as shown in Figure 3-2-3 below. The left column shows the HMI model, and the right column shows the coordinates of the mouse on the screen.

Fig. 3-2-3 Status Bar

### 3.2.4. Property Window

Click View and then click Property Window, or directly click the shortcut, to open/close the property window. Use the mouse to drag it to a desirable position. Its default position is on the right of the window. Different objects have different property windows. Figure 3-2-4 shows the property windows of 3 different objects.

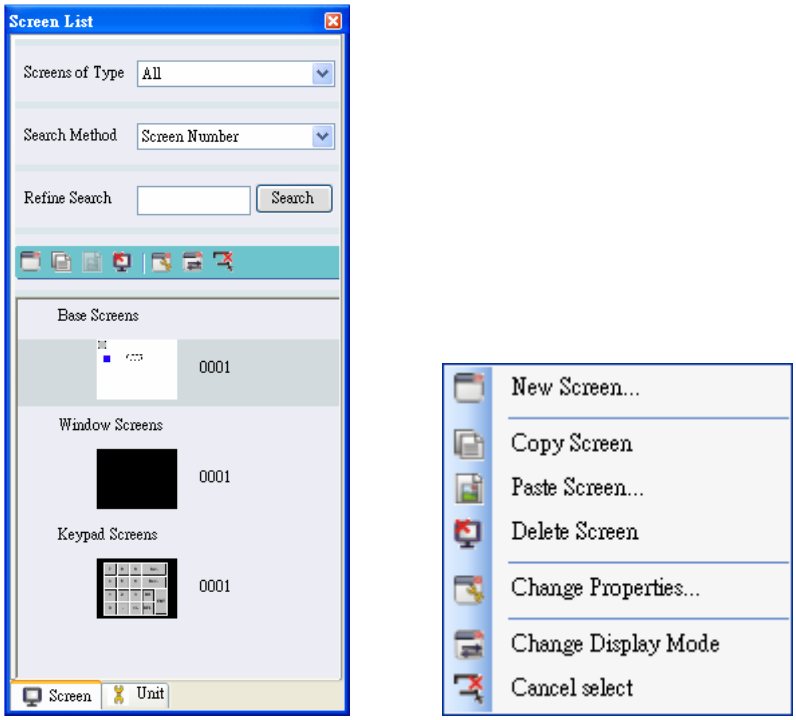



(a) (b) (c)

Fig. 3-2-4 Property Windows (a) Screen (b) Image (c) Value Input

### 3.2.5. Screen List

Click View and then click Screen List, or directly click the shortcut, to open/close the screen list, and view the screen patterns and search for screens. Use the mouse to drag the screen list to a desirable position. Its default position is on the left of the window. Click the icons in the toolbar to create/copy/paste/delete a screen; click the icons to set the properties and display mode or udno the click. Right-click the thumbnails can also open the editing shortcut menu. See Figure 3-2-5 below.




(a) (b)

Fig. 3-2-5 Screen List (a) List Contents (b) Shortcut Menu

Change tab to view all objects of the current page, and set properties of the objects as desired. See Figure 3-2-6 below.

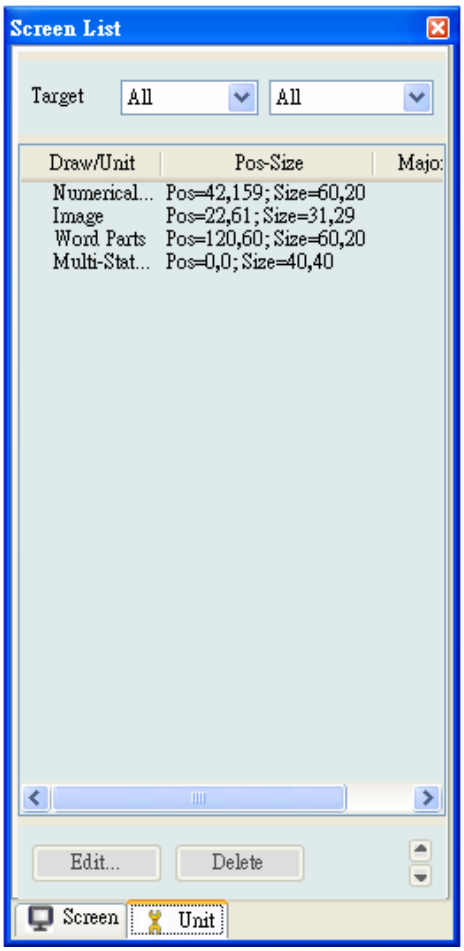



Fig. 3-2-6 Object List of Current Page

### 3.2.6. Error List

Click View and then click Error List to open/close the error list. Use the mouse to drag the error list to a desirable position. Its default position is at the bottom of the window. Click Operation and then click Error Check, or directly click the shortcut, to start debugging on the editing screen. See Figure 3-2-7 below.

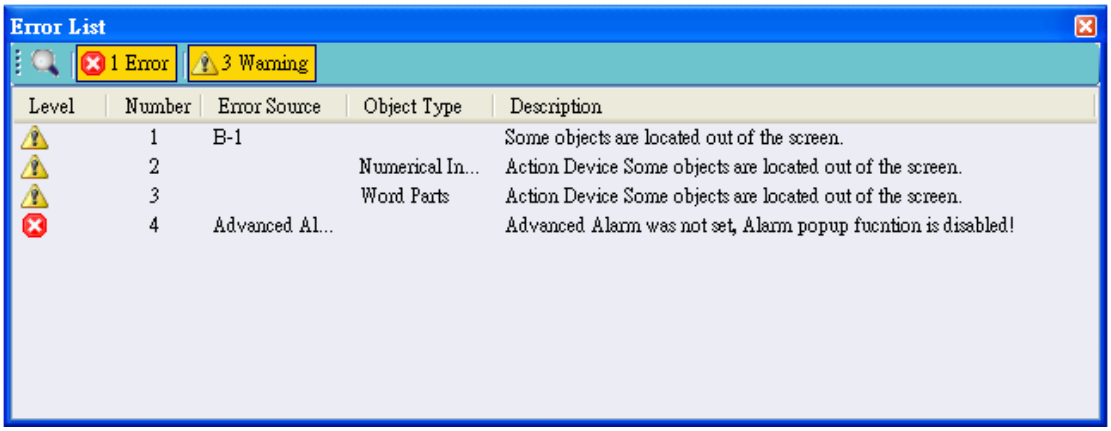



Fig. 3-2-7 Error List

### 3.2.7. Package

Click View and then click Package to open the package list window. The package list provides a built-in numeric/character keypad for the user to add/open/delete/rename the package. See Figure 3-2-8 below.

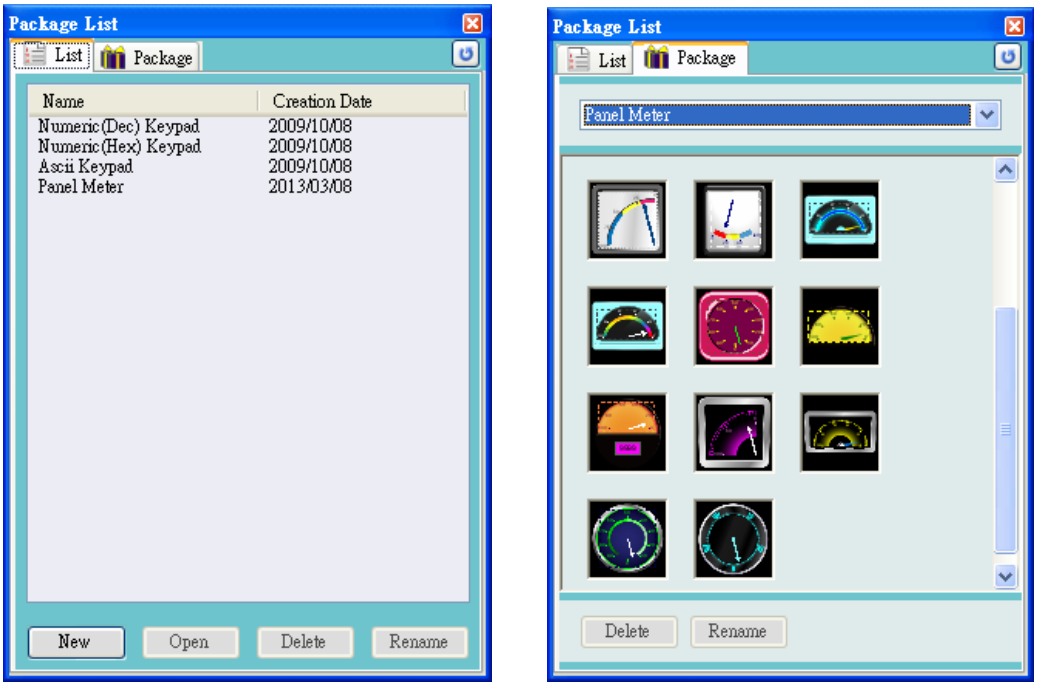
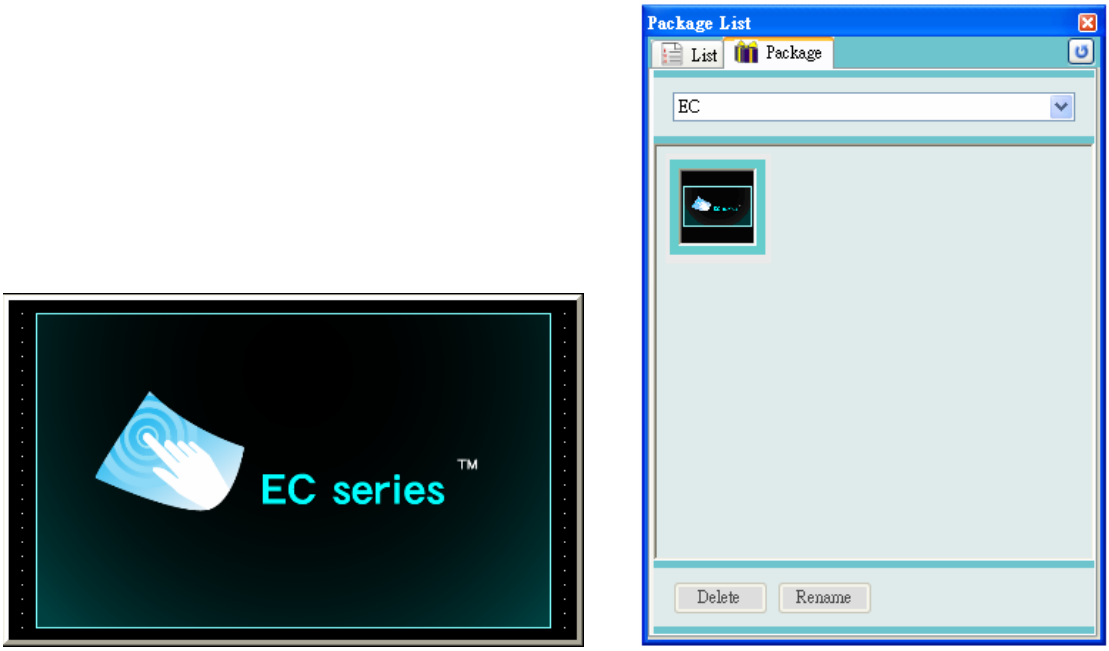



Fig. 3-2-8 Package List

To add user-defined images to the package list, click New, and then enter the new package name. Pick up the images to be packaged by dragging them from the basic screen to the package list. To use the images already in the package list, just click the desired images and drag them to the screen. See Figure 3-2-9 below.




(a) (b)

Fig. 3-2-9 Editing Package List (a) Basic Screen (b) Dragging to List

### 3.2.8. Zoom

Click View and then click Zoom, or directly click the shortcut 100%, to zoom in and zoom out the editing screen. The zoom scope is 50%~400%, and the default zoom ratio is 100%. See Figure 3-2-10 below.

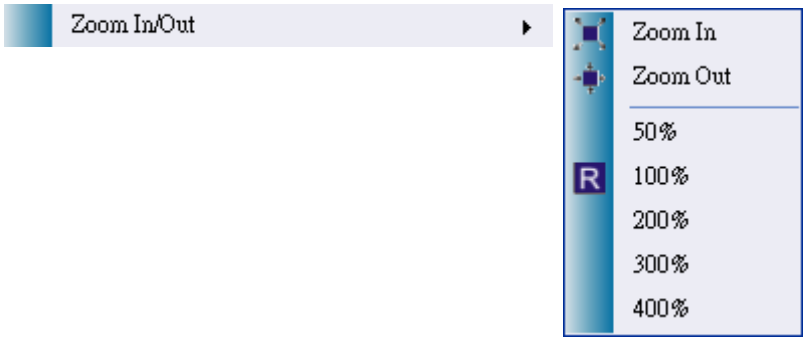



Fig. 3-2-10 Zoom Menu



EC series

### 3.2.9. Object Status

Click View and then click Unit State to select an object status you want. The number of displayed object statuses can be set to 0~32. See Figure 3-2-11 below.

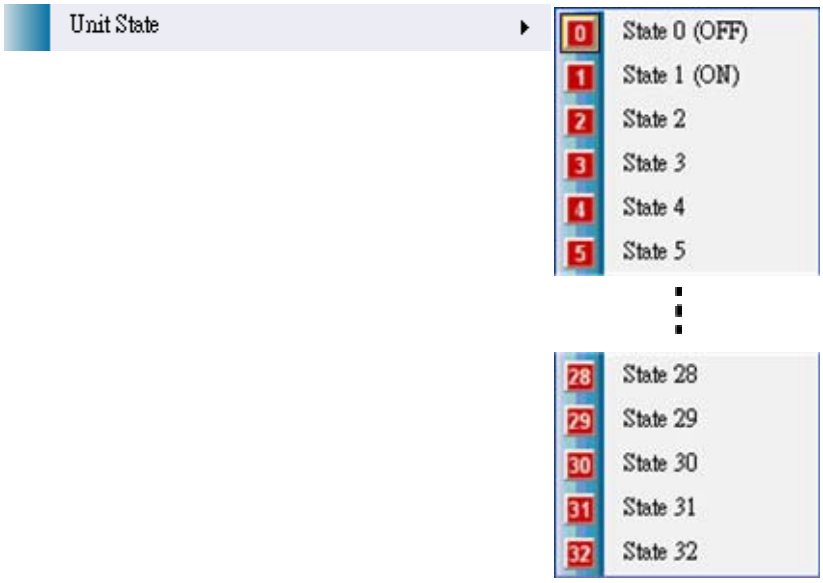



Fig. 3-2-11 Object Status List

NOTE

If the default status toolbar is not open, click View and click Tool Bar and then tick State to open it.

### 3.2.10. Unit language

Click View and then click Unit Language to select a desired language. The number of languages can be set to 0~10. See Figure 3-2-12 below.

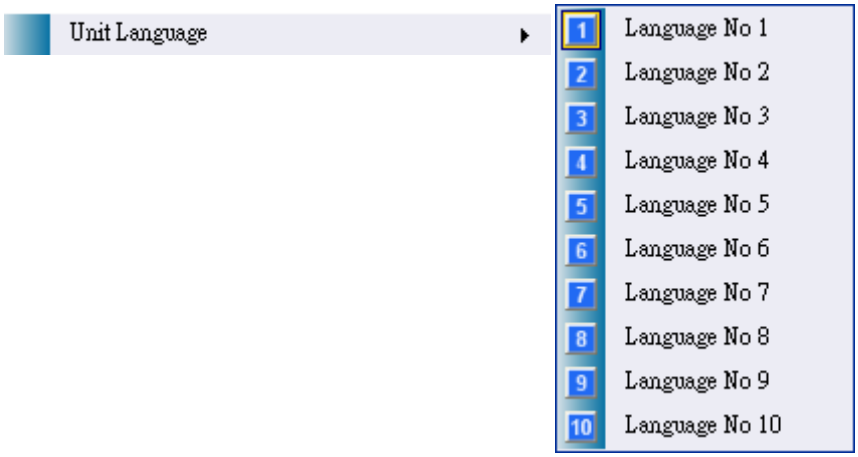


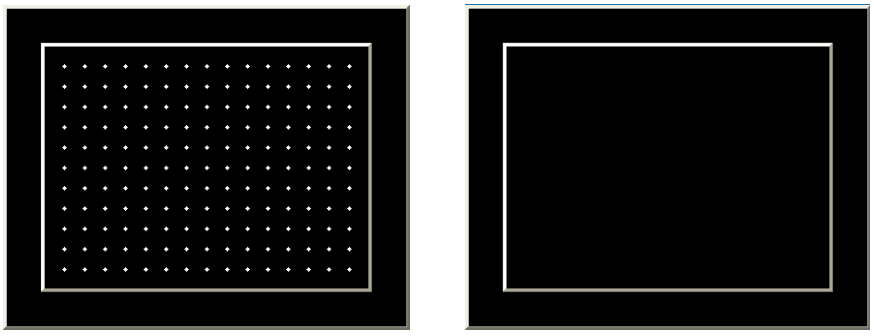

Fig. 3-2-12 Unit language

NOTE

- If the default language toolbar is not open, click View and click Tool Bar and then tick Language to open it.

### 3.2.11. Show Grid

Click View and then click Show Grid, or directly click the shortcut, to open/close the grid display.



open the grid　　open the grid

NOTE

- The user can also right click the mouse on editing screen, to open the quick menu and select the show grid.

### 3.2.12. Show Major Device

Click View and then click Show Major Device, the major device will appear on the top of all units, as shown in figure 3-2-13.

Figure 3-2-13: Display major device

### 3.2.13. Show Global Unit Tag

Global unit are marked by the G tag on its bottom right. If you want to show/hide global unit tag, click the View and then click Show Global Unit Tag. When you hide a global unit tag, only the tag hides, and the function of the global unit is still maintained.

Show global unit tag

Hide global unit tag

### 3.2.14. Snap-to-Grid

Click View and then click Snap to Grid, or directly click the shortcut, to open/close the snap-to-grid feature.

NOTE

- The user can also right click the mouse on editing screen, to open the quick menu and set the snap-to-grid feature.

### 3.2.15. Grid Setup

Click View and then click Grid Setup to set the horizontal and vertical grid spacing and the grid color. The default spacing is 20 points horizontally and vertically, and the definable range is 2~120 points. See Figure 3-2-13 below.

Fig. 3-2-13 Grid Setup

NOTE

- The user can also click the mouse on editing screen, to open the quick menu and make the grid setting.

### 3.2.16. SneapLine Setup

Click View and then click SnapLine Setup to set the alignment pattern. The default alignment is to the left edge and top edge. See Figure 3-2-14 below.

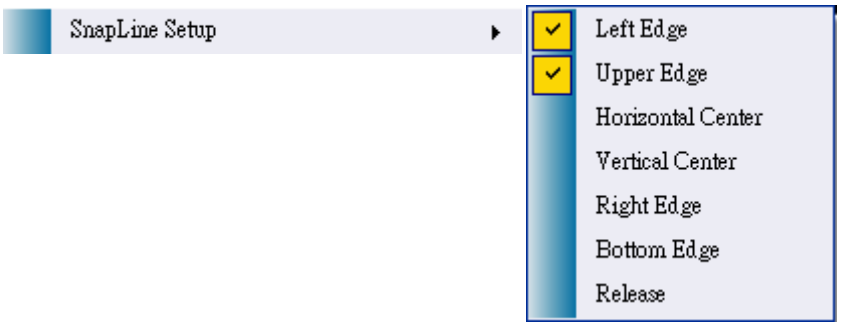



Fig. 3-2-14 SneapLine Setup

NOTE

- The user can also right click the mouse on editing screen, to open the quick menu and make the sneapline setting.

### 3.2.17. Unit view all

To view the statuses of objects in use, click View and then click Unit View All... to open the objects overview dialogue box and set the objects. See Figure 3-2-15 below.

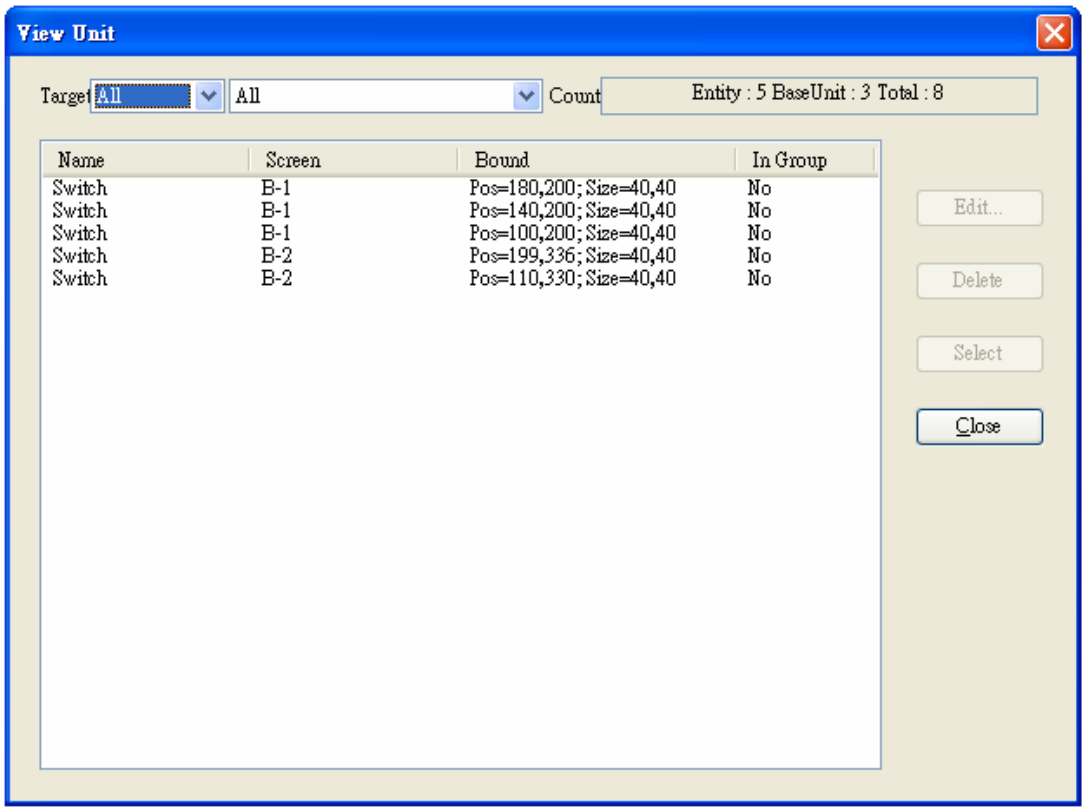



Fig. 3-2-15 Unit view all

### 3.2.18. Devices view all

To view the statuses of devices in use, click View and then click Device View All... to open the devices overview dialogue box. All the devices used will be displayed in the window for search and replacement. See Figure 3-2-16 below.

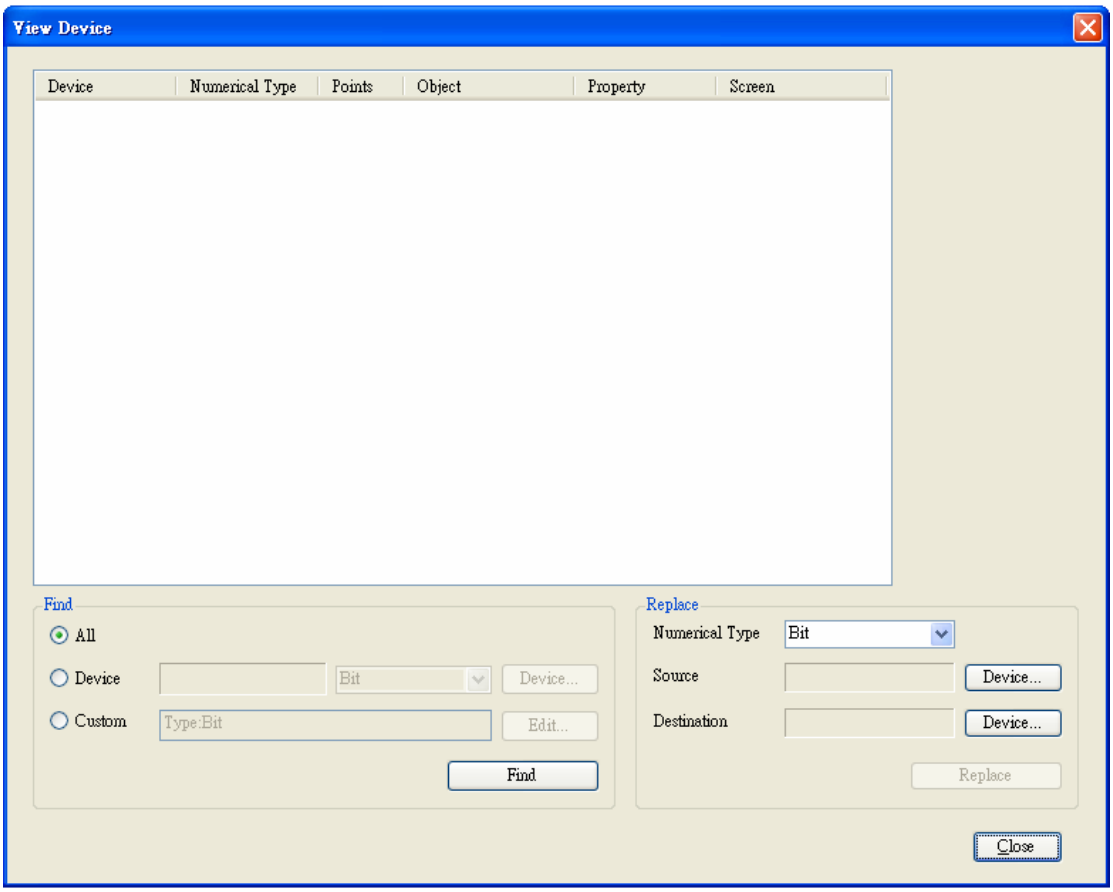



Fig. 3-2-16 Devices view all

### 3.2.19. Removable Drive Image Directory Setup

Click View and then click Removable Drive Image Directory Setup to open the dialogue box of removable storage device folder and set up the names of image folders on SD Card or USB. See Figure 3-2-17 below.

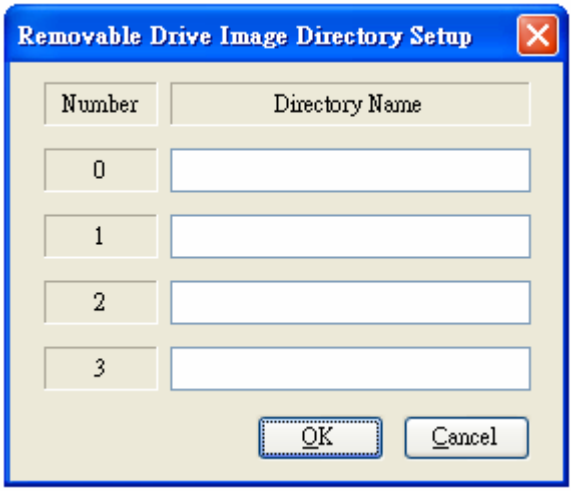
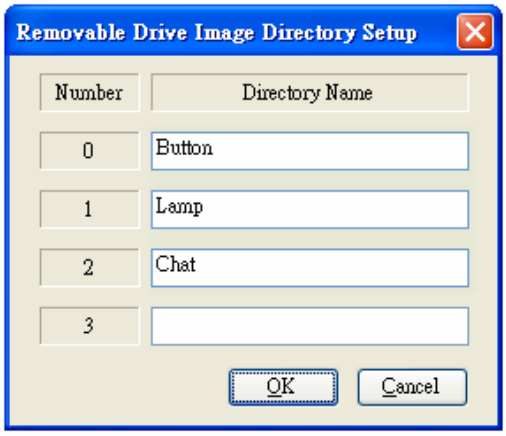
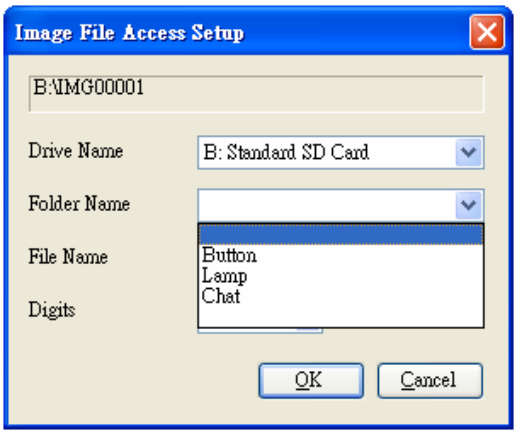



Fig. 3-2-17 Image Folder on Removable Storage Device Setup

If the image file path on the removable storage device is G:\Button, open the removable drive image directory setup dialogue box to set up the folder name. For parts objects stored in the removable drive, use corresponding folder name. See Figure 3-2-18 below.




(a)

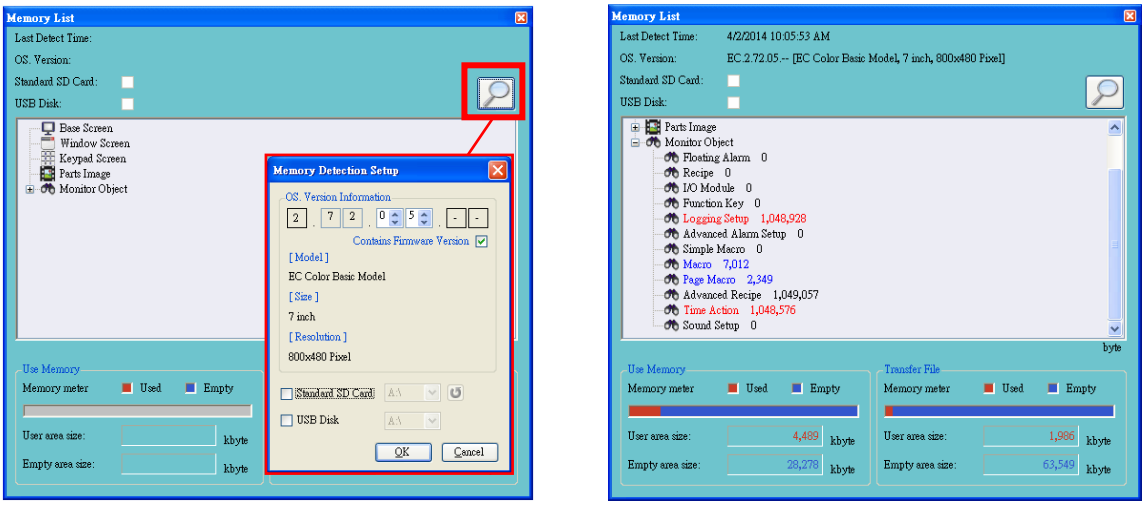



(b)

Fig. 3-2-18 Folder Setup (a) Naming Folder (b) Selecting Folder

### 3.2.20. Memory List

To view the use of memory by the editing screen, click View and then click Memory List to open the dialogue box for the memory in use. See Figure 3-2-19 below.




(a) (b)

Figure 3-2-20、Memory detection (a)detect Memory(b) Memory detected

| Name | Memory | Description |
|---|---|---|
| **Use Memory** | SDRAM | Memory used when executing the project。 |
| **Transfer File** | ROM | HMI screen data stored in the memory。 |
| Standard SD Card | SD Card | Detect external memory Whether have enough empty area to save the project. |
| USB Disk | USB Disk | |

The memory list，See Figure 3-2-21 below.

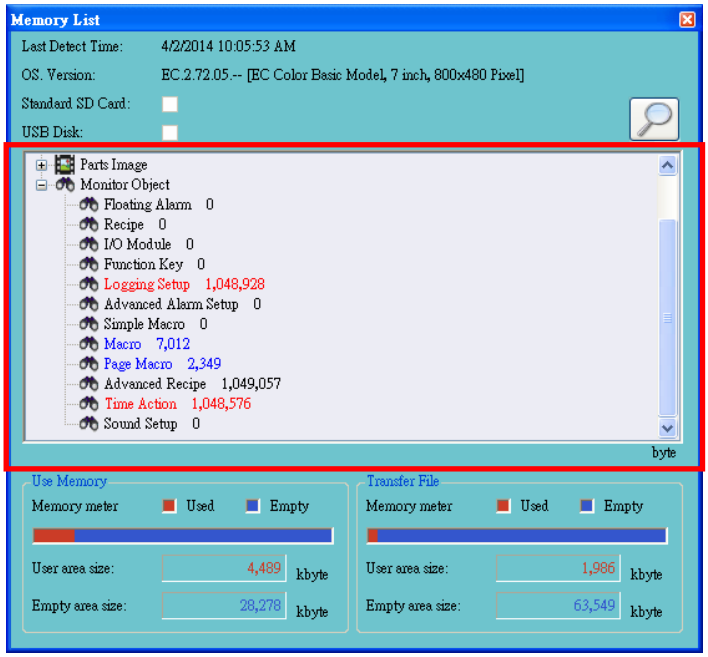
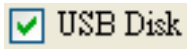



Figure 3-2-21、Memory list

To use a removable storage device, click to open the memory detection dialogue box, and enter the OS filename in the OS information box, and then tick or  and confirm the setting. The system will start automatic detection. See Figure 3-2-20 below.

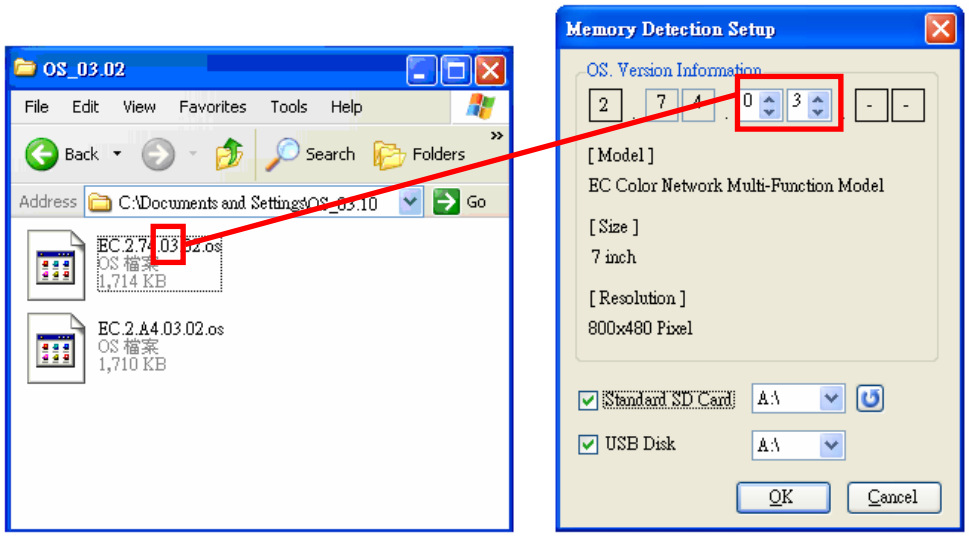



Fig. 3-2-20 Memory Detection

## 3.3. Edit Menu

### 3.3.1. Edit Functions

Click to display all the functions in the menu, as shown in Table 3-3-1 below.

Table 3-3-1 Edit Functions

| Name | Function |
|---|---|
| Undo Ctrl+Z | Undo last action. |
| Redo Ctrl+Y | Redo last action. |
| Cut Ctrl+X | Cut selected objects. |
| Copy Ctrl+C | Copy selected objects. |
| Paste Ctrl+V | Paste objects cut (selected). |
| Delete | Delete selected objects. |
| Array Copy | Copy selected object array. |
| Group Object ▸ | Set object group functions. |
| Order ▸ | Set object display order. |
| Align ▸ | Set alignment pattern. |
| Snap to Screen ▸ | Set snap-to-screen feature. |
| Unit Property... | Open object property window. |
| Unit Rotate ▸ | Set object rotation direction and angle. |
| Select All Ctrl+A | Select all objects in the edit window |
| Delete All | Delete all objects in the edit window |

### 3.3.2. Undo

If the user made an editing mistake and wants to undo the last action, click

and then click

, or directly click the shortcut
, or use the hotkey Ctrl+Z, to get back to the previous status.

### 3.3.3. Redo

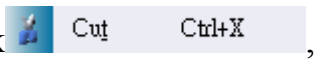
If the user wants to cancel the undo action, click

and then click

, or directly click the shortcut
, to redo the previous editing action.

### 3.3.4. Cut

Select by clicking the objects to be cut, and then click

and click 

, or directly click the shortcut
, or use the hotkey Ctrl+X, to cut the selected objects.

### 3.3.5. Copy

Select by clicking the objects to be copied, and then click Edit and click Copy Ctrl+C, or directly click the shortcut, or use the hotkey Ctrl+C, to copy the selected objects.

### 3.3.6. Paste

To paste the objects that have been cut or selected, click Edit and then click Paste Ctrl+V, or directly click the shortcut, or use the hotkey Ctrl+V, to past the objects.

### 3.3.7. Delete

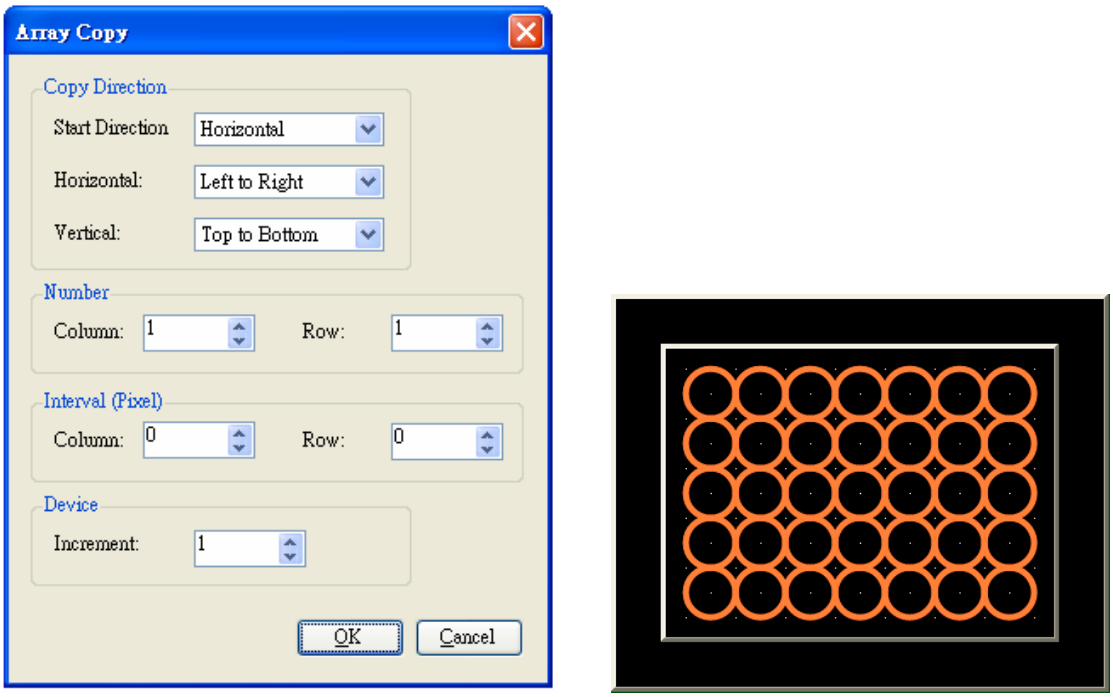
Select by clicking the objects to be deleted, and then click Edit and click Delete, or directly click the shortcut, to delete the objects.

NOTE

- To cut, copy, paste or delete objects, you can select the objects and then right click the mouse to open the quick menu to execute the jobs.

### 3.3.8. Array Copy

Select the objects into an array, and then click Edit and click Array Copy, or directly click the shortcut, to open the array copy dialogue box. Set the copy direction, quantity, pixel interval and device increment, and then confirm to execute the copy. See Figure 3-3-2 below.




(a) (b)

Fig. 3-3-2 Array Object (a) Copying Array (b) Array Copied

NOTE

- The user can also select the objects and then right click the mouse to open the quick menu and execute the array copy.

### 3.3.9. Group Object

To set two or more objects into a group, click Edit and then click Group Object, or directly click the shortcut , to set up a group object. See Figure 3-3-3 below.

Fig. 3-3-3 Group Object Menu

NOTE

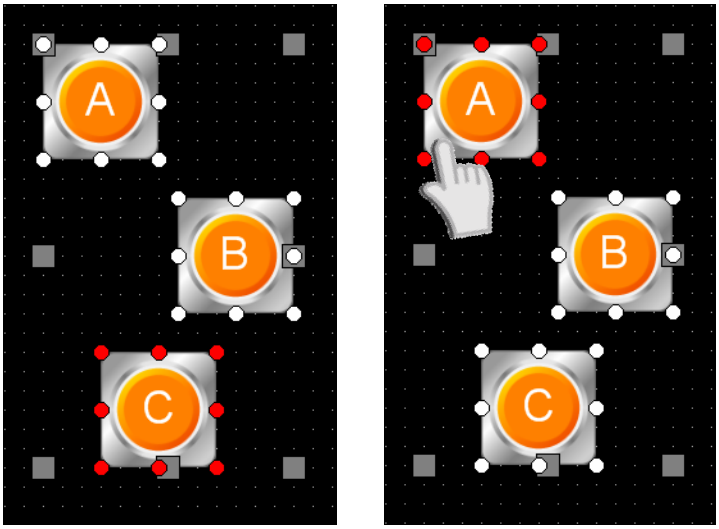
- To set up a group object, select two or more objects in the editing window and then click the group/un-group icon to make the setting.
- The user can also select the objects and then right click the mouse to open the quick menu and make the setting.

### 3.3.10. Align

When two or more elements need to be aligned, press and hold the "Shift" button and use the left mouse button to select elements to be aligned (red circles represent reference element), as shown in figure 3-3-4.Click the

from the

menu or click the shortcut tool to change the way for aligning the element.




(a) (b)

Figure 3-3-4: (a) Element C is the alignment reference (b) Click element A and set it as the reference element

- If you want to use the alignment function, at least two or more elements shall be selected from the edit window, and then click the way you want to align the elements.
- After clicking elements, click the right mouse button to bring up the context menu to use the alignment function.

### 3.3.11. Snap-to-Screen

Select the objects to be snapped to grid, and then click Edit then click Snap to Screen, and select a pattern to finish the setting. See Figure 3-3-5 below.

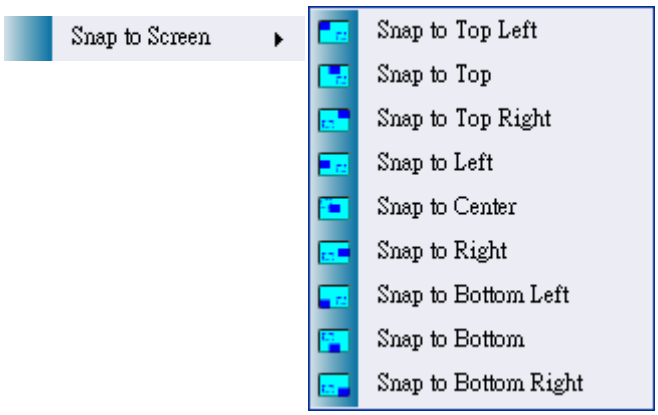



Fig. 3-3-5 Snap-to-Screen Menu

NOTE

- The user can also select the object and then right click the mouse to open the quick menu and make the snap-to-screen setting.

### 3.3.12. Order

When two or more objects are overlapped, to change the top-down display order, select by clicking the overlapped objects and then click Edit, then click Order to select an option, or directly click one of the options from the shortcut, to change the display order. See Figure 3-3-5 below.

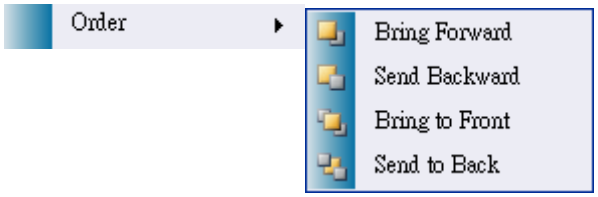



Fig. 3-3-6 Order Menu

NOTE

- To change the top-down display order, select the overlapped objects in the editing window, and then select the desired display order pattern to finish the setting.
- The user can also select the overlapped objects and then right click the mouse to open the quick menu and make the setting.

### 3.3.13. Unit Property Setup

Select by clicking an object in the editing window, and then click Edit and click Unit Property... to open the object's property setting window and set its properties.

NOTE

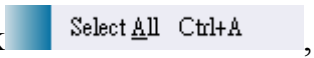
- The user can also select the object and right click the mouse to open the quick menu and make the setting.

### 3.3.14. Unit Rotate

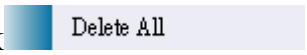
Select the object to be rotated, and then click Edit and click Unit Rotate, or directly click one of the options from the shortcut, to rotate the object. The default rotation angle is 10 degrees each time. See Figure 3-3-6 below.

Fig. 3-3-7 Unit Rotate

### 3.3.15. Selecting All Objects

Click and then click  , or use the hotkey Ctrl+A, to select all objects in the editing window.

### 3.3.16. Deleting All Objects

Click and then click  to delete all objects in the editing window.

- The user can also select all the objects and then right click the mouse to open the quick menu and make the deletion.

## 3.4. Library Menu

### 3.4.1. Library Functions

Click Library to display all the library functions, as shown in Table 3-4-1 below.

Table 3-4-1 Library Functions

| Name | Function |
|---|---|
| Image Library... | Add/Edit Image Library. |
| Parts Library | Add/Edit Animation Library. |
| Comment Library... | Add/Edit Comment Library. |
| Macro Library... | Add/Edit Macro Library. |
| Sound Library... | Add/Edit Sound Library |

### 3.4.2. Image Library

Click Library and then click Image Library... to open the dialogue box for the image library. Select an image file from the pull-down menu to open it. Click the Close button to close the window. See Figure 3-4-2 below.

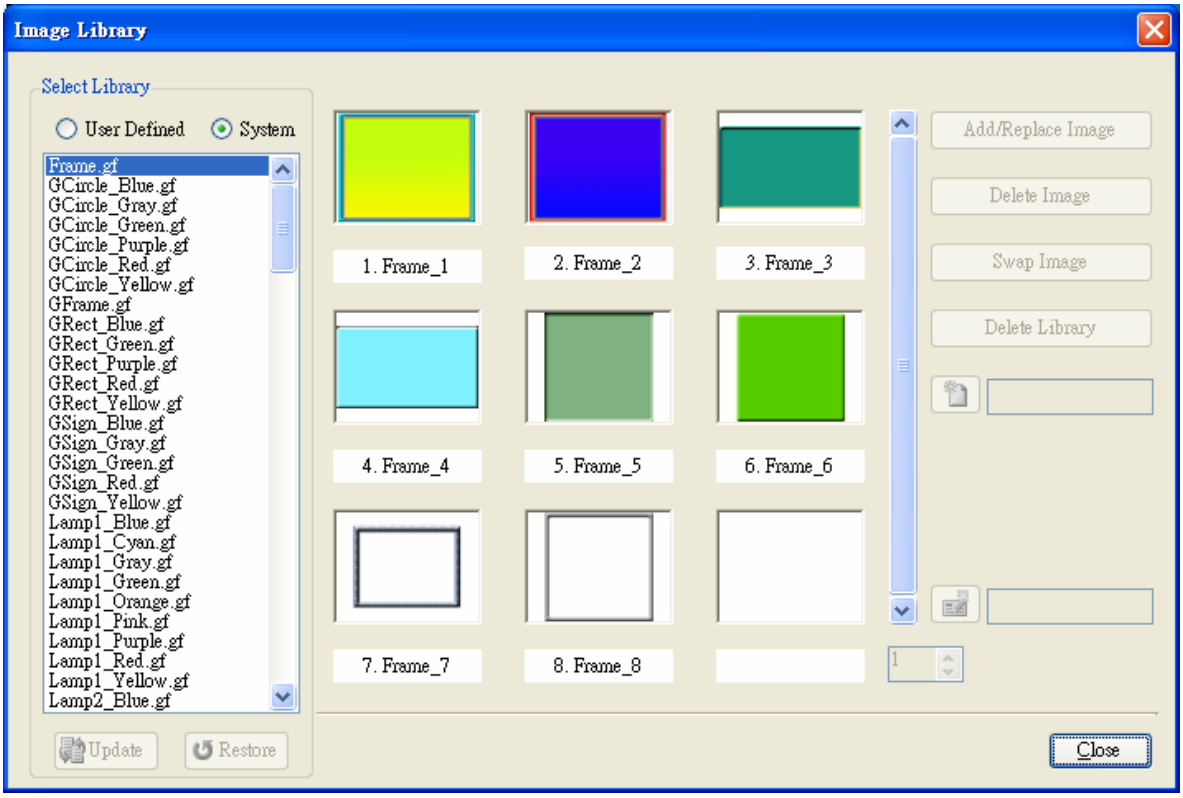
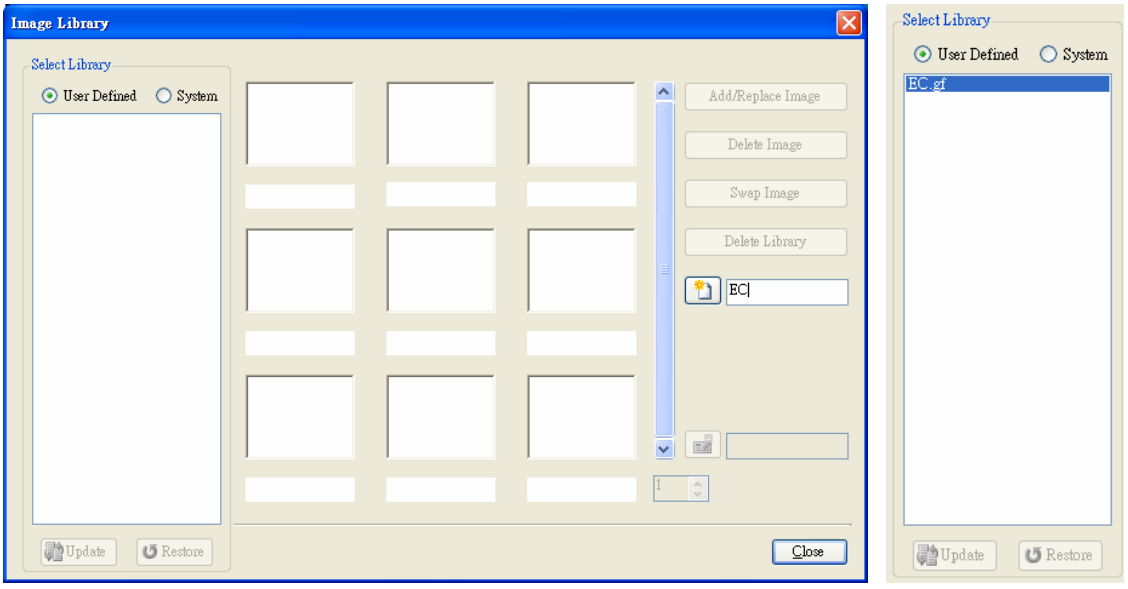



Fig. 3-4-2 Library of System Images

To make a user-defined library, enter the library name first, and then click , the library name will be shown in the pull-down menu on the top of the window. (The file extension is *.gf). See Figure 3-4-3 below.




(a) (b)

Fig. 3-4-3 User-defined Image Library (a) User Library (b) Selecting Image Library

If no library name is given when the icon is clicked, the system will pop up the following warning message, as shown in Figure 3-4-4 below.

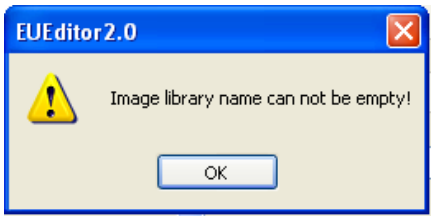
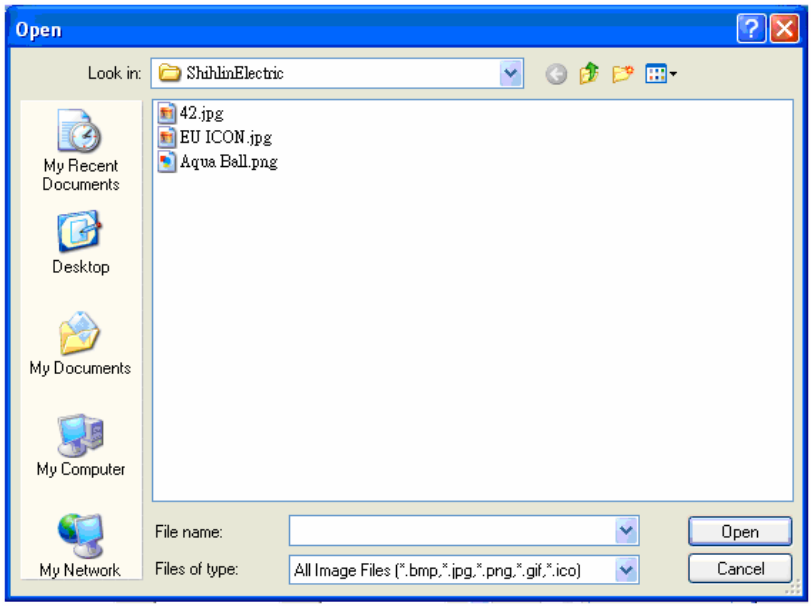
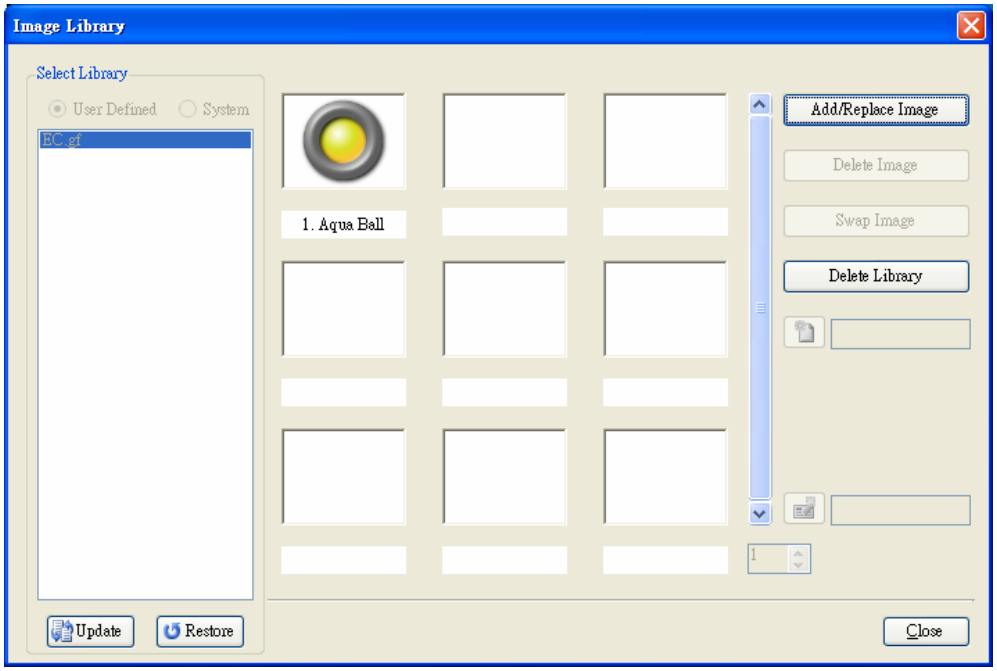



Fig. 3-4-4 Warning Message

To add image files to the library, click the Add/Replace Image, and then select the image files to be added. Confirm to finish the adding. See Figure 3-4-5 below.



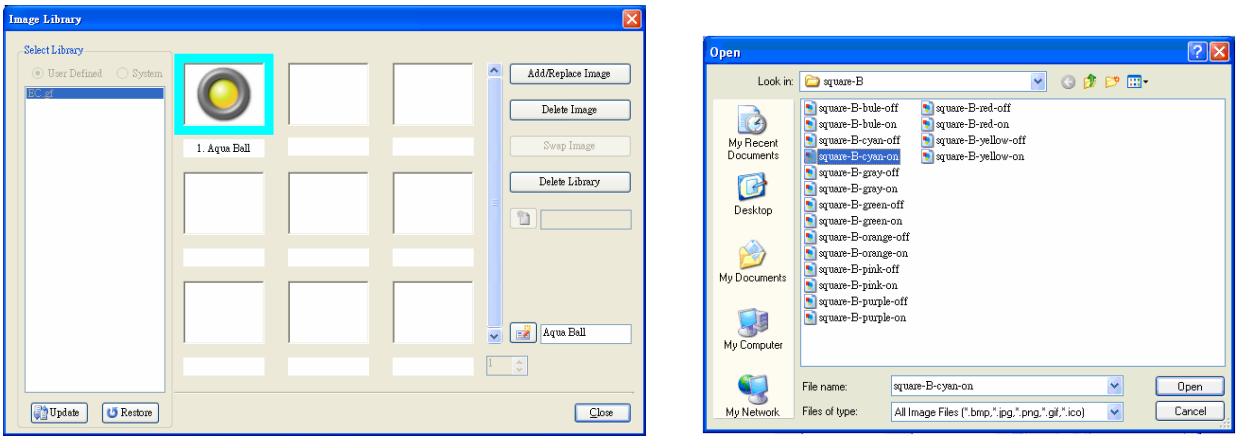

(a)



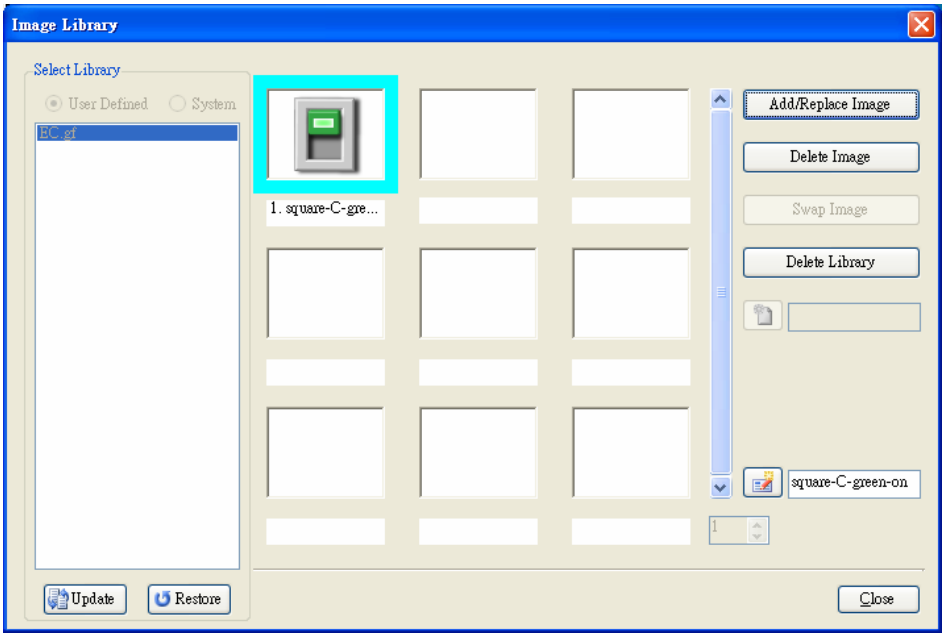

(b)

Fig. 3-4-5 User-defined Image Library (a) Opening Image File Folder (b) Adding Image Files

To replace an image file in the library, select the image file to be replaced and click the button Add/Replace Image, and then select an image file to replace. Confirm to finish the replacement. See Figure 3-4-6 below.



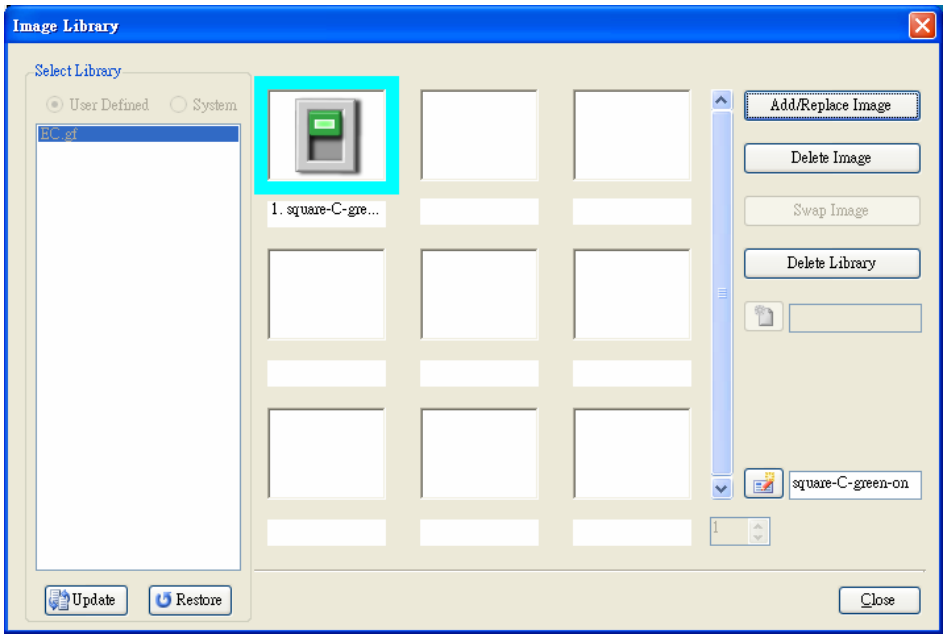

(a) (b)



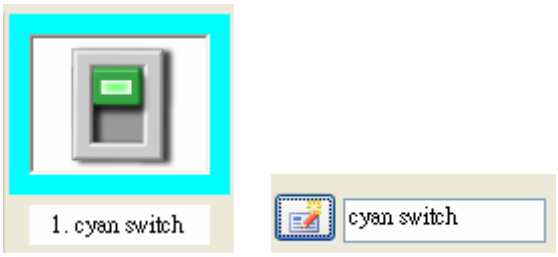

(c)

Fig. 3-4-6 Replacing Image File (a) Selecting an Image File (b) Opening Image File Folder (c) Replacement Completed

To rename an image file, click the file to be renamed, and then enter the new filename, then click to execute the renaming. See Figure 3-4-7 below.



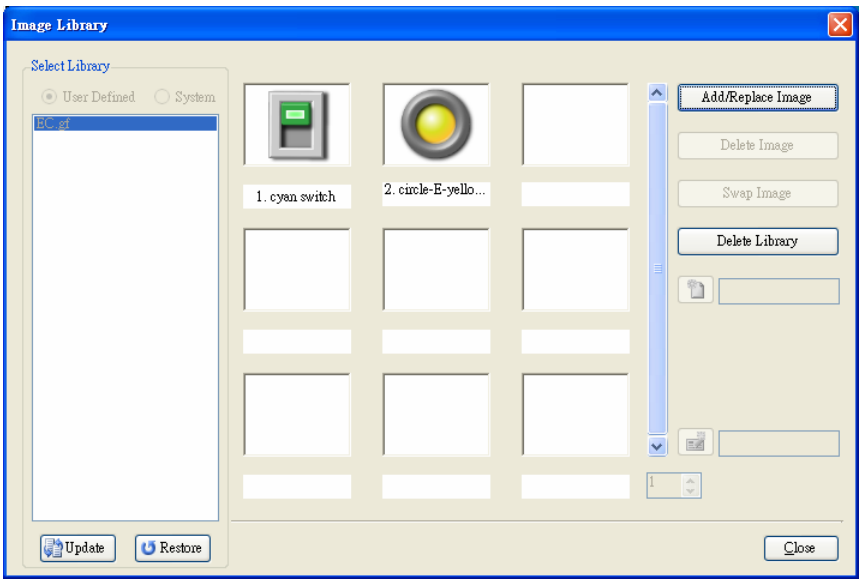

(a)



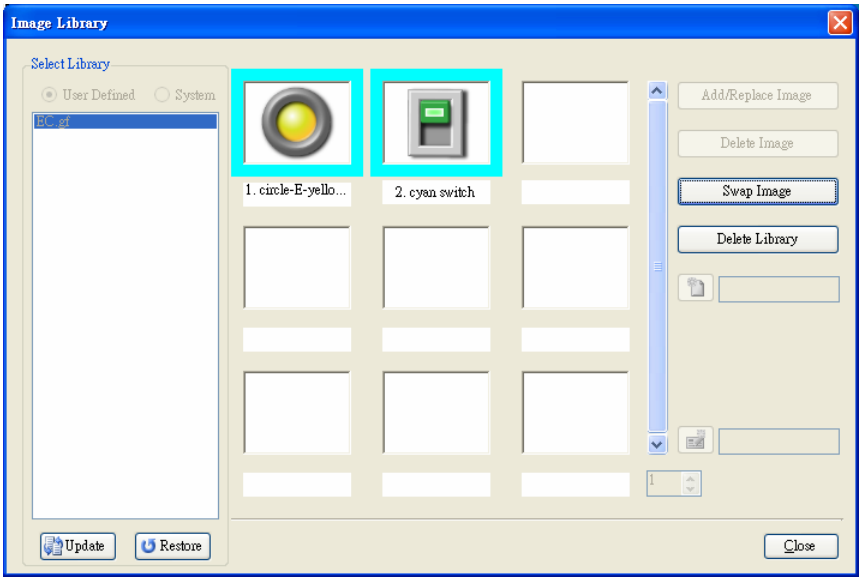

(b)

Fig. 3-4-7 Renaming Image File (a) Selecting Image File (b) Entering New Filename

To swap the order of two images, press and hold down the Ctrl key, and then select by clicking the two image files, and then click Swap Image to make the swap. See Figure 3-4-8 below.



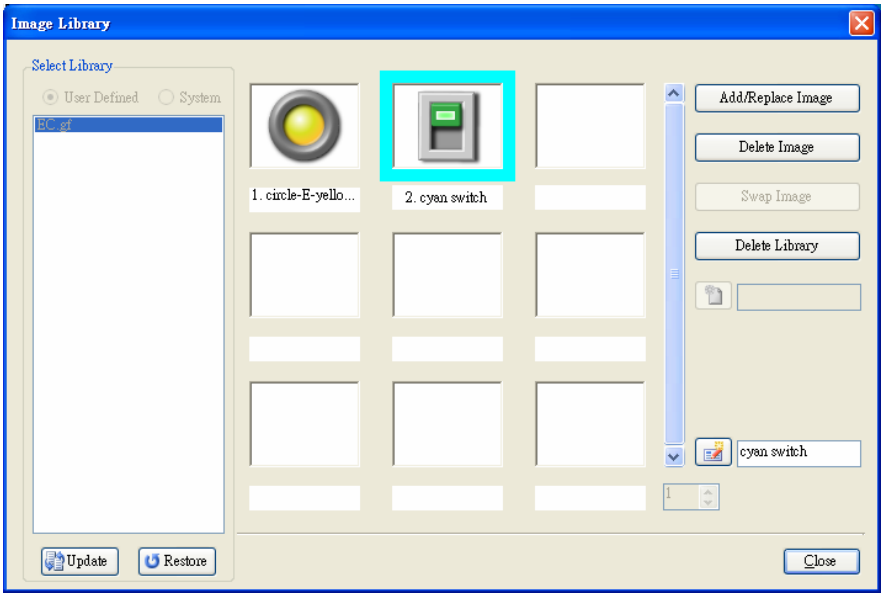

(a)



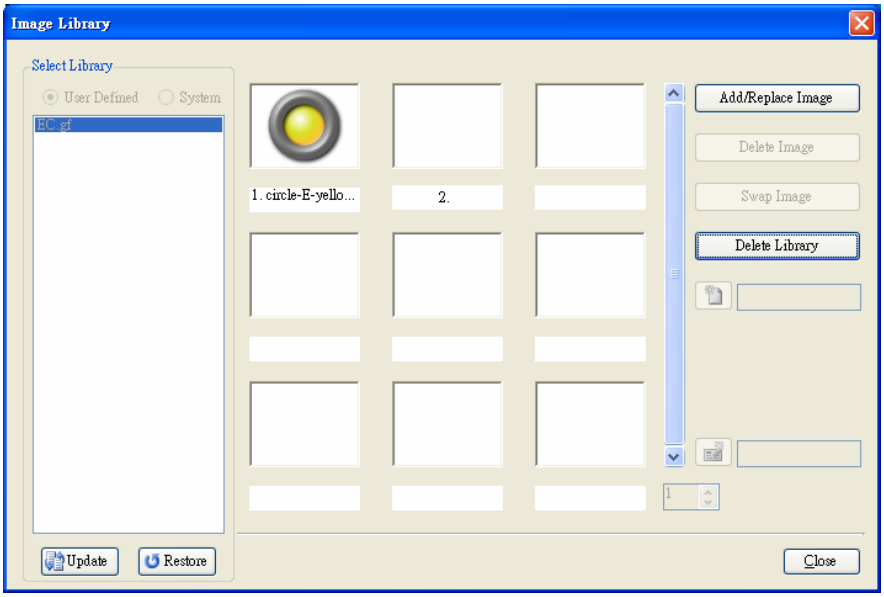

(b)

Fig. 3-4-8 Swaping Images (a) Opening Library (b) Swap Completed

To delete an image, select the image first and then click Delete Image to delete it. See Figure 3-4-9 below.




(a)

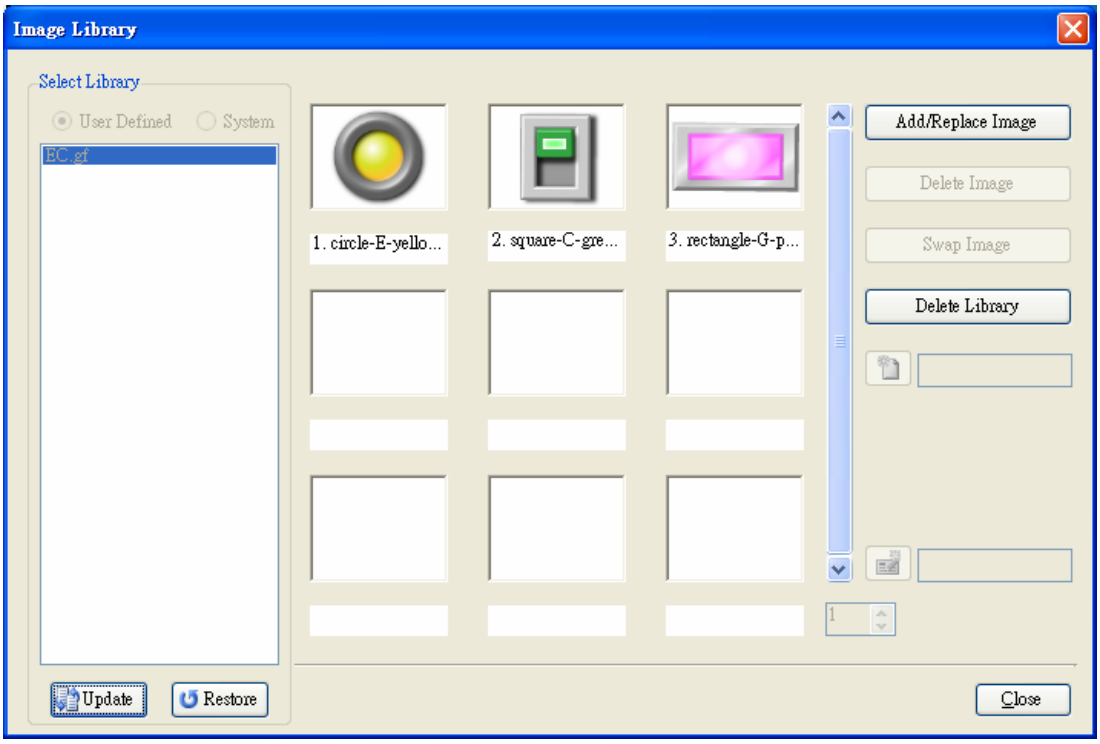



(b)

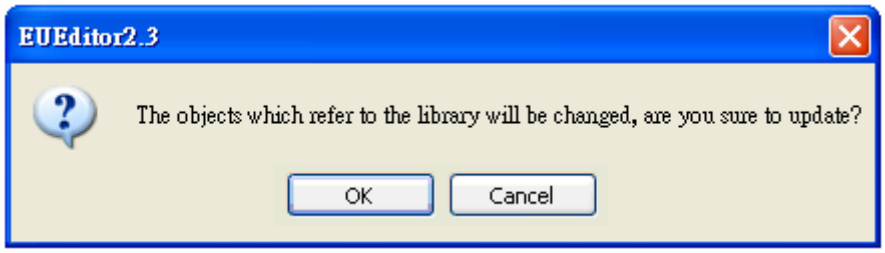
Fig. 3-4-9 Deleting Image (a) Selecting Image (b) Deletion Completed

To Add/Replace/Delete/Swap image files in the library, click

to update the library. See Figure 3-4-10 below.



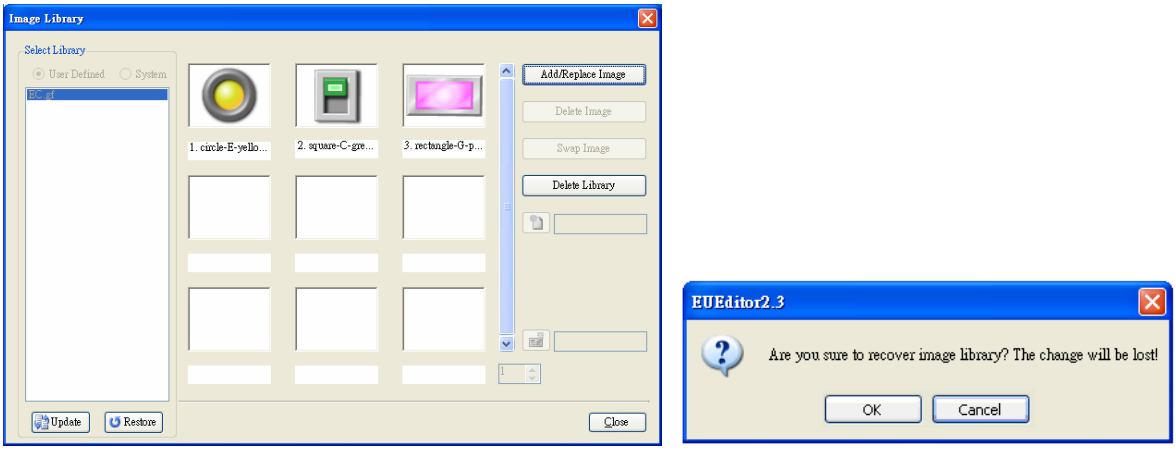

(a)



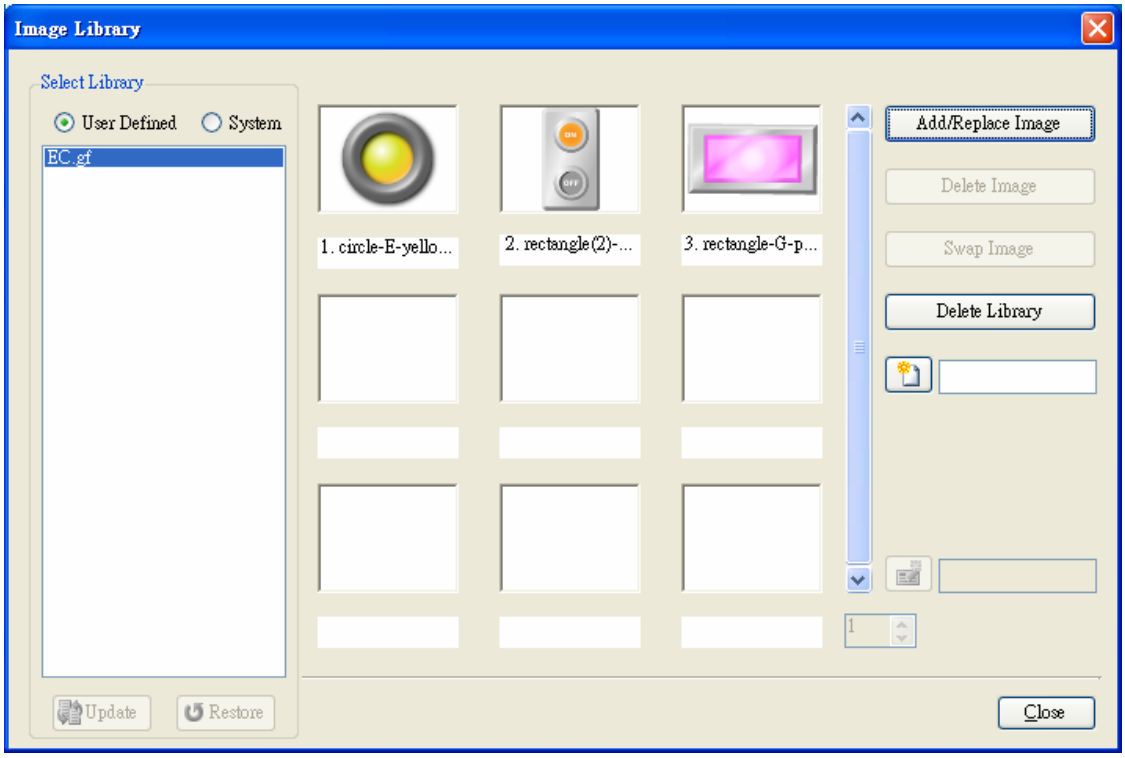

(b)

Fig. 3-4-10 Updating Image Library (a) Editing Library (b) Confirmation Dialogue Box

To undo the update, click Restore to restore the previous status of the library. See Figure 3-4-11 below.



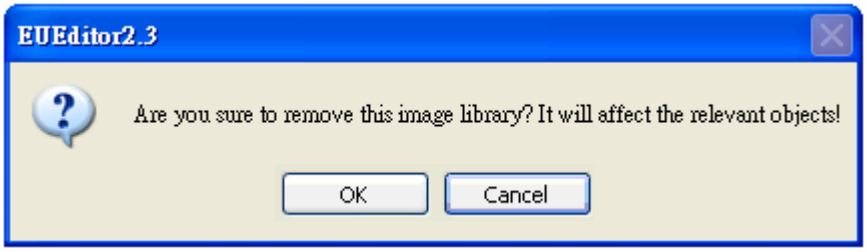

(a) (b)



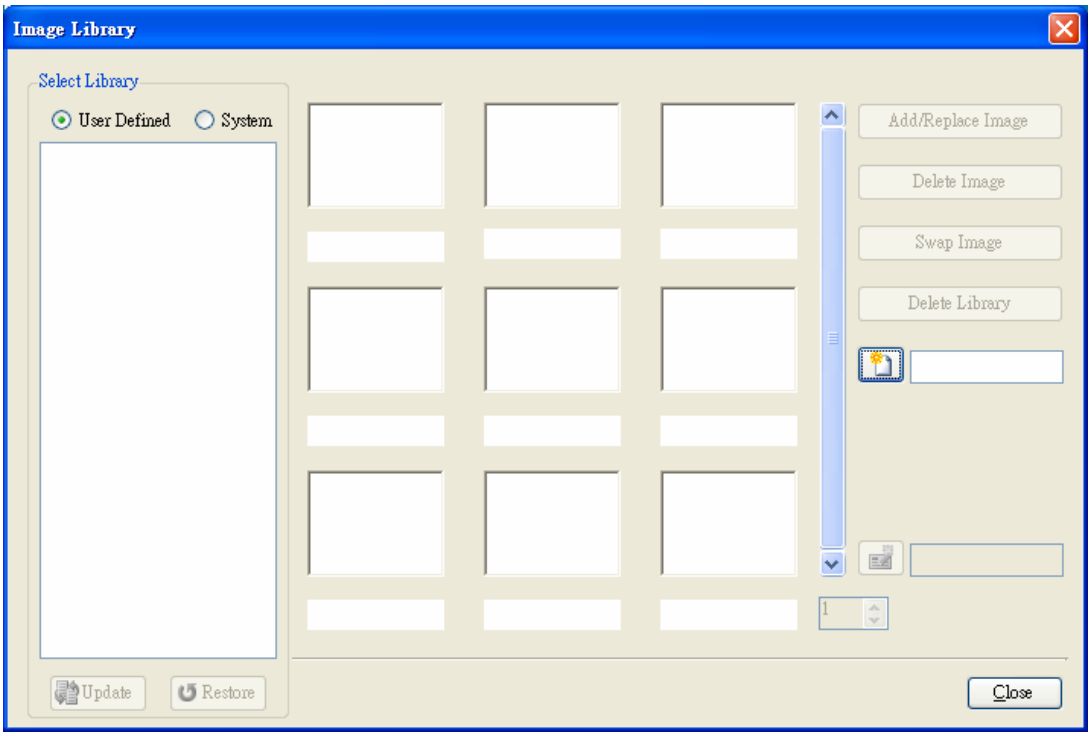

(c)

Fig. 3-4-11 Restoring Library (a) Opening Library (b) Confirmation Dialogue Box (c) Restoration Completed

To delete the entire library, click Delete Library to delete it. See Figure 3-4-12 below.




(a)

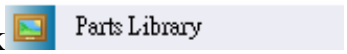



(b)

Fig. 3-4-12 Deleting Library (a) Confirmation Dialogue Box (b) Deletion Completed

### 3.4.3. Parts Library

Click

and then click 

to open the dialogue box and view the parts library. Click one of the options from the toolbar to create/copy/paste/delete a screen; select from the options to change the property name and display mode, or undo the selection; click to save the edited parts. The file formats are bmp, jpg, png, gif and emf. See Figure 3-4-13 below.

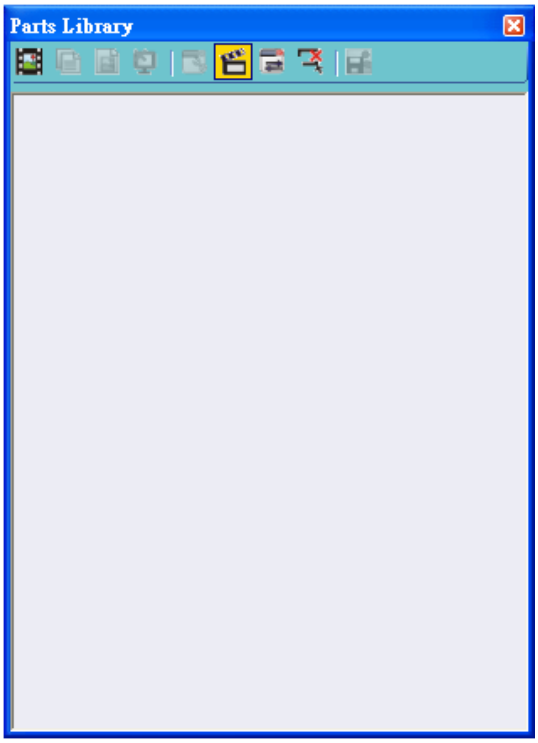



Fig. 3-4-13 Animation Library

To add new parts file, click to open the dialogue box and set the screen number, name and background color. See Figure 3-4-14 below.

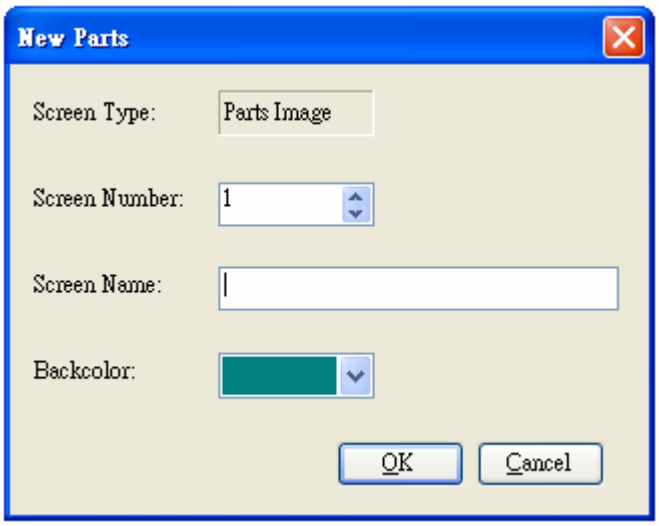



Fig. 3-4-14 Adding New Animation Image

When the parts is set up, the user can draw any images in the editing window. The size of the parts is decided by the maximum size of the parts drawn by the user. See Figure 3-4-15 below.

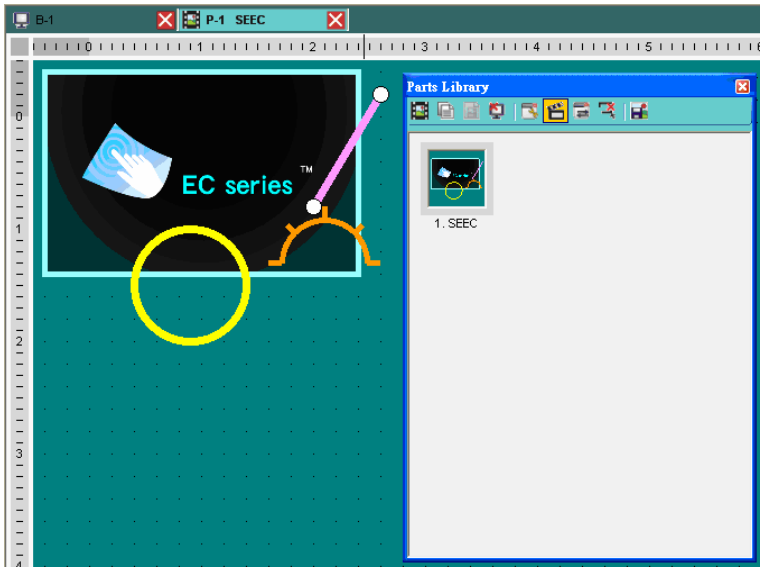
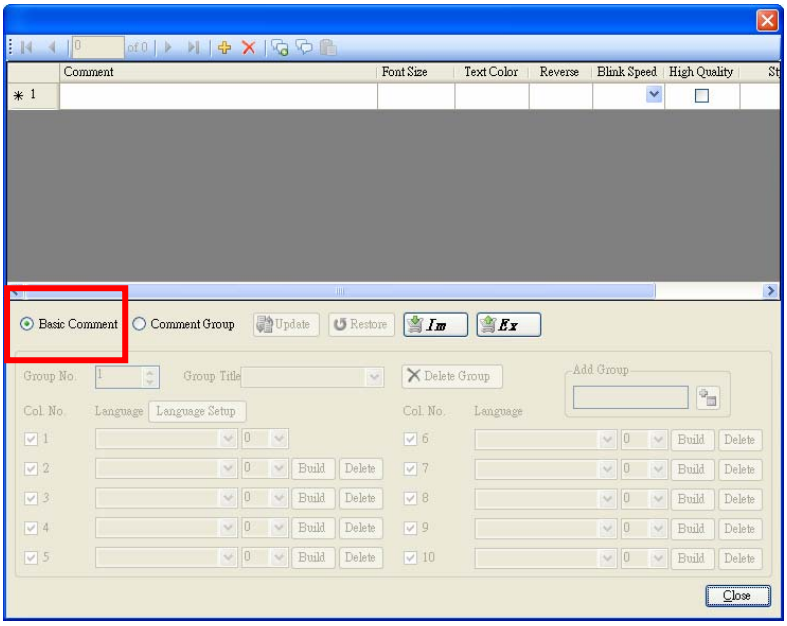


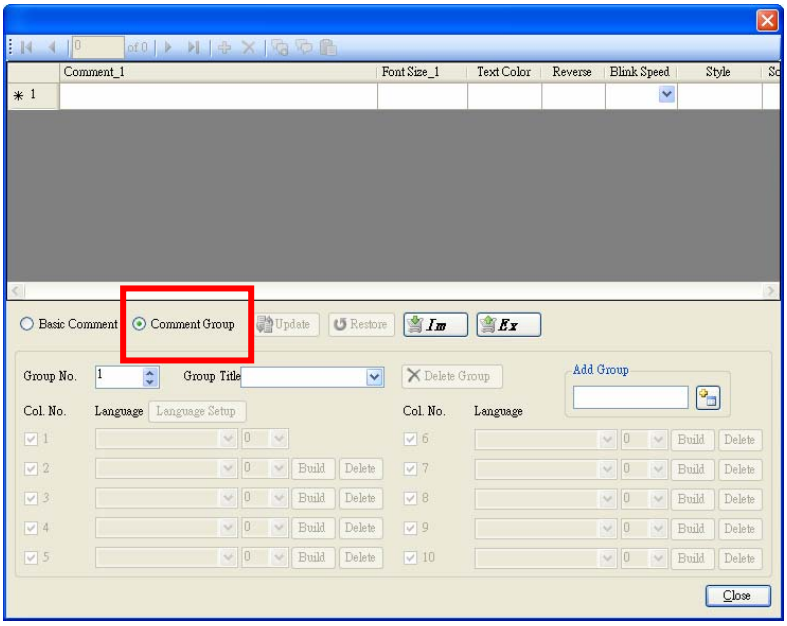

Fig. 3-4-15 Creating Animation Image

### 3.4.4. Comment Library

Click Library and then click Comment Library... to open the comment library dialogue box. Then, select the basic comment or comment group. See Figure 3-4-16 below.




(a)




(b)

Fig. 3-4-16 Comment Library (a) Basic Comment (b) comment group

When the comment library is changed to the basic comment mode, the user can edit the text and change its settings of color, blinking, quality and pattern; the maximum length of an comment text is 512 characters, and the library can have as many as 1024 transactions. To undo the settings, click Restore to restore the previous status. Click Update to execute the comment update. See Figure 3-4-17 below.

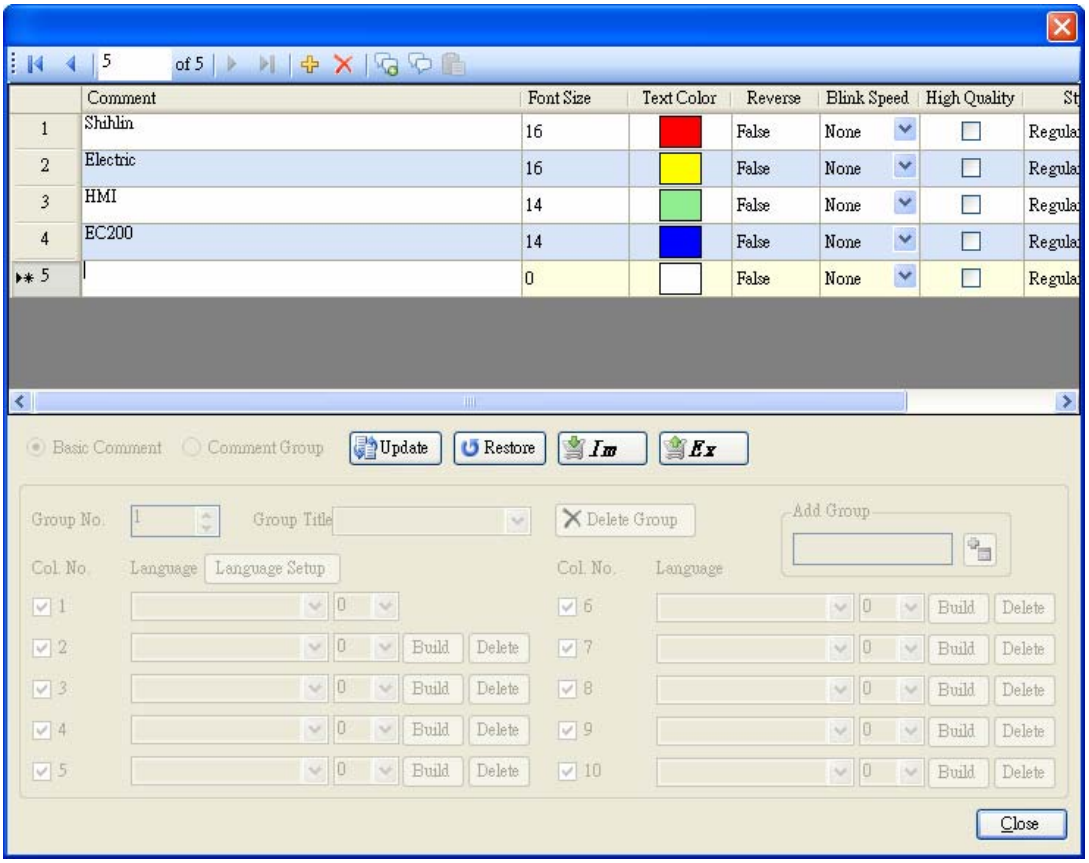



Fig. 3-4-17 Editing Basic Comment

To change the comment library to the comment group mode, click to add a new group. There can be as many as 16 groups. Comments in a group can be edited for the text and its settings of color and blinking properties; each comment can have up to 512 characters. The maximum number of transactions is 1024. To undo the setting, click

to restore the previous status. Click

to execute the setting. See Figure 3-4-18 below.

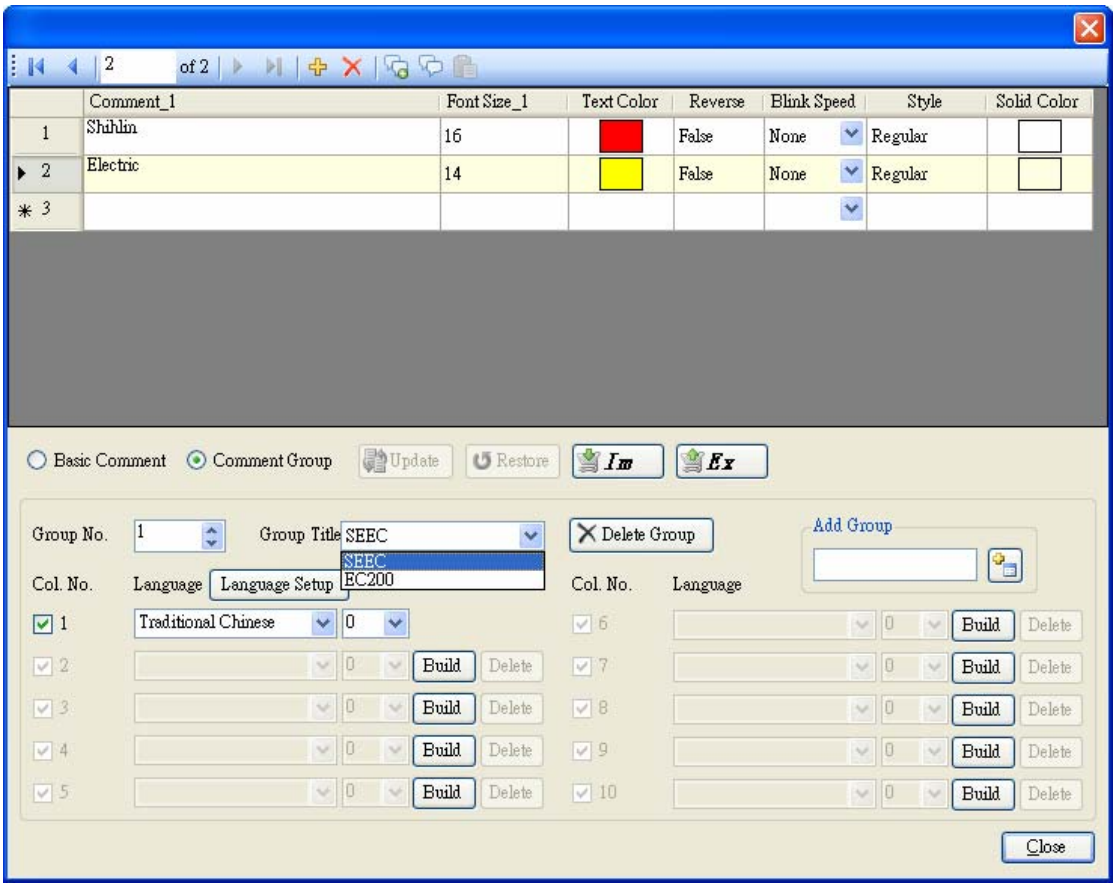



Fig. 3-4-18 Editing comment group

To establish multi-language comment, click Build to open the options for multiple languages. System default languages are Traditional Chinese, Simplified Chinese, English and Japanese. The user can also click Language Setup to set user-defined languages. See Figure 3-4-19 below. There can be up to 100 languages. The user can edit the comment text ,and font size,and its settings of color ,and blinking properties; to undo the editing, click Restore to restore the previous status. Click Update to execute the update. See Figure 3-4-20 below.

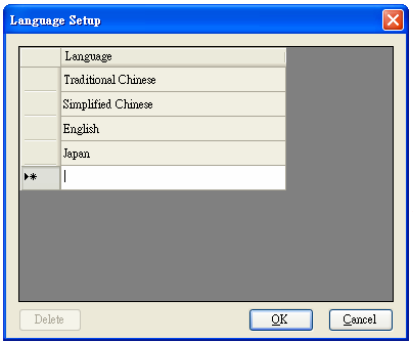



Fig. 3-4-19 Language Setup Fig.

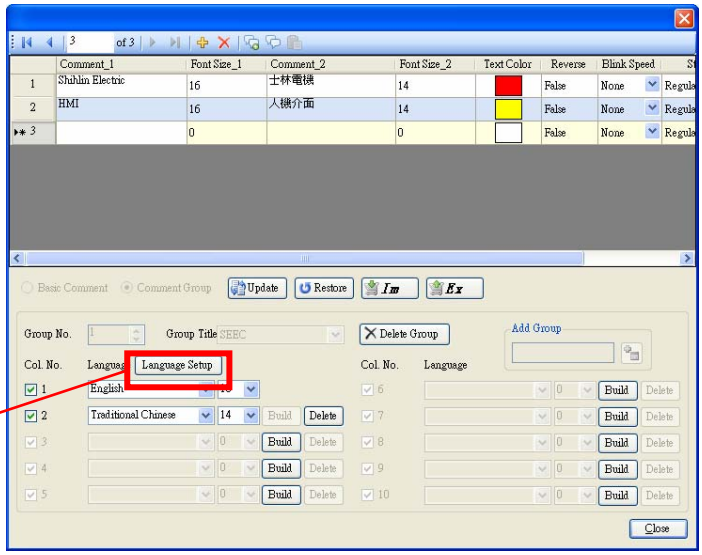



Fig. 3-4-20 Editing Multi-language comment group

When setting "font size" of the language setup, set the font size will be applied to all the comments in that language, as shown in Figure 3-4-6.

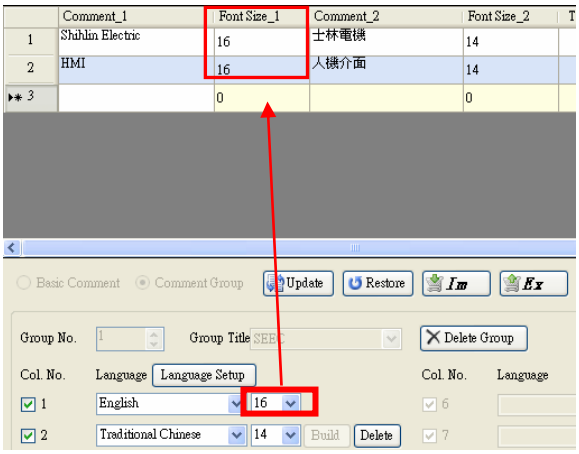
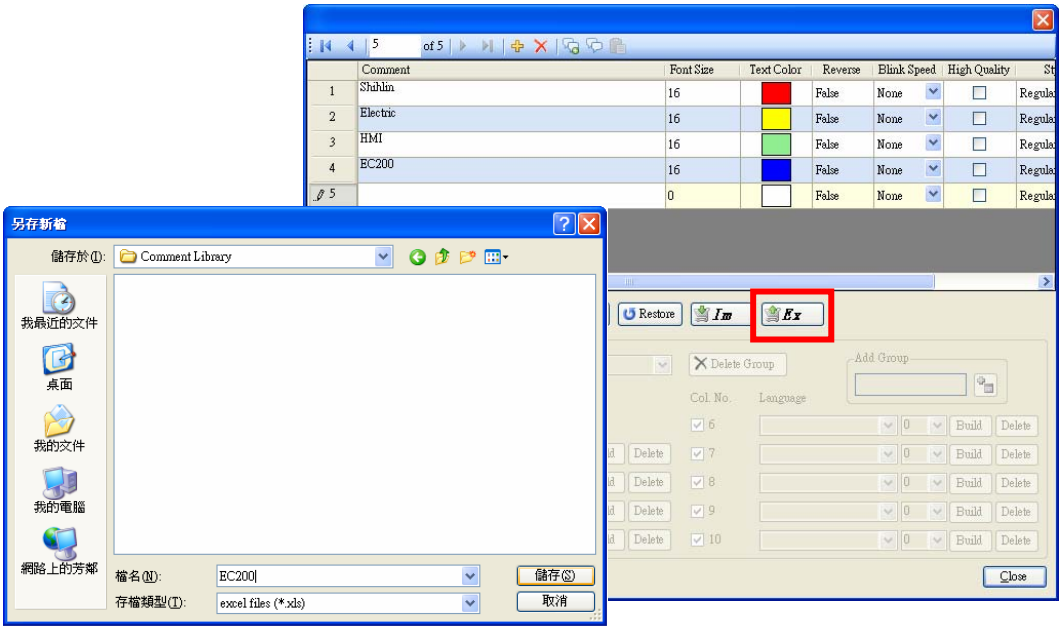
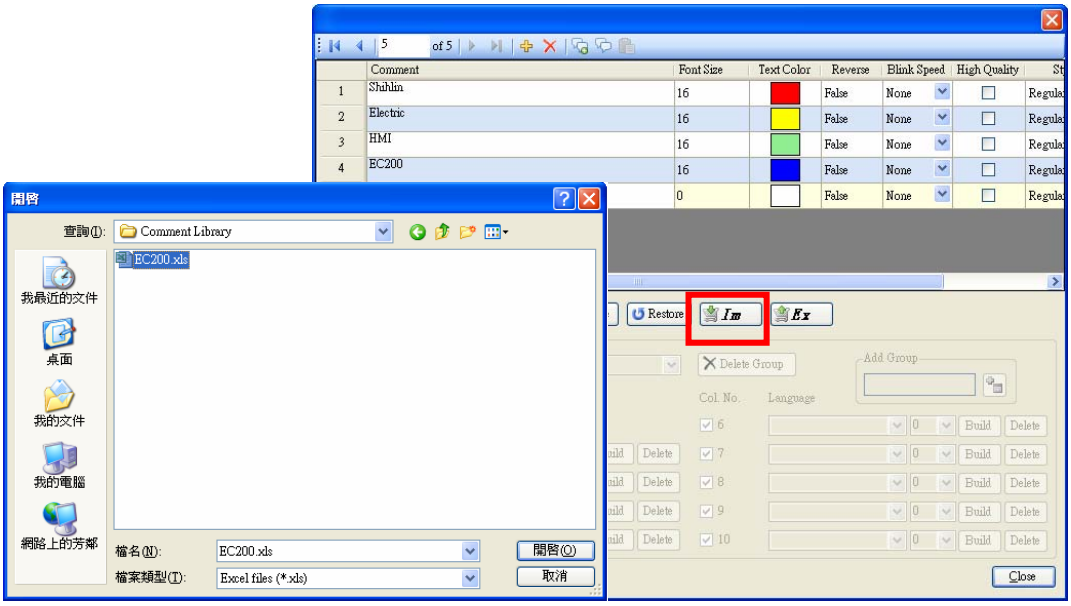



Fig. 3-4-6、font size setup

If you want to export the note data, click the Ex button to save the note data in ".xls" format into a specified storage device. After editing the note data in ".xls" format, click the Im button to import the note data into the EU Editor2, as shown in figure 3-4-4-5.




(a)




(b)

Figure 3-4-4-5: Import & Export of note data (a) Export of note data (b) Import of note data

### 3.4.5. Macro Library

Click Library and then click Macro Library... to open the macro library window. The user can create (up to 64 units), edit, copy and delete a macro library, change ID, and import from and export to it. See Figure 3-4-5-1 below.

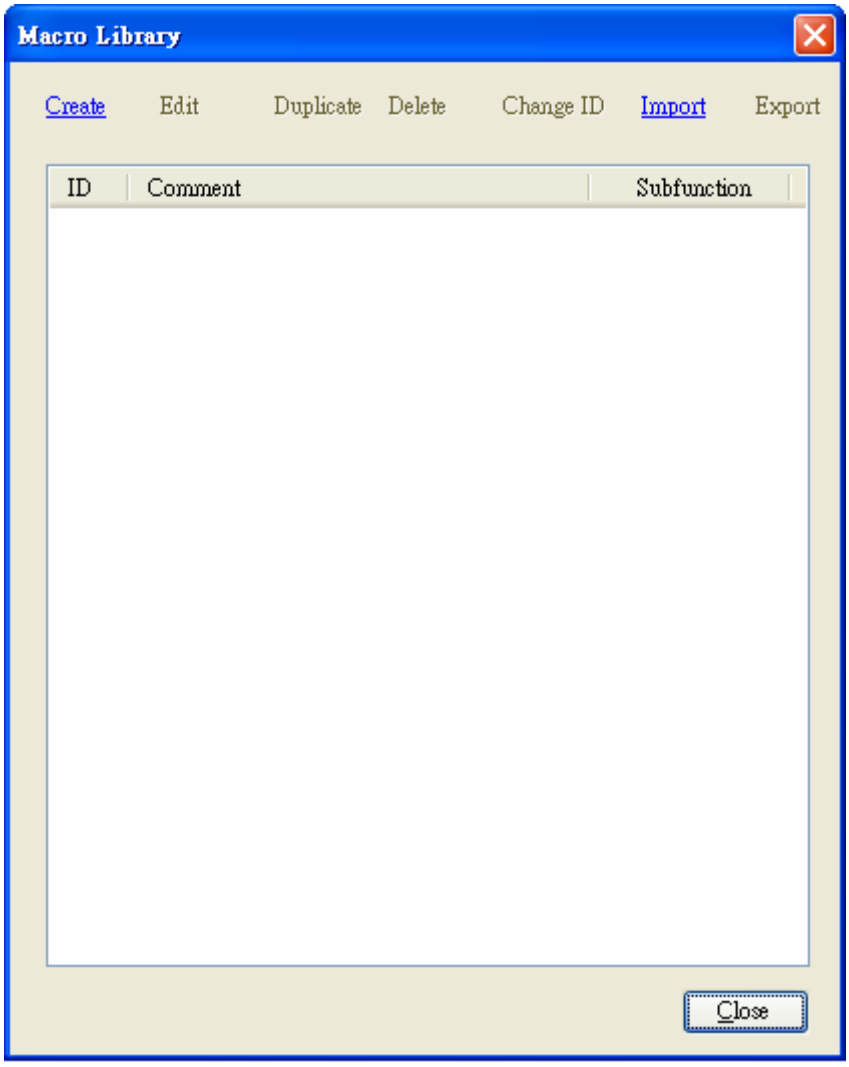
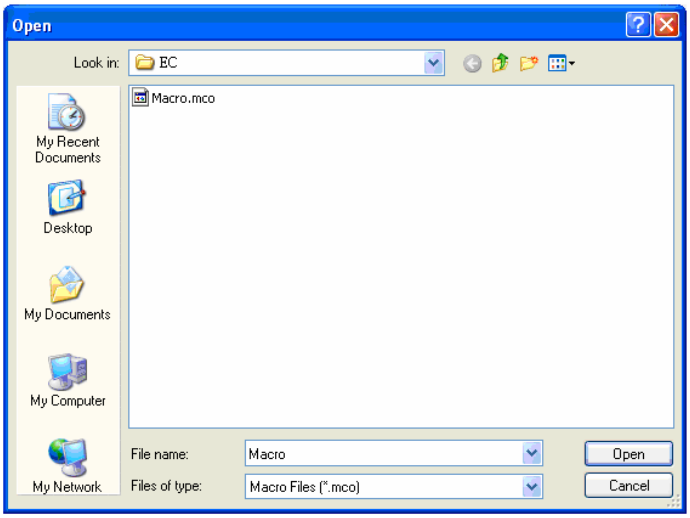
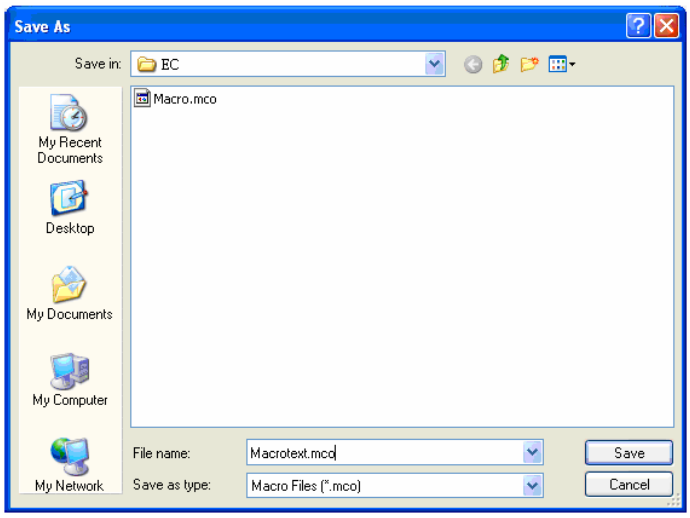



Fig. 3-4-5-1 Macro Library

To import from a macro, click the import menu to open the import window, and then select the macro (*.mco) to be imported, then confirm and execute the import; to export a macro, click the export menu to open the export window, then export the macro (*.mco) to the specified location. See Figure 3-4-5-2 below.




(a)




(b)

Fig. 3-4-5-2 Macro Edit (a) Macro Import (b) Macro Export

To create a macro, click the Create menu to open the macro editing window. Click the options from the toolbar to erase/read/save a script. The macro script is saved in text format (*.txt). Click to cut/copy/paste/search a macro; click to do line number display, syntax analysis and auto syntax analysis; click to open the macro help file. See Figure 3-4-5-3 below.

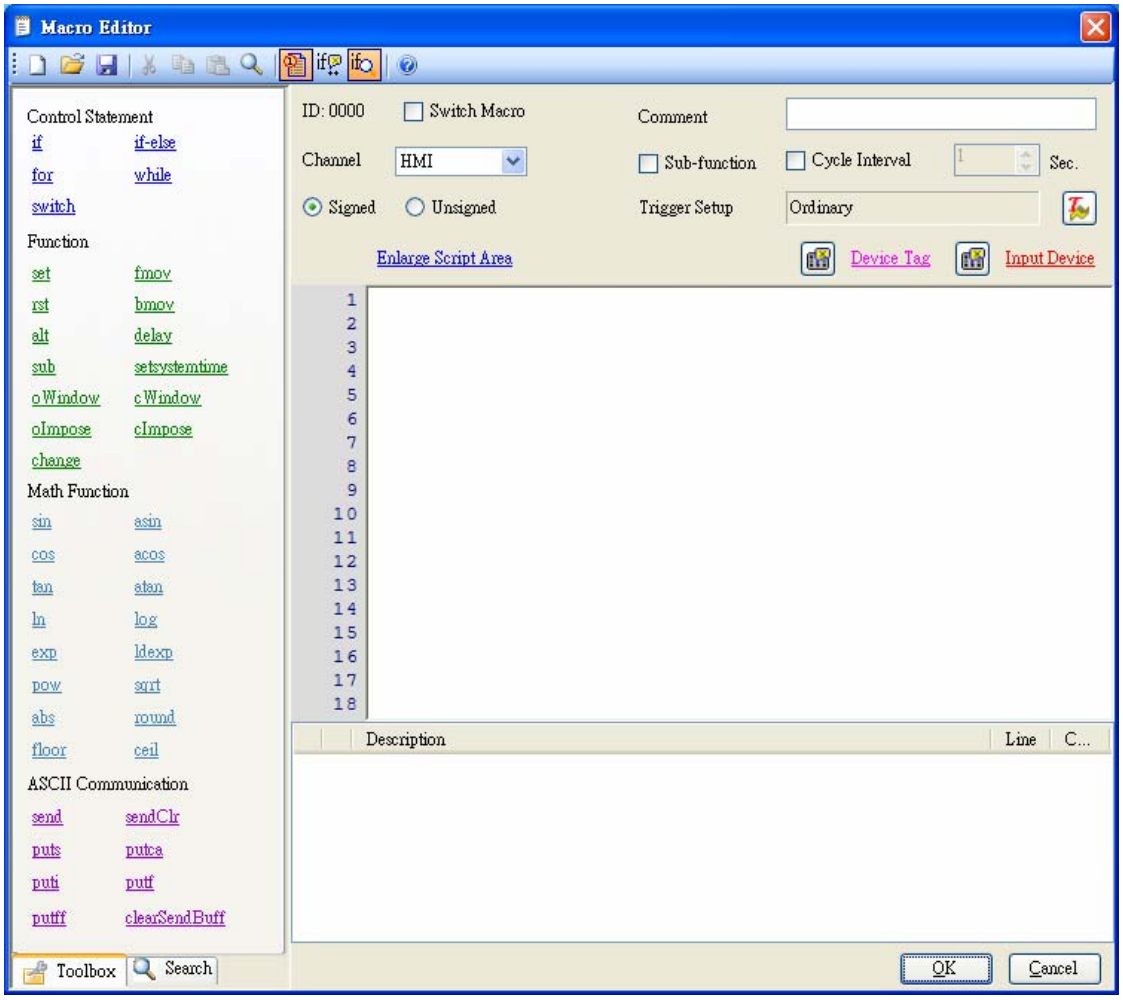



Fig. 3-4-5-3 Macro Editor

The macro script uses standard C language syntax, and each script can have as many as 1024 characters. In Figure 3-4-5-4 below, the program code and devices are indicated in corresponding colors.

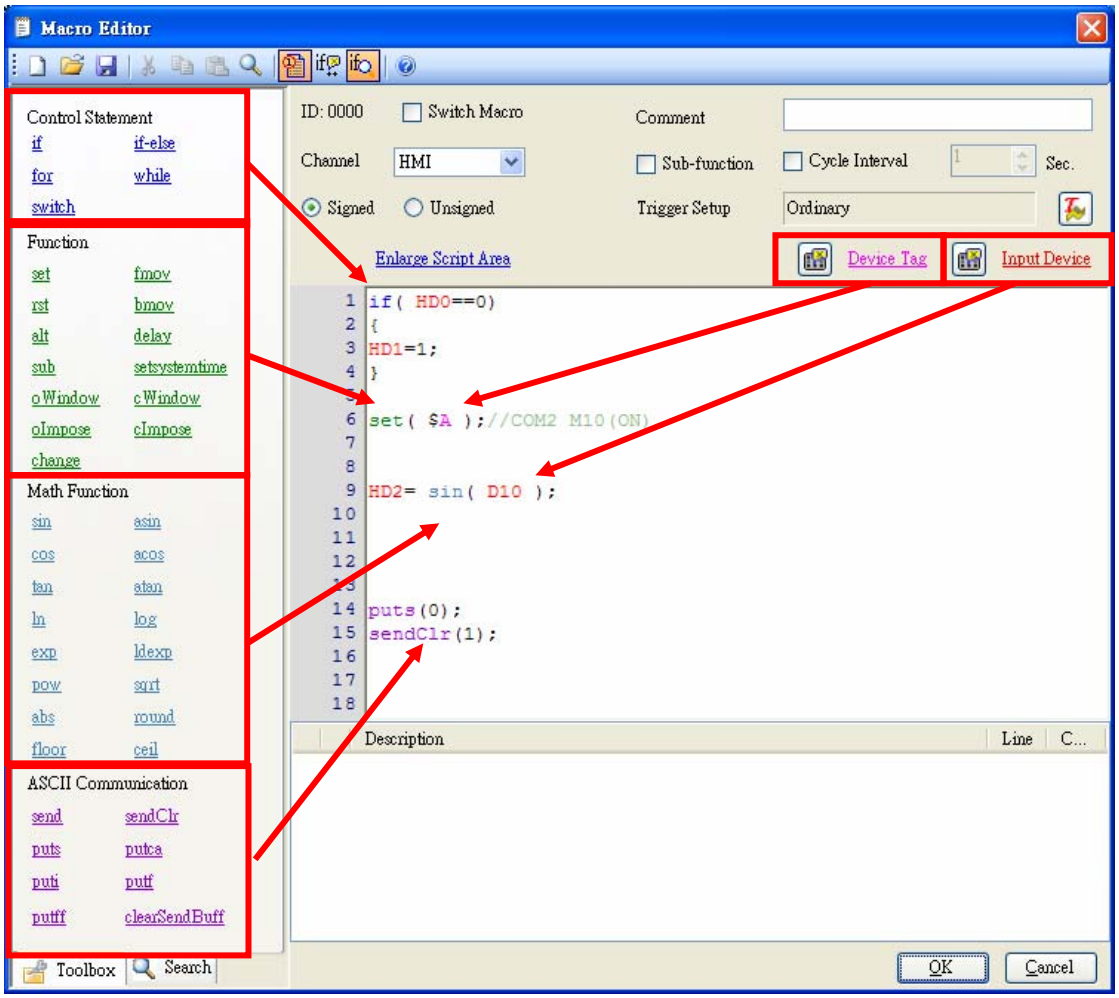



Fig. 3-4-5-4 Macro Edit Illustration

The macro script takes a general C programming language plus its propriety syntax rules. The user can change devices, operative symbols and condition types. See Table 3-4-5-5 below for details.

Table 3-4-5-5 Syntax, Operative Symbols and Condition Types

**Device Syntax：station number . 32 bits(W) . floating(F) . Word device. Bit device**

| Device | Syntax | Description |
|---|---|---|
| **Bit** | **M0** | General use as Bit |
| | D.**M0** | Bit used as Word |
| | W.D.**M0** | Bit used as a 32-bit Word |
| | 1.**M0** | General use as Bit to specify a PLC station number |
| | 1.D.**M0** | Bit used as Word to specify a PLC station number |
| | 1.W.D.**M0** | Bit used as a 32-bit Word to specify a PLC station number |
| **Word** | **D0** | General use as Word |
| | W.**D0** | Used as a 32-bit Word |
| | **D0**.01 | Word used as Bit |
| | 1.**D0** | General use as Word to specify a PLC station number |
| | 1.W.**D0** | 32-bit Word to specify a PLC station number |
| | 1.**D0**.01 | Word used as Bit to specify a PLC station number |
| | F.**D0** | Real floating point |
| **Operative Symbols** | **+ , - , * , / , % , & , \| , << , >>** | |
| **Condition Types** | **== , != , < , > , <= , >= , && , \|\|** | |

For detailed **Operative Symbols**, please see table 3-4-5-6.

Table 3-4-5-6: **Operative Symbols** description

| Operative Symbols | Function | Example | Action |
|---|---|---|---|
| + | Addition | HD2=HD2+5; | HD2 adds 5 |
| | | HD2++; | HD2 accumulates 1 |
| | | HD3=2;<br>HD4=1;<br>HD2=HD3+HD4; | HD2=2+1=3 |
| - | Subtraction | HD2=HD2-5; | HD2 subtracts 5 |
| | | HD2--; | HD2 subtracts 1 gradually |
| | | HD3=2;<br>HD4=1;<br>HD2=HD3-HD4; | HD2=2-1=1 |
| * | Multiplication | HD2=HD2*5; | HD2 multiplies by 5 |
| | | HD3=6;<br>HD4=2;<br>HD2=HD3*HD4; | HD2=6x2=12 |
| / | Division | HD2=HD2/5; | HD2 divides by 5 |
| | | HD3=6;<br>HD4=2;<br>HD2=HD3/HD4; | HD2=6/2=3 |
| % | Remainder | HD3=6;<br>HD2=HD3%4; | 6/4, remainder=2<br>HD2=2 |
| | | HD3=7;<br>HD4=2;<br>HD2=HD3%HD4; | 7/2, remainder=1<br>HD2=1 |
| & | AND: compare each bit of the operand, and if they are all 1, the result will be 1. | HD3=26;<br>HD2=HD3&3; | 26(decimal value)=11010(binary value)<br>3(decimal value)=00011(binary value)<br>11010<br>& 00011<br>00010<br>HD2=2(decimal value)=00010(binary value) |
| | | HD3=26;<br>HD4=105;<br>HD2=HD3&HD4; | 26(decimal value)=0011010(binary value)<br>105(decimal value)=1101001(binary value)<br>0011010<br>& 1101001<br>0001000<br>HD2=8(decimal value)=0001000(binary value) |

| | | | |
|---|---|---|---|
| \| | OR: compare each bit of the operand, and if one of them is 1, the result will be 1. | HD3=26;<br>HD2=HD3\|3; | 26(decimal value)=11010(binary value)<br>3(decimal value)=00011(binary value)<br>11010<br>OR 00011<br>11011<br>HD2=27(decimal value)=11011(binary value) |
| | | HD3=26;<br>HD4=105;<br>HD2=HD3\|HD4; | 26(decimal value)=0011010(binary value)<br>105(decimal value)=1101001(binary value)<br>0011010<br>OR 1101001<br>1111011<br>HD2=123(decimal value)=1111011(binary value) |
| << | Left shift: shift a bit to left. | HD3=26;<br>HD2=HD3<<4; | 26(decimal value)=0011010(binary value)<br><br>Shift 4 bits to left:<br>0 0 1 1 0 1 0 0 0 0<br><br>HD2=32(decimal value)=0100000(binary value) |
| | | HD3=26;<br>HD4=3;<br>HD2=HD3<<HD4; | 26(decimal value)=0011010(binary value)<br><br>Shift 3 bits to left:<br>0 0 1 1 0 1 0 0 0<br><br>HD2=80(decimal value)=1010000(binary value) |
| >> | Right shift: shift a bit to right. | HD3=26;<br>HD2=HD3>>4; | 26(decimal value)=0011010(binary value)<br><br>Shift 4 bits to right:<br>0 0 0 0 0 0 1 1 0 1 0<br><br>HD2=1(decimal value)=0000001(binary value) |
| | | HD3=26;<br>HD4=3;<br>HD2=HD3>>HD4; | 26(decimal value)=0011010(binary value)<br><br>Shift 3 bits to right:<br>0 0 0 0 0 1 1 0 1 0<br><br>HD2=3(decimal value)=0000011(binary value) |

The conditional expressions are listed in table 3-4-5-7.

Table 3-4-5-7: Conditional expressions

| Conditional expression | Function | Example | Action description |
|---|---|---|---|
| == | Equal to | HD2==0 | When HD2=0 |
| != | Unequal to | HD2!=0 | When HD2≠0 |
| < | Less than | HD2<0 | When HD2<0 |
| > | Greater than | HD2>0 | When HD2>0 |
| <= | Less than or equal to | HD2<=0 | When HD2<=0 |
| >= | Greater than or equal to | HD2>=0 | When HD2>=0 |
| && | AND | HD2==0&&HD3>5 | When HD2==0 and HD3>5 |
| \|\| | OR | HD2==0\|\|HD3>5 | When HD2==0 or HD3>5 |

Detailed descriptions of flow control instructions are listed in Table 3-4-5-8 below.

Table 3-4-5-8 Flow Control Instructions

| Flow Control | Function | Example | Action |
|---|---|---|---|
| **if** | Execute the statement if the condition is met; otherwise not execute. | `if(HD0==0)`<br>`{`<br>`HD1=1;`<br>`}` | If HD0=0, set HD1=1 |
| **if-else** | When the condition is met, execute the statement in the true block; otherwise execute the statement in the false block | `if(HD0==0)`<br>`{`<br>`HD1=1;`<br>`}`<br>`else`<br>`{`<br>`HD1=0;`<br>`}` | If HD0=0, set HD1=1<br>If HD0≠0, set HD1=0 |
| **while** | When the condition is met, execute the statement in the loop; otherwise exit the loop. | `while(HD0==0)`<br>`{`<br>`HD1=HD1+1;`<br>`}` | When HD0=0, set HD1=HD1+1<br>When HD0≠0, exit the execution loop. |
| **for** | If the initial condition is met, start executing the statement in the loop, and incrementing the conditional variable, till the condition expires. | `for(HD0=0;HD0<3;HD0++)`<br>`{`<br>`HD1=HD0;`<br>`}` | HD0 is initialized to 0, and when HD0<3, set HD1=HD0 and increment HD0 by 1. Do the loop till HD0 reaches 3. |
| **switch** | Execute statements in the case block whose case value meets the variable HD0. | `switch(HD0)`<br>`{`<br>`case 1:`<br>`HD1=1;`<br>`break;`<br>`case 2:`<br>`HD1=2;`<br>`break;`<br>`}` | If HD0=1, set HD1=1<br>If HD0=2, set HD1=2 |

Detailed descriptions of functional instructions are listed in Table 3-4-5-9 and Table 3-4-5-10 below.

Table 3-4-5-9 Functional Instructions

| Instruction | Function | Example | Action |
|---|---|---|---|
| **set(B)** | Bit device is normally open | `set(HM0);` | HM0=ON |
| **rst(B)** | Bit device is normally closed | `rst(HM0);` | HM0=OFF |
| **alt(B)** | Bit device is alternately open/closed | `alt(HM0);` | HM0 continuously alternates. |
| **sub(W/Z)** | Call a subroutine | `HD0=3;`<br>`sub(HD0);`<br>`sub(3);` | Call the subroutine with ID 3 |
| **fmov(Z,W,Z)** | Multi-cast value | `fmov(123,HD0,2);` | Send the value123 to HD0 and HD1. |
| **bmov(W,W,Z)** | Transfer value in batch | `HD0=123;`<br>`HD1=456;`<br>`bmov(HD0,HD10,2);` | Set HD0=123 and send it to HD10.<br>Set HD1=456 and send it to HD11. |
| **delay(W/Z)** | delay the user setting time | `HD0=1000;`<br>`delay( HD0);`<br>`delay(1000);` | Delay 1000 ms。<br>(Remark 2) |
| **setsystemtime(W)** | System time setting | `setsystemtime( HD0 );` | Send those value HD0~HD6 to system time 。<br>HD0=year；HD1=month；<br>HD2=date；HD3=week；<br>HD4=hour；HD5= minute；<br>HD6= second<br>(Remark 3)<br>(Remark 4)<br>(Remark 5) |
| **Remark** | **1. B：Bit device，W：Word device，N：value of 1 or 2，Z：positive integer**<br>**2. After Delay command is executed, HMI will stop the operation. The operation will resume after the delay time has elapsed.**<br>**3.Year setting limits from 2000 to 2037, more than this range will not be write to those system time devices .**<br>**4. The execution setsystemtime instruction and the date and time display devices HDR ,The two can not use in the same time.**<br>**5. Do not for a long time to trigger the system time setting instructions.** | | |

Table 3-4-5-10 Functional Instructions(continued)

| Instruction | Function | Example | Action |
|---|---|---|---|
| **Change(W/Z)** | Change basic screen | HD0=3;<br>change(HD0);<br>change(3); | Jump to basic careen 3. |
| **oWindow(N,W/Z)** | Open the overlapped Nth window screen numbered Z. | HD0=3;<br>oWindow(1,HD0);<br>oWindow(1,3); | Open the overlapped 1st window screen numbered 3. |
| **cWindow(N,W/Z)** | Close the overlapped Nth window screen numbered Z. | HD0=4;<br>cWindow(2,HD0);<br>cWindow(2,4); | Close the overlapped 2nd window screen numbered 4. |
| **oImpose(N,W/Z)** | Open the additional overlapped Nth window screen numbered Z. | HD0=3;<br>oImpose(1,HD0);<br>oImpose(1,3); | Open the additional overlapped 1st window screen numbered 3. |
| **cImpose(N,W/Z)** | Close the overlapped Nth window screen numbered Z. | HD0=4;<br>cImpose(2,HD0);<br>cImpose(2,4); | Close the additional overlapped 2nd window screen numbered 4. |
| **Remark** | **1. B：Bit device，W：Word device，N：value of 1 or 2，Z：positive integer** | | |

Detailed descriptions of math functions are listed in Table 3-4-5-11 and Table 3-4-5-12 below.

Table 3-4-5-11 Math Functions

| Math Function | Description | Example | Action |
|---|---|---|---|
| **sin(W/R)** | To obtain the sine of X | HD0=10;<br>F.HD1=HD0*3.14/180;<br>F.HD2= sin(F.HD1);<br>F.HD2= sin(0.174); | HD2≒0.173 |
| **cos(W/R)** | To obtain the cosine of X | HD0=10;<br>F.HD1=HD0*3.14/180;<br>F.HD2= cos(F.HD1);<br>F.HD2= cos(0.174); | HD2≒0.985 |
| **tan(W/R)** | To obtain the tangent of X | HD0=10;<br>F.HD1=HD0*3.14/180;<br>F.HD2= tan(F.HD1);<br>F.HD2= tan(0.174); | HD2≒0.176 |
| **asin(W/R)** | To obtain the arcsine of X | HD0=10;<br>F.HD1=HD0*3.14/180;<br>F.HD2= asin(F.HD1);<br>F.HD2= asin(0.174); | HD2≒0.175 |
| **acos(W/R)** | To obtain the arccosine of X | HD0=10;<br>F.HD1=HD0*3.14/180;<br>F.HD2= acos(F.HD1);<br>F.HD2= acos(0.174); | HD2≒1.396 |
| **atan(W/R)** | To obtain the arctangent of X | HD0=10;<br>F.HD1=HD0*3.14/180;<br>F.HD2= atan(F.HD1);<br>F.HD2= atan(0.174); | HD2≒0.172 |
| **Remark** | **W：Word device**<br>**R：radian, radian= value ＊π /180** | | |



EC series

Table 3-4-5-12 Math Functions (continued)

| Function | Description | Example | Action |
|---|---|---|---|
| **ln(W/X)** | To obtain the natural logarithm of X. | HD0=5;<br>HD1=ln(HD0);<br>HD1=ln(5); | HD1=ln5 |
| **log(W/X)** | To obtain the base-10 logarithm of X | HD0=5;<br>HD1=log(HD0);<br>HD1=log(5); | HD1= $\log_{10}5$ |
| **exp(W/X)** | To obtain the exponent value of X | HD0=5;<br>HD1=exp(HD0);<br>HD1=exp(5); | HD1=$e^5$ |
| **ldexp(W/X,W/Y)** | To obtain the value of X multiplied by 2 to the power of Y | HD0=5;<br>HD1=10;<br>HD2=ldexp(HD0,HD1);<br>HD2=ldexp(5,10); | HD2=5*$2^{10}$ |
| **pow(W/X,W/Y)** | To obtain the value of X to the power of Y. | HD0=5;<br>HD1=10;<br>HD2=pow(HD0,HD1);<br>HD2=pow(5,10); | HD2=$5^{10}$ |
| **Sqrt(W/X)** | To obtain the positive square root of X. | HD0=5;<br>HD1= sqrt(HD0);<br>HD1=sqrt(5); | HD1=$\sqrt{5}$ |
| **abs(W/X)** | To obtain the absolute value of X. | HD0=-5;<br>HD1= abs(HD0);<br>HD1=abs(-5); | HD1=\|-5\|=5 |
| **round(F.W/X)** | Round off it after getting the decimal point of X | F.HD0=5.5;<br>F.HD1= round(F.HD0);<br>F.HD1=round(5.5); | HD1=6 |
| **floor(F.W/X)** | Floor it after getting the decimal point of X | F.HD0=5.5;<br>F.HD1= floor(F.HD0);<br>F.HD1=floor(5.5); | HD1=5 |
| **ceil(F.W/X)** | Ceil it after getting the decimal point of X | F.HD0=5.4;<br>F.HD1= ceil(F.HD0);<br>F.HD1=ceil(5.4); | HD1=6 |
| **Remark** | **W：Word device，X、Y：Integers** | | |

Detailed descriptions of ASCII Communication are listed in Table 3-4-5-13below.

Table 3-4-5-13 ASCII Communication

| ASCII Communication | Description | Example | Action |
|---|---|---|---|
| **send(W/Z)** | Transfer ASCII communication instructions to the printer. | HD0=1;<br>send(HD0);<br>send(1); | Transfer ASCII communication instructions to the COM1 printer. |
| **sendClr(W/Z)** | Transfer ASCII communication instructions to the printer,and clear ASCII communication instructions in the buffer. | HD0=1;<br>sendClr(HD0);<br>send(1); | Transfer ASCII communication instructions to the COM1 printer,and clear ASCII communication instructions in the buffer. |
| **puts(W/Z)** | Specified ASCII command stored in the buffer. | HD0=5;<br>puts(HD0);<br>puts(5); | NO.5 ASCII command stored in the buffer. |
| **puti(W)** | values stored in the buffer. | HD0=5;<br>puts(HD0);<br>W.HD0=5;<br>puts(W.HD0); | The “5” stored in the buffer. |
| **putf(F,W/Z)** | Float values stored in the buffer.<br>putf(F.Device,Decimal point) | F.HD0=5.26;<br>putf(F.HD0,2);<br>F.HD0=5.26;<br>HD10=2;<br>putf(F.HD0,HD10); | The “5.26” stored in the buffer. |
| **putff(W,W/Z)** | values stored in the buffer.<br>putff(Device,Decimal point) | HD0=5.26;<br>putf(HD0,2);<br>HD0=5.26;<br>HD10=2;<br>putf(HD0,HD10); | The “5.26” stored in the buffer. |
| **putca(W,W/Z,W/Z)** | Characters stored in the buffer.<br>putca(Device,Digits,Byte order)<br>No change byte order：0<br>Change byte order：1 | HD11=3;<br>HD12=0;<br>putf(HD0,HD11,HD12);<br>putf(HD0,3,0); | When HD0 setting ABC, the ABC stored in the buffer. |
| **Remark** | **W：Word device，Z：positive integer，F：Float** | | |



EC series

To set the macro trigger condition, click to open the trigger setup window and change the conditions. See Figure 3-4-5-14 and Table 3-4-5-15 below.

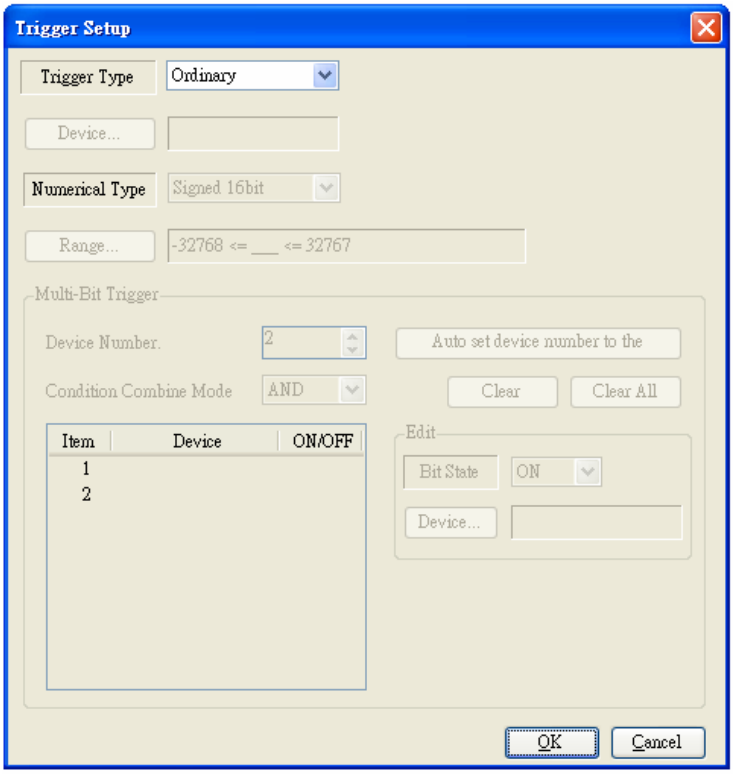



Fig. 3-4-5-14 Trigger Setup

Table 3-4-5-15 Trigger Properties

| Property | Description |
|---|---|
| **Ordinary** | No triggering |
| **ON** | Set device to act when it is ON. |
| **OFF** | Set device to act when it is OFF. |
| **Range** | Device takes action only when its value falls in this range. |
| **Multiple Bit Trigger** | Set two or more devices, and action will be taken only when all the devices reach the condition. |

Click the Device Tag to create a device tag. Device tags can be set to the devices of available COM ports so that you can access various COM devices in one macro, as shown in figure 3-4-5-16.

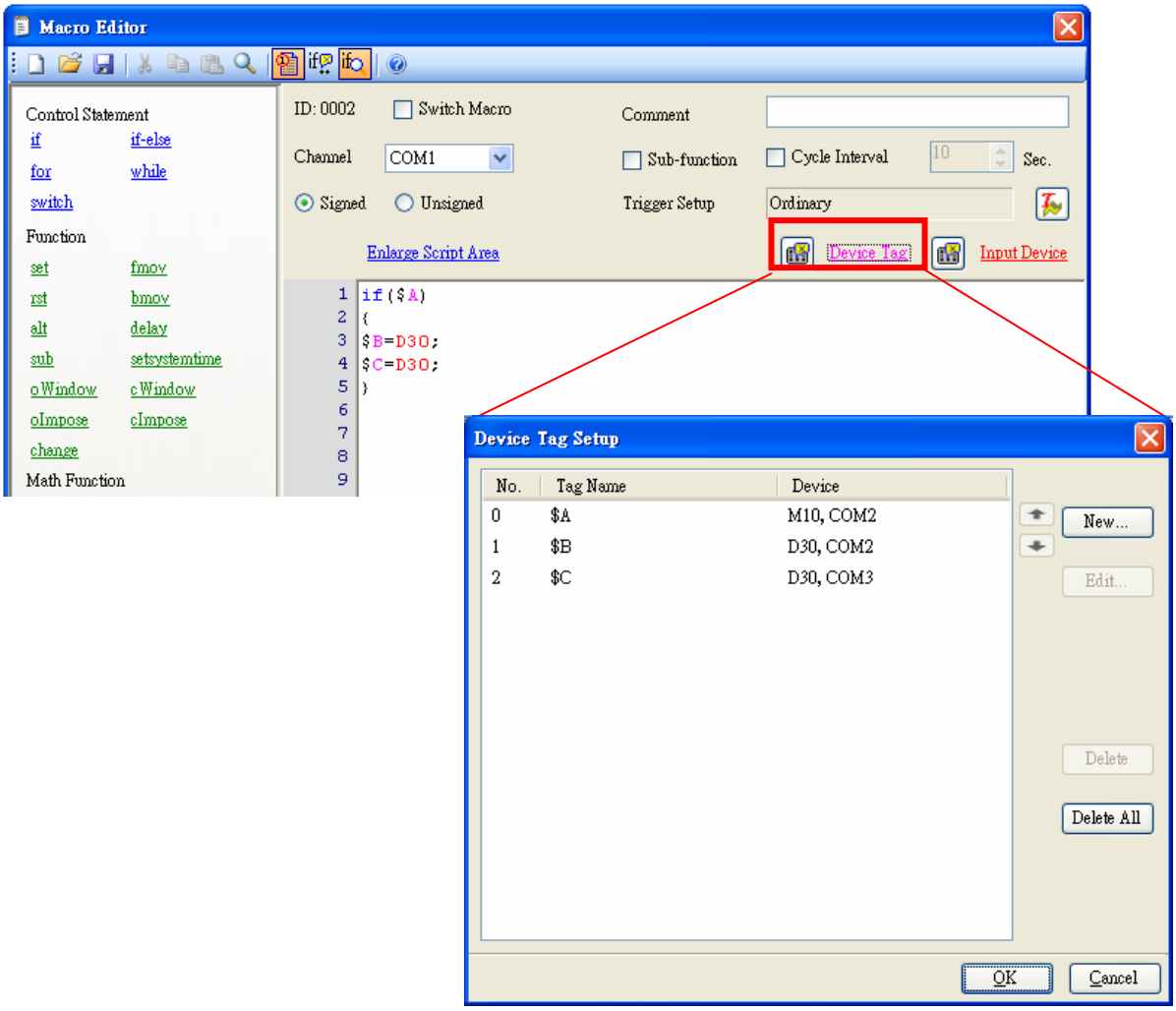
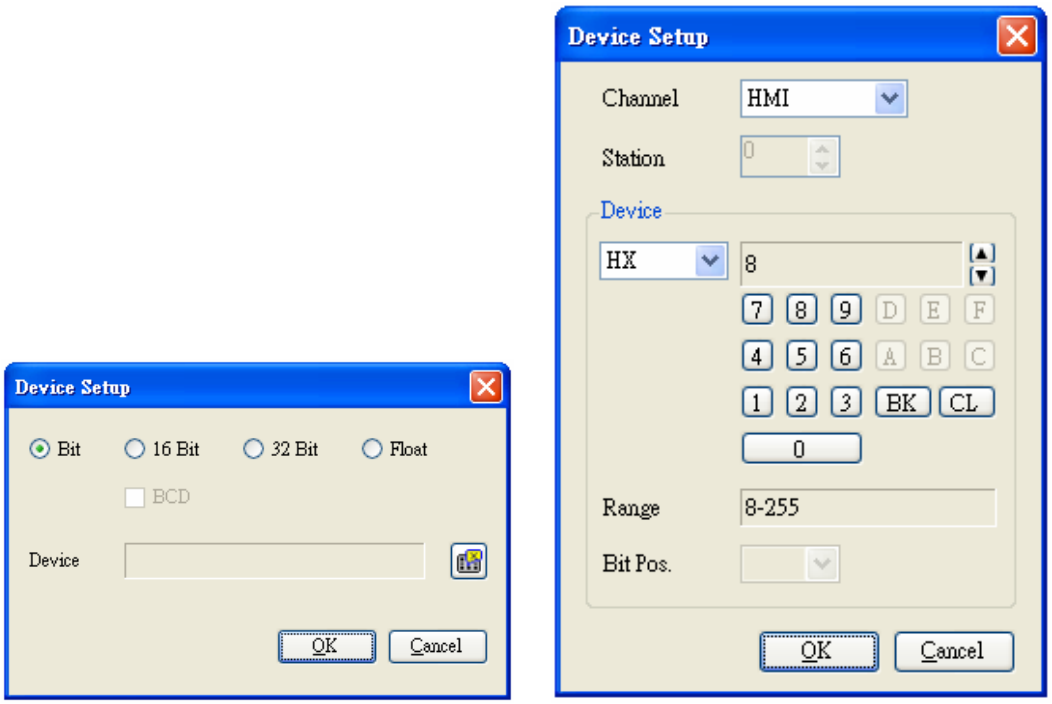



Figure 3-4-5-16: Device tag setup

To set up a device, open the device setup window. Select a device format and click to open the dialogue box to make the settings. Confirm to complete the setup. See Figure 3-4-5-17 below.




(a) (b)

Fig. 3-4-5-17 Device Setup (a) Device Format (b) Device Setting

NOTE

- The macro editor is case-sensitive. Use upper case for the device address.

- When editing macro using Allen-Bradley PLC special device, Allen-Bradley PLC device coding has been calculated, as shown in the following figure 3-4-5-18.

Special devices include: B、TS、TP、TC、CS、CP、CC、N

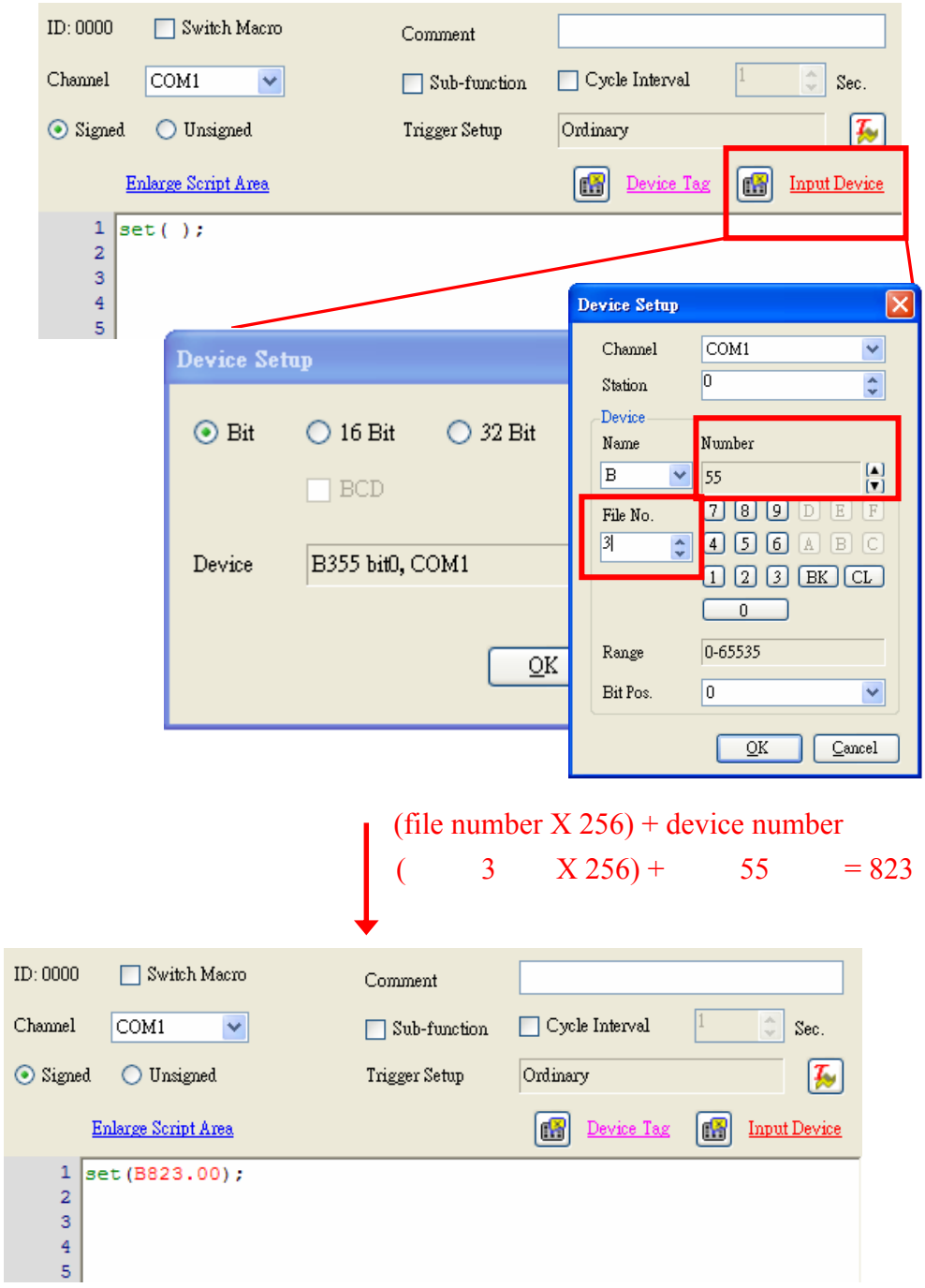



Fig. 3-4-5-18、Device setup

- When editing macro using Keyence PLC special device, Keyence PLC device coding has been calculated, as shown in the following figure 3-4-5-19.

  Special devices include: RLY、CR、MR、LR

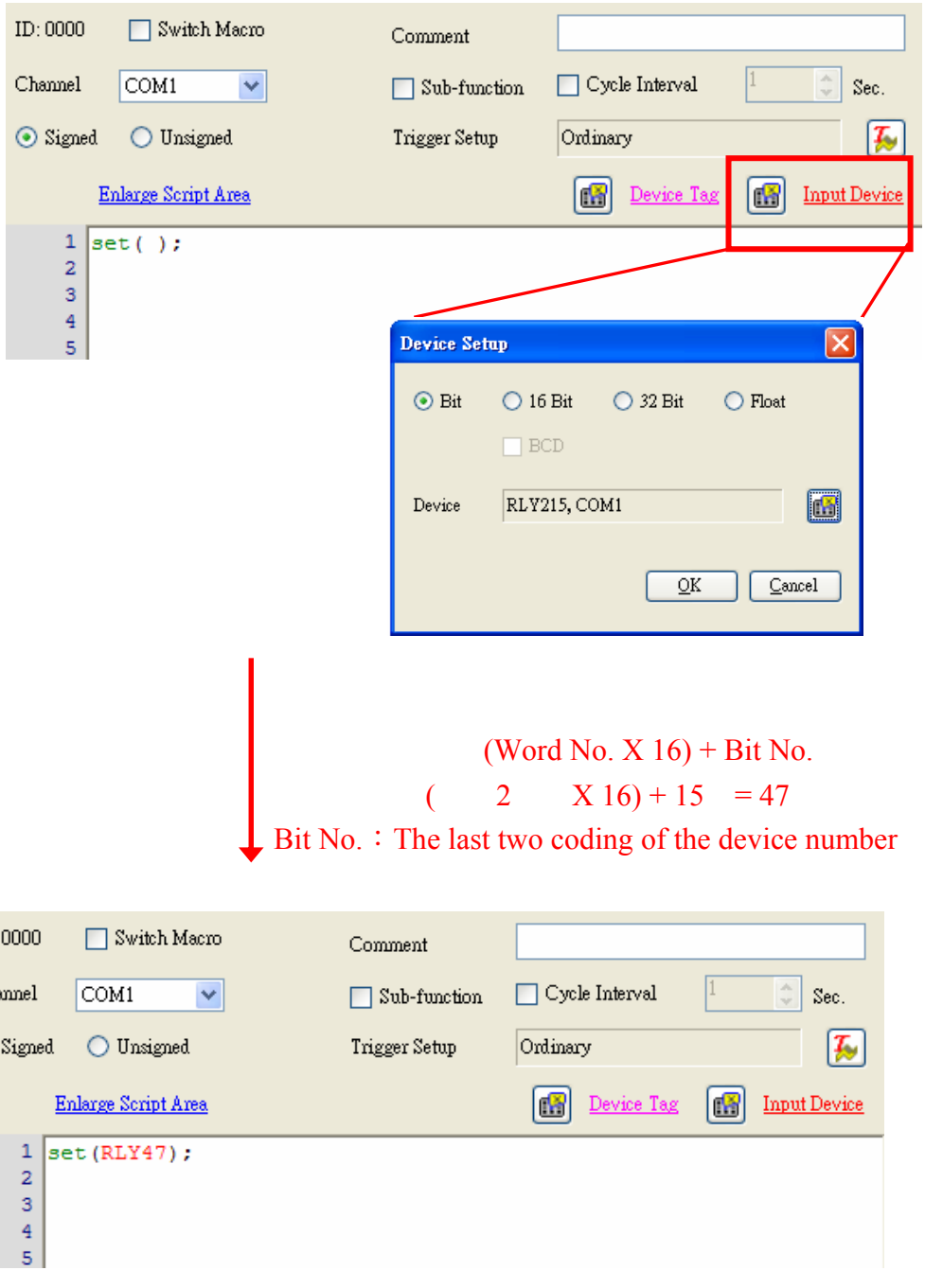



Fig. 3-4-5-19、Device setup

- When editing comments in Chinese in the macro editor, you need to disable the auto syntax analysis, as shown in figure 3-4-5-20.

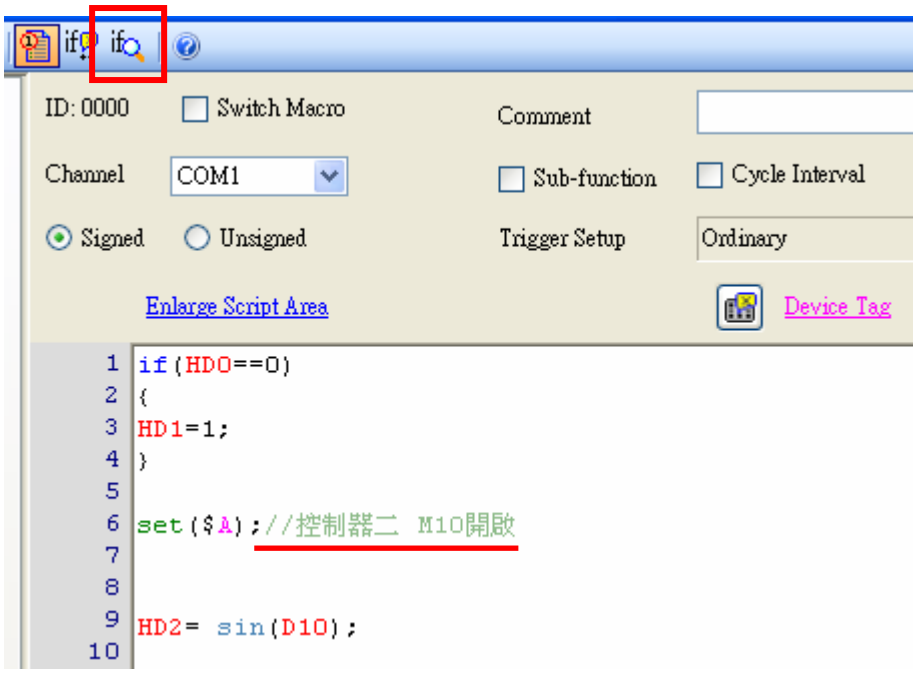
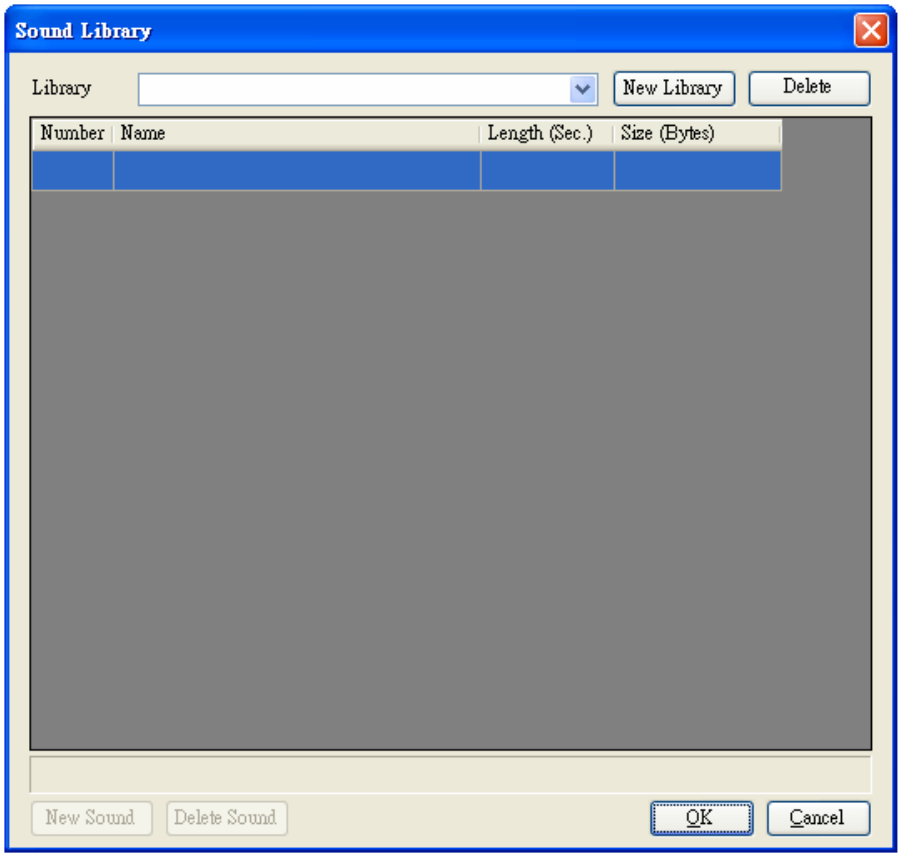


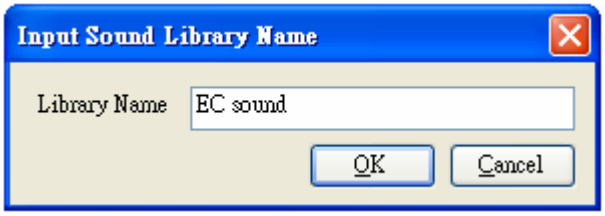

Figure 3-4-5-20: Edit Chinese comments

### 3.4.6. Sound Library

Click Library and then click Sound Library... to open the dialogue box, and click New Library to add a new sound library. See Figure 3-4-6-1 below. After the library is established, click New Sound to add the.wav sound files(Each sound file must be 512KB, and each audio must be 8-bit). See Figure 3-4-6-2 below.

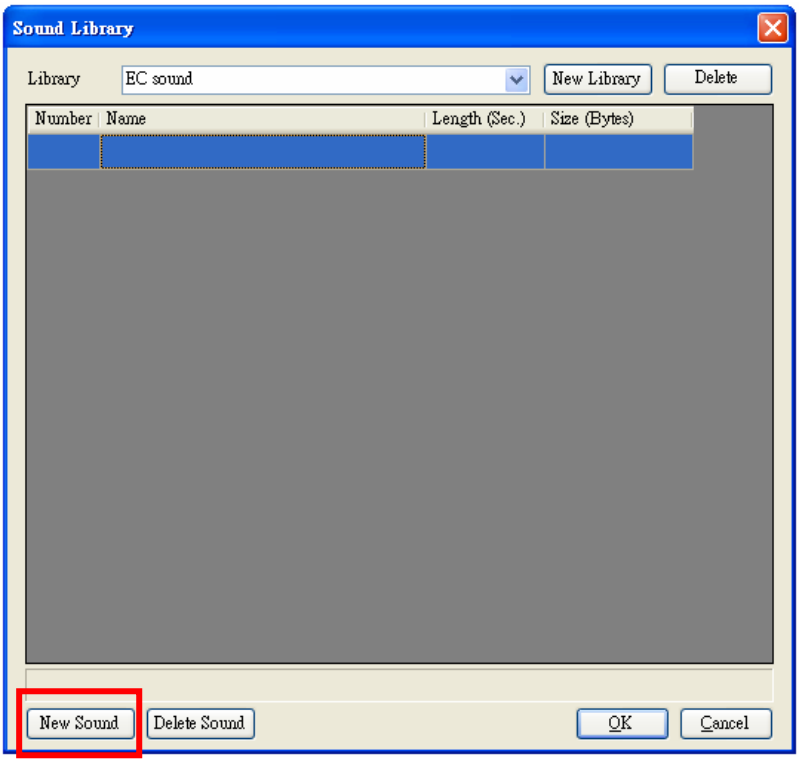



(a)

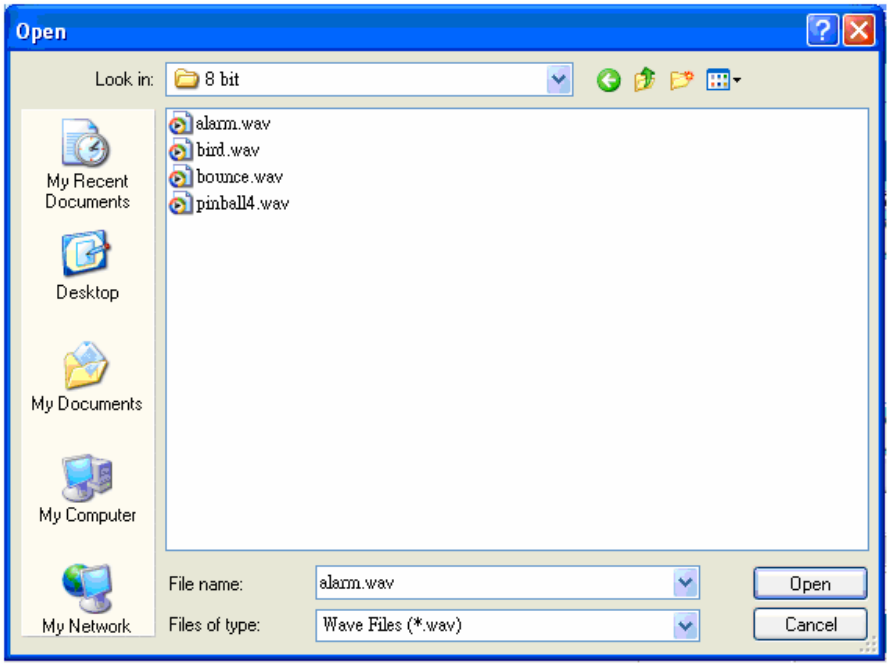



(b)

Fig. 3-4-6-1 Add New Sound Library (a) Add Library (b) Enter Library Name



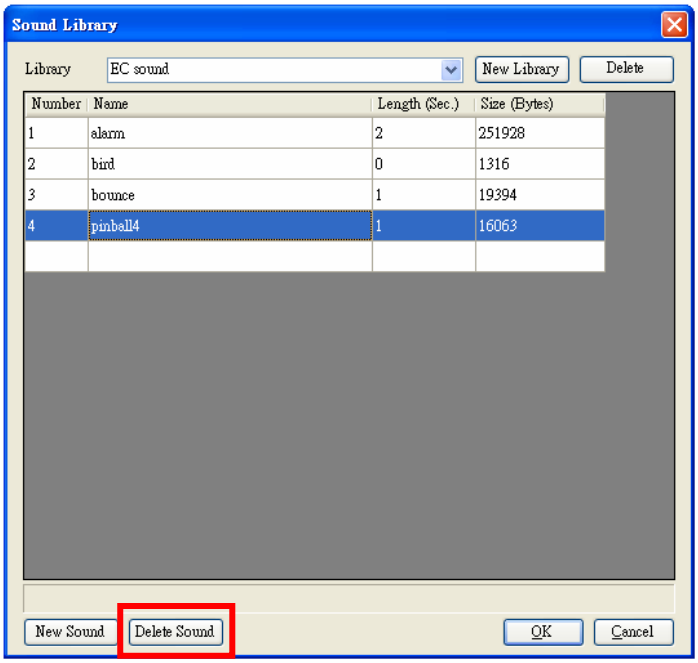

(a)



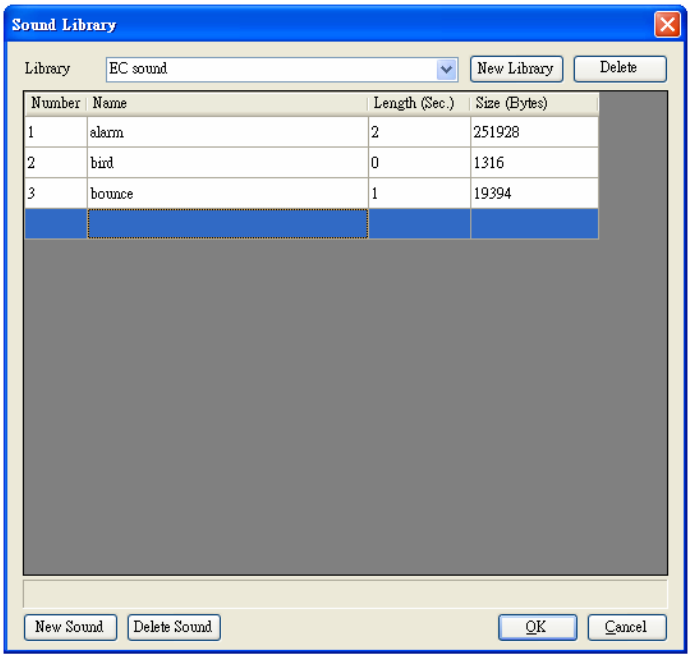

(b)

Fig. 3-4-6-2 Add Sound Files (a) Click the Add Sound Switch (b) Select Sound Files

To delete a sound file, select the sound file and then click the button Delete Sound to delete it. See Figure 3-4-6-3 below.



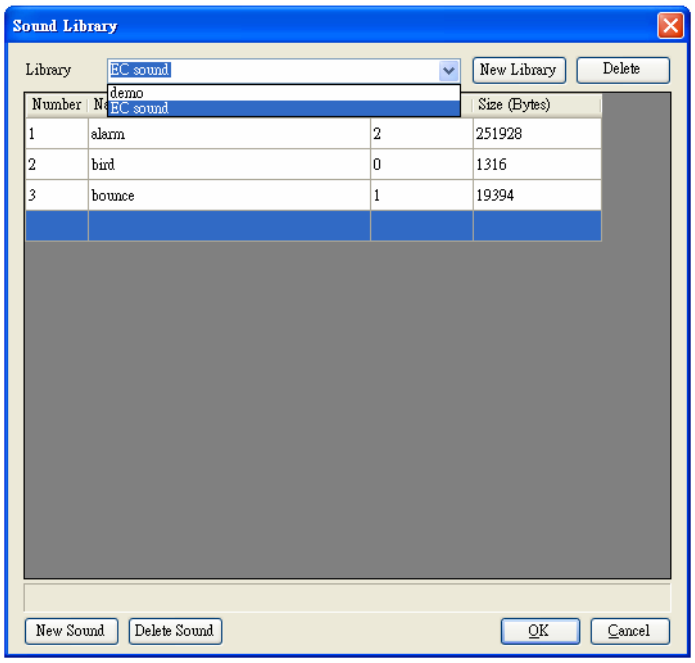

(a)



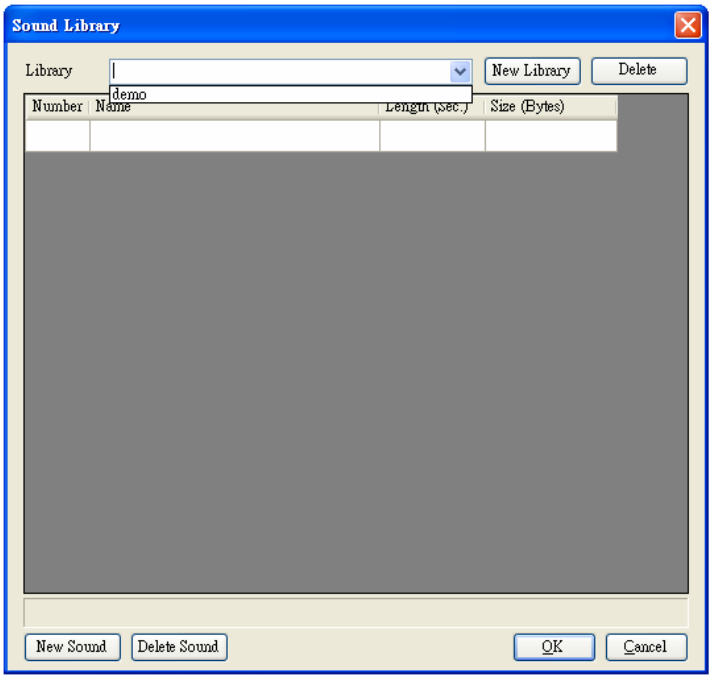

(b)

Fig. 3-4-6-3 Delete Sound File (a) Select File (b) File Deleted

To delete a sound library, use the pull-down menu to select a sound library, and click the button Delete to delete it. See Figure 3-4-6-4 below.




(a)




(b)

Fig. 3-4-6-4 Delete Sound Library (a) Select Library (b) Library Deleted

## 3.5. Image Menu

### 3.5.1. Image Functions

Click Draw to display the all image functions, as shown in Table 3-5-1 below.

Table3 3-5-1 Image Functions

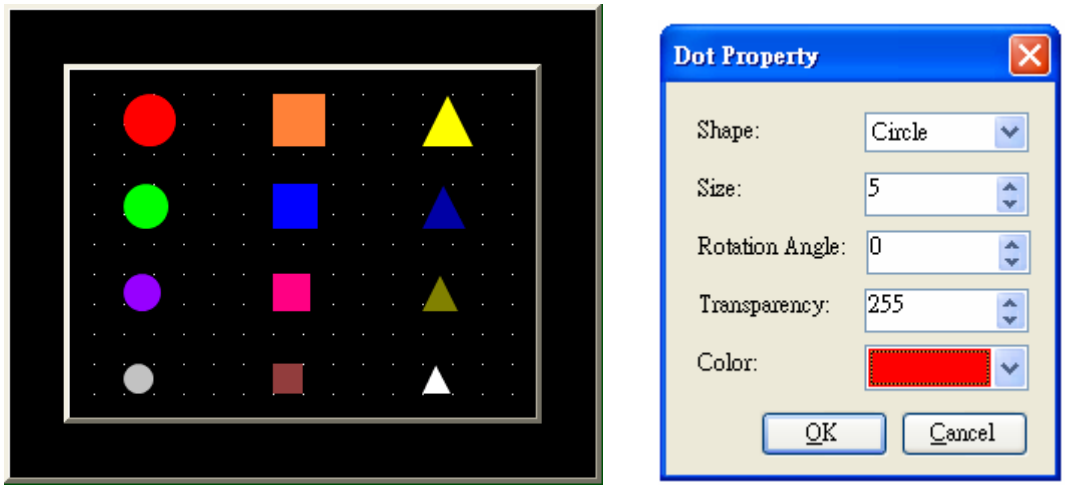
| Name | Function |
|---|---|
| Select | Select drawing tool |
| Dot | Draw a dot |
| Line | Draw a line |
| Arc | Draw an arc |
| Polyline | Draw a polyline |
| Scale | Create an one- dimensional scale |
| Arc scale | Create an arc scale |
| Pie | Draw a pie shape |
| Rectangle | Draw a rectangle |
| Round Rectangle | Draw a rounded rectangle |
| Round/Ellipse | Draw a round/ellipse shape |
| Polygon | Draw a polygon |
| Text | Create a text |
| Image | Create a system/ user-defined graph |
| Table | Create a table |
| Import DXF... | Create a DXF format graph |

### 3.5.2. Select Drawing Tool

Click Draw and then click Select, or directly click the shortcut, to select a drawing tool.

### 3.5.3. Dot

Click Draw and then click Dot, or directly click the shortcut, and left click the mouse in the editing window to draw a dot. After the dot is drawn, double left click the mouse to open the property window of the dot and set preferred dot properties. See Figure 3-5-2 below.




(a) (b)

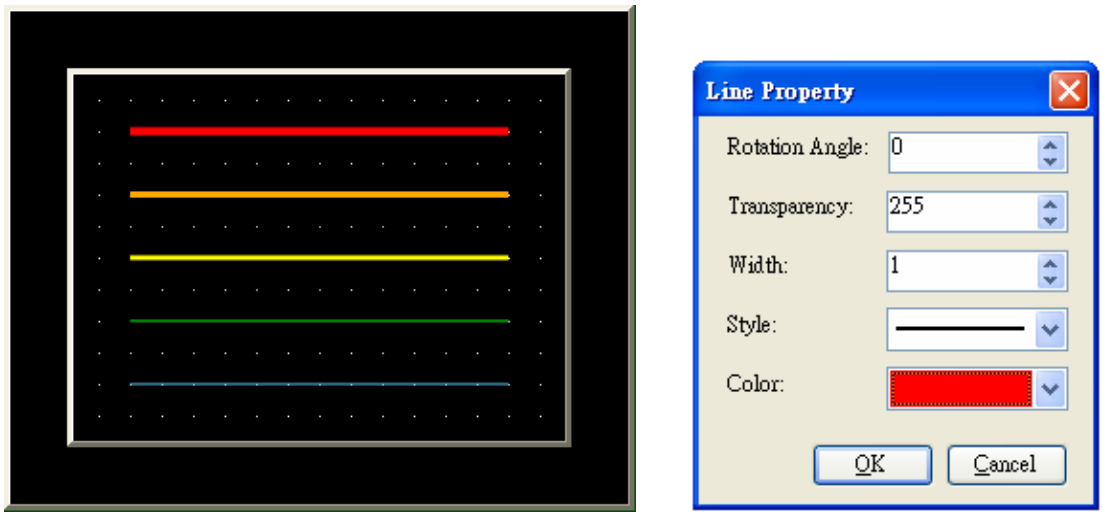
Fig. 3-5-2 Draw a dot and set its properties (a) Draw a dot (b) Set up the properties

NOTE

- To set the properties, you can also click Edit and then click Unit Property..., or directly use the property window on the right of the screen, to make the setting.

### 3.5.4. Line

Click Draw and then click Line, or directly click the shortcut, and in the editing window left click the mouse and hold it on the initial position, and then drag the line to the length and position you want, and then release the mouse to finish the line drawing. Double left click the mouse on the line to open its property window and change the settings. See Figure 3-5-3 below.




(a) (b)

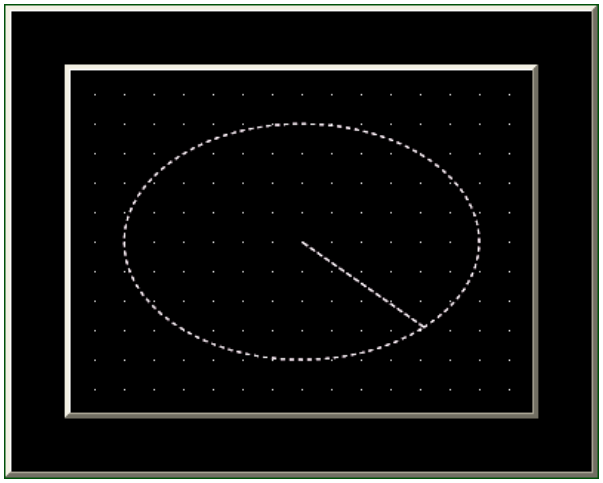
Fig. 3-5-3 Draw a line and set its properties (a) Draw a line (b) Set its properties

NOTE

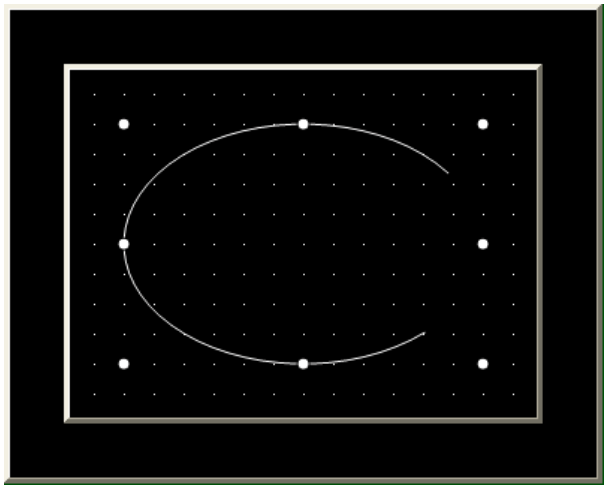
- To set the properties, you can also click Edit and then click Unit Property..., or directly use the property window on the right of the screen, to make the setting.

### 3.5.5. Arc

Click Draw and then click Arc, or directly click the shortcut, and in the editing window left click the mouse and hold it on the initial point, and drag it to the size you want. At this point the software has created a dotted circle. Left click the mouse again to make the starting point of the arc, and then arbitrarily move the mouse depending on the arc length you want, and then release the mouse to complete the drawing. See Figure 3-5-4 below.



(a)



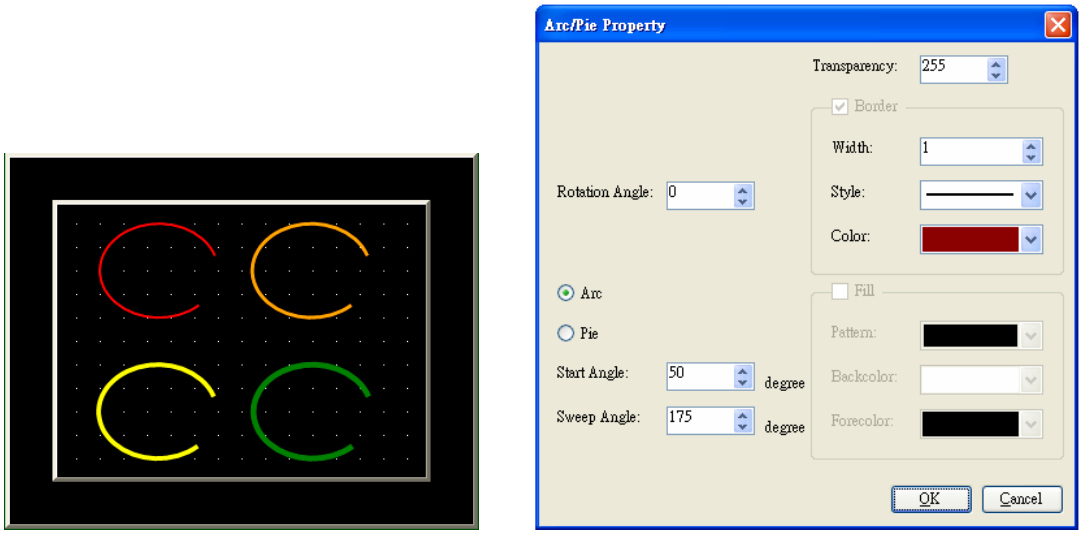
(b)

Fig. 3-5-4 Draw an arc (a) Decide the arc radian (b) Decide the arc length



EC series

Click the arc and double left click the mouse to open the property window of the arc, and change the settings as desired. See Figure 3-5-5 below




(a) (b)

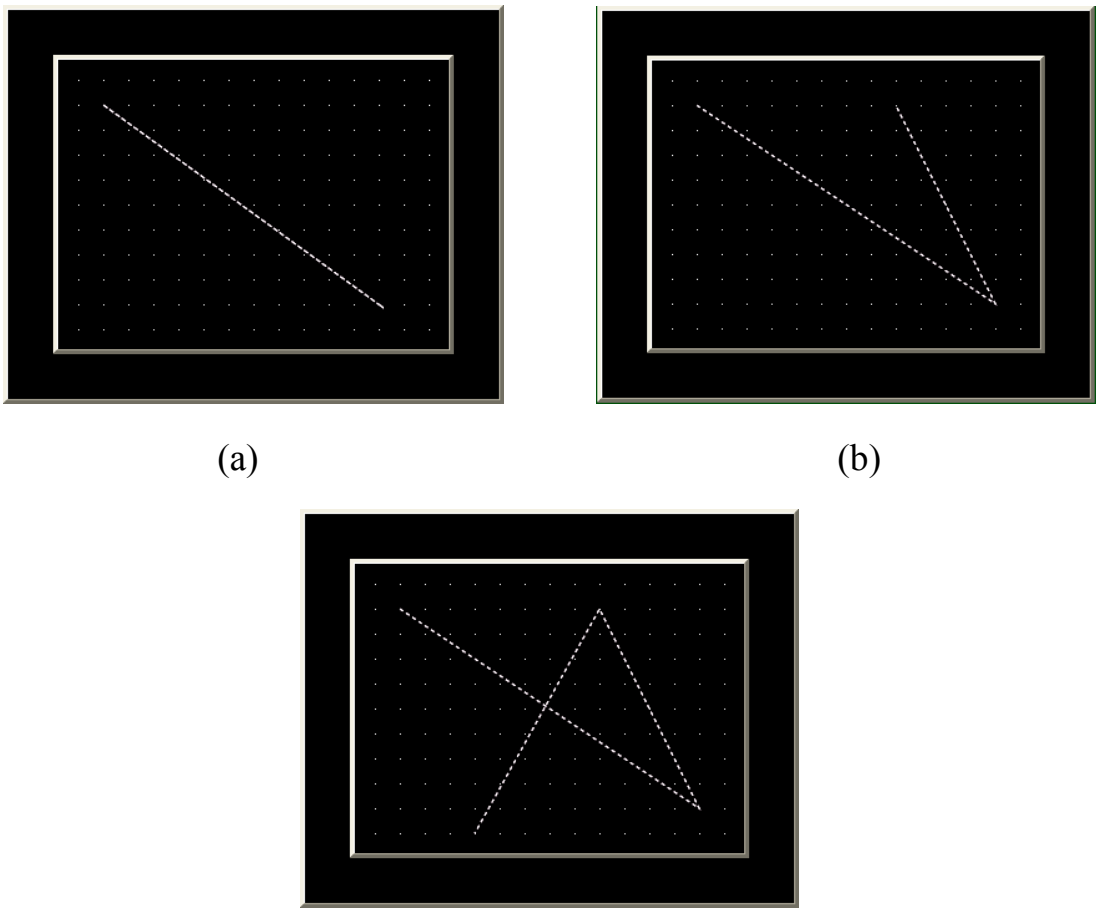
Fig. 3-5-5 Draw an arc and change its properties (a) Draw an arc (b) Change its properties

NOTE

- To set the properties, you can also click Edit and then click Unit Property..., or directly use the property window on the right of the screen, to make the setting.

### 3.5.6. Polyline

Click Draw and then click Polyline, or directly click the shortcut, and in the editing window left click the mouse to set the first point of the polygon. Then, release the mouse and drag the line to the position you want, and then left click the mouse again to decide the 2nd point of the polygon, then release the mouse again and drag the line to the 3rd point. When the final polyline is decided, right click the mouse to complete the drawing. See Figure 3-5-6 below.



(a) (b)

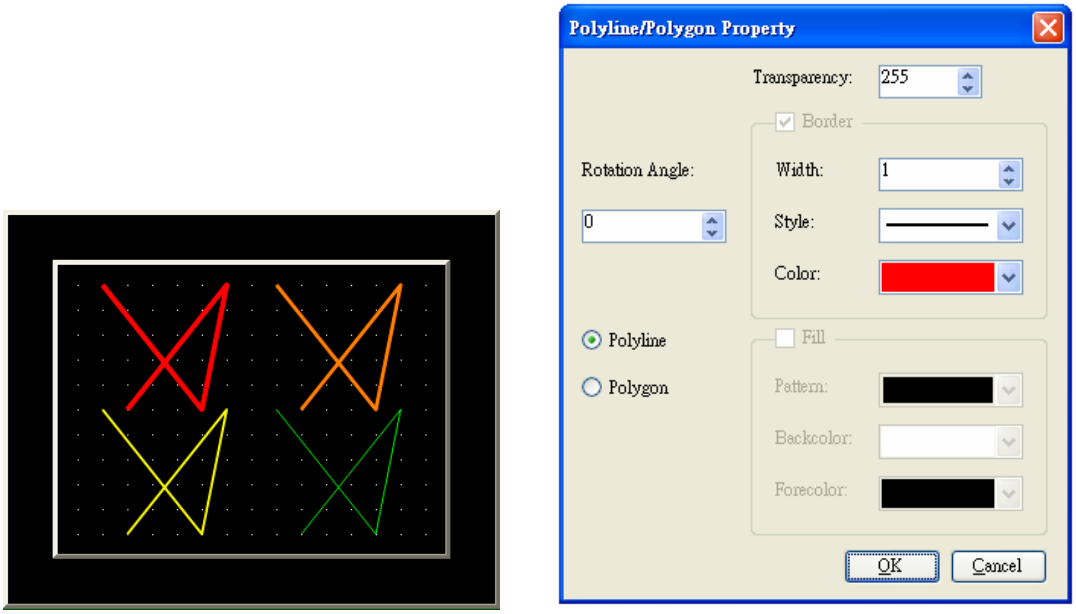
(c)

Fig. 3-5-6 Draw a polyline (a) Decide 2nd point (b) Decide 3rd point (c) Drawing completed



EC series

Click the polyline and double left click the mouse to open the property window of the polyline, and you can change the property settings as desired. See Figure 3-5-7 below.




(a) (b)

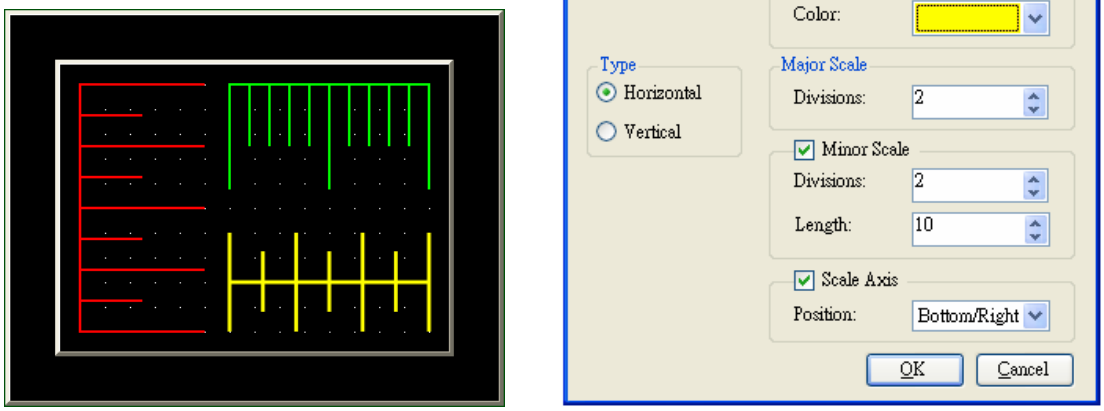
Fig. 3-5-7 Draw Polyline and Change Properties (a) Draw Polyline (b) Set Properties

NOTE

- To set the properties, you can also click Edit and then click Unit Property..., or directly use the property window on the right of the screen, to make the setting.

### 3.5.7. Scale

Click Draw and then click Scale, or directly click the shortcut, and in the editing window left click the mouse and drag it to a proper size, then release the mouse to create a scale. Click the scale and double left click the mouse to open the property window of the object, as shown in Figure 3-5-8 below. Change the property settings as desired. Confirm to complete the setting.




(a) (b)

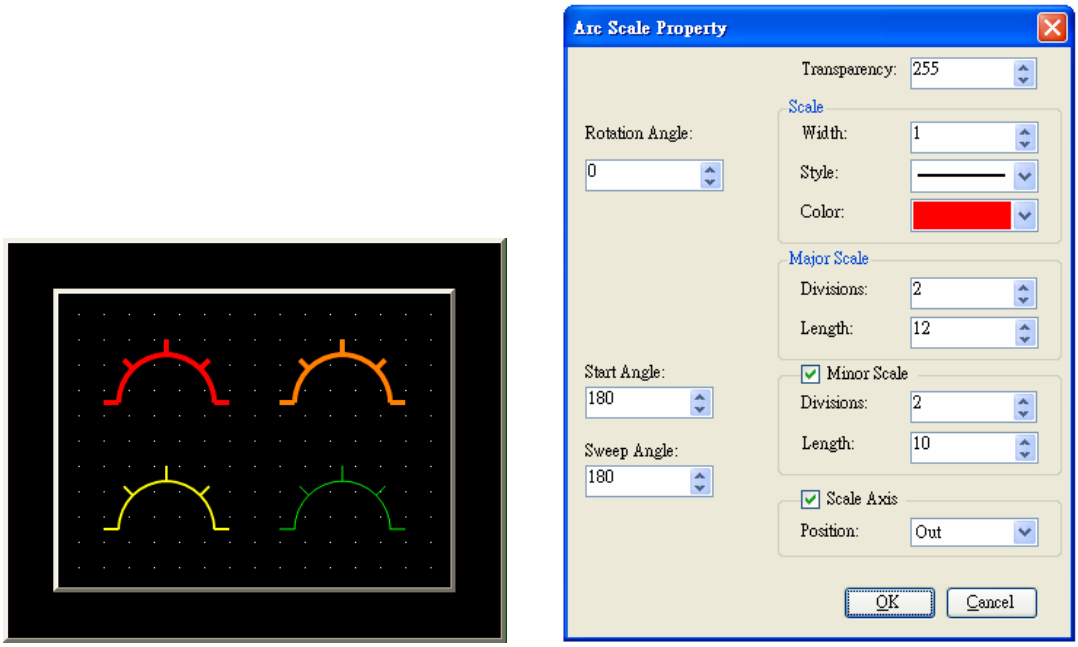
Fig. 3-5-8 scale (a) Draw a scale (b) Set its properties

NOTE

- To set the properties, you can also click Edit and then click Unit Property..., or use the property window on the right of the screen, to make the setting.

### 3.5.8. Arc Scale

Click Draw and then click Arc scale, or directly click the shortcut, and in the editing window left click the mouse and drag it to a proper size, then release it to create an arc scale. Click the arc scale and then double left click the mouse to open the property window of the arc scale, as shown in Figure 3-5-9 below. Change the property settings as desired. Confirm to complete the setting.




(a) (b)

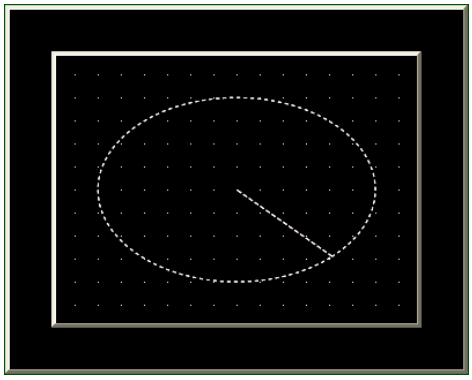
Fig. 3-5-9 Create an arc scale (a) Draw an arc scale (b) Set its properties

NOTE

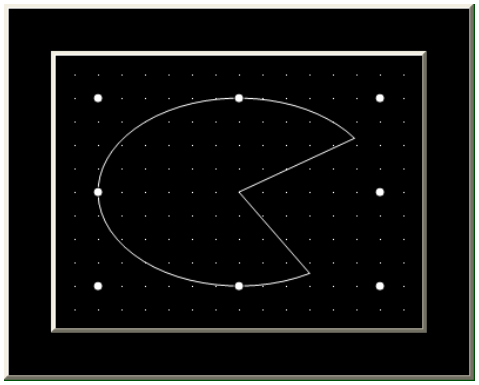
To set the properties, you can also click Edit and then click Unit Property..., or use the property window on the right of the screen, to make the setting.

### 3.5.9. Pie

Click Draw and then click Pie, or directly click the shortcut, and in the editing window left click the mouse and hold it to decide the 1st point, and then drag the mouse to the size you want. At this point the software will have created a dotted circle. Left click the mouse again to decide the starting point of the pie, and then arbitrarily move the mouse to the arc length you want, and then release the mouse to complete the drawing. See Figure 3-5-10 below.



(a)



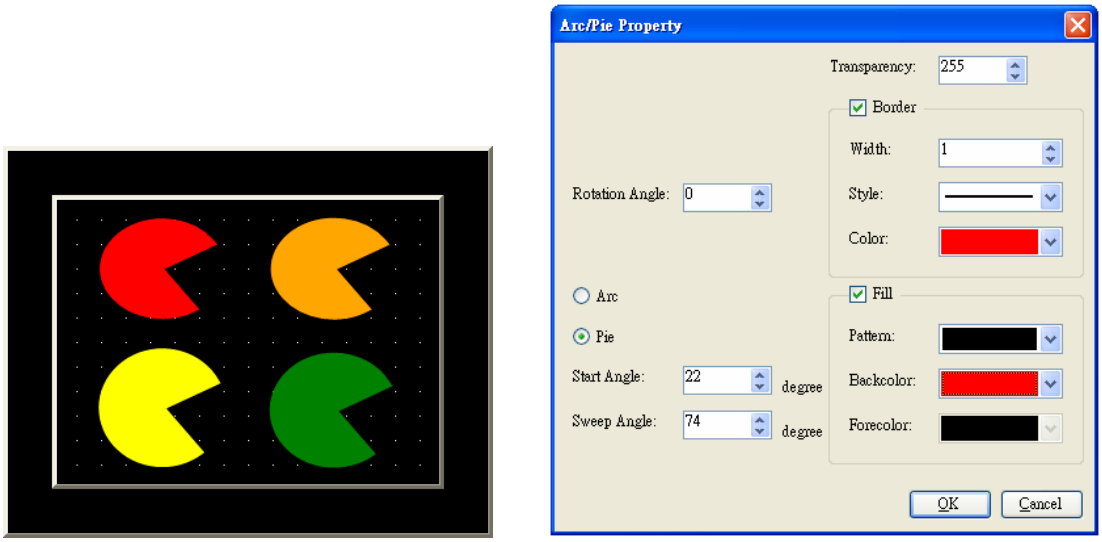
(b)

Fig. 3-5-10 Create a pie shape (a) Decide the arc radian (b) Decide the arc length



EC series

Click the pie and then double left click the mouse to open the property window of the object. Change the properties as desired. See Figure 3-5-11 below.




(a) (b)

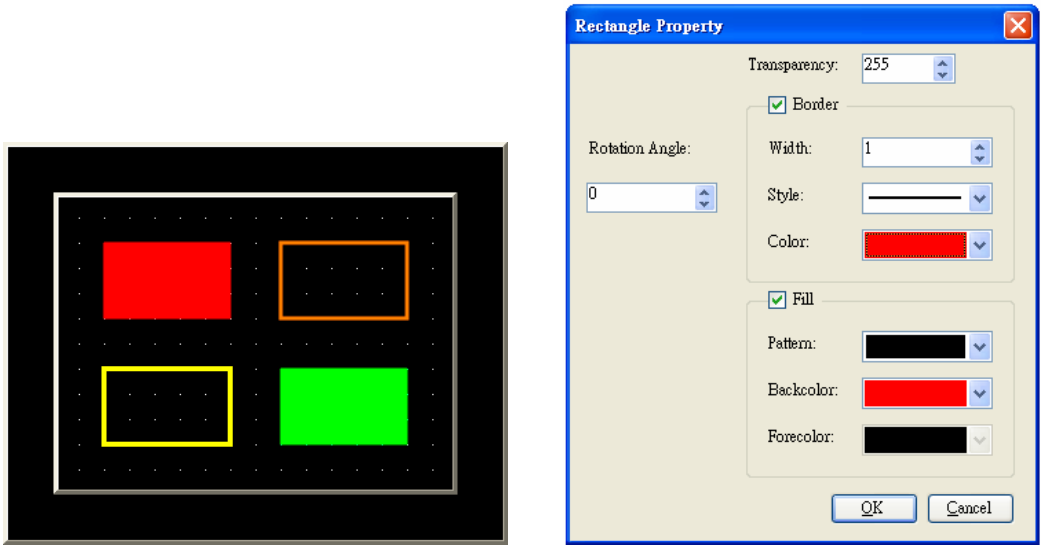
Fig. 3-5-11 Create a pie shape and change its properties (a) draw a pie shape (b) change pie properties

NOTE

- To set the properties, you can also click Edit and then click Unit Property..., or use the property window on the right of the screen, to make the setting.

### 3.5.10. Rectangle

Click Draw and then click Rectangle, or directly click the shortcut, and in the editing window left click the mouse and hold it to decide the 1st point of the rectangle, and then drag the line to the size you want and release the mouse to finish drawing the rectangle. Click the rectangle and then double left click to open the property window the object. Change the settings as desired. See Figure 3-5-12 below.




(a) (b)

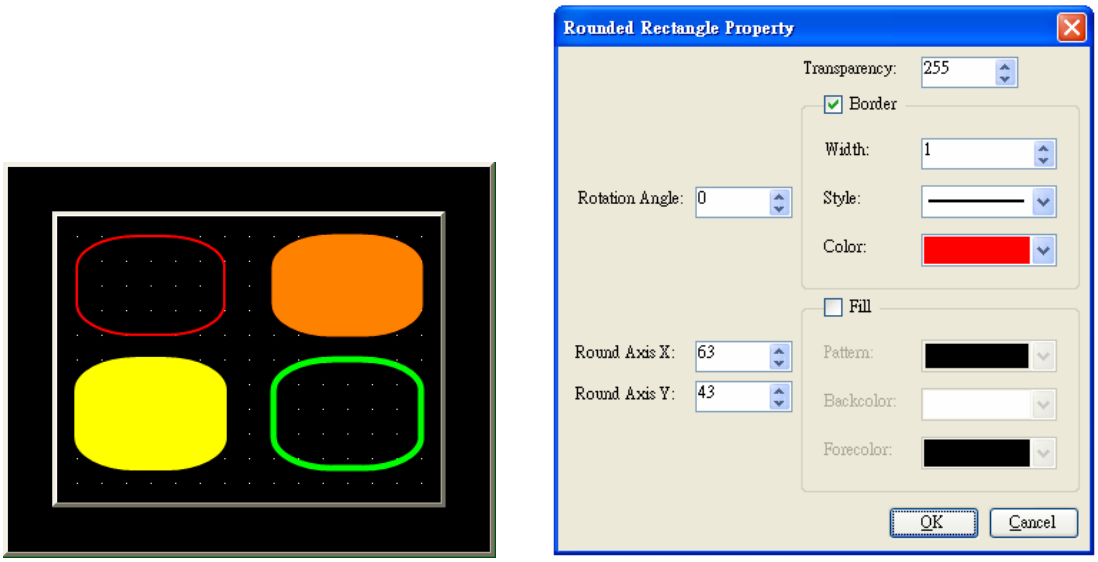
Fig. 3-5-12 Create a rectangle and change its properties (a) Draw a rectangle (b) Set the properties

NOTE

To set the properties, you can also click Edit and then click Unit Property..., or use the property window on the right of the screen, to make the setting.

### 3.5.11. Rounded Rectangle

Click Draw and then click Round Rectangle, or directly click the shortcut, and in the editing window left click the mouse and hold it to decide the 1st point of the rounded rectangle. Then, drag the line to the size you want, and then release the mouse to finish the drawing. Click the object and then double left click it to open its property window to change the settings as desired. See Figure 3-5-13 below.




(a) (b)

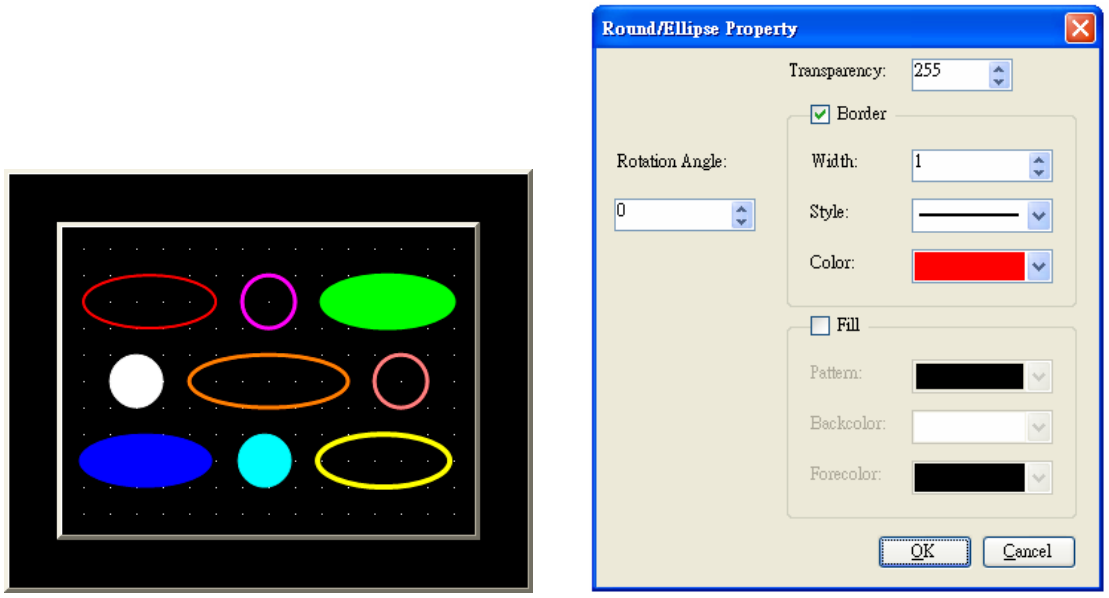
Fig. 3-5-13 Create a rounded rectangle and change its properties (a) Draw a rounded rectangle (b) Set its properties

NOTE

- To set the properties, you can also click Edit and then click Unit Property..., or use the property window on the right of the screen, to make the setting.

### 3.5.12. Round/Ellipse

Click Draw and then click Round/Ellipse, or directly click the shortcut, and in the editing window left click the mouse and hold it to decide the 1st point of the object, and then drag the line to the size you want, and then release the mouse to finish the drawing. Click the object and then double left click the mouse to open the property window of the object and change the settings as desire. See Figure 3-5-14 below.




(a) (b)

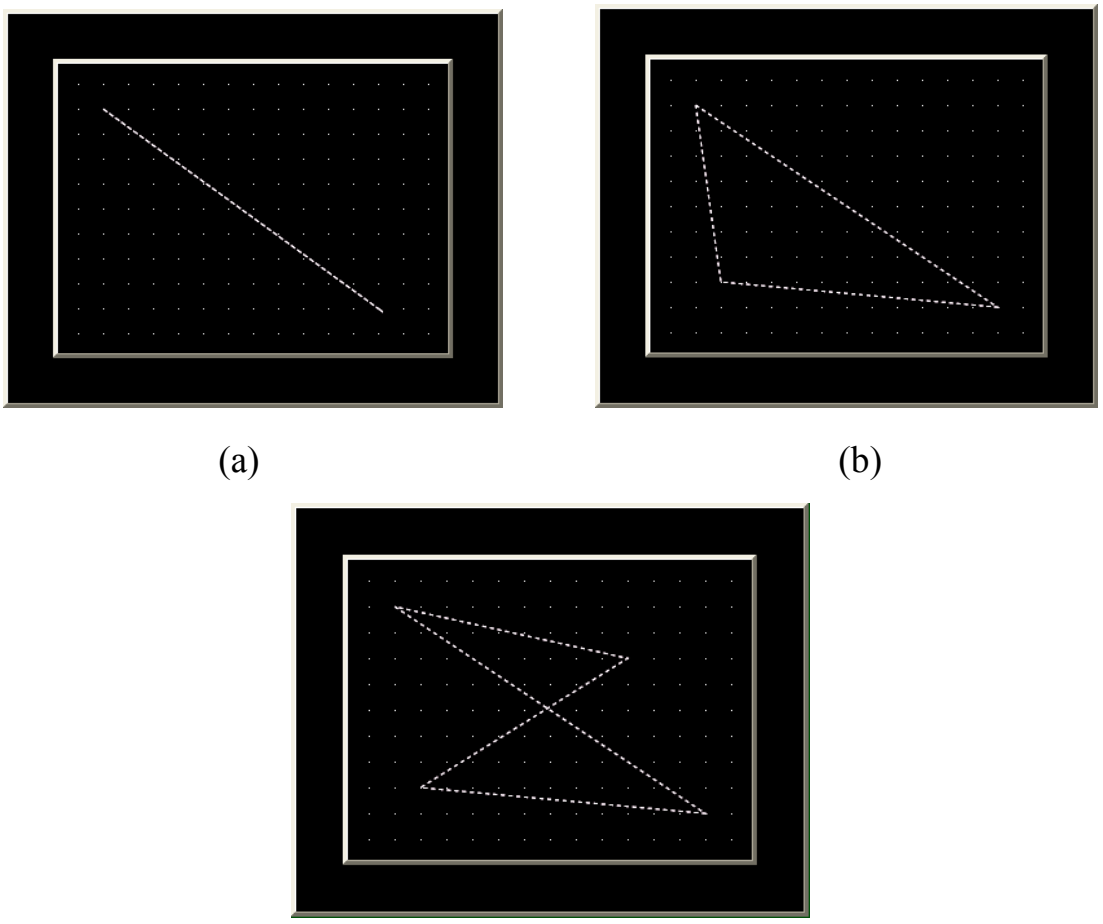
Fig. 3-5-14 Create a round/ellipse and change its properties (a) Draw a round/ellipse (b) Change its properties

NOTE

- To set the properties, you can also click Edit and then click Unit Property..., or use the property window on the right of the screen, to make the setting.

### 3.5.13. Polygon

Click Draw and then click Polygon, or directly click the shortcut, and in the editing window left click the mouse to decide the 1st point of the polygon. And then release the mouse, drag the line to the position you want, and then left-clik the mouse again to decide the 2nd point of the polygon, and then again release the mouse and drag the line to the 3rd point. When the shape is finally decided, right-click the mouse to finish the drawing. See Figure 3-5-15 below.



(a) (b)

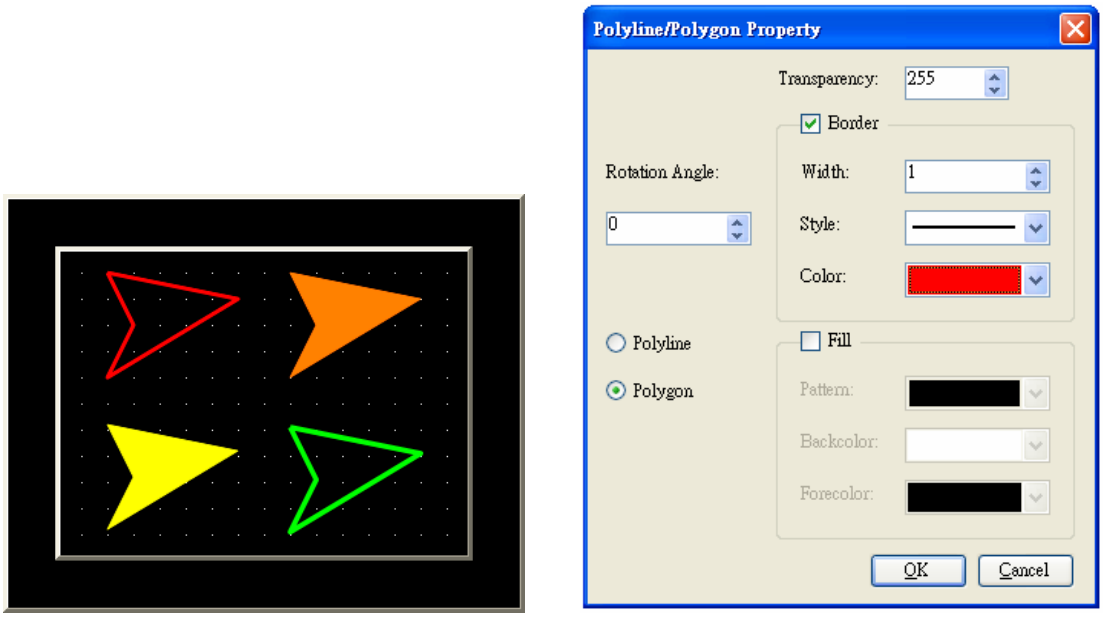
(c)

Fig. 3-5-15 Create a polygon (a) Decide the 2nd point (b) Decide the 3rd point (c) Polygon completed



EC series

Click the polygon and then double left click the mouse to open the the property window of the object and change the settings as desired. See Figure 3-5-16 below.




(a) (b)

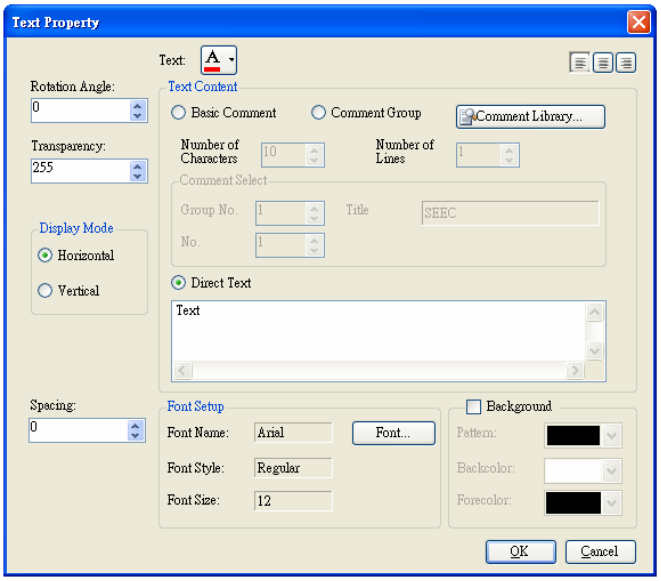
Fig. 3-5-16 Create a polygon and change its properties (a) Draw a polygon (b) Set its properties

NOTE

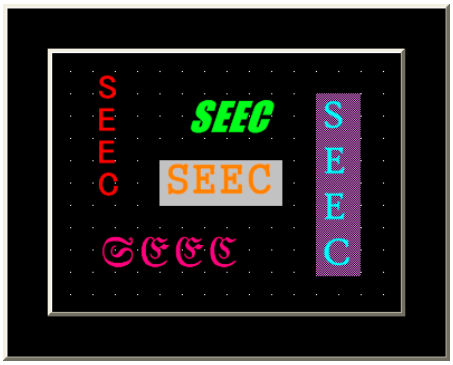
- To set the properties, you can also click Edit and then click Unit Property..., or ues the property window on the right of the screen, to make the setting.

### 3.5.14. Text

Click Draw and then click Text, or directly click the shortcut A, and in the editing window left click the mouse to establish a text box. Click the text and then double left click the mouse to open the property window of the text box and change the settings including the text, color, alignment, background, and display mode. See Figure 3-5-17 below.




(a)




(b)

Fig. 3-5-17 Set up text (a) Set up text properties (b) Setup completed

In the text editing, comments in the comment library can be set as text to display. To do this, click

to open the comment library dialogue box. For detailed instructions, please see Section 3.4.4 Comment Library.

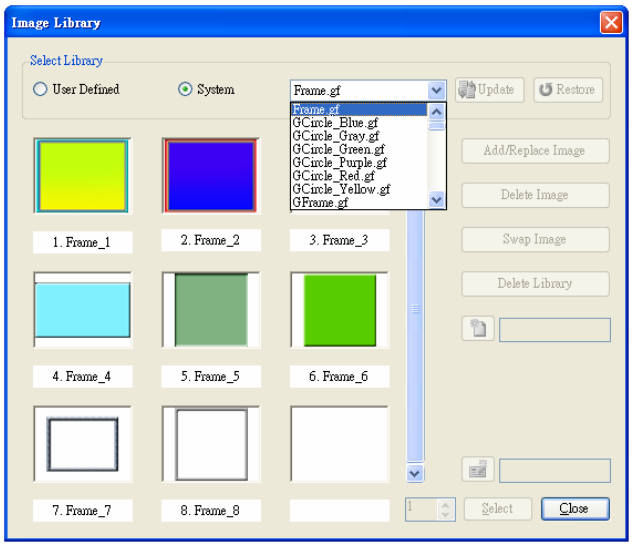
- To set the properties, you can also click

and then click

, or use the property window on the right of the screen, to make the setting.

### 3.5.15. Image

Click Draw and then click Image, or directly click the shortcut, and in the editing window left click the mouse and hold it to decide the 1st point of the frame to accommodate the image. And then drag the frame to the size you want and then release the mouse. At this point the dialogue box of the image library will pop up. Select a image from the system image library or from a user-defined library. Confirm to finish the setting. See Figure 3-5-22 below.




(a)

(b)

Fig. 3-5-22 Set Image (a) Image Library (b) Image set

To change the image pattern, click the image and then double left click the mouse to open the property window of the image and change the settings. Click to enter the image library setup. For more, please refer to Section 3.4.2 Image Library.

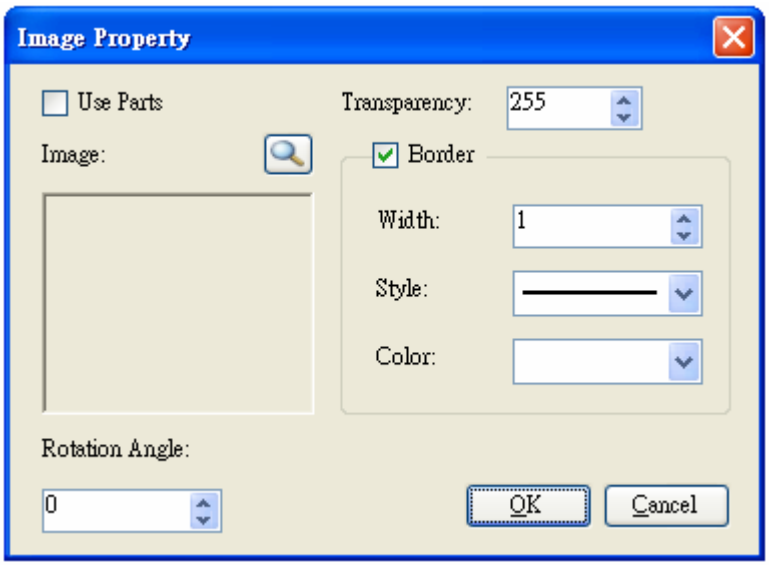


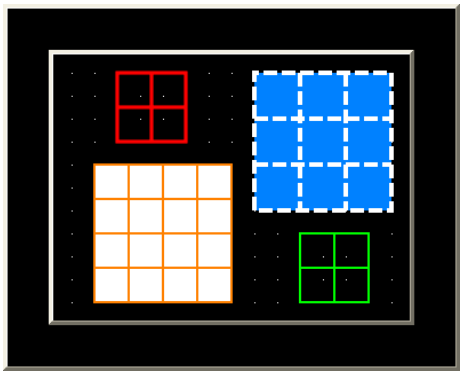

Fig. 3-5-23 Image Property Setup

NOTE

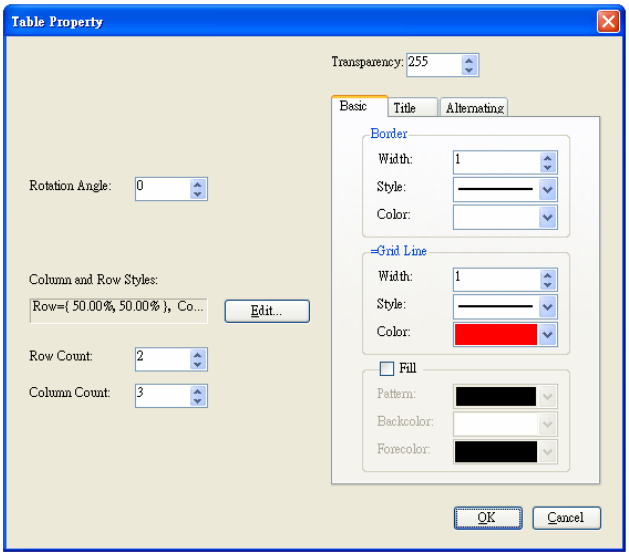
- To set the properties, you can also click Edit and then click Unit Property..., or use the property window on the right of the screen, to make the setting.

### 3.5.16. Table

Click Draw and then click Table, or directly click the shortcut, and in the editing window left click the mouse and hold it to decide the 1st point of the object, and then drag the frame to the size desired, and then release the mouse to finish drawing the form. The default columns and rows of the form is 4×4. Click the form and double left click the mouse to open the property window of the form and change the properties as desired. See Figure 3-5-24 below.



(a)




(b)

Fig. 3-5-24 Set Table (a) Create Form (b) Set Propertys

To change the pattern of the columns and rows of the form, click Edit... to open the dialogue box and set the properties as desired. Click Auto Equalize to have the system to automatically allocate the frame sizes of the form. See Figure 3-5-25 below.

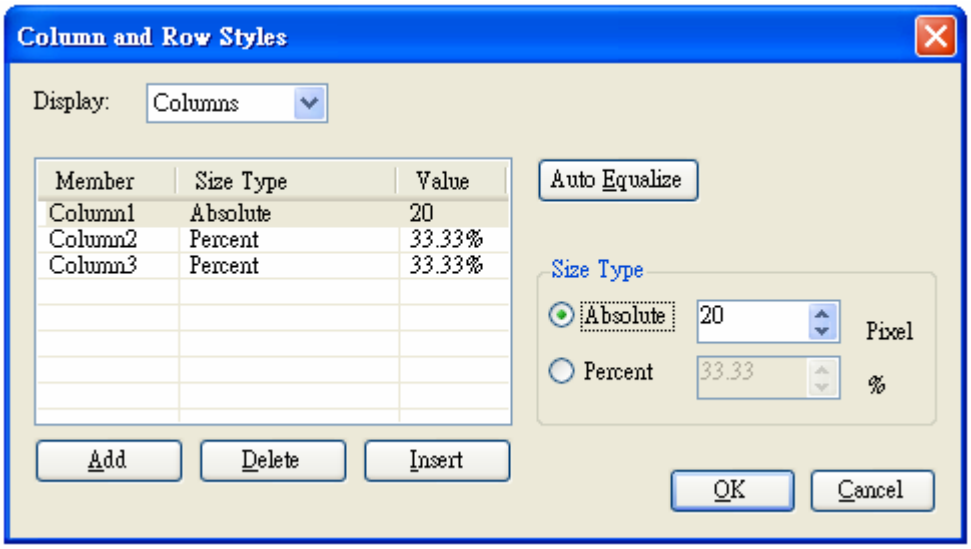


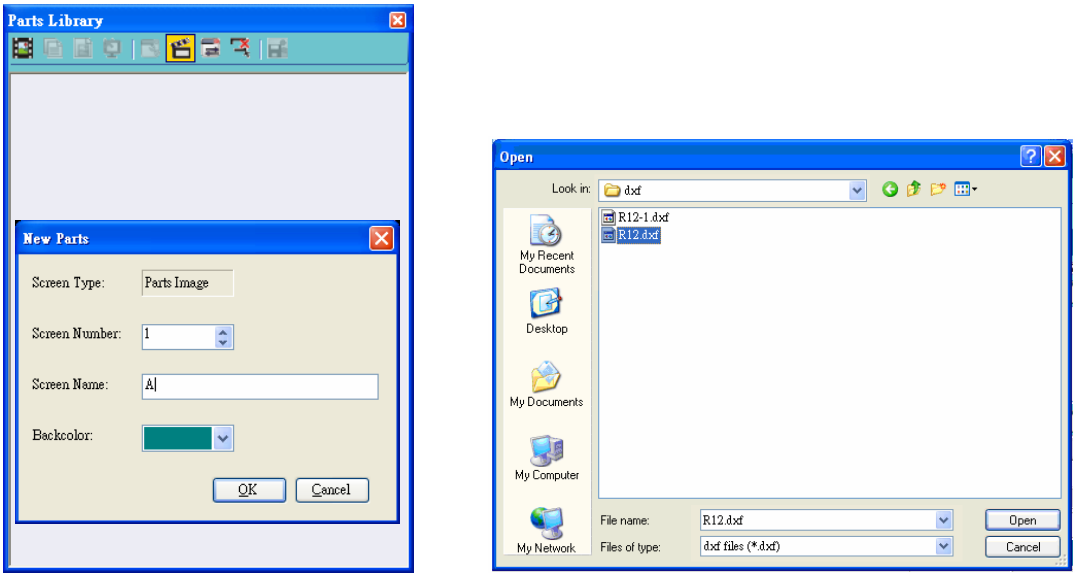

Fig. 3-5-25 Set the pattern of the columns and rows of the form



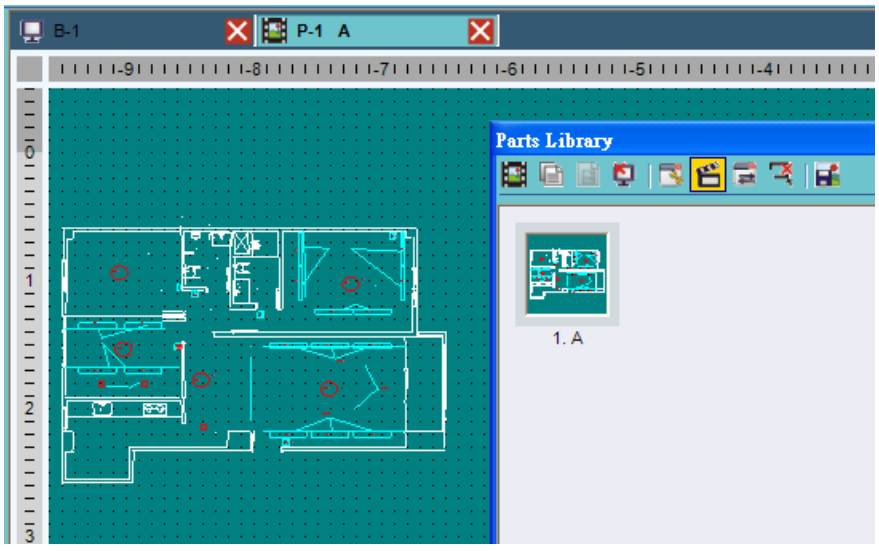
EC series

### 3.5.17.Import DXF

Import DXF files must be performed in the parts editing screen ，Click Draw and then click DXF Import DXF... and then import the DXF file selected (Support R12, R13 and R14 version) . See Figure 3-5-25 below.




(a) (b)




(c)

Fig. 3-5-26、Import DXF file (a)Add parts(b)Import DXF file (c) DXF file imported

## 3.6. Unit Menu

### 3.6.1. Unit Functions

Click Unit to display all the object functions in the menu, as shown in Table 3-6-1 below.

Table 3-6-1 Objects and Functions

| Name | Function |
|---|---|
| Switch | Set up switch and mutil-action switch. |
| Lamp | Set up lamp light. |
| Data Input | Enter numeric value or character |
| Data Display | Display numeric value, character or data list. |
| Message Display | Display Bit/Word comment and alarm. |
| Chart Dispaly | Display various images. |
| Parts Display | Display Bit/Word parts. |
| Clock | Set up clock display. |
| Dynamic Display | Set up dynamic images. |
| Keypad | Set up custom keypad |

NOTE

- Access of components to the device shall support the writing and reading properties of the hardware device, or problems may occur. If the third character of the device name is R: read-only device; W: write-only device (EX: HDR device is a read-only device).

### 3.6.2. Switch

Click and the click , or directly click the shortcut to select from the options , and left click the mouse in the editing window to set up a switch object. See Figure 3-6-2 below.

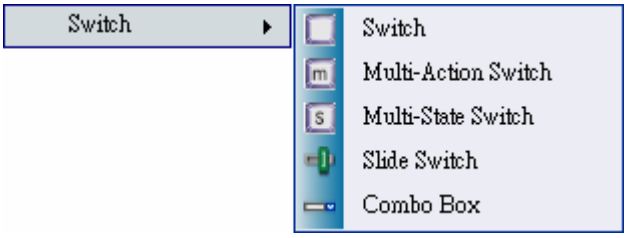



Fig. 3-6-2 Switch Menu

## a. Switch

To set up a switch, click Unit and click Switch and then click Switch, or directly click the shortcut, and in the editing window left click the mouse to set up the object. Click the object and then double left click the mouse to open the property window of the object and change the settings.

The General property setting allows the user to change the ON/OFF display, color, transparency, and line pattern. See Figure 3-6-2A-1 below.

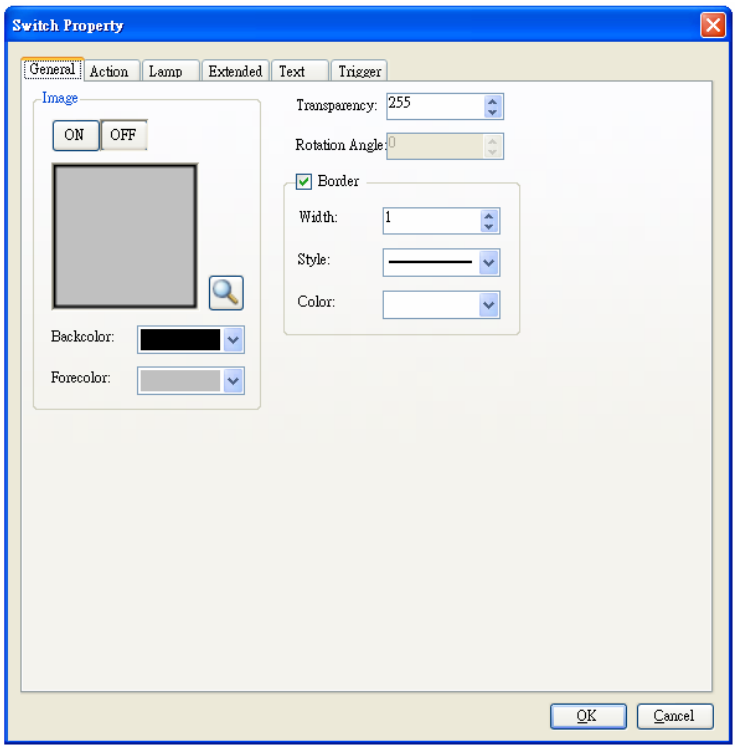



Fig. 3-6-2A-1 General Property Setup

To display other images, click to open the image library. For more information on the image library operations, please refer to Section 3.4.2 Image Library.

The Action property setting allows the user to set the device, Bit type and action, numeric type and value control.

Figure 3-6-2A-2 below demonstrates the setup of a device type and its action.

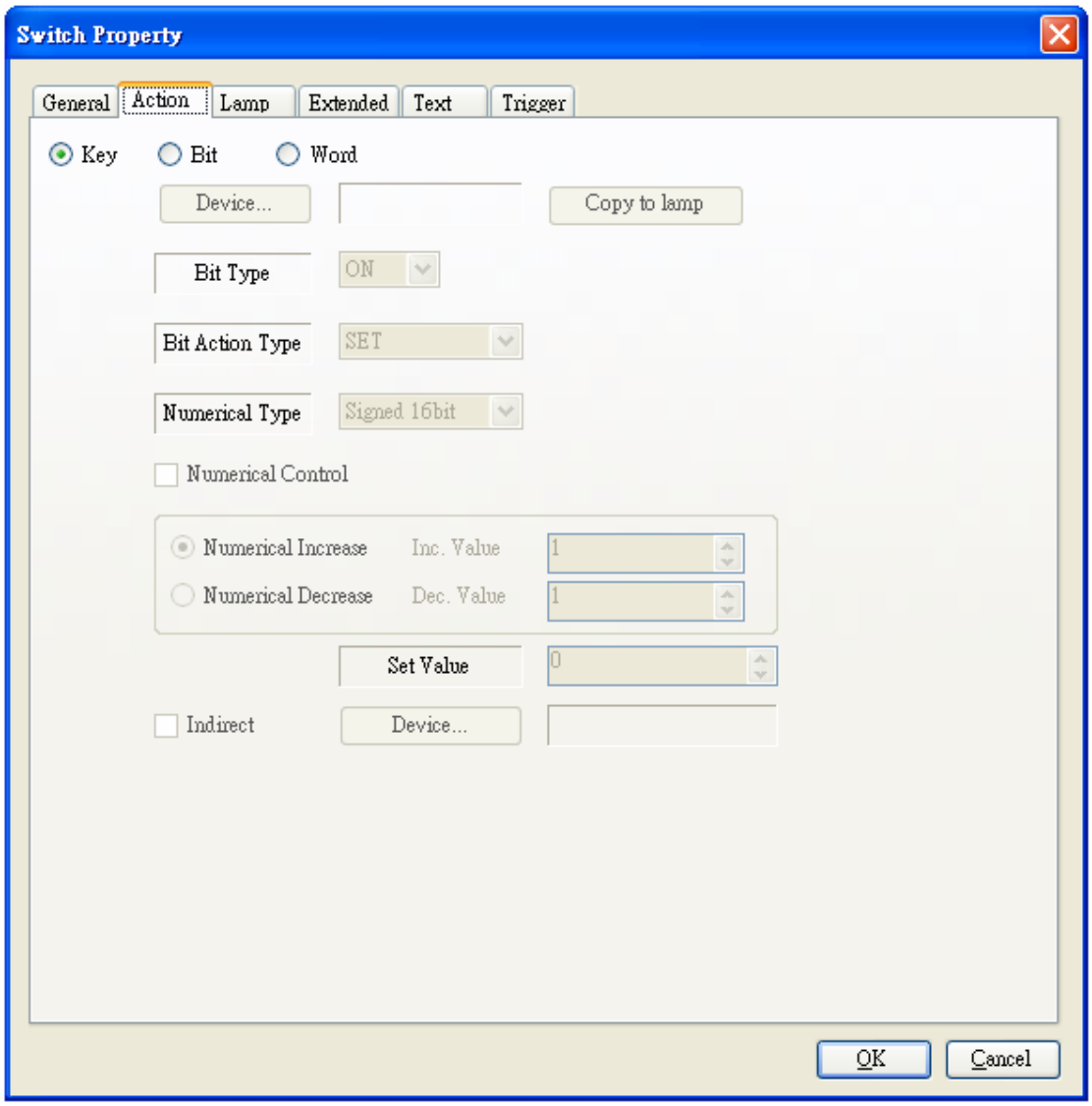
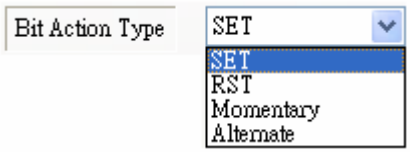



Fig. 3-6-2A-2 Device Action Setup

The options for Bit device action are SET, RST, **Momentary** , and **Alternate**. See Figure 3-6-2A-3 below.




| Type | Description |
|---|---|
| **SET** | Click the swtich to set the Bit device ON. |
| **RST** | Click the switch to set the Bit device OFF. |
| **Momentary** | Click the switch and hold it to set the Bit device ON.<br>Release the switch to set the Bit device OFF. |
| **Alternate** | Click the switch to set the Bit device ON.<br>Click the switch again to set the Bit device OFF. |

Fig. 3-6-2A-3 Bit Device Actions

EX

To set the Bit device M0 to the ON/OFF alternating type, select the Bit option first, and then click Device... to select device M0. Then, select the alternating type from the Bit action options to finish the setting. See Figure 3-6-2A-4 below.

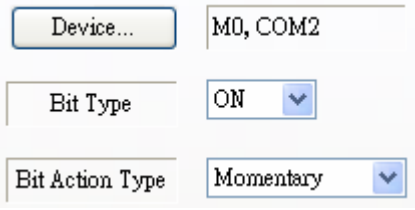



Fig. 3-6-2A-4 Setup of Device and Action

There are 7 numeric types available for the actions of the Word device. See Figure 3-6-2A-5 below.

| Types | Value Range |
|---|---|
| **Signed 16bit** | -32768~32767 |
| **Unsigned 16 bit** | 0~65535 |
| **Signed 32 bit** | -2147483648~2147483647 |
| **Unsigned 32 bit** | 0~4294967295 |
| **BCD16 bit** | 0~9999 |
| **BCD32 bit** | 0~99999999 |
| **Real** | -2.147484E+09~2.147484E+09 |

Fig. 3-6-2A-5 Numeric Types for Word Device

EX

To set the Word device D0 to 10, select the Word device and then click Device... to select device D0, and then set its value to 10.

To indirectly set D0 to 10, select device D1 and tick the option Indirect. Then, add 10 to D1 and set D1 to D0; the computing equation is D0=D1+10. See Figure 3-6-2A-6 below.

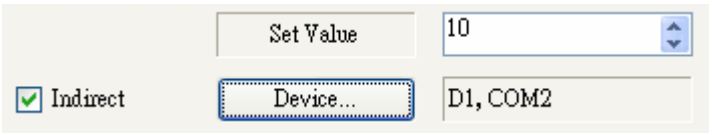



Fig. 3-6-2A-6 Indirect Device Value Setup

The switch property setting allows the user to change the device, Bit type, numeric type, and value range

Figure 3-6-2A-7 below demonstrates the setup of the switch for a device. The user can select Bit or Word to monitor the switch.

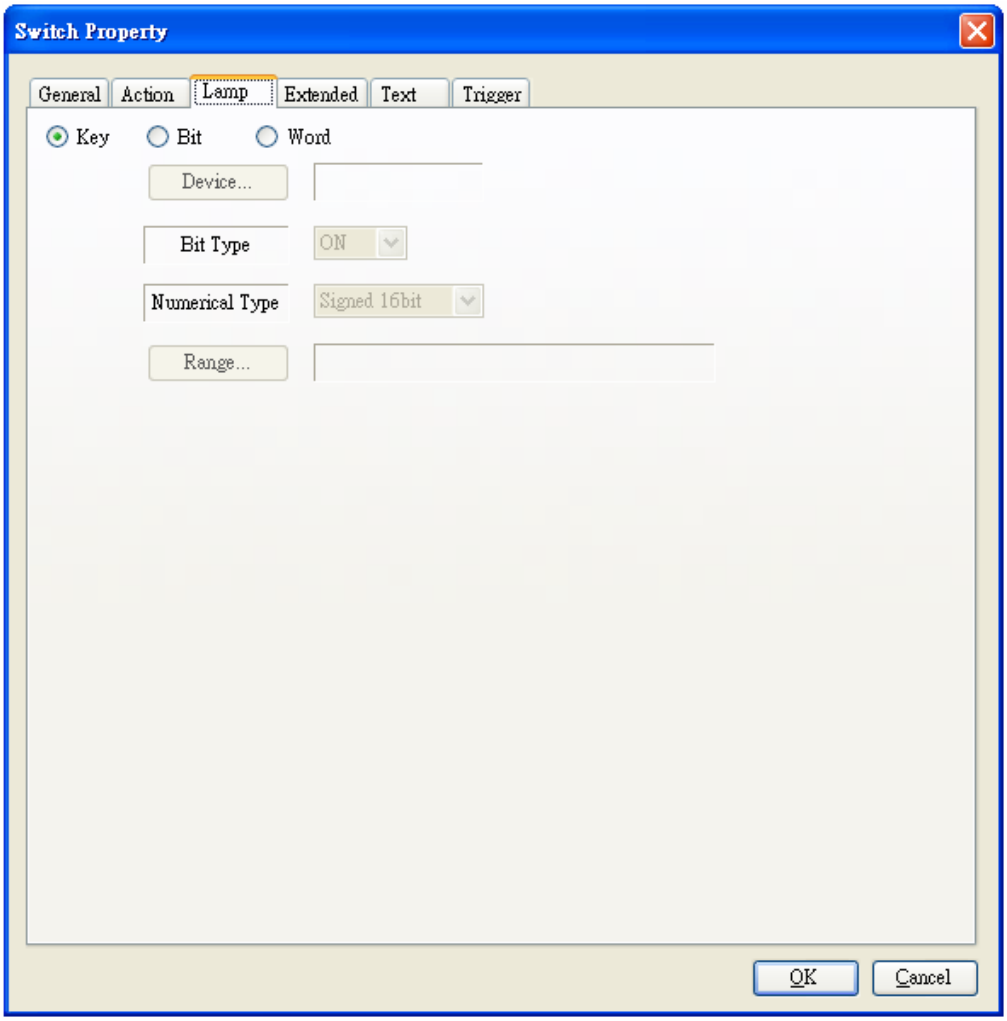



Fig. 3-6-2A-7 Switch Setup

The available action types of Bit device are ON/OF. See Figure 3-6-2A-8 below.

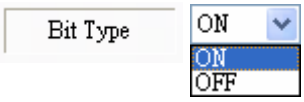


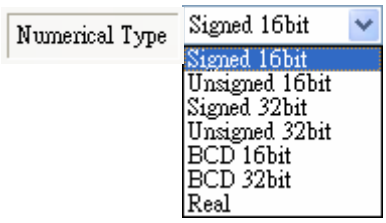

Fig. 3-6-2A-8 Bit Action Types

EX

To set the Bit device M0 to the ON/OFF alternating type, select the Bit option first, and then click Device... to select device M0 to finish the setting. See Figure 3-6-2A-9 below.

Fig. 3-6-2A-9 Bit Device Setup

There are 7 numeric types available for the actions of the Word device. See Figure 3-6-2A-10 below.




| Types | Value Range |
|---|---|
| **Signed 16bit** | -32768~32767 |
| **Unsigned 16 bit** | 0~65535 |
| **Signed 32 bit** | -2147483648~2147483647 |
| **Unsigned 32 bit** | 0~4294967295 |
| **BCD16 bit** | 0~9999 |
| **BCD32 bit** | 0~99999999 |
| **Real** | -2.147484E+09~2.147484E+09 |

Fig. 3-6-2A-10 Numeric Types for Word Device

EX

To set the lamp light on when the value of the Word device D0 is 10, select the Word option first, and then click Device... to select device D0, Then, click Range... and enter the statement 10=D0 to finish the setting. See Figure 3-6-2A-11 below.

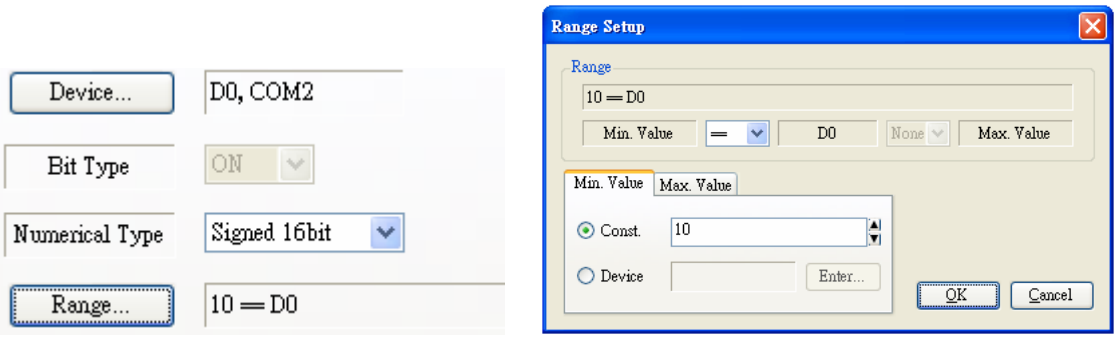
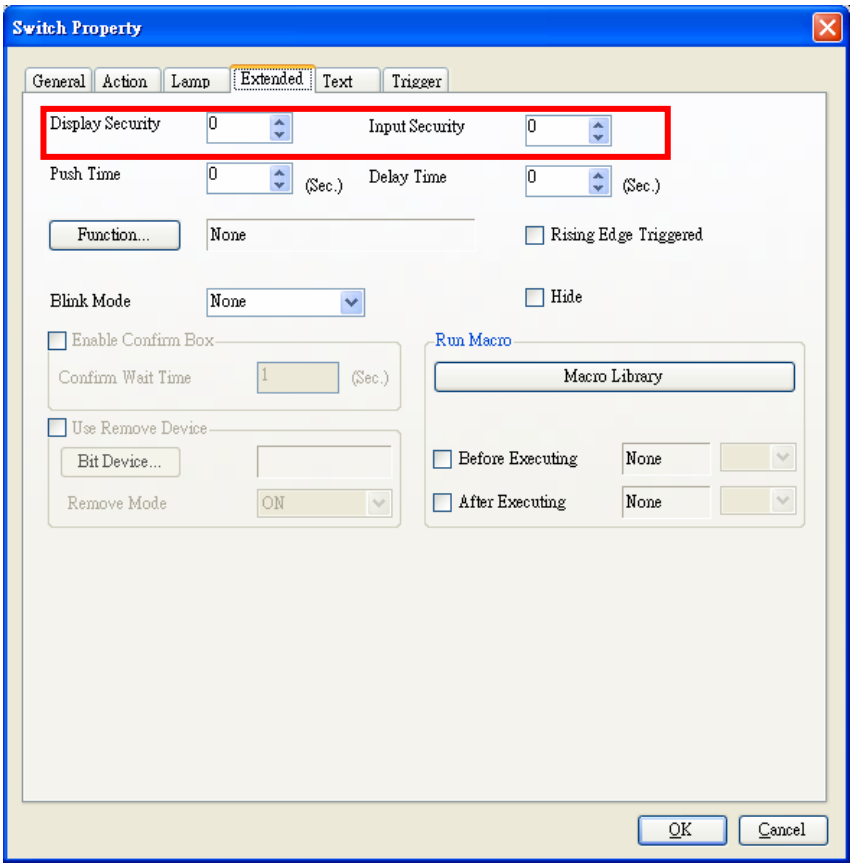



Fig. 3-6-2A-11 Word Device Setup for Lamp

The security level setting, see figure 3-6-2A-12 below.




| Security Level | |
|---|---|
| **The security level (display) and security level (input) are ranged from 0 (lowest privilege) to 15 (highest privilege). The default security levels of the edit software and the system are both 0.** | |
| **Display security** | Current security level >= Display security,switch display. |
| **Input security** | Current security level >= Input security,switch can be operated. |

Fig. 3-6-2A-12 Setup of Security Level

Functions such as time setting, rising edge triggered, hide, blink mode and enable confirm box are listed in the following table.

| Function | Description |
|---|---|
| **Push Time** | When time is set to 5s, it only works after pressing for 5 seconds. |
| **Delay Time** | When time is set to 5s, it only works after pressing 5 seconds. |
| **Rising edge triggered** | ☑ Rising Edge Triggered : The switch button is triggered on the rising edge, and when setting the Function... , the system will automatically check the "Rising Edge Triggered" (Rising Edge Triggered should not used with the operation setting).<br>☐ Rising Edge Triggered : The switch button is trigged on the falling edge. |
| **Hide** | After checking the ☑ Hide , the switch button will become transparent, and it will not affect the function execution after sending data to the HMI. |
| **Blink Mode** | 3 speed modes: Low Speed, Medium Speed and High Speed |
| **Enable Confirm Box** | After triggering the button, it will pop up the confirm box as shown in figure 3-6-2A-13. The confirm box will close after the set time is reached. The maximum set time is 120 seconds. |

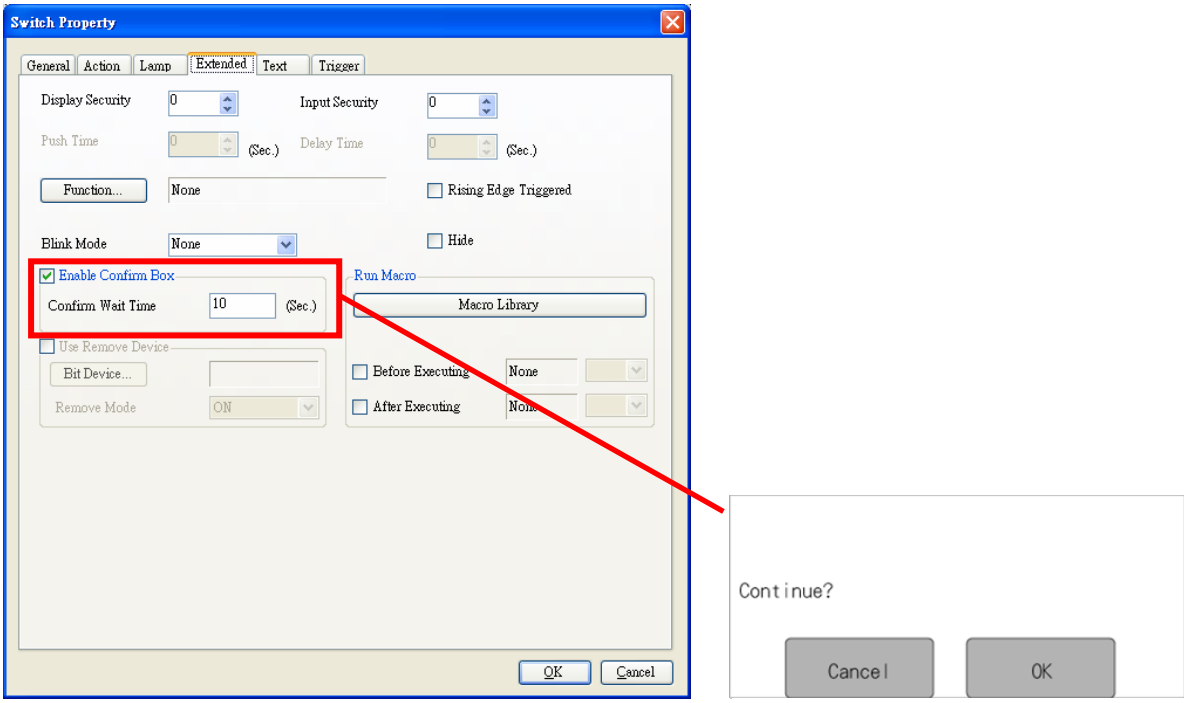
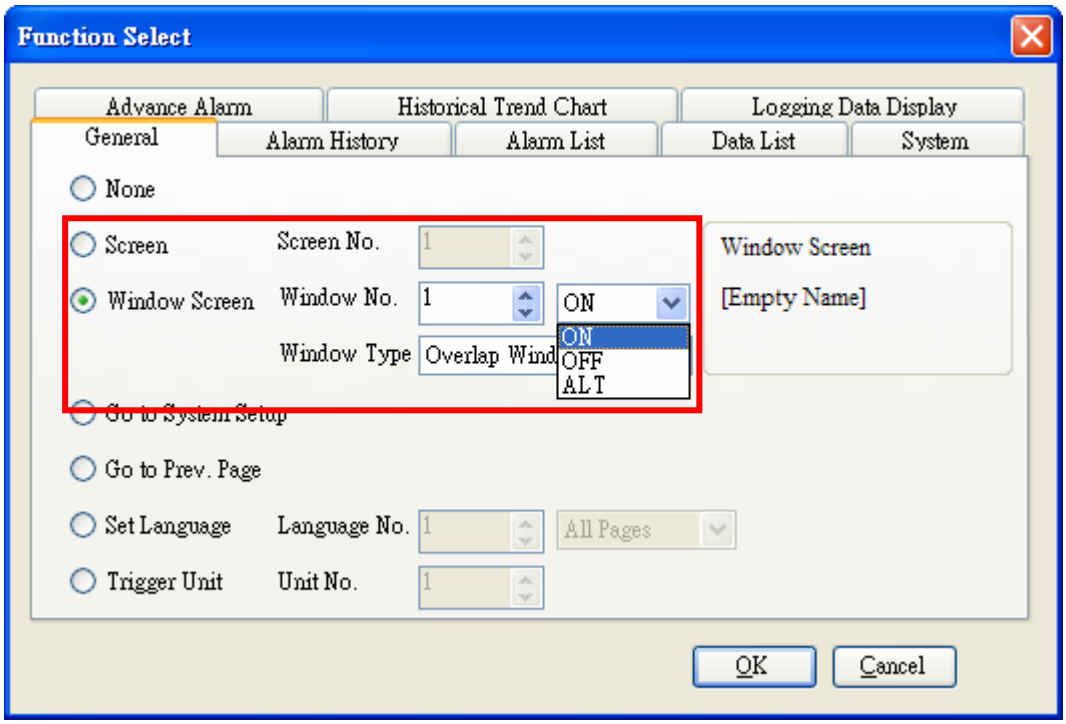



Fig. 3-6-2A-13 Enable Confirm Box

To set up the switch functions, click Function... to open the function window. The functions available are General, Alarm History, Alarm List, Data List, System, Advanced Alarm, and Historical Trend Chart.

Figure 3-6-2A-14 below shows the items of the General tab which provide options of base screen, window screen, system setting, previous page, language setting, and trigger unit; there are 3 screen formats available.



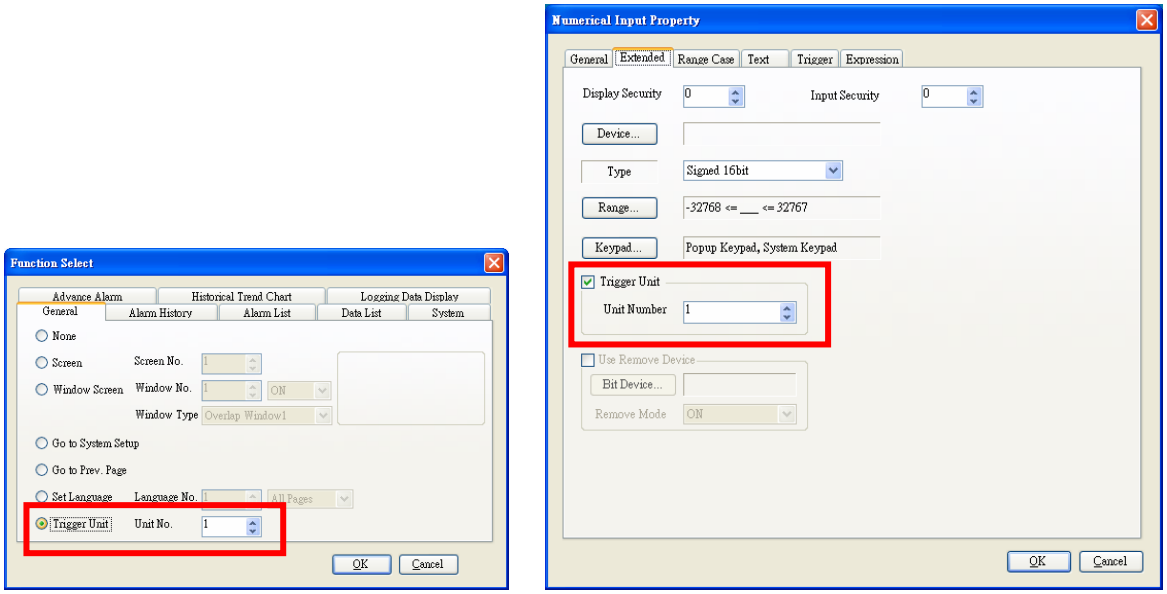

| Display Type | Description |
|---|---|
| **ON** | Open window screen |
| **OFF** | Close window screen |
| **ALT** | Alternately open and close window screen |

Fig. 3-6-2A-14 General Functions

The functions of the triggering object correspond to numeric input and character input, with both inputs having the same object code number. When the object is clicked, the numeric or character input keypad will pop up.

EX

To use a switch to operate the numeric or character keypad, in the editing window create a switch object, and then double left click the mouse to open its property window. Click the Extension tab and select its General tab, and then set the code number of the triggering object to 1. In addition, create in the editing window another numeric input object, and then double left click the mouse to open its property window, and then set its code number to 1 as well, and set its device to D0. Confirm the setting and send the file to HMI. When the switch is pressed, the keypad window will pop up, and when a numeric value is entered and confirmed, the value will appear in the numeric input object. See Figure 3-6-2A-15 below.




(a) (b)

Fig. 3-6-2A-15 Triggering Object Setup (a) Switch Triggering Object (b) Code Number of Numeric Input Object

Figure 3-6-2A-16 below shows the items of the Alarm Records tab. There must have an object of the Alarm Records in the editing window in order to view and delete the records.

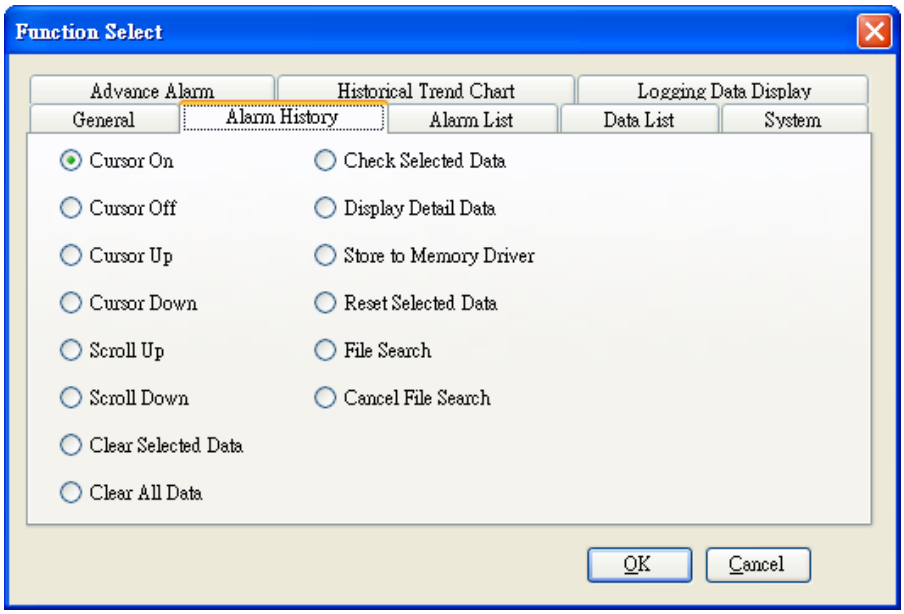



Fig. 3-6-2A-16 Options for Alarm Records

Fig. 3-6-2A-17 below shows the items of the Alarm List tab. There must have an object of the Alarm List in order to view the alarm data.

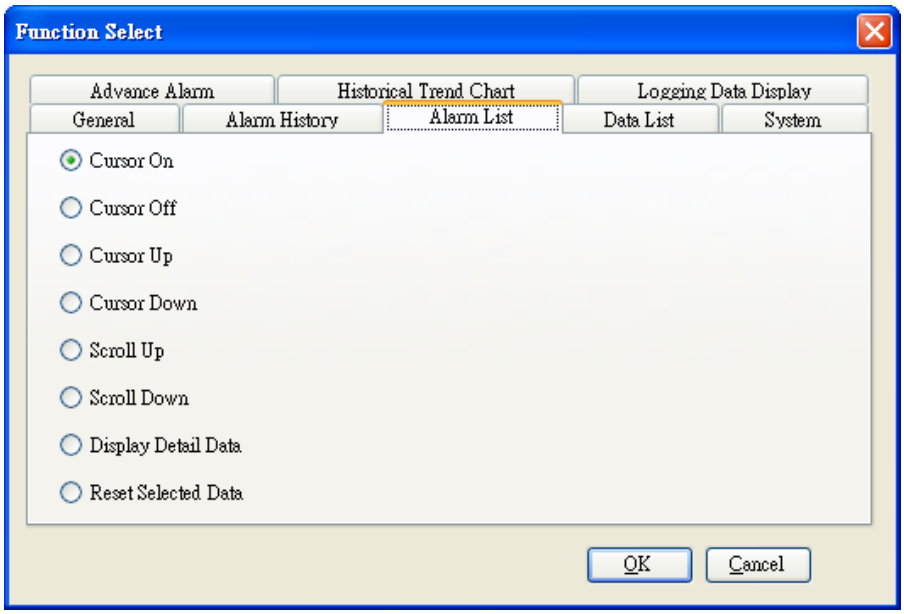



Fig. 3-6-2A-17 Options for Alarm List

Figure 3-6-2A-18 shows the items of the Data Sheet tab. There must have an object of the Data Sheet in order to view the data.

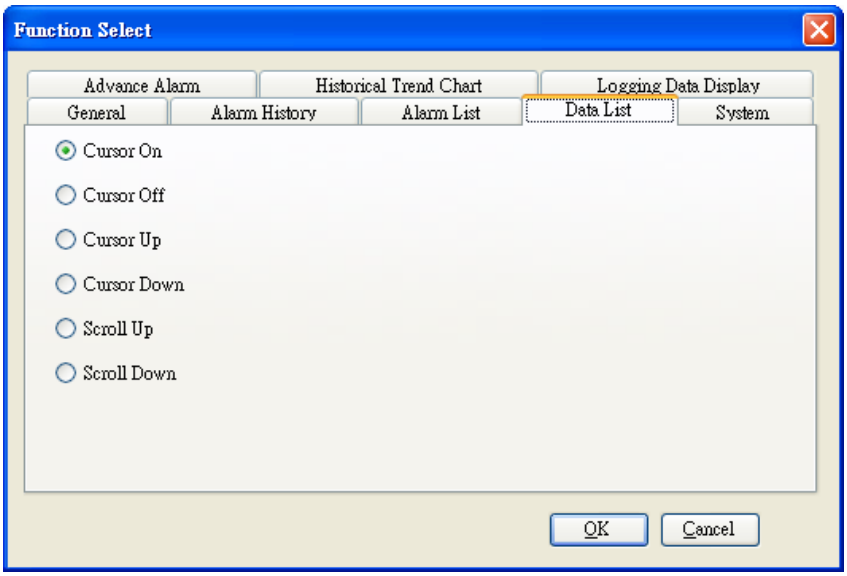



Fig. 3-6-2A-18 Options for Data Sheet

Figure 3-6-2A-19 below shows the items of the System tab. The user can set up the switch functions in the editing window by changing the system parameters directly in the HMI screen without the need of going back to the O.S. screen.

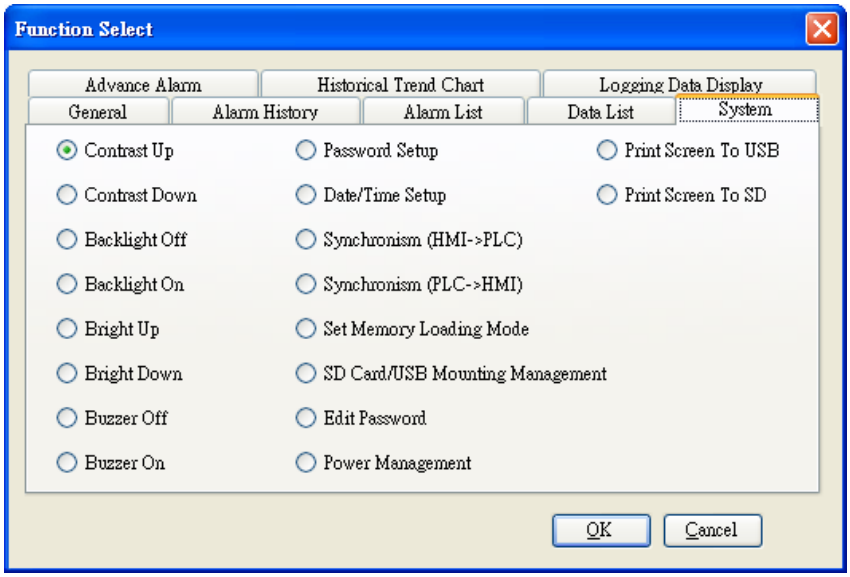



Fig. 3-6-2A-19 Options for System

For instant screen record, click one of the screen dump options to save the screen data in .png format to an external device. See Figure 3-6-2A-20 below.

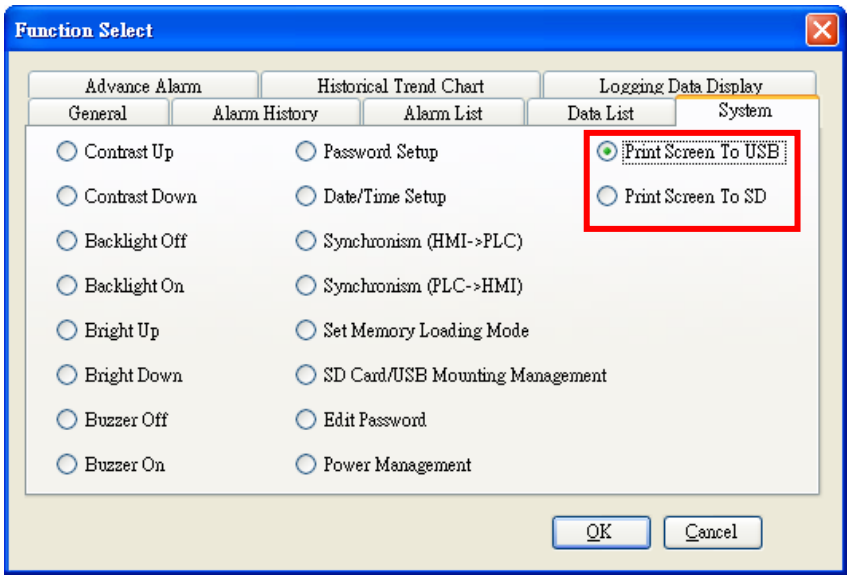



Fig. 3-6-2A-20 Screen Dump

NOTE

- Before print screen to USB/SD, an external memory(SD/USB) must be mounted, or the "Auto mount" function must be chosen. For details, see section 3.4 "Communication" described in EC200 hardware manual.

Figure 3-6-2A-21 below shows the items of the Advanced Alarm tab. There must have an object of the Advanced Alarm in the editing window in order to view and delete the data.

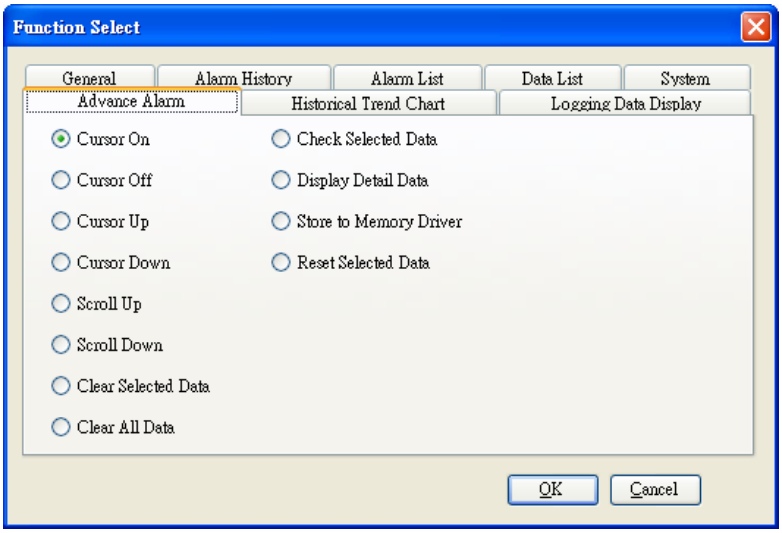
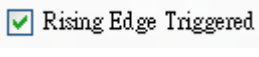



Fig. 3-6-A-21 Options for Advanced Alarm

Options of the historical trend chart are as shown in figure 3-6-2A-22. In the edit window, it shall contain elements of the historical trend chart, or you cannot view data in the historical trend chart. After checking the 

, the “Graph Previous” and “Graph Next” are as shown in figure 3-6-2A-23. You can press and hold the button to continuously scroll the graph, as shown in figure 3-6-2A-24.

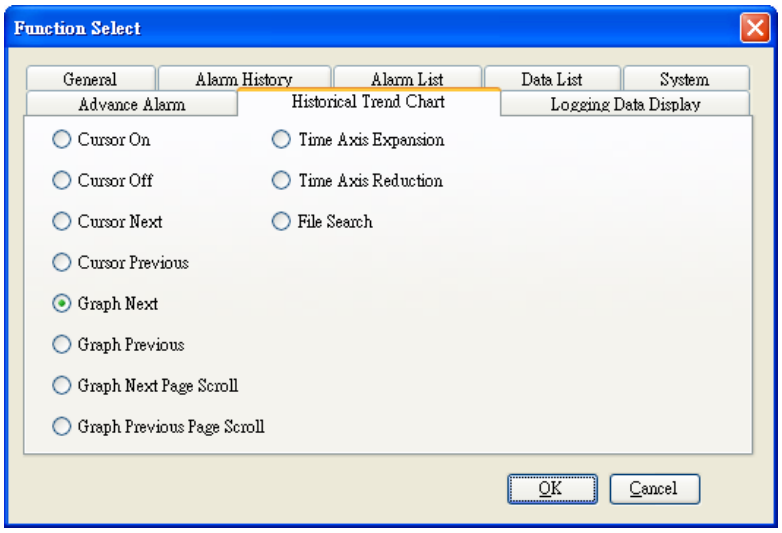



Figure 3-6-2A-22: Options of historical trend chart



EC series

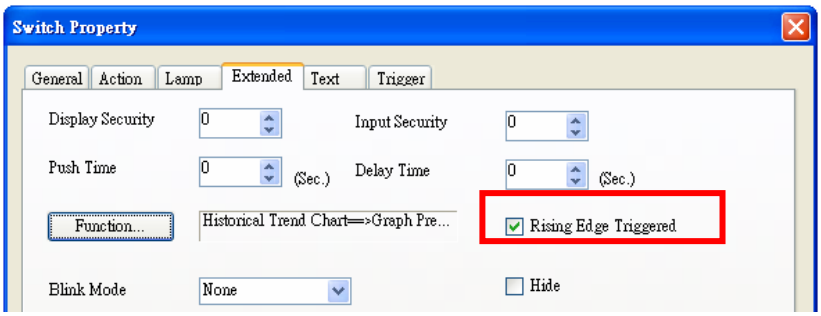



Figure 3-6-2A-23: Check the Rising Edge Trigged

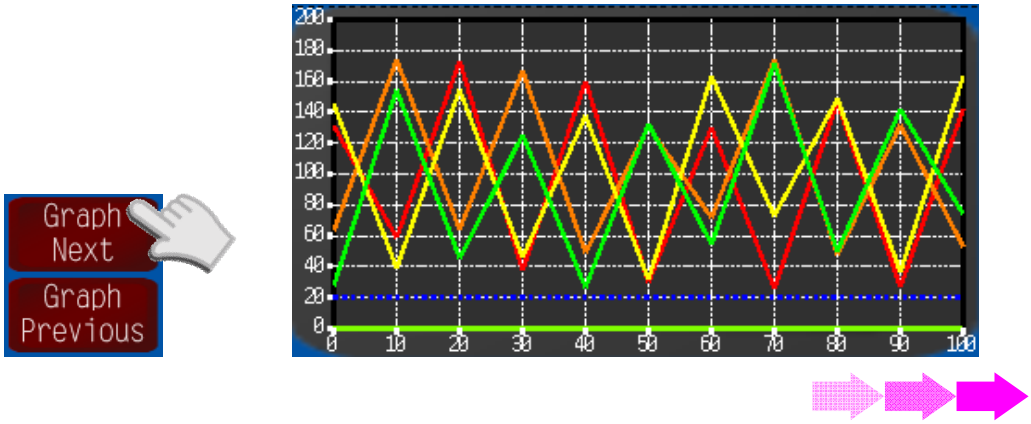



Figure 3-6-2A-24: Press and hold the “Graph Next” button

In the Historical data display , you can use “Move Up” and “Move Down” to scroll the historical data table as shown in figure 3-6-2A-25.

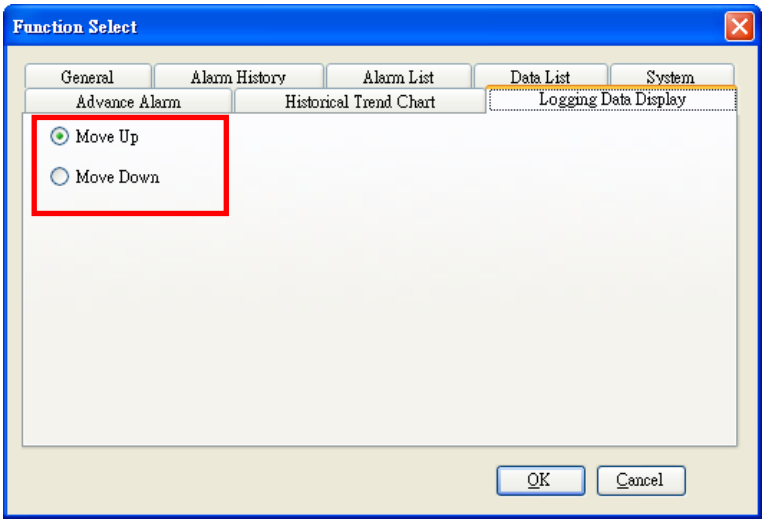
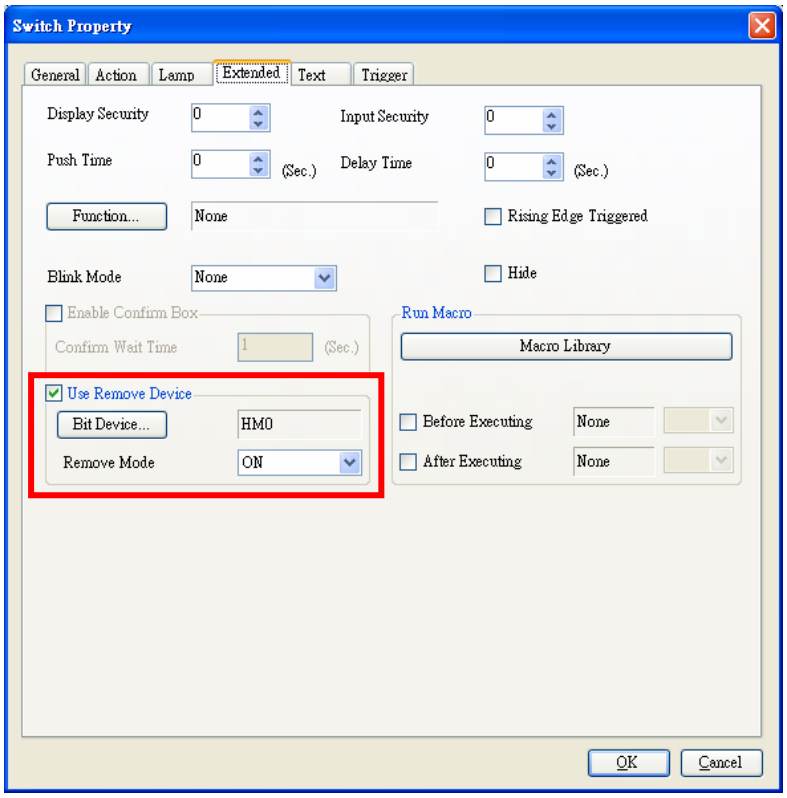


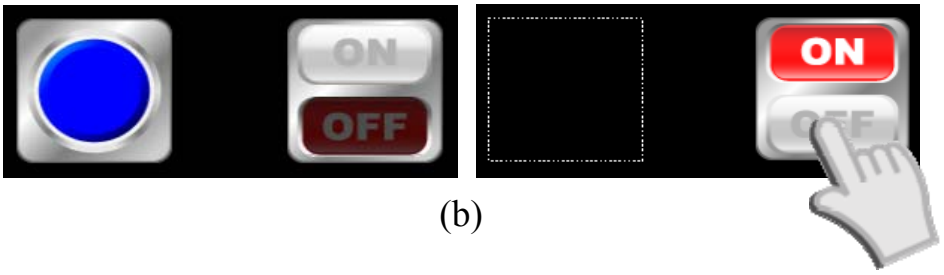

Figure3-6-2A-25: Key Function setup

When you setting and the Bit device is triggered the unit will hide and cannot be operated, as shown in figure 3-6-2A-26.






(a)




(b)

Figure 3-6-2A-26: Use remove device (a) set remove device (b) remove device is triggered

When checking Before Executing or After Executing, the macro is executed after triggering the switch button.

| | |
|---|---|
| **Before Executing** | After pressing the switch button, execute the macro, and then execute the switch button operation. |
| **After Executing** | After pressing the key, execute the switch button operation, and then execute the macro. |

Before executing the macro as shown in figure 3-6-2A-27, you must edit the macro in the macro library and check the Switch Macro setting, as shown in figure 3-6-2A-28.

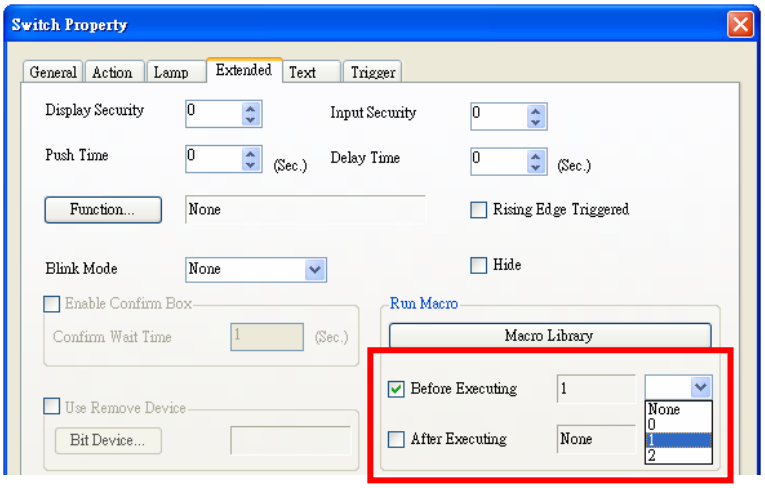



Figure 3-6-2A-27: Macro setting executed by switch

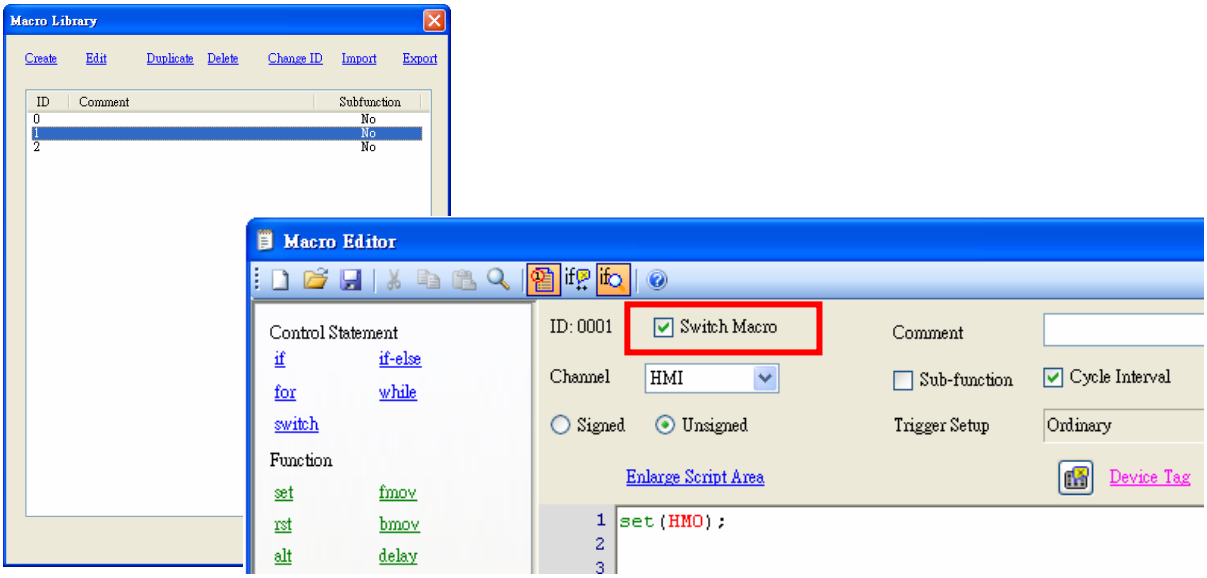



Figure 3-6-2A-28: Check Switch Macro setting in macro editor

The Text property setting allows the user to set the ON/OFF text display, text color, text font, text location, alignment, and the text content. See Figure 3-6-2A-29below.

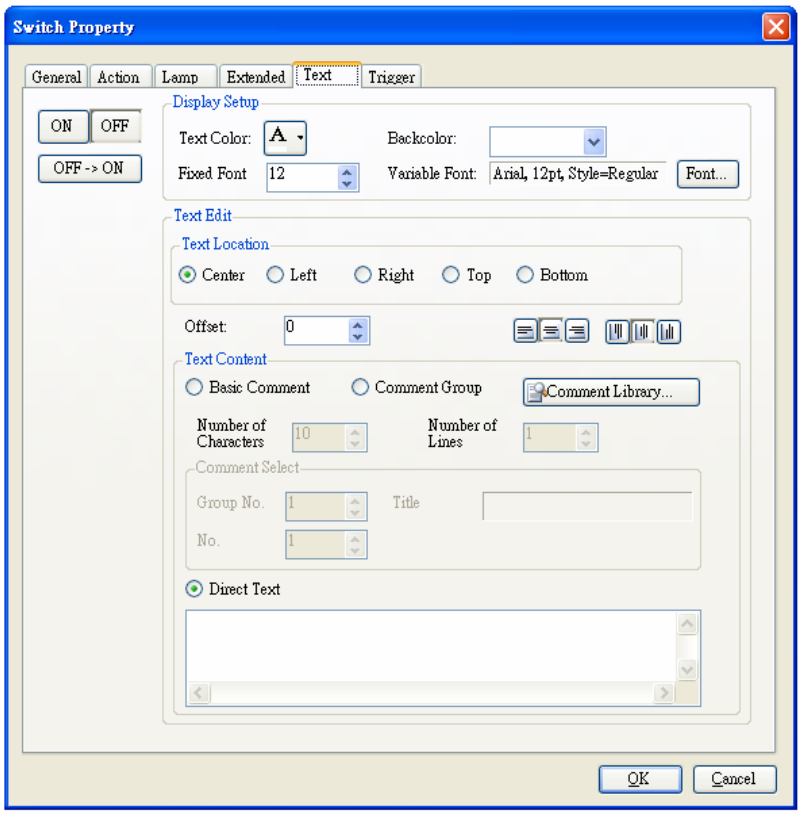


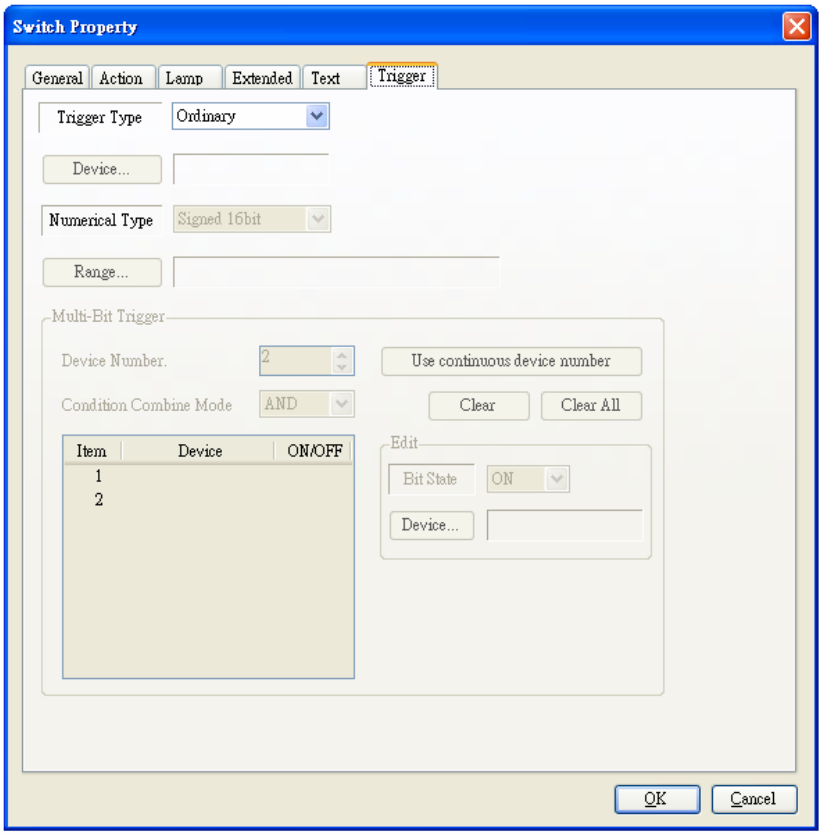

Fig. 3-6-2A-29 Text Property Setup

In the text editing, the comments in the comment library can be set as text to display. To do this, click Comment Library... to open the comment library dialogue box. For detailed instructions, please see Section 3.4.4 Comment Library.

NOTE

- When the text alignment set for align left、align right、Align top、Align bottom, can be used to offset setting to adjust the text position.

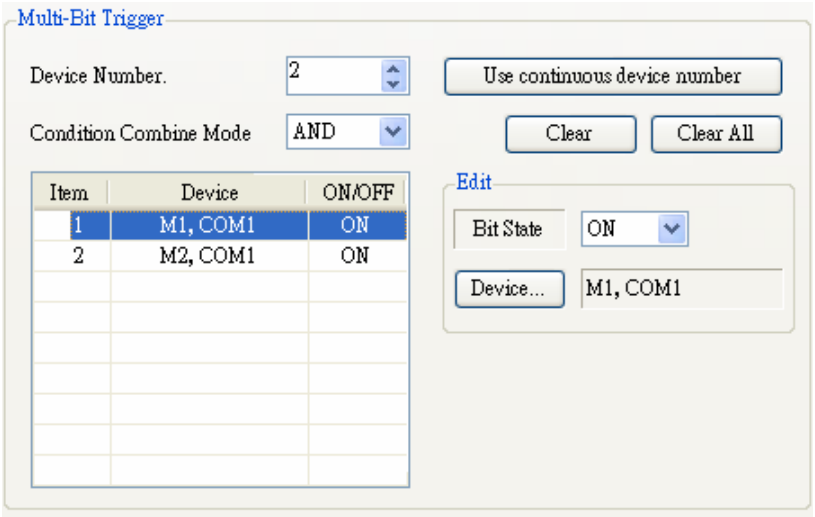
The Trigger property setting allows the user to set the triggering conditions. See Figure 3-6-2A-30 below. The trigger condition only limits the operation of action, and lamp signal display is not limited by the trigger condition.



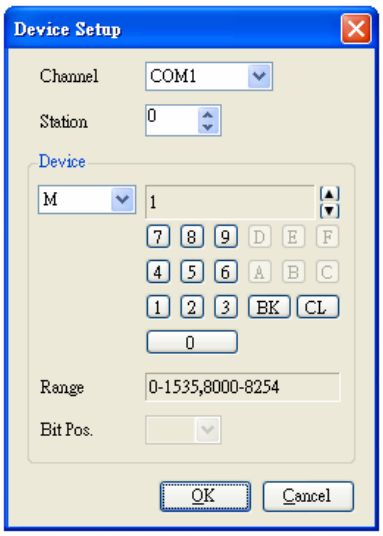

| Trigger Pattern | Description |
|---|---|
| **Ordinary** | No triggering pattern |
| **ON** | Action is taken only when the device in ON. |
| **OFF** | Action is taken only when the device is OFF. |
| **Range** | Action is taken only when the device value is within the defined range. |
| **Multiple Bit Trigger** | Set two or more devices, and only when all the devices reach the condition will the action start. |

Fig. 3-6-2A-30 Trigger Patterns

To set a multi-Bit trigger with 2 devices, click Device... to open the device setup window and set the trigger devices as M1, M2. Confirm the setting and send it to HMI. So, only when M1 and M2 are both ON will the switch actions be started. See Figure 3-6-2A-31 below.




(a)

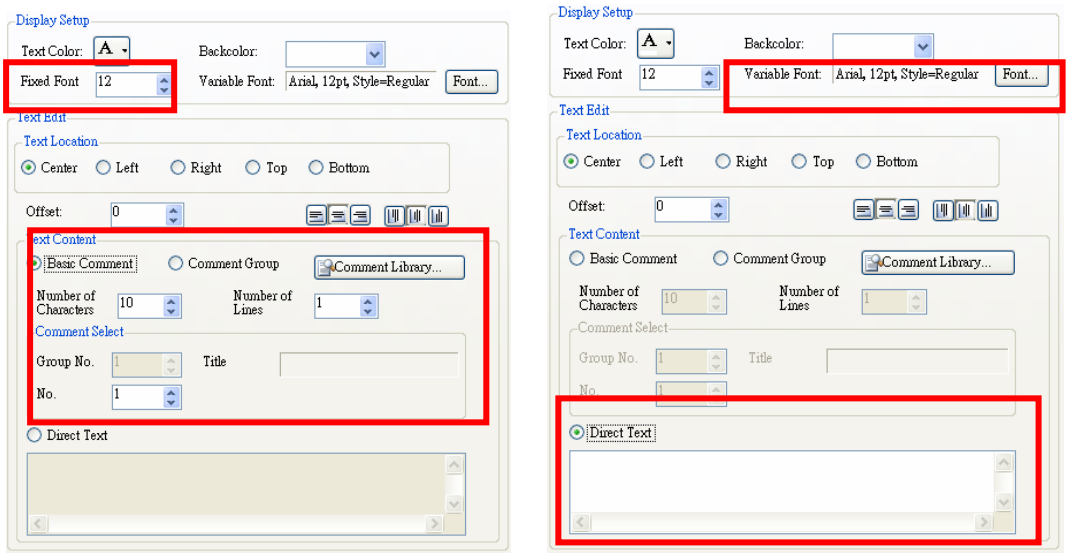



(b)

Fig. 3-6-2A-31 Multi-Bit Trigger (a) Setup of Multi-Bit Trigger (b) Device Setup

NOTE

- To set the properties, you can also click Edit and then click Unit Property, or directly use the property window on the right of the screen, to make the setting.
- In the Text properties, the text contends can be comments and direct text. The comment takes fixed font, while the direct text takes variable fonts. See Figure 3-6-2A-32 below.




(a) (b)

Fig. 3-6-2A-32 Text Display Setting (a) Comment Text (b) Direct Text

## b. Multi-Action Switch

To set up a multi-action switch, click Unit and click Switch and then click Multi-Action Switch, or directly click the shortcut, and then in the editing window left click the mouse to set up a multi-action switch. Then, click the object and then double left click the mouse to open the property window of the object and make the property setting.

The General property setting allows the user to set the ON/OFF display, color, transparency, and line pattern. See Figure 3-6-2B-1 below

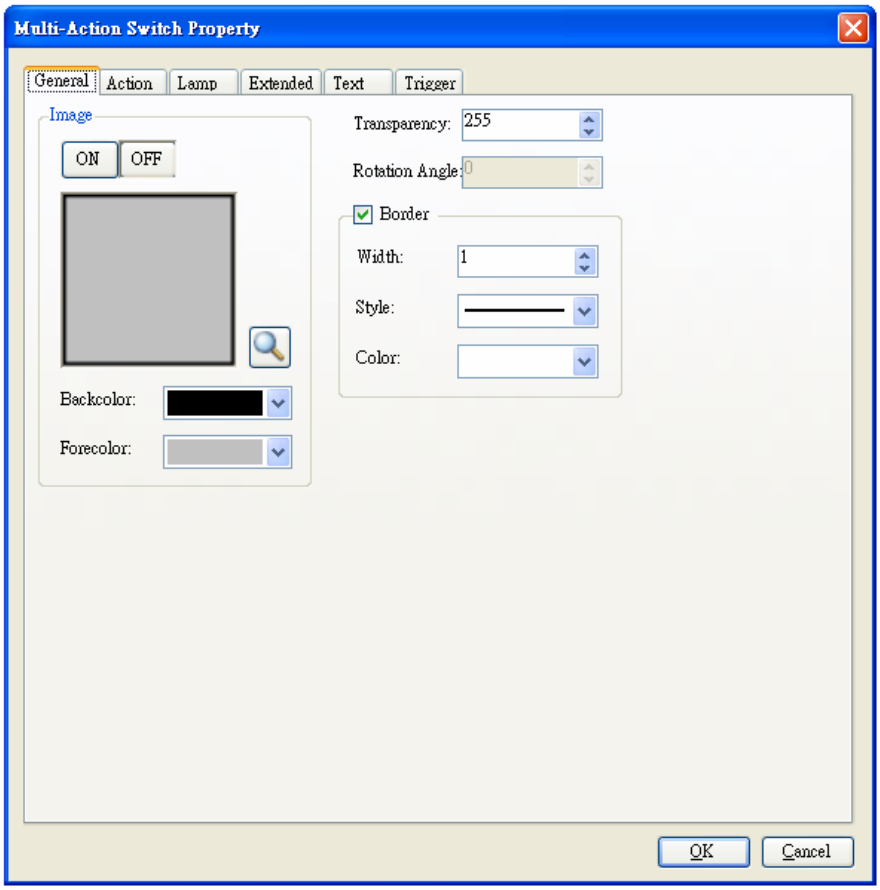



Fig. 3-6-2B-1 General Property Setup

To change the displayed image, click to open the image library. For detailed operational guide, please refer to Section 3.4.2 Image Library.

The Action property setting allows the user to set the devices, the base screen, window screens, tables, system functions, and other functions. There can be as many as 32 simultaneous actions. See Figure 3-6-2B-2 below.

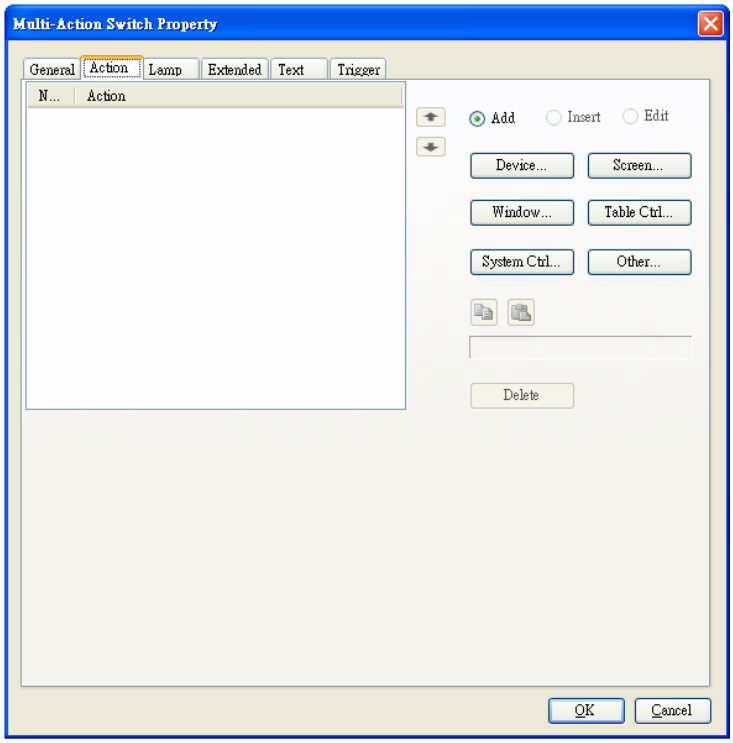



Fig. 3-6-2B-2 Action Property Setup

To copy devices, select a set of devices first, and then click . A message of the copy will be displayed in the text box as shown below. Then, click to finish the copy. See Figure 3-6-2B-3 below.

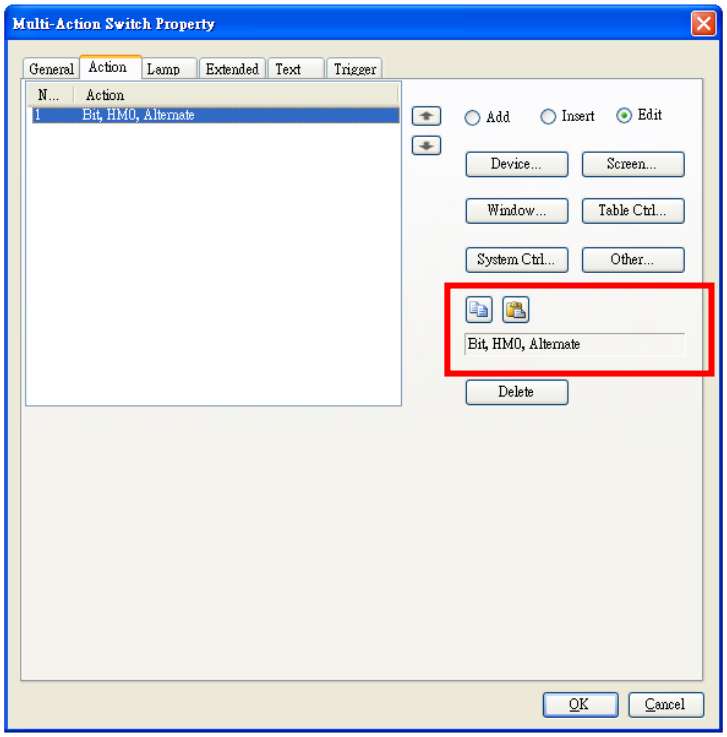



Fig. 3-6-2B-3 Copy Devices

The lamp property setting allows the user to change the device, Bit type, numeric type, and value range

Figure 3-6-2B-4 shows the setup of the lamp device for the object. The user can set Bit or Word to monitor the lamp.

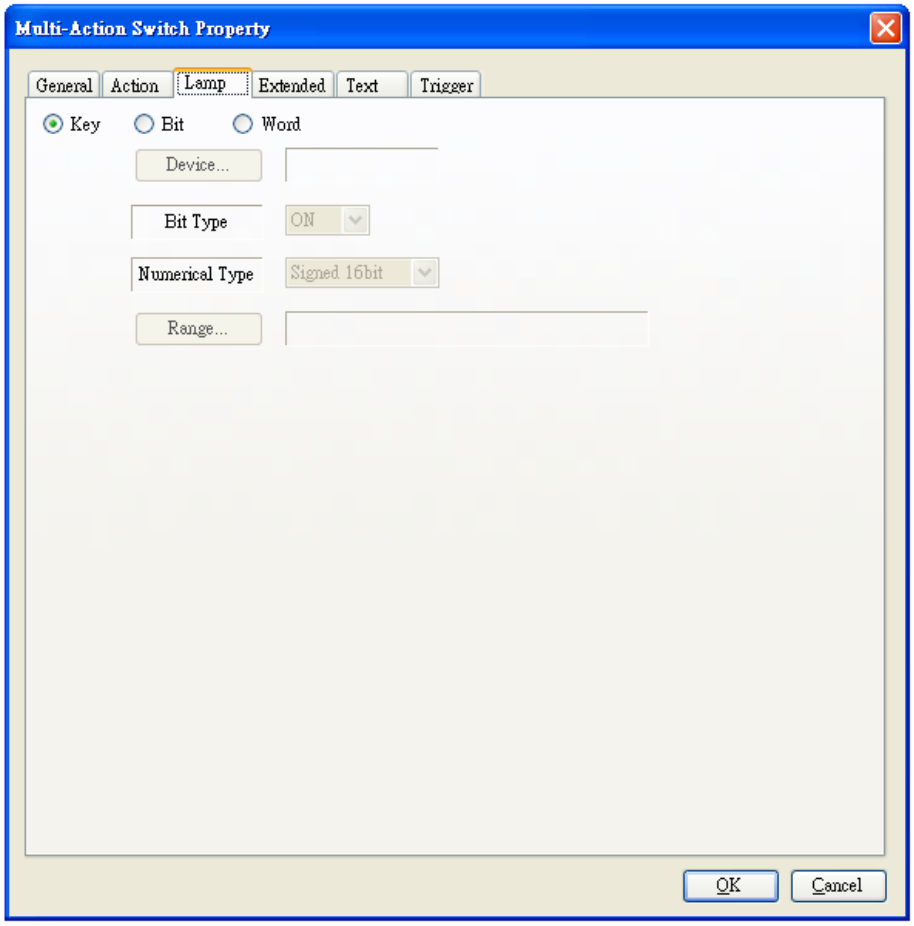



Fig. 3-6-2B-4 Lamp Property Setup

The available action types of Bit device are ON/OF. See Figure 3-6-2B-5 below.

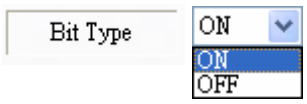



Fig. 3-6-2B-5 Bit Action Types

EX

To set the Bit device M0 to the ON/OFF alternating type, select the Bit option first, and then click Device... to select device M0 to finish the setting. See Figure 3-6-2B-6 below.

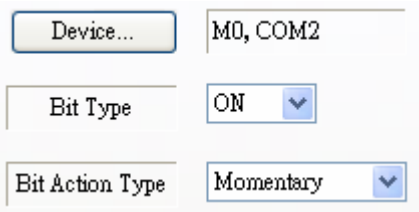
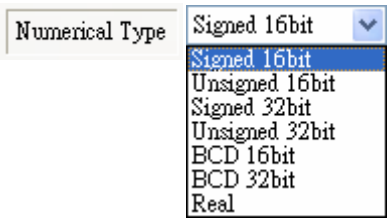



Fig. 3-6-2B-6 Bit Device Setup

There are 7 numeric types available for the actions of the Word device. See Figure 3-6-2B-7 below.




| Type | Value Range |
|---|---|
| **Signed 16bit** | -32768~32767 |
| **Unsigned 16 bit** | 0~65535 |
| **Signed 32 bit** | -2147483648~2147483647 |
| **Unsigned 32 bit** | 0~4294967295 |
| **BCD16 bit** | 0~9999 |
| **BCD32 bit** | 0~99999999 |
| **Real** | -2.147484E+09~2.147484E+09 |

Fig. 3-6-2B-7 Numeric Types and Value Ranges

EX

To set the lamp light on when the value of the Word device D0 is 10, select the Word option first, and then click Device... to select device D0. Then, click Range... and enter the statement 10=D0 to finish the setting. See Figure 3-6-2B-8 below.

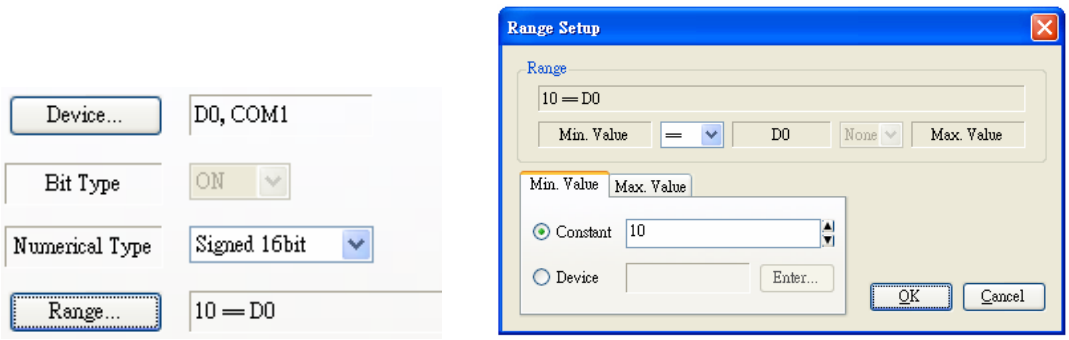
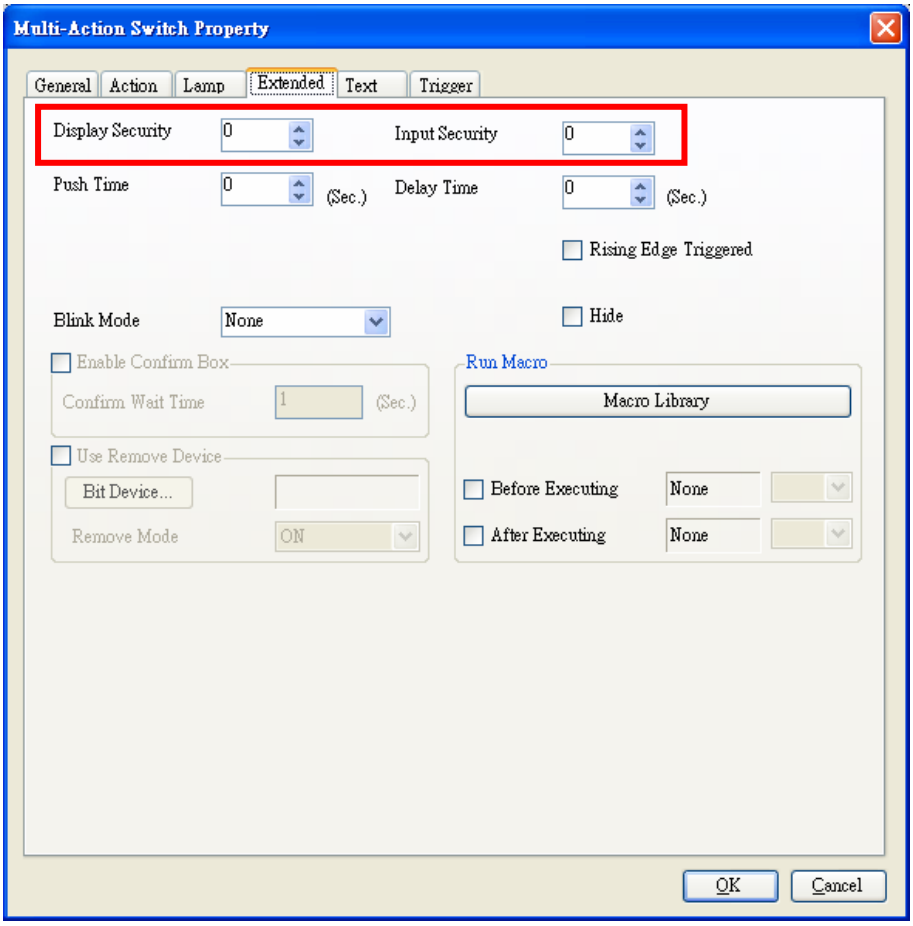



Fig. 3-6-2B-8 Word Device Setup

The security level setting, see figure 3-6-2B-9 below.




| Security Level | |
|---|---|
| **The security level (display) and security level (input) are ranged from 0 (lowest privilege) to 15 (highest privilege). The default security levels of the edit software and the system are both 0.** | |
| **Display security** | Current security level >= Display security,switch display. |
| **Input security** | Current security level >= Input security,switch can be operated. |

Fig. 3-6-2B-9 Setup of Security Level

Functions such as time setting, rising edge triggered, hide, blink mode and enable confirm box are listed in the following table.

| Function | Description |
|---|---|
| **Push Time** | When time is set to 5s, it only works after pressing for 5 seconds. |
| **Delay Time** | When time is set to 5s, it only works after pressing 5 seconds. |
| **Rising edge triggered** | ☑ Rising Edge Triggered : The switch button is triggered on the rising edge, and when setting the Function... , the system will automatically check the "Rising Edge Triggered" (Rising Edge Triggered should not used with the operation setting).<br>☐ Rising Edge Triggered : The switch button is trigged on the falling edge. |
| **Hide** | After checking the ☑ Hide , the switch button will become transparent, and it will not affect the function execution after sending data to the HMI. |
| **Blink Mode** | 3 speed modes: Low Speed, Medium Speed and High Speed |
| **Enable Confirm Box** | After triggering the button, it will pop up the confirm box as shown in figure 3-6-2B-10. The confirm box will close after the set time is reached. The maximum set time is 120 seconds. |

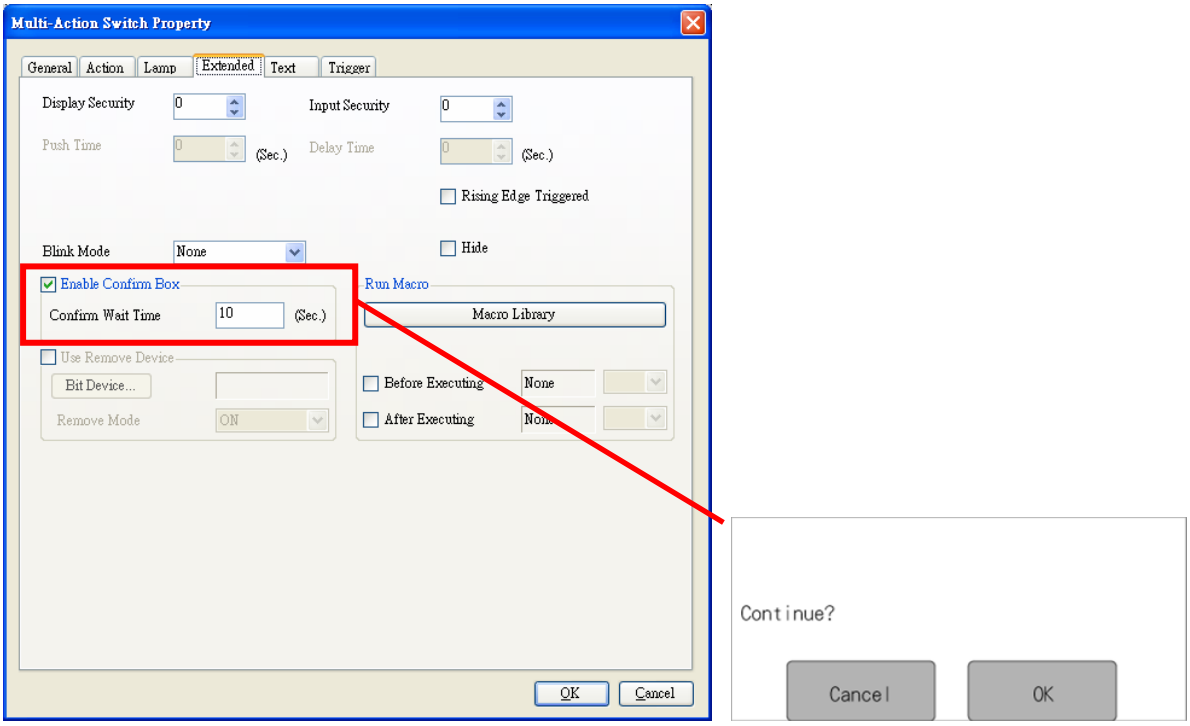
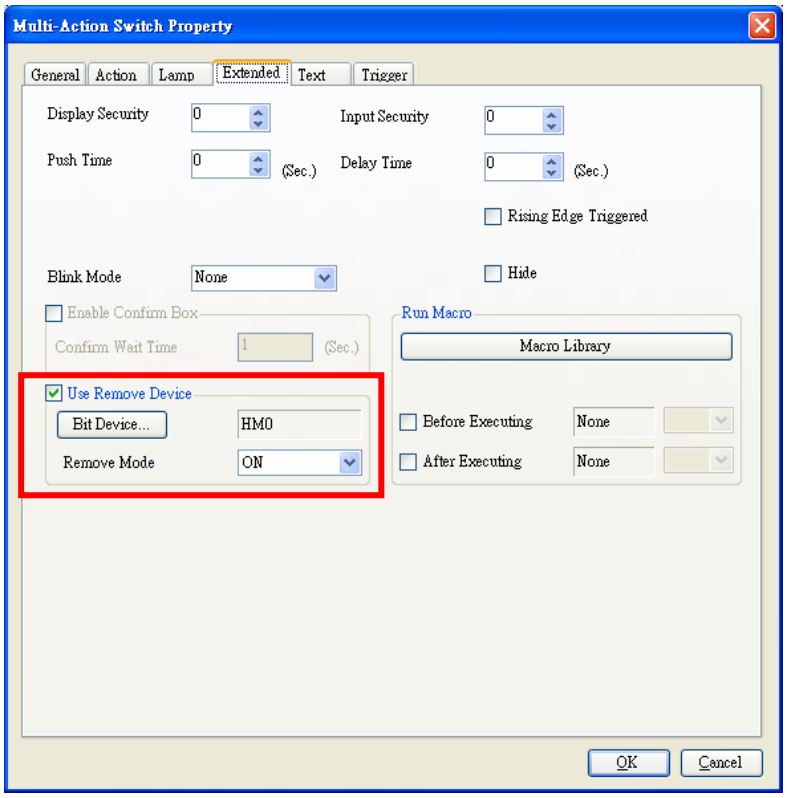
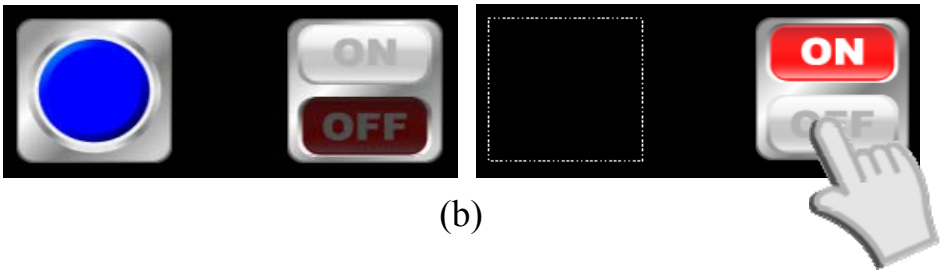



Fig. 3-6-2B-10 Enable Confirm Box

When you click and the Bit device is triggered the unit will hide and cannot be operated, as shown in figure 3-6-2B-11.




(a)




(b)

Figure3-6-2B-11: Use remove device (a) set remove device (b) remove device is triggered

When checking Before Executing or After Executing, the macro is executed after triggering the switch button.

| | |
|---|---|
| **Before Executing** | After pressing the switch button, execute the macro, and then execute the switch button operation. |
| **After Executing** | After pressing the key, execute the switch button operation, and then execute the macro. |

Before executing the macro as shown in figure3-6-2B-12, you must edit the macro in the macro library and check the Switch Macro setting, as shown in figure3-6-2B-13.

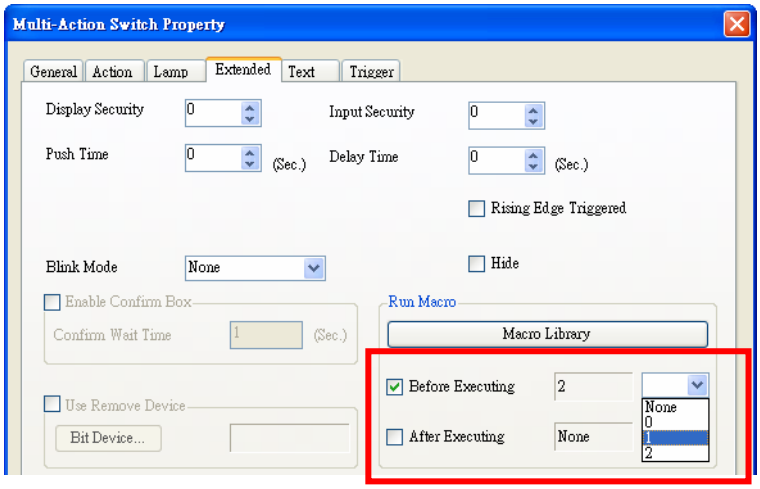



Figure3-6-2B-12: Macro setting executed by switch

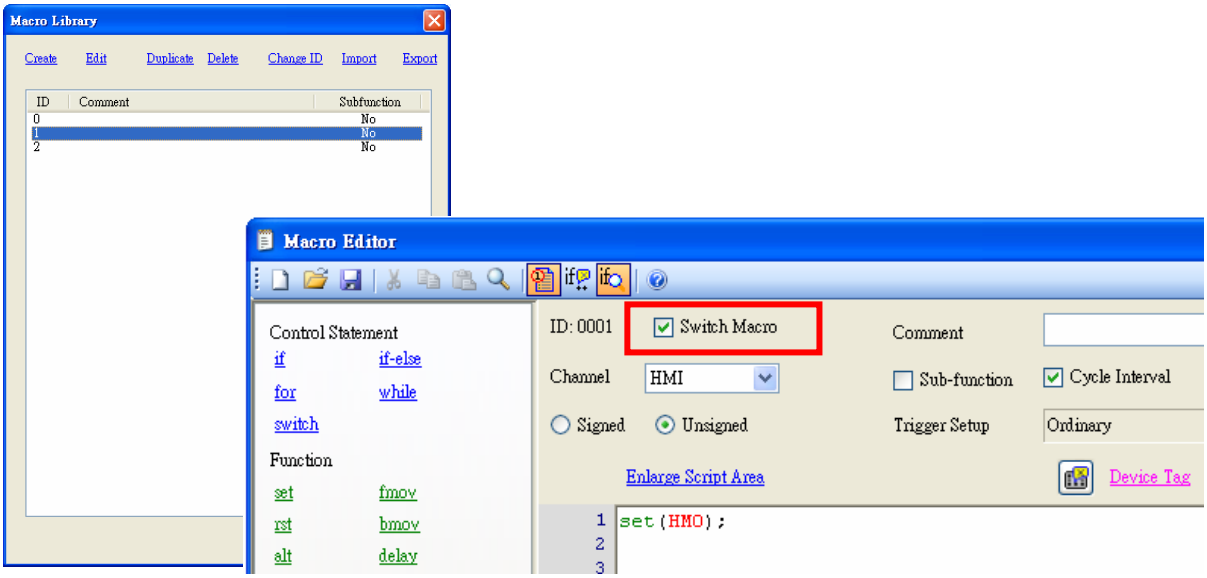



Figure3-6-2B-13: Check Switch Macro setting in macro editor

The Text property setting allows the user to set the text ON/FF display, text color, text font, text location, alignment, and the text content. See Figure 3-6-2B-14 below.

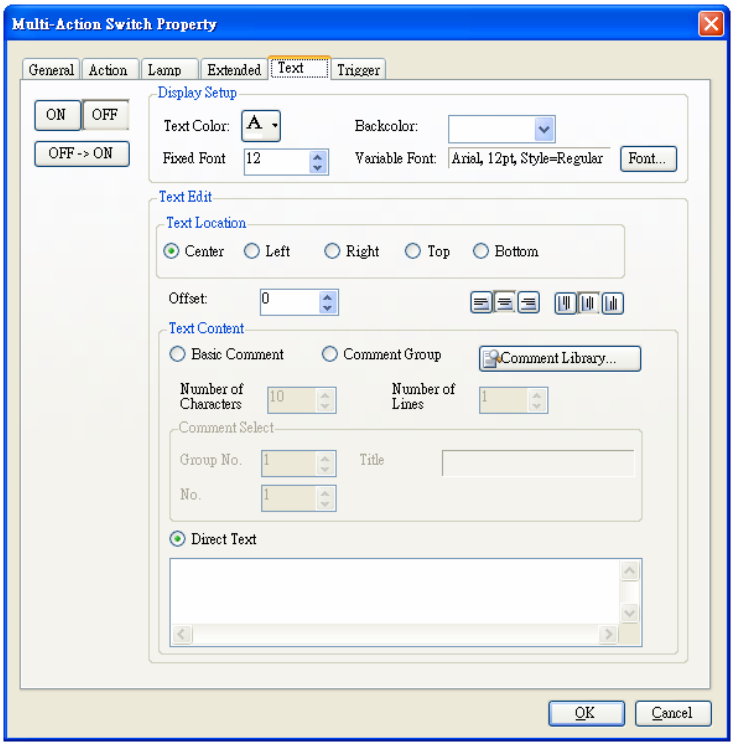


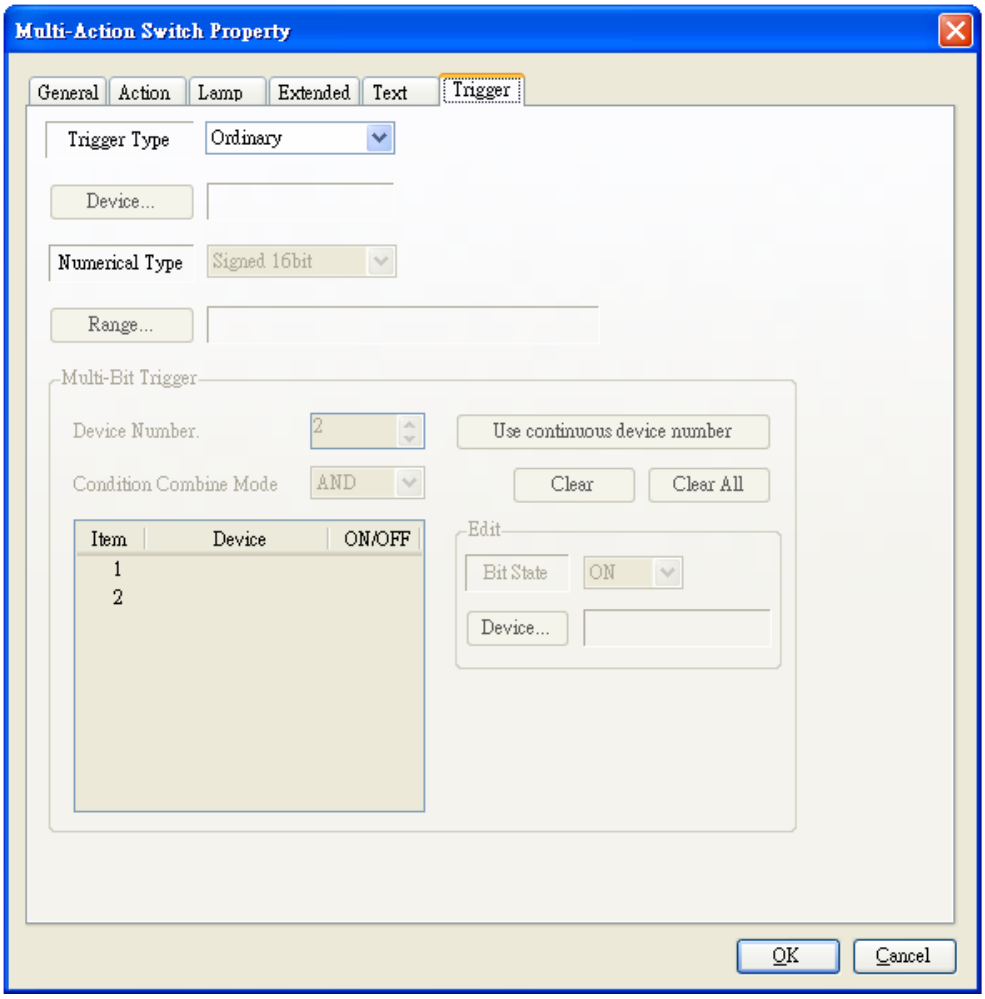

Fig. 3-6-2B-14 Text Property Setup

In the text editing, comments in the comment library can be set as text to display. To do this, click Comment Library... to open the comment library dialogue box. For detailed instructions, please see Section 3.4.4 Comment Library.

NOTE

- When the text alignment set for align left、align right、Align top、Align bottom, can be used to offset setting to adjust the text position.

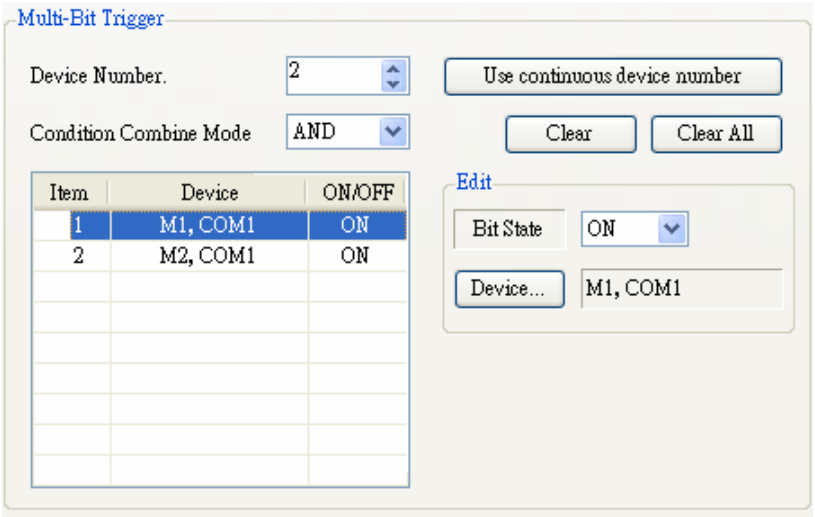
The Trigger property setting allows the user to set the triggering conditions. See Figure 3-6-2B-15 below. The trigger condition only limits the operation of action, and lamp signal display is not limited by the trigger condition.



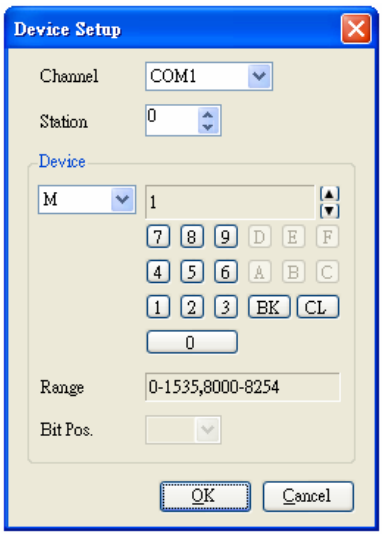

| Trigger Pattern | Description |
|---|---|
| **Ordinary** | No triggering pattern |
| **ON** | Action is taken only when the device in ON. |
| **OFF** | Action is taken only when the device is OFF. |
| **Range** | Action is taken only when the device value is within the defined range. |
| **Multiple Bit Trigger** | Set two or more devices, and only when all the devices reach the condition will the action start. |

Fig. 3-6-2B-15 Trigger Patterns

To set a multi-Bit trigger with 2 devices, click Device... to open the device setup window and set the trigger devices as M1, M2. Confirm the setting and send it to HMI. So, only when M1 and M2 are both ON will the switch actions be started. See Figure 3-6-2B-16 below.




(a)

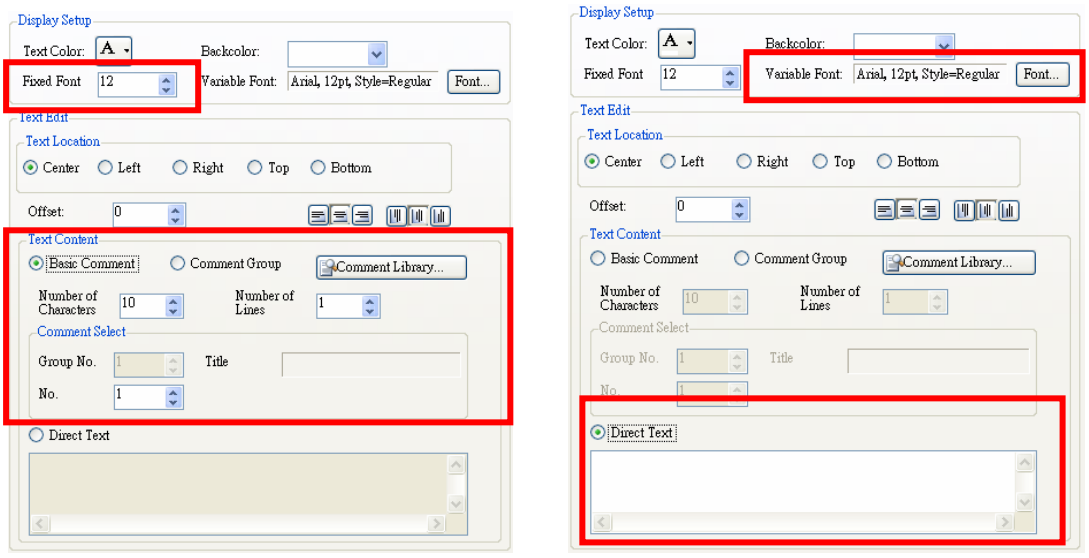



(b)

Fig. 3-6-2B-16 Multi-Bit Trigger (a) Setup of Multi-Bit Trigger (b) Device Setup

NOTE

- To set the properties, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.
- In the Text properties, the text contends can be comments and direct text. The comment takes fixed font, while the direct text takes variable fonts. See Figure 3-6-2B-17 below.




(a) (b)

Fig. 3-6-2B-17 Text Display Setting (a) Comment Text (b) Direct Text

## c. Multi-State Switch

To set up a multi-state switch, click Unit and click Switch and then click Multi-State Switch, or click the shortcut, and then in the editing window left click the mouse to set up a multi-state switch. Click the object and then double left click the mouse to open the property window of the object and make the setting.

The General property setting allows the user to set the transparency and line pattern. See Figure 3-6-2C-1 below.

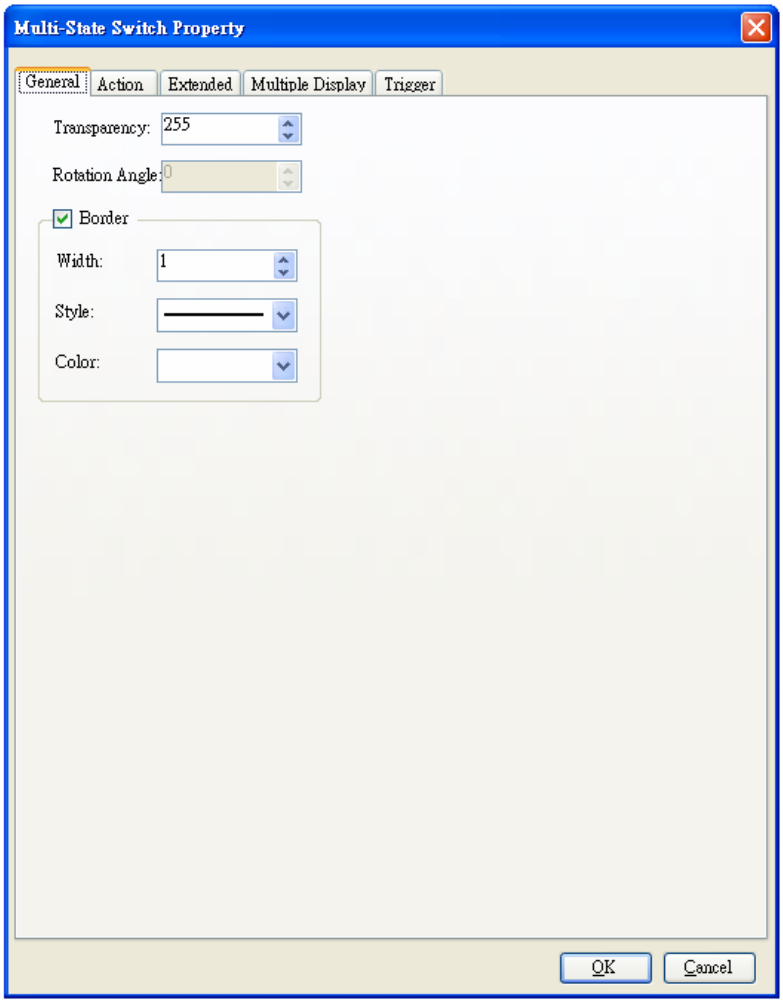



Fig. 3-6-2C-1 General Property Setup

The Action property setting allows the user to set the number of segments, select Bit/Word device and numeric types. The action is a circular switching. See Figure 3-6-2C-2 below.

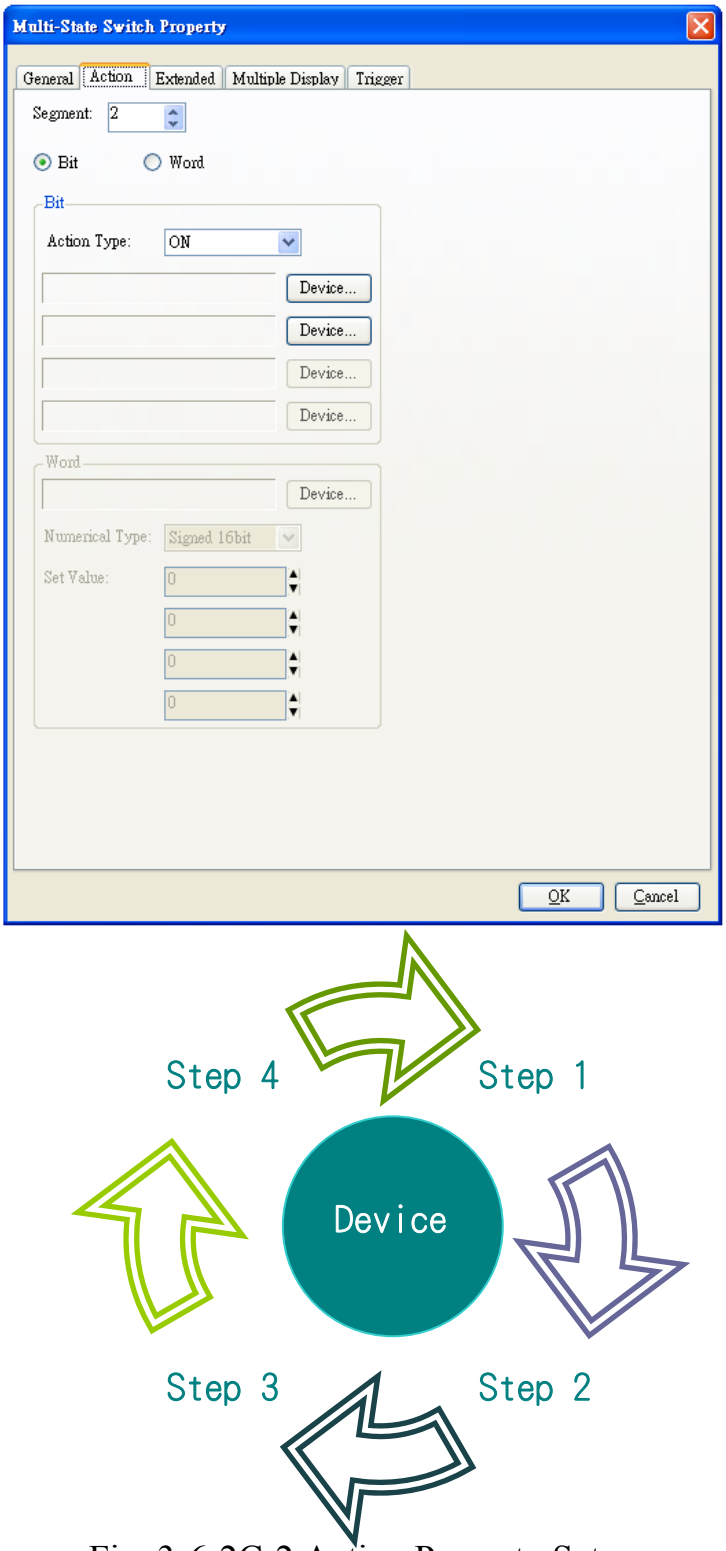



Fig. 3-6-2C-2 Action Property Setup

The options of Bit device action are ON/OFF. See Figure 3-6-2C-3 below.

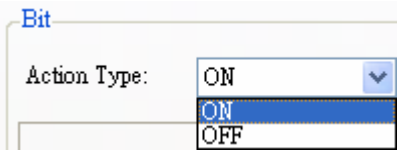



Fig. 3-6-2C-3 Bit Action Type

EX

To set the Bit device M0 to the ON/OFF alternating type, select the Bit option first, and then click Device... to select device M0 to finish the setting. See Figure 3-6-2C-4 below.

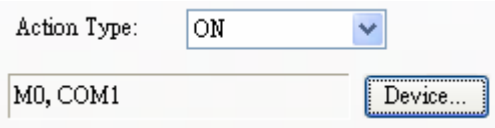



Fig. 3-6-2C-4 Bit Device Setup

There are 7 numeric types available for actions of the Word device. See Figure 3-6-2C-5 below.

| Types | Value Range |
|---|---|
| **Signed 16bit** | -32768~32767 |
| **Unsigned 16 bit** | 0~65535 |
| **Signed 32 bit** | -2147483648~2147483647 |
| **Unsigned 32 bit** | 0~4294967295 |
| **BCD16 bit** | 0~9999 |
| **BCD32 bit** | 0~99999999 |
| **Real** | -2.147484E+09~2.147484E+09 |

Fig. 3-6-2C-5 Numeric Types and Value Ranges

EX

To set the Word device D0 to an open state when its value is 10 or 20, click Device... and select device D0, and then enter 10 and 20 respectively in the value boxes. See Figure 3-6-2C-6 below.

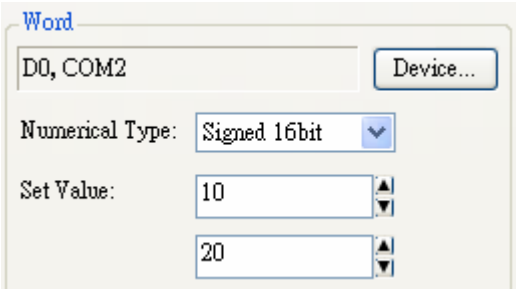
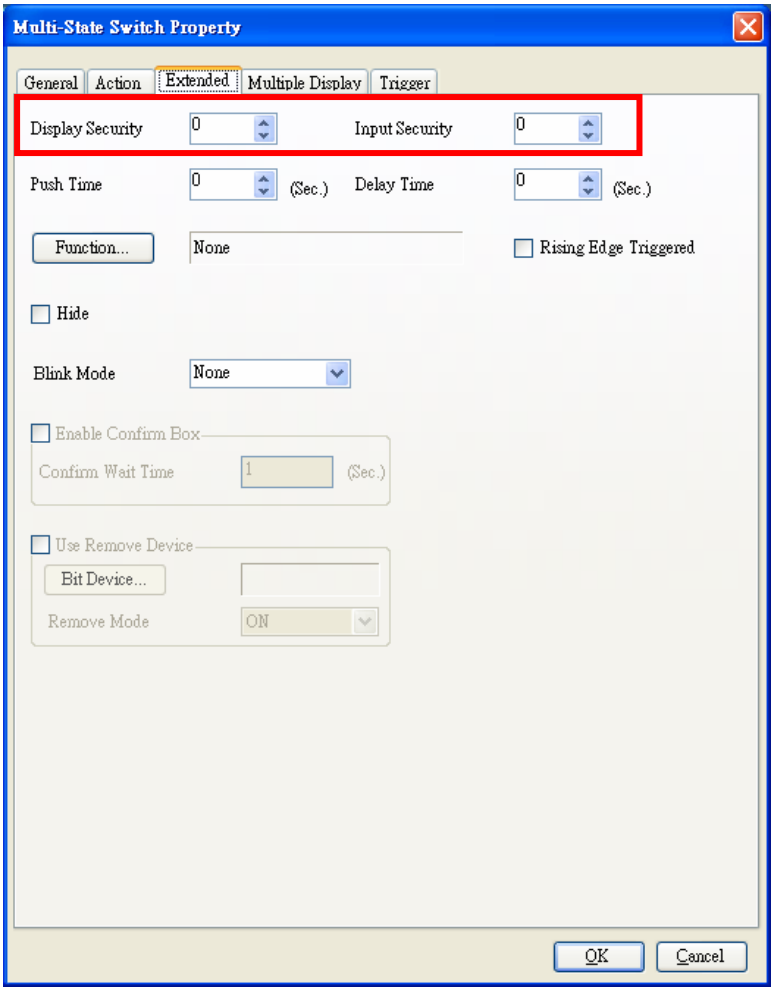



Fig. 3-6-2C-6 Word Device Setup

The security level setting, see figure 3-6-2C-7 below.




| Security Level | |
|---|---|
| **The security level (display) and security level (input) are ranged from 0 (lowest privilege) to 15 (highest privilege). The default security levels of the edit software and the system are both 0.** | |
| **Display security** | Current security level >= Display security,switch display. |
| **Input security** | Current security level >= Input security,switch can be operated. |

Fig. 3-6-2C-7 Setup of Security Level

Functions such as time setting, rising edge triggered, hide, blink mode and enable confirm box are listed in the following table.

| Function | Description |
|---|---|
| **Push Time** | When time is set to 5s, it only works after pressing for 5 seconds. |
| **Delay Time** | When time is set to 5s, it only works after pressing 5 seconds. |
| **Funtion** | For details, please refer to the Function... of the chapter 3.6.1.a Switch. |
| **Rising edge triggered** | ☑ Rising Edge Triggered: The switch button is triggered on the rising edge, and when setting the Function..., the system will automatically check the "Rising Edge Triggered" (Rising Edge Triggered should not used with the operation setting).<br>☐ Rising Edge Triggered: The switch button is trigged on the falling edge. |
| **Hide** | After checking the ☑ Hide, the switch button will become transparent, and it will not affect the function execution after sending data to the HMI. |
| **Blink Mode** | 3 speed modes: Low Speed, Medium Speed and High Speed |
| **Enable Confirm Box** | After triggering the button, it will pop up the confirm box as shown in figure 3-6-2C-8. The confirm box will close after the set time is reached. The maximum set time is 120 seconds. |

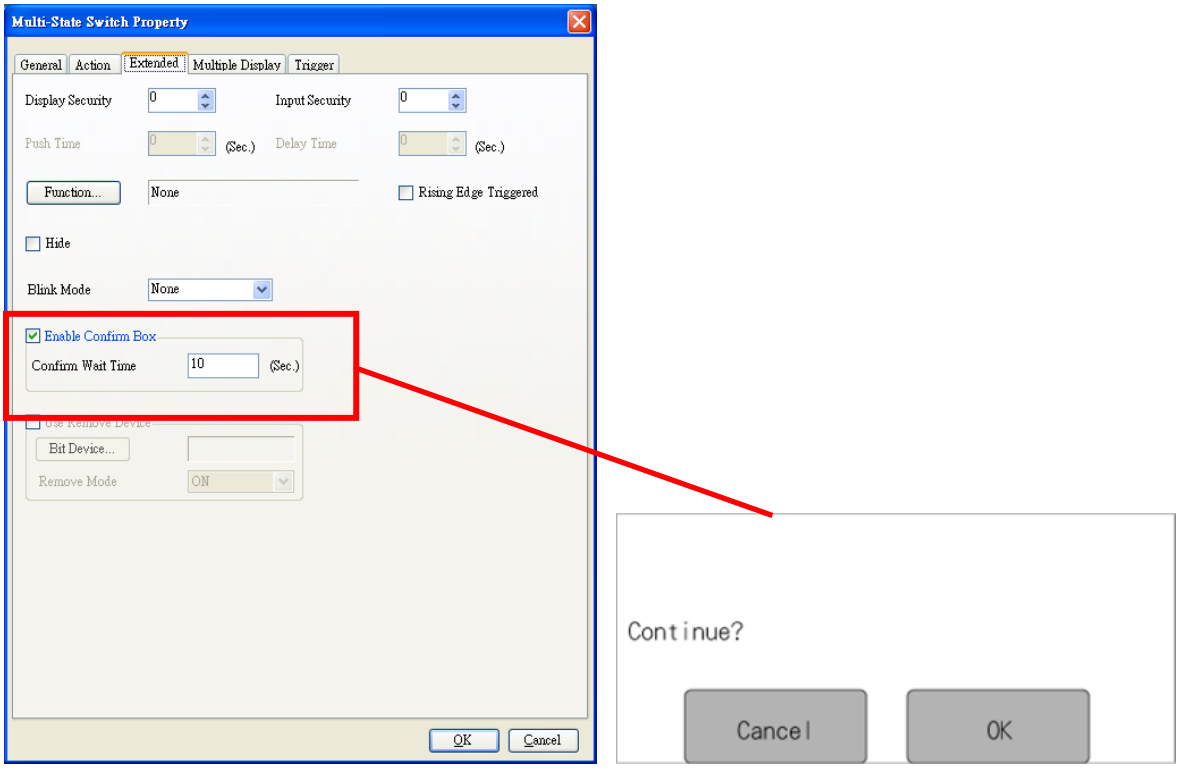
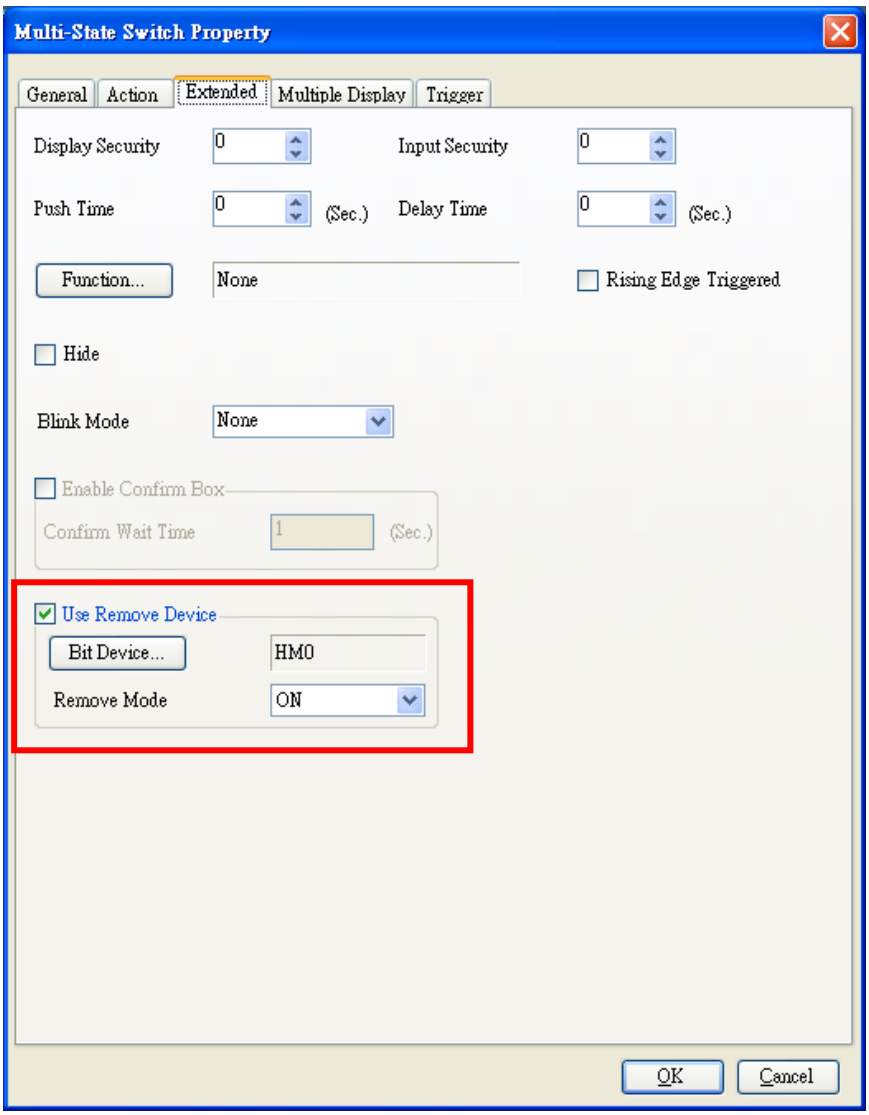
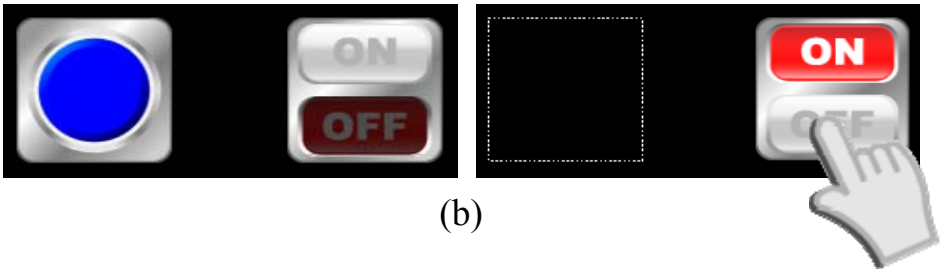



Fig. 3-6-2C-8 Enable Confirm Box

When you click Use Remove Device and the Bit device is triggered the unit will hide and cannot be operated, as shown in figure 3-6-2C-9.




(a)




(b)

Figure 3-6-2C-9: Use remove device (a) set remove device (b) remove device is triggered

The multi-display property setting allows the user to set the Bit/Word device, pictures and text. The system default state is 0. Click New State to forward add states starting from 0; click Delete State to backward delete states. Click to view the states. There can be as many as 16 states. See Figure 3-6-2C-10 below.

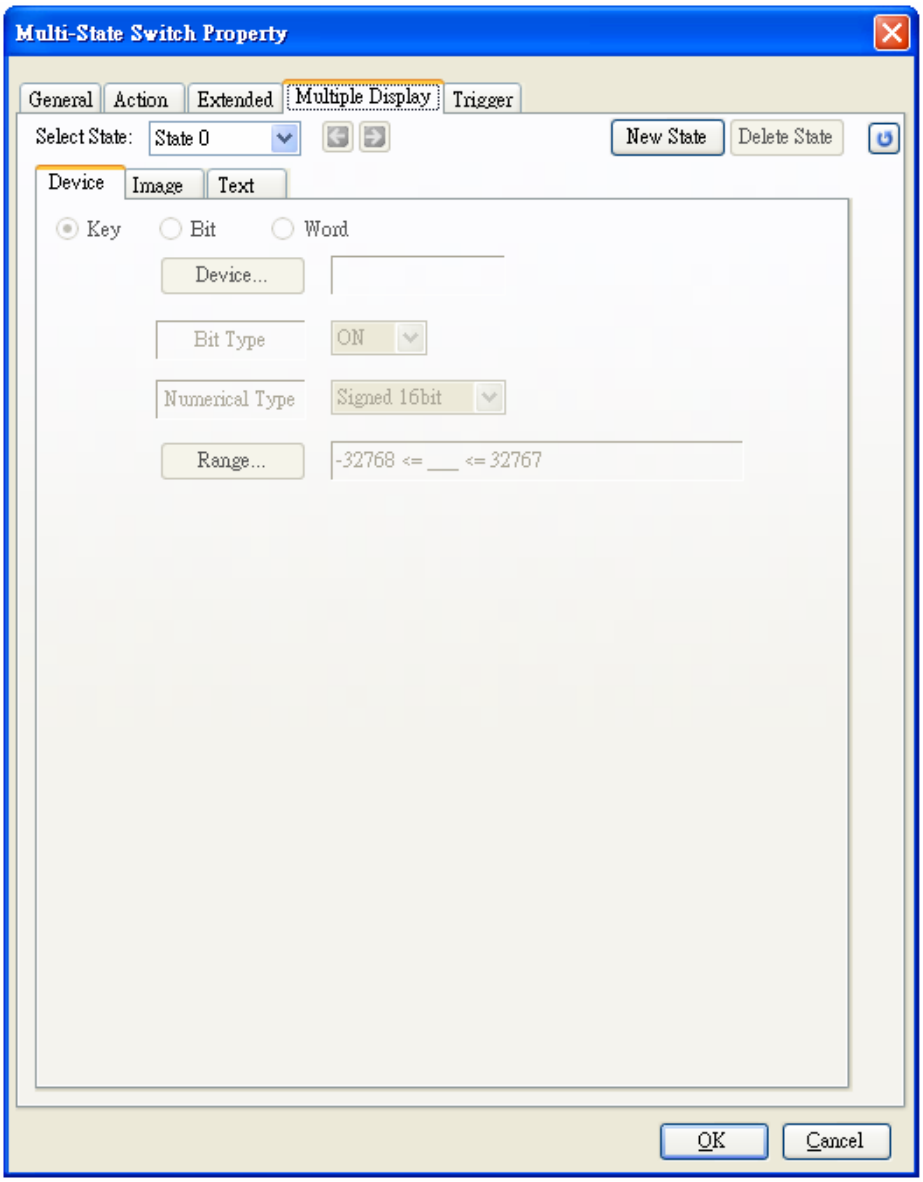



Fig. 3-6-2C-10 Multi-state Property Setup

The multiple display device properties allow the user to select Bit/Word for the device monitoring. See Figure 3-6-2C-11 below.

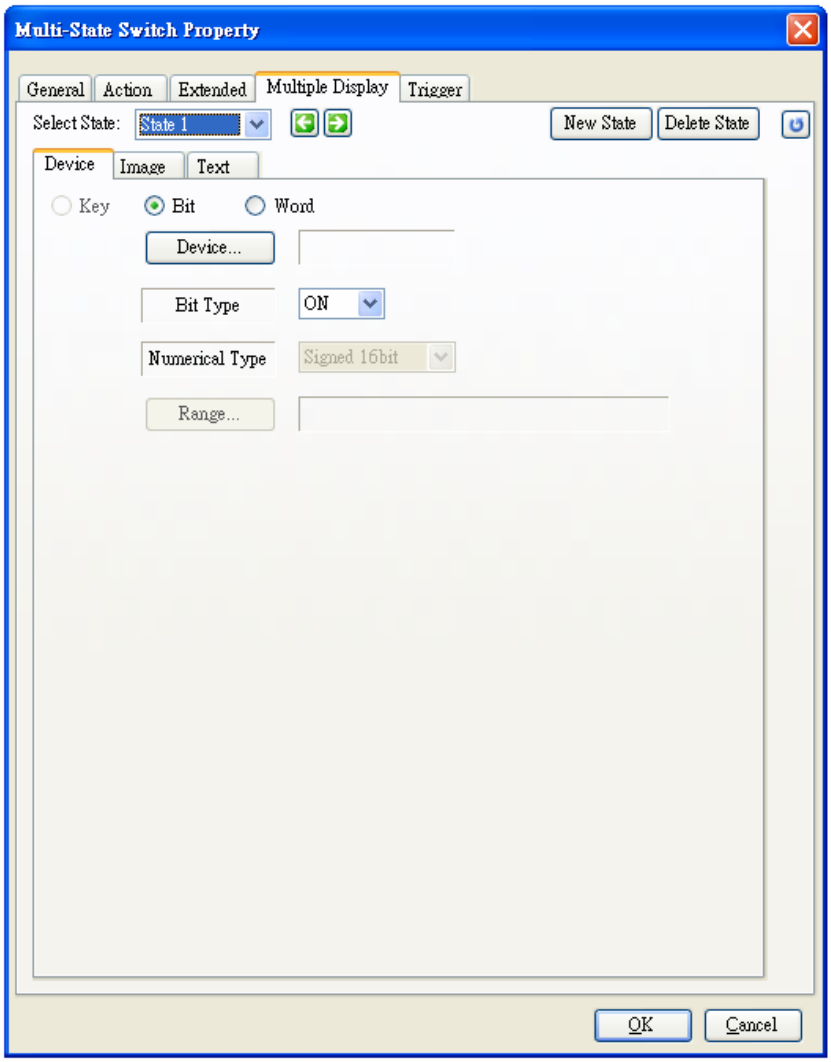



Fig. 3-6-2C-11 Set Propties of Multi-state Device

The available action types of Bit device are ON/OF. See Figure 3-6-2C-12 below.

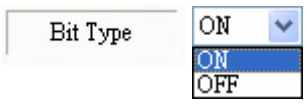



Fig. 3-6-2C-12 Bit Action Types

EX

To set the Bit device M0 to the ON/OFF alternating type, select the Bit option first, and then click Device... to select device M0 to finish the setting. See Figure 3-6-2C-13 below.

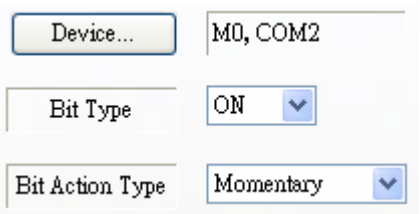
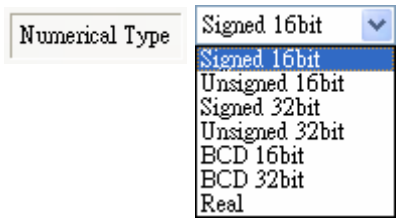



Fig. 3-6-2C-13 Bit Device Setup

There are 7 numeric types available for the actions of the Word device. See Figure 3-6-2C-14 below.




| Types | Value Range |
|---|---|
| **Signed 16bit** | -32768~32767 |
| **Unsigned 16 bit** | 0~65535 |
| **Signed 32 bit** | -2147483648~2147483647 |
| **Unsigned 32 bit** | 0~4294967295 |
| **BCD16 bit** | 0~9999 |
| **BCD32 bit** | 0~99999999 |
| **Real** | -2.147484E+09~2.147484E+09 |

Fig. 3-6-2C-14 Numeric Types and Value Ranges

EX

To set the lamp light on when the value of the Word device D0 is 10, select the Word option first, and then click Device... to select device D0, Then, click Range... and enter the statement 10=D0 to finish the setting. See Figure 3-6-2C-15 below.

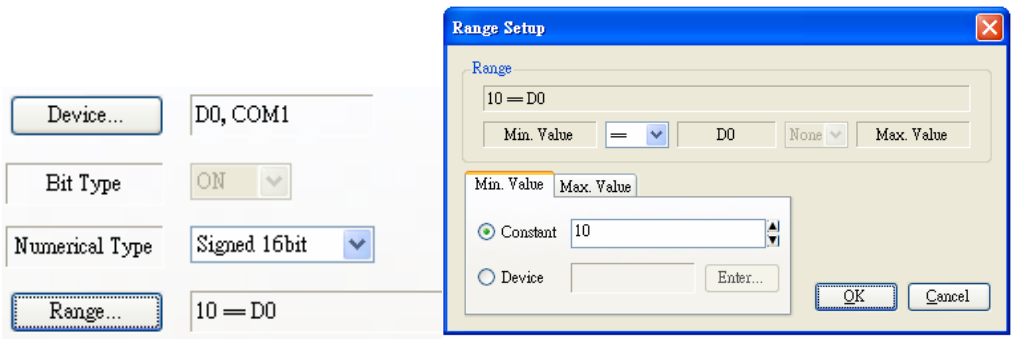



Fig. 3-6-2C-15 Word Device Setup

The user can change the pictures and the background and foreground colors. See Figure 3-6-2C-16 below.

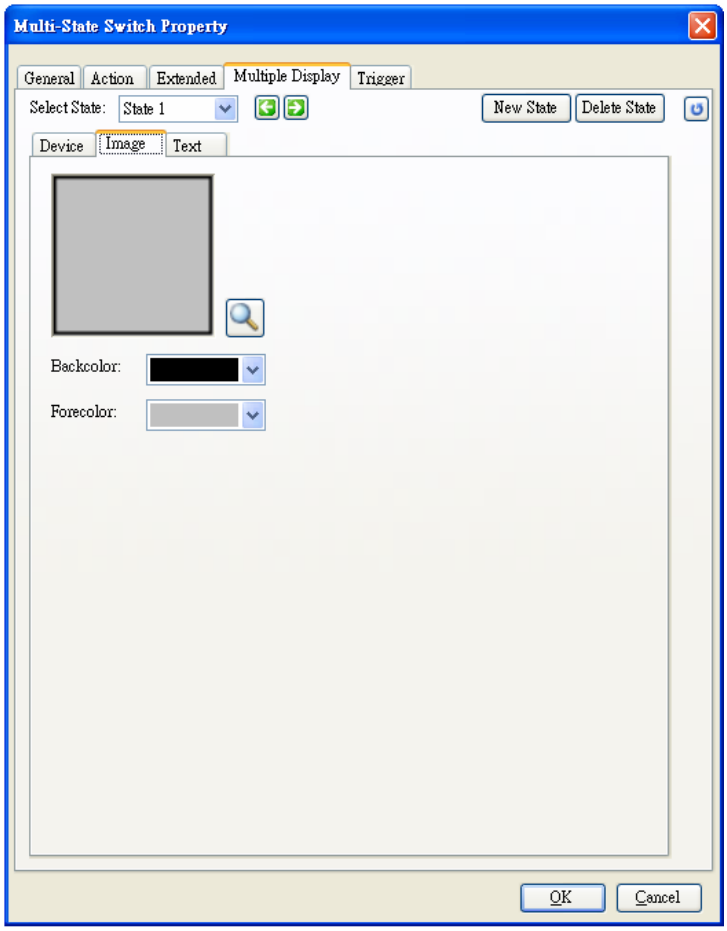



Fig. 3-6-2C-16 Property Setup of Multi-state Pictures

To change the picture, click to open the image library. For detailed information, please refer to Section 3.42 Image Library.

The multi-state properties allow the user to set the display color, font, text location, alignment, and the text. See Figure 3-6-2C-17 below.

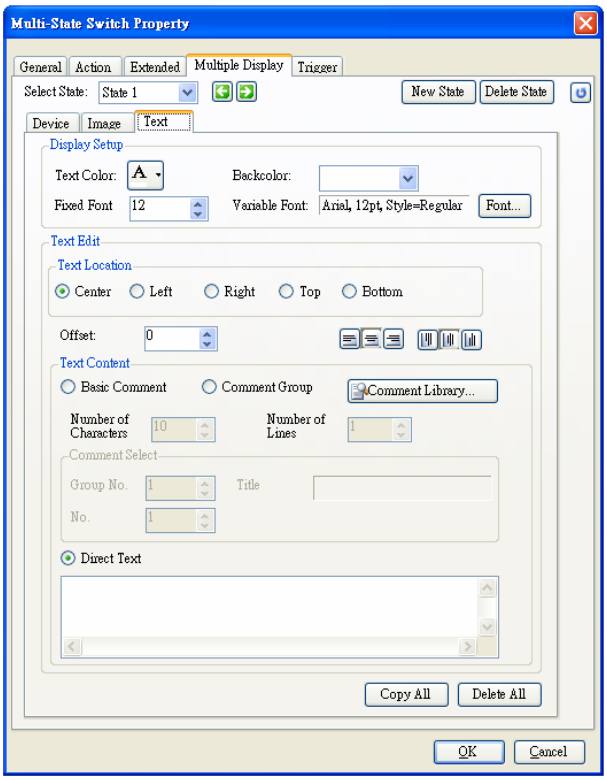



Fig. 3-6-2C-17 Setup of Multi-state Text Properties

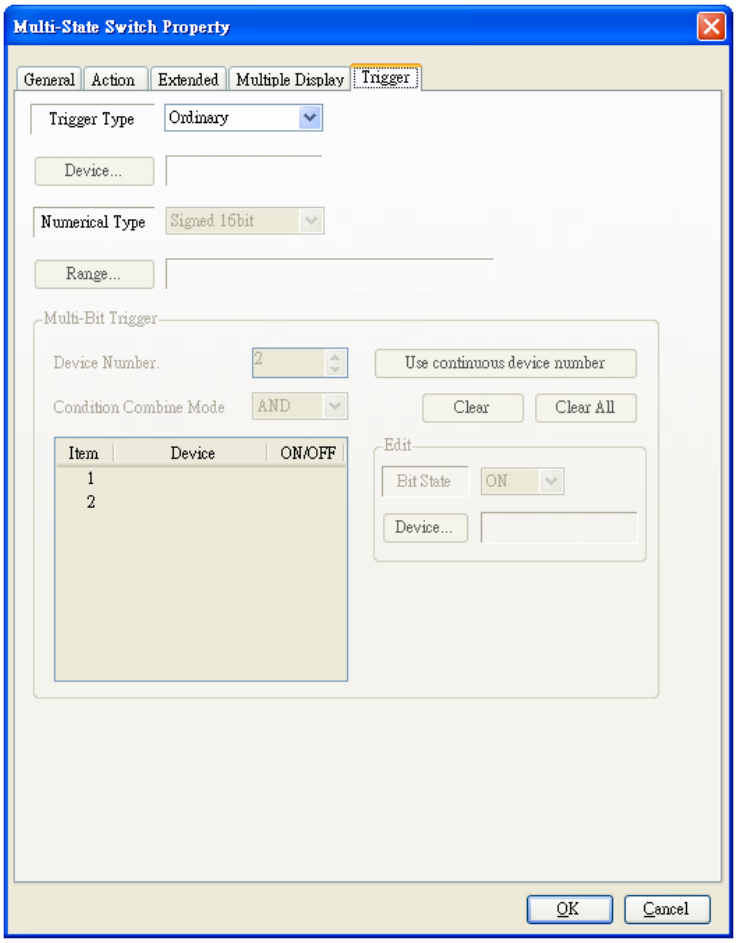
In the text editing, comments in the comment library can be set as text to display. To do this, click

to open the comment library dialogue box. For detailed instructions, please see Section 3.4.4 Comment Library.

NOTE

- When the text alignment set for align left、align right、Align top、Align bottom, can be used to offset setting to adjust the text position.

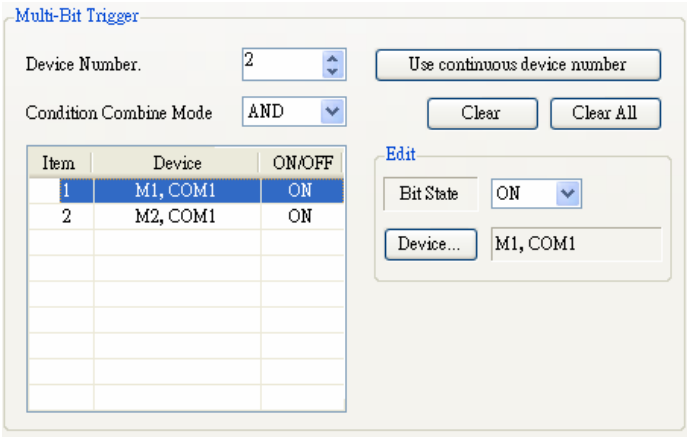
The Trigger properties allow the user to set the triggering conditions. See Figure 3-6-2C-18 below.



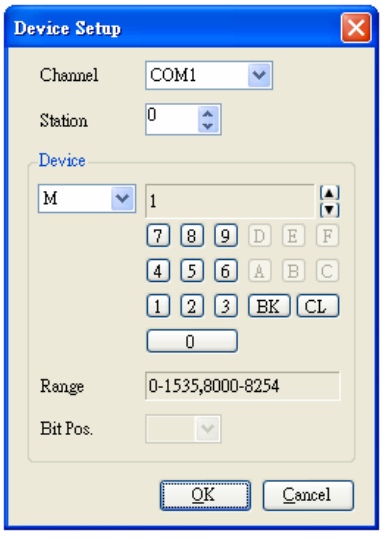

| Trigger Pattern | Description |
|---|---|
| **Ordinary** | No triggering pattern |
| **ON** | Action is taken only when the device in ON. |
| **OFF** | Action is taken only when the device is OFF. |
| **Range** | Action is taken only when the device value is within the defined range. |
| **Multiple Bit Trigger** | Set two or more devices, and only when all the devices reach the condition will the action start. |

Fig. 3-6-2C-18 Trigger Patterns

To set a multi-Bit trigger with 2 devices, click Device... to open the device setup window and set the trigger devices as M1, M2. Confirm the setting and send it to HMI. So, only when M1 and M2 are both ON will the switch actions be started. See Figure 3-6-2C-19 below.




(a)

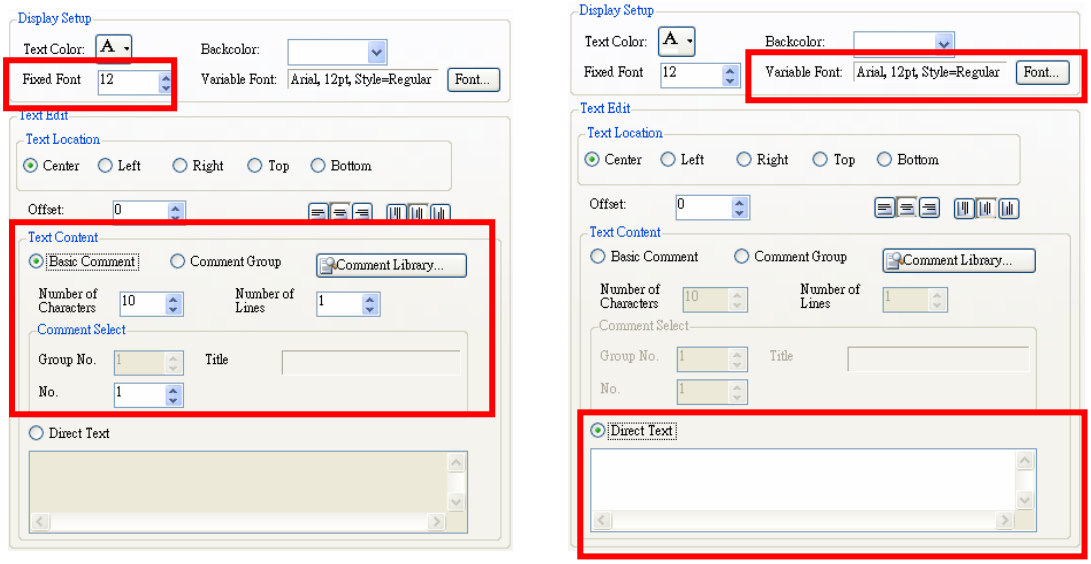



(b)

Fig. 3-6-2C-19 Multi-Bit Trigger (a) Setup of Multi-Bit Trigger (b) Device Setup

NOTE

- To set up the properties, you can also click Edit and then click Unit Property, or directly use the property window on the right of the screen, to make the setting.
- In the Text properties, the text contends can be comments and direct text. The comment takes fixed font, while the direct text takes variable fonts. See Figure 3-6-2C-20 below.




(a) (b)

Fig. 3-6-2C-20 Text Display Setting (a) Comment Text (b) Direct Text

## d. Slide Switch

To set up a slide switch, click Unit and click Switch and then click Slide Switch, or directly click the shortcut, and in the editing window left click the mouse to set up a slide switch. Then, click the object and then double left click the mouse to open the property window of the object and make the property setting.

In the "General" tab, you can change the color, slide height and bar width of the slide switch, as shown in figure 3-6-2D-1.

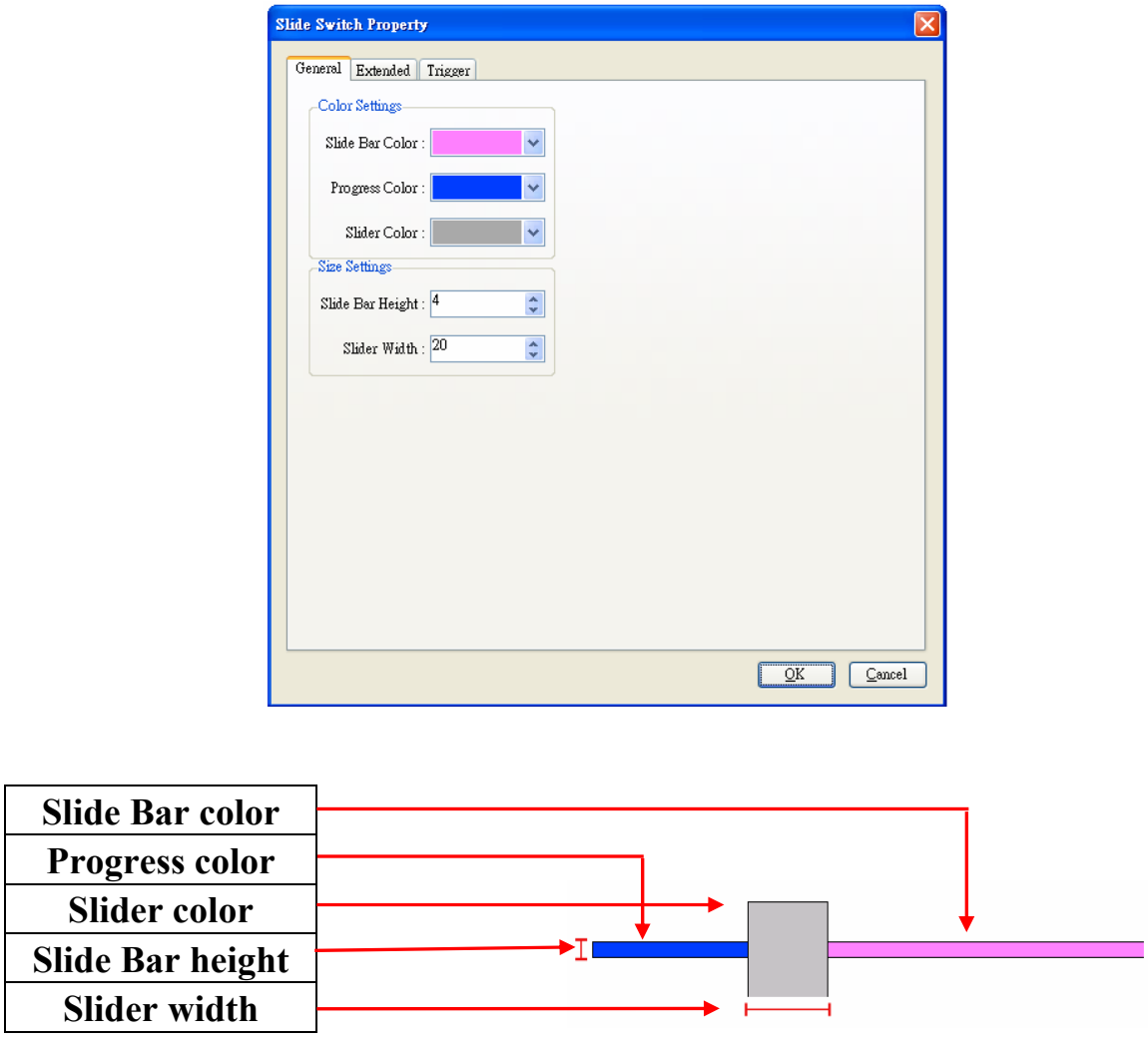
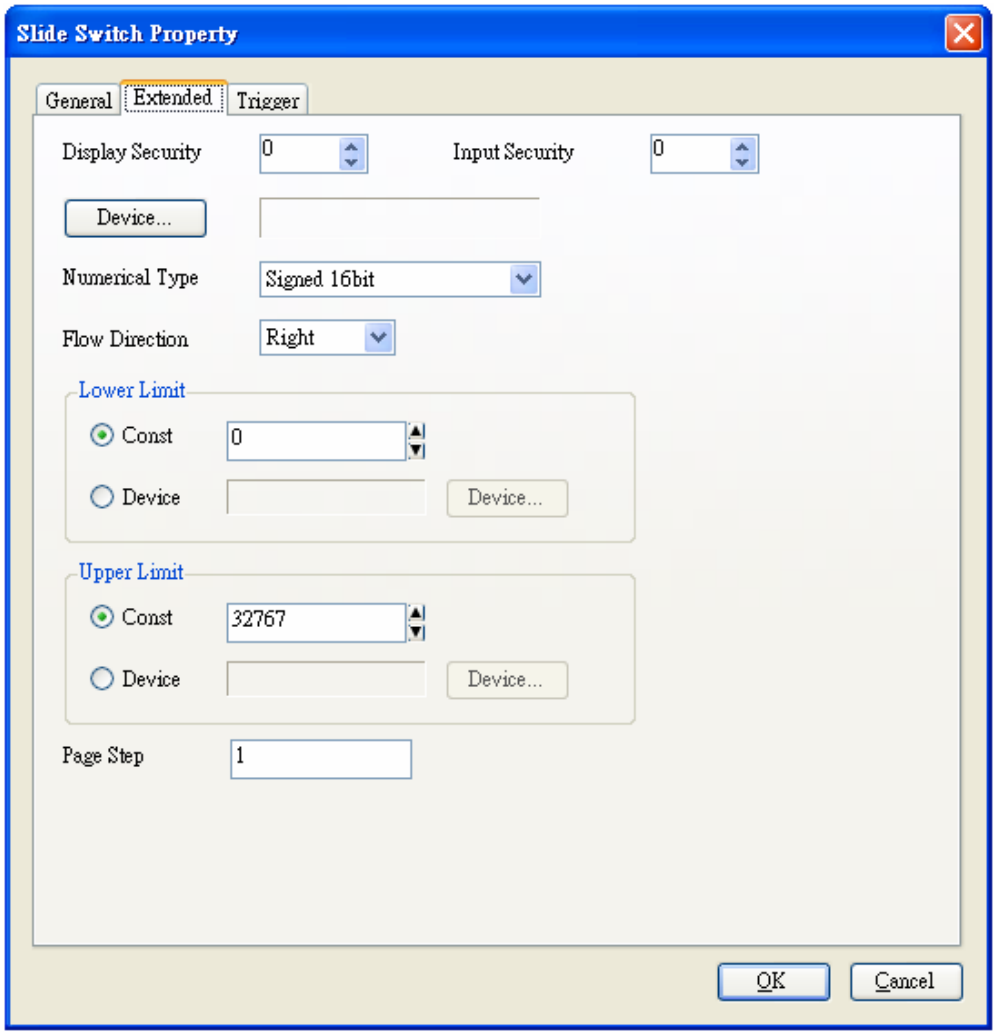



Figure 3-6-2D-1: Set general properties

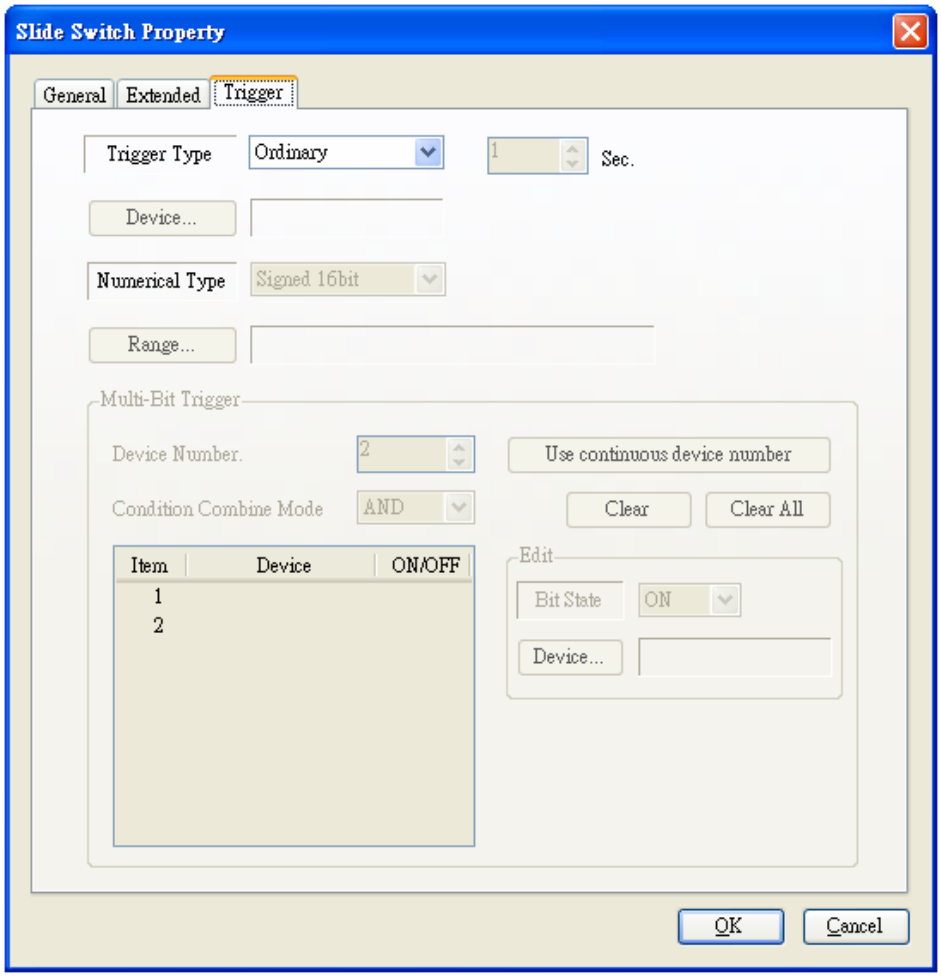
The user can drag the slide switch to change the device value on HMI. The Device, security level, flow direction, page step can be set from property window. See Figure 3-6-2D-2 below.




| Function | Description |
|---|---|
| Security Level | The security level is ranged from 0 (lowest privilege) to 15 (highest privilege). The default level is 0. |
| Flow Direction | The scrolling direction of the slide switch. |
| Page Step | When click is used to move the slide switch, this is the movement volume of each click. |

Fig. 3-6-2D-2 General Property Setup

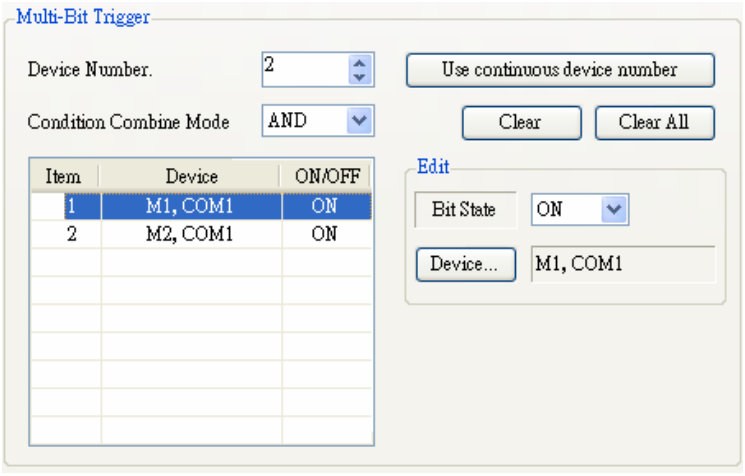
The user can set the triggering conditions, as shown in Figure 3-6-2D-3 below.



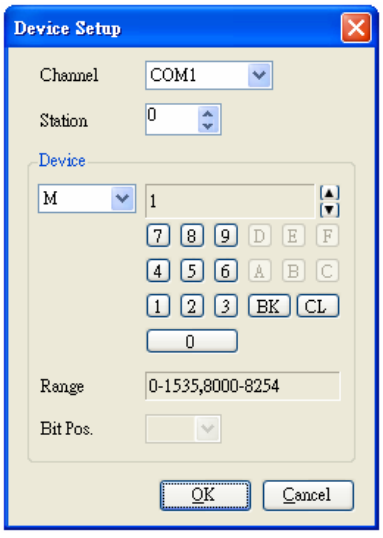

| Trigger Pattern | Description |
|---|---|
| Ordinary | No triggering pattern. |
| ON | Action is taken only when the device is ON |
| OFF | Action is taken only when the device is OFF |
| Range | Action is taken only when the device value is within the defined range. |
| Multiple Bit Trigger | Set two or more (up to 8) devices, and only when all the devices reach the condition will the action start. |
| Rise | Action is taken only when the device is switched from OFF to ON. |
| Fall | Action is taken only when the device is switched from ON to OFF. |
| Sampling | Action is taken only after the sampling time elapses. |

Fig. 3-6-2D-3 Trigger Patterns

To set a multi-Bit trigger with 2 devices, click Device... to open the device setup window and set the trigger devices as M1, M2. Confirm the setting and send it to HMI. So, only when M1 and M2 are both ON will the switch actions be started. See Figure 3-6-2D-4 below.




(a)




(b)

Fig. 3-6-2D-4 Multi-Bit Trigger (a) Setup of Multi-Bit Trigger (b) Device Setup

## e. Combo Box

To set up a menu, click Unit and click Switch and then click Combo Box, or directly click the shortcut, and then in the editing window left click the mouse to set up a combo box. Click the combo box and then double left click the mouse to open the property window of the object and make the property setting.

The Extended property setting allows the user to set the selection mode, security level, font size, and scroll bar width. See Figure 3-6-2E-1 below.

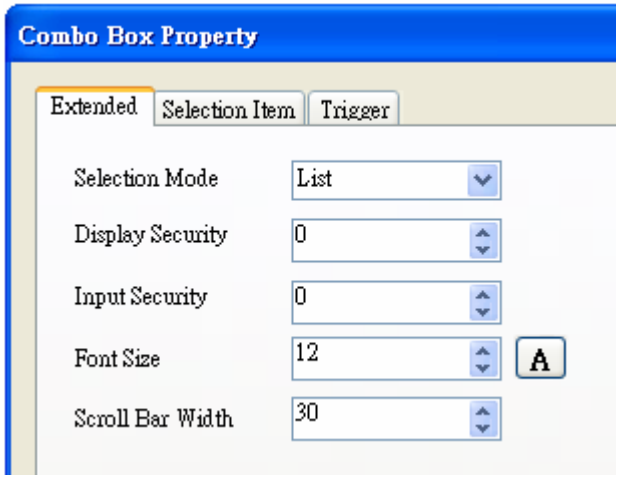
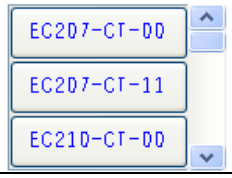
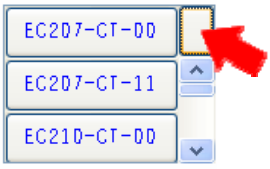
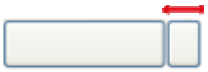
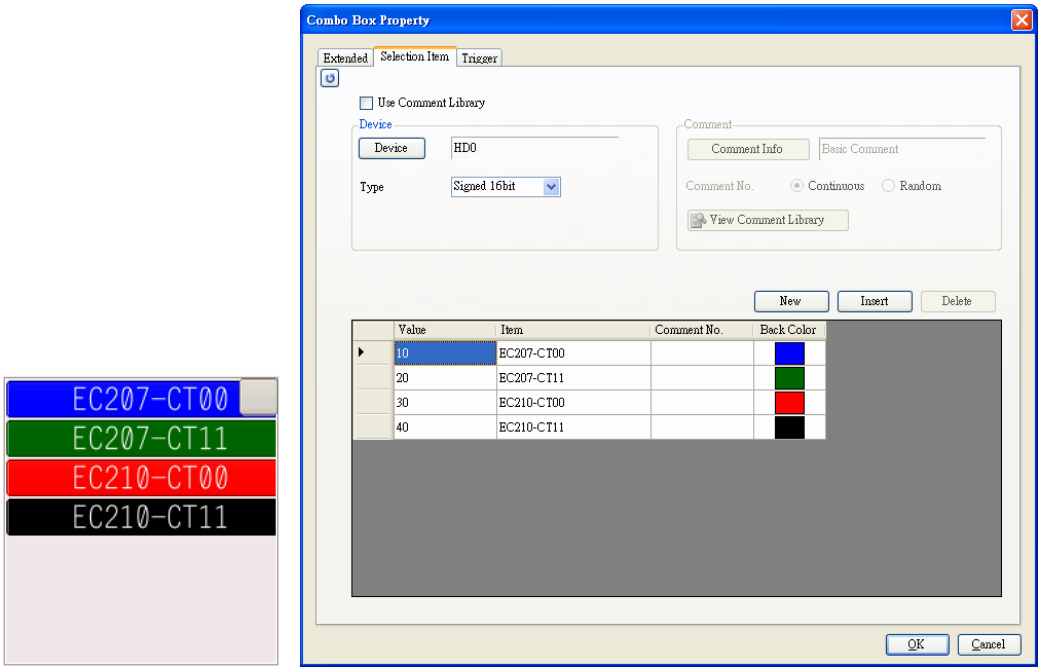



Fig. 3-6-2E-1 Extened Setup

| Funtion | Description |
|---|---|
| **Selection Mode** | List：  Drop Down List：  |
| **Security Level** | The security level is ranged from 0 (lowest privilege) to 15 (highest privilege). The default level is 0. |
| **Scroll Bar Width** | Scroll Bar Width range is 15~50。  |

In the Selection Item Setting, click a defined value to write it to the designated device. Tick the option Use Comment Library to set comments in the comment library as the text to display. To do this, click View Comment Library to open the comment library dialogue box. For detailed instructions, please see Section 3.4.4 Comment Library. See Figure 3-6-2E-2 below.




| Column | Description |
|---|---|
| **Value** | Click the value and send it to the device. |
| **Item** | Directly enter the item name. |
| **Comment No.** | Item name is displayed via the comment data |
| **Background color** | Sets background color of an item. |

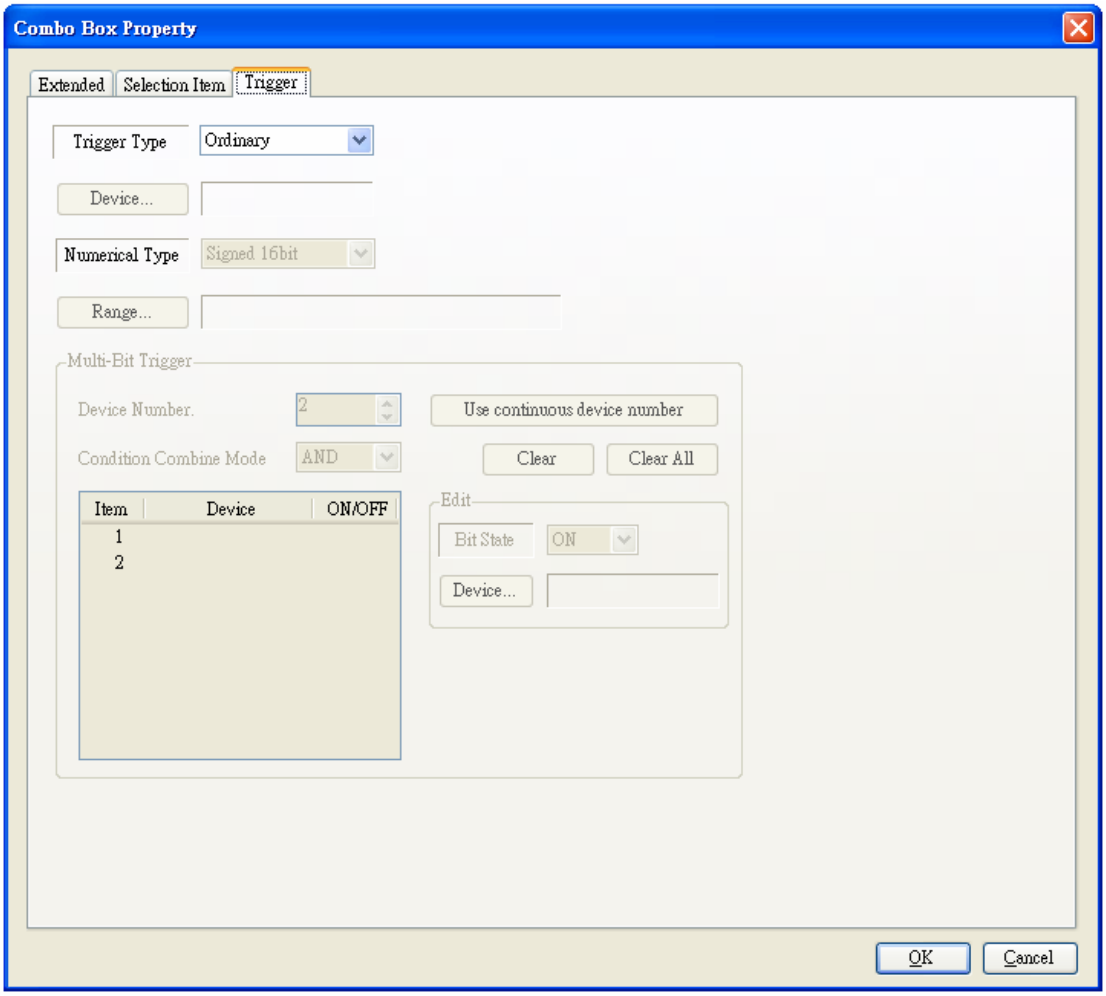
Fig. 3-6-2E-2 Option Setup

NOTE

- When the item name is set Use Comment Library, combo box height is the font size of the first item.

combo box height

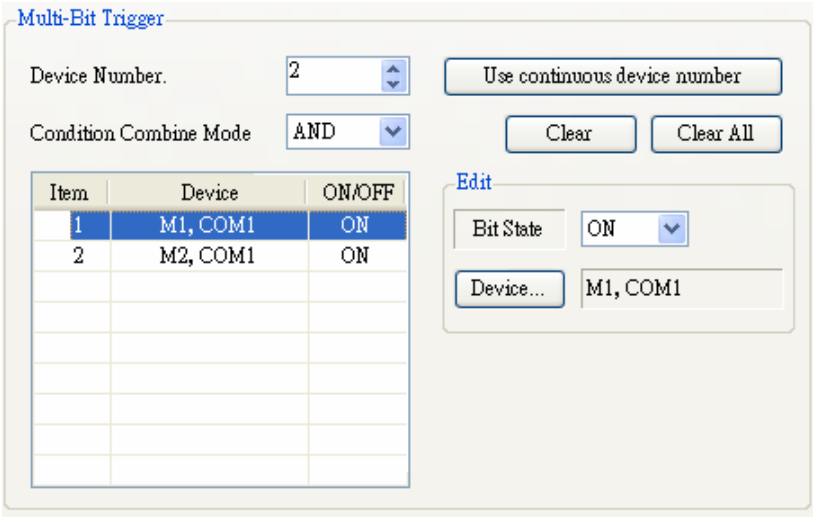
The Trigger property setting allows the user to set the triggering conditions. See Figure 3-6-2E-3 below.



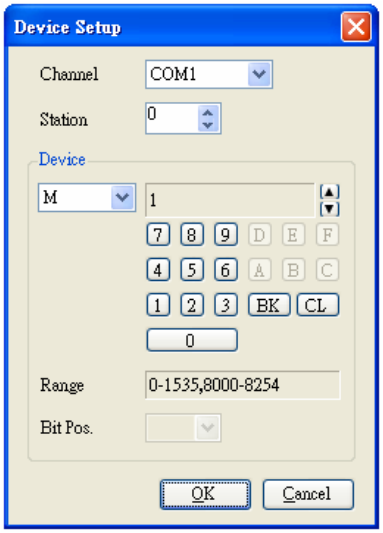

| Trigger Pattern | Description |
|---|---|
| **Ordinary** | No triggering pattern. |
| **ON** | Action is taken only when the device is ON |
| **OFF** | Action is taken only when the device is OFF |
| **Range** | Action is taken only when the device value is within the defined range. |
| **Multiple Bit Trigger** | Set two or more devices, and only when all the devices reach the condition will the action start. |

Fig. 3-6-2E-3 Trigger Patterns

To set a multi-Bit trigger with 2 devices, click Device... to open the device setup window and set the trigger devices as M1, M2. Confirm the setting and send it to HMI. So, only when the M1 and M2 switches are both ON will the switch actions be started. See Figure 3-6-2E-4 below.




(a)




(b)

Fig. 3-6-2E-4 Multi-Bit Trigger (a) Setup of Multi-Bit Trigger (b) Device Setup

### 3.6.3. Lamp

Click Unit and then click Lamp, or directly click the shortcut, and in the editing window left click the mouse to set up a lamp. See Figure 3-6-3 below.

Fig. 3-6-3 Lamp Menu

## a. Lamp

To set up an lamp, click Unit and click Lamp and then click Lamp, or directly click the shortcut, and in the editing window left click the mouse to finish the set up. Click the lamp and then double left click the mouse to open the property window of the object and make the property setting.

The General property setting allows the user to set the ON/OFF display, color, transparency and line pattern. See Figure 3-6-3A-1 below.

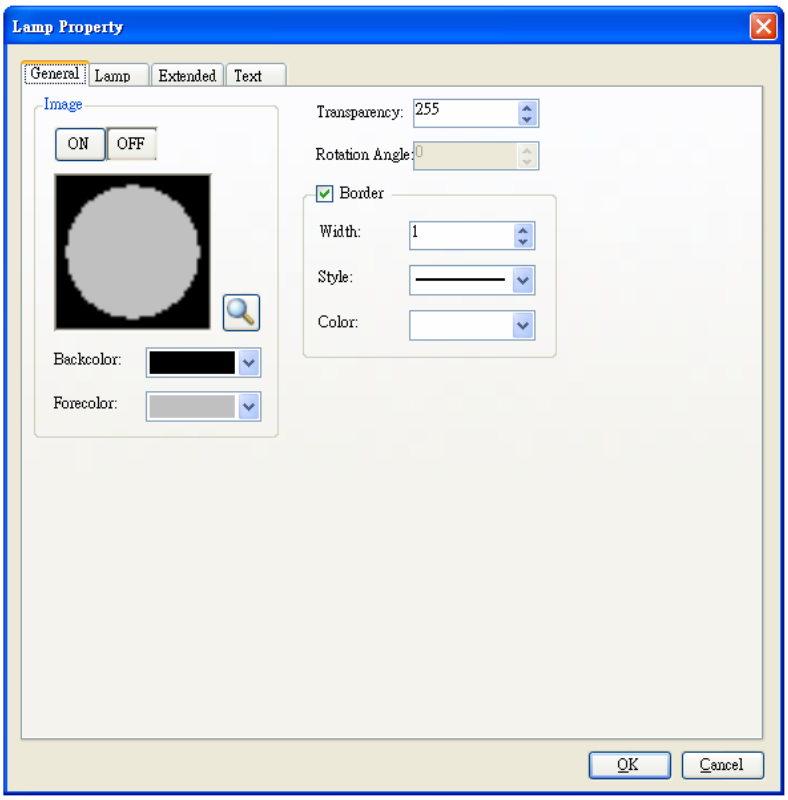



Fig. 3-6-3A-1 General Property Setup

To change the displayed picture, click to open the image library. For operational guide, please refer to Section 3.4.2 Image Library.

The lamp property setting allows the user to change the device, Bit type, numeric type, and value range.

Figure 3-6-3A-2 below demonstrates the setting of the lamp device. The user can set Bit or Word for the lamp monitoring.

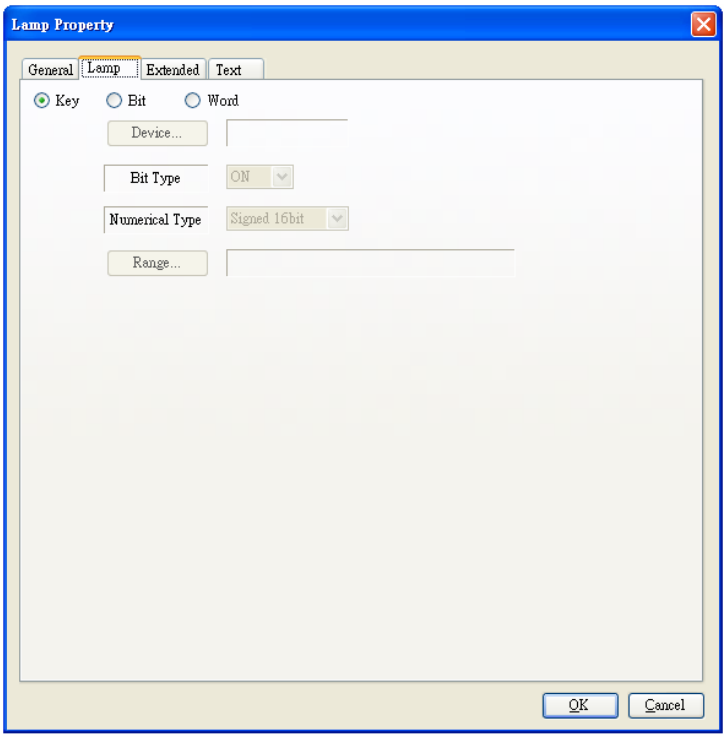



Fig. 3-6-3A-2 Lamp Property Setup

The available action types of Bit device are ON/OF. See Figure 3-6-3A-3 below.

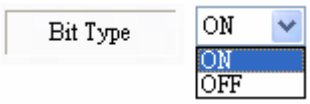


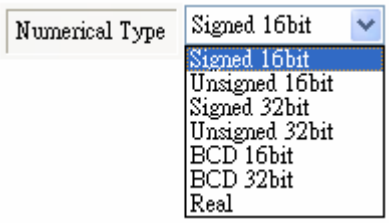

Fig. 3-6-3A-3 Bit Action Type

EX

To set the Bit device M0 to the ON/OFF alternating type, select the Bit option first, and then click Device... to select device M0 to finish the setting. See Figure 3-6-3A-4 below.

Fig. 3-6-3A-4 Bit Device Setup

There are 7 numeric types available for the actions of the Word device. See Figure 3-6-3A-5 below.




| Types | Value Range |
|---|---|
| **Signed 16bit** | -32768~32767 |
| **Unsigned 16 bit** | 0~65535 |
| **Signed 32 bit** | -2147483648~2147483647 |
| **Unsigned 32 bit** | 0~4294967295 |
| **BCD16 bit** | 0~9999 |
| **BCD32 bit** | 0~99999999 |
| **Real** | -2.147484E+09~2.147484E+09 |

Fig. 3-6-3A-5 Numeric Types and Value Ranges

EX

To set the lamp light on when the value of the Word device D0 is 10, select the Word option first, and then click Device... to select device D0, Then, click Range... and enter the statement 10=D0 to finish the setting. See Figure 3-6-3A-6 below.

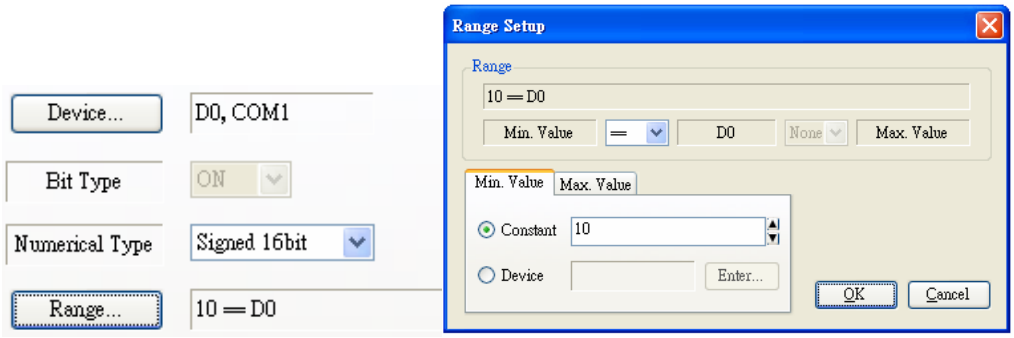



Fig. 3-6-3A-6 Word Device Setup

The Extension property setting allows the user to set the security level and object blinking. Figure 3-6-3A-7 below demonstrates the setting of the object's security level. Both the security level (display) and security level (input) are ranged from 0 (lowest privilege) to 15 (highest privilege). The default security levels of the edit software and the system are both 0.

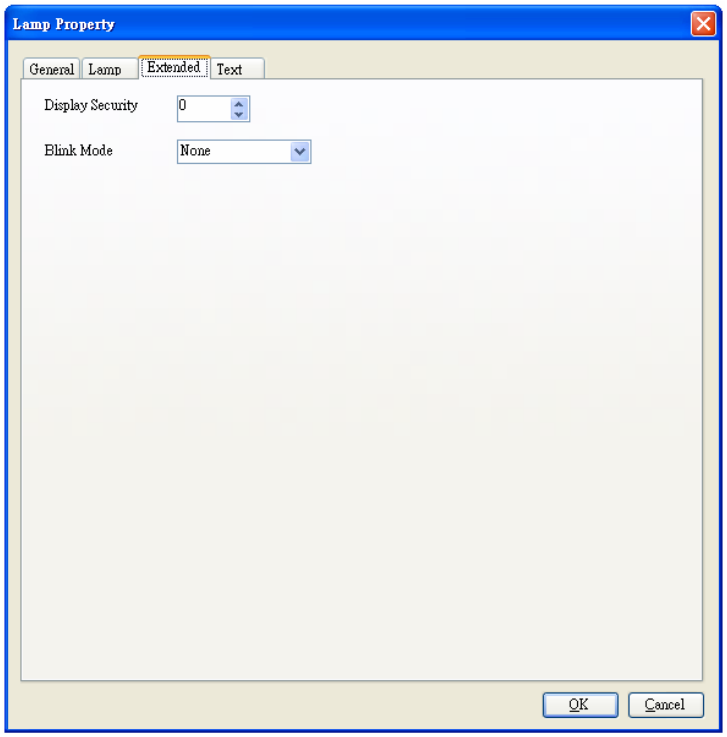



Fig. 3-6-3A-7 Setup of Security Level

To set the lamp blinking, use the pull-down menu to select one of the 3 blinking speed. See Figure 3-6-3A-8 below.

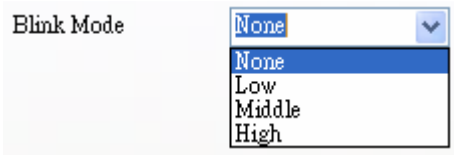



Fig. 3-6-3A-8 Blinking Modes

The Text property setting allows the user to set the text ON/OFF text display, text color, text font, text location, alignment, and the content. See Figure 3-6-3A-9 below.

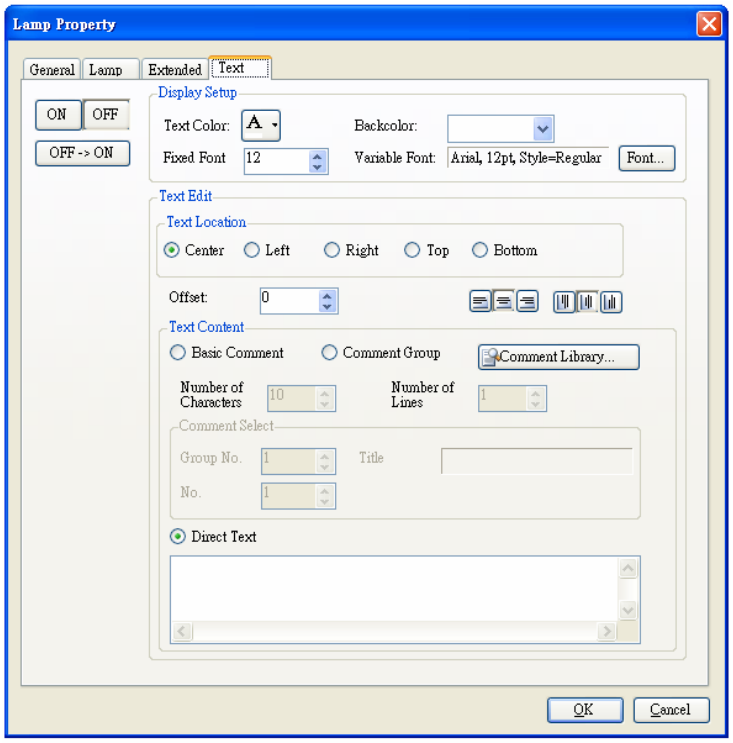



Fig. 3-6-3A-9 Text Property Setup

In the text editing, the comments in the comment library can be set as text to display. To do this, click Comment Library... to open the comment library dialogue box. For detailed instructions, please see Section 3.4.4 Comment Library

NOTE

- When the text alignment set for align left、align right、Align top、Align bottom, can be used to offset setting to adjust the text position.

## b. Multi-State Lamp

To set up a multi-state lamp, click Unit and click Lamp and then click Multi-State Lamp, or directly click the shortcut, and in the editing window left click the mouse to set up the object. Click the object and then double left click the mouse to open the property window of the object and make the setting.

The General property setting allows the user to set the transparency and line pattern. See Figure 3-6-3B-1 below.

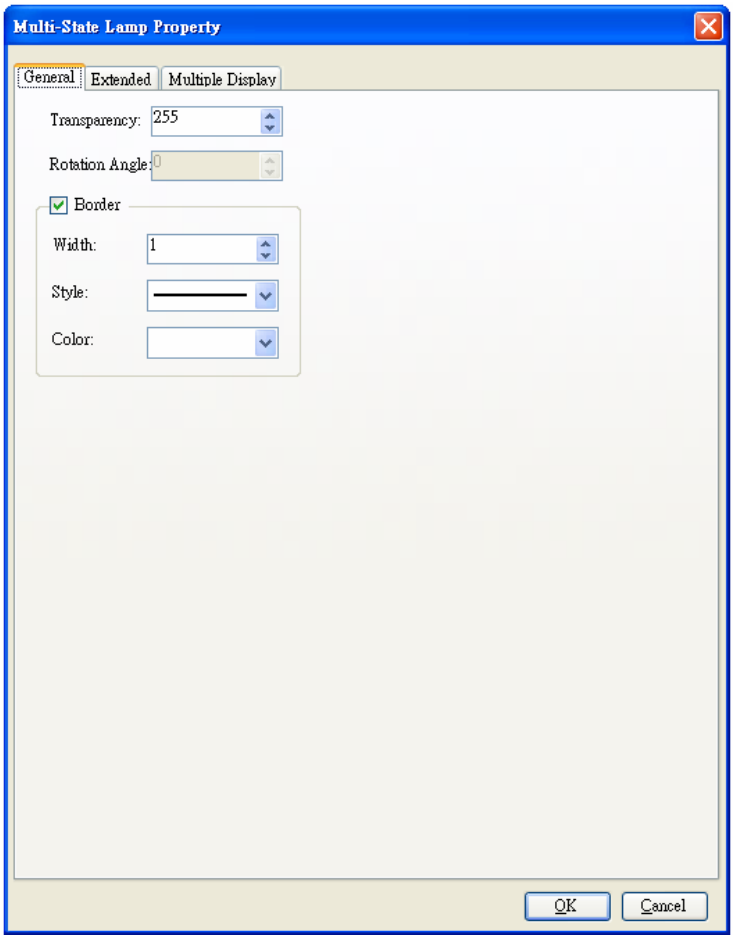



Fig. 3-6-3B-1 General Property Setting

The Extension properties allow the user to change the security level and blinking mode. Figure 3-6-3B-2 below demonstrates the setting of the object's security level. The security level (display) is ranged from 0 (least privilege) to 15 (highest privilege). The default security levels of the edit software and the system are both 0.

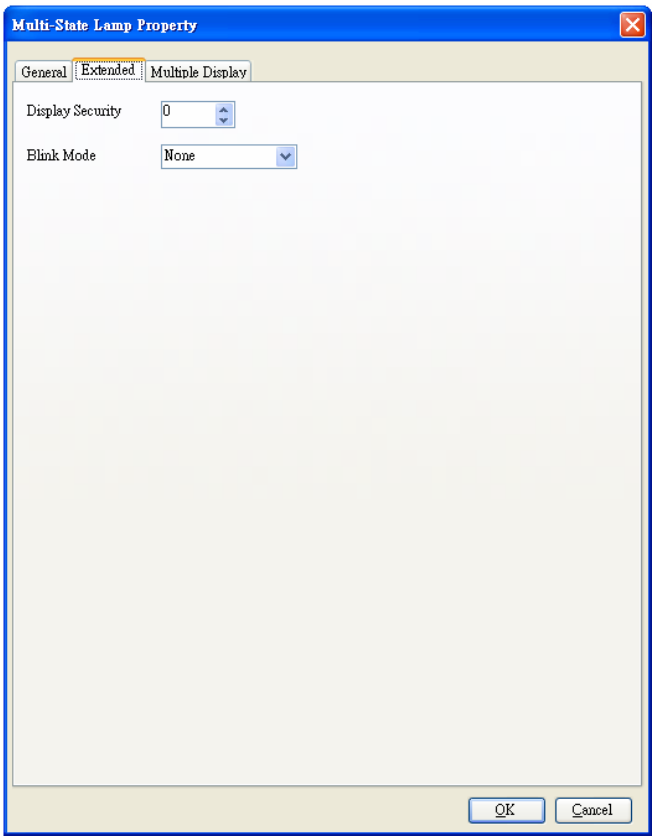



Fig. 3-6-3B-2 Security Level Setting

To set up the blink mode of the multi-state lamp, use the pull-down menu to select one of the three blinking speeds provided by the system. See Figure 3-6-3B-3 below.

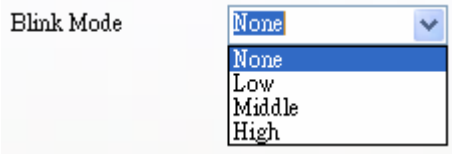



Fig. 3-6-3B-3 Blinking Mode Setup

The Multi-display property setting allows the user to change the Bit/Word device, the picture and the text content. The system default state is 0; click New State to increment the state forward starting from 0; click Delete State to decrement the state backward. Click to view the state. And the state can be incremented up to 16. See Figure 3-6-3B-4 below.

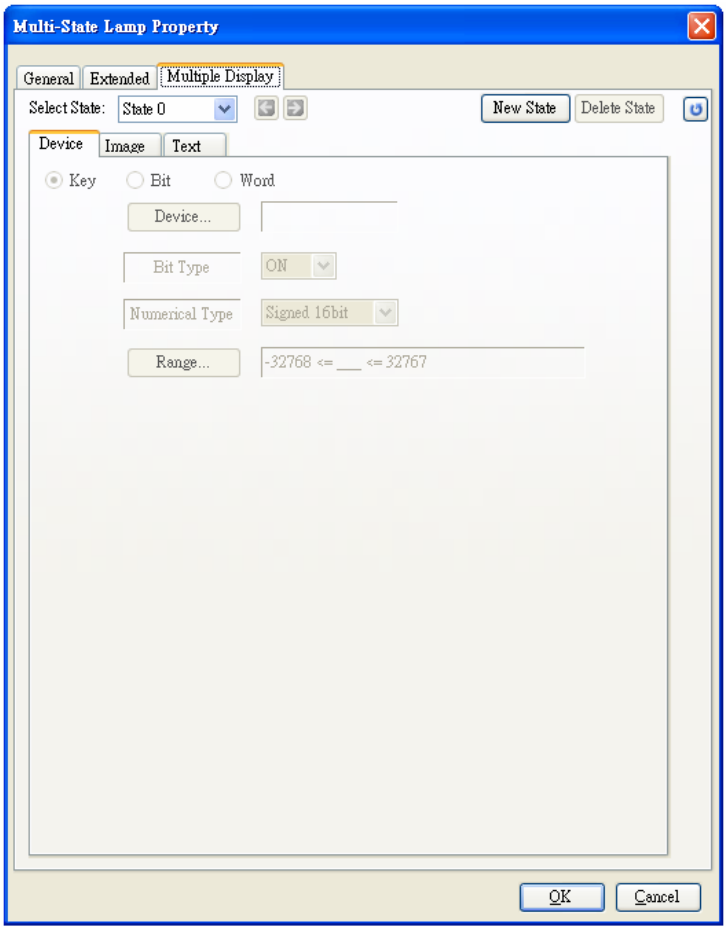



Fig 3-6-3B-4 Multi-display Property Setting

The Multi-display Property Setting also allows the user to select Bit/Word device to monitor. See Figure 3-6-3B-5 below.

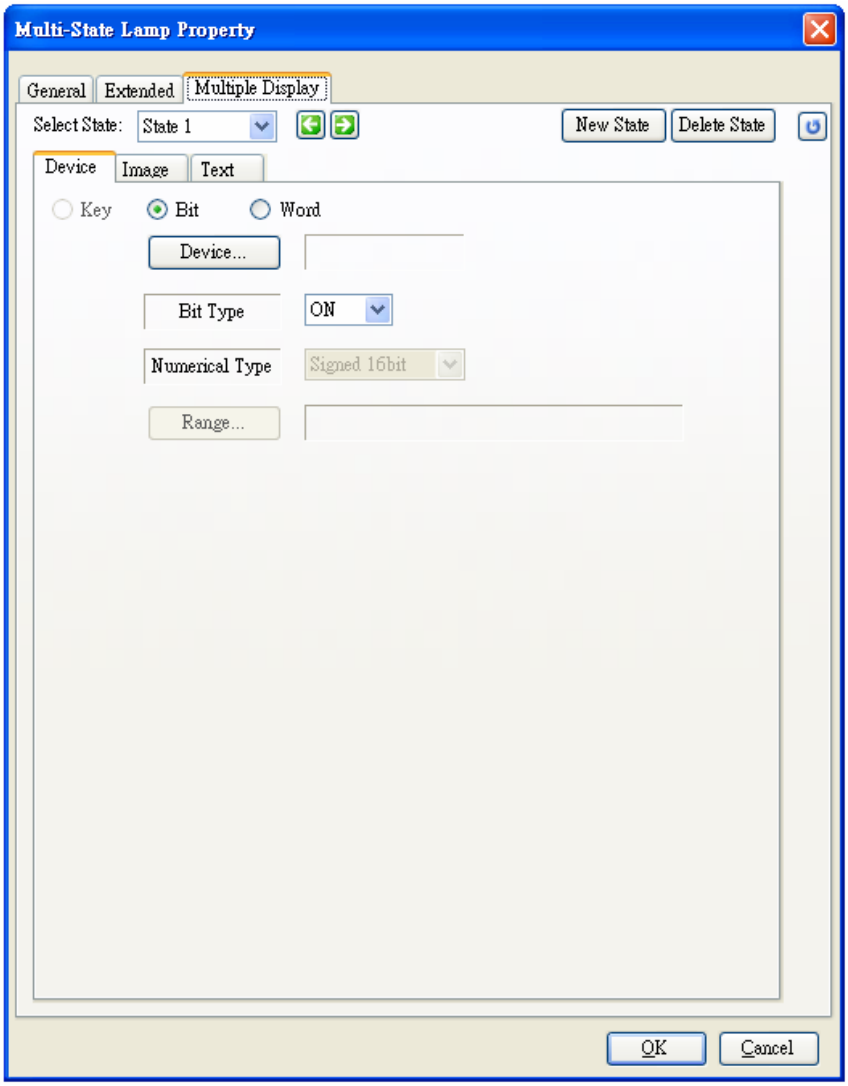



Fig. 3-6-3B-5 Multi-display Device Property Setting

The Bit action device types are ON/OFF displays. See Figure 3-6-3B-6 below.

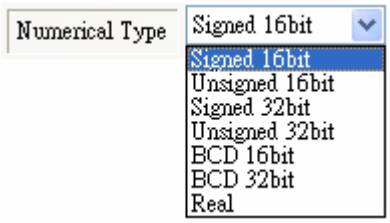
Fig. 3-6-3B-6 Bit Action Type Setting

EX

To operate the Bit device M0 as ON/OFF alternating type, select Bit first, and then click Device... to select device M0 to finish the setting. See Figure 3-6-3B-7 below.

Fig. 3-6-3B-7 Bit Device Setting

The Word action device has 7 numeric types available. See Figure 3-6-3B-8 below.




| Numeric Type | Value Range |
|---|---|
| **Signed 16bit** | -32768~32767 |
| **Unsigned 16 bit** | 0~65535 |
| **Signed 32 bit** | -2147483648~2147483647 |
| **Unsigned 32 bit** | 0~4294967295 |
| **BCD16 bit** | 0~9999 |
| **BCD32 bit** | 0~99999999 |
| **Real** | -2.147484E+09~2.147484E+09 |

Fig. 3-6-3B-8 Numeric Types and Value Ranges

EX

To operate the Word device D0 to open the lamp when D0 is 10, select Word first, and then click Device... to select the device D0, and then click Range... to set 10=D0 to finish the setting. See Figure 3-6-3B-9 below.

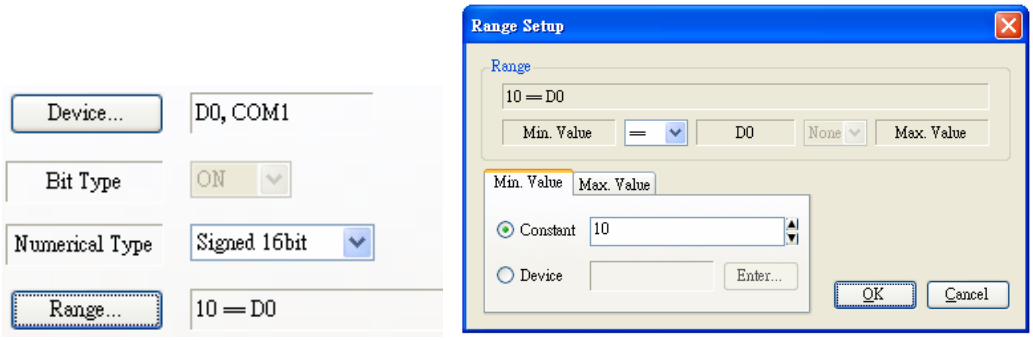



Fig. 3-6-3B-9 Word Device Setting

The Multi-display picture property allows the user to change the picture shape and the color. See Figure 3-6-3B-10 below.

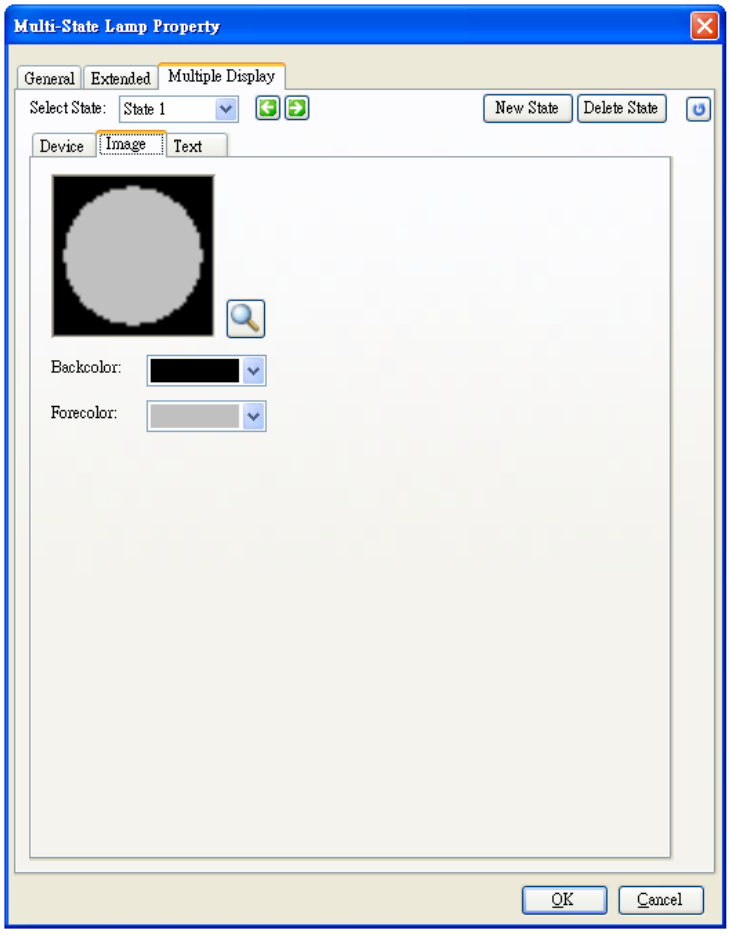



Fig. 3-6-3B-10 Multi-display Picture Property Setting

To change the picture, click to open the picture library. For detailed instructions, please see Section 3.4.2 Image Library.

Multi-state Text property setting allows the user to change the text display, text color, text font, text location, alignment and the text content. See Figure 3-6-3B-11 below.

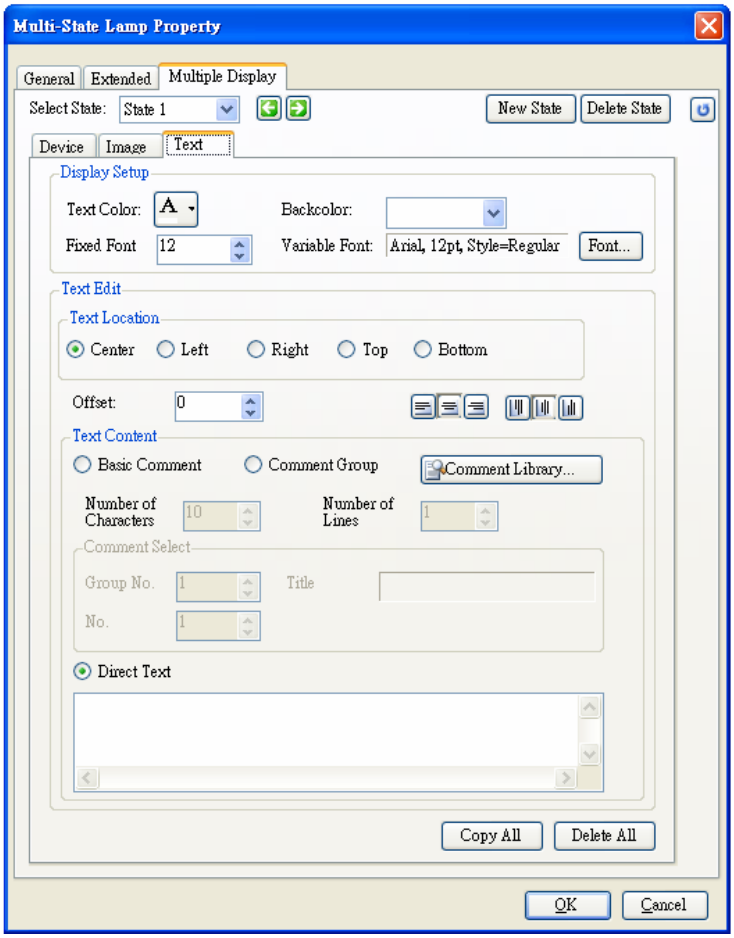



Fig. 3-6-3B-11 Multi-state Text Property Setting

In the editing of the text, the comments of the comment library can be set as the text content. To do this, click

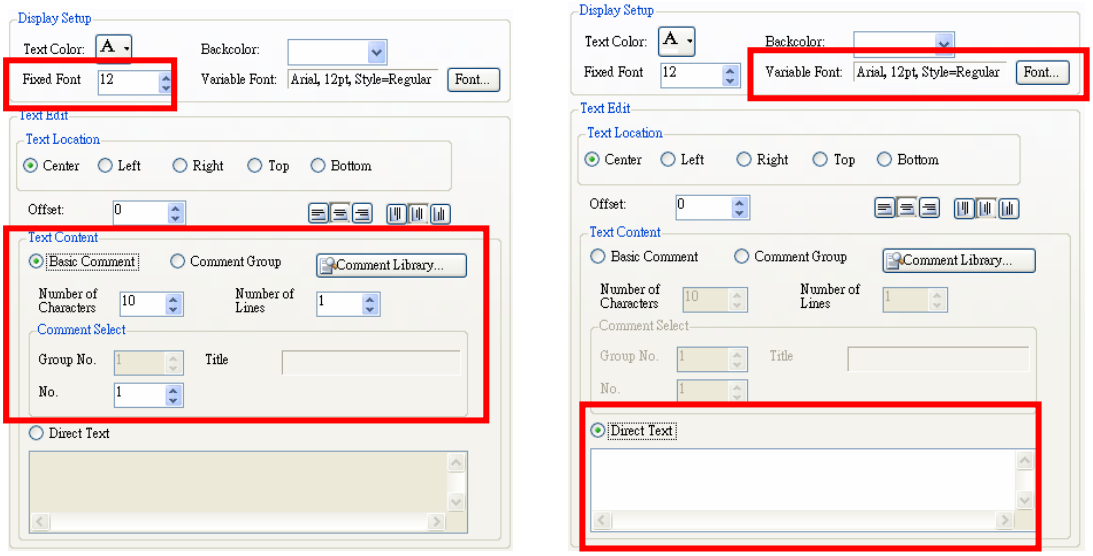
to open the dialogue box of the comment library. For detailed instructions, please see Section 3.4.4 Comment Library.



EC series

NOTE

- When the text alignment set for align left、align right、Align top、Align bottom, can be used to offset setting to adjust the text position.
- To set the properties, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.
- In the Text properties, the text contends can be comments and direct text. The comment takes fixed font, while the direct text takes variable fonts. See Figure 3-6-3B-12 below.




(a) (b)

Fig. 3-6-3B-12 Text Display Setting (a) Comment Text (b) Direct Text

### 3.6.4. Data input

Click Unit and then click Data Input , or directly click the shortcut , and in the editing window left click the mouse to set up a data input object. See Figure 3-6-4 below.

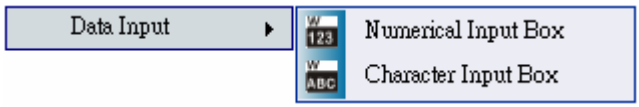



Fig. 3-6-4 Data Input Menu

### a. Numeric Input Box

To set up a numeric input box, click Unit and click Data Input and then click Numerical Input Box, or directly click the shortcut, and in the editing window left click the mouse to set up the object. Click the object and then double left click the mouse to open the property window of the object and make the setting.

The General property setting allows the user to set the picture, transparency level, the line pattern and select password display. See Figure 3-6-4A-1 below.

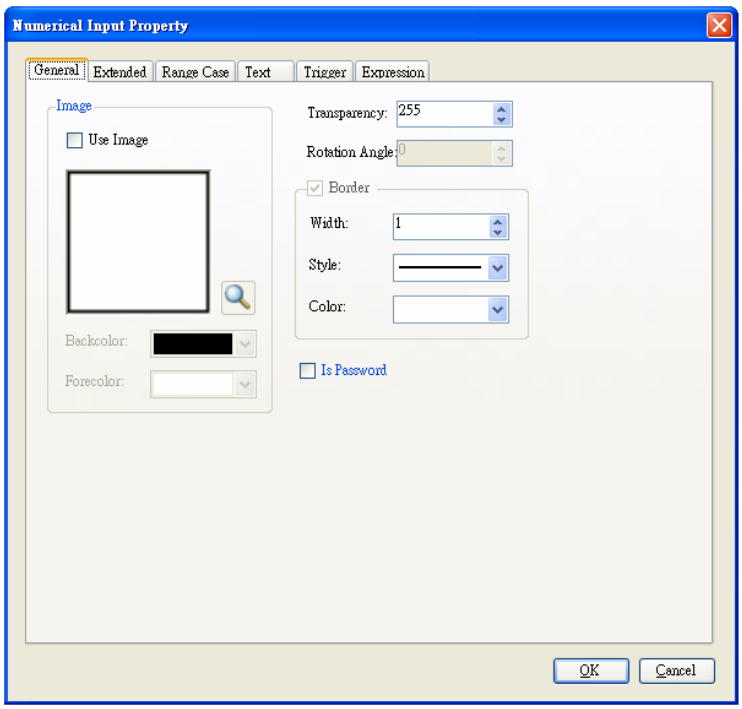



Fig. 3-6-4A-1 General Property Setting

Tick the option Use Image to change the picture. Click to open the picture library and select a desired picture. For detailed instructions, please see Section 3.4.2 Image Library.

The Extension property setting allows the user to change the security level, device type and range, and keypad type. Figure 3-6-4A-2 below demonstrates the setting of the object's security level. Both security level (display) and security level (input) are ranged from 0 (lowest privilege) to 15 (highest privilege). The default security levels of the edit software and the system are both 0.

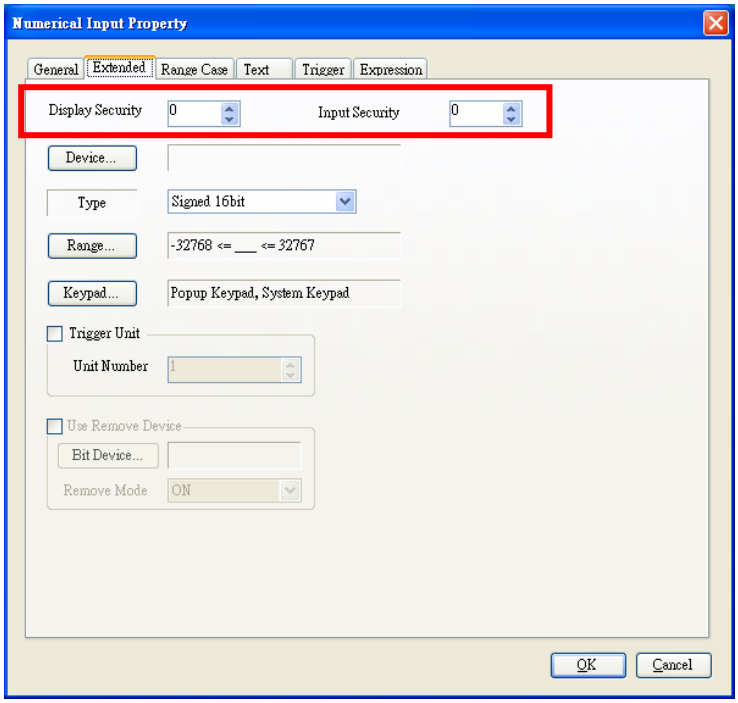
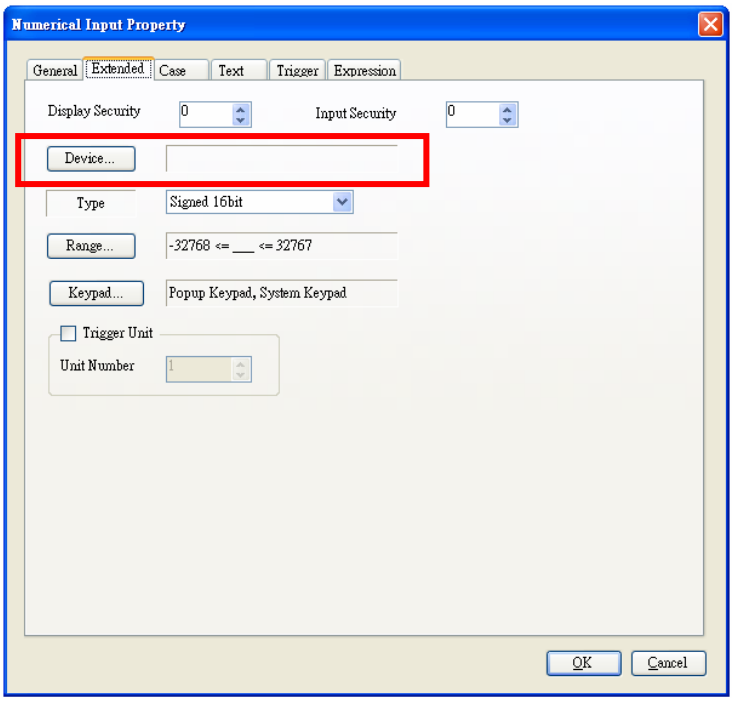
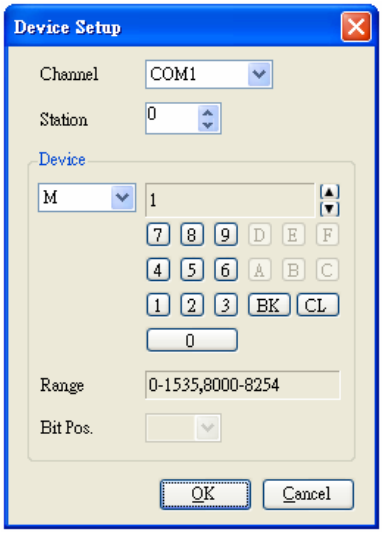



Fig. 3-6-4A-2 Security Level Setting

To set the device, click Device... to open the device setting window. Confirm to finish the device setting. See Figure 3-6-4A-3 below.




(a)



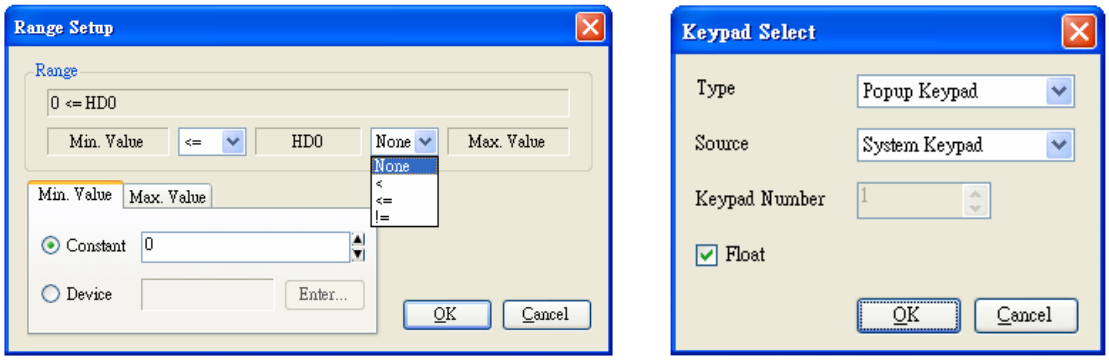

(b)

Fig. 3-6-4A-3 Device (a) Device Setting (b) Input Setting

To change the numeric type, use the pull-down menu to select. The numeric types are described in Table 3-6-4A-4 below; to set the value range, click Range... to open the value range dialogue box; to select the keypad type, click Keypad... to open the keypad type selection dialogue box，and set the keypad type and source. See Figure 3-6-4A-5 below.

Table 3-6-4A-4 Numeric Types

| Numeric Type | **Value Range** |
|---|---|
| **Signed 16bit** | -32768~32767 |
| **Unsigned 16 bit** | 0~65535 |
| **Signed 32 bit** | -2147483648~2147483647 |
| **Unsigned 32 bit** | 0~4294967295 |
| **BCD16 bit** | 0~9999 |
| **BCD32 bit** | 0~99999999 |
| **Real** | -2.147484E+09~2.147484E+09 |




(a) (b)

Fig. 3-6-4A-5 Keypad Range Setting (a) Range Setting (b) Selecting Keypad

The Trigger object functions correspond to both switch input and multi-action switch input, but the object code number is the same. When the switch object is clicked, the keypad will pop up for numeric value input. See Figure 3-6-4A-6 below.

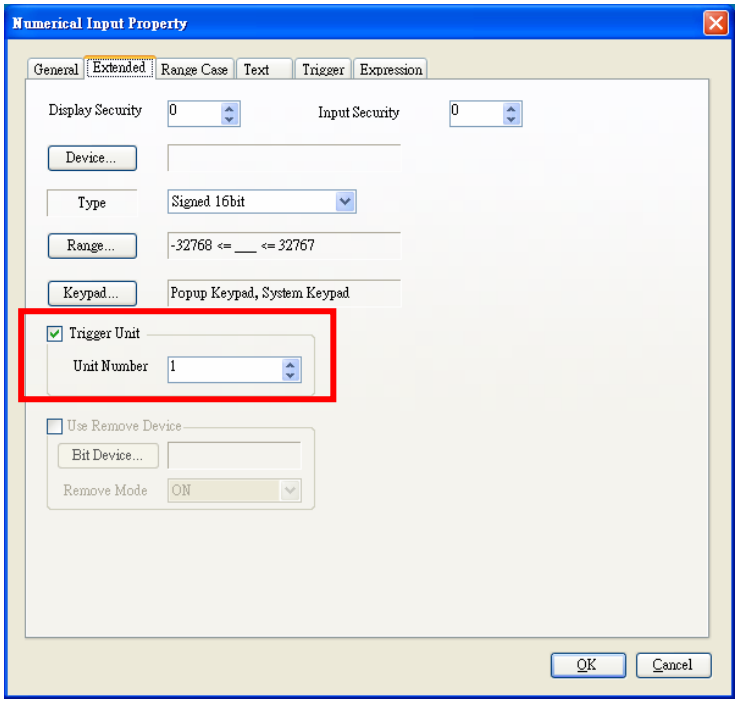
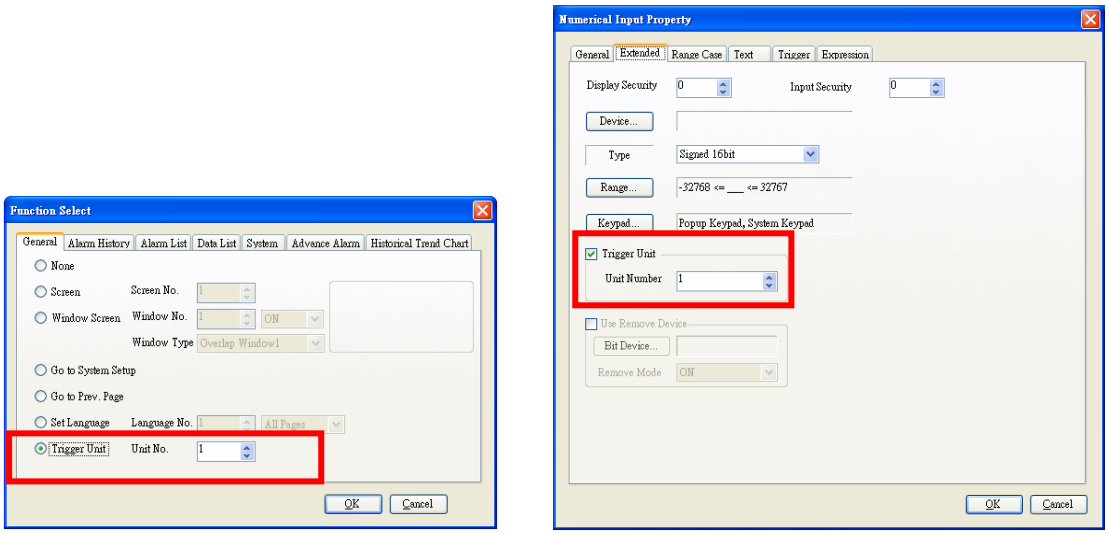



Fig. 3-6-4A-6 Trigger Object Setting

The Trigger object functions correspond to both numeric and character inputs, but the object code number is the same. When the switch object is clicked, the numeric input or character input keypad will pop up.

To use the switch to operate the numeric or character keypad, in the editing window set up a switch object, and then double left click the mouse to open the property setting window, and then from the Extension property setting select the general functions, and then set the code number of the trigger object to 1; in addition, in the editing window set up another numeric input object, and then double left click the mouse to open the property setting window, and set the object's code number to 1, and set the device as D0. Confirm and have the file sent to HIM. When the switch object is clicked, the keypad input window will pop up. Enter a number and confirm it, the number will turn up in the number input object. See Figure 3-6-4A-7 below.



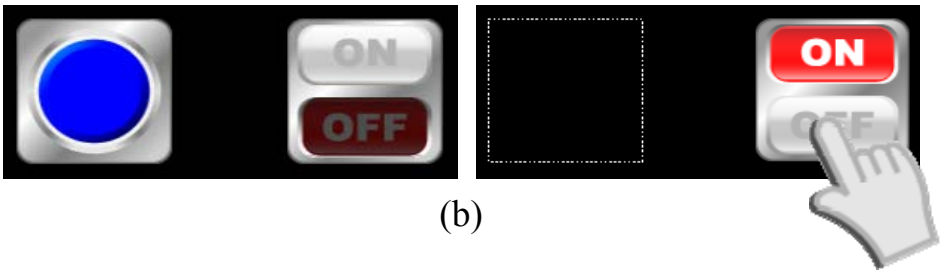

(a) (b)

Fig. 3-6-4A-7 Trigger Object Setting (a) Switch Trigger Object (b) Numeric Input Object Code Number

When you click and the Bit device is triggered the unit will hide and cannot be operated, as shown in figure 3-6-2A-26.



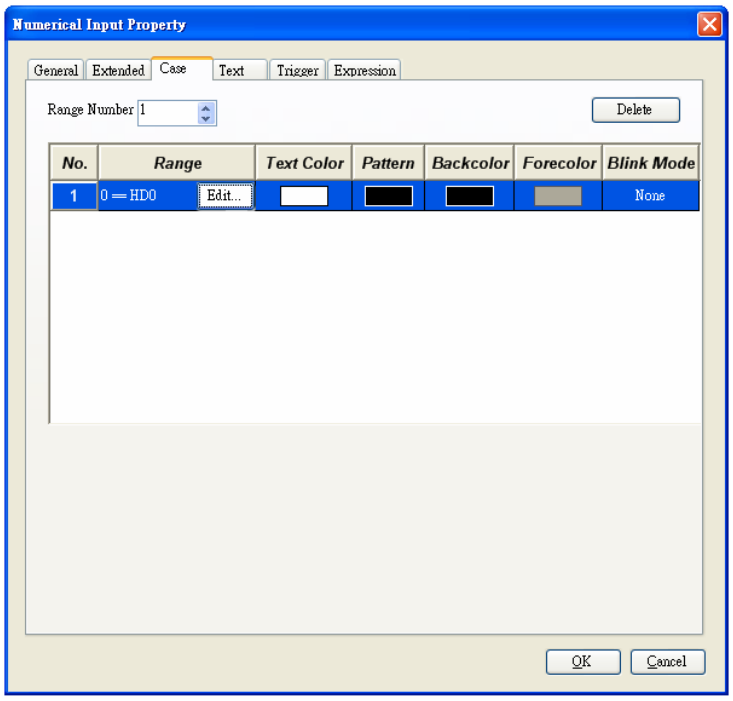
(a)



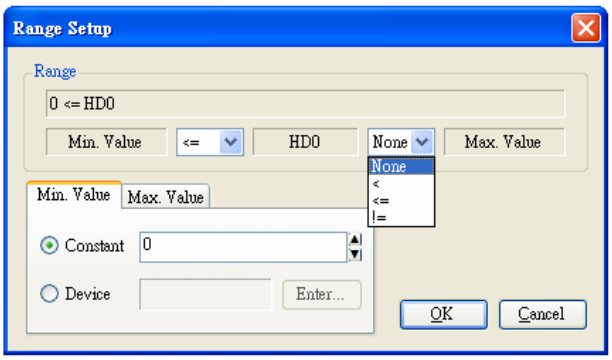

(b)

Figure 3-6-2A-26: Use remove device (a) set remove device (b) remove device is triggered

Figure 3-6-4A-8 below is the Range Setup window. Set the number of ranges and they will be displayed in the table beneath for the user to set the range, text color, image pattern, blink mode, and delete the range. Click to open the dialogue box and change the numeric range.




(a)




(b)

Fig. 3-6-4A-8 Numeric Range Setting (a) Editing Window (b) Setting Device Range

The Text property setting allows the user to change the numeric format, character spacing, font size, text color and alignment. See Figure 3-6-4A-9 below.

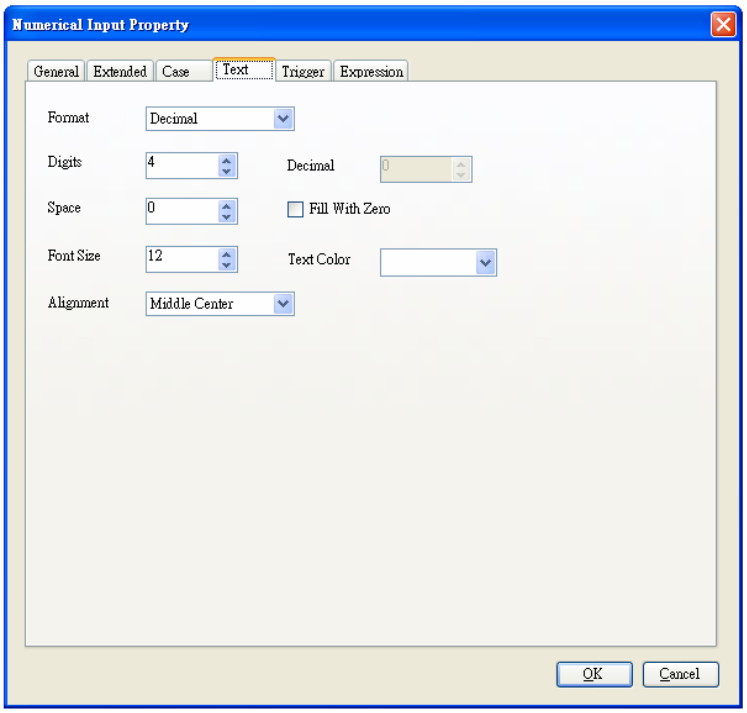
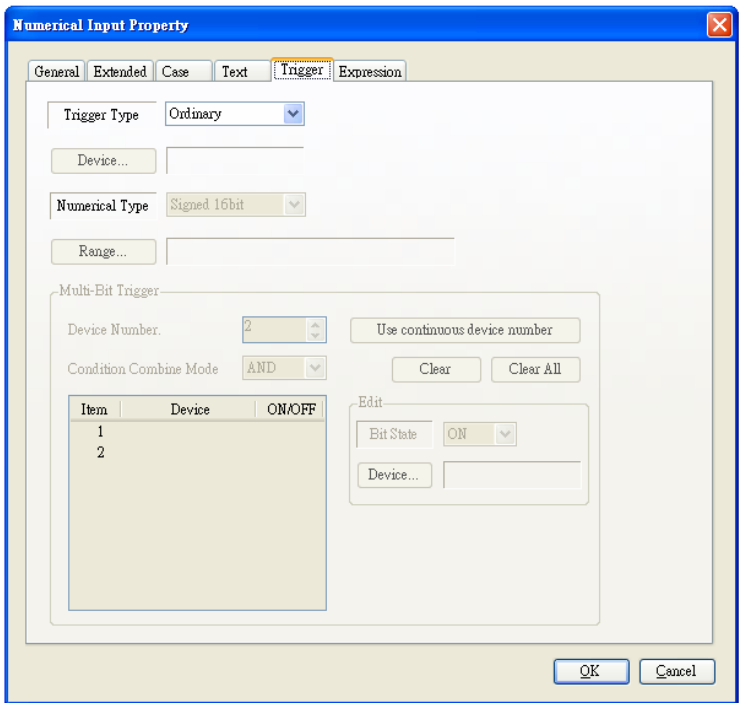



Fig. 3-6-4A-9 Text Propertys

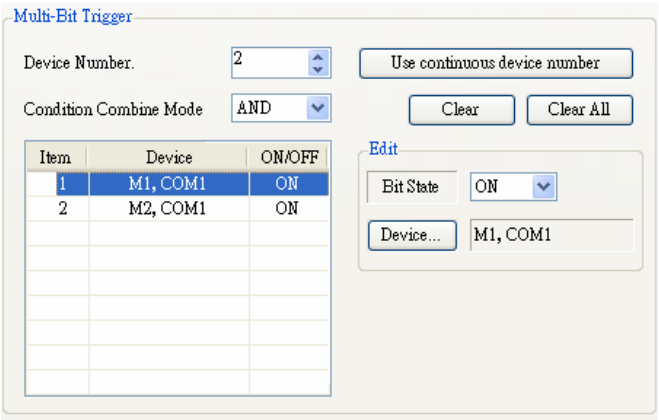
The Trigger property setting allows the user to change the trigger pattern. See Figure 3-6-4A-10 below. The trigger condition only limits the operation of numerical input, and numerical display is not limited by the trigger condition.



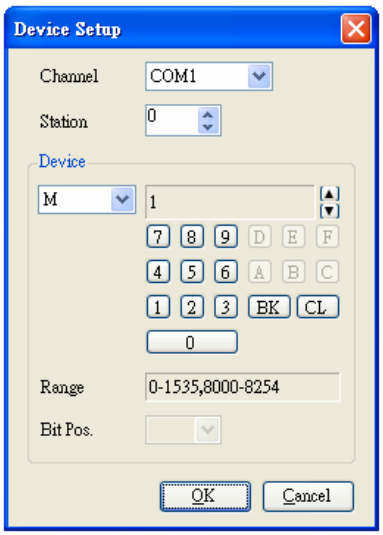

| Trigger Pattern | Description |
|---|---|
| **Ordinary** | No triggering pattern |
| **ON** | Action is taken only when the device in ON |
| **OFF** | Action is taken only when the device in OFF |
| **Range** | Action is taken only when the device value is within this range. |
| **Multi-Bit Trigger** | Set two or more devices, and only when all the devices meet the condition will the action be taken. |

Fig. 3-6-4A-10 Trigger Patterns and Settings

To set the trigger pattern as multi-Bit trigger with 2 devices, click Device... to open the device setting window and set the trigger devices as M1 and M2. Confirm the setting and have the file sent to HMI. So, only when M1 and M2 are both ON will the switch actions be started. See Figure 3-6-4A-11 below.



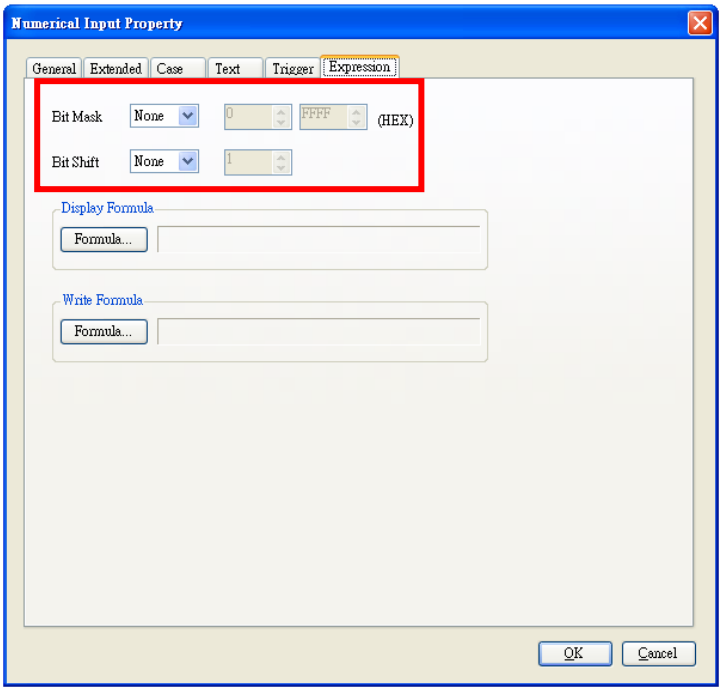

(a)




(b)

Fig. 3-6-4A-11 Multi-Bit Trigger (a) Setup of Multi-Bit Trigger (b) Device Setup

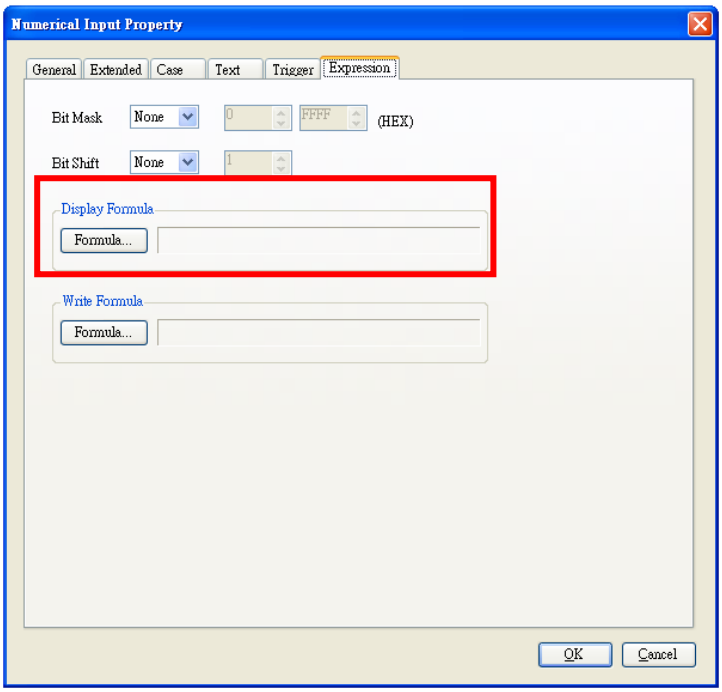
The Numeric Operation properties allow the user to set the value, bit mask, bit **Shift**, display formula and write formula. The system uses hexadecimal input. See Figure 3-6-4A-12 below.



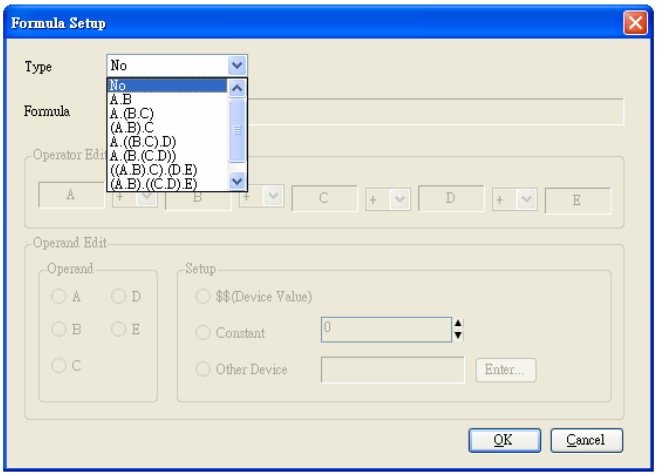

| Name | | Description |
|---|---|---|
| **Bit Mask** | **None** | No Bit mask. |
| | **AND** | Values are converted to binary for AND operation.<br>**EX~** Decimal value 8 ANDing with A gets 8. |
| | **OR** | Values are converted to binary for OR operation.<br>**EX~** Decimal value 8 ORing with A gets 10. |
| | **XOR** | Values are converted to binary for XOR operation.<br>**EX~** Decimal value 8 XORing with A gets 2. |
| **Bit Shift** | **None** | No Bit offset. |
| | **<<** | Values are converted to binary for left shift.<br>**EX~** Decimal value 8 left shifting 2 bits becomes 32. |
| | **>>** | Values are converted to binary for right shift.<br>**EX~** Decimal value 8 left shifting 2 bits becomes 2. |

Fig. 3-6-4A-12 Logic Operations

To set display formula, click Formula... to open the formula setup window, and pick up a preferred formula pattern, and then select from the A~E options, and then select $$ (device value) and any one of the constant or other device, and then select an operator. Confirm to finish the formula setting. See Figure 3-6-4A-13 below.



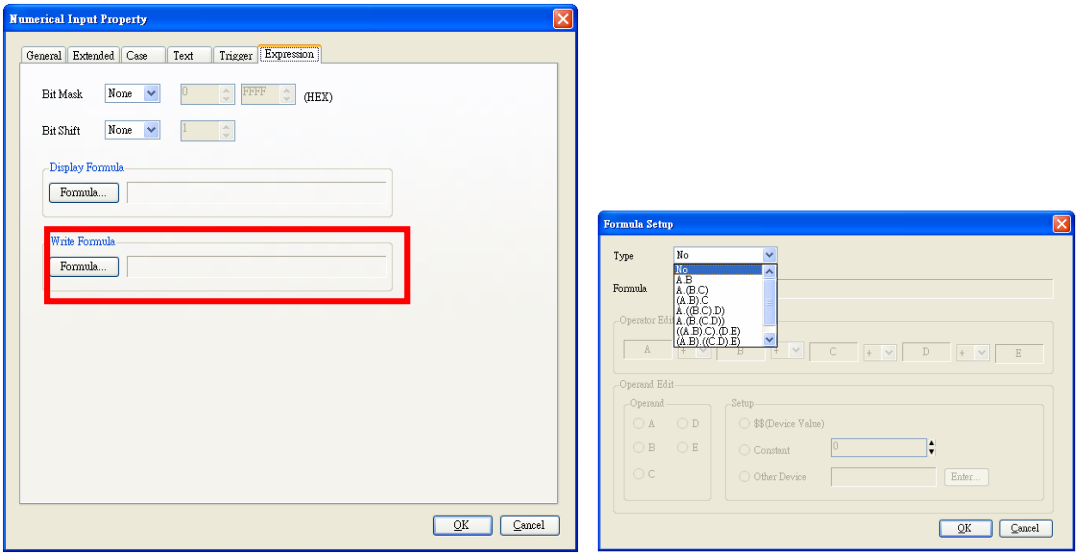

(a)




(b)

Fig. 3-6-4A-13 Displaying formula (a) Setting formula (b) Formula Set

To set writing formula , click Formula... to open the formula setup window, and then pick up a preferred formula pattern. And then select from the A~E options, and then select $$ (device vale) and any one of the constant or other device, and then select an operator. Confirm to finish the formula setting. See Figure 3-6-4A-14 below.




(a) (b)

Fig. 3-6-4A-14 Write formula (a) Setting formula (b) formula Set

NOTE

- To set the properties, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.

## b. Character Input Box

To set up a character input box, click Unit and click Data Input and then click Character Input Box, or directly click the shortcut, and in the editing window left click the mouse to set up a character input box. Click the object and then double left click the mouse to open the property window of the object and make the setting.

The General property setting allows the user to change the picture, display color, transparency and line pattern. See Figure 3-6-4B-1 below.

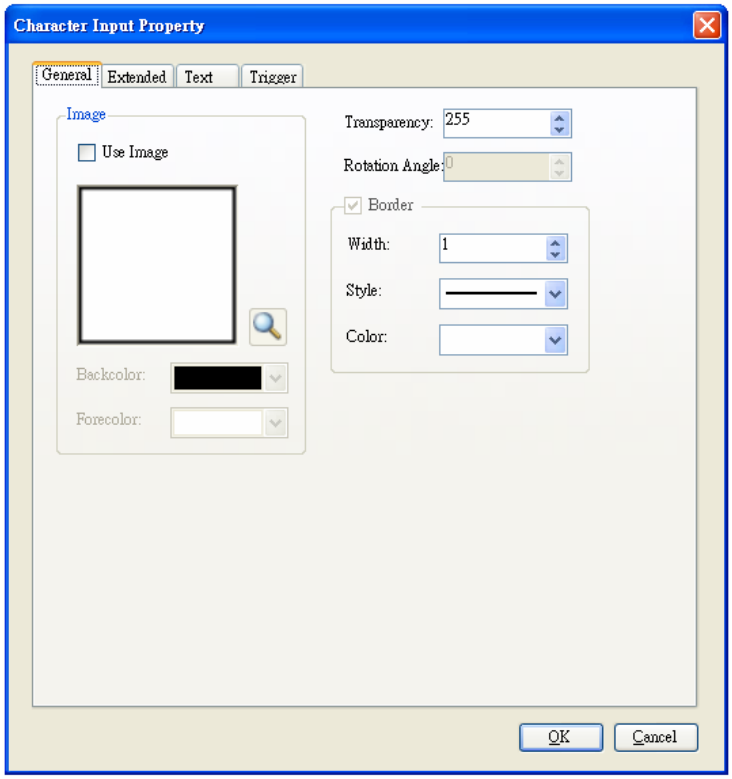



Fig. 3-6-4B-1 General Property Setting

Tick the option Use Image to change the picture. Click to open the picture library and pick up a preferred picture. For detailed instructions, please see Section 3.4.2 Image Library.

The Extension properties allow the user to change the security level, device type and range, and keypad type. Figure 3-6-4B-2 below demonstrates the setting of the object's security level. The security level (display) and security level (input) are both ranged from 0 (lowest privilege) to 15 (highest privilege). The default security levels of the edit software and the system are both 0.

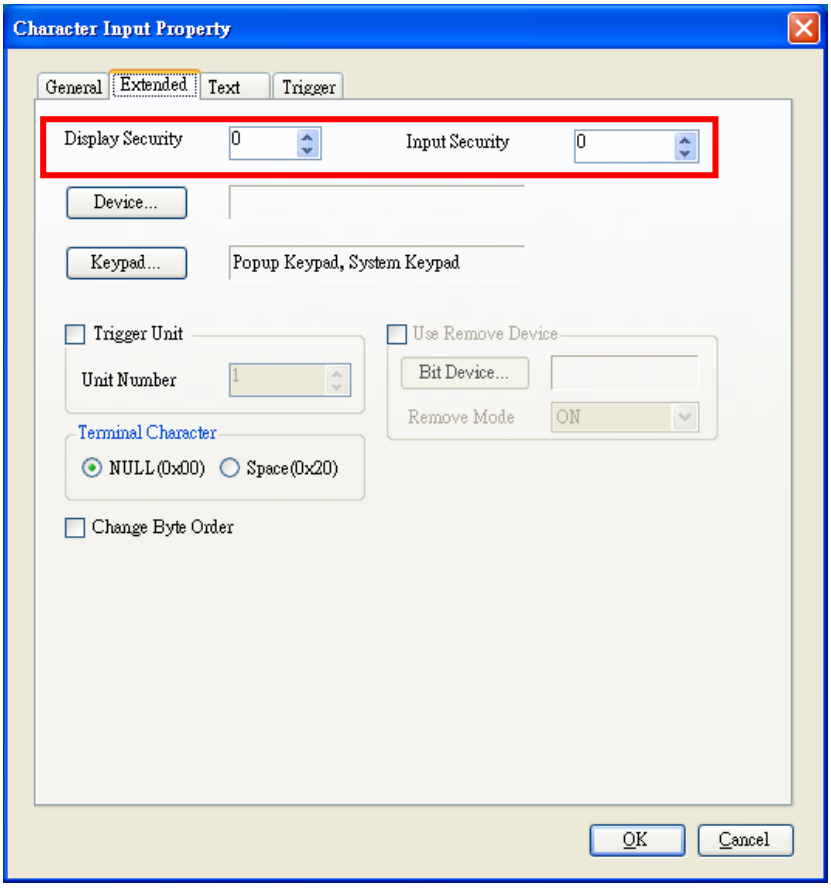
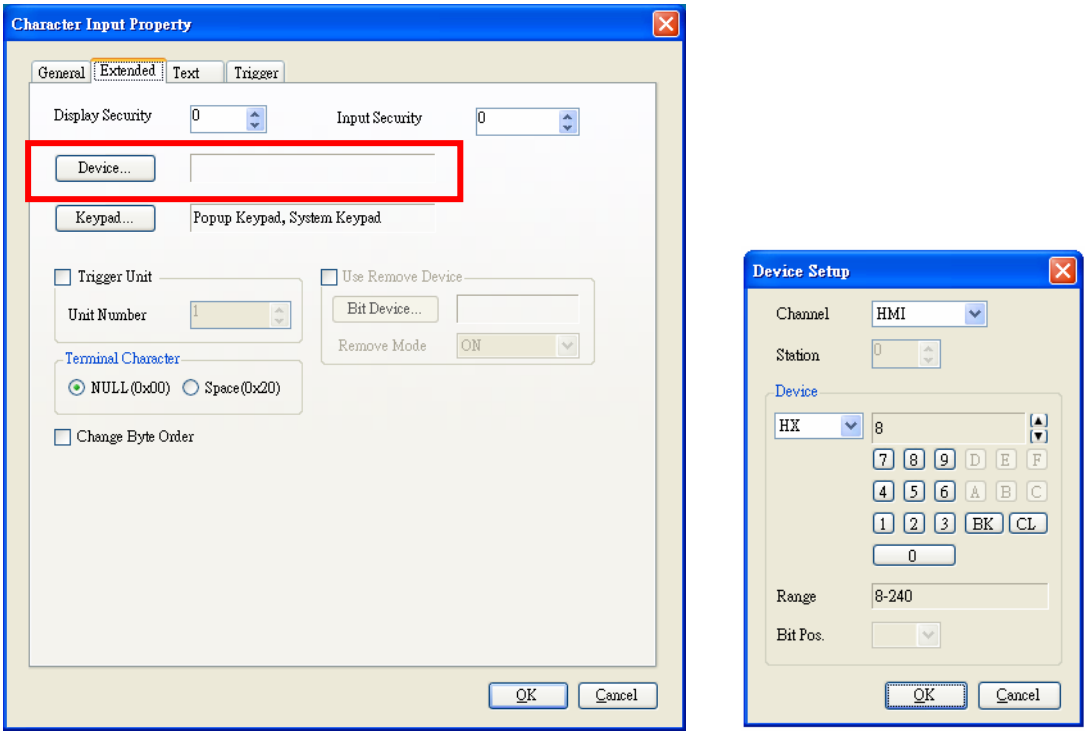



Fig. 3-6-4B-2 Security Levels

To set device, click Device... to open the device setup window. Confirm to finish the device setting. See Figure 3-6-4B-3 below.




(a) (b)

Fig. 3-6-4B-3 Device (a) Device Setting (b) Input Setting

To change the keypad type, click Keypad... to open keypad selection dialogue box and set the keypad type and source. See Figure 3-6-4B-4 below.

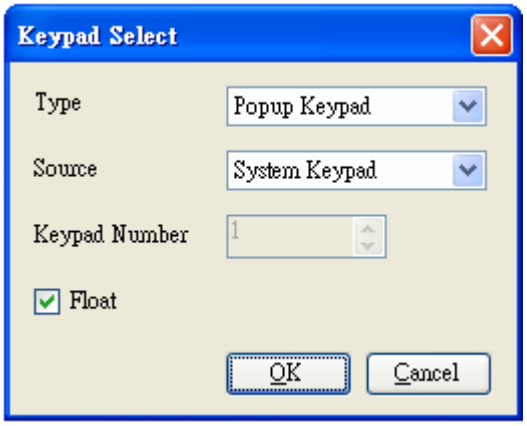
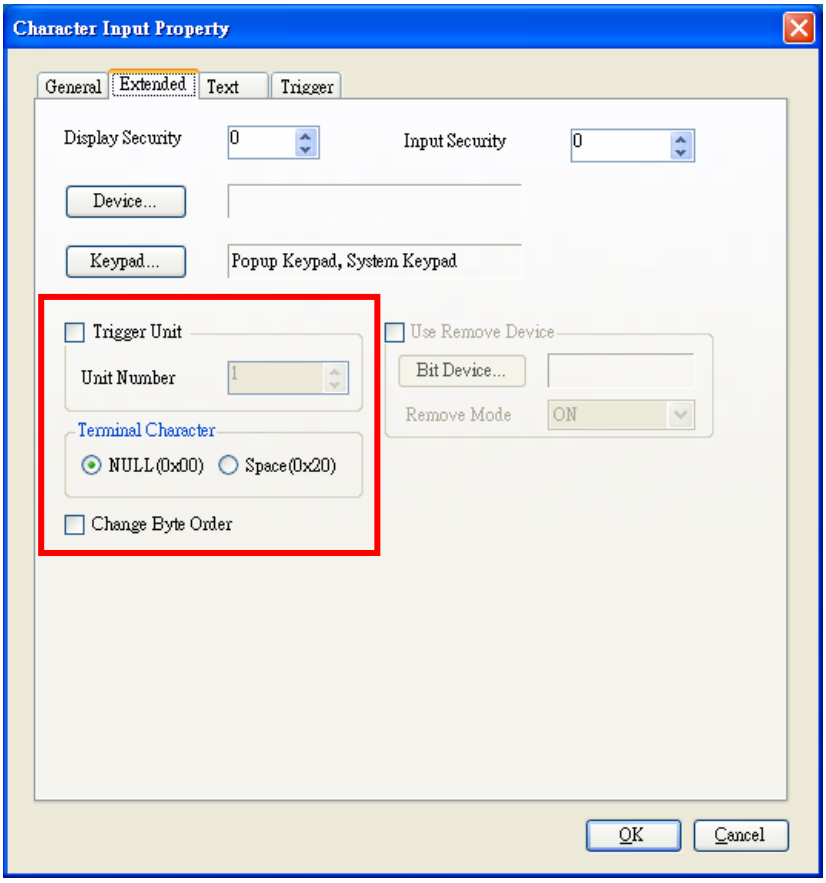



Fig. 3-6-4B-4 Selecting Keypad

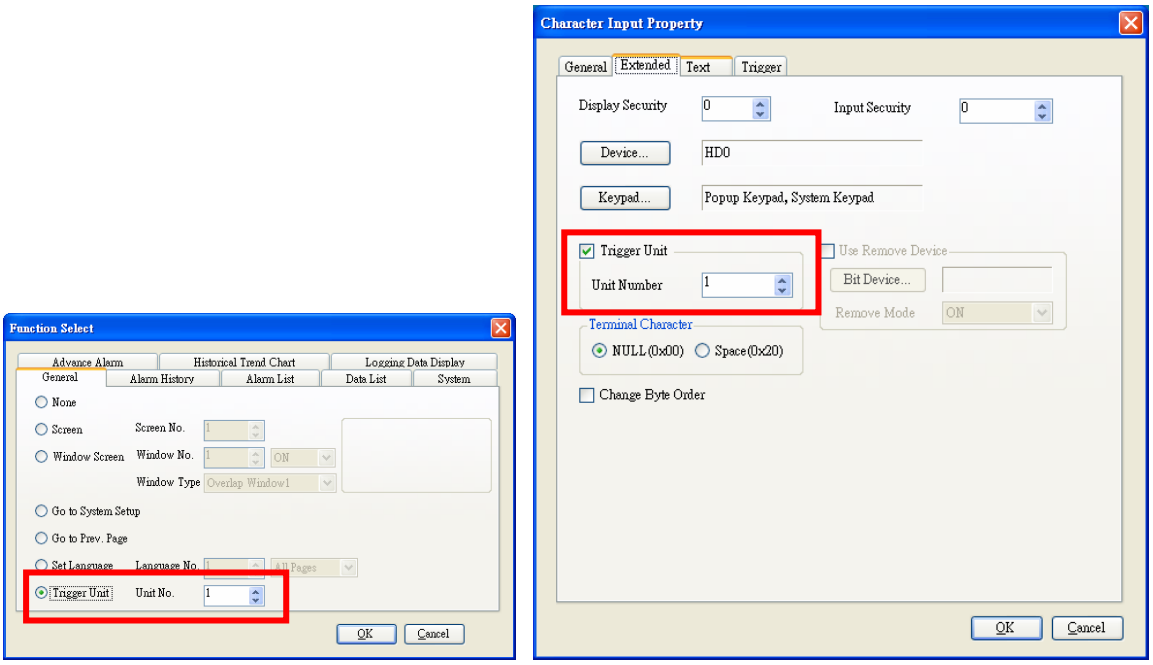
The Trigger object functions , change byte order and Terminal chanacter ,as shown in figure 3-6-4B-5.




| Function | Description |
|---|---|
| Trigger unit | For details, please refer to the next page. |
| Change byte order | The PLC of each maker is different in sequence during reading byte, and when characters displayed are not the numerical values entered, so check the ☑ Change Byte Order box to change the sequence of the byte |
| Terminal chanacter | The character input unit setting ☑ Change Byte Order then character input ABC，the character display：<br>**NULL(0x00)** ：BA _ _<br>**Space(0x20)** ：BA _ C |

Fig. 3-6-4B-5 Trigger Object Setting

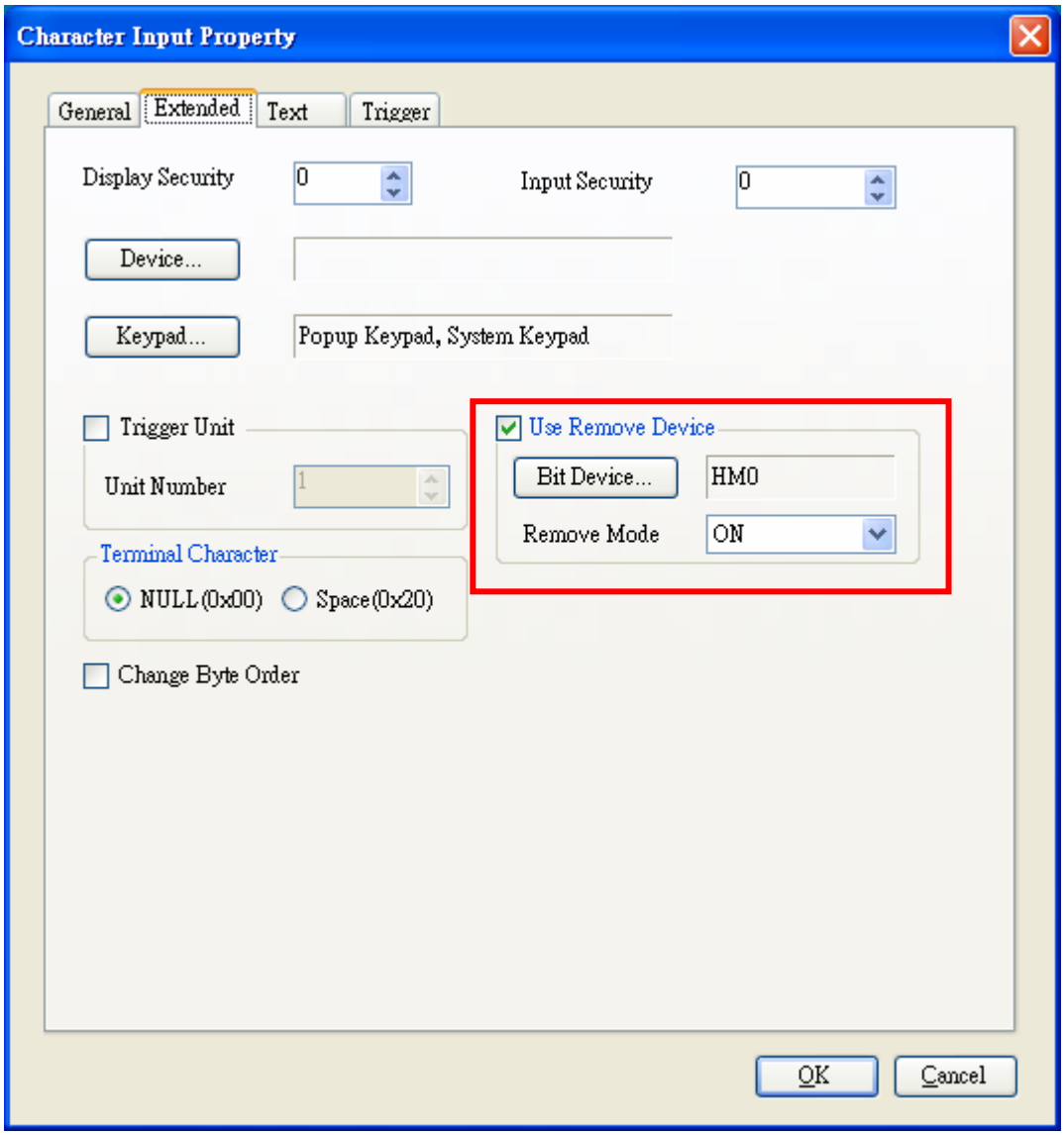
To use the switch to operate numeric and character keypad, in the editing screen set up a switch object, and then double left click the mouse to open the property setting window, then from the Extension property setting select the general functions, and set the code number of the trigger object to 1; in addition, in the editing screen set up another numeric input object, and then double left click the mouse to open the property setting window, and set the object code number to 1, and set the device to D0. Confirm and have the file sent to HMI. So, when the switch object is clicked, the keypad input window will pop up. Enter a number and confirm it, the number will show up in the numeric input object. See Figure 3-6-4B-6 below.



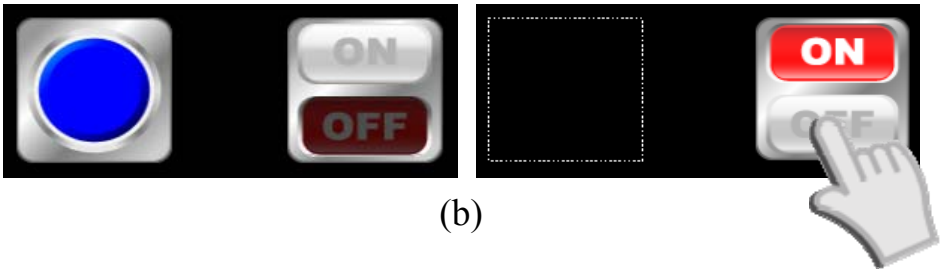

(a) (b)

Fig. 3-6-4B-6 Trigger Object Setting (a) Switch Trigger Object (b) Numeric Input Object Code Number

When you click Use Remove Device and the Bit device is triggered the unit will hide and cannot be operated, as shown in figure 3-6-2A-26.




(a)




(b)

Figure 3-6-2A-26: Use remove device (a) set remove device (b) remove device is triggered

The Text properties allow the user to change the numeric format, character spacing, font size, text color and alignment. See Figure 3-6-4B-7 below.

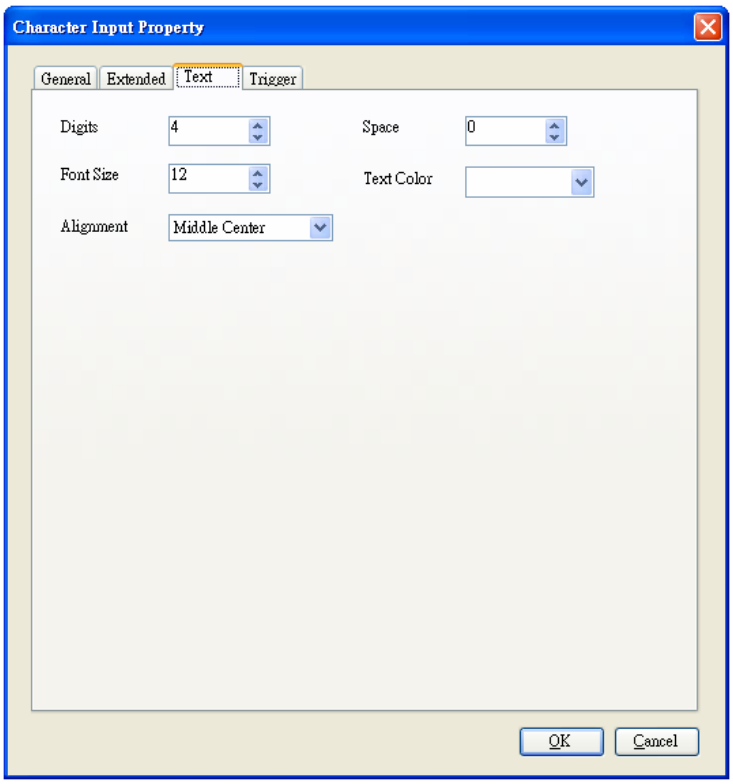
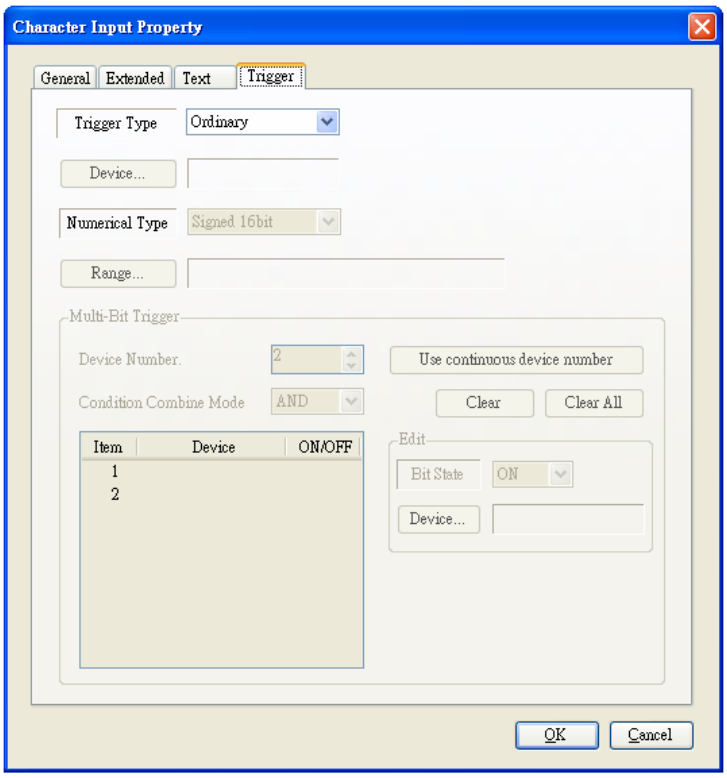



Fig. 3-6-4B-7 Text Propertys

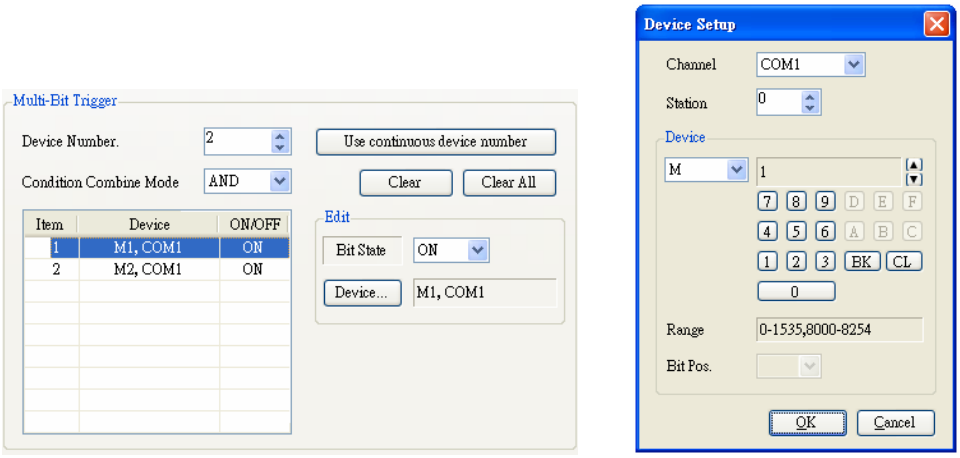
The Trigger property setting allows the user to change the trigger pattern. See Figure 3-6-4B-8 below. The trigger condition only limits the operation of character input, and character display is not limited by the trigger condition.




| Trigger Pattern | Description |
|---|---|
| Ordinary | No triggering pattern |
| ON | Action is taken only when the device in ON |
| OFF | Action is taken only when the device in OFF |
| Range | Action is taken only when the device value is within this range. |
| Multi-Bit Trigger | Set two or more devices, and only when all the devices meet the condition will the action be taken. |

Fig. 3-6-4B-8 Trigger Patterns and Settings

To set the trigger pattern as multi-Bit trigger with 2 devices, click Device... to open the device setting window and set the trigger devices as M1 and M2. Confirm the setting and have the file sent to HMI. So, only when M1 and M2 are both ON will the switch actions be started. See Figure 3-6-4B-9 below.




(a) (b)

Fig. 3-6-4B-9 Multi-Bit Trigger (a) Setup of Multi-Bit Trigger (b) Device Setup

- For property setting, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.

### 3.6.5. Data Display

Click Unit and then click Data Display, or directly click the shortcut , and in the editing window left click the mouse to set up a data display object. See Figure 3-6-5 below.

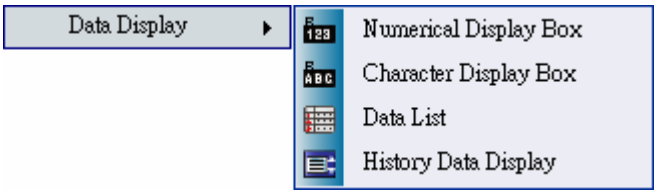



Fig. 3-6-5 Data Display Menu

### a. Numerical Display Box

To set up a numeric display box, click Unit and click Data Display and then click Numerical Display Box, or directly click the shortcut, and in the editing window left click the mouse to set up a numeric display. Click the object and then double left click the mouse to open the property window of the object and make the setting.

The General property setting allows the user to change the picture, display color, transparency and line pattern. See Figure 3-6-5A-1 below.

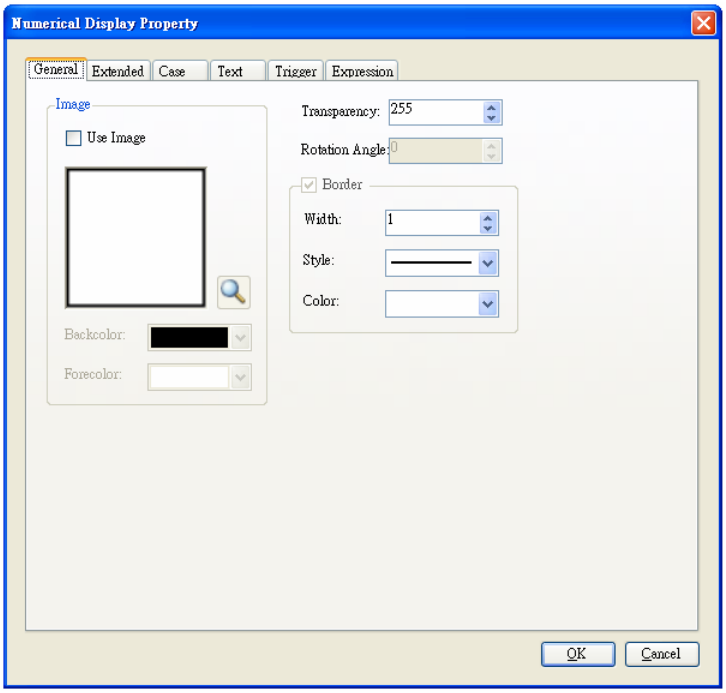



Fig. 3-6-5A-1 General Property Setting

Tick the option Use Image to change the picture. Click to open the picture library and pick up a preferred picture. For detailed instructions, please see Section 3.4.2 Image Library.

The Extension properties allow the user to change the security level, device type and range, and keypad type. Figure 3-6-5A-2 below demonstrates the setting of the object's security level. The security level (display) is ranged from 0 (lowest privilege) to 15 (highest privilege). The default security levels of the edit software and the system are both 0.

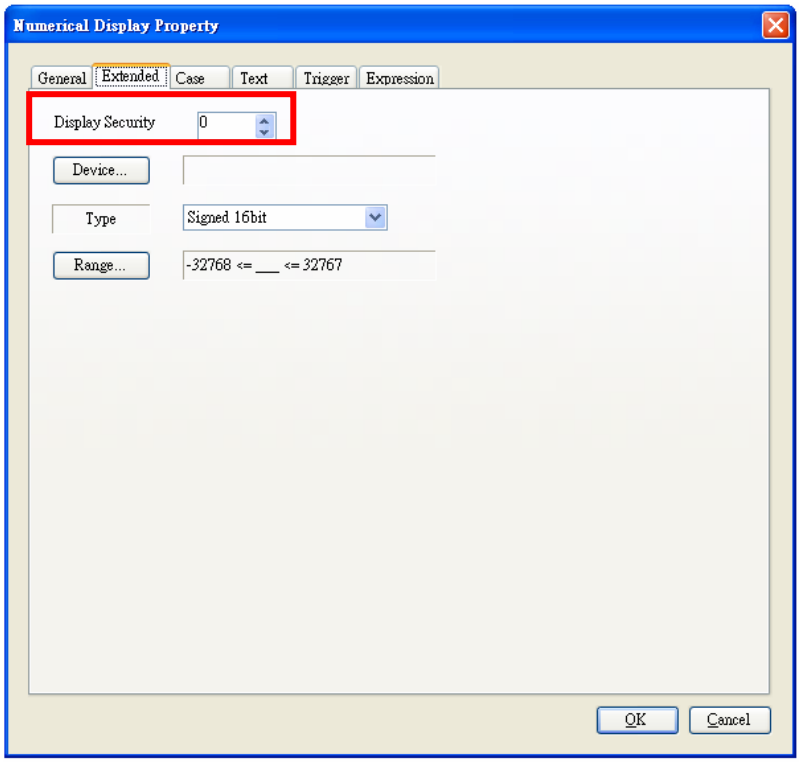
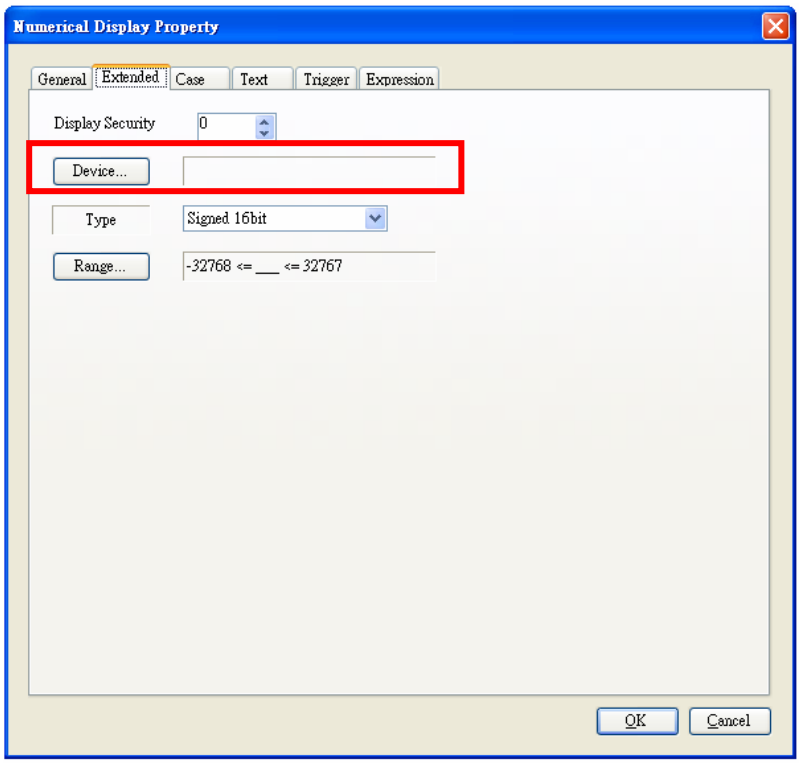
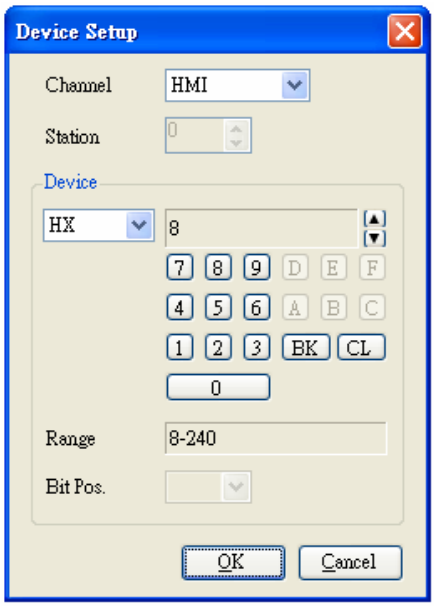



Fig. 3-6-5A-2 Security Levels

To set the device, click Device... to open the device setup window. Confirm to finish the device setting. See Figure 3-6-5A-3 below.




(a)




(b)

Fig. 3-6-5A-3 Device (a) Device Setting (b) Input Setting

To change the numeric type, use the pull-down menu to select a type. The types are described in Table 3-6-5A-4 below; to set the value range, click Range... to open the range dialogue box and make the setting. See Figure 3-6-5A-5 below.

Table 3-6-5A-4 Numeric Types

| Numeric Type | Value Range |
|---|---|
| **Signed 16bit** | -32768~32767 |
| **Unsigned 16 bit** | 0~65535 |
| **Signed 32 bit** | -2147483648~2147483647 |
| **Unsigned 32 bit** | 0~4294967295 |
| **BCD16 bit** | 0~9999 |
| **BCD32 bit** | 0~99999999 |
| **Real** | -2.147484E+09~2.147484E+09 |

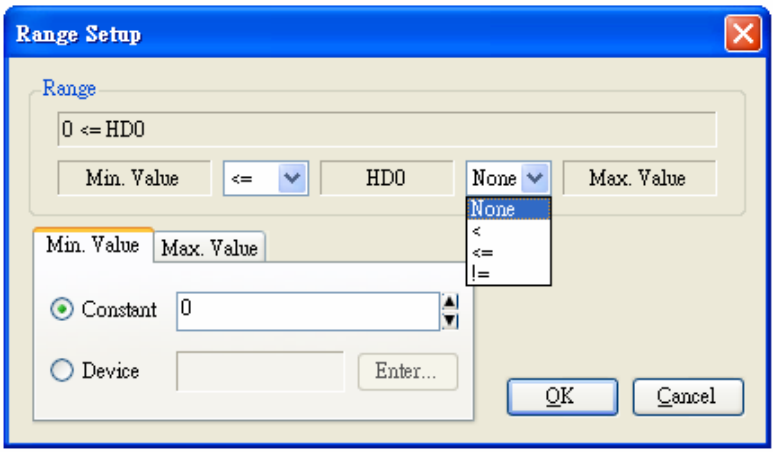
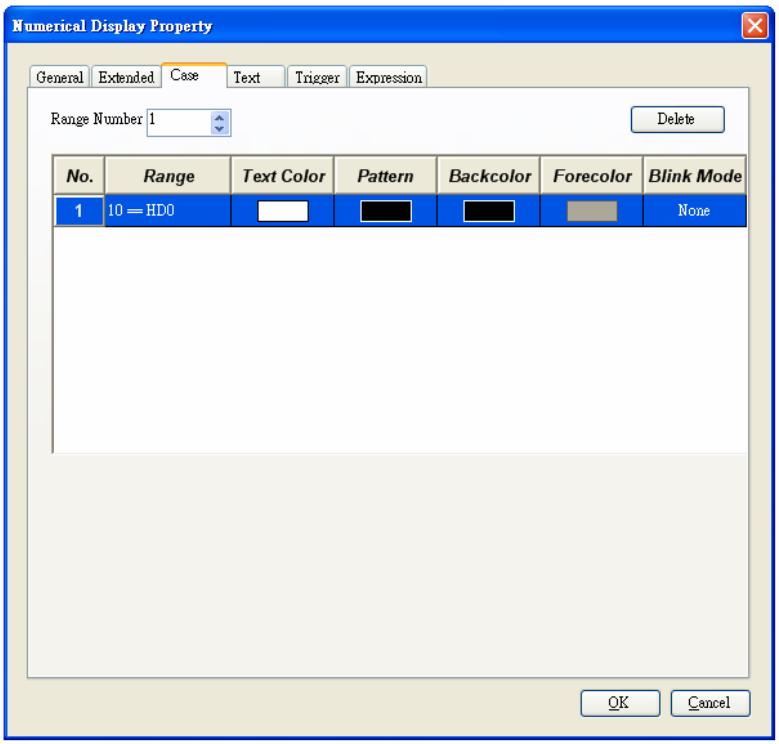
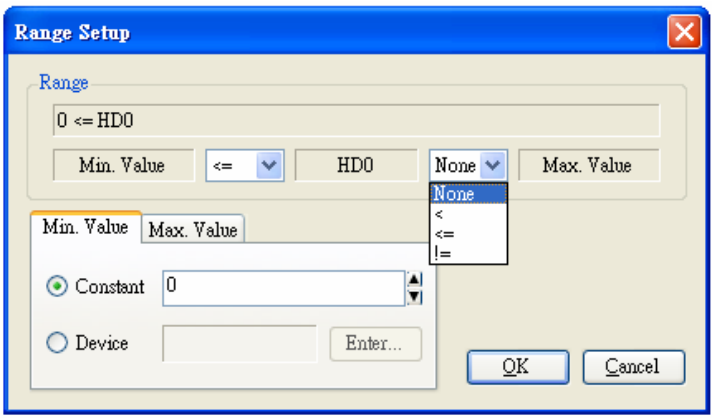



Fig. 3-6-5A-5 Range Setting

Figure 3-6-5A-6 below is the Range Setup window. Set the number of ranges and they will be displayed in the table beneath for the user to set the range, text color, image pattern, blink mode, and delete the range. Click to open the dialogue box and make the setting.




(a)




(b)

Fig. 3-6-5A-6 Range Setting (a) Edit Window (b) Setting Device

The Text properties allow the user to change the numeric format, character spacing, font size, text color, and alignment. See Figure 3-6-5A-7 below.

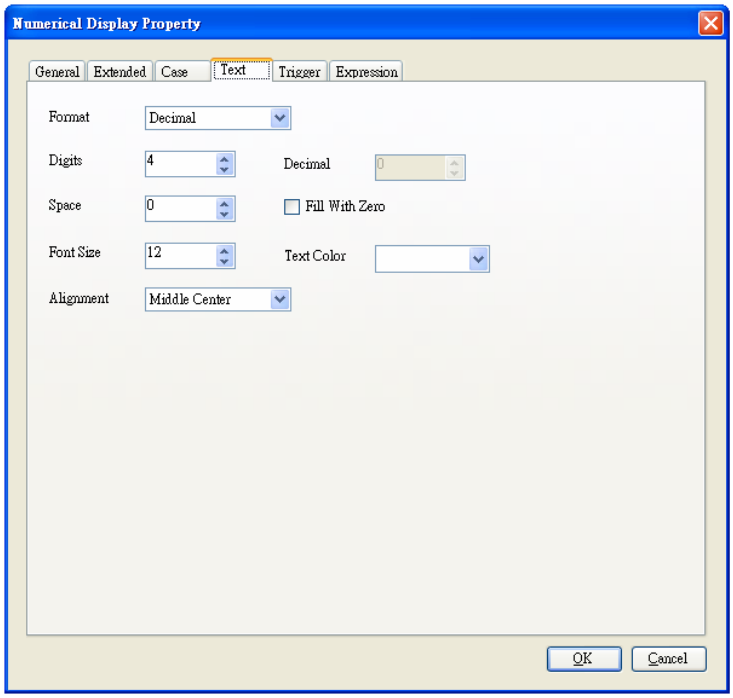
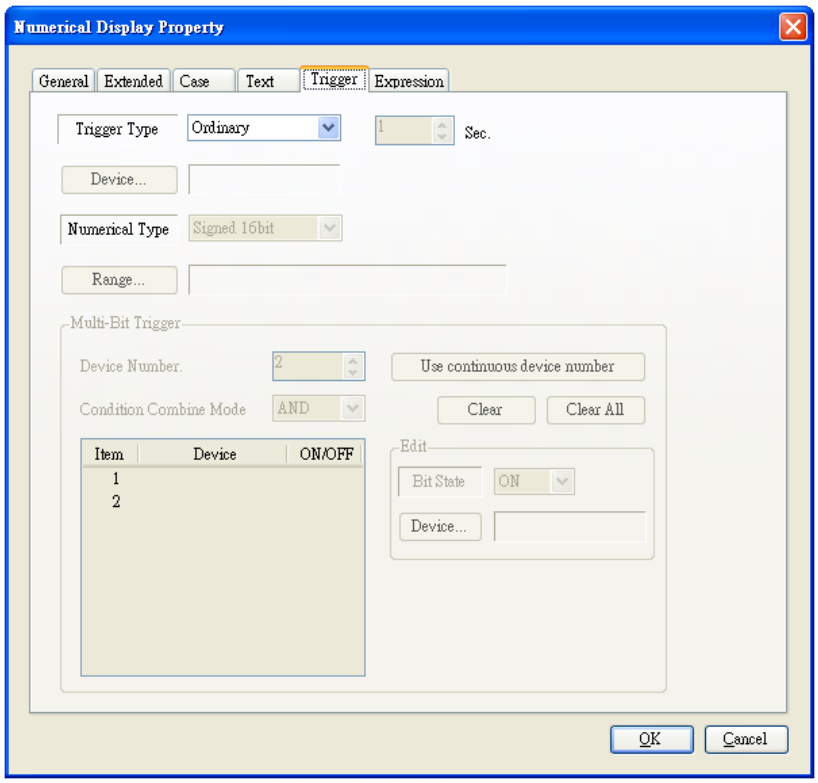



Fig. 3-6-5A-7 Text Propertys

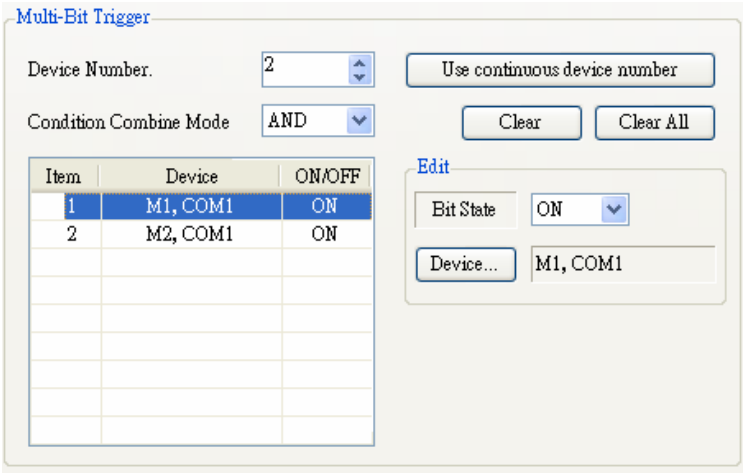
The Trigger property setting allows the user to change the trigger pattern. See Figure 3-6-5A-8 below.



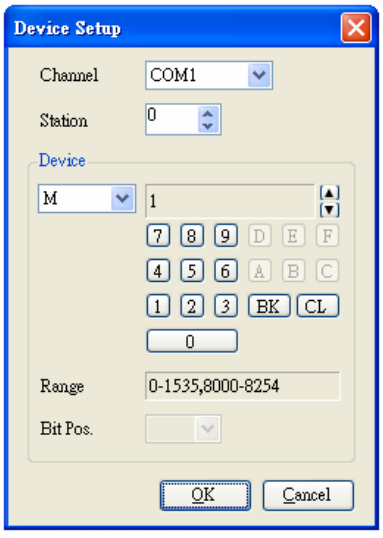

| Trigger Pattern | Description |
|---|---|
| **Ordinary** | No triggering pattern |
| **ON** | Action is taken only when the device in ON |
| **OFF** | Action is taken only when the device in OFF |
| **Range** | Action is taken only when the device value is within this range. |
| **Multi-Bit Trigger** | Set two or more devices (up to 8), and only when all the devices meet the condition will the action be taken. |
| **Rise** | Action is taken only when the device is switched from OFF to ON. |
| **Fall** | Action is taken only when the device is switched from ON to OFF. |
| **Sampling** | Action is taken only after the sampling time elapses. |

Fig. 3-6-5A-8 Trigger Pattern Setting

To set a multi-Bit trigger with 2 devices, click Device... to open the device setting window and set the trigger devices as M1 and M2. Confirm the setting and have the file sent to HMI. So, only when M1 and M2 are both ON will the switch actions be started. See Figure 3-6-5A-9 below.



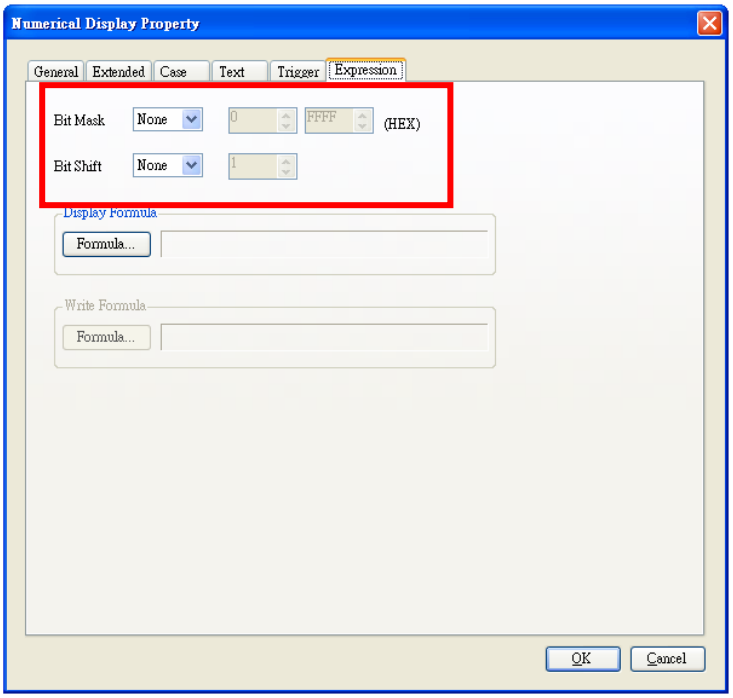

(a)




(b)

Fig. 3-6-5A-9 Multi-Bit Trigger (a) Setup of Multi-Bit Trigger (b) Device Setup

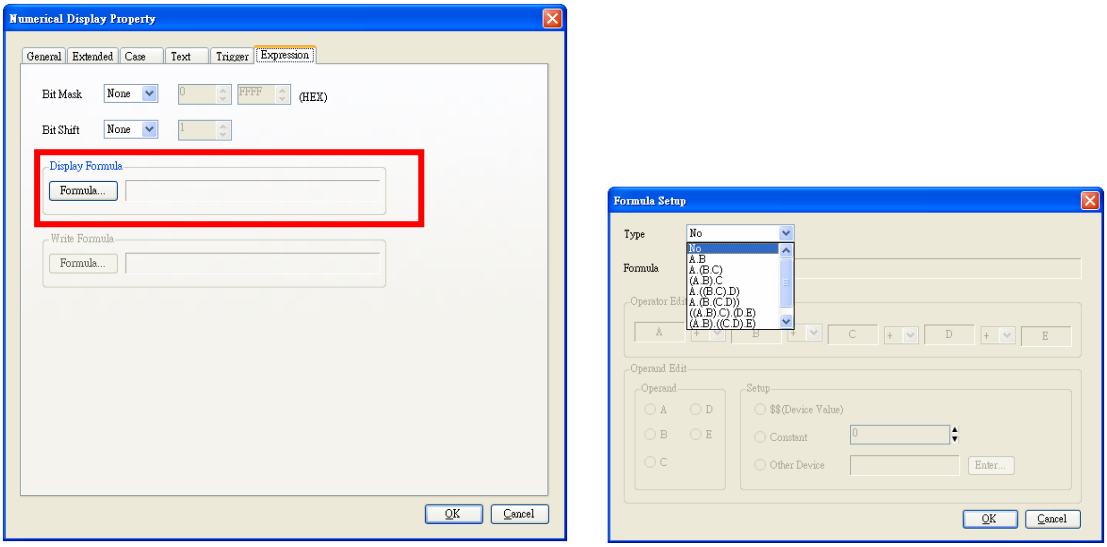
The Numeric Operation properties allow the user to set the values, bit mask, bit shift, and display formula. The system uses hexadecimal input. See Figure 3-6-5A-10 below.




| Name | | Description |
|---|---|---|
| **Bit Mask** | **None** | No Bit mask. |
| | **AND** | Values are converted to binary for AND operation.<br>**EX~** Decimal value 8 ANDing with A gets 8. |
| | **OR** | Values are converted to binary for OR operation.<br>**EX~** Decimal value 8 ORing with A gets 10. |
| | **XOR** | Values are converted to binary for XOR operation.<br>**EX~** Decimal value 8 XORing with A gets 2. |
| **Bit Shift** | **None** | No Bit offset. |
| | **<<** | Values are converted to binary for left shift.<br>**EX~** Decimal value 8 left shifting 2 bits becomes 32. |
| | **>>** | Values are converted to binary for right shift.<br>**EX~** Decimal value 8 left shifting 2 bits becomes 2. |

Fig. 3-6-5A-10 Logic Operations

To set formula display, click Formula... to open the formula setup window, and pick up a preferred formula pattern, and then select from the A~E options, and then select $$ (device value) and any one of the constant or other device, and then select an operator. Confirm to finish the formula setting. See Figure 3-6-5A-11 below.




(a) (b)

Fig. 3-6-5A-11 Displaying formula (a) Setting formula (b) formula Set

NOTE

- To set the properties, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.

## b. Character Display Box

To set up a character display box, click Unit and click Data Display and then click Character Display Box, or directly click the shortcut, and in the editing window left click the mouse to set up a character display box. Click the object and then double left click the mouse to open the property window of the object and make the setting.

The General property setting allows the user to change the picture, display color, transparency and line pattern. See Figure 3-6-5B-1 below.

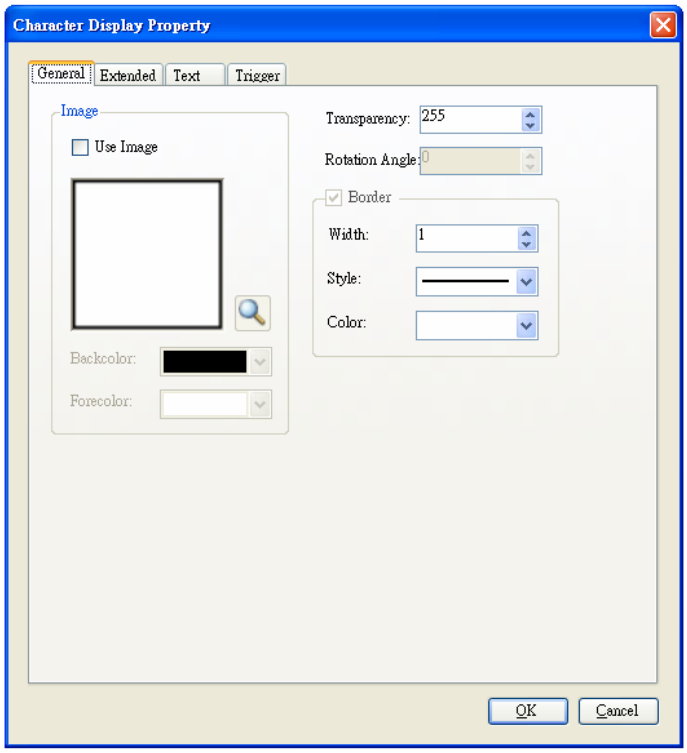
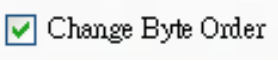



Fig. 3-6-5B-1 General Property Setting

Tick the option Use Image to change the picture. Click to open the picture library and pick up a preferred picture. For detailed instructions, please see Section 3.4.2 Image Library.

The Extension property allows the user to change the security level and device type. Figure 3-6-5B-2 below demonstrates the setting of the object's

security level. The security level (display) is ranged from 0 (lowest privilege) to 15 (highest privilege). The default security levels of the edit software and the system are both 0. The PLC of each maker is different in sequence during reading byte, and when characters displayed are not the numerical values entered, so check the 

box to change the sequence of the byte.

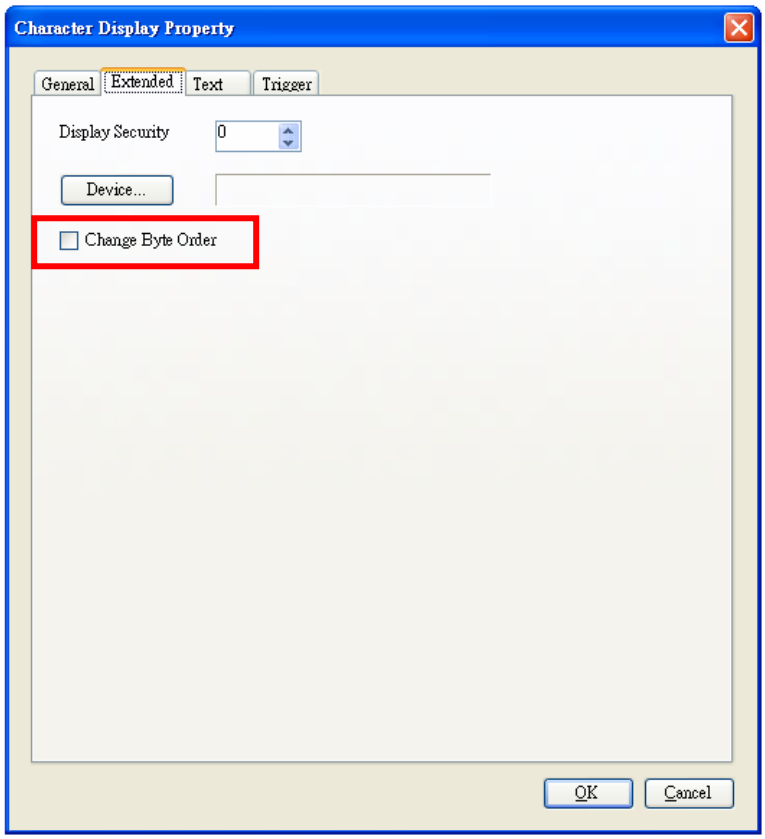
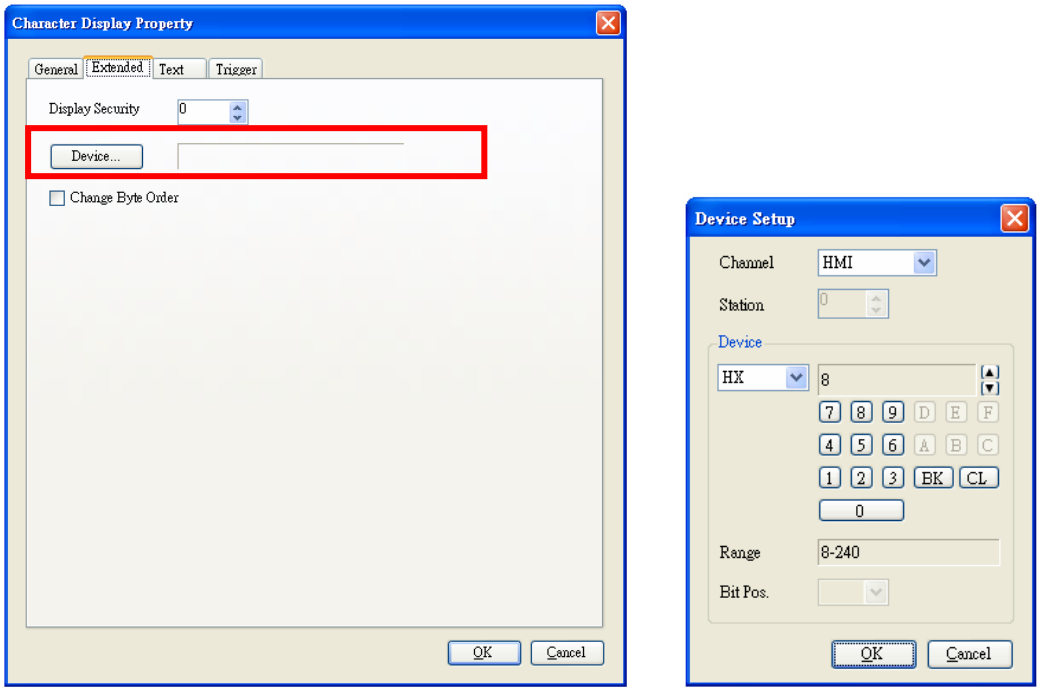



Fig. 3-6-5B-2 Security Levels

To set device, click Device... to open the device setup window. Confirm to finish the device setting. See Figure 3-6-5B-3 below.




(a) (b)

Fig. 3-6-5B-3 Device (a) Device Setting (b) Input Setting

The Text properties allow the user to change the numeric format, character spacing, font size , text color and alignment. See Figure 3-6-5B-5 below.

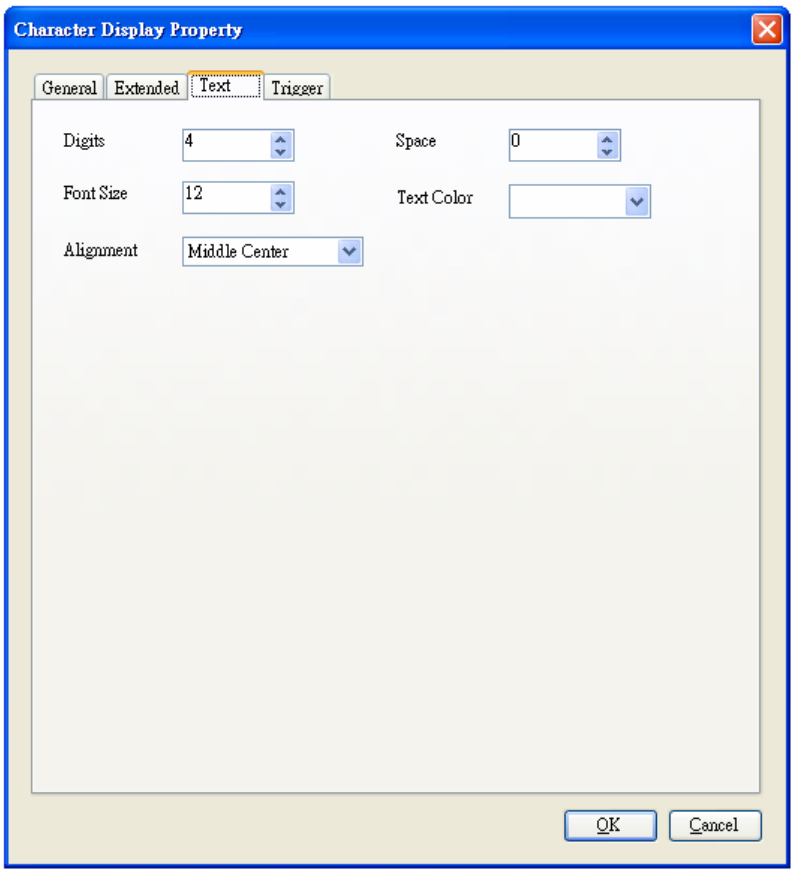
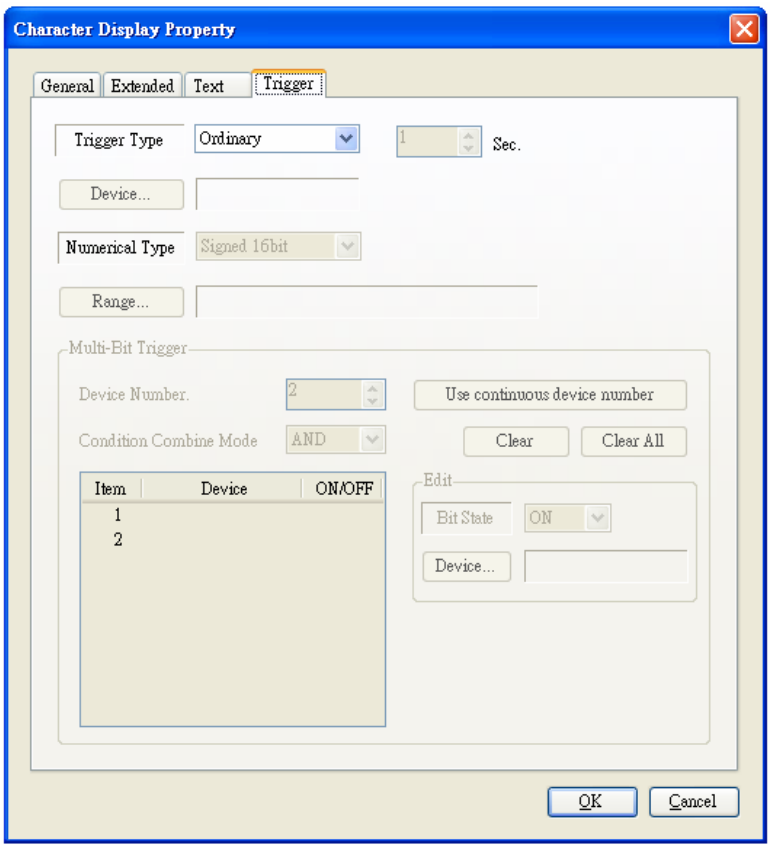



Fig. 3-6-5B-5 Text Propertys

The Trigger property setting allows the user to change the trigger pattern. See Figure 3-6-5B-6 below.

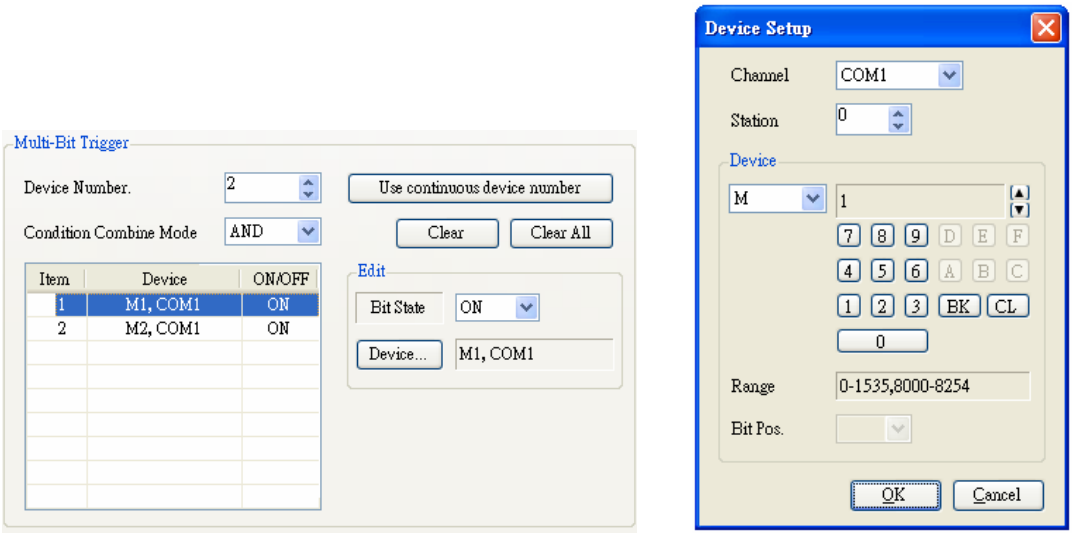



| Trigger Pattern | Description |
|---|---|
| **Ordinary** | No trigger pattern |
| **ON** | Action is taken only when the device in ON |
| **OFF** | Action is taken only when the device in OFF |
| **Range** | Action is taken only when the device value is within this range. |
| **Multi-Bit Trigger** | Set two or more devices (up to 8), and only when all the devices meet the condition will the action be taken. |
| **Rise** | Action is taken only when the device is switched from OFF to ON. |
| **Fall** | Action is taken only when the device is switched from ON to OFF. |
| **Sampling** | Action is taken only after the sampling time elapses. |

Fig. 3-6-5B-6 Trigger Pattern Setting

EX

To set a multi-Bit trigger with 2 devices, click Device... to open the device setting window and set the trigger devices as M1 and M2. Confirm the setting and have the file sent to HMI. So, only when M1 and M2 are both ON will the switch actions be started. See Figure 3-6-5B-7 below.




(a) (b)

Fig. 3-6-5B-7 Multi-Bit Trigger (a) Setup of Multi-Bit Trigger (b) Device Setup

NOTE

- To set the properties, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.

### c. Data List

To set up a data list, click Unit and click Data Display and then click Data List, or directly click the shortcut, and in the editing window left click the mouse to set up a data list. Click the object and then double left click the mouse to open the property window of the object and make the setting.

The General property setting allows the user to change the picture, display color, transparency and line pattern. See Figure 3-6-5C-1 below.

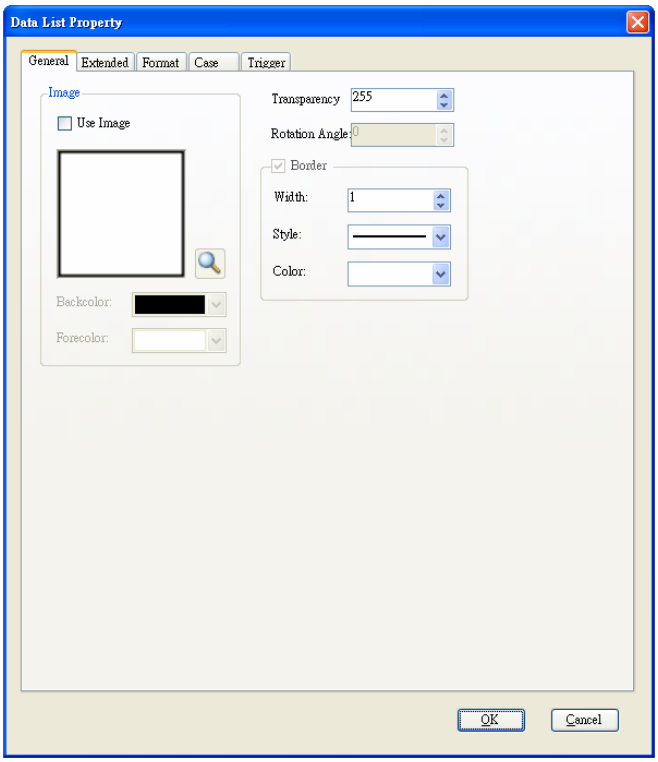



Fig. 3-6-5C-1 General Property Setting

Tick the option Use Image to change the picture. Click to open the picture library and pick up a preferred picture. For detailed instructions, please see Section 3.4.2 Image Library.

The Extension property allows the user to change the display security, display sort and font size, and text color, and col/row number, and interval. Figure 3-6-5C-2 below demonstrates the setting of the object's security level. The security level (display) is ranged from 0 (lowest privilege) to 15 (highest privilege). The default security levels of the edit software and the system are both 0.

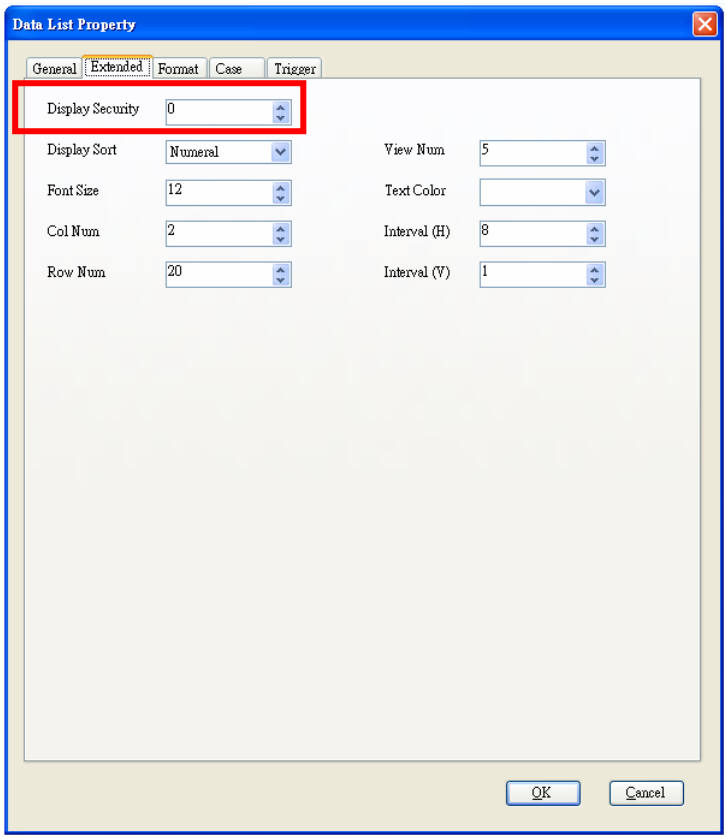
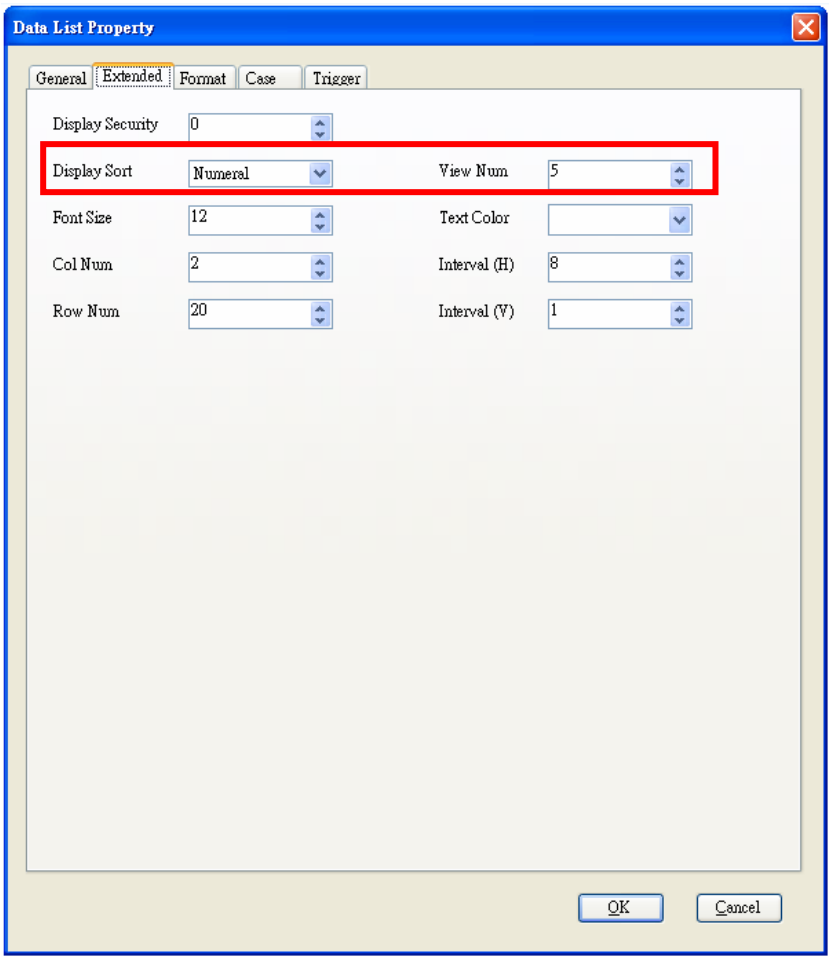



Fig. 3-6-5C-2 Security Levels

The user can set the display sort and the view number. See Figure 3-6-5C-3 below.




| | Description |
|---|---|
| **Display sort** | Value: with the largest value on the top, sorting by descending order.<br>Incremental: with the smallest comment number on the top, sorting by ascending order.<br>Decremental: with the largest comment number of the top, sorting by descending order. |
| **View number** | The maximum number of displays on the screen. |

Fig. 3-6-5C-3 Data Display Pattern

The Format properties allow the user to set the titles of the row and column, device and comment. See Figure 3-6-5C-4 below.

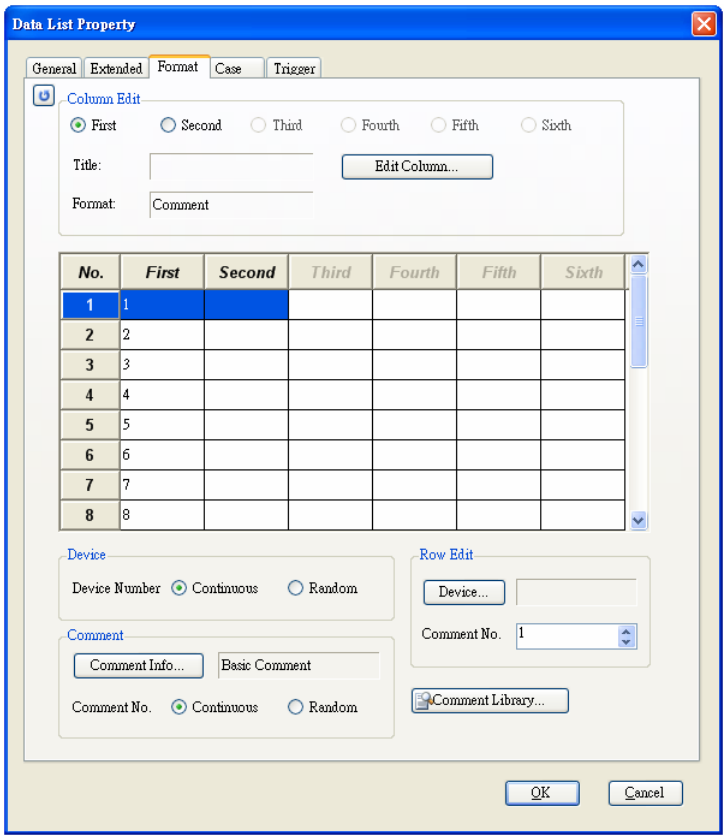
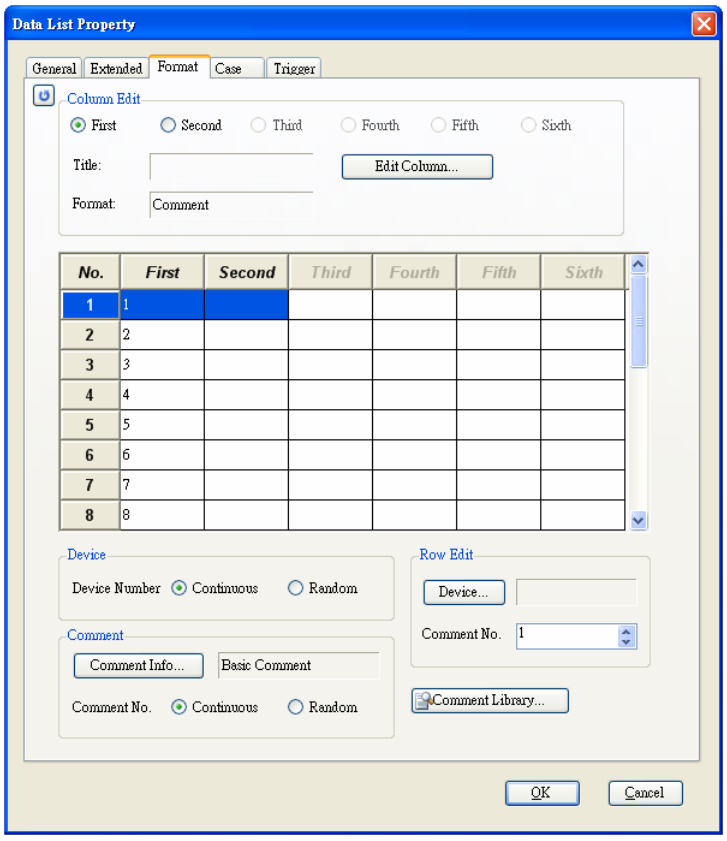



Fig. 3-6-5C-4 Format Propertys

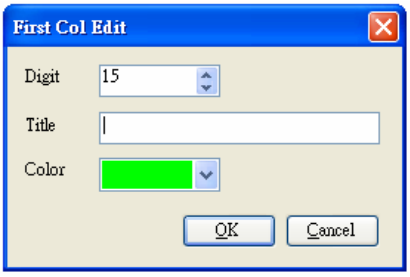


EC series

The data list can have as many as 6 rows. Click Edit Column... to open the row edit dialogue box and make preferred property setting. See Figure 3-6-5C-5 below.



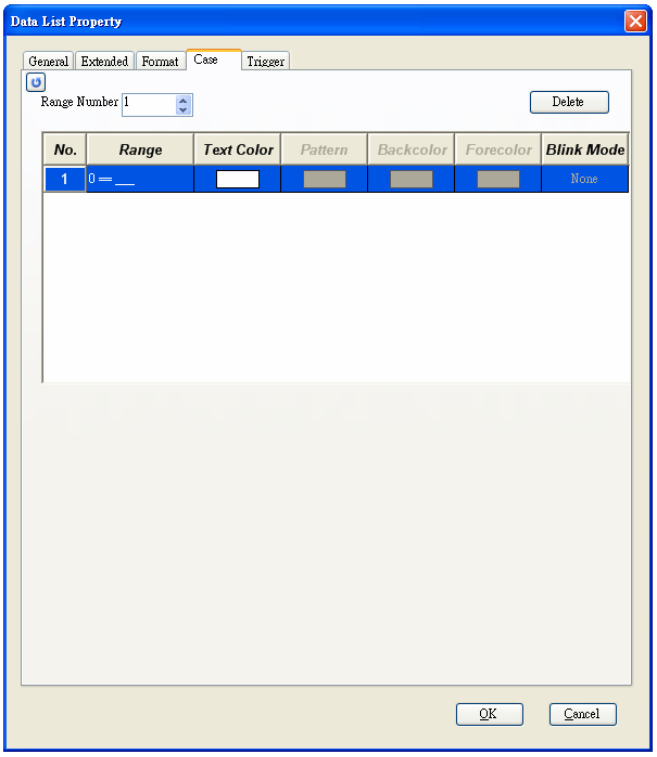

(a)



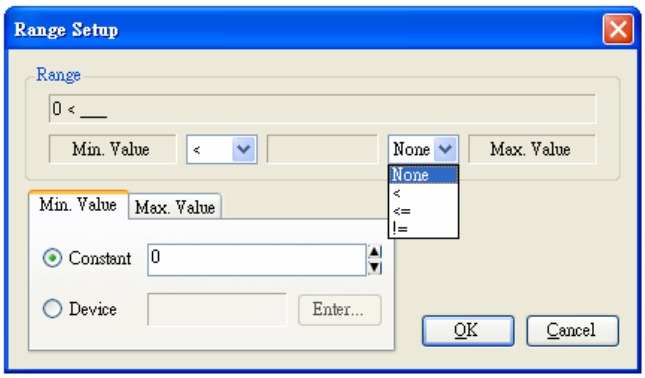

(b)

Fig. 3-6-5C-5 Row Edit (a) Editing Row (b) Row Format Edit

Figure 3-6-5C-6 below is the Range setup window. Set the number of ranges and they will be displayed in the table beneath for the user to set the range and color, and delete the range. Click to open the dialogue box and set the numeric range.



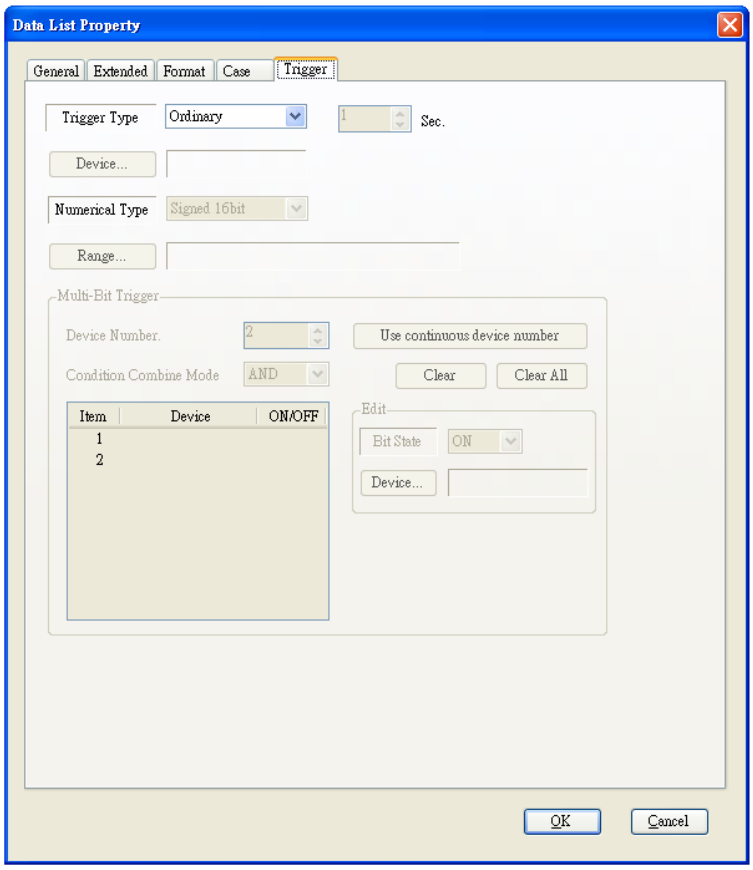

(a)




(b)

Fig. 3-6-5C-6 Range Setting (a) Edit Window (b) Setting Device

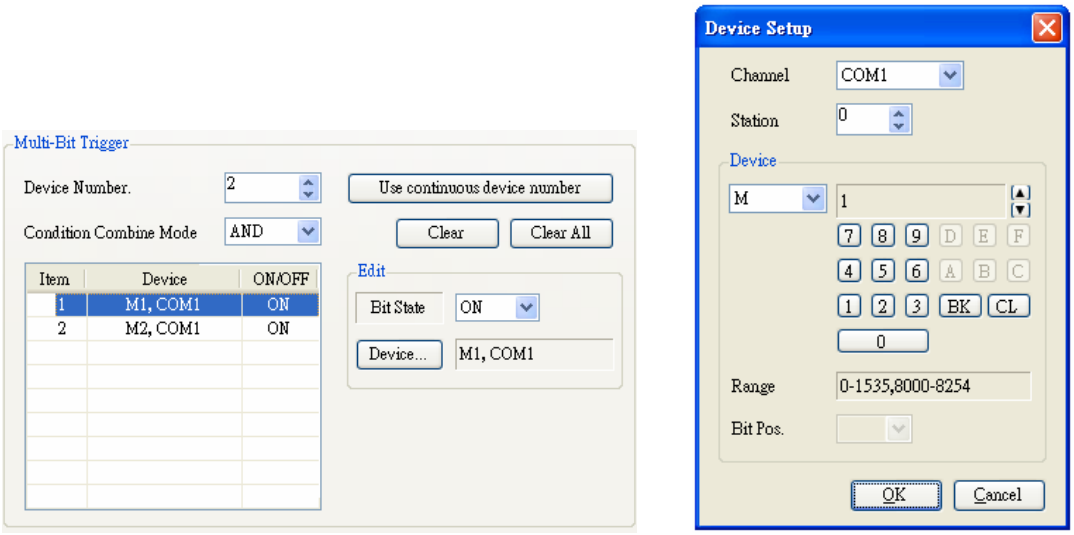
The Trigger property setting allows the user to set the triggering conditions. See Figure 3-6-5C-7 below.




| Trigger Pattern | Description |
|---|---|
| **Ordinary** | No trigger pattern |
| **ON** | Action is taken only when the device in ON |
| **OFF** | Action is taken only when the device in OFF |
| **Range** | Action is taken only when the device value is within this range. |
| **Multi-Bit Trigger** | Set two or more devices (up to 8), and only when all the devices meet the condition will the action be taken. |
| **Rise** | Action is taken only when the device is switched from OFF to ON. |
| **Fall** | Action is taken only when the device is switched from ON to OFF. |
| **Sampling** | Action is taken only after the sampling time elapses. |

Fig. 3-6-5C-7 Trigger Pattern Setting

To set a multi-Bit trigger with 2 devices, click Device... to open the device setting window and set the trigger devices as M1 and M2. Confirm the setting and have the file sent to HMI. So, only when M1 and M2 are both ON will the switch actions be started. See Figure 3-6-5C-8 below.




(a) (b)

Fig. 3-6-5C-8 Multi-Bit Trigger (a) Setup of Multi-Bit Trigger (b) Device Setup

- To set the properties, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.

### d. History data display

To set up a history data display , click Unit and click Data Display and then click History Data Display , or directly click the shortcut , and in the editing window left click the mouse to set up a history data display. The following table 3-6-5d-1 for history data display operation.

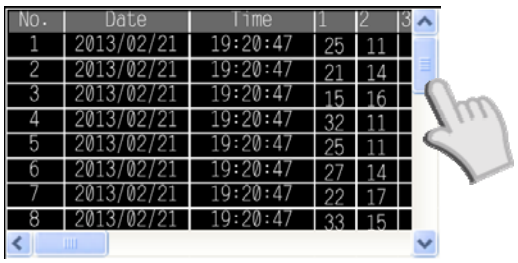
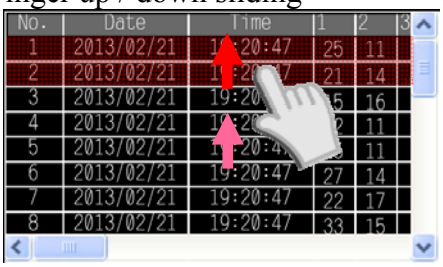
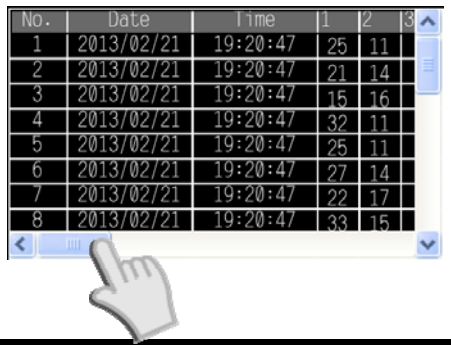
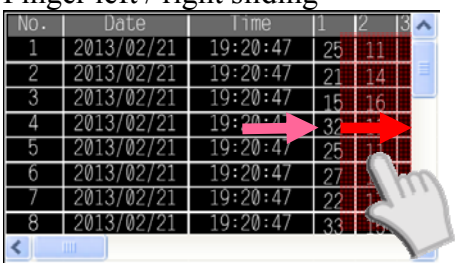
| Scroll direction | Mode of operation | |
|---|---|---|
| | Operating the scrollbar | Operating area for the form |
| Scroll Up / down |  | Finger up / down sliding  |
| Scroll Left / Right |  | Finger left / right sliding  |

table 3-6-5d-1 、history data display that the mode of operation

NOTE

- In the Historical Data table, you also can use “Move Up” and “Move Down” to scroll the historical data table as shown in figure 3-6-5d-2.

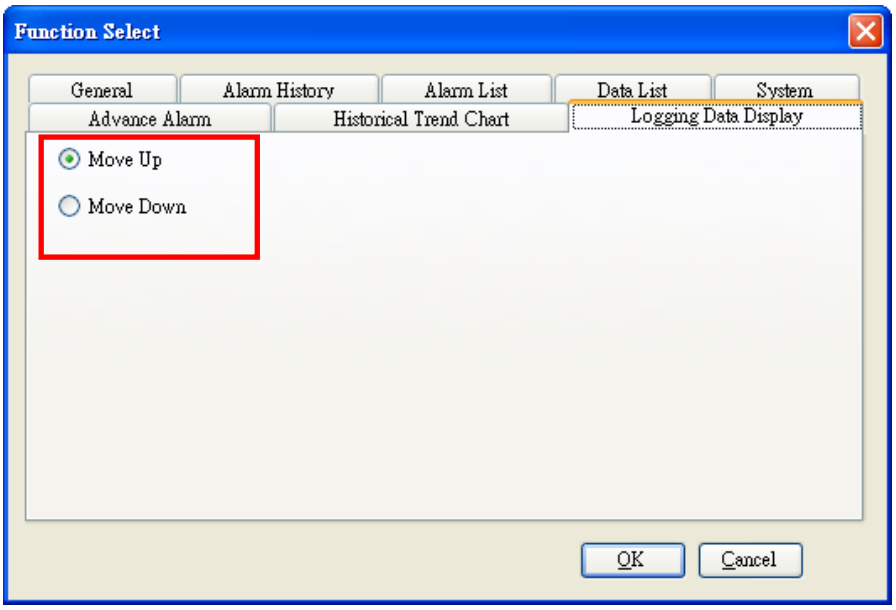



Figure 3-6-5d-2: Key Function setup

Click the object and then double left click the mouse to open the property window of the object and make the setting.The General property setting allows the user to change the transparency and rotation angle. See Figure 3-6-5d-3 below.

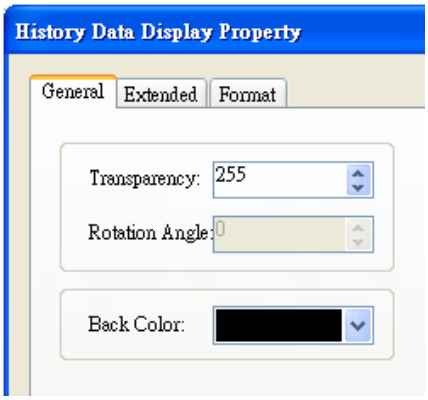
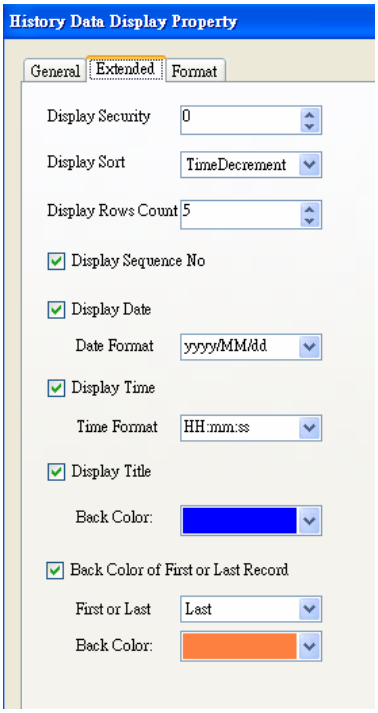



Fig. 3-6-5d-3 General Property Setting

The extended property is set as shown in figure 3-6-5d-4.



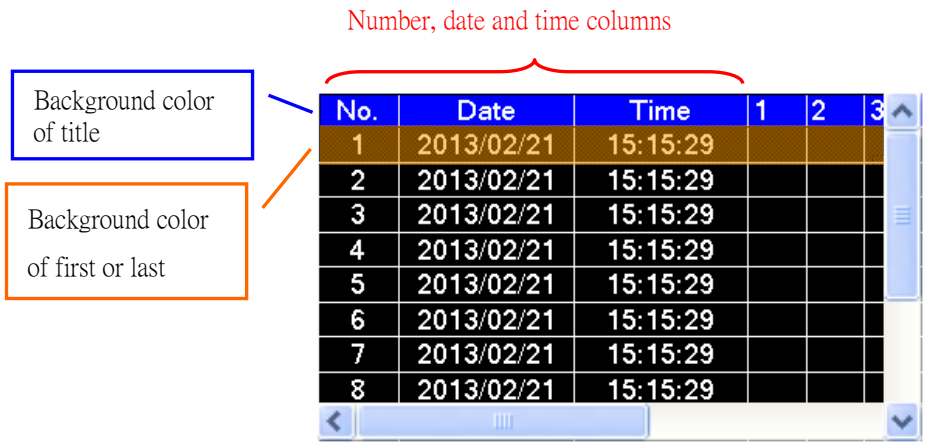

| Function | Description |
|---|---|
| **Display security** | It sets the safety level of en element. The authority ranges from 0 to 15.The safety level (display) ranges from 0 to 15. The default safety level of software and system is 0. |
| **Display sort** | Time increment: It sorts by the occurrence time of historical data. The latest occurrence is the last sort.<br>Time decrement: It sorts by the occurrence time of historical data. The earliest occurrence is the last sort. |
| **Display rows count** | It sets the number of historical data to be displayed. |
| **Display sequence NO**<br>**Display date**<br>**Display time**<br>**Display title**<br>**Back color of first or last record** |  |



Figure 3-6-5d-4: Extended property setup

The Format properties allow the user to set the logging ID,column number,font, row height and device . Properties of each column Setting in the bottom of the window ,see Figure 3-6-5d-5 below.

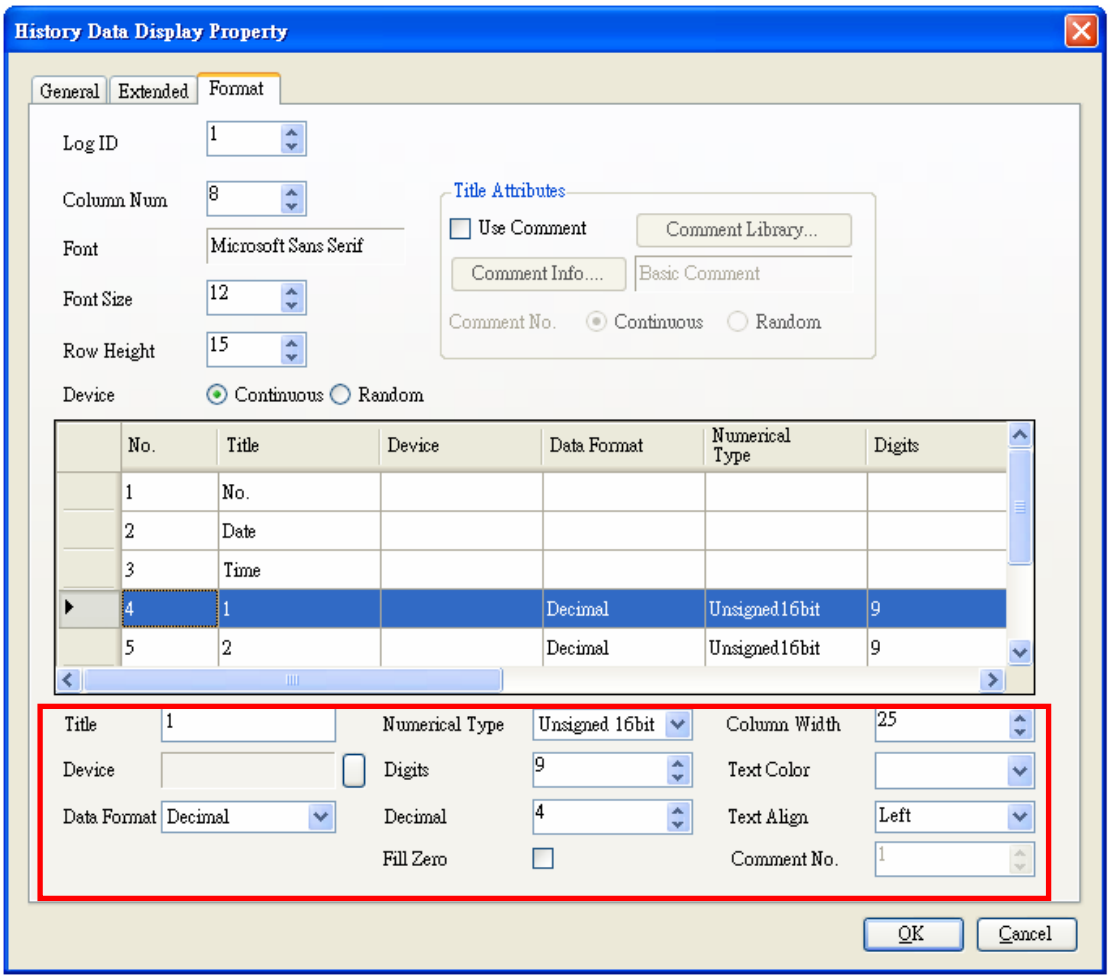



Fig. 3-6-5d-5 Format Property Setting

### 3.6.6. Message Display

Click Unit and then click Message Display, or directly click the shortcut , and in the editing window left click the mouse to set up a message object. See Figure 3-6-6 below.

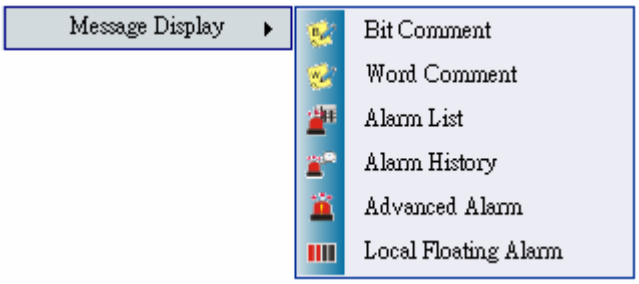



Fig. 3-6-6 Message Display Menu

### a. Bit Comment

To set up a Bit comment, click Unit and click Message Display and then click Bit Comment, or directly click the shortcut, and in the editing window left click the mouse to set up a Bit comment. Click the object and then double left click the mouse to open the property window of the object and make the setting.

The General property setting allows the user to set the picture, display color, transparency and line pattern. See Figure 3-6-6A-1 below.

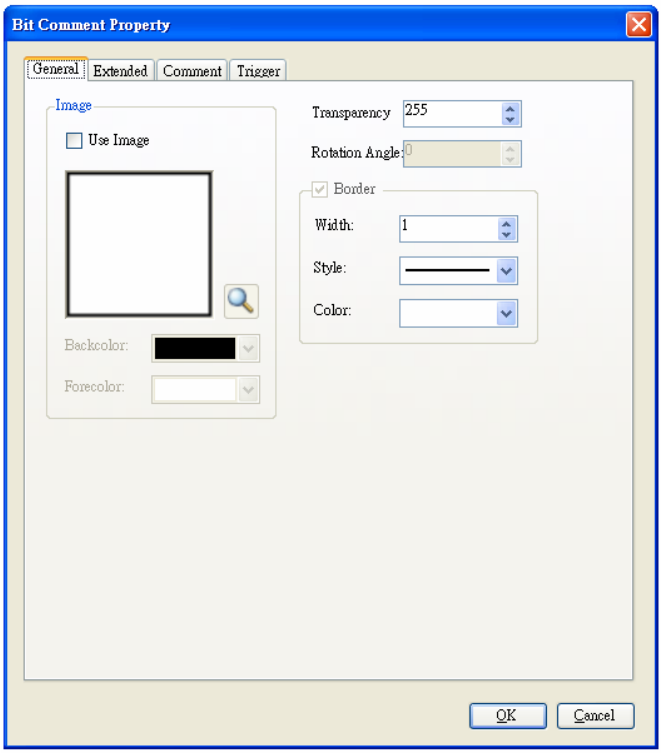



Fig. 3-6-6A-1 General Property Setting

Tick the option Use Image to change the picture. Click to open the picture library and pick up a preferred picture. For detailed instructions, please see Section 3.4.2 Image Library.

The Extension property allows the user to change the security level, device, font size, and alignment. Figure 3-6-6A-2 below demonstrates the setting of the object's security level. The security level (display) is ranged from 0 (lowest privilege) to 15 (highest privilege). The default security levels of the edit software and the system are both 0.

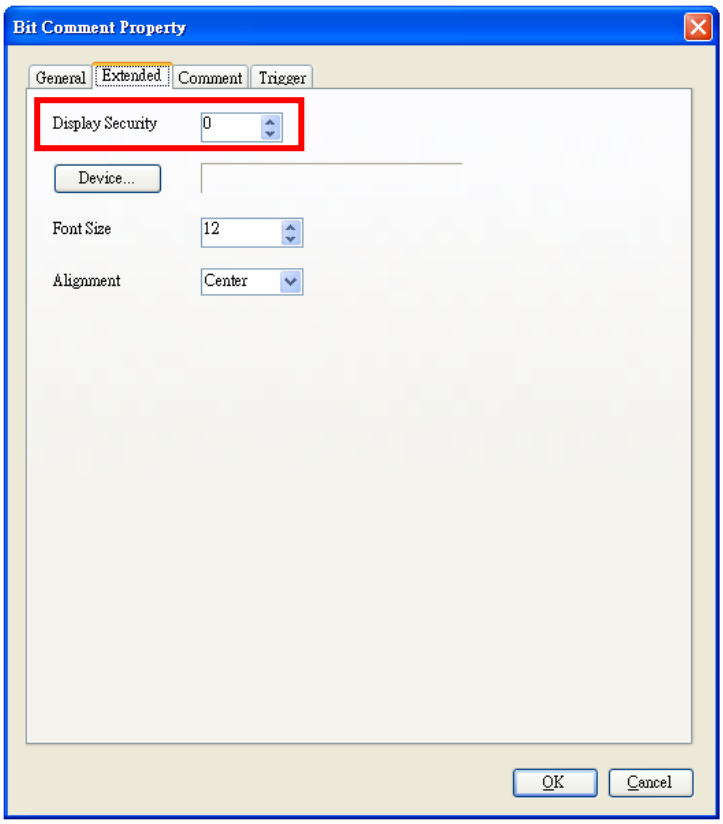
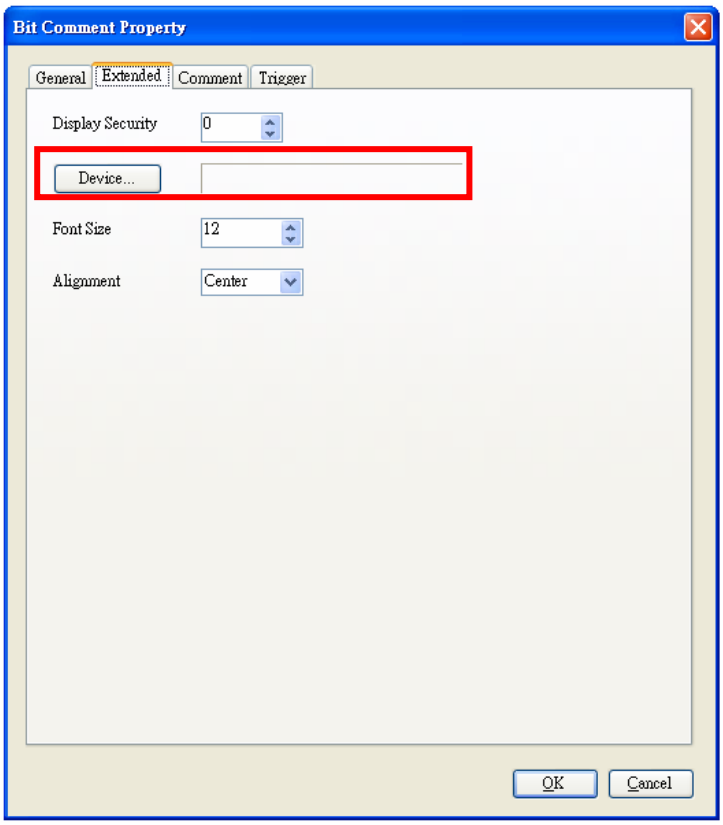
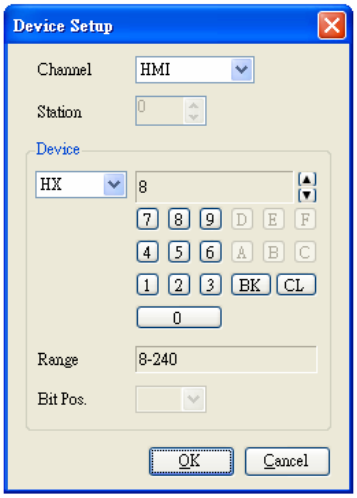



Fig. 3-6-6A-2 Security Levels

To set device, click Device... to open the device setup window. Confirm to finish the device setting. See Figure 3-6-6A-3 below.




(a)




(b)

Fig. 3-6-6A-3 Device (a) Device Setting (b) Input Setting

The Comment properties allow the user to set the comment pattern, ON/OFF display, text color and font, and reverse font. See Figure 3-6-6A-4 below.

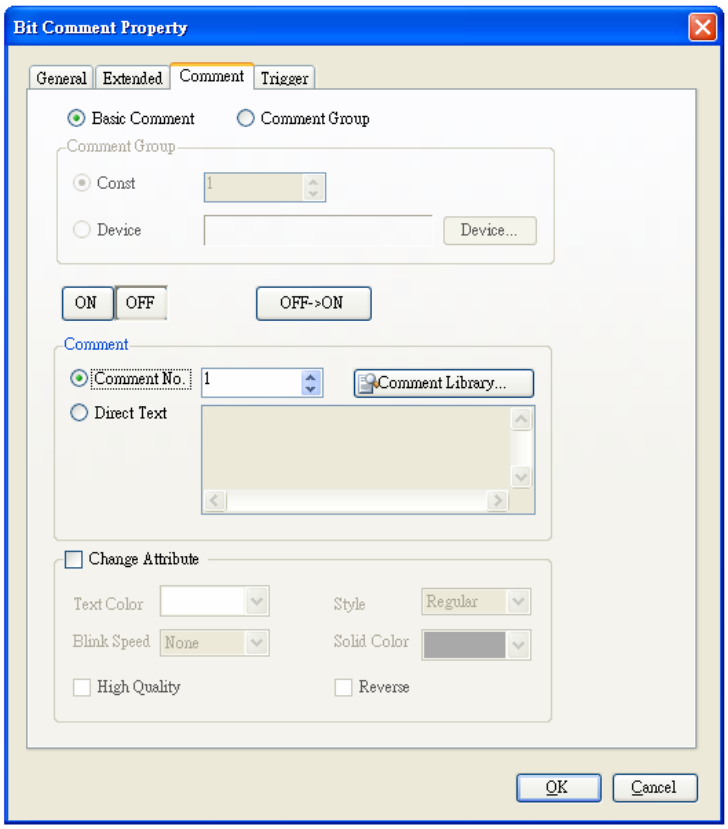



Fig. 3-6-6A-4 Comment Propertys

In the text editing, the comments in the comment library can be set as text to display. To do this, click

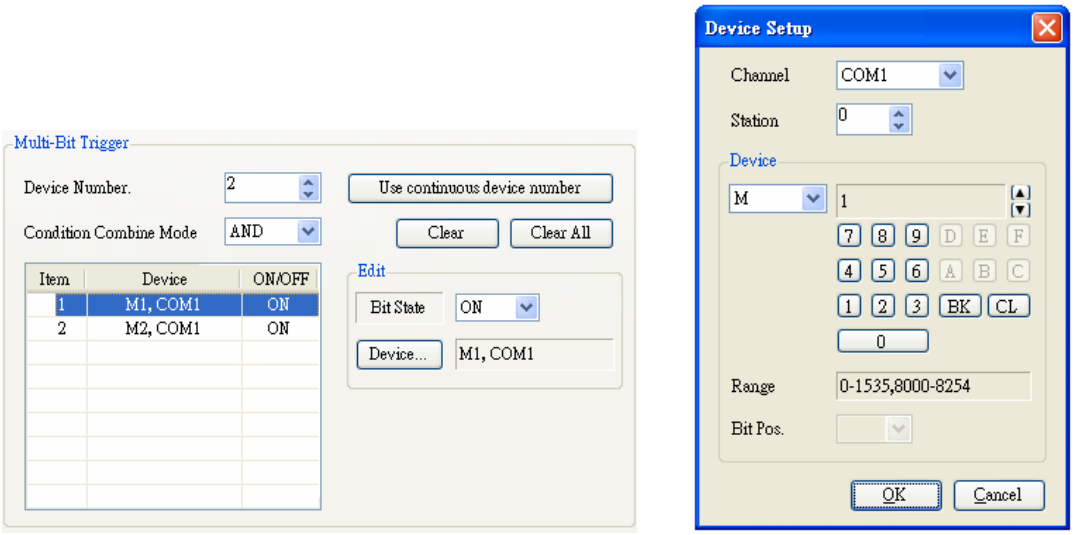
to open the comment library dialogue box. For detailed instructions, please see Section 3.4.4 Comment Library.

The Trigger property setting allows the user to set the conditions of the trigger pattern. See Figure 3-6-6A-5 below.

| Trigger Pattern | Description |
|---|---|
| **Ordinary** | No trigger pattern |
| **ON** | Action is taken only when the device in ON |
| **OFF** | Action is taken only when the device in OFF |
| **Range** | Action is taken only when the device value is within this range. |
| **Multi-Bit Trigger** | Set two or more devices (up to 8), and only when all the devices meet the condition will the action be taken. |
| **Rise** | Action is taken only when the device is switched from OFF to ON. |
| **Fall** | Action is taken only when the device is switched from ON to OFF. |
| **Sampling** | Action is taken only after the sampling time elapses. |

Fig. 3-6-6A-5 Trigger Pattern Setting

To set a multi-Bit trigger with 2 devices, click Device... to open the device setting window and set the trigger devices as M1 and M2. Confirm the setting and have the file sent to HMI. So, only when M1 and M2 are both ON will the switch actions be started. See Figure 3-6-6A-6 below.




(a) (b)

Fig. 3-6-6A-6 Multi-Bit Trigger (a) Setup nof Multi-Bit Trigger (b) Device Setup

- To set the properties, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.

## b. Word Comment

To set up a Word Comment, click Unit and click Message Display and then click Word Comment, or directly click the shortcut, and in the editing window left click the mouse to set up the object. Click the object and then double left click the mouse to open the property window of the object and make the setting.

The General property setting allows the user to set the picture, display color, transparency and line pattern. See Figure 3-6-6B-1 below.

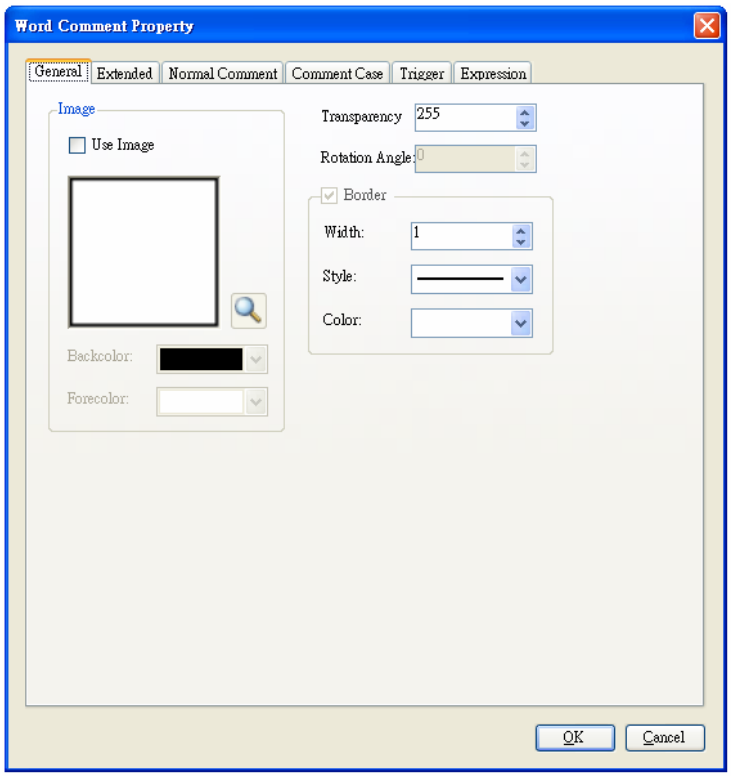



Fig. 3-6-6B-1 General Property Setting

Tick the option Use Image to set the picture. Click to open the picture library and pick up a preferred picture. For detailed instructions, please see Section 3.4.2 Image Library.

The Extension property allows the user to set the security level, device, font size, and alignment. Figure 3-6-6B-2 below demonstrates the setting of the object's security level. The security level (display) is ranged from 0 (lowest privilege) to 15 (highest privilege). The default security levels of the edit software and the system are both 0.

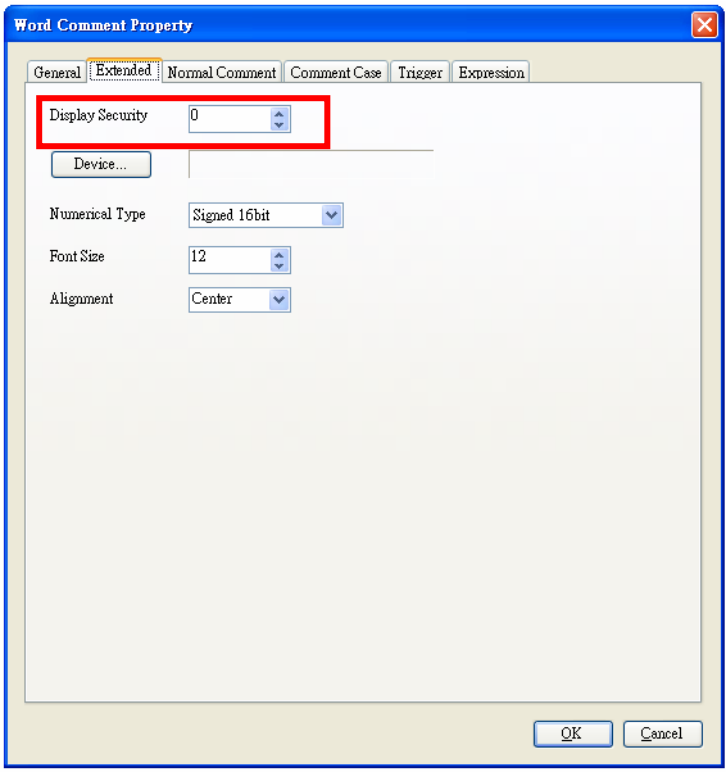
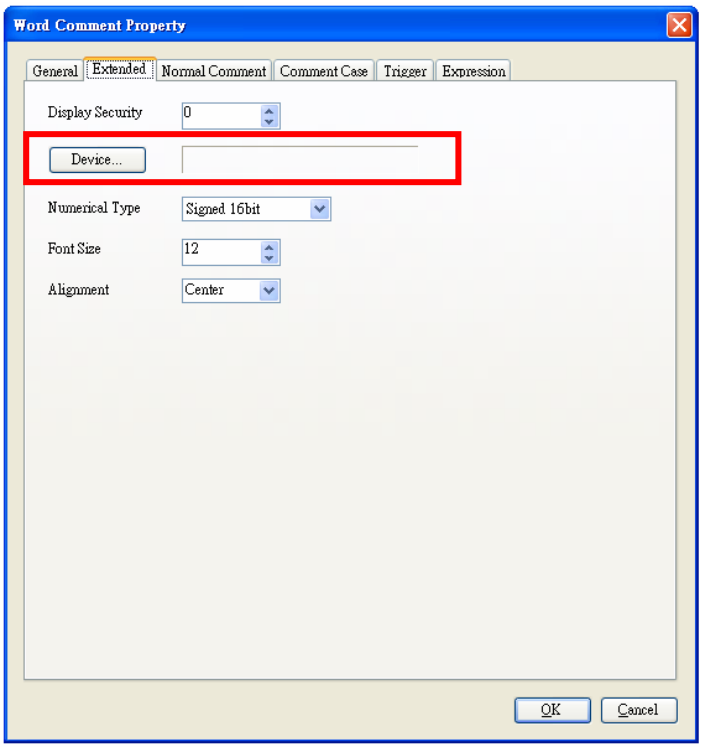
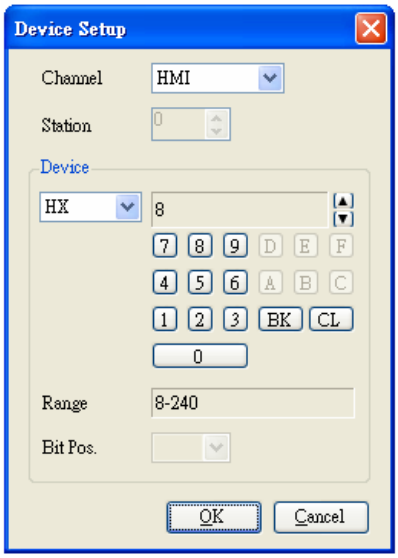



Fig. 3-6-6B-2 Security Levels

To set device, click Device... to open the device setup window. Confirm to finish the device setting. See Figure 3-6-6B-3 below.



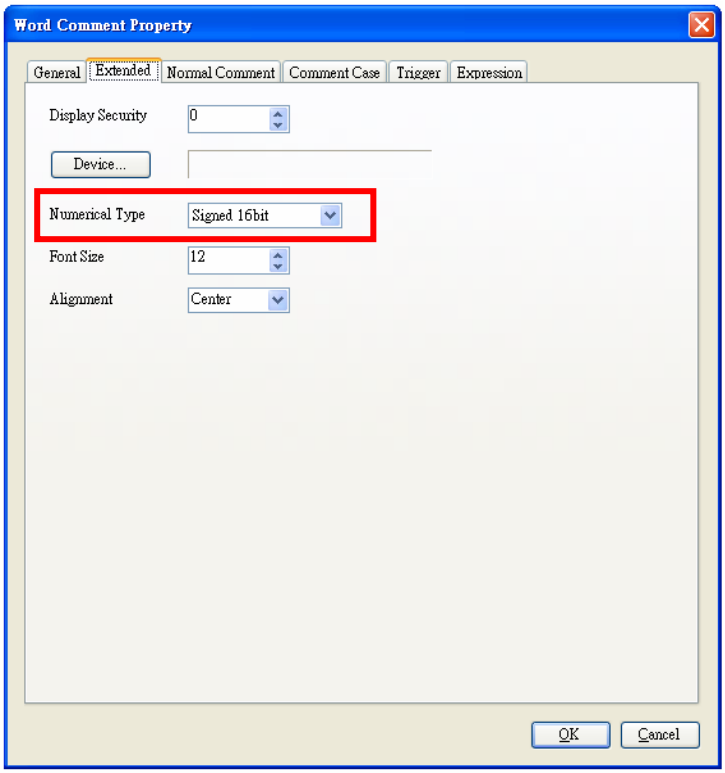

(a)

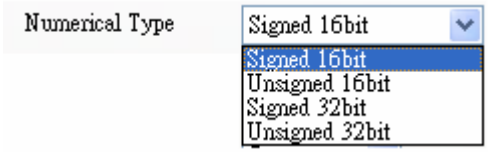



(b)

Fig. 3-6-6B-3 Device (a) Device Setting (b) Input Setting

There are 4 numeric types available to the user. See Figure 3-6-6B-4 below.

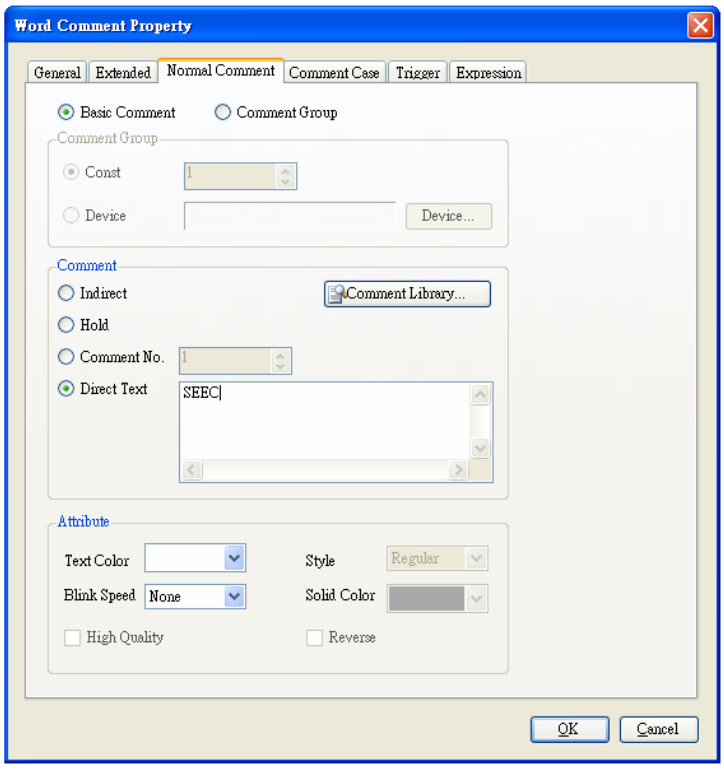



| Numeric Type | Value Range |
|---|---|
| **Signed 16bit** | -32768~32767 |
| **Unsigned 16 bit** | 0~65535 |
| **Signed 32 bit** | -2147483648~2147483647 |
| **Unsigned 32 bit** | 0~4294967295 |

Fig. 3-6-6B-4 Numeric Types and Value Ranges

The General Comment properties allow the user to set the comment library, comment type, text color and font, and reverse font. See Figure 3-6-6B-5 below.




| Comment Type | Description |
|---|---|
| **Indirect** | The device value corresponds to the text in the comment number. |
| **Hold** | Maintain the comment text of the last state. |
| **Comment Number** | Can set basic comment and comment group. |
| **Direct Text** | Edit the text to be displayed |

Fig. 3-6-6B-5 General Comment Propertys

In the text editing, the comments in the comment library can be set as text to display. To do this, click

to open the comment library dialogue box. For detailed instructions, please see Section 3.4.4 Comment Library.



EC series

The Range Comment properties allow the user to add/delete/change the device, and set the comment type and text color. See Figure 3-6-6B-6 below.

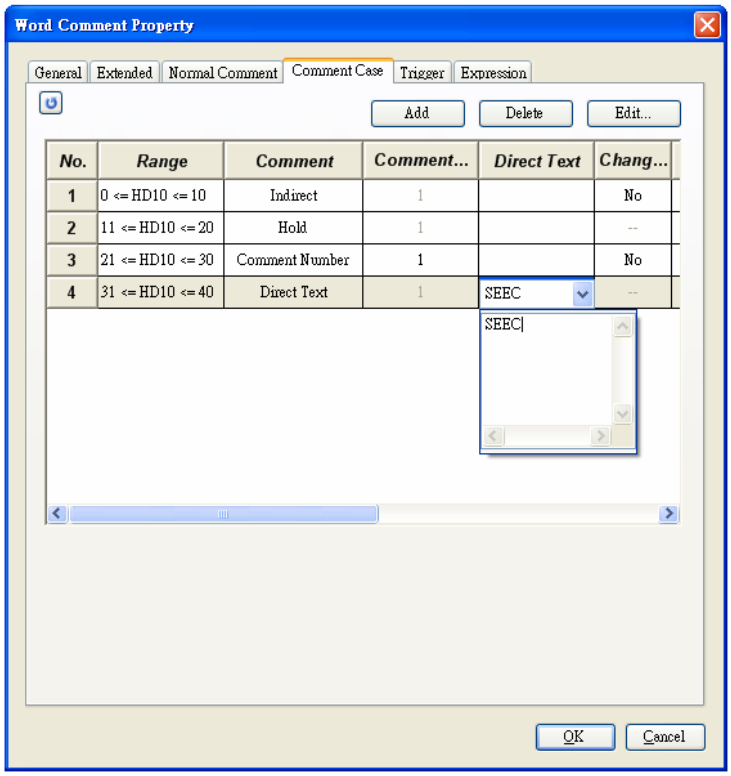



Fig. 3-6-6B-6 Range Comment Properties

To change the device settings of the Range comment, click Edit... to open the comment setup window and set the device range, comment type and text properties. See Figure 3-6-6B-7 below.

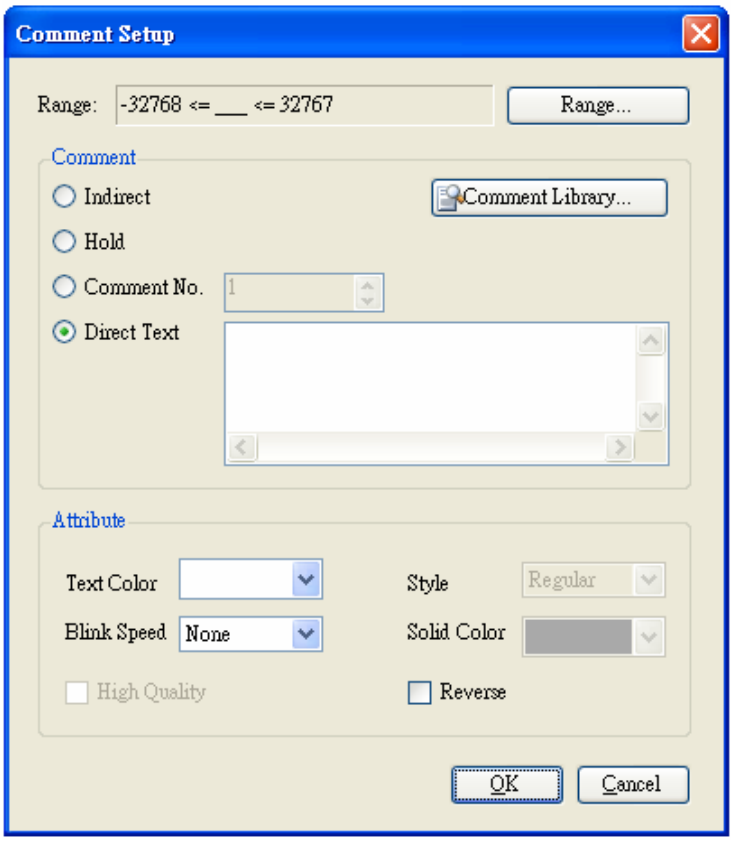
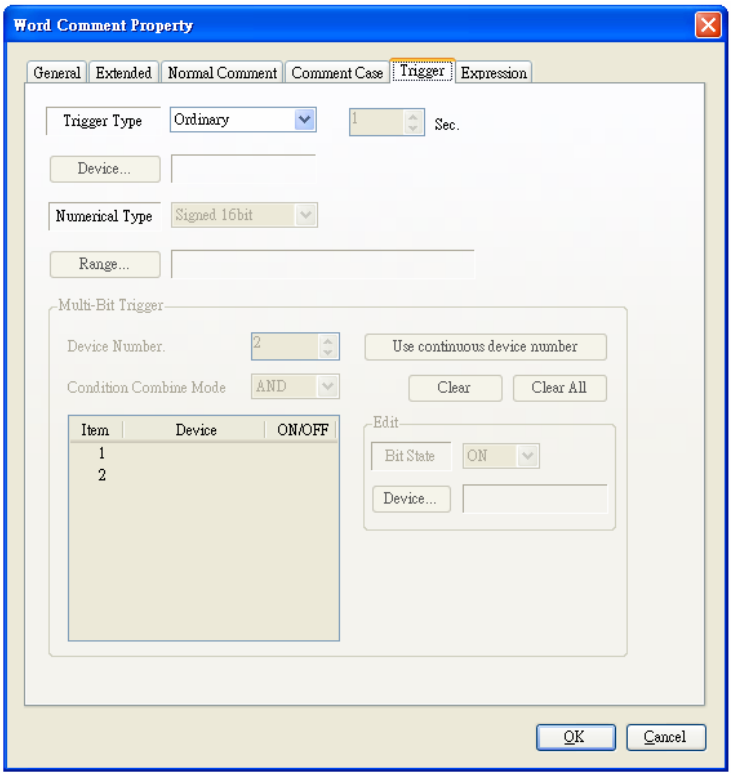



Fig. 3-6-6B-7 Comment Setting

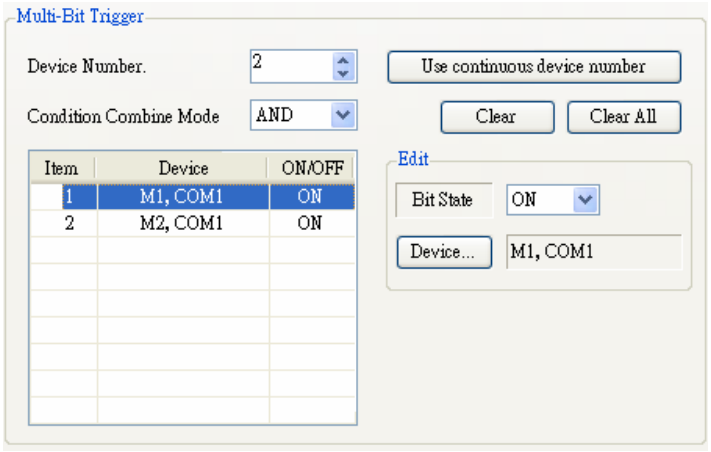
The Trigger property setting allows the user to change the trigger pattern. See Figure 3-6-6B-8 below.



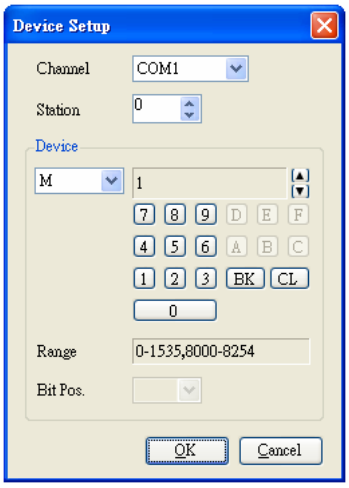

| Trigger Pattern | Description |
|---|---|
| **Ordinary** | No trigger pattern |
| **ON** | Action is taken only when the device in ON |
| **OFF** | Action is taken only when the device in OFF |
| **Range** | Action is taken only when the device value is within this range. |
| **Multi-Bit Trigger** | Set two or more devices (up to 8), and only when all the devices meet the condition will the action be taken. |
| **Rise** | Action is taken only when the device is switched from OFF to ON. |
| **Fall** | Action is taken only when the device is switched from ON to OFF. |
| **Sampling** | Action is taken only after the sampling time elapses. |

Fig. 3-6-6B-8 Trigger Pattern Setting

To set a multi-Bit trigger with 2 devices, click Device... to open the device setting window and set the trigger devices as M1 and M2. Confirm the setting and have the file sent to HMI. So, only when M1 and M2 are both ON will the switch actions be started. See Figure 3-6-6B-9 below.



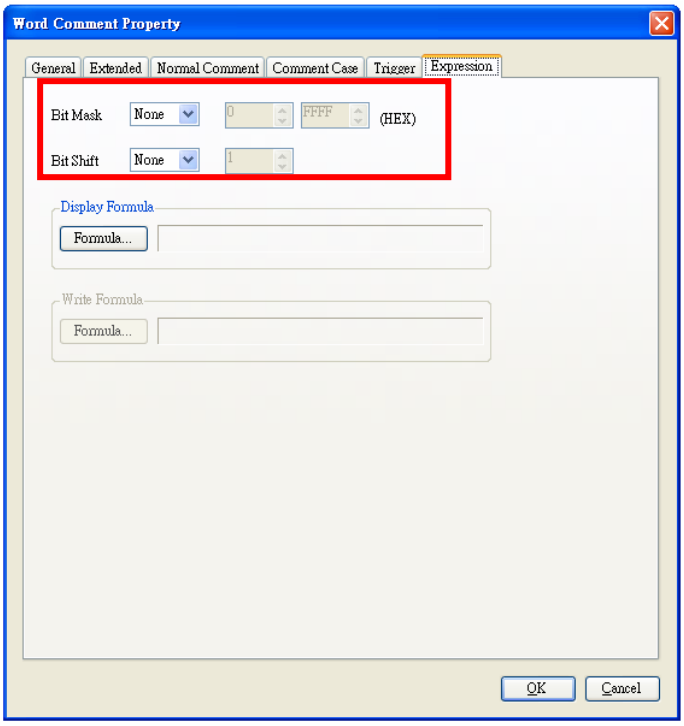

(a)




(b)

Fig. 3-6-6B-9 Multi-Bit Trigger (a) Setup of Multi-Bit Trigger (b) Device Setup

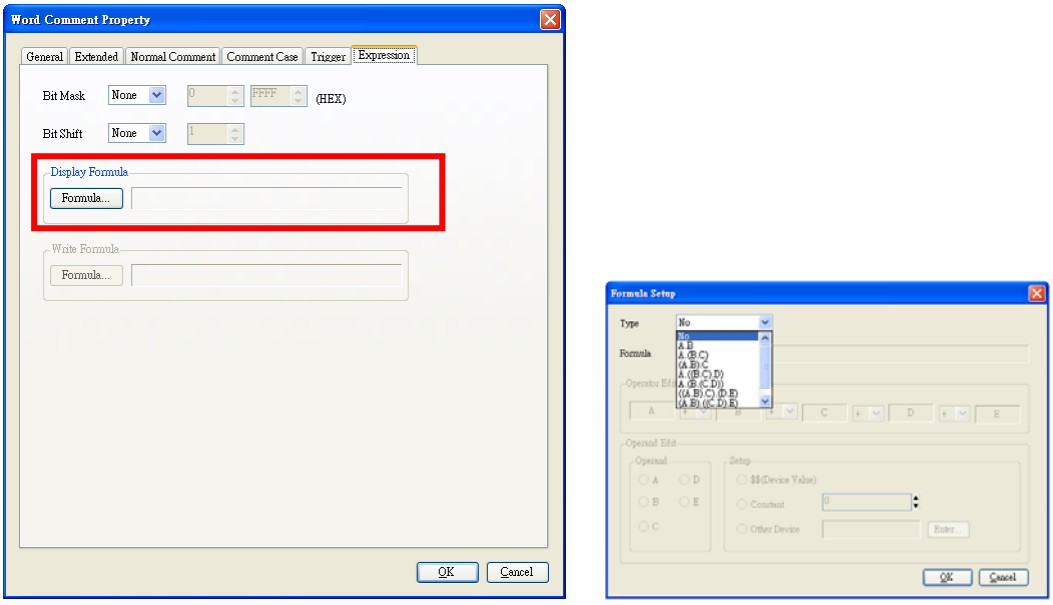
The Numeric Operation properties allow the user to set bit mask, bit shift, display, and display formula. The system uses hexadecimal input. See Figure 3-6-6B-10 below.




| Name | | Description |
|---|---|---|
| **Bit Mask** | **None** | No Bit mask. |
| | **AND** | Values are converted to binary for AND operation.<br>**EX~** Decimal value 8 ANDing with A gets 8. |
| | **OR** | Values are converted to binary for OR operation.<br>**EX~** Decimal value 8 ORing with A gets 10. |
| | **XOR** | Values are converted to binary for XOR operation.<br>**EX~** Decimal value 8 XORing with A gets 2. |
| **Bit Shift** | **None** | No Bit offset. |
| | **<<** | Values are converted to binary for left shift.<br>**EX~** Decimal value 8 left shifting 2 bits becomes 32. |
| | **>>** | Values are converted to binary for right shift.<br>**EX~** Decimal value 8 left shifting 2 bits becomes 2. |

Fig. 3-6-6B-10 Logic Operations

To set formula display, click Formula... to open the formula setup window, and pick up a preferred formula pattern, and then select from the A~E options, and then select $$ (device value) and any one of the constant or other device, and then select an operator. Confirm to finish the formula setting. See Figure 3-6-6B-11 below.




(a) (b)

Fig. 3-6-6B-11 Displaying formula (a) Setting formula (b) formula Set

NOTE

- To set the properties, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.

### c. Alarm List

To set up an alarm list, click Unit and click Message Display and then click Alarm List, or directly click the shortcut, and in the editing window left click the mouse to set up an alarm list. Click the object and then double left click the mouse to open the property window of the object and make the setting.

The General property setting allows the user to change the picture, display color, transparency and line pattern. See Figure 3-6-6C-1 below.

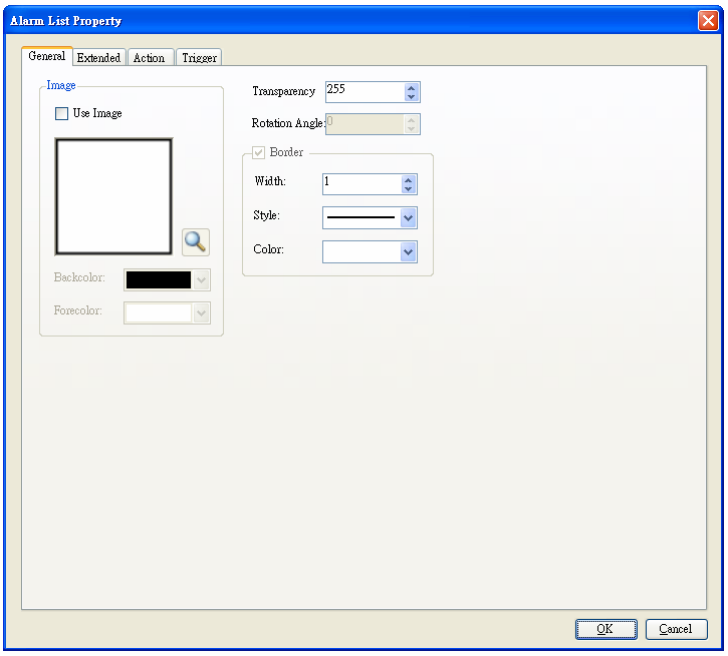
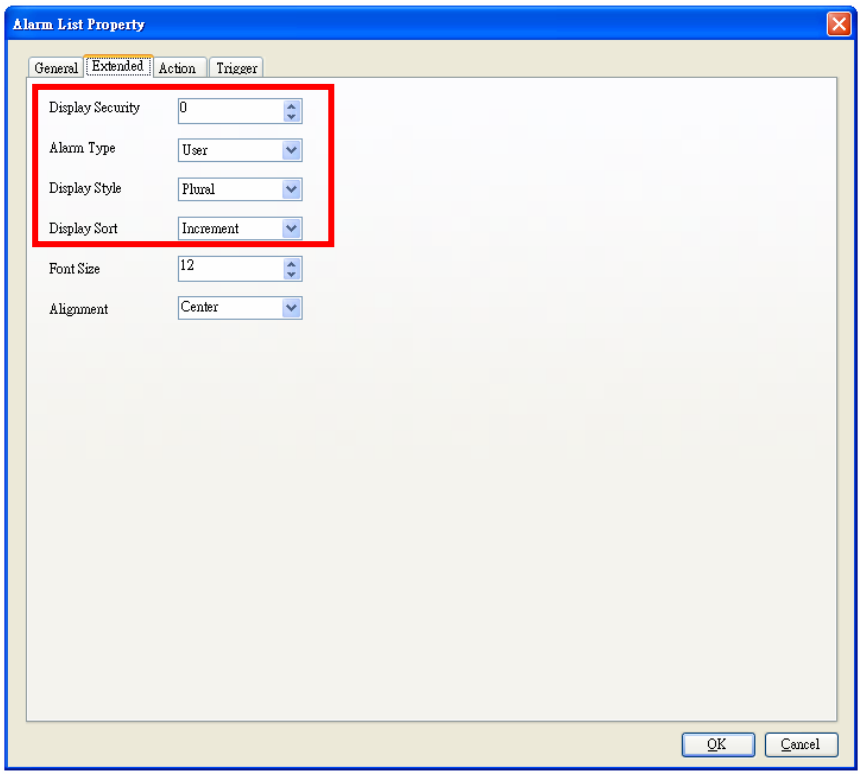



Fig. 3-6-6C-1 General Property Setting

Tick the option Use Image to change the picture. Click to open the picture library and pick up a preferred picture. For detailed instructions, please see Section 3.4.2 Image Library.

The Extension properties allow the user to change the security level, alarm type, display pattern, sorting order, font size and alignment. See Figure3-6-6C-2 below.




| | Description |
|---|---|
| **Display Security** | Set the security level of an object. The security level (display) is ranged from 0 (lowest privilege) to 15 (highest privilege). The default security levels of the edit software and the system are both 0. |
| **Alarm Type** | User: user-defined alarm messages.<br>System: system-related alarm messages. |
| **Display Style** | Plural: Multiple displays: the window displays multiple alarm transactions.<br>Singular: the window displays a single alarm transaction. |
| **Display Sort** | Increment: the alarm numbers are sorted by ascending order with the smallest on the top.<br>Decrement: the alarm numbers are sorted by descending order with the largest on the top.<br>Oldest: the earliest issued alarm on the top, in time ascending order.<br>Latest: the latest issued alarm on the top, in time descending order. |

Fig. 3-6-6C-2 Extension Property Setting

The Action property setting allows the user to set the number of alarms displayed (up to 1024 transactions), device type, comment and detailed text contents. See Figure 3-6-6C-3 below.

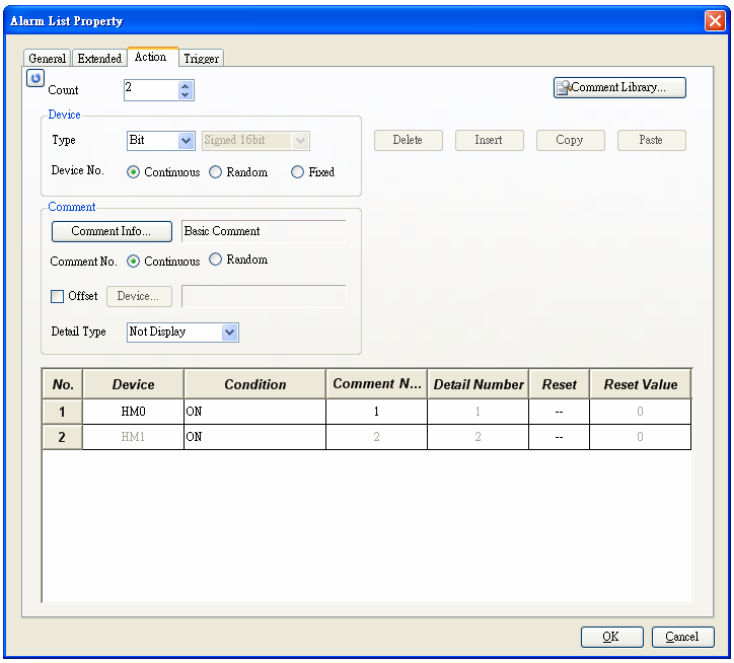



Fig. 3-6-6C-3 Action Property Setting

In the text editing, comments in the comment library can be set as text to display. To do this, click

to open the comment library dialogue box. For detailed instructions, please see Section 3.4.4 Comment Library.

The Bit action device types are ON/OFF displays. The user can set comment information, number, offset and Details type. See Figure 3-6-6C-4 below.

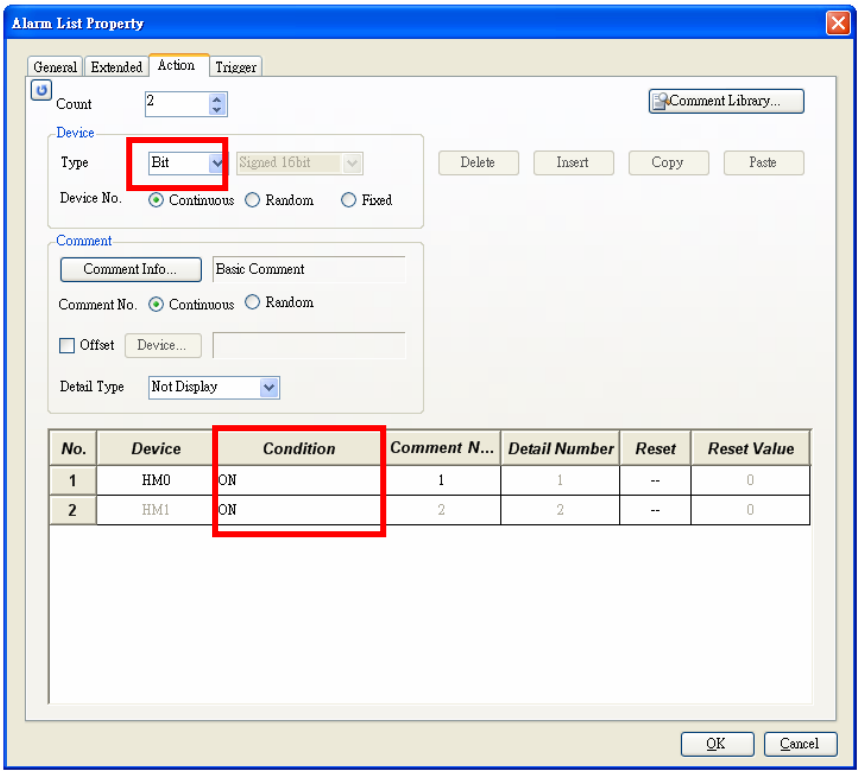
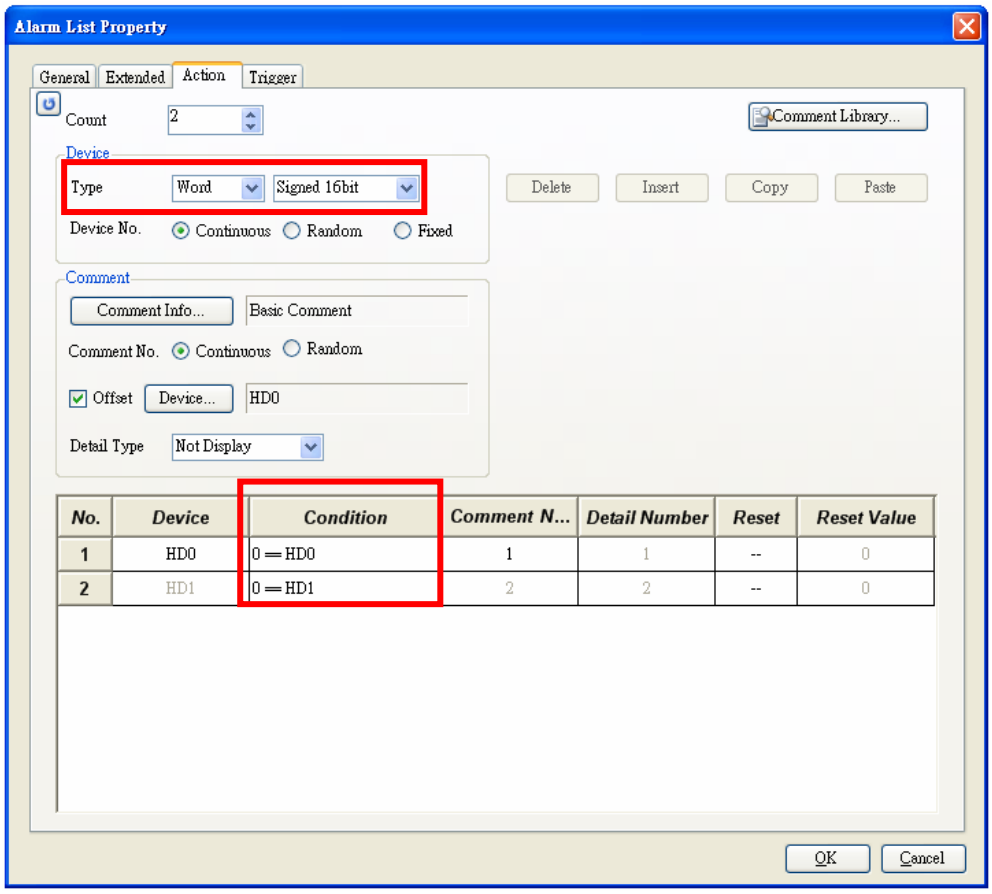



Fig. 3-6-6C-4 Bit Alarm List

The Word action device has 7 numeric types available. The user can set the comment information, number, offset and the Details type. See Figure 3-6-6C-5 below.




| Numeric Type | Value Range |
|---|---|
| Signed 16bit | -32768~32767 |
| Unsigned 16 bit | 0~65535 |
| Signed 32 bit | -2147483648~2147483647 |
| Unsigned 32 bit | 0~4294967295 |
| BCD16 bit | 0~9999 |
| BCD32 bit | 0~99999999 |
| Real | -2.147484E+09~2.147484E+09 |

Fig. 3-6-6C-5 Word Alarm List

Click Comment Info... to open the comment information dialogue box and select basic or comment group. See Figure 3-6-6C-6 below.

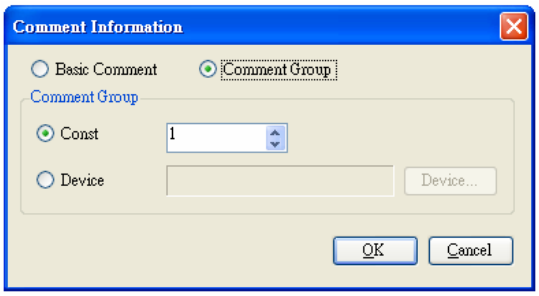
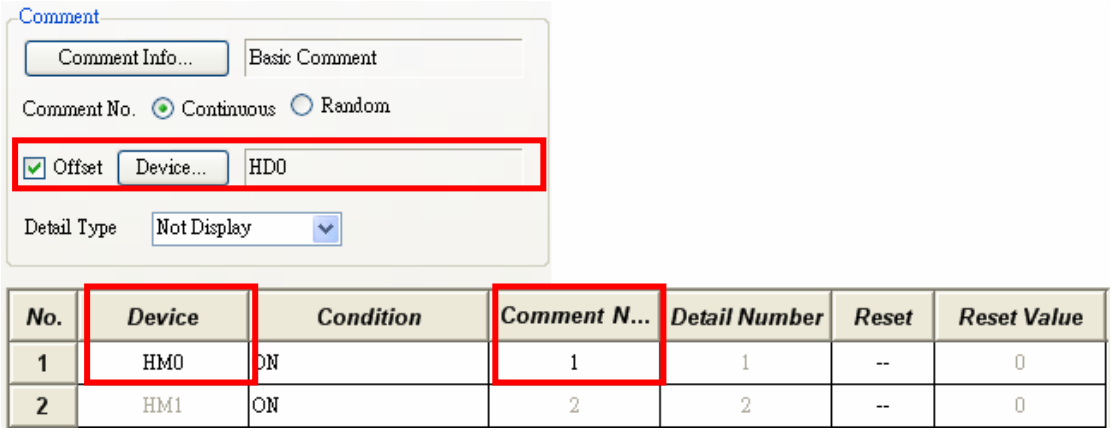



Fig. 3-6-6C-6 Comment Information Setting

EX

Tick Offset and select device HD0 to offset the comment number. The action is HD0 adds its internal value up to the original comment number, and then the operational equation calculates the new comment number as HD0 + original comment number. If the internal value of HD0 is 10, after the offset operation the HM0 internal comment number will become 11. See Figure 3-6-6C-7 below.




| No. | Device | Condition | Comment N... | Detail Number | Reset | Reset Value |
|---|---|---|---|---|---|---|
| 1 | HM0 | ON | 1 | 1 | -- | 0 |
| 2 | HM1 | ON | 2 | 2 | -- | 0 |

Fig. 3-6-6C-7 Offsetting Device

Use the Details type to describe the comments in details. The Details types are comment window, window screen, and basic screen. See Figure 3-6-6C-8 below.

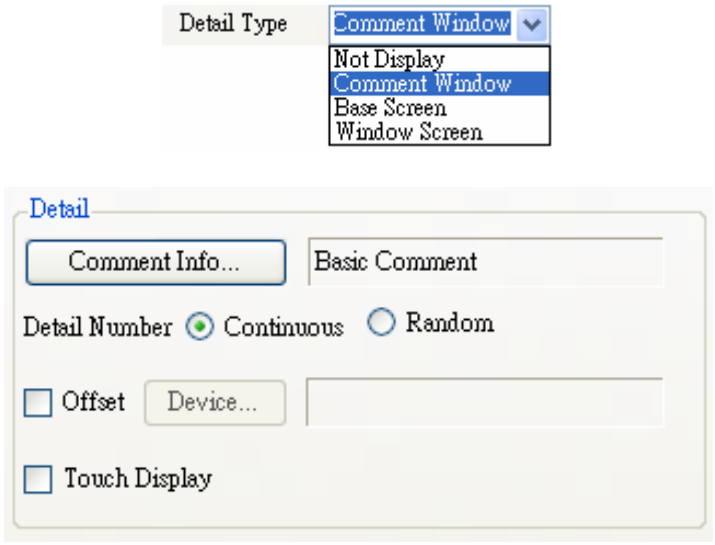



Fig. 3-6-6C-8 Details Types

Click to open the comment information dialogue box and select basic comment or comment group. See Figure 3-6-6C-9 below.



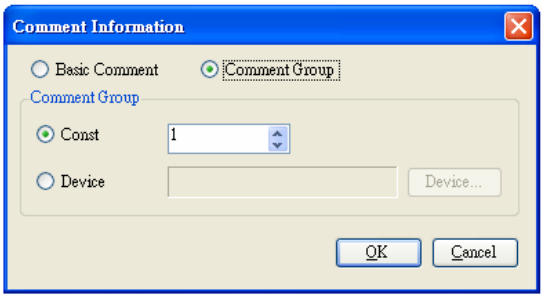
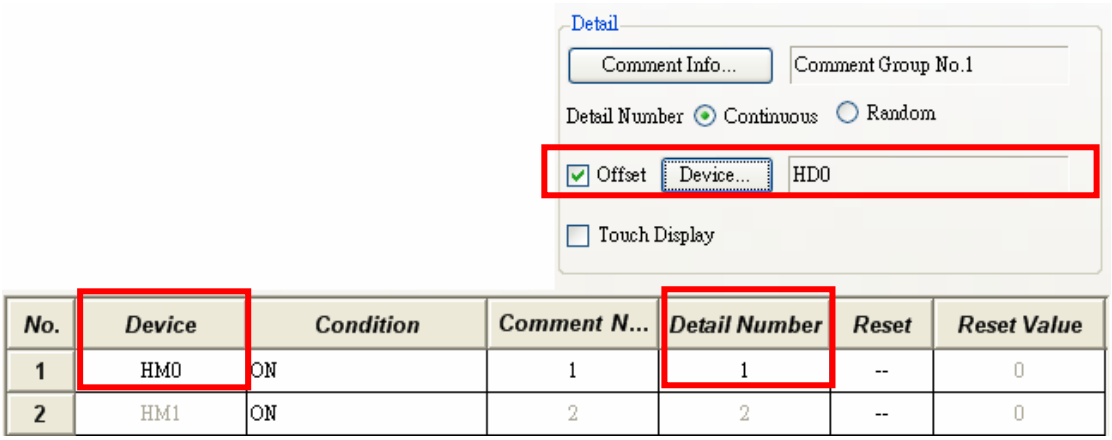



Fig. 3-6-6C-9 Comment Information Setting

Tick Offset and select device HD0 to offset the Details number. The action is HD0 adds its internal value up to the original Details number, and then the operational equation calculates the new Details number as HD0 + original Details number. If the internal value of HD0 is 10, after the offset operation the HM0 internal Details number will become 11. See Figure 3-6-6C-10 below.

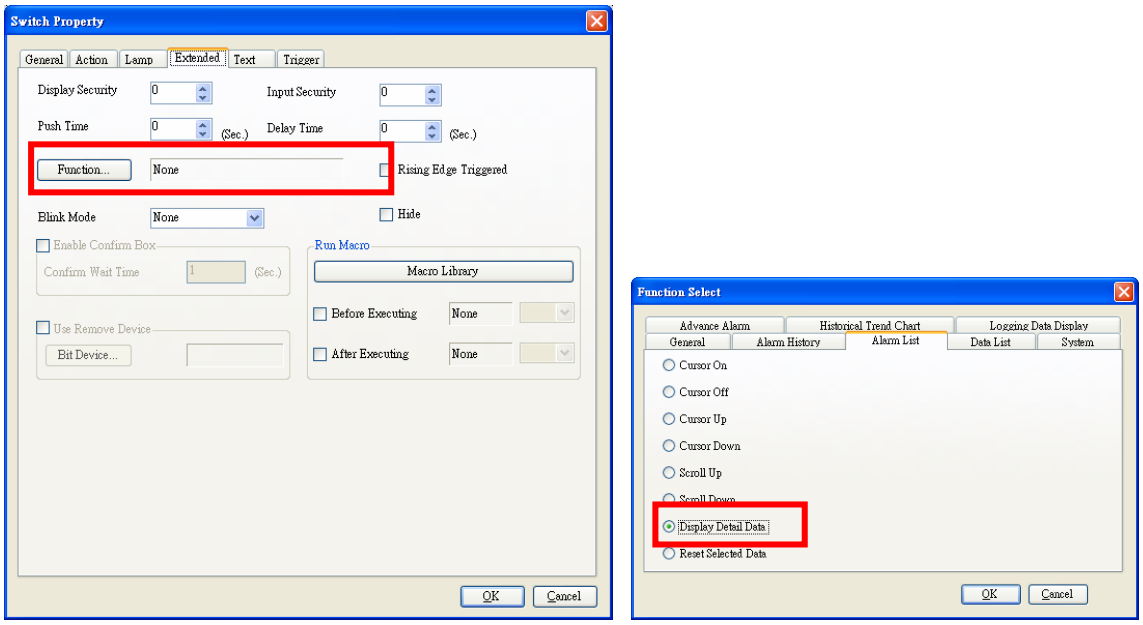



| No. | Device | Condition | Comment N... | Detail Number | Reset | Reset Value |
|---|---|---|---|---|---|---|
| 1 | HM0 | ON | 1 | 1 | -- | 0 |
| 2 | HM1 | ON | 2 | 2 | -- | 0 |

Fig. 3-6-6C-10 Offsetting Device

To use the touch mechanism to pop up the Details window, tick Touch Display. If you don't want to tick the option but still need to have the Details window pop up, you need to set up the switch or multi-action switch function. To do this, click Function... to open the function selection dialogue box and set up the corresponding functional switch. See Figure 3-6-6C-11 below.

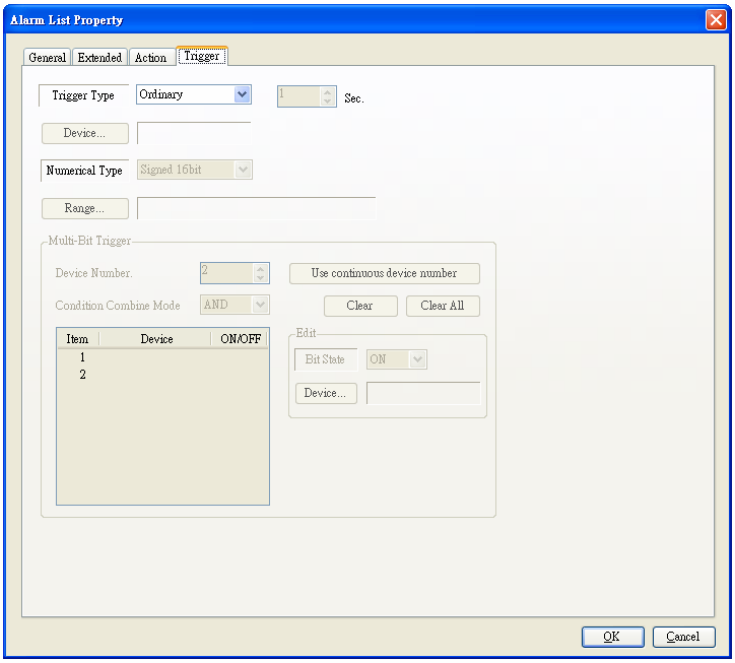
Fig. 3-6-6C-10 Touch Display Mechanism




(a) (b)

Fig. 3-6-6C-11 Switch Object Set to Touch Display (a) Functional Selection (b) Alarm Options

The Trigger property setting allows the use to set the conditions of the trigger pattern. See Figure 3-6-6C-12 below.

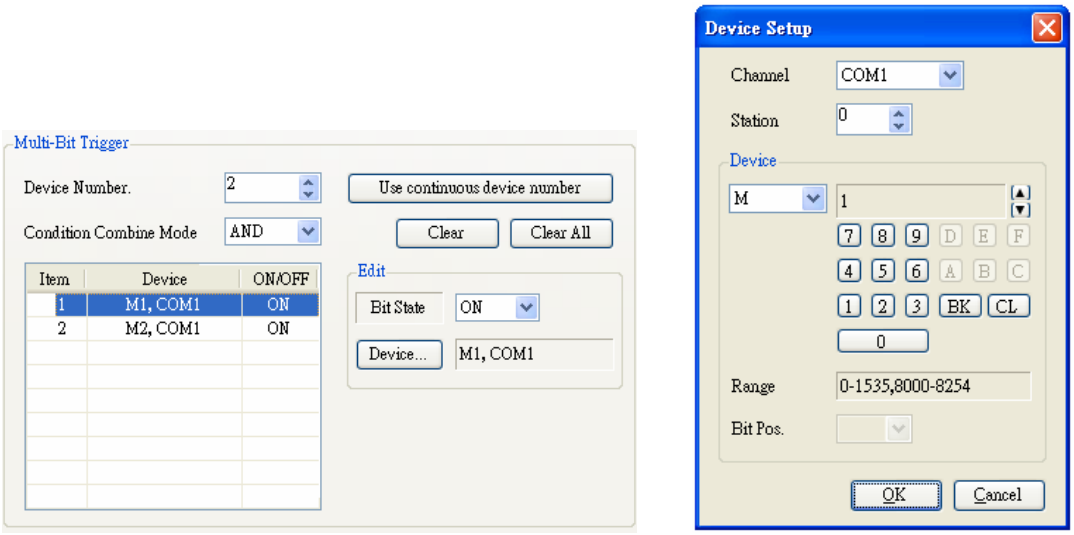



| Trigger Pattern | Description |
|---|---|
| **Ordinary** | No trigger pattern |
| **ON** | Action is taken only when the device in ON |
| **OFF** | Action is taken only when the device in OFF |
| **Range** | Action is taken only when the device value is within this range. |
| **Multi-Bit Trigger** | Set two or more devices (up to 8), and only when all the devices meet the condition will the action be taken. |
| **Rise** | Action is taken only when the device is switched from OFF to ON. |
| **Fall** | Action is taken only when the device is switched from ON to OFF. |
| **Sampling** | Action is taken only after the sampling time elapses. |

Fig. 3-6-6C-12 Trigger Pattern Setting

EX

To set a multi-Bit trigger with 2 devices, click Device... to open the device setting window and set the trigger devices as M1 and M2. Confirm the setting and have the file sent to HMI. So, only when M1 and M2 are both ON will the switch actions be started. See Figure 3-6-6C-13 below.




(a) (b)

Fig. 3-6-6C-13 Multi-Bit Trigger (a) Setup of Multi-Bit Trigger (b) Device Setup

NOTE

- To set the properties, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.

### d. Alarm History

To set up an alarm history list, click Unit and click Message Display and then click Alarm History, or directly click the shortcut, and in the editing window left click the mouse to set up the object. Click the object and then double left click the mouse to open the property window of the object and make the setting.

The General property setting allows the user to set the picture, display color, transparency and the line pattern. See Figure 3-6-6D-1 below.

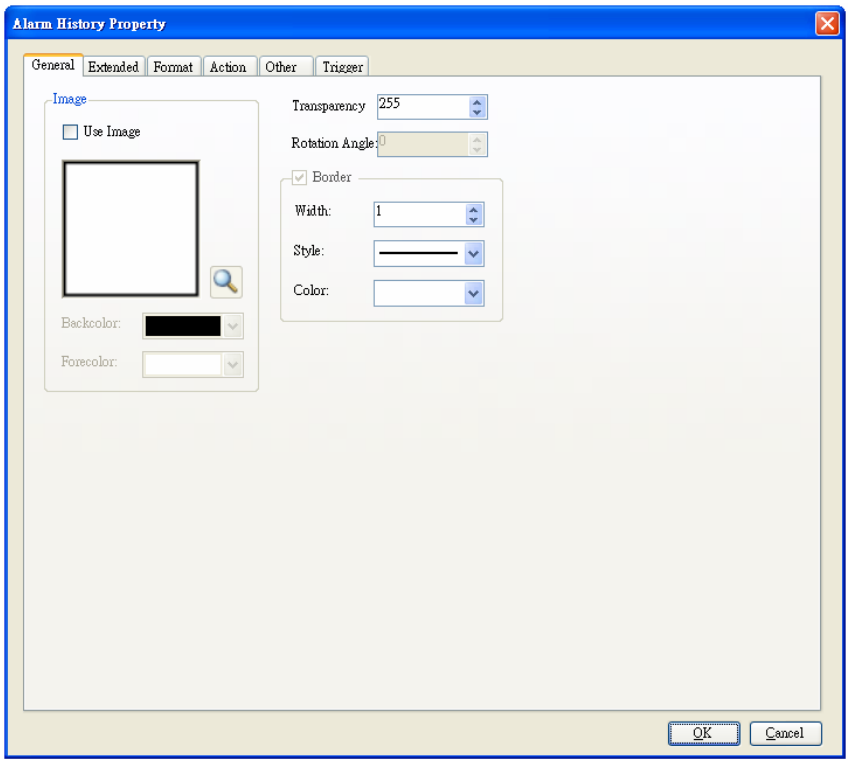



Fig. 3-6-6D-1 General Property Setting

Tick the option Use Image to change the picture. Click to open the picture library and select a desired picture. For detailed instructions, please see Section 3.4.2 Image Library.

The Extension properties allow the user to change the security level, alarm type, display pattern, sorting odder font size, and alignment. Figure

3-6-6D-2 below demonstrates the setting of the object's security level. The security level (display) is ranged from 0 (lowest privilege) to 15 (highest privilege). The default security levels of the edit software and the system are both 0.

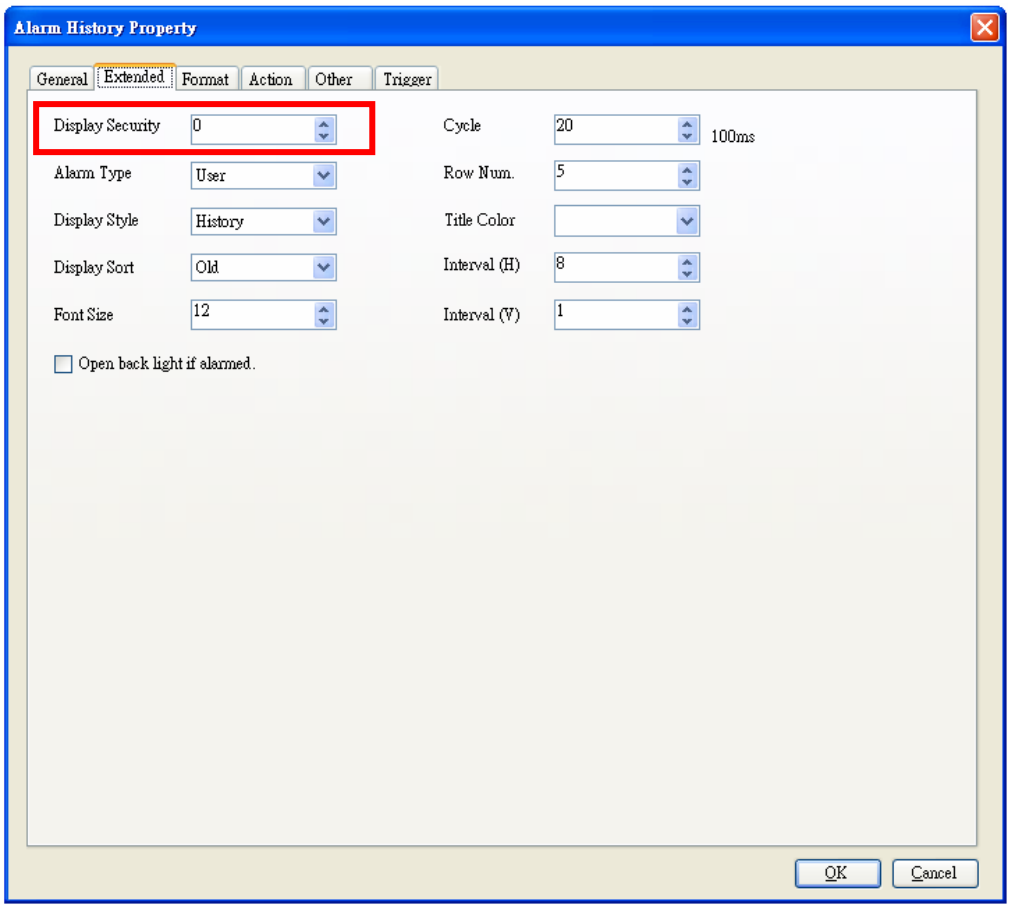
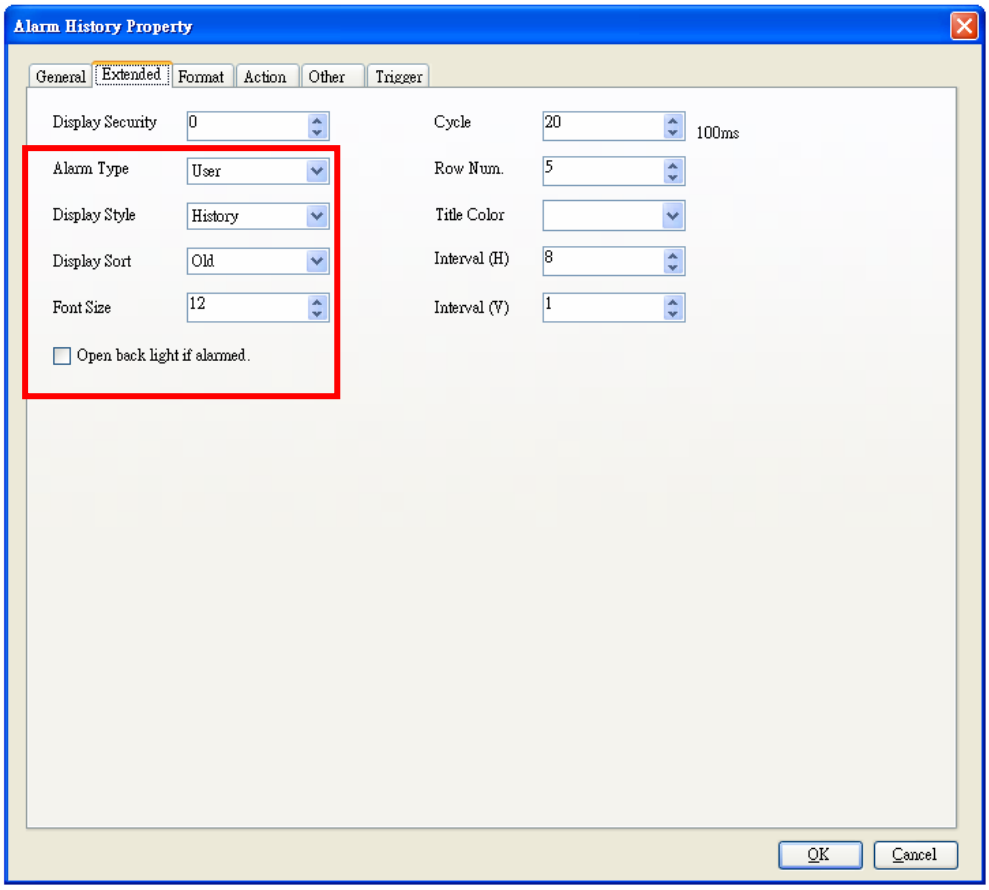



Fig. 3-6-6D-2 Security Levels

For the alarm display, the user can set the alarm type, display style, display sort and open back light if alarmed. See Figure 3-6-6D-3 below.




| | Description |
|---|---|
| **Alarm Type** | User: user-defined alarm messages.<br>System: system-related alarm messages. |
| **Display Style** | History: every single alarm transaction is recoded.<br>Accumulation: repeated alarms are accumulated in the number of occurrences. |
| **Display Sort** | Old: the earliest issued alarm on the top, in time ascending order.<br>New: the latest issued alarm on the top, in time descending order. |
| **Open back light if alarmed** | When the HMI is in the sleep state, an alarm will automatically switch on the HMI's backlight. |

Fig. 3-6-6D-3 Alarm Display Pattern

The Format properties allow the user to set the display title and content, and the formats of date, time and text. See Figure 3-6-6D-4 below.

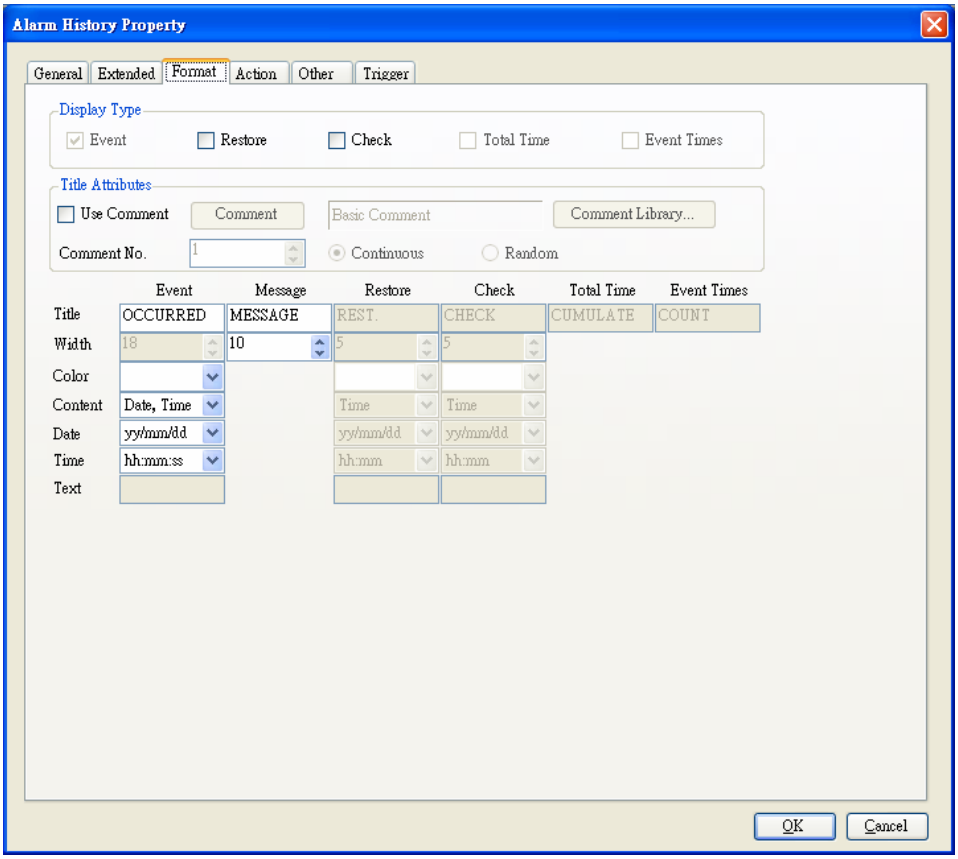



Fig. 3-6-6D-4 Format Properties

The Action property setting allows the user to set the number of alarms (up to 1024), device type, comment, and the Details content. See Figure 3-6-6D-5 below.

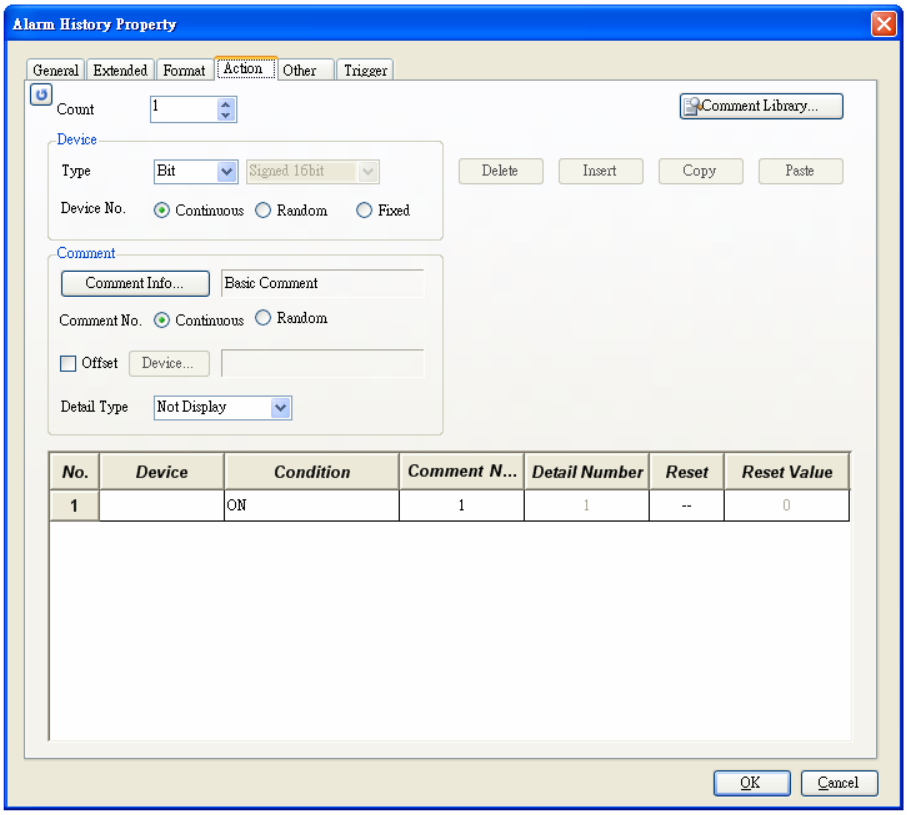



Fig. 3-6-6D-5 Action Property Setting

In the text editing, the comments in the comment library can be set as text to display. To do this, click

to open the comment library dialogue box. For detailed instructions, please see Section 3.4.4 Comment Library.

The Bit action device types are ON/OFF displays. The user can set the comment information, number, offset and the Details type. See Figure 3-6-6D-6 below.

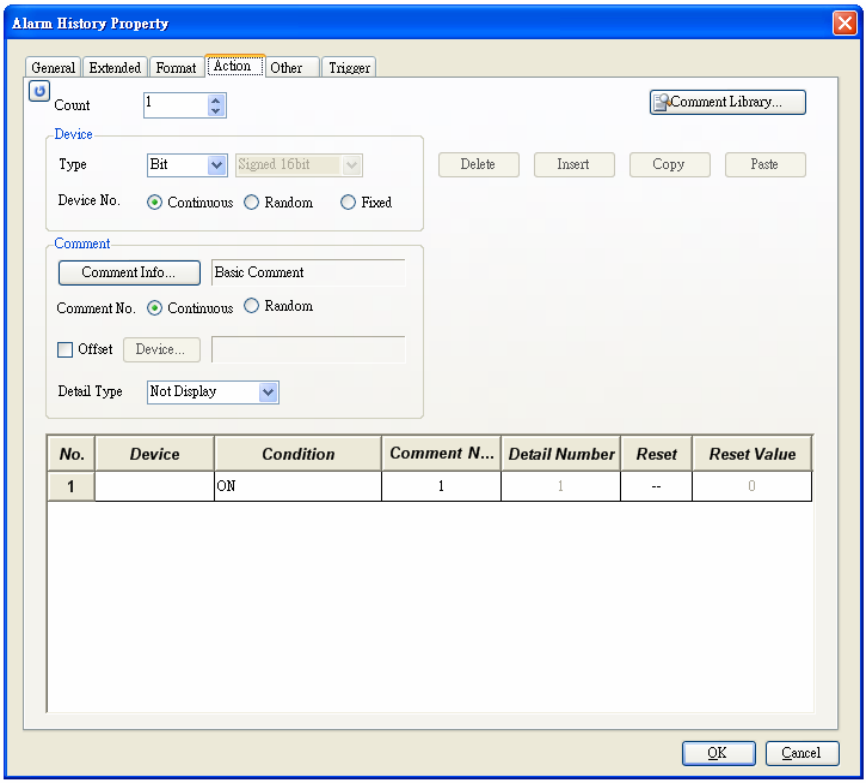
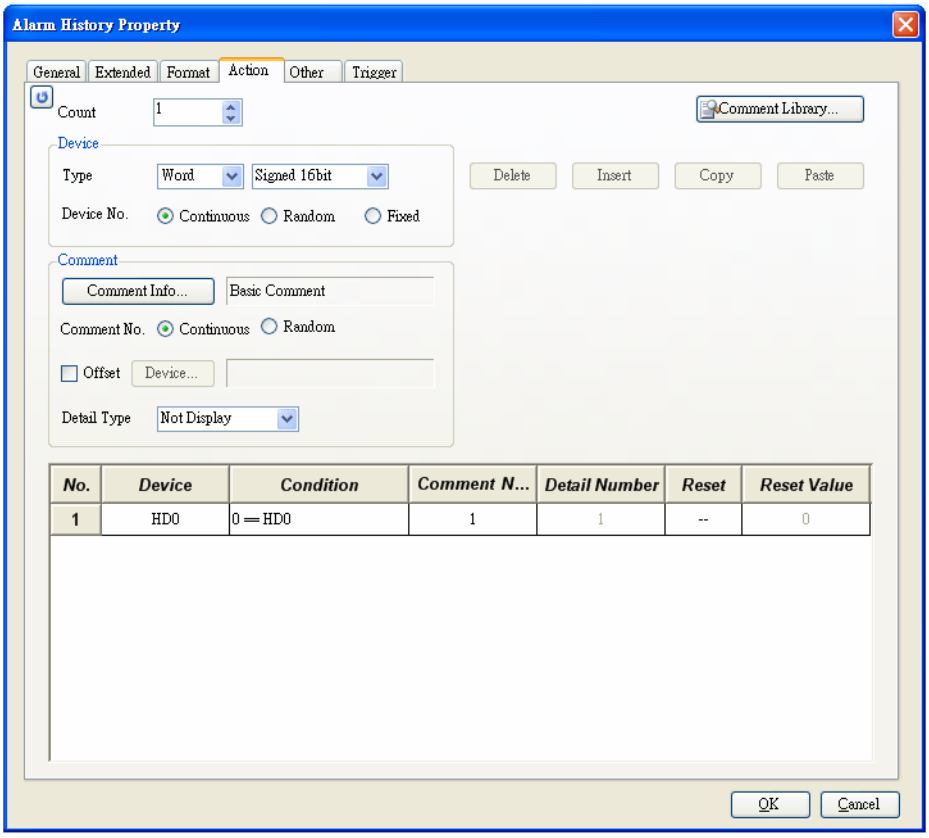



Fig. 3-6-6D-6 Bit Alarm List

The Word action device has 7 numeric types. The user can set comment information, number, offset and Details type. See Figure 3-6-6D-7 below.




| Numeric Type | Value Range |
|---|---|
| Signed 16bit | -32768~32767 |
| Unsigned 16 bit | 0~65535 |
| Signed 32 bit | -2147483648~2147483647 |
| Unsigned 32 bit | 0~4294967295 |
| BCD16 bit | 0~9999 |
| BCD32 bit | 0~99999999 |
| Real | -2.147484E+09~2.147484E+09 |

Fig. 3-6-6D-7 Word Alarm List

Click Comment Info... to open the comment information dialogue box to select basic comment or comment group. See Figure 3-6-6D-8 below.

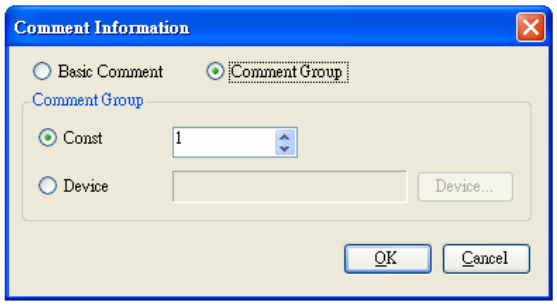



Fig. 3-6-6D-8 Comment Information Setting

EX

Tick Offset and select device HD0 to offset the comment number. The action is HD0 adds its internal value up to the original comment number, and then the operational equation calculates the new comment number as HD0 + original comment number. If the internal value of HD0 is 10, after the offset operation the HM0 internal comment number will become 11. See Figure 3-6-6D-9 below.

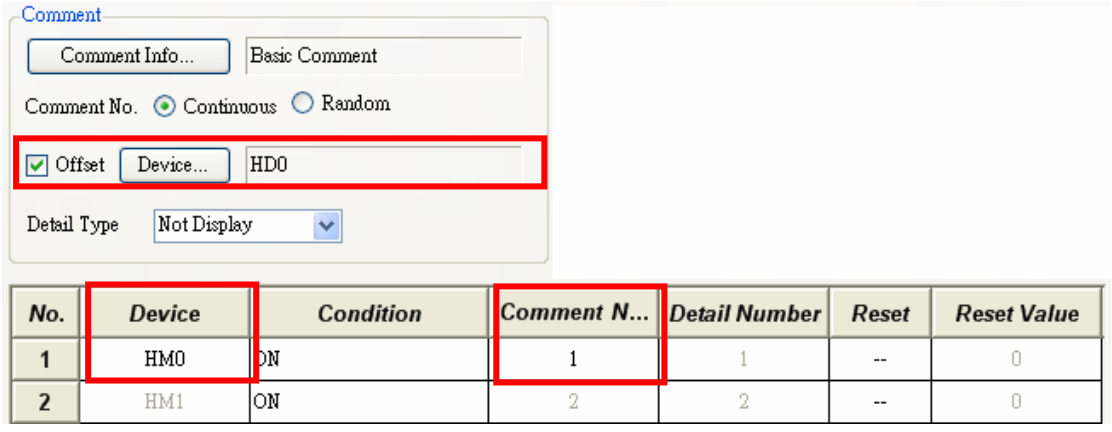



Fig. 3-6-6D-9 Offsetting Device

Use the Details type to describe the comments in details. The Details types are comment window, window screen, and basic screen. See Figure 3-6-6D-10 below.

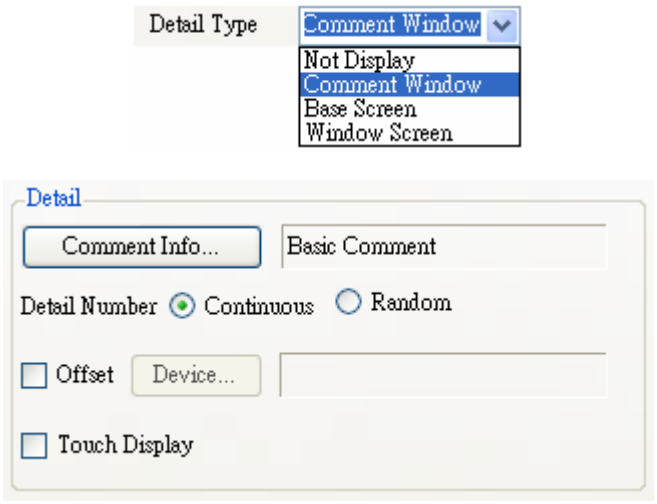



Fig. 3-6-6D-10 Details Types

Click Comment Info... to open comment information dialogue box and select basic comment or comment group. See Figure 3-6-6D-11 below.

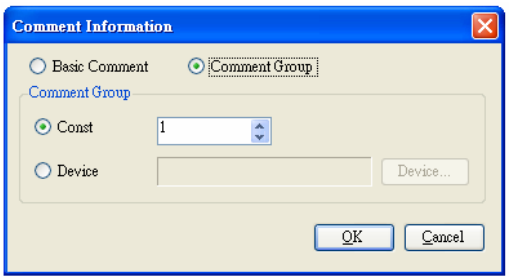
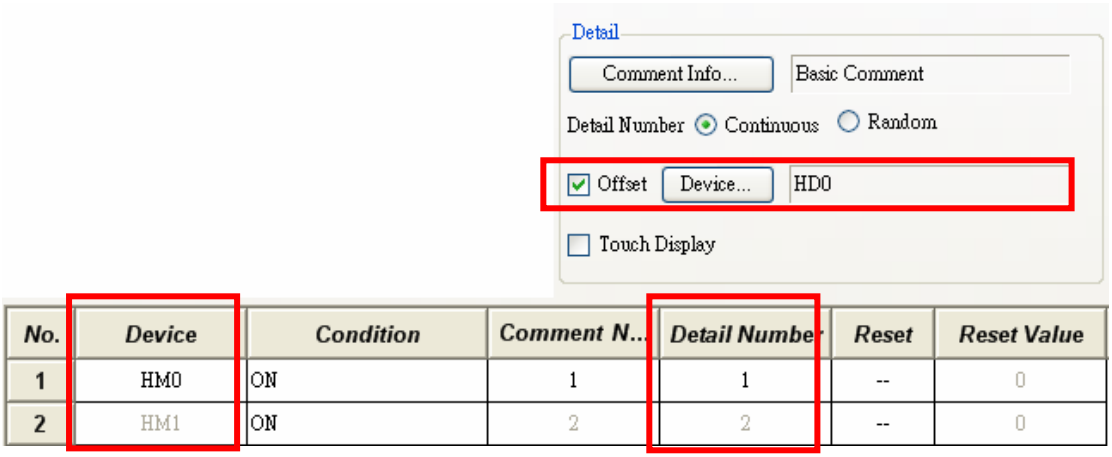



Fig. 3-6-6D-11 Comment Information Setting

EX

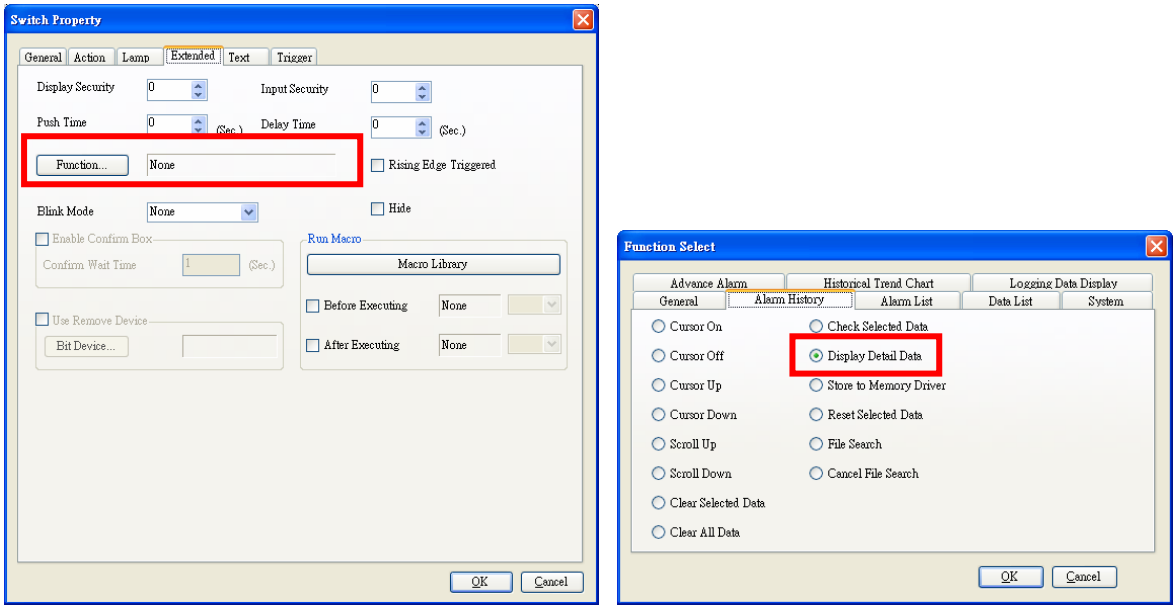
Tick Offset and select device HD0 to offset the Details number. The action is HD0 adds its internal value up to the original Details number, and then the operational equation calculates the new Details number as HD0 + original Details number. If the internal value of HD0 is 10, after the offset operation the HM0 internal Details number will become 11. See Figure 3-6-6D-12 below.




| No. | Device | Condition | Comment N... | Detail Numbe | Reset | Reset Value |
|---|---|---|---|---|---|---|
| 1 | HM0 | ON | 1 | 1 | -- | 0 |
| 2 | HM1 | ON | 2 | 2 | -- | 0 |

Fig. 3-6-6D-12 Offsetting Device

To use the touch mechanism to pop up the Details window, tick Touch Display. If you don't want to tick the option but still need to have the Details window pop up, you need to set up the switch or multi-action switch function. To do this, click Function... to open the function selection dialogue box and set up the corresponding functional switch. See Figure 3-6-6D-13 below.



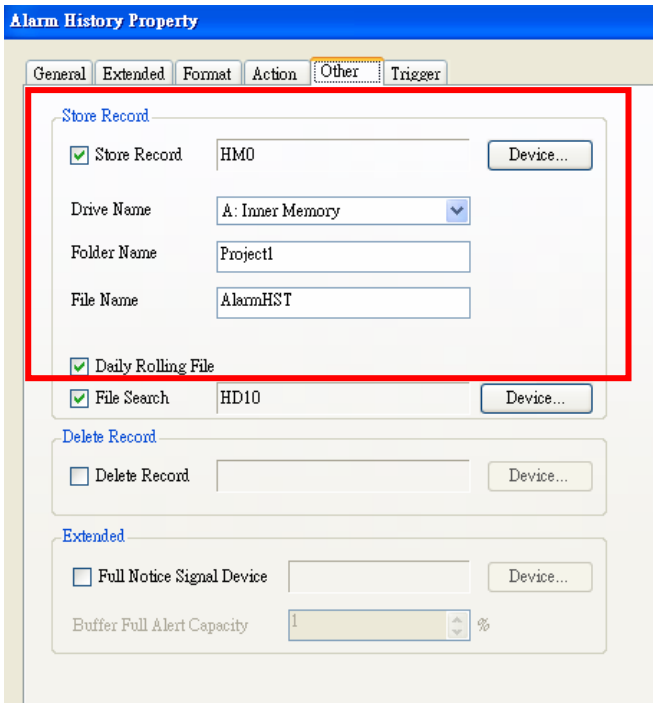

(a) (b)

Fig. 3-6-6D-13 Setting Touch Display (a) Function Selection (b) Alarm Options

NOTE

- If the triggering of alarm history is set, only when the trigger device has an action will the functional switch work. For the Trigger setting.

For other properties, users can set the save record, delete record function as shown in figure 3-6-6D-20.

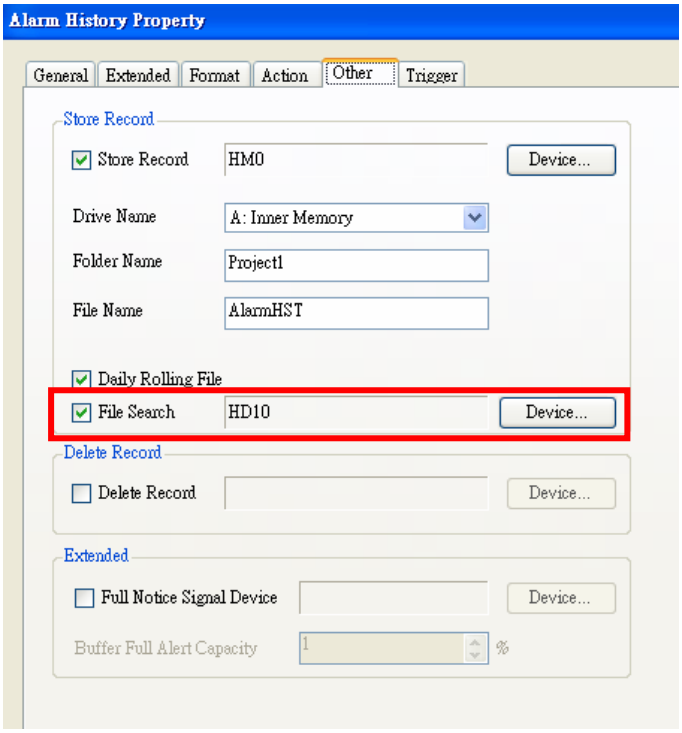



| Function | Description |
|---|---|
| **Drive name** | A: Inner Memory<br>B: Standard SD Card<br>C: USB Disk |
| **Folder name** | Name of the folder for saving historical data. |
| **File name** | Name of file for saving historical data. |
| **Daily rolling file** | The file of historical data is saved based on day. The maximum storage volume of a file depends on the available space of the object to be saved.<br>(each day can save 1024 historical data) |

Figure 3-6-6D-20: Other properties

- When selecting an external memory(SD/USB) to store the alarm history, an external memory(SD/USB) must be mounted, or the “Auto mount” function must be chosen. For details, see section 3.4 “Communication” described in EC200 hardware manual.

In the alarm historical record, if you select the Daily Rolling File, the file search device will complete the historical data inquiry together with the function of "File Search" according to the year, month and date entered by the user as shown in figure 3-6-6D-21. If canceling the file search function, it will trigger the "Cancel File Search" as shown in figure 3-6-6D-22.




| Function | Description |
|---|---|
| File search | Device: Year (YYYY)<br>Device+1: Month (MM)<br>Device+2 : Date (DD) |

Figure 3-6-6D-21: File search setup

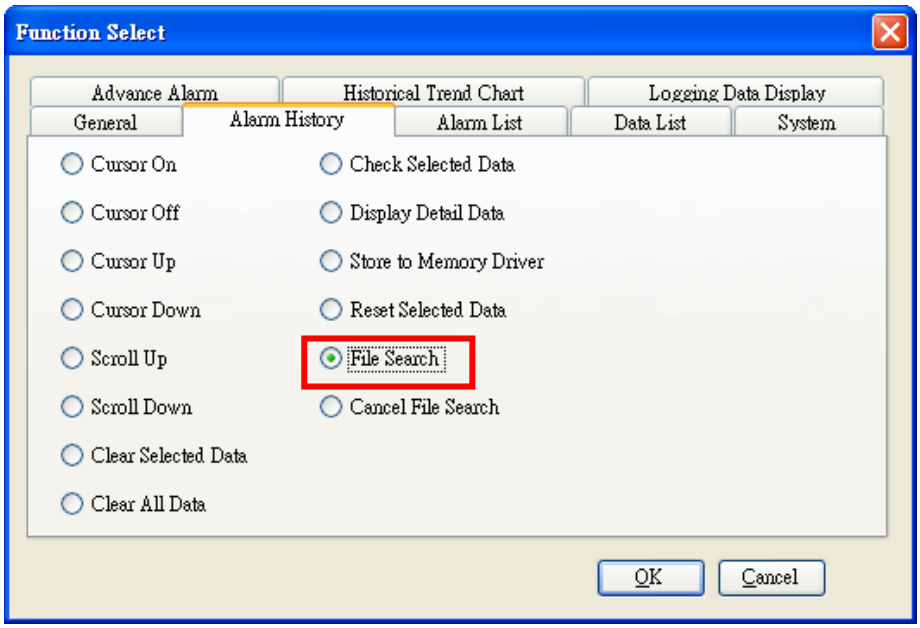
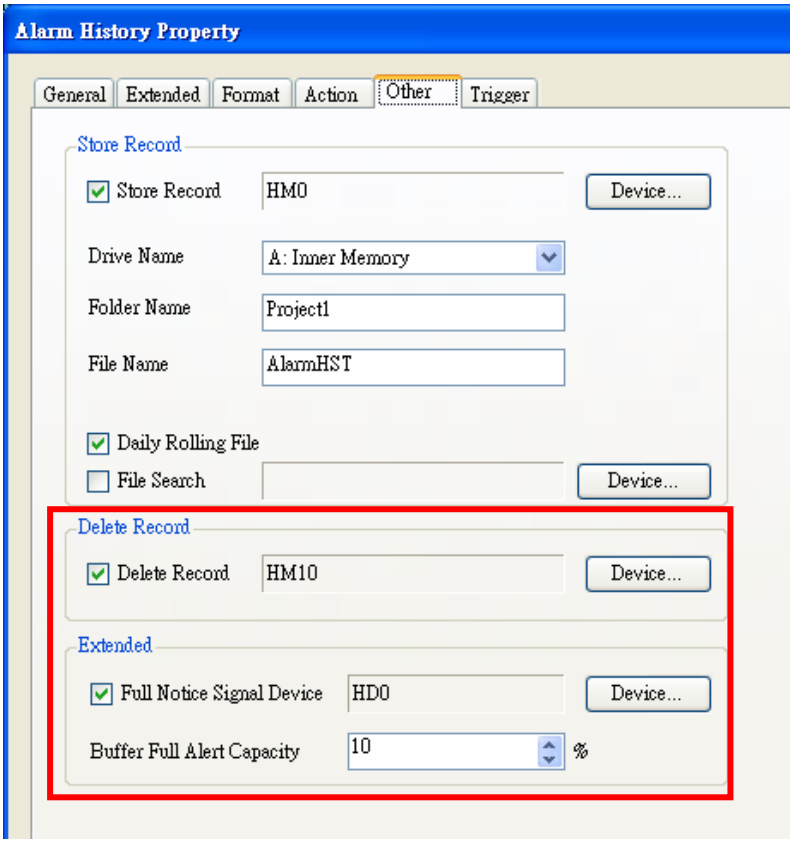



Figure 3-6-6D-22: File search setup

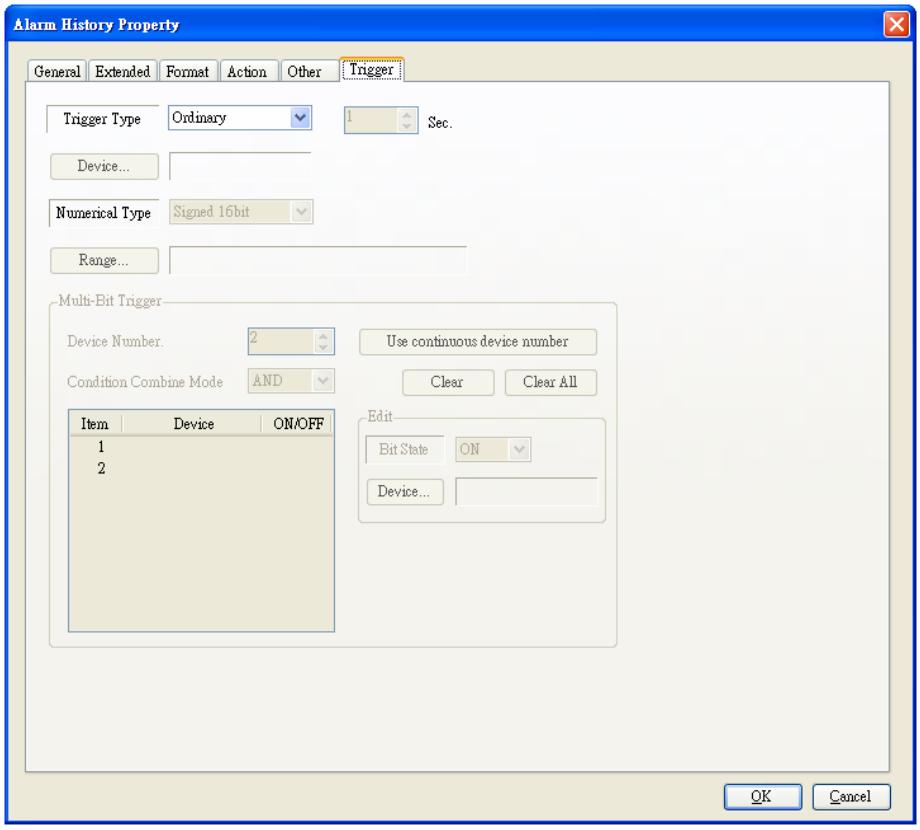
The Delete Record Function are set as shown in figure 3-6-6D-23.




| Function | Description |
|---|---|
| **Delete Record** | It deletes all historical alarm record in the storage device. |
| **Full notice signal device** | Percentage of the disk Memory that are used.<br>**EX:**<br>The Full Notification Signal Device setting HD0, When the memory has been used for 50%, HD0 display "50". |
| **Buffer full alert capacity** | When Percentage of the disk Memory that are used <= Buffer Full Alert Capacity ,HMI will delete old data.<br>**EX:**<br>The Buffer Full Alert Capacity setting 10%, When the memory has been used for 90%, HMI will delete old data. |

Figure 3-6-6D-23: Other properties

The Trigger property setting allows the user to set the conditions of the trigger pattern. See Figure 3-6-6D-15 below.

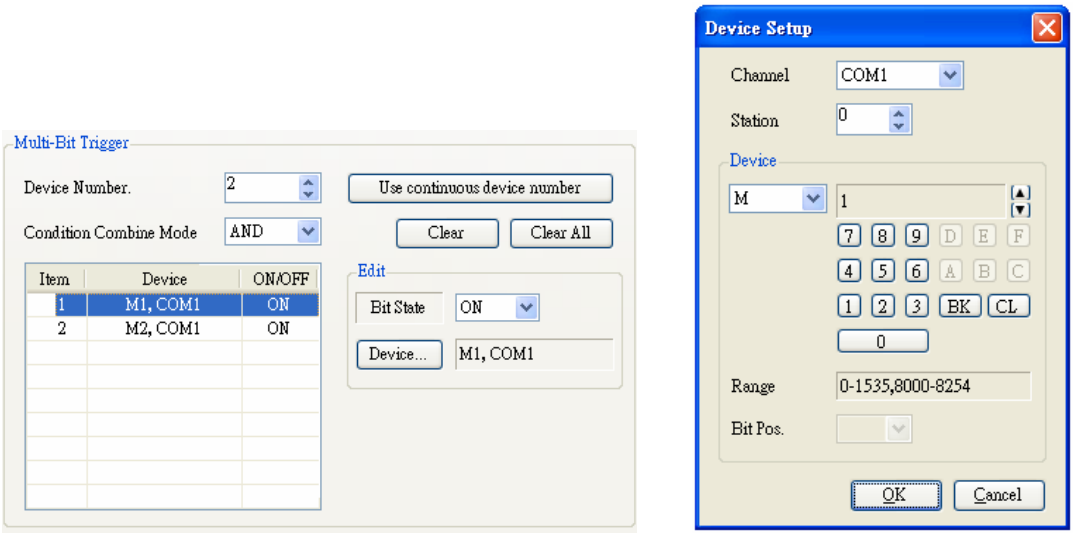



| Trigger Pattern | Description |
|---|---|
| **Ordinary** | No trigger pattern |
| **ON** | Action is taken only when the device in ON |
| **OFF** | Action is taken only when the device in OFF |
| **Range** | Action is taken only when the device value is within this range. |
| **Multi-Bit Trigger** | Set two or more devices (up to 8), and only when all the devices meet the condition will the action be taken. |
| **Rise** | Action is taken only when the device is switched from OFF to ON. |
| **Fall** | Action is taken only when the device is switched from ON to OFF. |
| **Sampling** | Action is taken only after the sampling time elapses. |

Fig. 3-6-6D-15 Trigger Pattern Setting

EX

To set a multi-Bit trigger with 2 devices, click Device... to open the device setting window and set the trigger devices as M1 and M2. Confirm the setting and have the file sent to HMI. So, only when M1 and M2 are both ON will the switch actions be started. See Figure 3-6-6D-16 below.




(a) (b)

Fig. 3-6-6D-16 Multi-Bit Trigger (a) Setup of Multi-Bit Trigger (b) Device Setup

NOTE

- To set the properties, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.

### e. Advanced Alarm

To set up an advance alarm, click Unit and click Message Display and then click Advanced Alarm, or directly click the shortcut, and in the editing window left click the mouse to set up a multi-state lamp. Click the object and then double left click the mouse to open the property window of the object and make the setting.

The General property setting allows the user to set the picture, display color, transparency and line pattern. See Figure 3-6-6E-1 below.

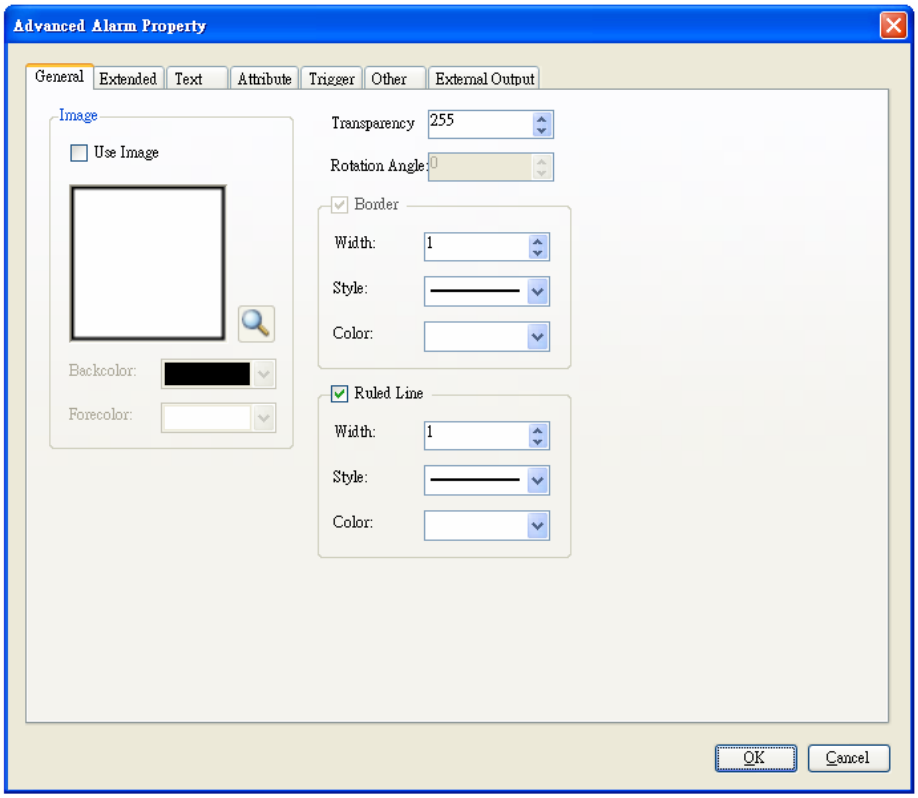



Fig. 3-6-6E-1 General Property Setting

To change the picture, click to open the picture library. For detailed instructions, please see Section 3.4.2 Image Library.

The Extension properties allow the user to set the security level, alarm type, target status, initial hierarchy, display type, number of rows, font size, interval, touch mode, and title format. See Figure 3-6-6E-2 below.

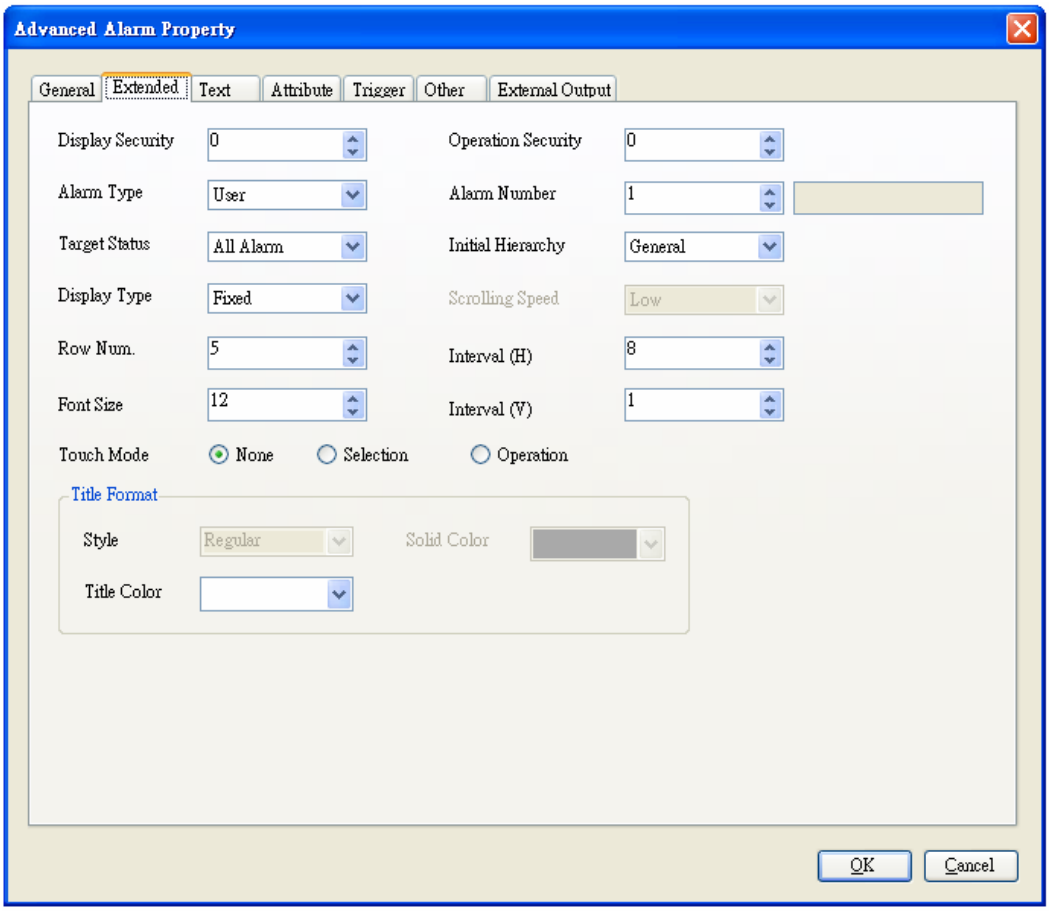



Fig. 3-6-6E-2 Extended Property Setting

| Function | Description |
|---|---|
| **Security Level** | The security level is ranged from 0 (lowest privilege) to 15 (highest privilege). The default level is 0. |
| **Alarm Number** | Set the alarm number of the advanced user alarm observation to be displayed. |
| **Initial Hierarchy** | Select the alarm hierarchy initially displayed, Provide the option of General、Middle or Higher. |
| **Display Type** | **Fixed:**The comment to be fixed displayed when an alarm occurs.<br>**Floating :**Displays the comment flowing it from right to left when an alarm occurs. (scrolling speed：low, medium and high). |
| **Touch Mode** | **None:** No operation even when touched.<br>**Selection :** The touched advanced alarm is selected.<br>**Operation:** Alarm hierarchies are switched or the detailed screen is displayed for the touched alarm. |

The Text properties allow the user to set the alarm format, text color switching, status, level and group. See Figure 3-6-6E-3 below.

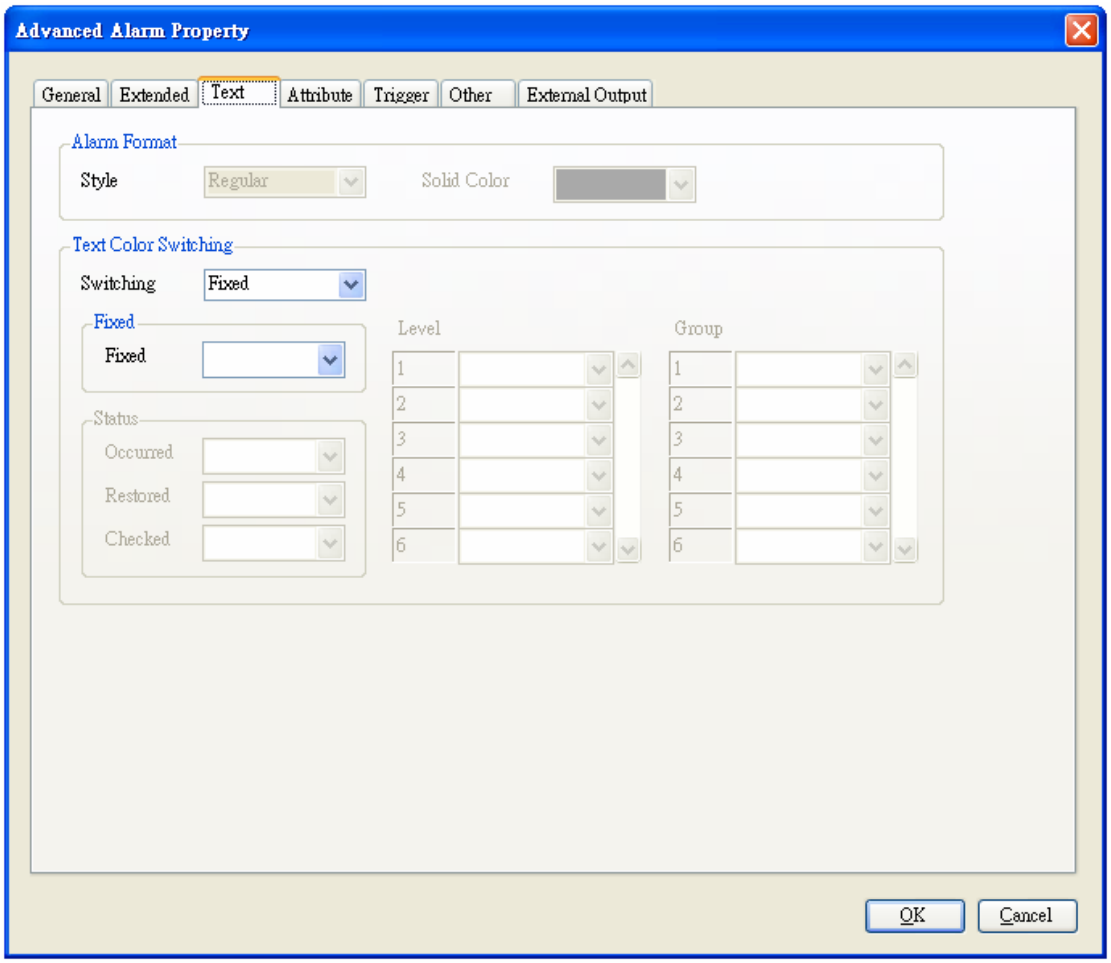
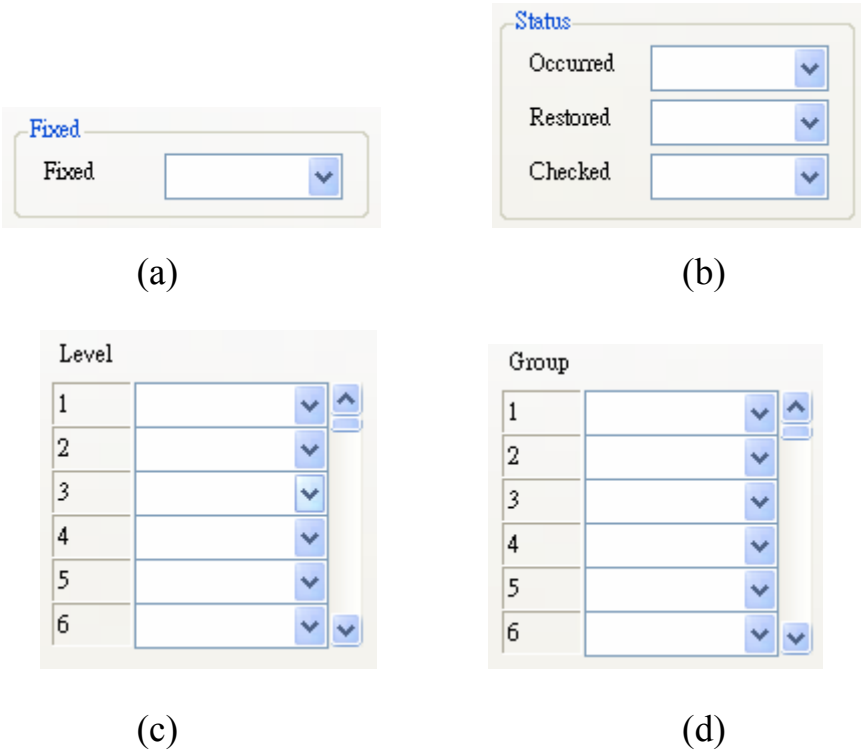



Fig. 3-6-6E-3 Text Attributes

The Text Color Switch has 4 types, which are Fixed, Status, Level and Group. See Figure 3-6-6E-4 below, which shows the comment color is set as the color defined in the comment library.




(a) (b)

(c) (d)

Fig. 3-6-6E-4 Text Color Switch (a) Fixed (b) Status (c) Level (d) Group

The Property setting allows the user to set title, number of display attribute, format and sorting order. See Figure 3-6-6E-5 below.

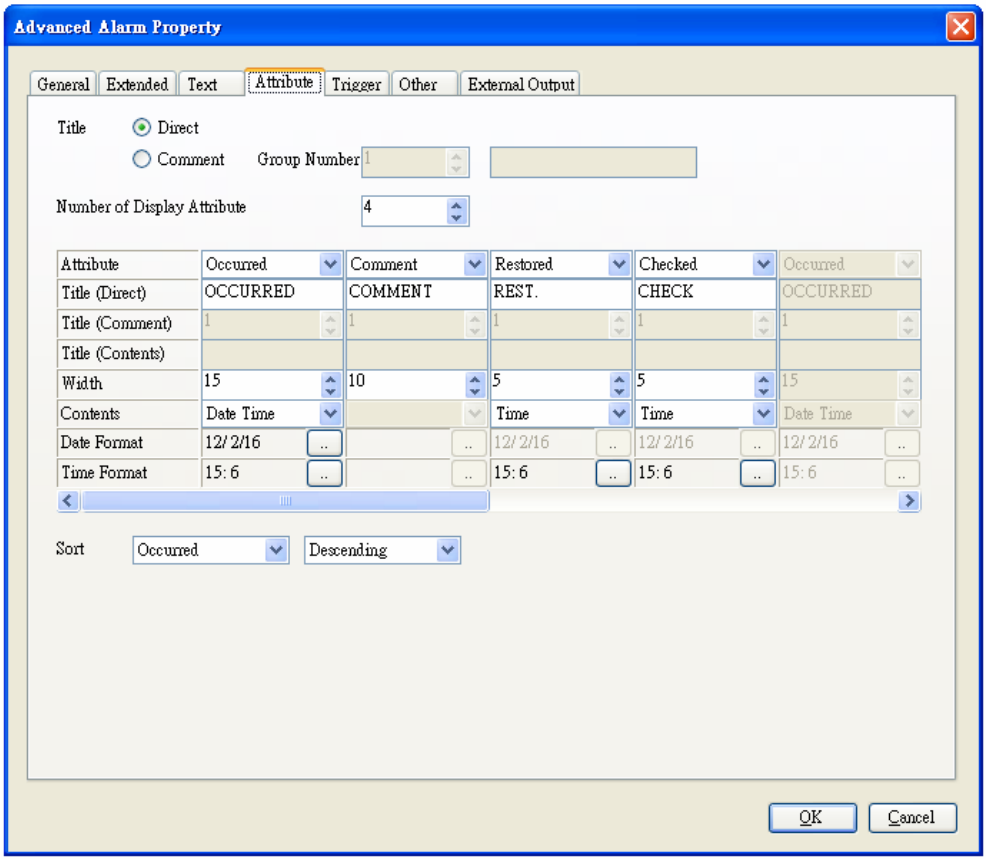
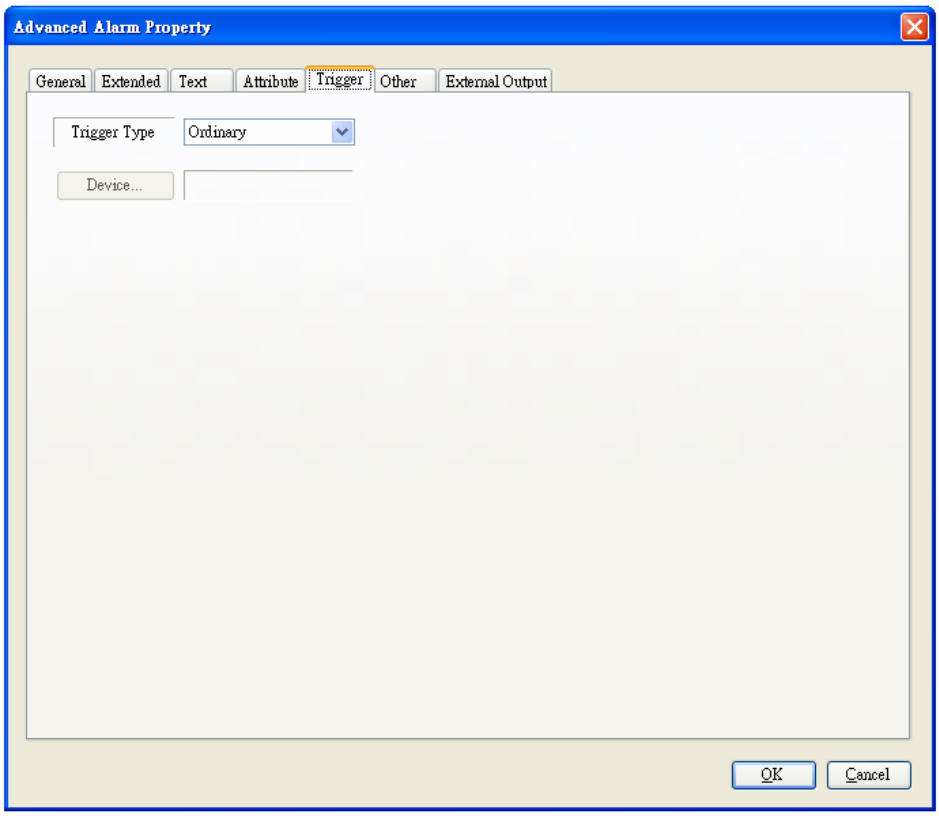



Fig. 3-6-6E-5 Property Setting

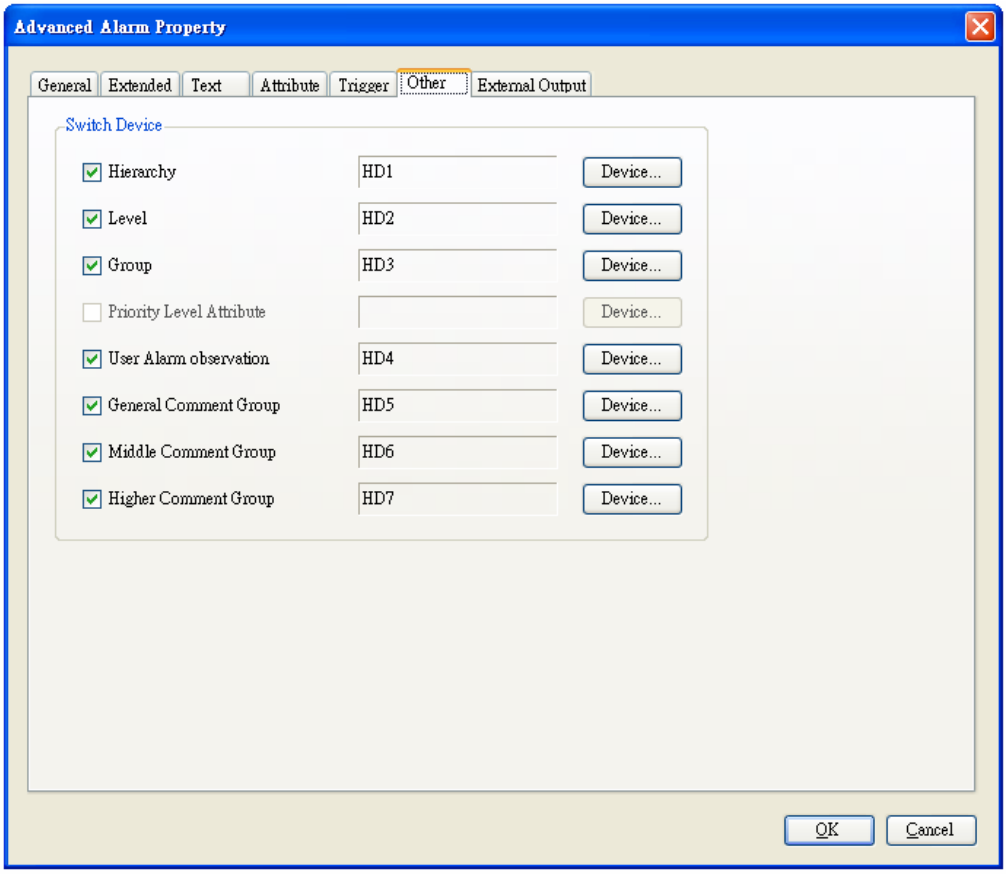
The Trigger property setting allows the user to set the conditions of the trigger pattern. See Figure 3-6-6E-6 below.




| Trigger Pattern | Description |
|---|---|
| **Ordinary** | No trigger pattern |
| **ON** | Action is taken only when the device in ON |
| **OFF** | Action is taken only when the device in OFF |

Fig. 3-6-6E-6 Trigger Property Setting

The Other properties allow the user to tick the options of preferred functions to be displayed, and set the storage device. See Figure 3-6-6E-7 below.




| Function | Remark |
|---|---|
| **Hierarchy** | Switch among general, middle and high class annotations. |
| **Level** | After the level is input, all alarms in this level will show up. |
| **Group** | After the group is input, all alarms of this group will show up. |
| **User Alarm** | Change the alarm group. |
| **General Comment** | Change the general comment group. |
| **Middle Comment** | Change the middle class comment group. |
| **Higher Comment** | Change the high class comment group. |

Fig. 3-6-6E-7 Other Property Setting

To set the external output properties, tick ☑ Use External Output to set external output device triggering. See Figure 3-6-6E-8 below.

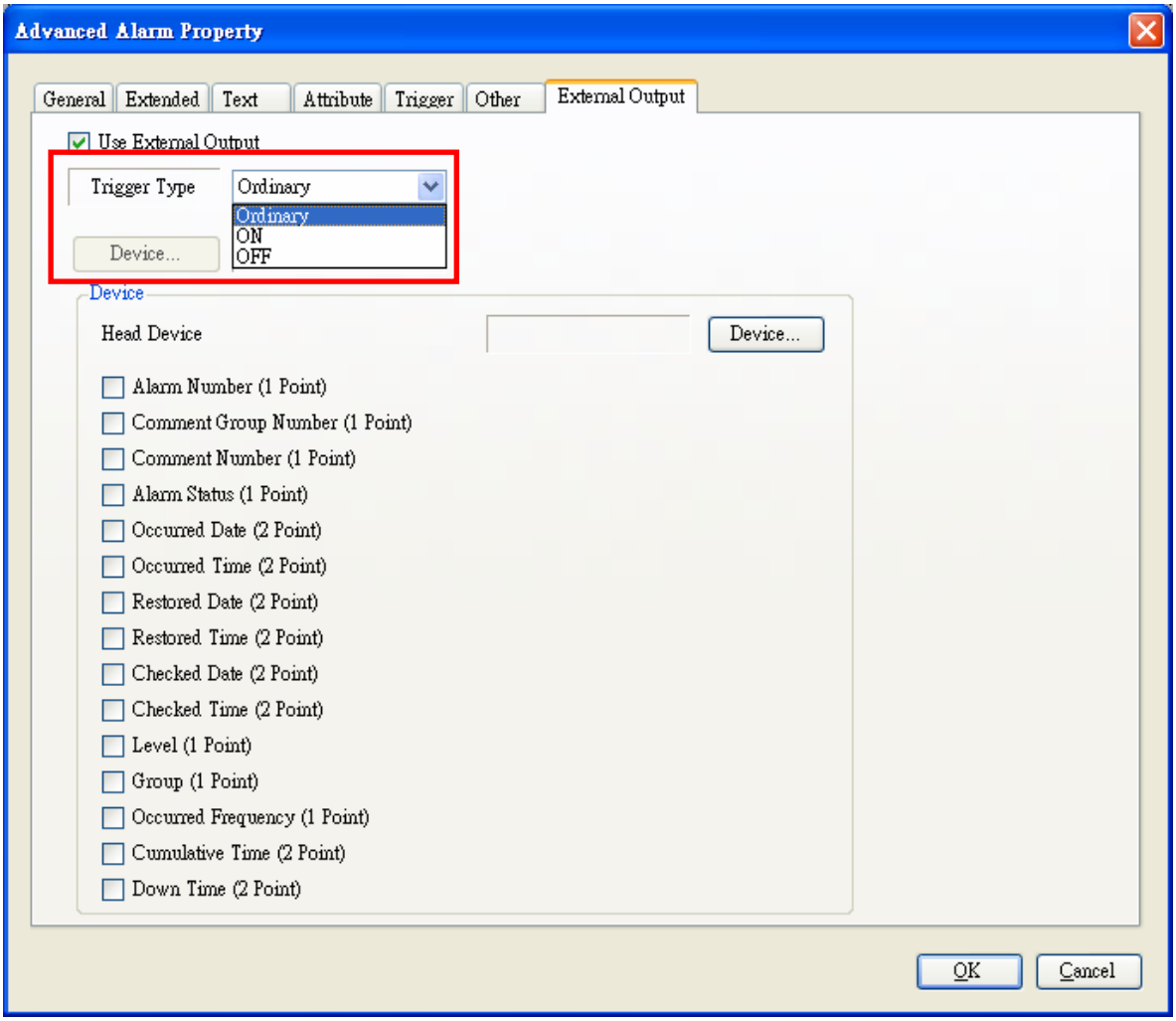
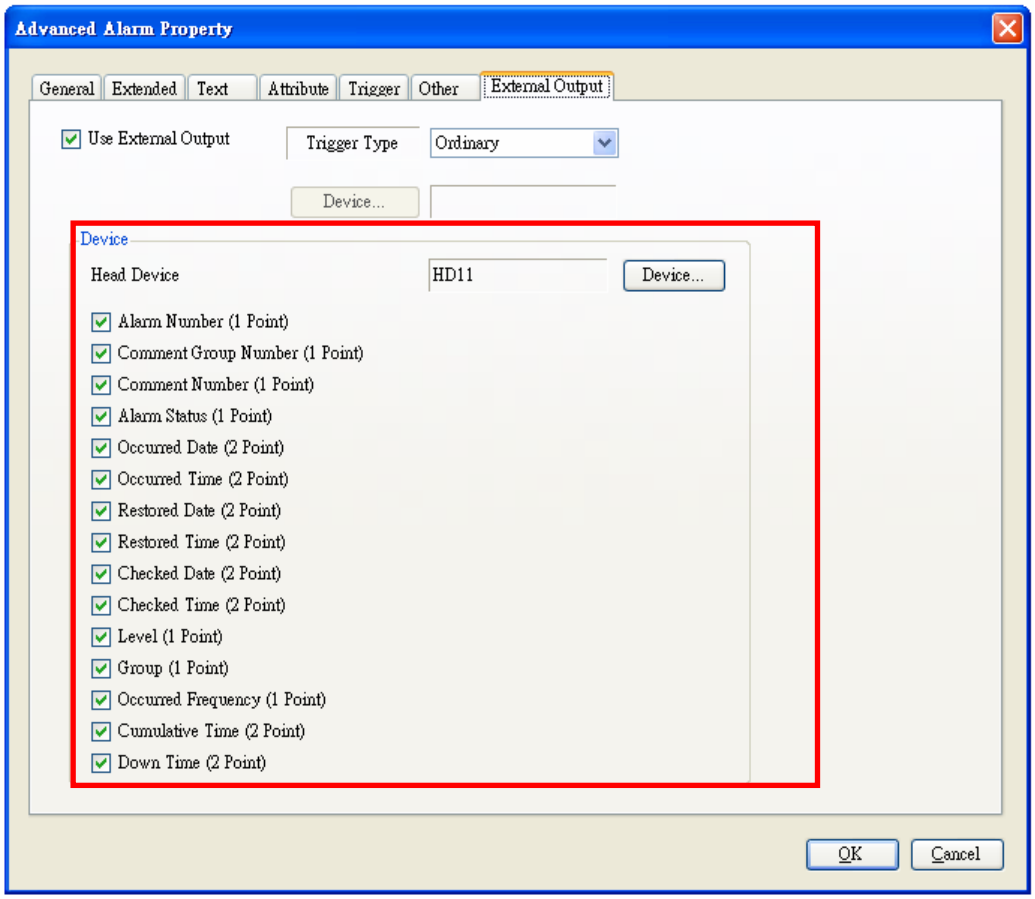



Fig. 3-6-6E-8 Setting Trigger Device

To display alarm information, assign an initial device first, and then tick the needed items for display. The device displays the items orderly according to the option sequence. The point of an item shows the numeric display pattern. See Figure 3-6-6E-9 below.




| Point | Pattern |
|---|---|
| 1 Point | 16-bit signed. |
| | 16-bit unsigned |
| 2 points | 32-bit signed |
| | 32-bit unsigned |

Fig. 3-6-6E-9 External Output Device Setting

EX

Set the initial device as HD11, and the device will automatically make the setting in sequence. Figure 3-6-6E-10 below describers the device.

| Display | Device |
|---|---|
| Alarm Number(1 point) | HD11 |
| Comment Group Number (1 point) | HD12 |
| Comment Number (1 point) | HD13 |
| Alarm Status (1 point) | HD14 |
| Occurred Date (2 points) | HD15 (32 bits) |
| Occurred Time (2 points) | HD17 (32 bits) |
| Restored Date (2 points) | HD19 (32 bits) |
| Restored Time (2 points) | HD21 (32 bits) |
| Checked Date (2 points) | HD23 (32 bits) |
| Checked Time (2 points) | HD25 (32 bits) |
| Level (1 point) | HD27 |
| Group (1 point) | HD28 |
| Occurred Frequency (1 point) | HD29 |
| Cumulative Time (2 points) | HD30 (32 bits) |
| Down time (2 points) | HD32 (32 bits) |

Fig. 3-6-6E-10 Examples of External Output Device Setting

NOTE

- To set the properties, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.

## f. Local Floating Alarm

To set up a local floating alarm, click Unit and click Message Display and then click Local Floating Alarm, or directly click the shortcut, and in the editing window left click the mouse to set up a multi-state lamp. Click the object and then double left click the mouse to open the property window of the object and make the setting.

The General property setting allows the user to set the picture pattern, display color, transparency and line pattern. See Figure 3-6-6F-1 below.

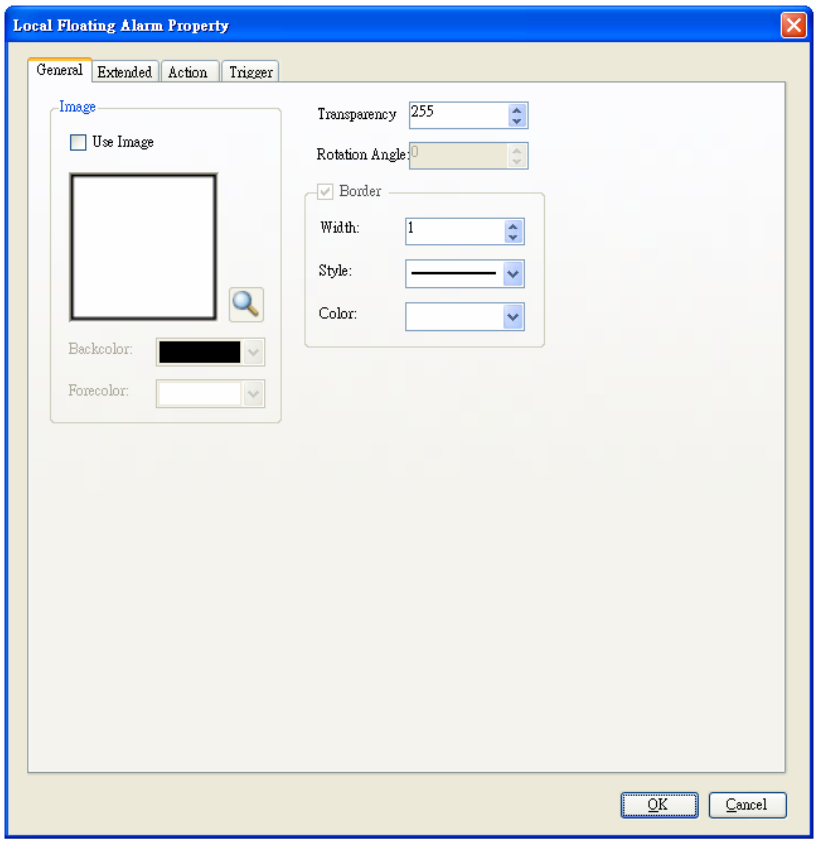



Fig. 3-6-6F-1 General Property Setting

Tick the option Use Image to change the picture. Click to open the picture library and select a preferred picture. For detailed instructions, please see Section 3.4.2 Image Library.

The Extension properties allow the user to set the security level, display type, font size, and alignment. Figure 3-6-6F-2 below demonstrates the setting of the object's security level. The security level (display) is ranged from 0 (least privilege) to 15 (highest privilege). The default security levels of the edit software and the system are both 0.

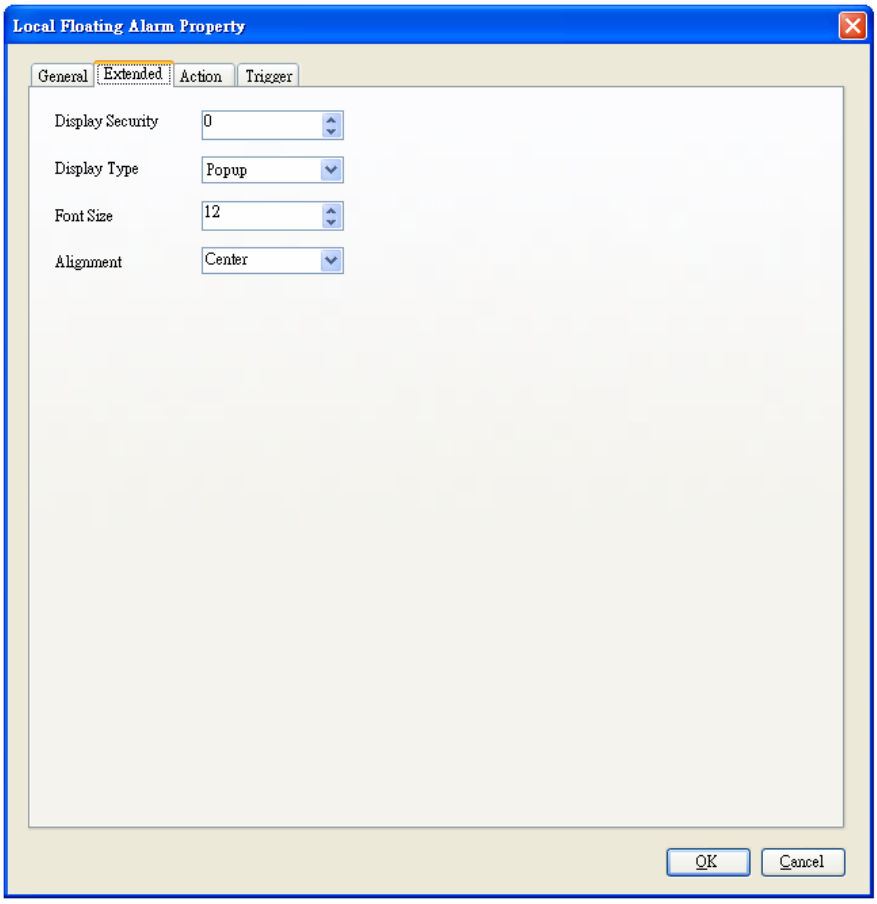



Fig. 3-6-6F-2 Security Levels

The Bit action device types are ON/OFF displays. The user can set the comment information, code number and offset. See Figure 3-6-6F-3 below.

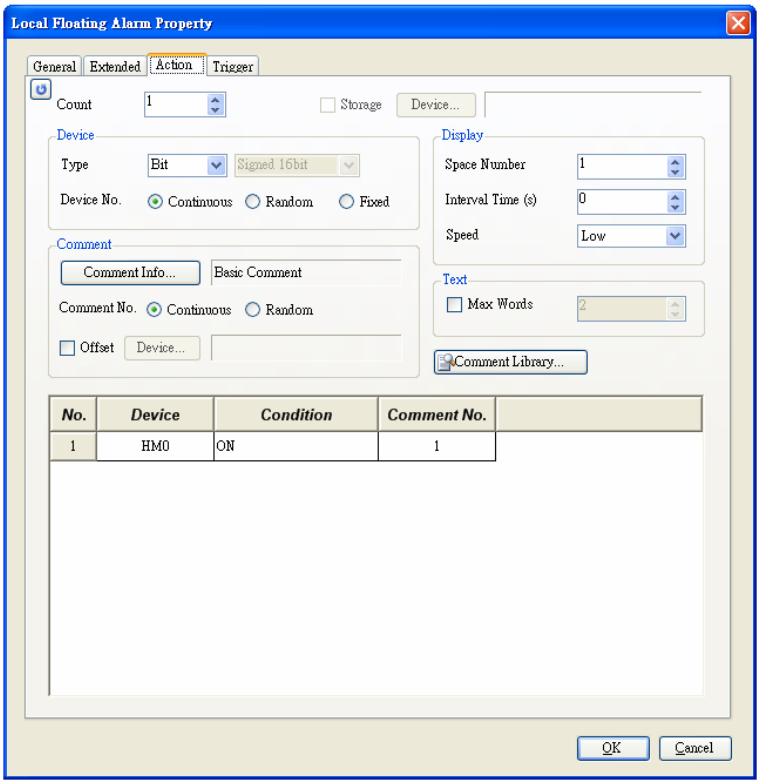
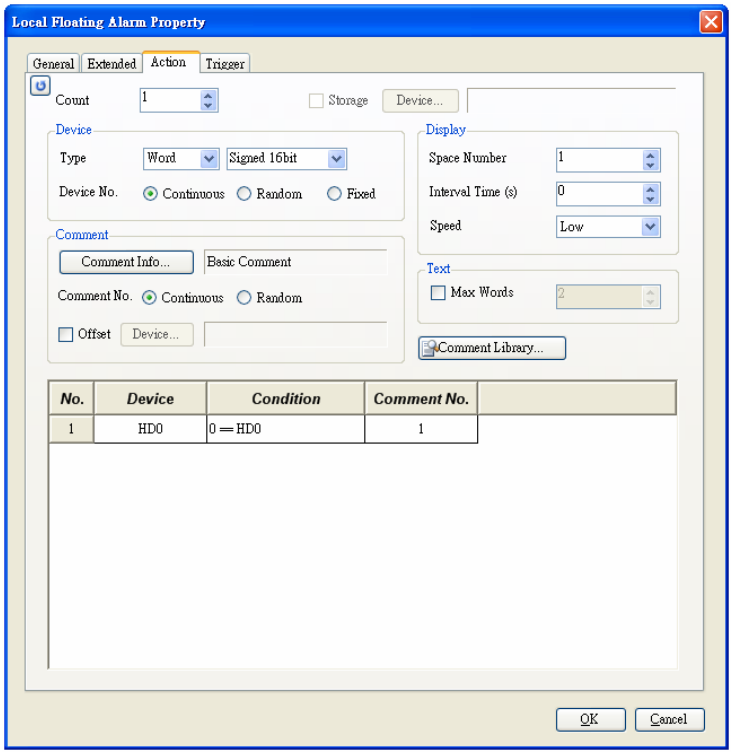



Fig. 3-6-6F-3 Bit Local Floating Alarm

The Word action device has 7 numeric types available. The user can set the comment information, code number and offset. See Figure 3-6-6F-4 below.




| Numeric Type | Value Range |
|---|---|
| Signed 16bit | -32768~32767 |
| Unsigned 16 bit | 0~65535 |
| Signed 32 bit | -2147483648~2147483647 |
| Unsigned 32 bit | 0~4294967295 |
| BCD16 bit | 0~9999 |
| BCD32 bit | 0~99999999 |
| Real | -2.147484E+09~2.147484E+09 |

Fig. 3-6-6F-4 Word Local Floating Alarm

Click Comment Info... to open the comment information dialogue box and select basic comment or comment group. See Figure 3-6-6F-5 below.

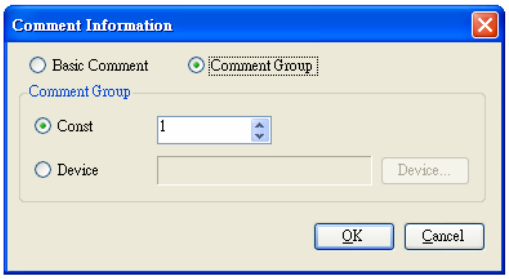
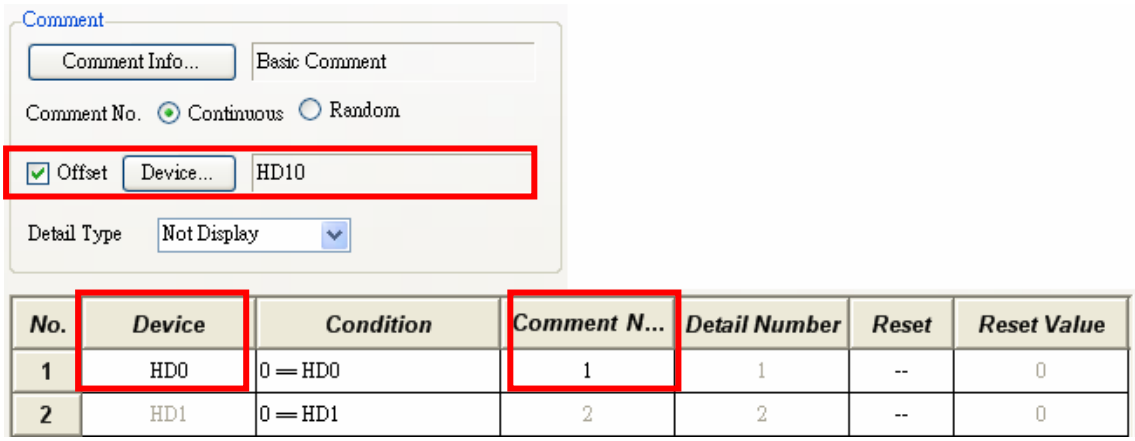



Fig. 3-6-6F-5 Comment Information Setting

EX

Tick Offset and select device HD10 to offset the comment number. The action is HD10 adds its internal value up to the original comment number, and then the operational equation calculates the new comment number as HD10 + original comment number. If the internal value of HD10 is 10, after the offset operation the HD0 internal comment number will become 11. See Figure 3-6-6F-6 below.




| No. | Device | Condition | Comment N... | Detail Number | Reset | Reset Value |
|---|---|---|---|---|---|---|
| 1 | HD0 | 0 = HD0 | 1 | 1 | -- | 0 |
| 2 | HD1 | 0 = HD1 | 2 | 2 | -- | 0 |

Fig. 3-6-6F-6 Offsetting Device

For the floating alarm and its text, the user can set the floating alarm character spacing, interval time, speed and maximum words. See Figure 3-6-6F-7 below.

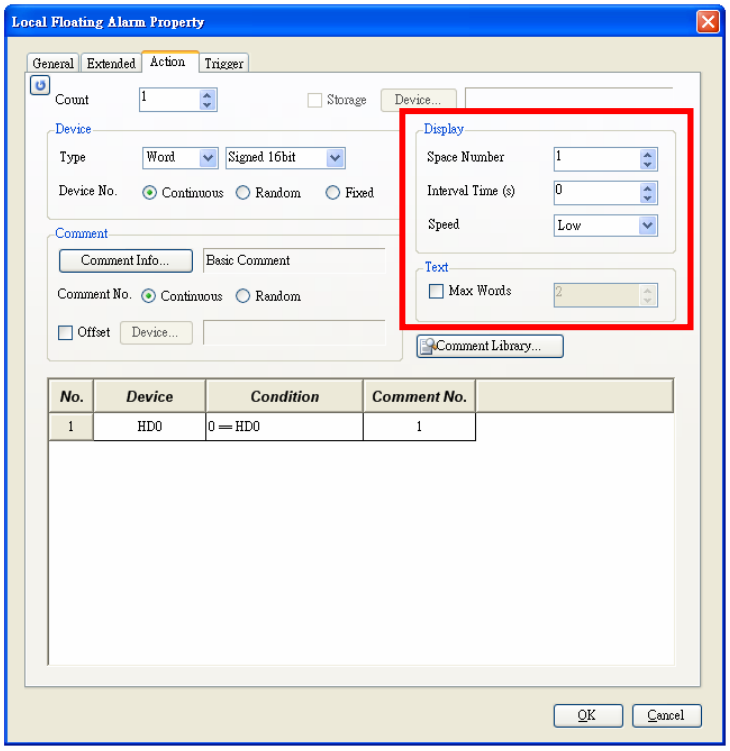
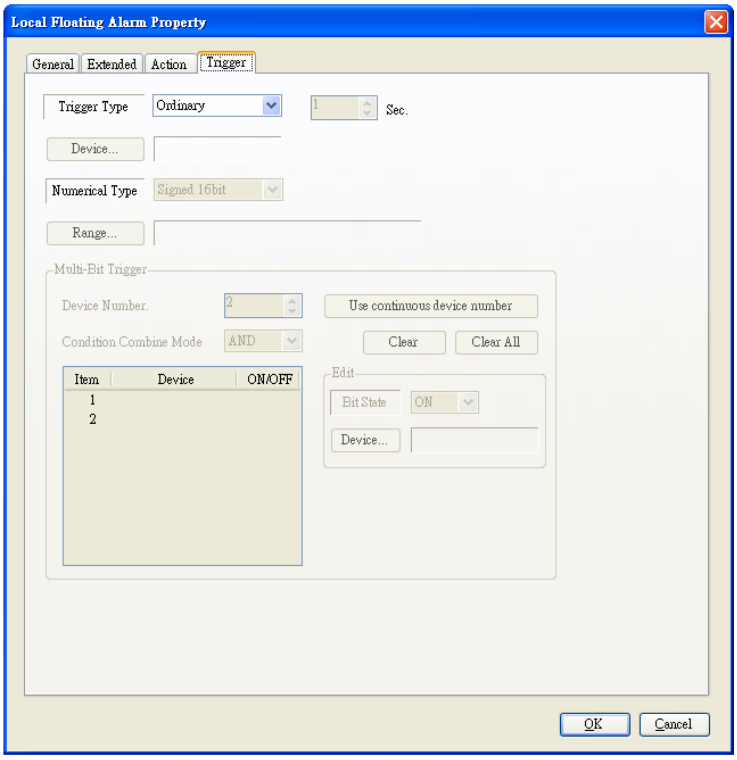



Fig. 3-6-6F-7 Display and Text Setting

In the text editing, the comments in the comment library can be set as text to display. To do this, click

to open the comment library dialogue box. For detailed instructions, please see Section 3.4.4 Comment Library.

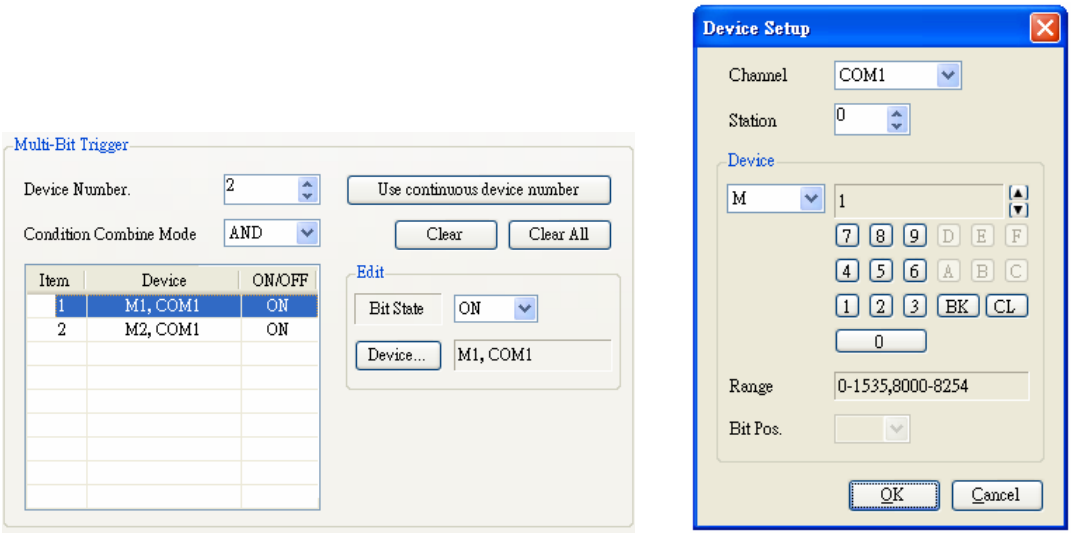
The Trigger property setting allows the user to set the conditions of the trigger pattern. See Figure 3-6-6F-8 below.




| Trigger Pattern | Description |
|---|---|
| **Ordinary** | No trigger pattern |
| **ON** | Action is taken only when the device in ON |
| **OFF** | Action is taken only when the device in OFF |
| **Range** | Action is taken only when the device value is within this range. |
| **Multi-Bit Trigger** | Set two or more devices (up to 8), and only when all the devices meet the condition will the action be taken. |
| **Rise** | Action is taken only when the device is switched from OFF to ON. |
| **Fall** | Action is taken only when the device is switched from ON to OFF. |
| **Sampling** | Action is taken only after the sampling time elapses. |

Fig. 3-6-6F-8 Trigger Pattern Setting

To set a multi-Bit trigger with 2 devices, click Device... to open the device setting window and set the trigger devices as M1 and M2. Confirm the setting and have the file sent to HMI. So, only when M1 and M2 are both ON will the switch actions be started. See Figure 3-6-6F-9 below.




(a) (b)

Fig. 3-6-6F-9 Multi-Bit Trigger (a) Setup of Multi-Bit Trigger (b) Device Setup

- To set the properties, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.

### 3.6.7. Chart Display

Click Unit and then click Chart Dispaly , or directly click the shortcut , and in the editing window left click the mouse to set up a chart object. See Figure 3-6-7 below.

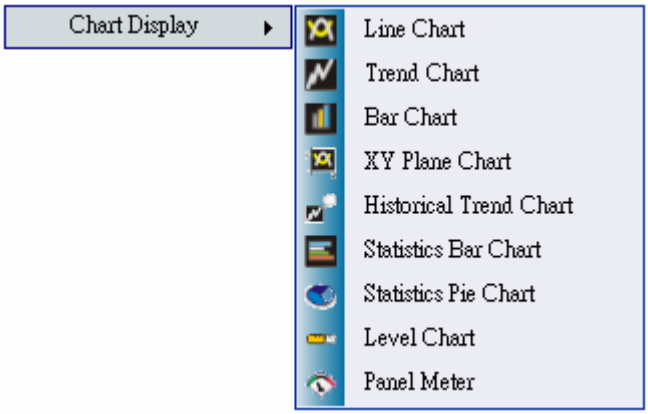



Fig. 3-6-7 Chart Display Menu

### a. Line Chart

To set up a line chart, click Unit and click Chart Dispaly and then click Line Chart, or directly click the shortcut, and in the editing window left click the mouse to set up the object. Click the object and then double left click the mouse to open property window of the object and make the setting.

The General property setting allows the user to change the picture and set the display color, transparency and line pattern. See Figure 3-6-7A-1 below.

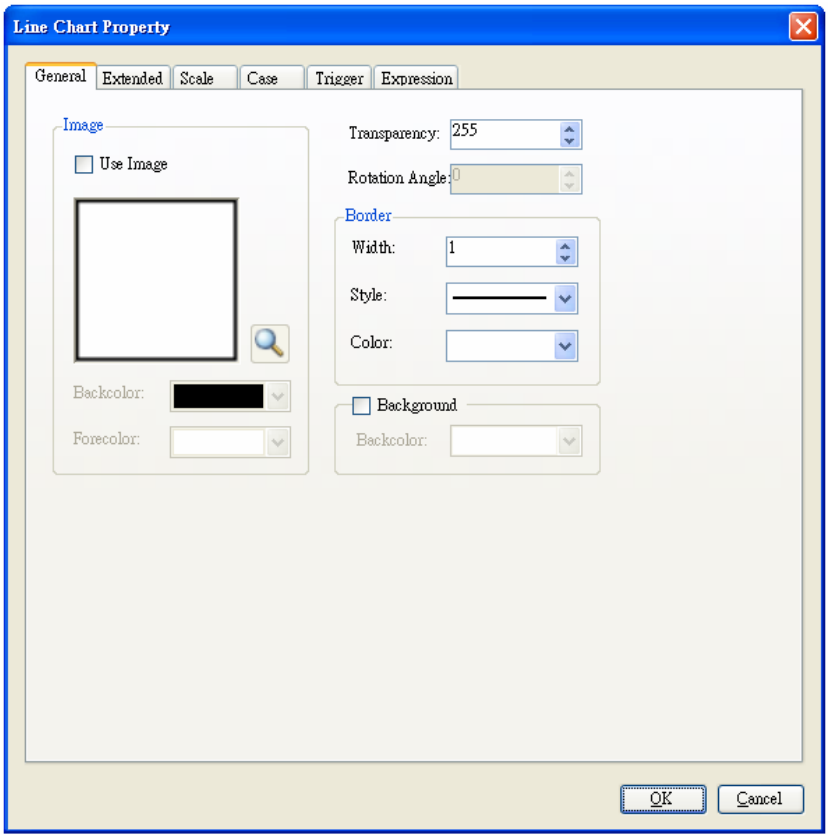



Fig. 3-6-7A-1 General Attribute Setting

Tick the option Use Image to change the picture. Click to open the picture library and select a desired picture. For detailed instructions, please see Section 3.4.2 Image Library.



EC series

The Extension properties allow the user to set the display security , flow direction, upper and lower limits, and clear locus device. Figure 3-6-7A-2 below demonstrates the setting of the object's security level. The security level (display) is ranged from 0 (least privilege) to 15 (highest privilege). The default security levels of the edit software and the system are both 0.

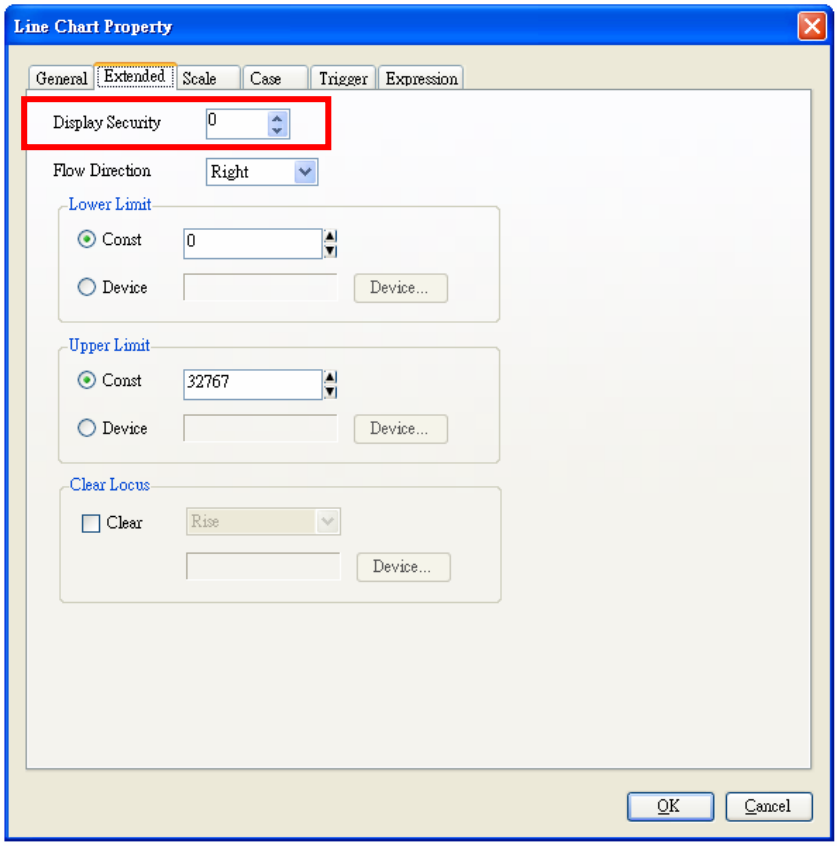



Fig. 3-6-7A-2 Security Levels

The Scale properties allow the user to set the scale display, color, font size and number of scales. See Figure 3-6-7A-3 below.

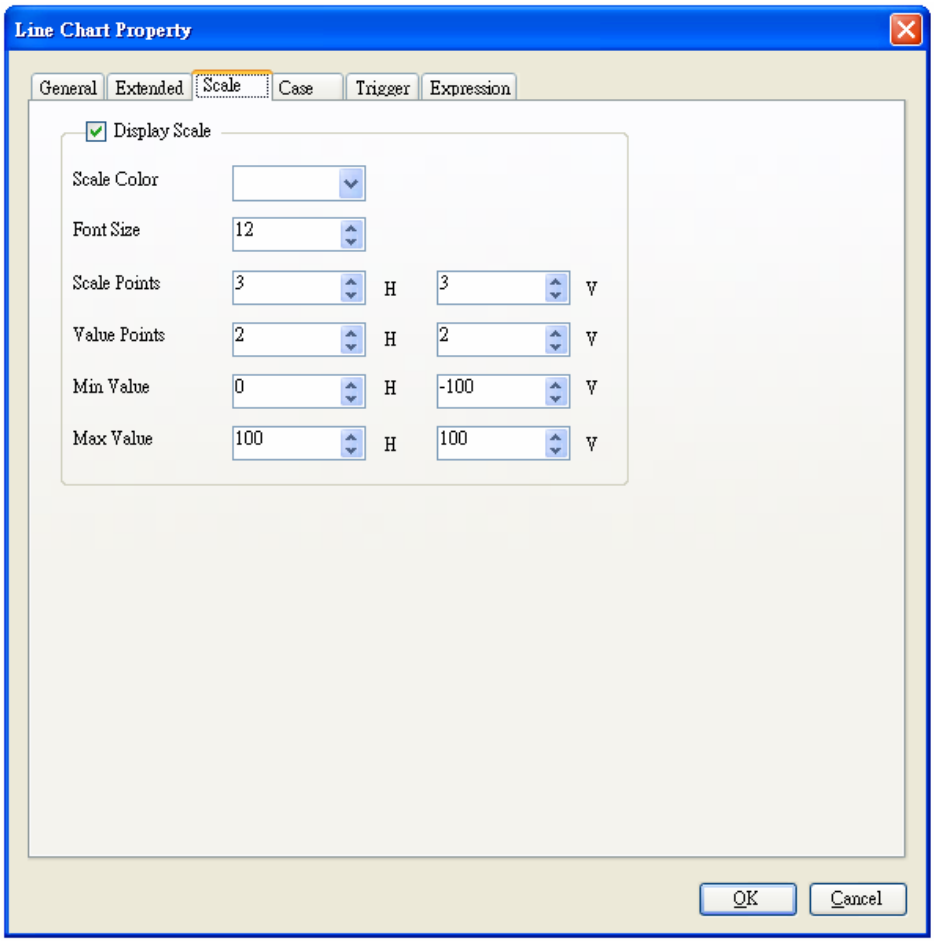
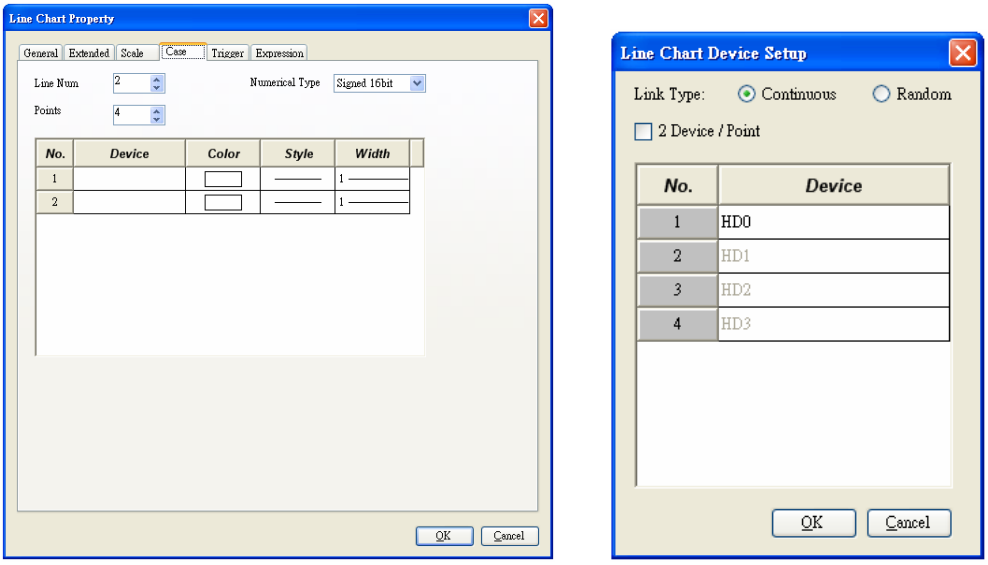


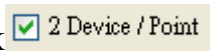

Fig. 3-6-7A-3 Scale Properties

Figure 3-6-7A-4 below is the Range Setup window. Set the number of ranges and they will be displayed in the table beneath for the user to set devices, colors, patterns, and widths. Click to open the device setup dialogue box to change the device.




(a) (b)

Fig. 3-6-7A-4 Range Setting (a) Edit Window (b) Setting Device

Tick  and the linear chart shows that there are two device values in one state. See Figure 3-6-7A-5 below.



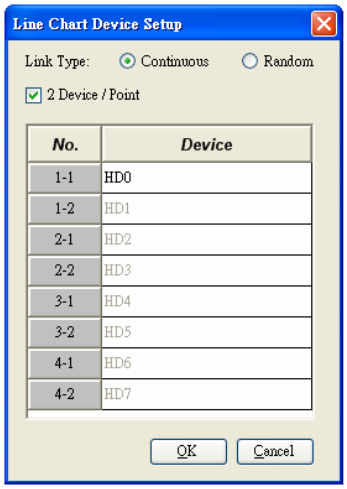
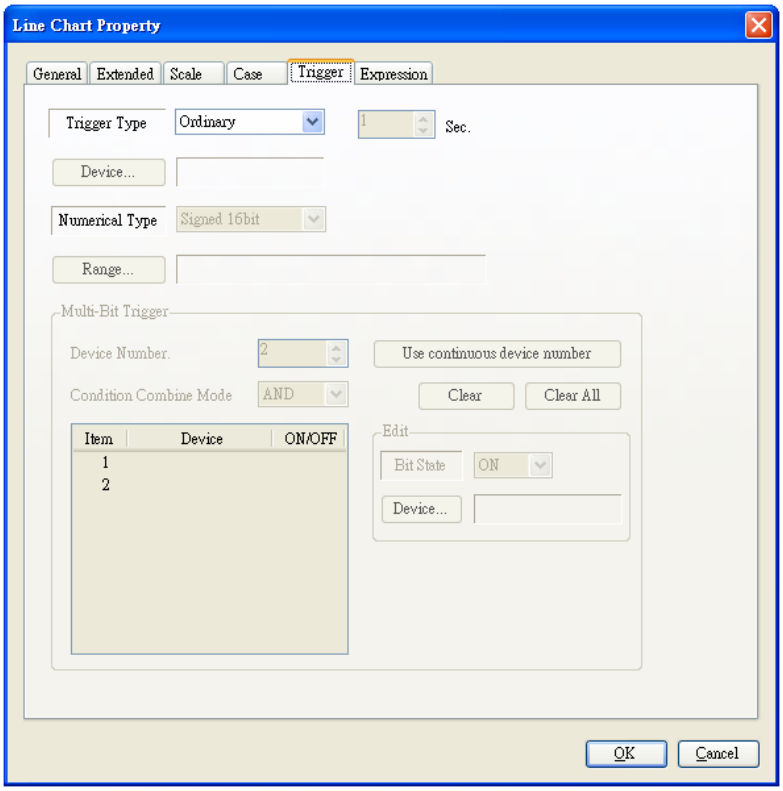



Fig. 3-6-7A-5 Two Devices/Point

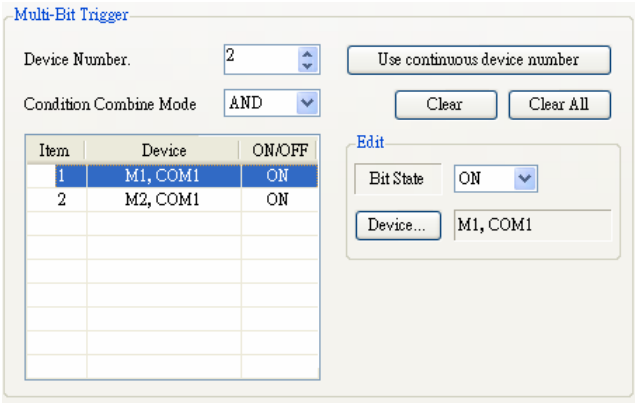
The Trigger property setting allows the user to set the conditions of the trigger pattern. See Figure 3-6-7A-6 below.



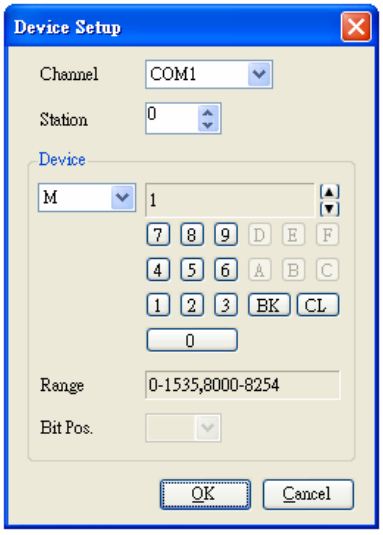

| Trigger Pattern | Description |
|---|---|
| **Ordinary** | No trigger pattern |
| **ON** | Action is taken only when the device in ON |
| **OFF** | Action is taken only when the device in OFF |
| **Range** | Action is taken only when the device value is within this range. |
| **Multi-Bit Trigger** | Set two or more devices (up to 8), and only when all the devices meet the condition will the action be taken. |
| **Rise** | Action is taken only when the device is switched from OFF to ON. |
| **Fall** | Action is taken only when the device is switched from ON to OFF. |
| **Sampling** | Action is taken only after the sampling time elapses. |

Fig. 3-6-7A-6 Trigger Pattern Setting

To set a multi-Bit trigger with 2 devices, click Device... to open the device setting window and set the trigger devices as M1 and M2. Confirm the setting and have the file sent to HMI. So, only when M1 and M2 are both ON will the switch actions be started. See 3-6-7A-7 below.



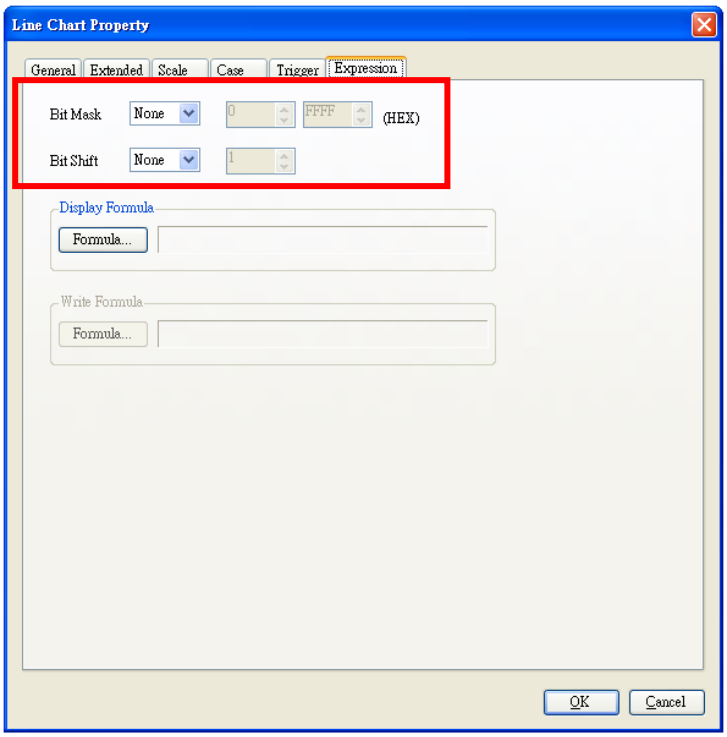

(a)




(b)

Fig. 3-6-7A-7 Multi-Bit Trigger (a) Setup of Multi-Bit Trigger (b) Device Setup

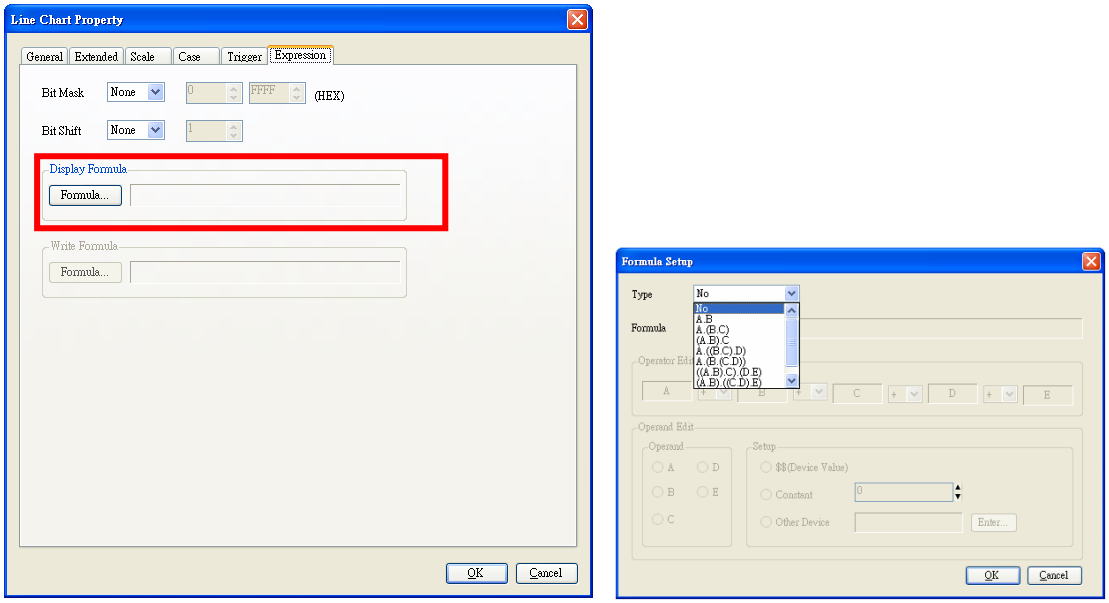
The Numeric Operation properties allow the user to set the value, bit mask, bit shift, and display formula. The system uses hexadecimal input. See Figure 3-6-7A-8 below.




| Name | | Description |
|---|---|---|
| **Bit Mask** | **None** | No Bit mask. |
| | **AND** | Values are converted to binary for AND operation.<br>**EX~** Decimal value 8 ANDing with A gets 8. |
| | **OR** | Values are converted to binary for OR operation.<br>**EX~** Decimal value 8 ORing with A gets 10. |
| | **XOR** | Values are converted to binary for XOR operation.<br>**EX~** Decimal value 8 XORing with A gets 2. |
| **Bit Shift** | **None** | No Bit offset. |
| | **<<** | Values are converted to binary for left shift.<br>**EX~** Decimal value 8 left shifting 2 bits becomes 32. |
| | **>>** | Values are converted to binary for right shift.<br>**EX~** Decimal value 8 left shifting 2 bits becomes 2. |

Fig. 3-6-7A-8 Logic Operations

To set formula display, click Formula... to open the formula setup window, and pick up a preferred formula pattern, and then select from the A~E options, and then select $$ (device value) and any one of the constant or other device, and then select an operator. Confirm to finish the formula setting. See Figure 3-6-7A-9 below.




(a) (b)

Fig. 3-6-7A-9 Displaying formula (a) Setting formula (b) formula Set

NOTE

- To set the properties, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.

## b. Trend Chart

To set up a trend chart, click Unit and click Chart Dispaly and then click Trend Chart, or directly click the shortcut, and in the editing window left click the mouse to set up a multi-state lamp. Click the object and then double left click the mouse to open the property window of the object and make the setting.

The General property setting allows the user to change the picture pattern, display color, transparency, line pattern, and background color. See Figure 3-6-7B-1 below.

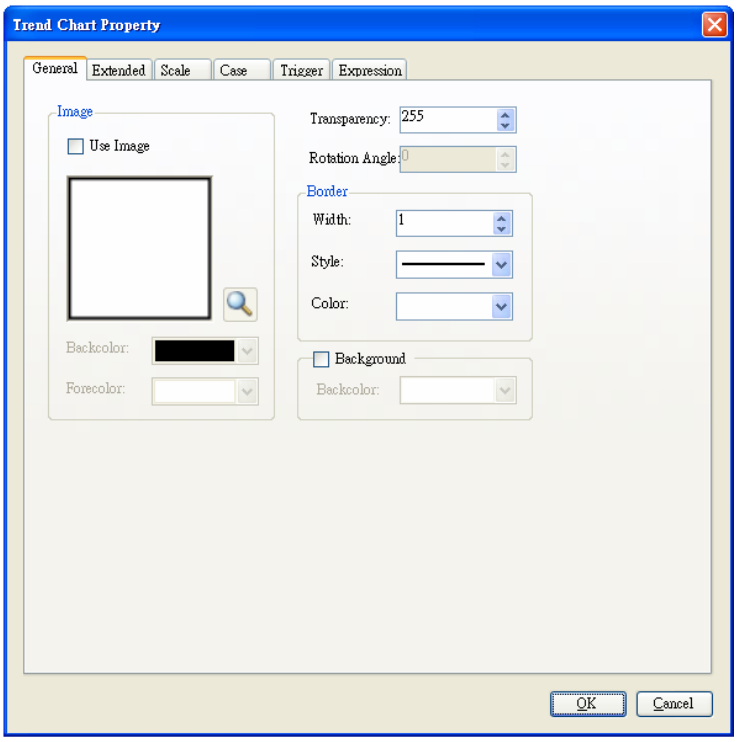



Fig. 3-6-7B-1 General Property Setting

Tick the option Use Image to change the picture. Click to open the picture library and select a preferred picture. For detailed instructions, please see Section 3.4.2 Image Library.

The Extension property setting allows the user to set the security level, line direction, upper and lower limits, and clear track device. Figure 3-6-3B-2 below demonstrates the setting of the object's security level. The security level (display) is ranged from 0 (least privilege) to 15 (highest privilege). The default security levels of the edit software and the system are both 0.

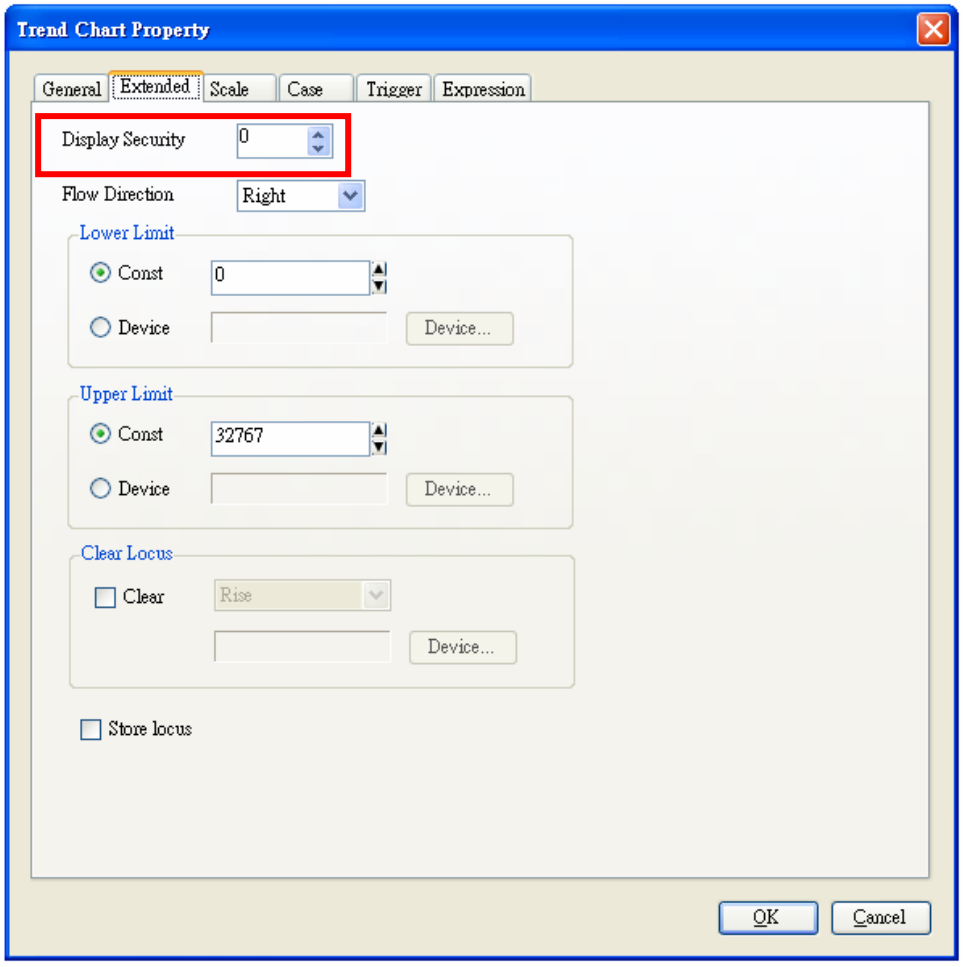



Fig. 3-6-7B-2 Security Levels

The Scale properties allow the user to set the scale display, color, font size and number of scales. See Figure 3-6-7B-3 below.

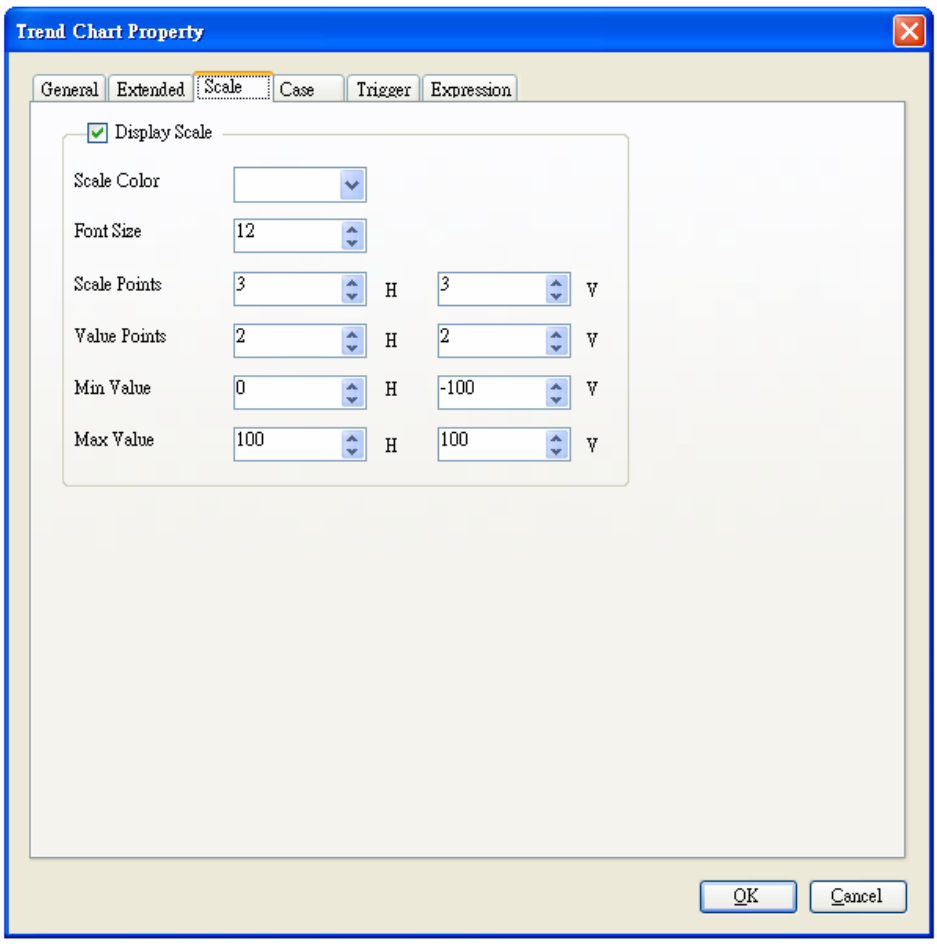
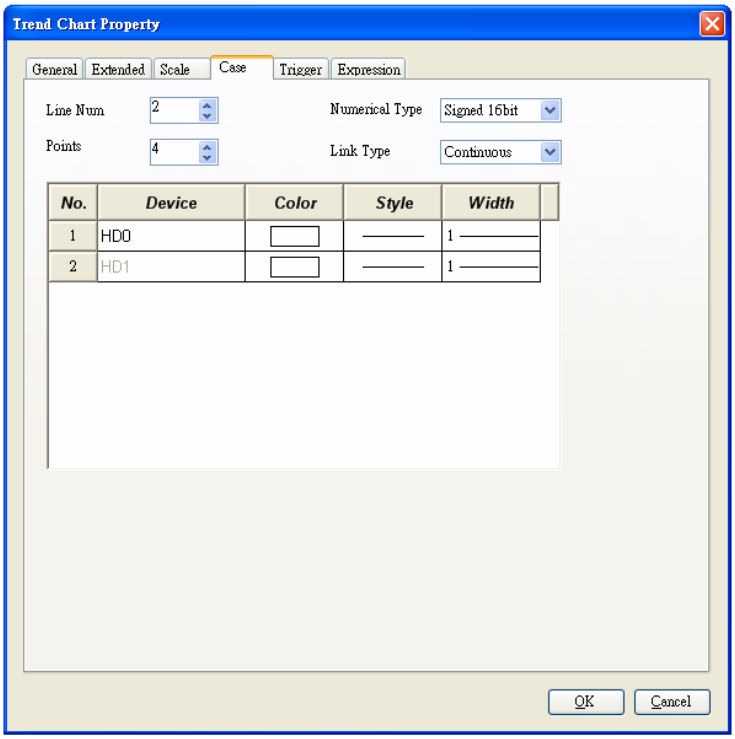
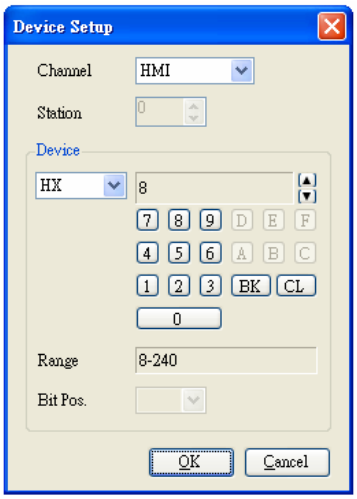



Fig. 3-6-7B-3 Scale Attributes

Figure 3-6-7B-4 below is the Range Setup window. Set the number of ranges and they will be displayed in the table beneath for the user to set the devices, colors, patterns, and widths. Click to open the device setup dialogue box to change the device.



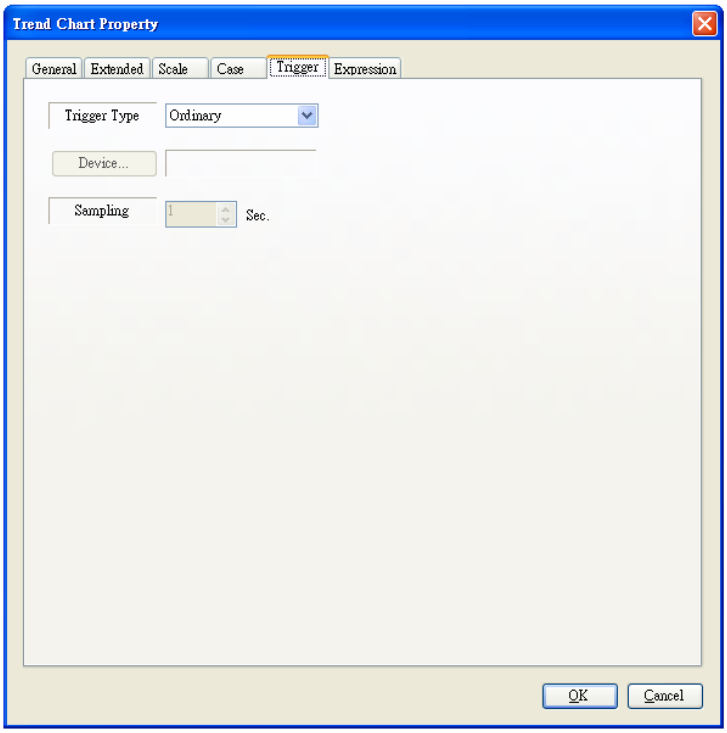

(a)




(b)

Fig. 3-6-7B-4 Range Setting (a) Edit Window (b) Setting Device

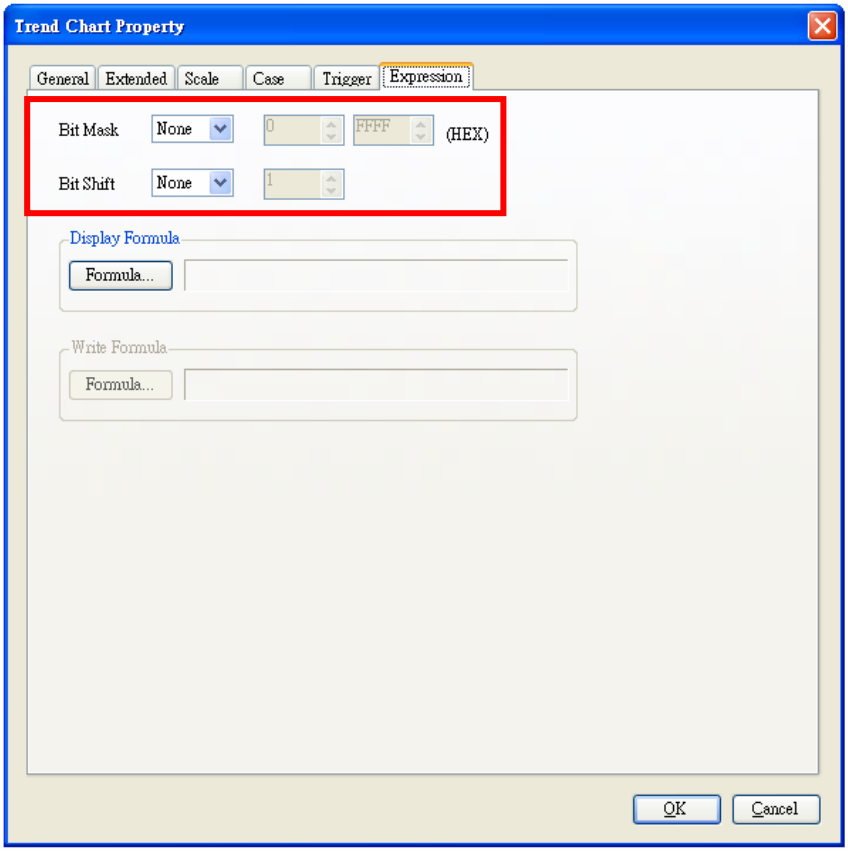
The Trigger property setting allows the user to change the trigger pattern. See Figure 3-6-7B-5 below.




| Trigger Pattern | Description |
|---|---|
| **Ordinary** | No trigger pattern |
| **ON** | Action is taken only when the device in ON |
| **OFF** | Action is taken only when the device in OFF |
| **Range** | Action is taken only when the device value is within this range. |
| **Multi-Bit Trigger** | Set two or more devices (up to 8), and only when all the devices meet the condition will the action be taken. |
| **Rise** | Action is taken only when the device is switched from OFF to ON. |
| **Fall** | Action is taken only when the device is switched from ON to OFF. |
| **Sampling** | Action is taken only after the sampling time elapses. |

Fig. 3-6-7B-5 Trigger Pattern Setting

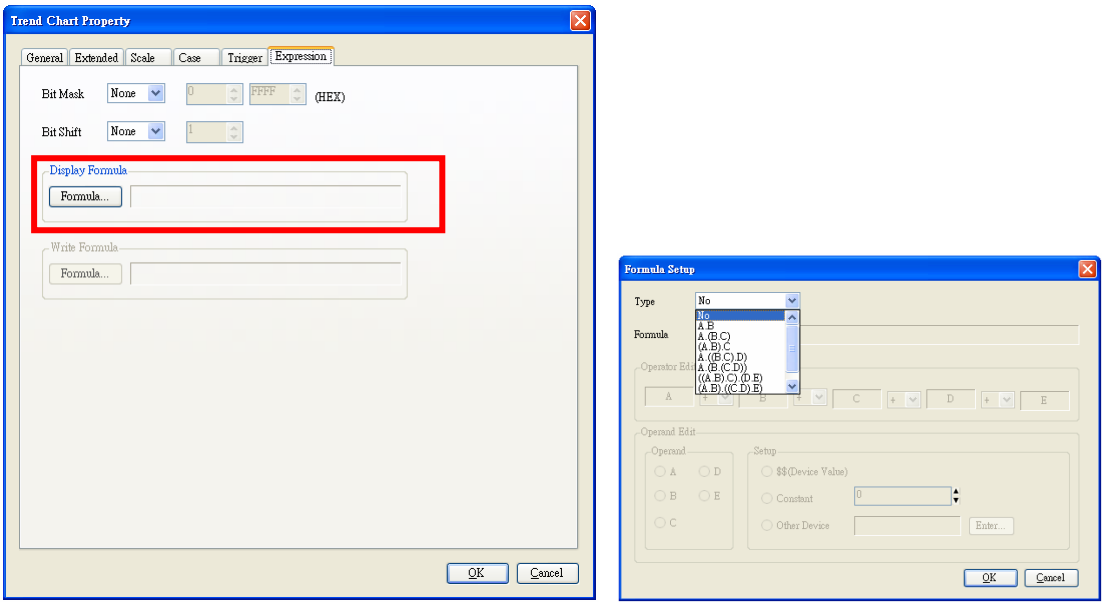
The Numeric Operation properties allow the user to set the value, bit mask, bit shift, and display formula. The system uses hexadecimal input. See Figure 3-6-7B-6 below.




| Name | | Description |
|---|---|---|
| **Bit Mask** | **None** | No Bit mask. |
| | **AND** | Values are converted to binary for AND operation.<br>**EX~** Decimal value 8 ANDing with A gets 8. |
| | **OR** | Values are converted to binary for OR operation.<br>**EX~** Decimal value 8 ORing with A gets 10. |
| | **XOR** | Values are converted to binary for XOR operation.<br>**EX~** Decimal value 8 XORing with A gets 2. |
| **Bit Shift** | **None** | No Bit offset. |
| | **<<** | Values are converted to binary for left shift.<br>**EX~** Decimal value 8 left shifting 2 bits becomes 32. |
| | **>>** | Values are converted to binary for right shift.<br>**EX~** Decimal value 8 left shifting 2 bits becomes 2. |

Fig. 3-6-7B-6 Logic Operations

To set formula display, click Formula... to open the formula setup window, and pick up a preferred formula pattern, and then select from the A~E options, and then select $$ (device value) and any one of the constant or other device, and then select an operator. Confirm to finish the formula setting. See Figure 3-6-7B-7 below.




(a) (b)

Fig. 3-6-7B-7 Displaying formula (a) Setting formula (b) formula Set

NOTE

- To set the properties, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.

### c. Bar Chart

To set up a bar chart, click Unit and click Chart Dispaly and then click Bar Chart, or directly click the shortcut, and in the editing window left click the mouse to set up the object. Click the object and then double left click the mouse to open the property window of the object and make the setting.

The General property setting allows the user to set the picture pattern, display color, transparency, line pattern, background color, and bar shape. See Figure 3-6-7C-1 below.

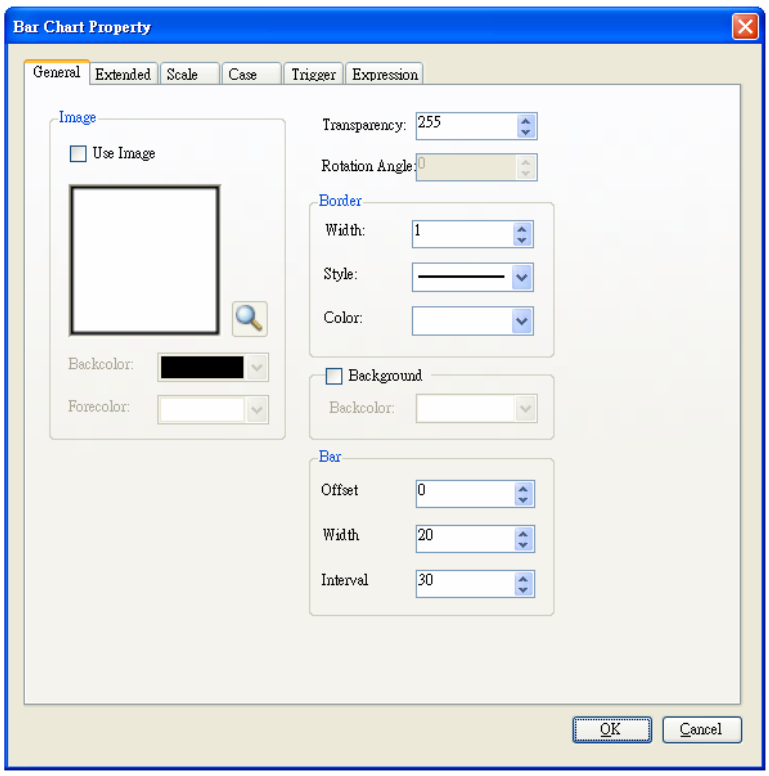



Fig. 3-6-7C-1 General Property Setting

Tick the option Use Image to change the picture. Click to open the picture library and select a desired picture. For detailed instructions, please see Section 3.4.2 Image Library.

The Extension properties allow the user to set the security level, flow direction, sorting order, upper and lower limits. Figure 3-6-7C-2 below demonstrates the setting of the object's security level. The security level (display) is ranged from 0 (least privilege) to 15 (highest privilege). The default security levels of the edit software and the system are both 0.

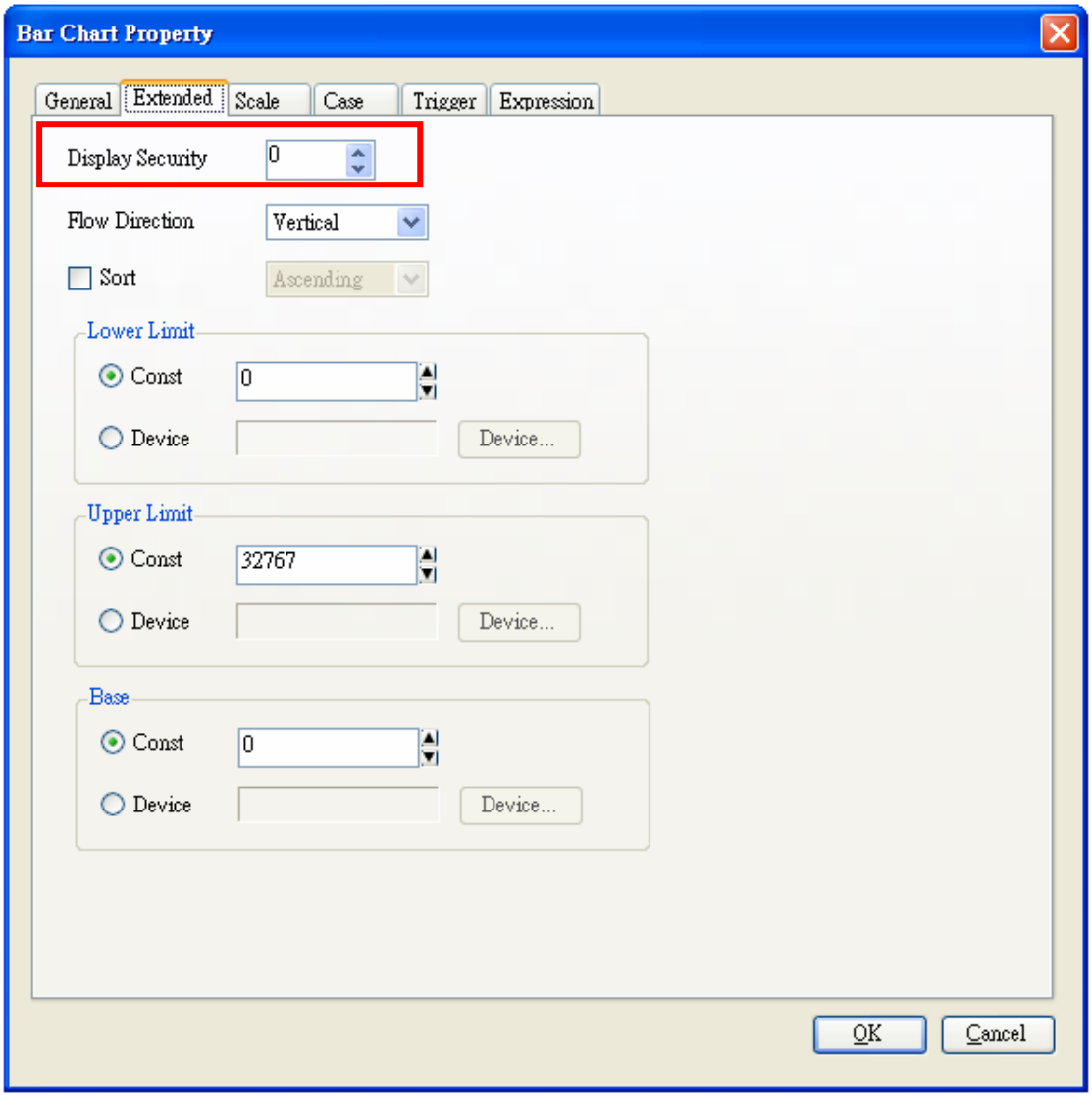



Fig. 3-6-7C-2 Security Levels

The Scale properties allow the user to set the scale display, color, font size, number of scales, and the maximum and minimum values. See Figure 3-6-7C-3 below.

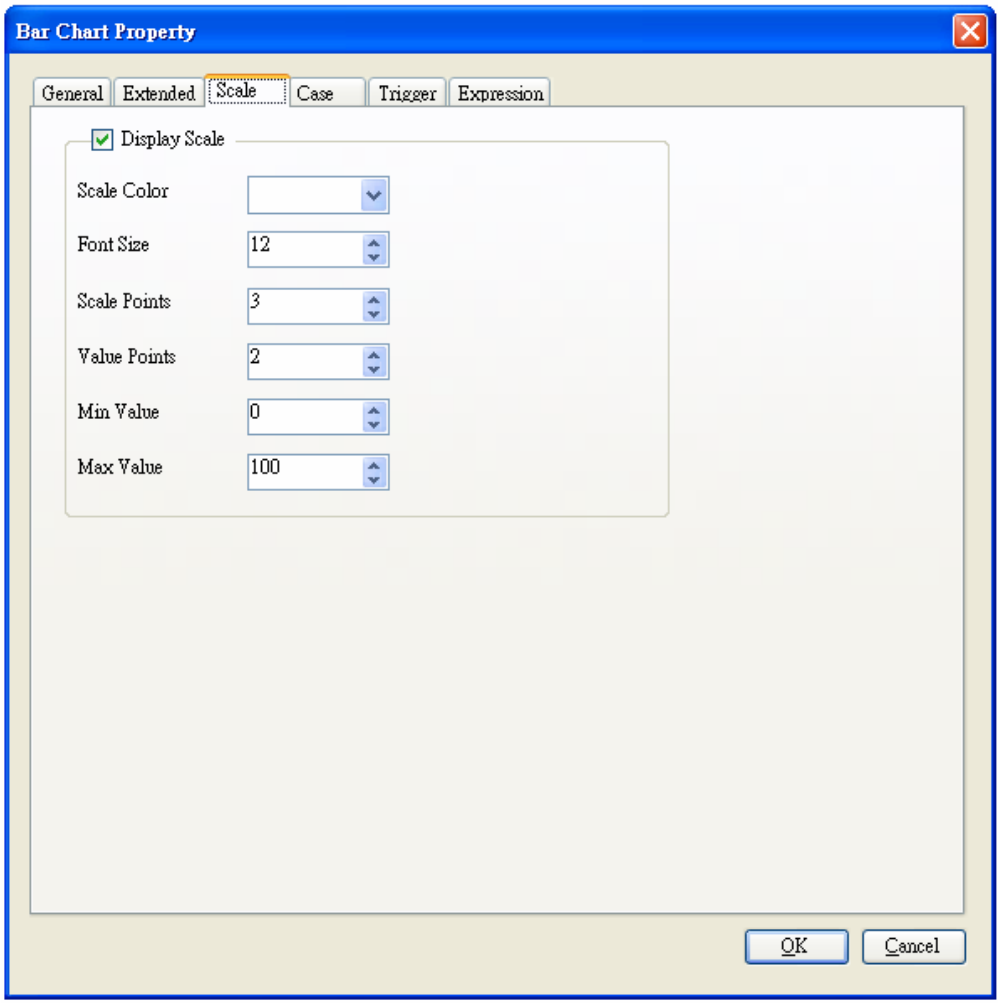
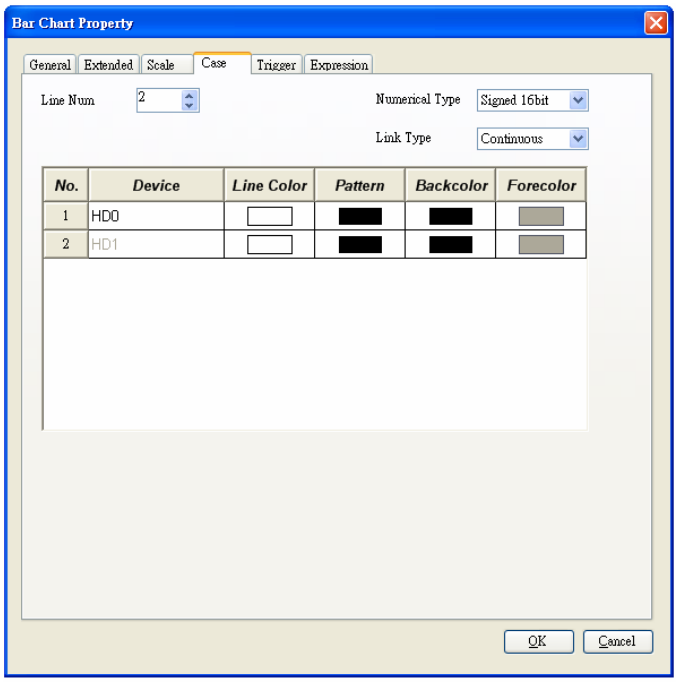
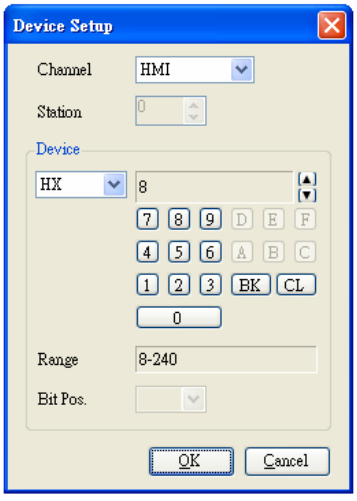



Fig. 3-6-7C-3 Scale Attributes

Figure 3-6-7C-4 below is the Range Setup window. Set the number of ranges and they will be displayed in the table beneath for the user to set the devices, colors, patterns and widths. Click to open the device setup dialogue box to change the device.



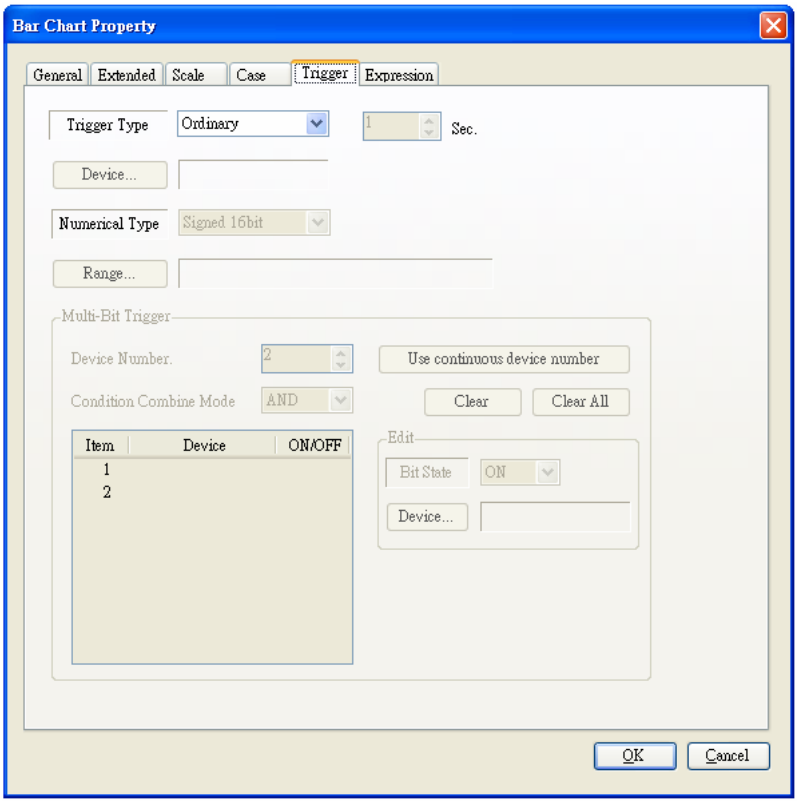

(a)




(b)

Fig. 3-6-7C-4 Range Setting (a) Edit Window (b) Setting Device

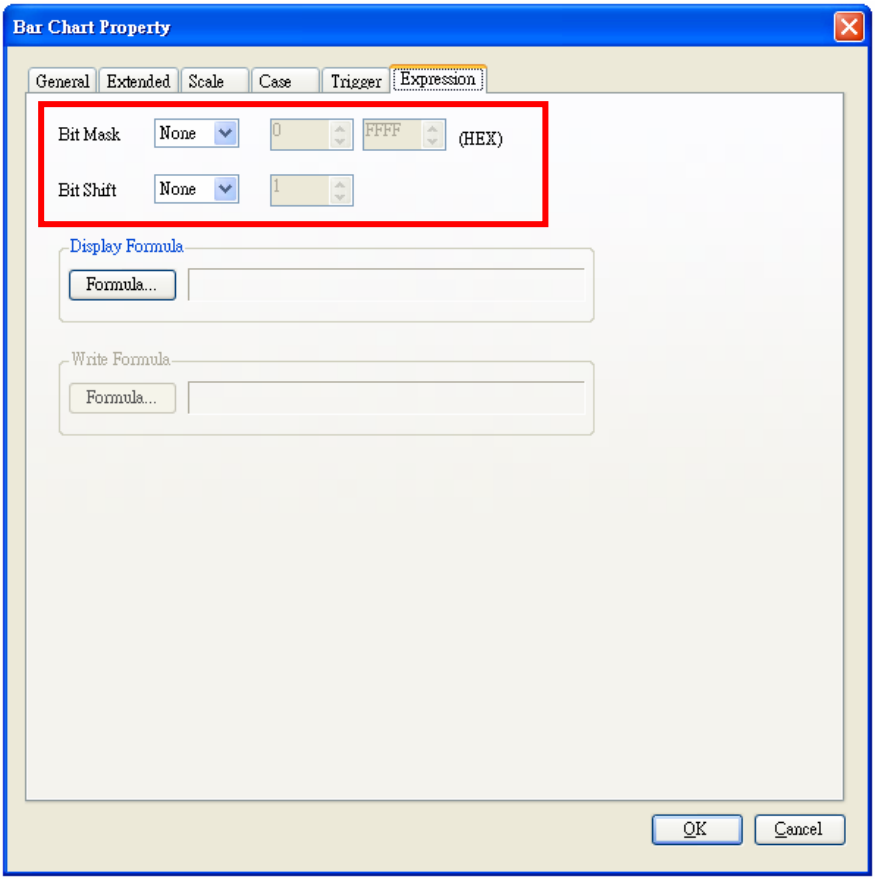
The Trigger property setting allows the user to set the conditions of the trigger pattern. See Figure 3-6-7C-5 below.




| Trigger Pattern | Description |
|---|---|
| **Ordinary** | No trigger pattern |
| **ON** | Action is taken only when the device in ON |
| **OFF** | Action is taken only when the device in OFF |
| **Range** | Action is taken only when the device value is within this range. |
| **Multi-Bit Trigger** | Set two or more devices (up to 8), and only when all the devices meet the condition will the action be taken. |
| **Rise** | Action is taken only when the device is switched from OFF to ON. |
| **Fall** | Action is taken only when the device is switched from ON to OFF. |
| **Sampling** | Action is taken only after the sampling time elapses. |

Fig. 3-6-7C-5 Trigger Pattern Setting

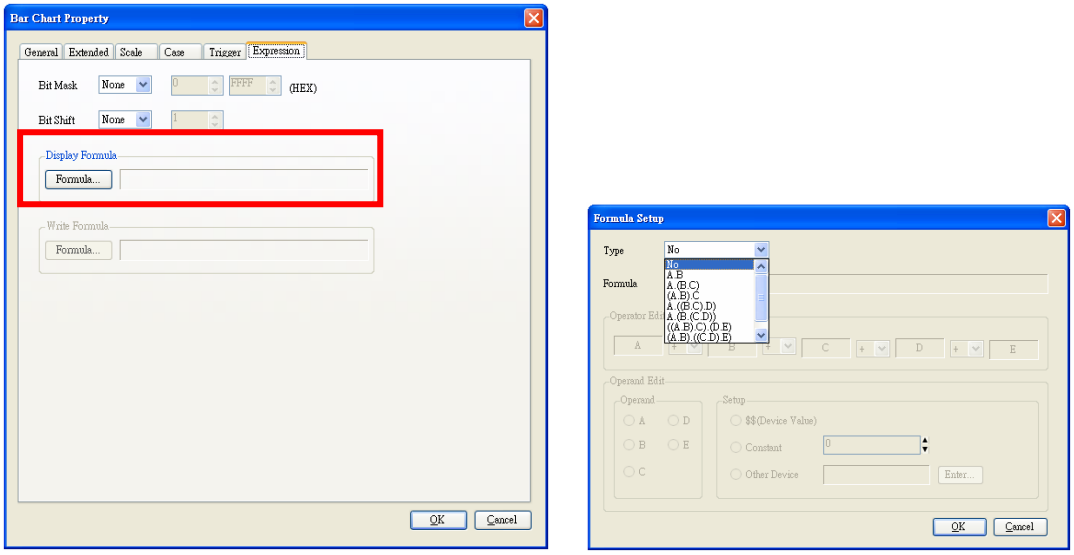
The Numeric Operation properties allow the user to set the value, bit mask, bit shift, and display formula. The system uses hexadecimal input. See Figure 3-6-7C-6 below.




| Name | | Description |
|---|---|---|
| **Bit Mask** | **None** | No Bit mask. |
| | **AND** | Values are converted to binary for AND operation.<br>**EX~** Decimal value 8 ANDing with A gets 8. |
| | **OR** | Values are converted to binary for OR operation.<br>**EX~** Decimal value 8 ORing with A gets 10. |
| | **XOR** | Values are converted to binary for XOR operation.<br>**EX~** Decimal value 8 XORing with A gets 2. |
| **Bit Shift** | **None** | No Bit offset. |
| | **<<** | Values are converted to binary for left shift.<br>**EX~** Decimal value 8 left shifting 2 bits becomes 32. |
| | **>>** | Values are converted to binary for right shift.<br>**EX~** Decimal value 8 left shifting 2 bits becomes 2. |

Fig. 3-6-7C-6 Logic Operation

To set formula display, click Formula... to open the formula setup window, and pick up a preferred formula pattern, and then select from the A~E options, and then select $$ (device value) and any one of the constant or other device, and then select an operator. Confirm to finish the formula setting. See Figure 3-6-7C-7 below.




(a) (b)

Fig. 3-6-7C-7 Displaying formula (a) Setting formula (b) formula Set

NOTE

- To set the properties, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.

### d. XY Plane Chart

To set up a XY Plane chart, click Unit and click Chart Dispaly and then click XY Plane Chart, or directly click the shortcut, and in the editing window left click the mouse to set up the object. Click the object and then double left click the mouse to open the property window of the object and make the setting.

The General property setting allows the user to change the picker pattern, display color, transparency, line pattern, and background color. See Figure 3-6-7D-1 below.

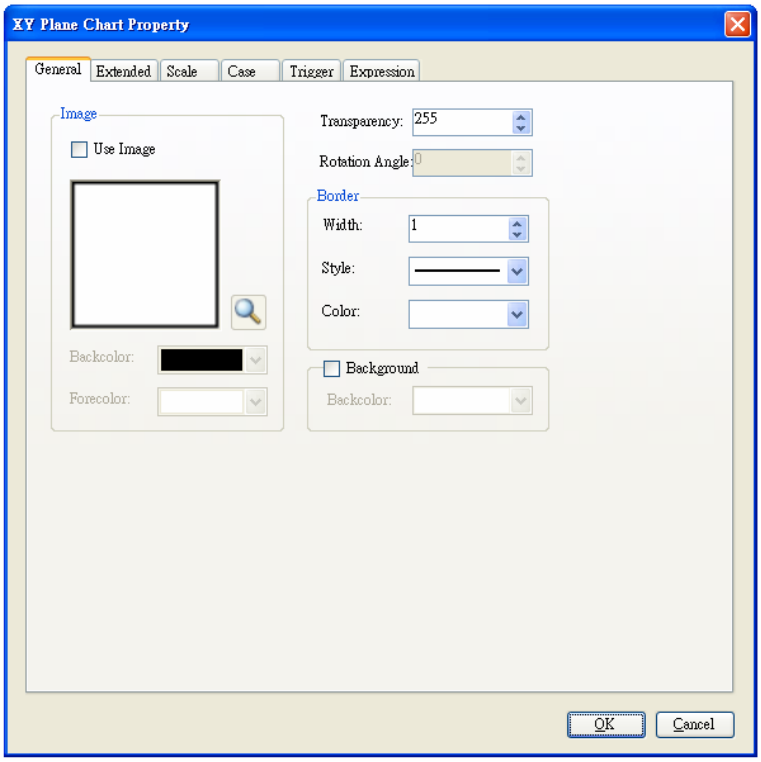



Fig. 3-6-7D-1 General Property Setting

Tick the option Use Image to change the picture. Click to open the picture library and select a desired picture. For detailed instructions, please see Section 3.4.2 Image Library.

The Extension properties allow the user to set the security level, clear locus device, horizontal/vertical upper and lower limits. Figure 3-6-7D-2 below demonstrates the setting of the object's security level. The security level (display) is ranged from 0 (least privilege) to 15 (highest privilege). The default security levels of the edit software and the system are both 0.

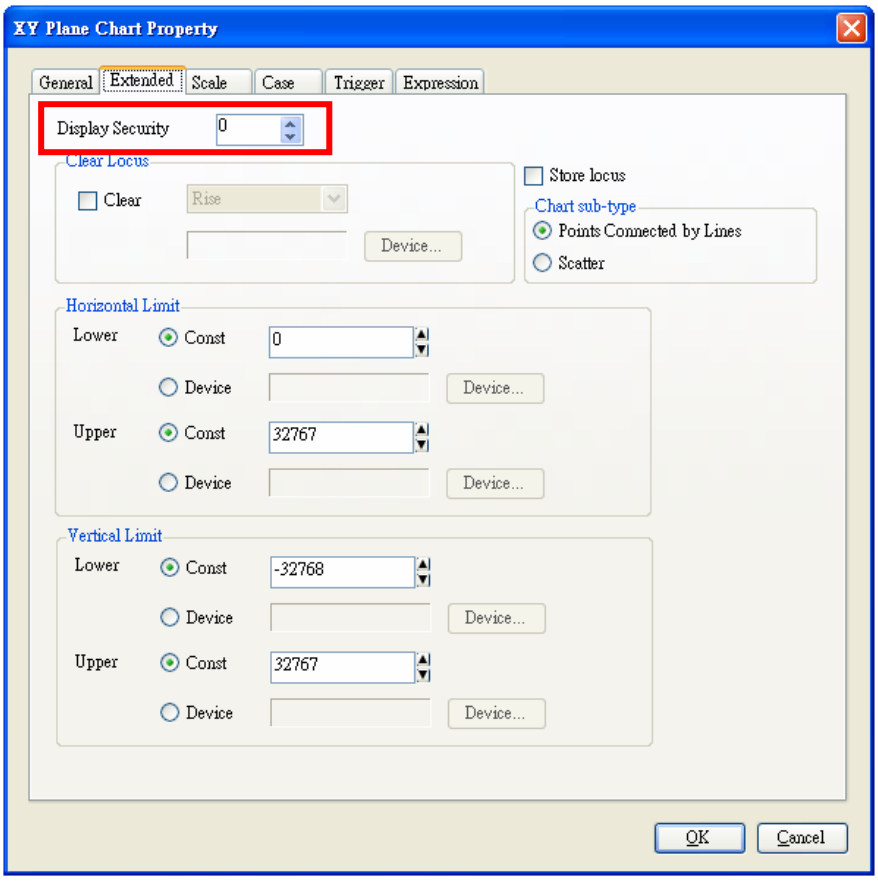



Fig. 3-6-7D-2 Security Levels

The Scale properties allow the user to set the scale display, color, font size, number of scale points, and the maximum and minimum values. See Figure 3-6-7D-3 below.

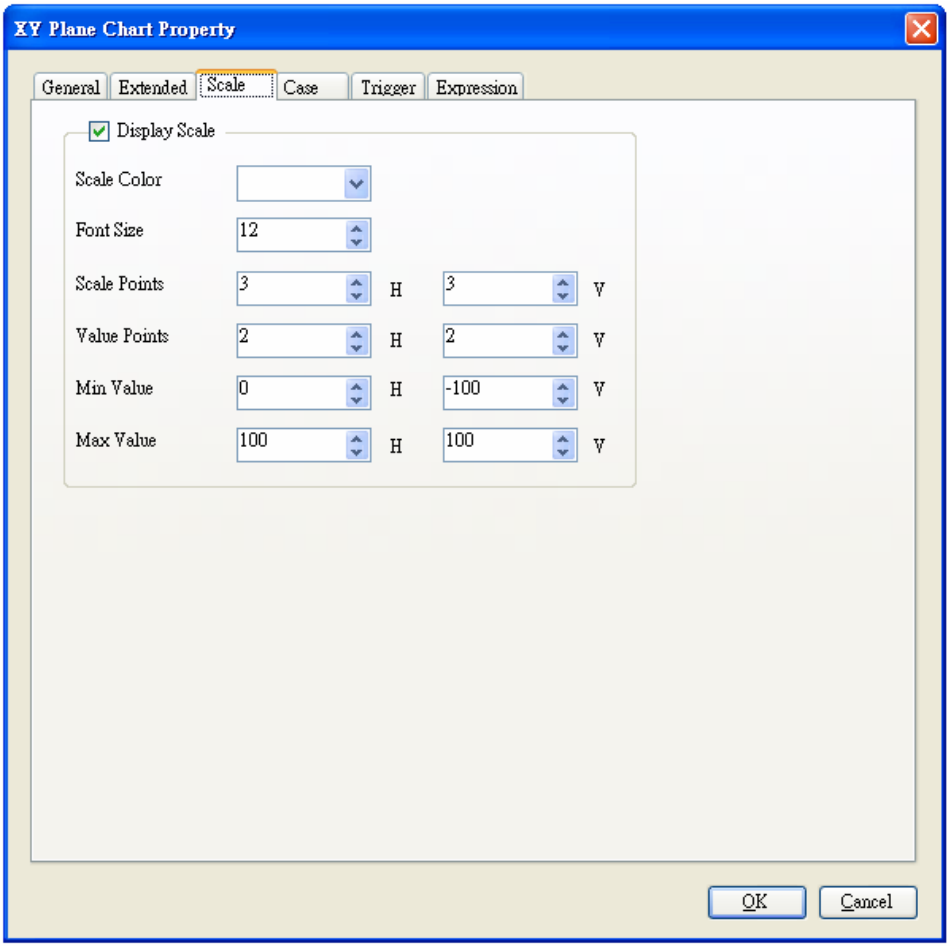
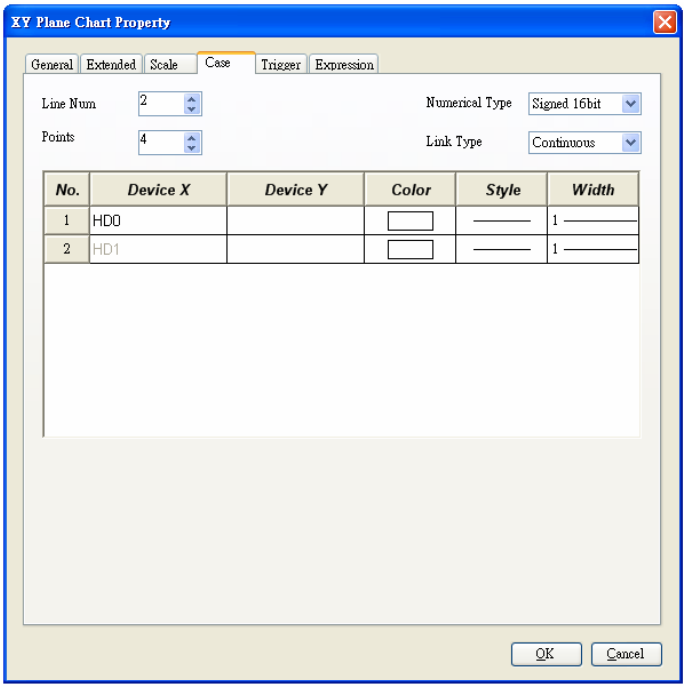
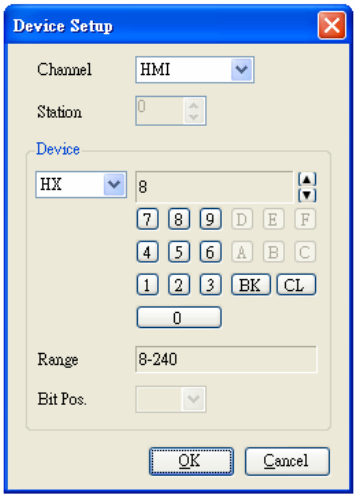



Fig. 3-6-7D-3 Scale Attributes

Figure 3-6-7D-4 below is the Range Setup window. Set the number of ranges and they will be displayed in the table beneath for the user to set devices, colors, patterns, widths. Click to open the device dialogue box and make the setting.



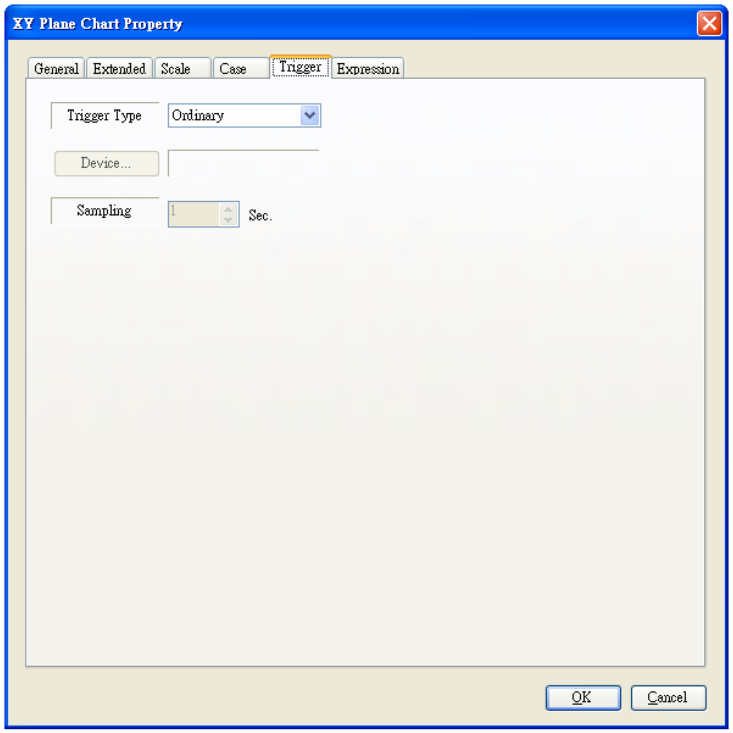

(a)




(b)

Fig. 3-6-7D-4 Range Setting (a) Edit Window (b) Setting Device

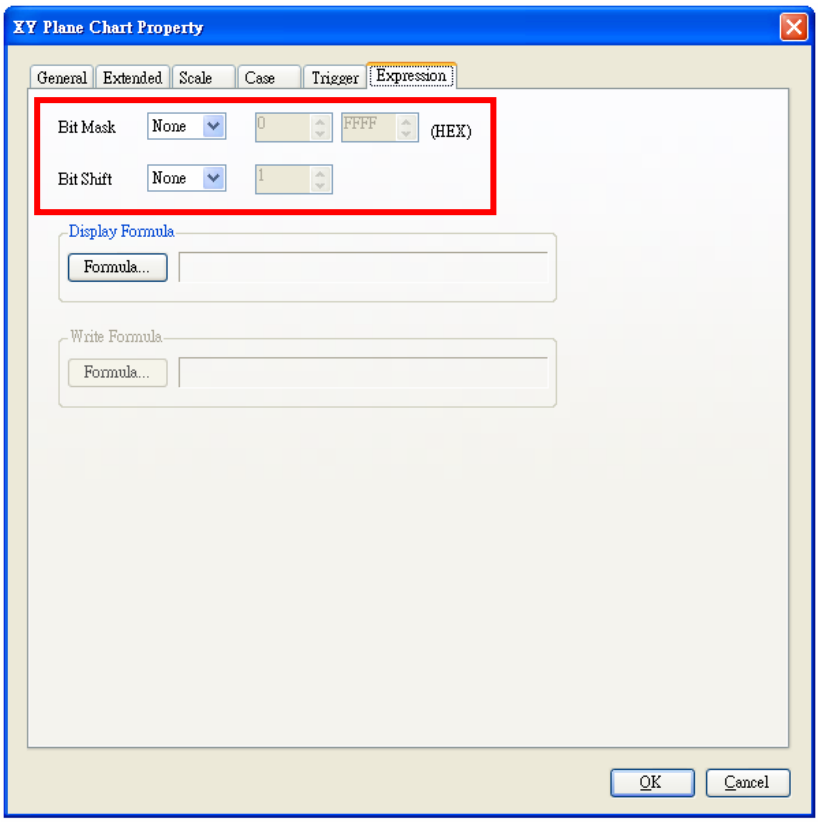
The Trigger property setting allows the user to set the conditions of the trigger pattern. See Figure 3-6-7D-5 below.




| Trigger Pattern | Description |
|---|---|
| **Ordinary** | No Trigger Pattern |
| **Rise** | Action is taken only when the device is switched from OFF to ON. |
| **Fall** | Action is taken only when the device is switched from ON to OFF. |
| **Sampling** | Action is taken only after the sampling time elapses. |
| **ON Sampling** | Action is taken only when the device in ON and the sampling item elapses. |
| **OFF Sampling** | Action is taken only when the device in OFF and the sampling item elapses |

Fig. 3-6-7D-5 Trigger Pattern Setting

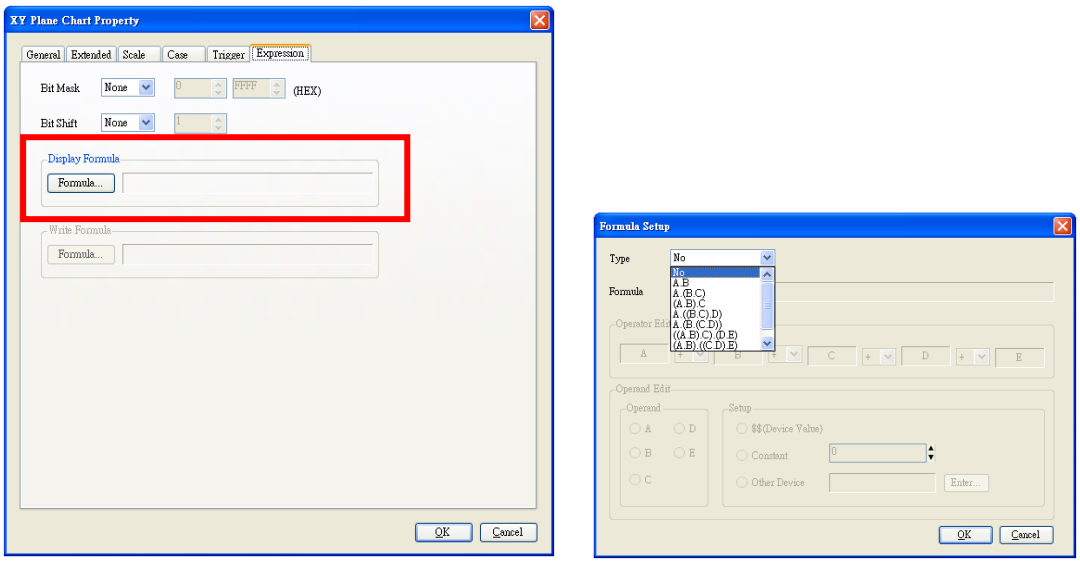
The Numeric Operation properties allow the user to set the value, bit mask, bit shift, and display formula. The system uses hexadecimal input. See Figure 3-6-7D-6 below.




| Name | | Description |
|---|---|---|
| **Bit Mask** | **None** | No Bit mask. |
| | **AND** | Values are converted to binary for AND operation.<br>**EX~** Decimal value 8 ANDing with A gets 8. |
| | **OR** | Values are converted to binary for OR operation.<br>**EX~** Decimal value 8 ORing with A gets 10. |
| | **XOR** | Values are converted to binary for XOR operation.<br>**EX~** Decimal value 8 XORing with A gets 2. |
| **Bit Shift** | **None** | No Bit offset. |
| | **<<** | Values are converted to binary for left shift.<br>**EX~** Decimal value 8 left shifting 2 bits becomes 32. |
| | **>>** | Values are converted to binary for right shift.<br>**EX~** Decimal value 8 left shifting 2 bits becomes 2. |

Fig. 3-6-7D-6 Logic Operations

To set formula display, click Formula... to open the formula setup window, and pick up a preferred formula pattern, and then select from the A~E options, and then select $$ (device value) and any one of the constant or other device, and then select an operator. Confirm to finish the formula setting. See Figure 3-6-7D-7 below.




(a) (b)

Fig. 3-6-7D-7 Displaying formula (a) Setting formula (b) formula Set

NOTE

- To set the properties, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.

### e. Historical Trend Chart

To set up a historical trend chart, click Unit and click Chart Dispaly and then click Historical Trend Chart, or directly click the shortcut, and in the editing window left click the mouse to set up the object. Click the object and then double left click the mouse to open the property window of the object and make the setting.

The General property setting allows the user to set the picture pattern, display color, transparency, line pattern, and background color. See Figure 3-6-7E-1 below.

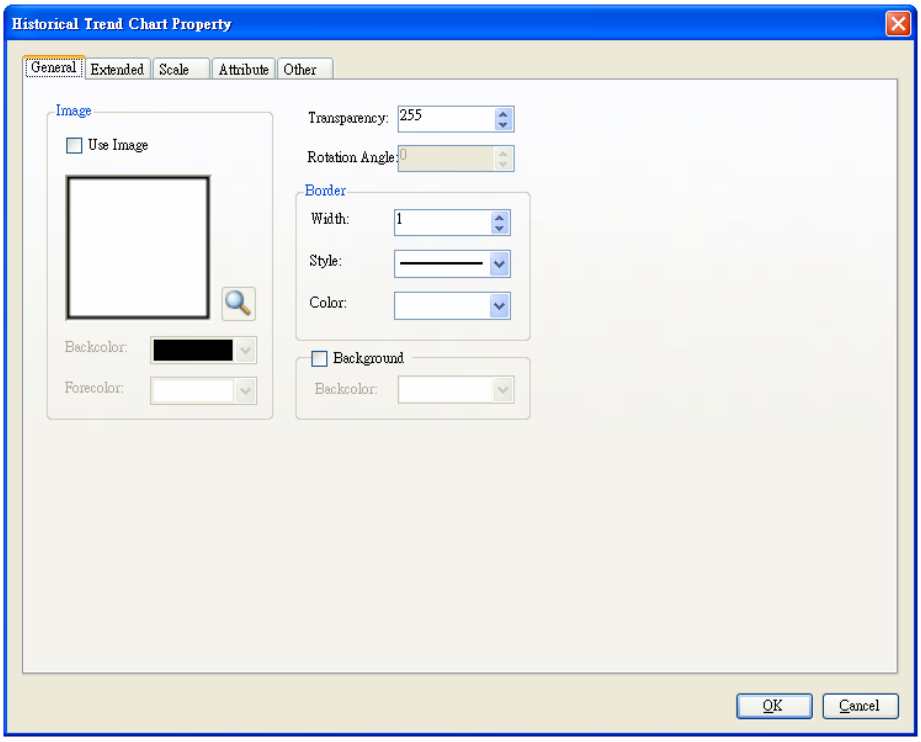
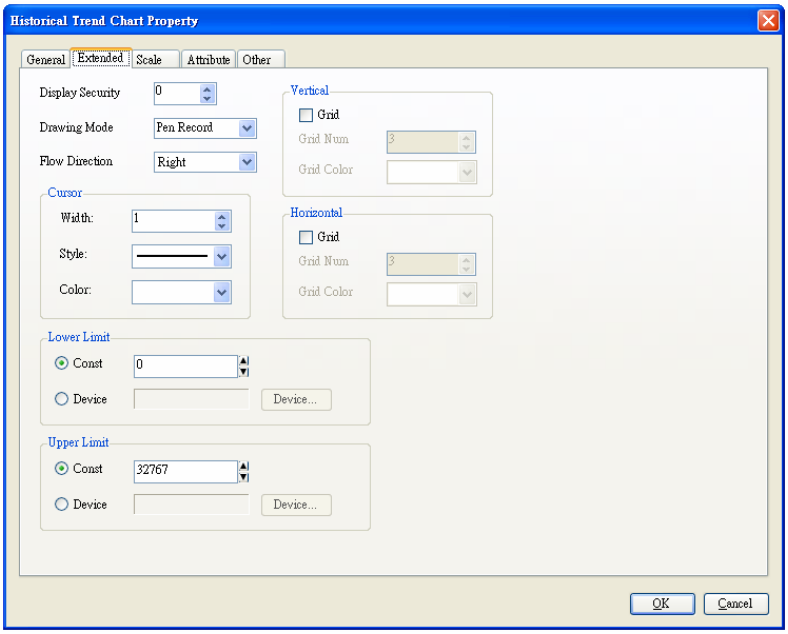



Fig. 3-6-7E-1 General Property Setting

Tick the option Use Image to change the picture. Click to open the picture library and select a desired picture. For detailed instructions, please see Section 3.4.2 Image Library.

The Extension properties allow the user to set the security level, drawing model, flow direction, cursor, upper and lower directional limits, and grid. See Figure 3-6-7E-2 below.



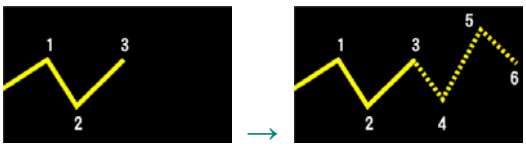

| Extension Setting | | Description |
|---|---|---|
| **Display Security** | | Security level (display) is ranged from 0 (lowest privilege) to 15 (highest privilege). The default security levels of the edit software and the system are both 0. |
| **Drawing Model** | **Pen Record** | The values are displayed in the opposite direction to the line's direction. |
| | **One by one** | The values are displayed in the opposite direction to the line's direction. When the display crosses over the scope, the graph will be erased before the display is resumed.  |
| **Flow Direction** | | The graph shows the moving directions. The user can set the moving direction up, down, left or right. |
| **Cursor** | | Set the cursor properties including line width, pattern and color. |

Fig. 3-6-7E-2 Extension Property Setting

The Scale properties allow the user to set the scale display, color, font size, number of scales, and the maximum and minimum values. See Figure 3-6-7E-3 below.

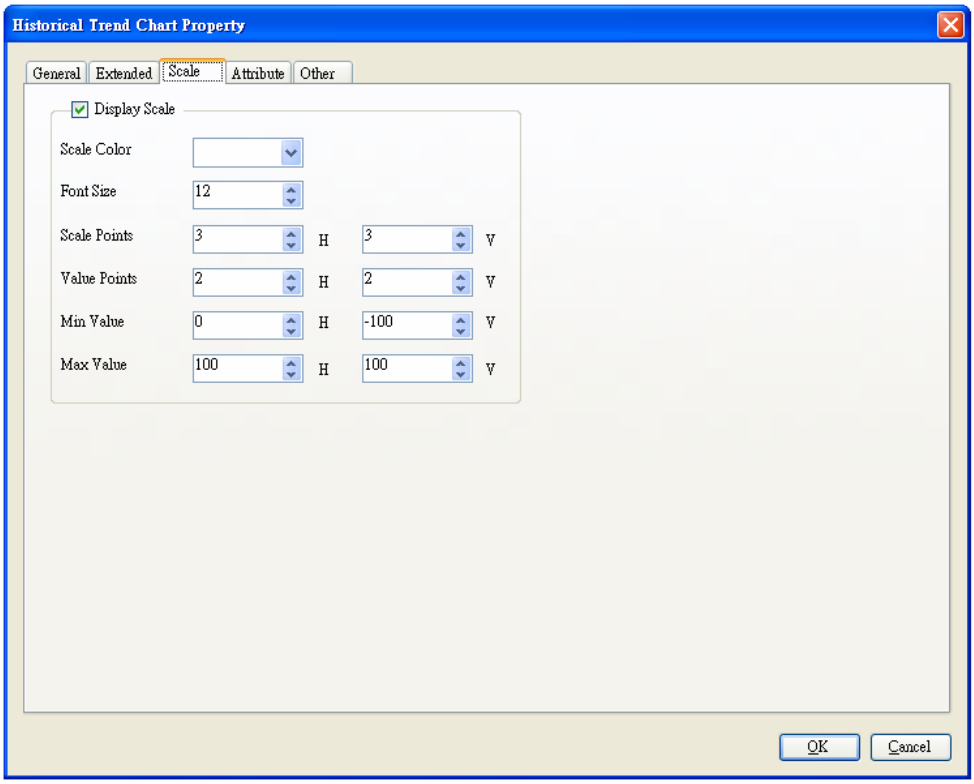



Fig. 3-6-7E-3 Scale Attributes

Figure 3-6-7E-4 below is the Property Setup window. Set the number of lines and they will be displayed in the table beneath for the user to set the devices, numeric operations, dotted line properties, graph information, and step modes.

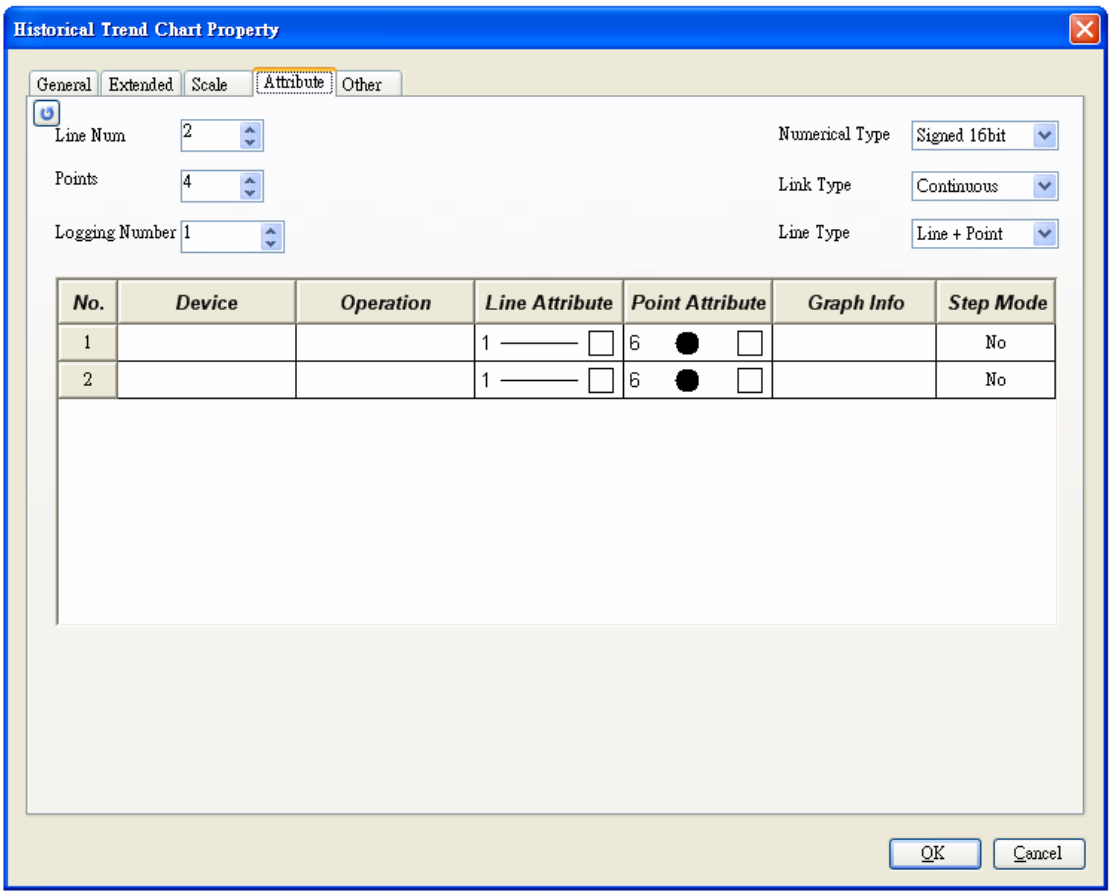
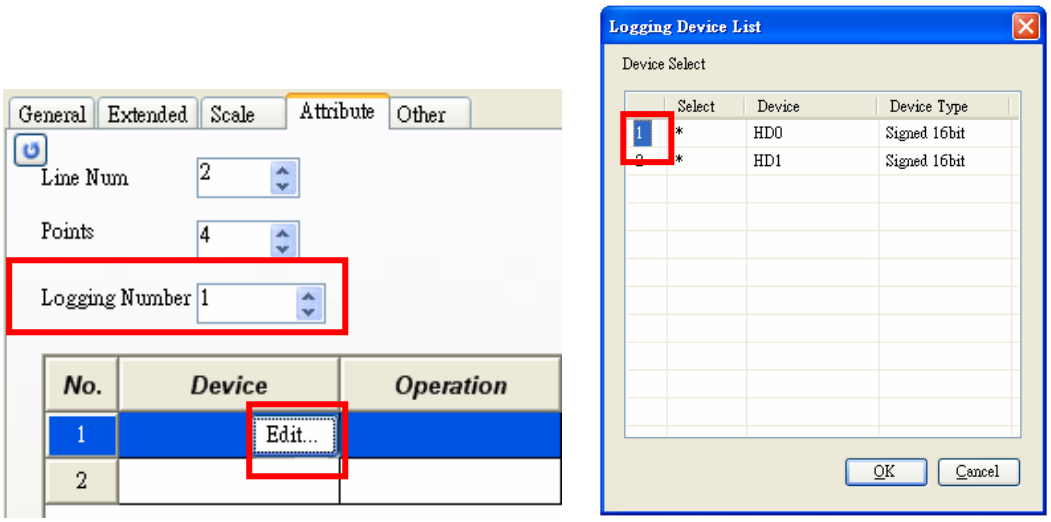



Fig. 3-6-7E-4 Property

To set the device, click Edit... to open the dialogue box of the resume device table, the editing software will then refer to the resume numbers and simulatively click System and click Logging and then click Logging Setup... to read the settings. Pick up a resume number and click it to monitor the device. See Figure 3-6-7E-5 below.




(a) (b)

Fig. 3-6-7E-5 Biography Setting (a) Device Editing (b) Device Table List

If devices are not set through the menu sequence of System, Logging and Logging Setup..., the editing software will pop up the warning message as shown in Figure 3-6-7E-6 below.

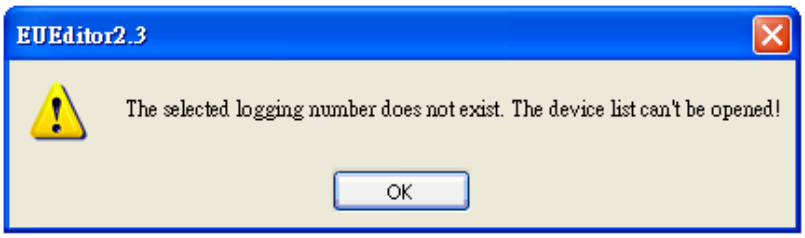
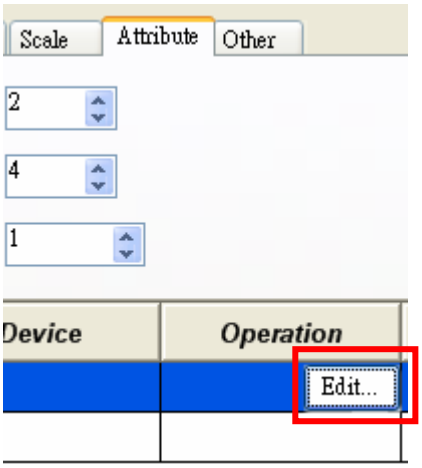
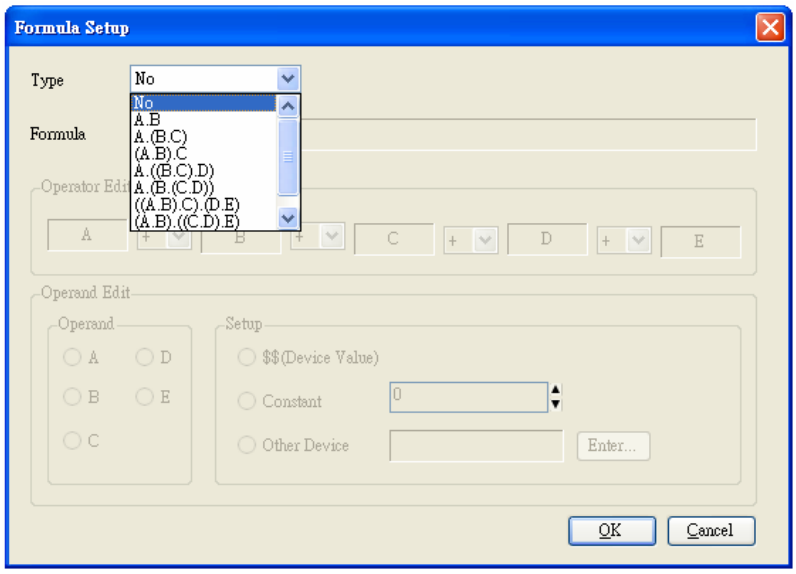



Fig. 3-6-7E-6 Warning Dialogue Box

To set up the operation, click Edit... to open the formula setup dialogue box, and pick up a preferred formula pattern, and then select from the A~E options, and then select $$ (device value) and any one of the constant or other device, and then select an operator. Confirm to finish the formula setting. See Figure 3-6-7E-7 below.



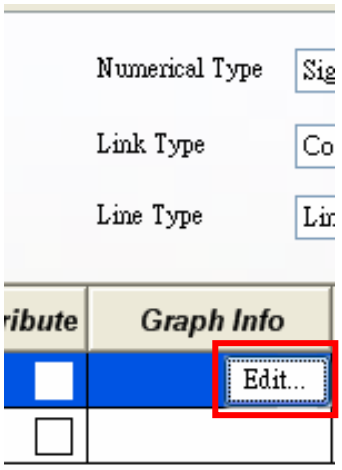

(a)



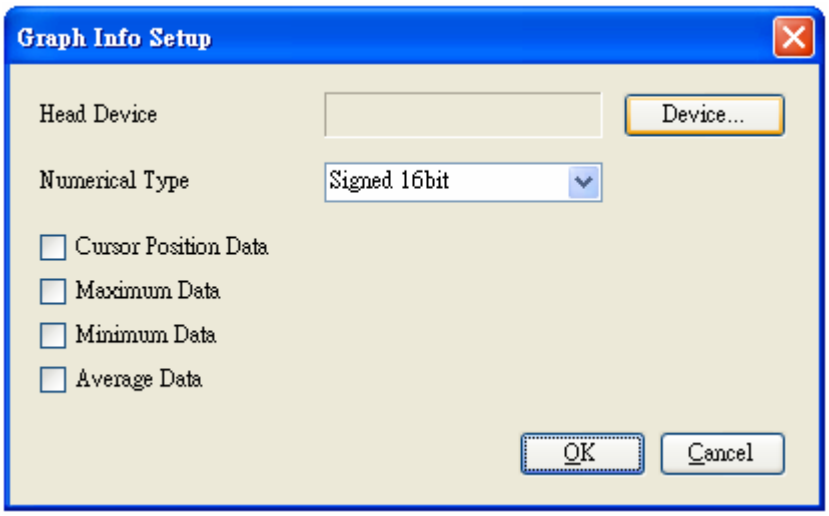

(b)

Fig. 3-6-7E-7 Biography Setting (a) Operation Setting (b) formula Setting

To set up the Graph Information, click Edit... to open the dialogue box and set the head device, numerical type, cursor position data, maximum and minimum values, and the average data. See Figure 3-6-7E-8 below.



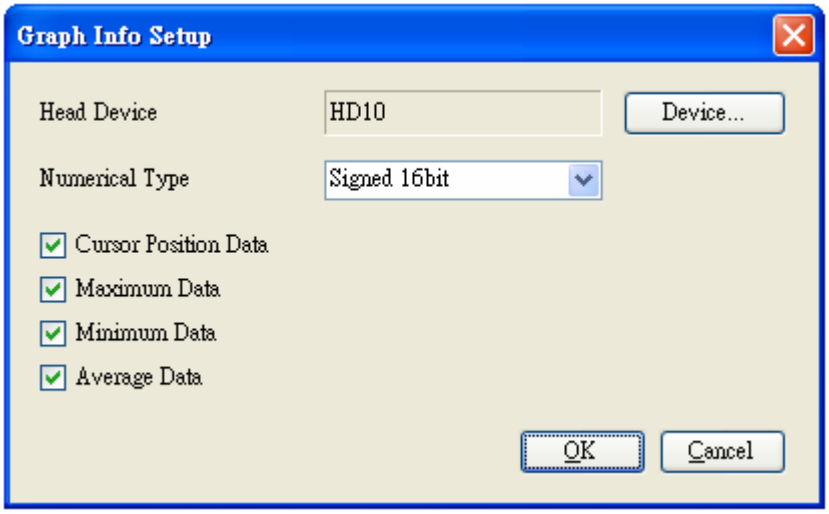

(a)




(b)

Fig. 3-6-7E-8 Biography Setting (a) Graph Information (b) Graph Information Setting

Set HD10 device as the first (starting) device, and the rest devices will then be orderly set up. The option Cursor Position Data points to device HD10, and the options Maximum Data, Minimum Data and Average Data point to HD11, HD12 and HD13, respectively. See Figure 3-6-7E-9 below.




| | Device | Remark |
|---|---|---|
| **Cursor Position Data** | **HD10** | X-axis position in the chart |
| **Maximum Data** | **HD11** | Monitoring the maximum value in the trend chart |
| **Minimum Data** | **HD12** | Monitoring the minimum value in the trend chart |
| **Average Data** | **HD13** | Monitoring the average value in the trend chart |

Fig. 3-6-7E-9 Chart Information Device

The Other properties allow the user to set the auxiliary lines and the time devices. To set up the auxiliary lines, tick the needed auxiliary line types and then set their constants, devices, line widths, line style and colors. See Figure 3-6-7E-10 below.

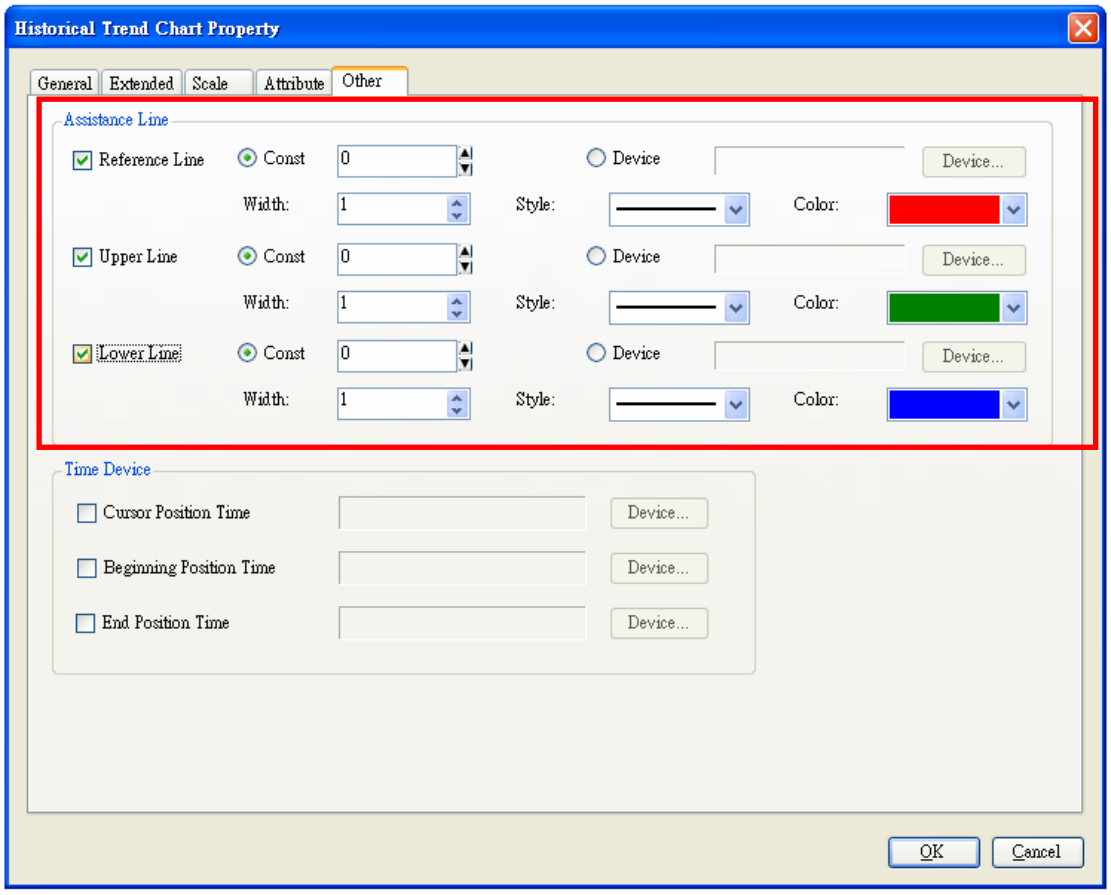
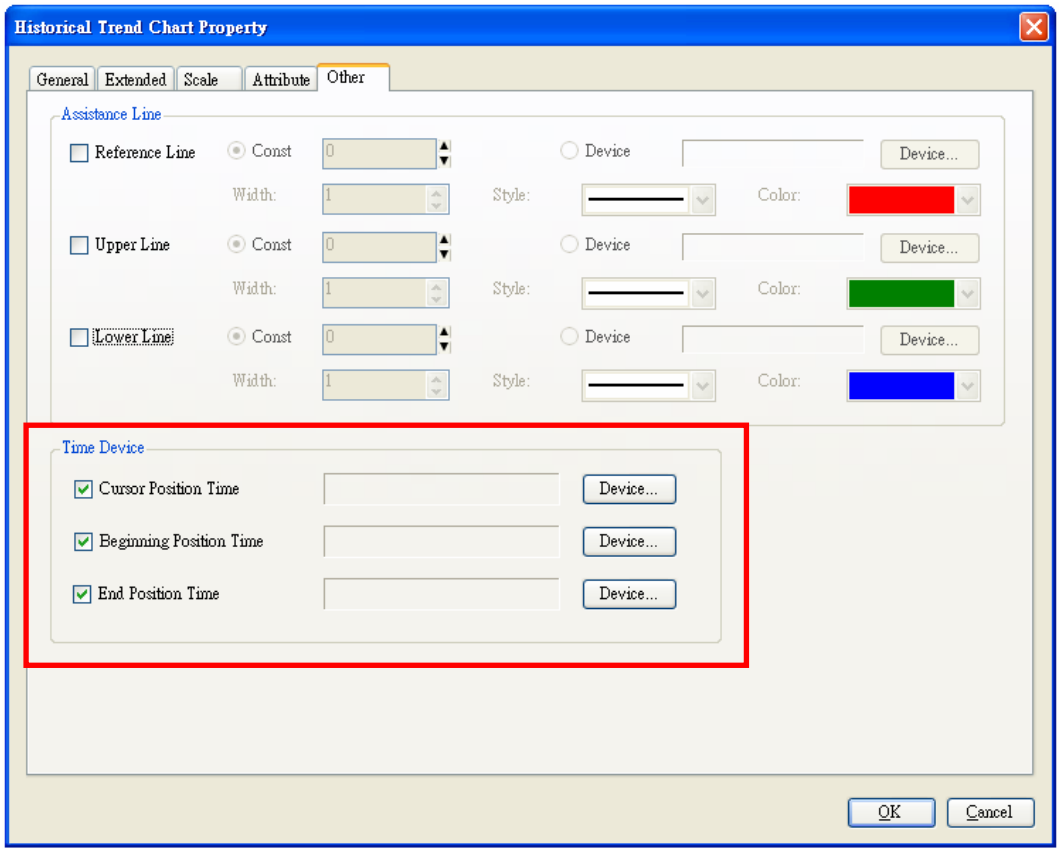
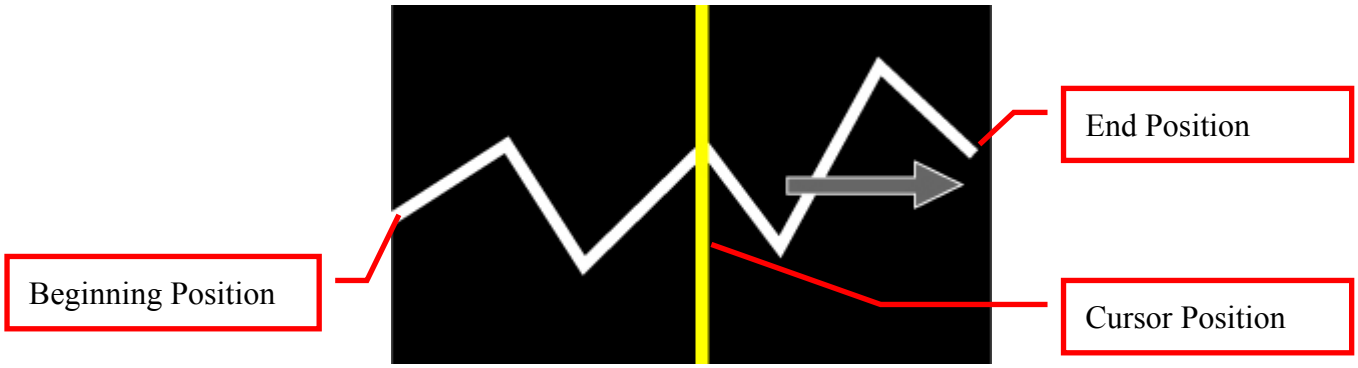



Fig. 3-6-7E-10 Auxiliary Line Setting

Tick the preferred time devices to be displayed, and set one of them as the starting device. See Figure 3-6-7E-11 below.




(a)




(b)

Fig. 3-6-7E-11 (a)Time Device Setting (b) When the chart move right

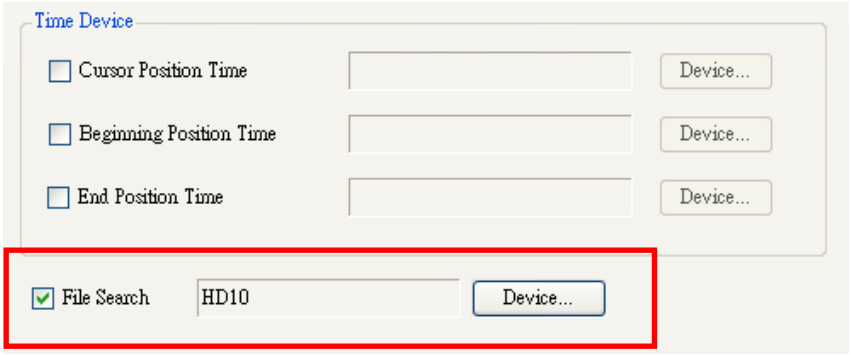
EX

Tick ☑ Cursor Position Time to set the cursor position/time device as HD100, and the rest devices will be automatically set in sequence to show the position/time-representing devices HD100, HD101, HD102 and HD103; tick ☑ Beginning Position Time and ☑ End Position Time to set the starting and ending postion/time device as HD200 and HD300, and the automatic setup of the rest time devices is the same as the above. See Table 3-6-7E-12 below for illustrations.

Table 3-6-7E-12 Time Device Setting

| | Device(Hexadecimal) | Display |
|---|---|---|
| **Cursor Position Time** | HD100 | Year/Month |
| | HD101 | Date/Time |
| | HD102 | Minute/Second |
| | HD103 | Week |
| **Beginning Position Time** | HD200 | Year/Month |
| | HD201 | Date/Time |
| | HD202 | Minute/Second |
| | HD203 | Week |
| **End Postion Time** | HD300 | Year/Month |
| | HD301 | Date/Time |
| | HD302 | Minute/Second |
| | HD303 | Week |

To set the starting device of file search settings Please check the File Search function, the device is defined as shown in Figure 3-6-7E-13.

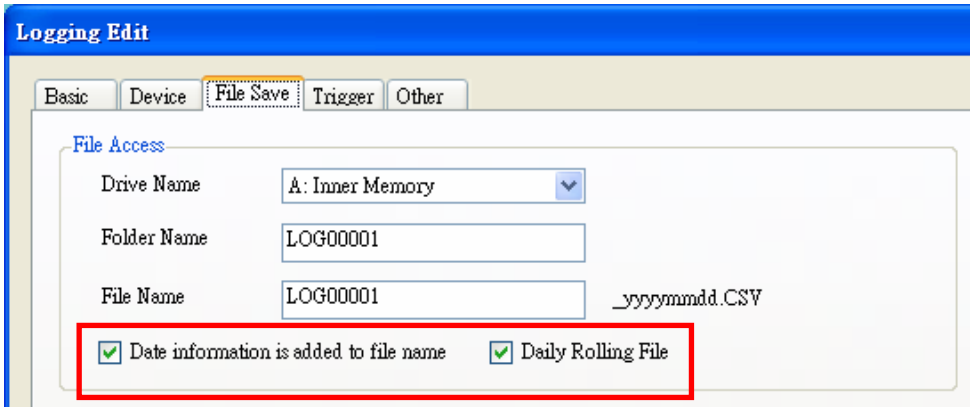



| Function | Description |
|---|---|
| **File search** | Device: Year (YYYY)，Device+1: Month (MM)，Device+2: Date (DD) |

Figure 3-6-7E-13: File search setup

NOTE

- Be sure to set logging setup → Date information is added to file name and Daily Rolling File of file save settings when using the file search function.



Based on user input the year, month and date, in the state of the cursor on, after typing click "File Search" button of the historical trend chart, the historical trend chart will shows the date's chart, as in Figure 3 - Fig 6-7E-14.

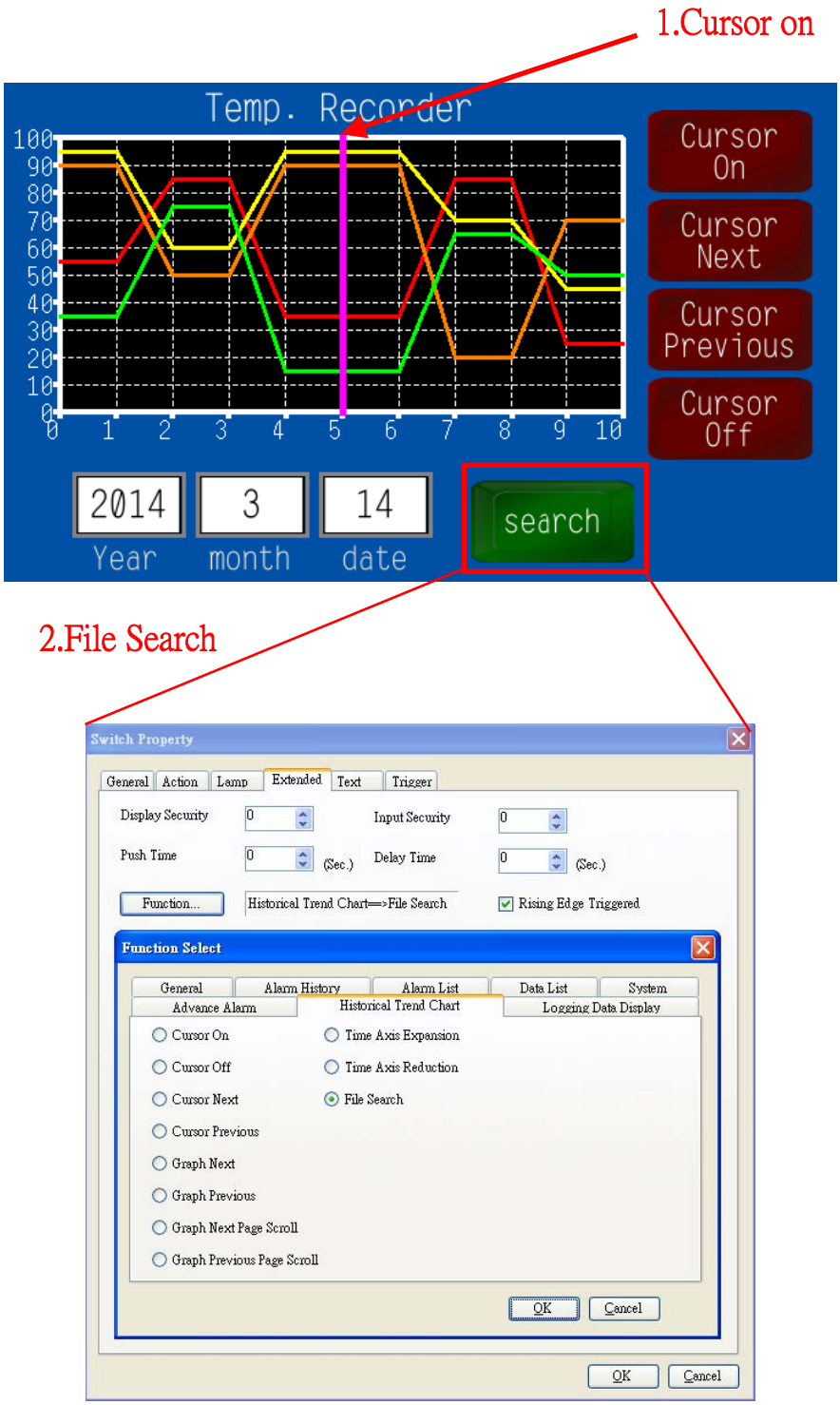



Figure 3-6-7E-14: File search

NOTE

- To set the properties, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.
- In the setting of graph information and time devices, tick the Display Cursor option of the switch functions under the Historical Trend Chart tab. See Figure 3-6-7E-15 below.

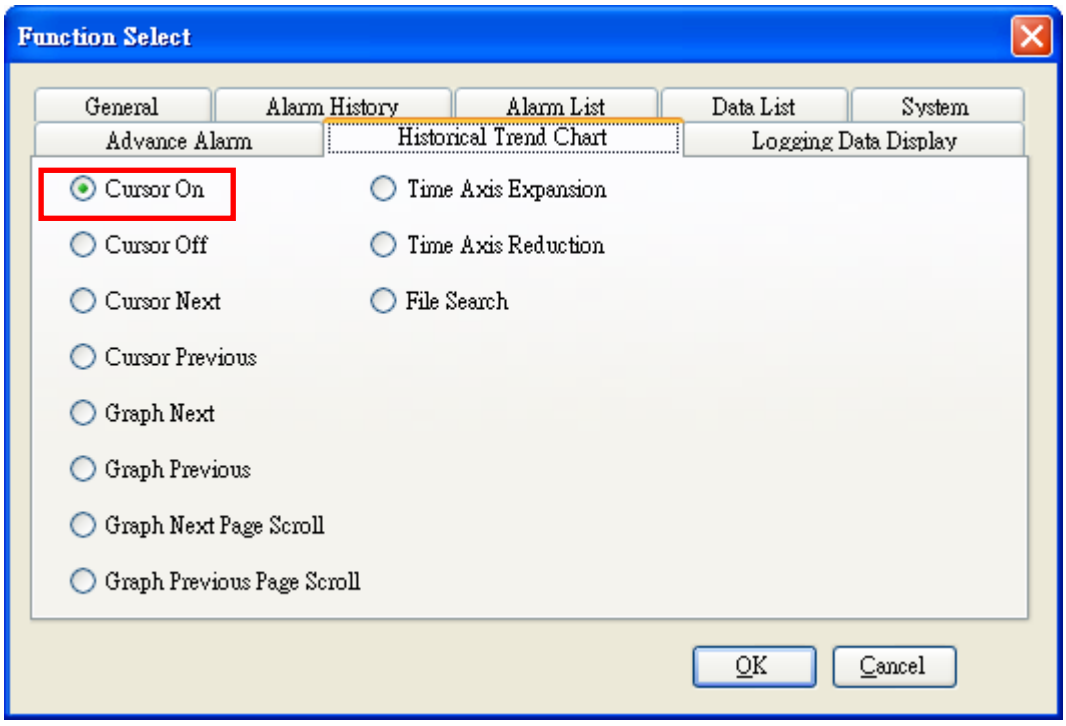



Fig. 3-6-7E-15 Options of Switch Functions

## f. Statistic Bar Chart

To set up a statistic bar chart, click Unit and click Chart Dispaly and then click Statistics Bar Chart, or directly click the shortcut, and in the editing window left click the mouse to set up the object. Click the object and then double left click the mouse to open the property window of the object and make the setting.

The General property setting allows the user to set the picture pattern, display color, transparency and line pattern. See Figure 3-6-7F-1 below.

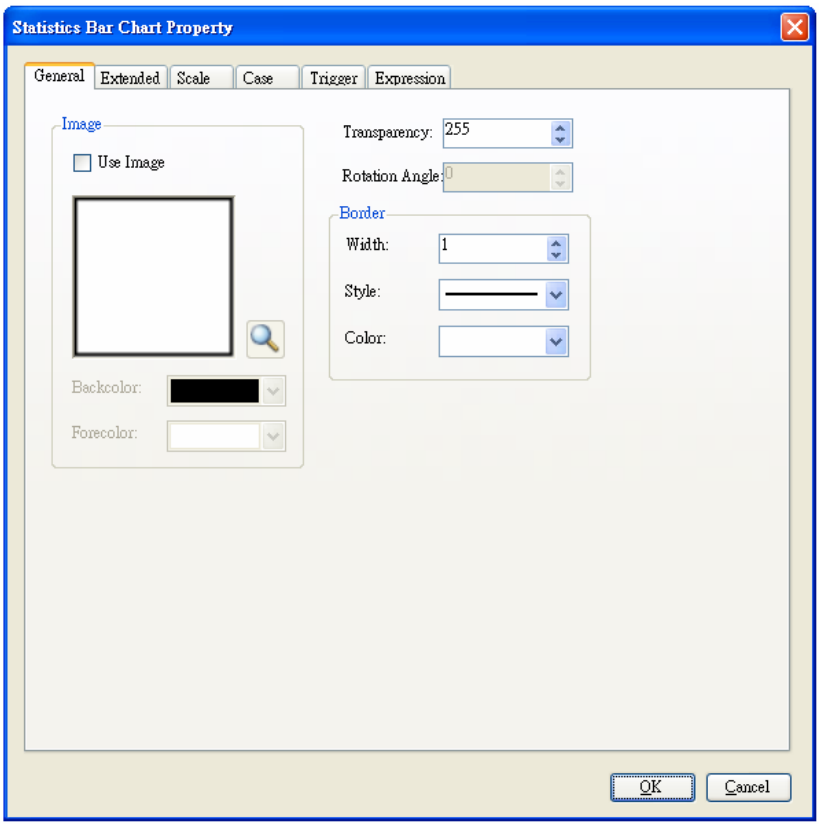



Fig. 3-6-7F-1 General Property Setting

Tick the option Use Image to change the picture. Click to open the picture library and select a desired picture. For detailed instructions, please see Section 3.4.2 Image Library.

The Extension properties allow the user to set the security level, direction and sorting order. Figure 3-6-7F-2 below demonstrates the setting of the object's security level. The security level (display) is ranged from 0 (lowest privilege) to 15 (highest privilege). The default security levels of the edit software and the system are both 0.

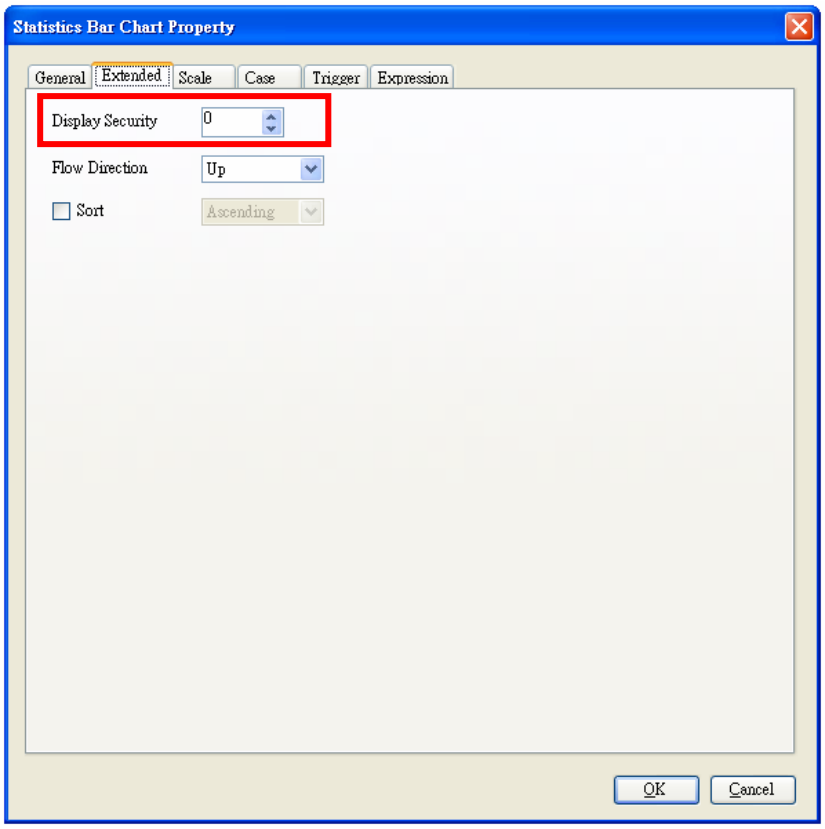



Fig. 3-6-7F-2 Security Levels

The Scale properties allow the user to set the scale display, color, font size and number of scales. See Figure 3-6-7A-33-6-7F-3 below.

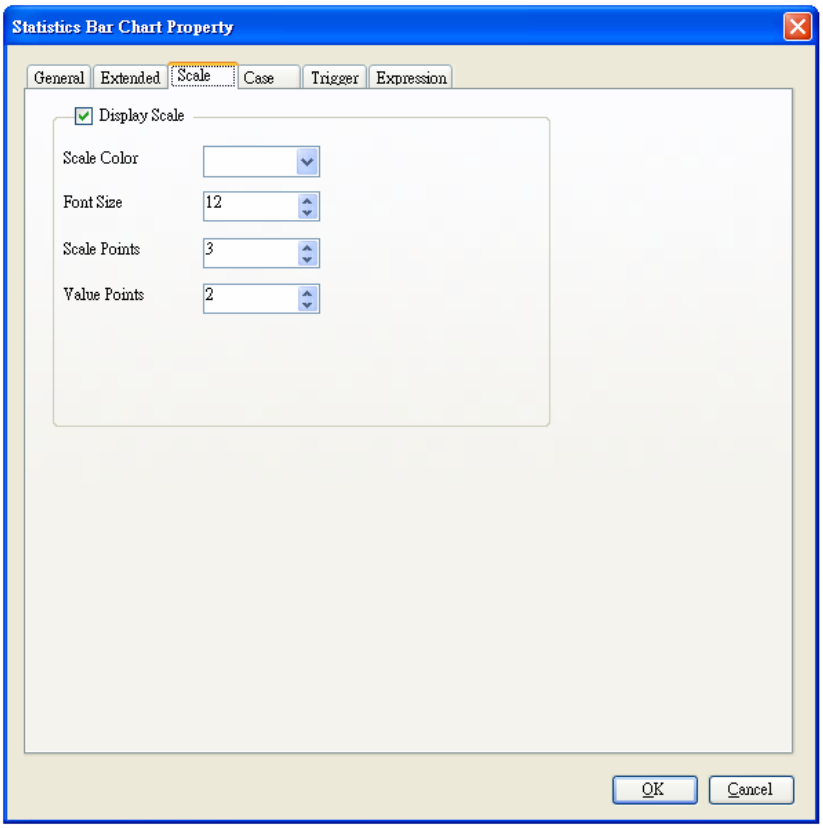
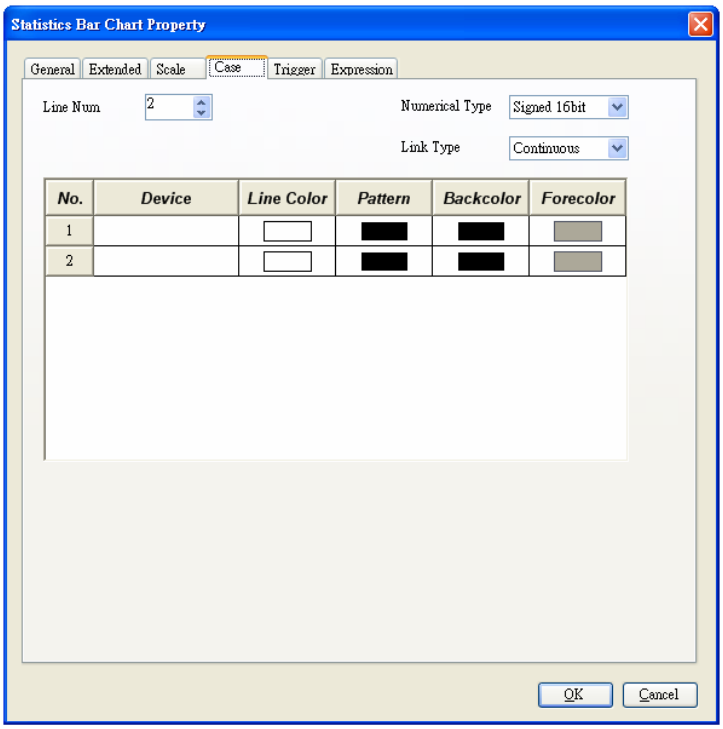
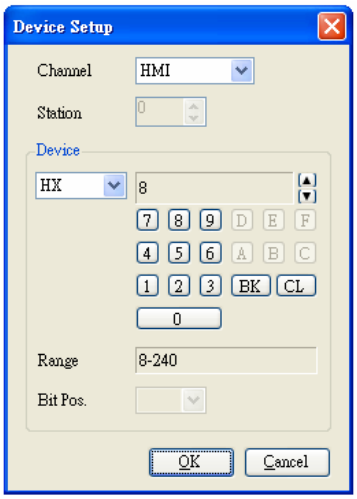



Fig. 3-6-7F-3 Scale Attributes

Figure 3-6-7F-4 below is the Range Setup window. Set the number of ranges and they will be displayed in the table beneath for the user to set the devices, lines and colors. Click to open the device setup dialogue box and change the devices.



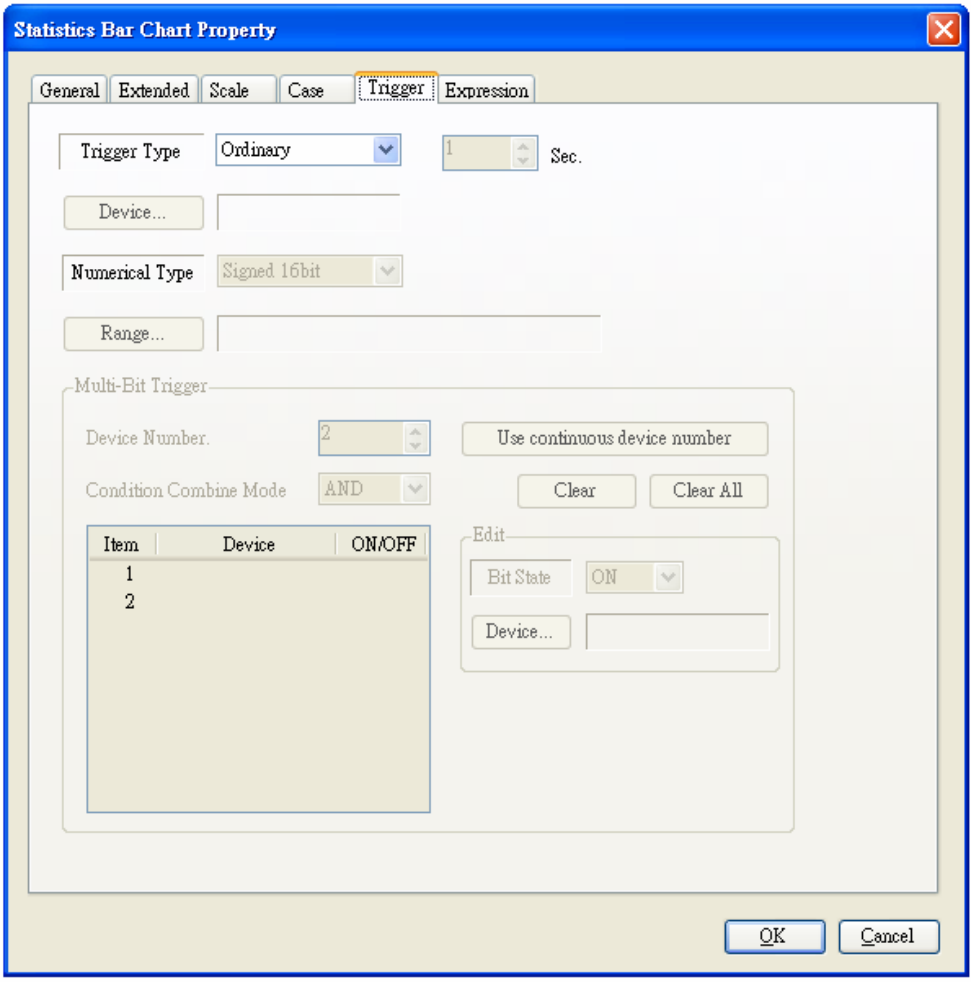

(a)




(b)

Fig. 3-6-7F-4 Range Setting (a) Edit Window (b) Setting Device

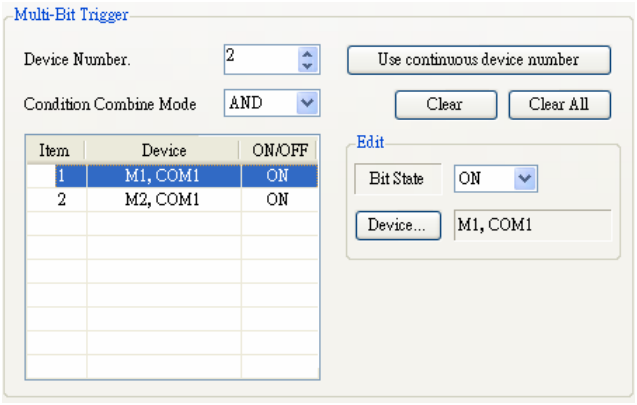
The Trigger property setting allows the user to change the trigger pattern. See Figure 3-6-7F-5 below.



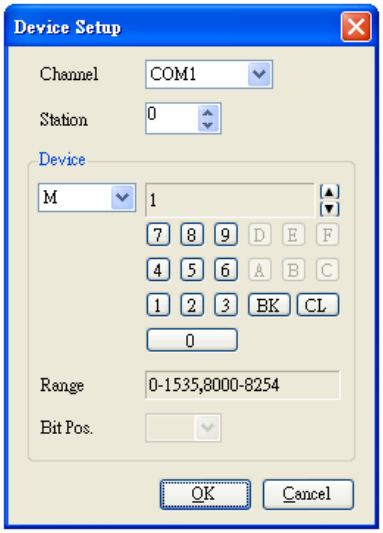

| Trigger Pattern | Description |
|---|---|
| **Ordinary** | No triggering pattern |
| **ON** | Action is taken only when the device in ON |
| **OFF** | Action is taken only when the device in OFF |
| **Range** | Action is taken only when the device value is within this range. |
| **Multi-Bit Trigger** | Set two or more devices (up to 8), and only when all the devices meet the condition will the action be taken. |
| **Rise** | Action is taken only when the device is switched from OFF to ON. |
| **Fall** | Action is taken only when the device is switched from ON to OFF. |
| **Sampling** | Action is taken only after the sampling time elapses. |

Fig. 3-6-7F-5 Trigger Pattern Setting

To set a multi-Bit trigger with 2 devices, click Device... to open the device setting window and set the trigger devices as M1 and M2. Confirm the setting and have the file sent to HMI. So, only when M1 and M2 are both ON will the switch actions be started. See Figure 3-6-7F-6 below.



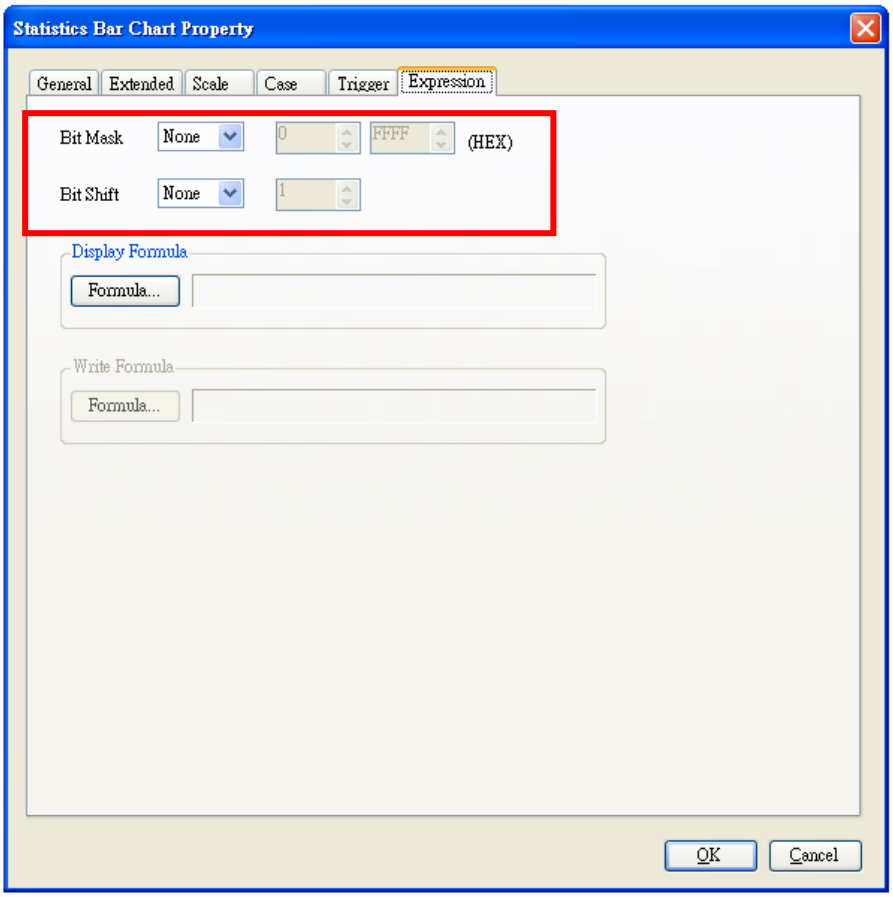

(a)




(b)

Fig. 3-6-7F-6 Multi-Bit Trigger (a) Setup of Multi-Bit Trigger (b) Device Setup

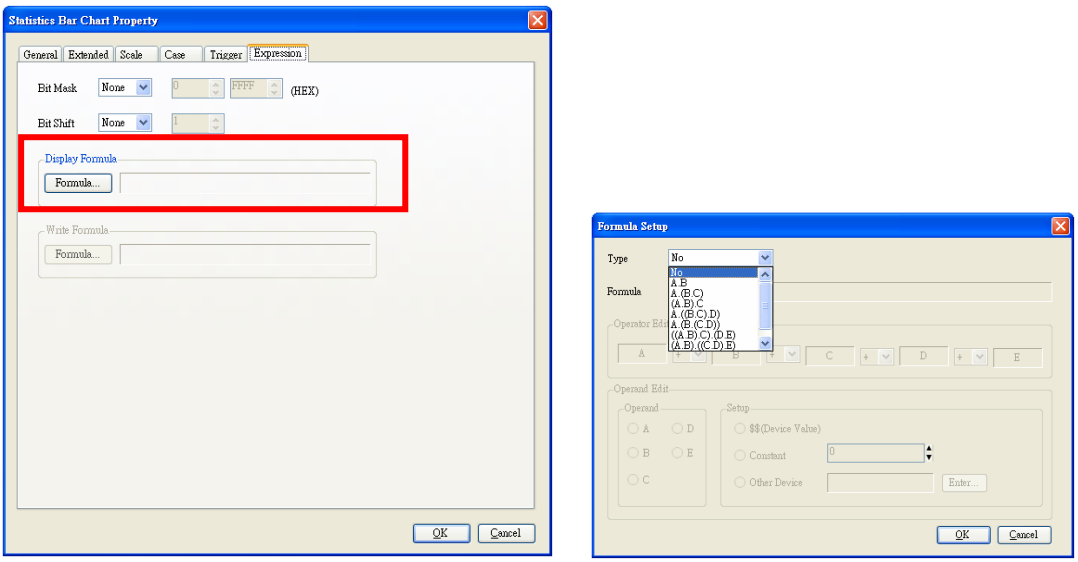
The Numeric Operation properties allow the user to set the value, bit mask, bit shift, and display formula. The software uses hexadecimal input. See Figure 3-6-7F-7 below.




| Name | | Description |
|---|---|---|
| **Bit Mask** | **None** | No Bit mask. |
| | **AND** | Values are converted to binary for AND operation.<br>**EX~** Decimal value 8 ANDing with A gets 8. |
| | **OR** | Values are converted to binary for OR operation.<br>**EX~** Decimal value 8 ORing with A gets 10. |
| | **XOR** | Values are converted to binary for XOR operation.<br>**EX~** Decimal value 8 XORing with A gets 2. |
| **Bit Shift** | **None** | No Bit offset. |
| | **<<** | Values are converted to binary for left shift.<br>**EX~** Decimal value 8 left shifting 2 bits becomes 32. |
| | **>>** | Values are converted to binary for right shift.<br>**EX~** Decimal value 8 left shifting 2 bits becomes 2. |

Fig. 3-6-7F-7 Logic Operations

To set formula display, click Formula... to open the formula setup window, and pick up a preferred formula pattern, and then select from the A~E options, and then select $$ (device value) and any one of the constant or other device, and then select an operator. Confirm to finish the formula setting. See Figure 3-6-7F-8 below.




(a) (b)

Fig. 3-6-7F-8 Displaying formula (a) Setting formula (b) formula Set

NOTE

- To set the properties, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.

## g. Statistic Pie Chart

To set up a statistics pie chart, click Unit and click Chart Dispaly and then click Statistics Pie Chart, or directly click the shortcut, and in the editing window left click the mouse to set up the object. Click the object and then double left click the mouse to open the property window of the object and make the setting.

The General property setting allows the user to set the picture pattern, display color, transparency, line pattern, and background color. See Figure 3-6-7G-1 below.

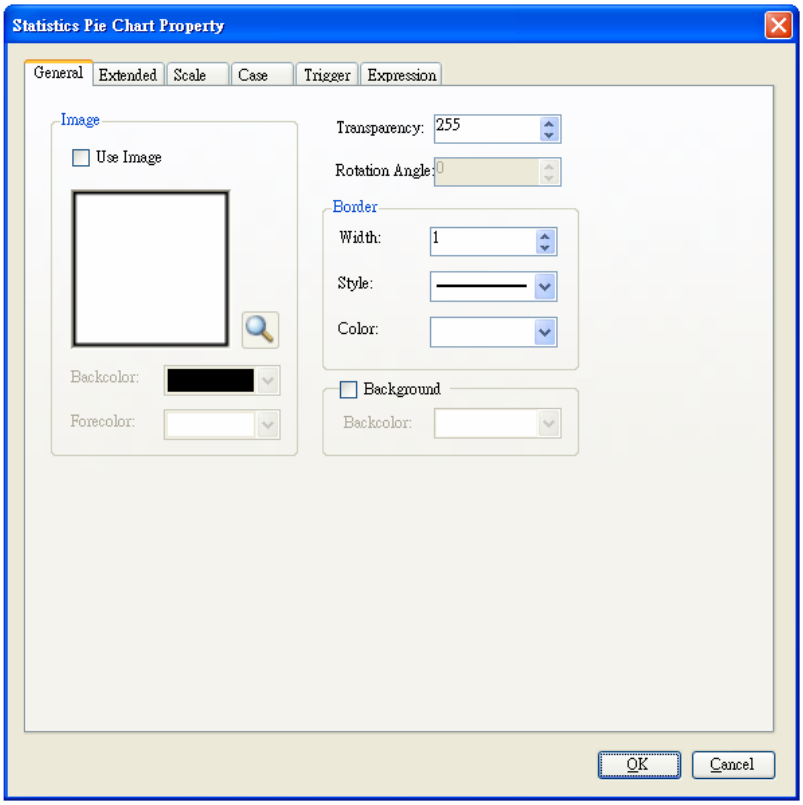



Fig. 3-6-7G-1 General Property Setting

Tick the option Use Image to change the picture. Click to open the picture library and select a desired picture. For detailed instructions, please see Section 3.4.2 Image Library.

The Extension property setting allows the user to change the security level and blinking feature. Figure 3-6-7G-2 below demonstrates the setting of the object's security level. The security level (display) is ranged from 0 (least privilege) to 15 (highest privilege). The default security levels of the edit software and the system are both 0.

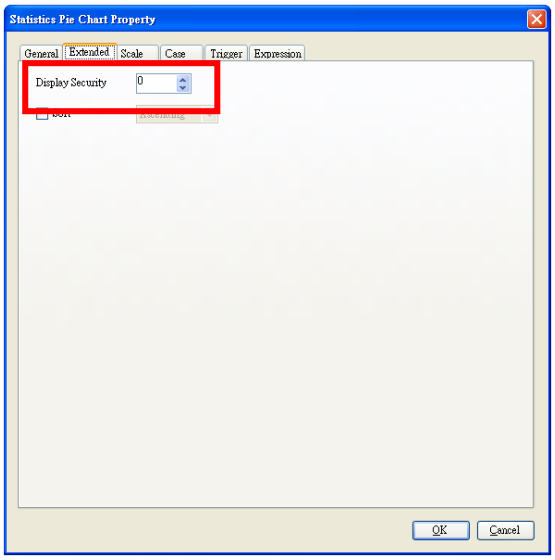



Fig. 3-6-7G-2 Security Levels

The Scale properties allow the user to set the scale display, color, font size and number of scales. See Figure3-6-7G-3 below.

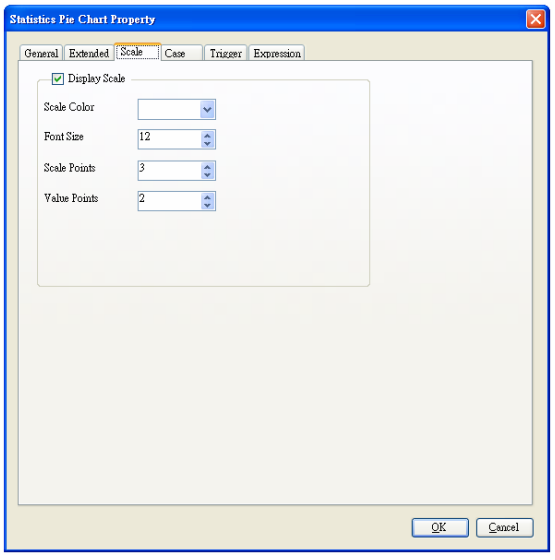
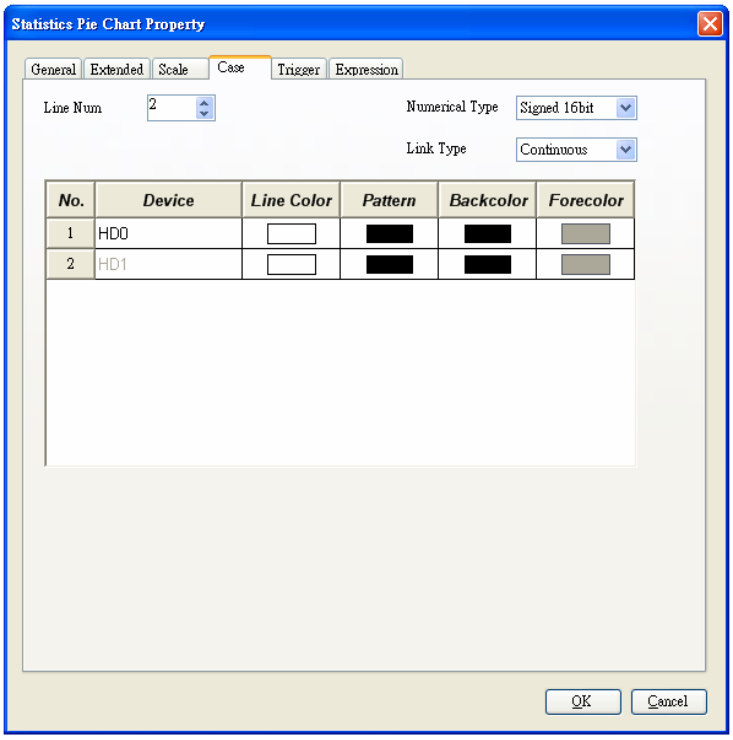



Fig. 3-6-7G-3 Scale Attributes

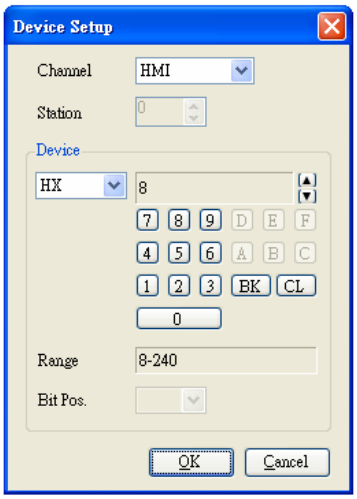


EC series

Figure 3-6-7G-4 below is the Range Setup window. Set the number of ranges and they will be displayed in the table beneath for the user to set the devices, lines, image patterns, and colors. Click to open the device dialogue box and change the device.



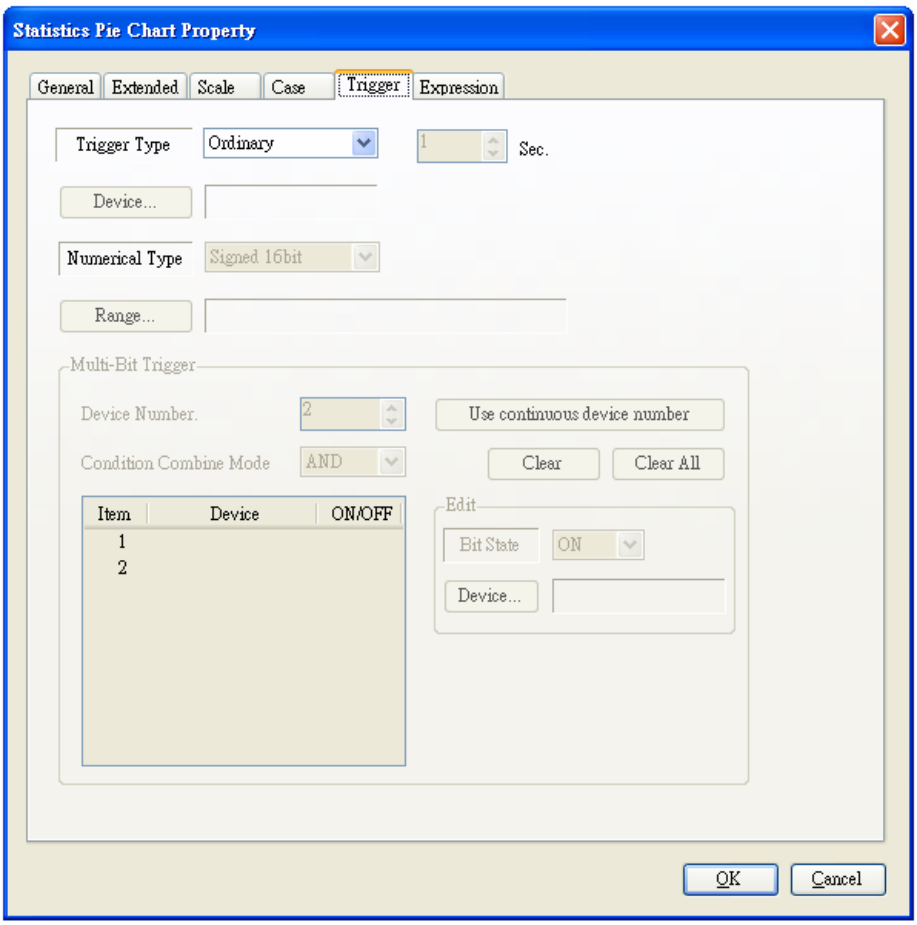

(a)




(b)

Fig. 3-6-7G-4 Range Setting (a) Edit Window (b) Setting Device

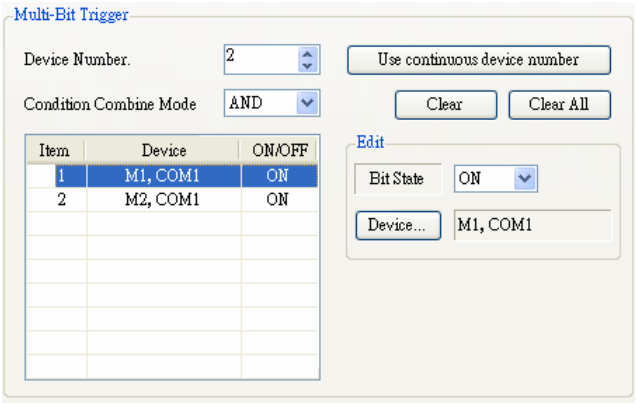
The Trigger property setting allows the user to set the conditions of the trigger pattern. See Figure 3-6-7G-5 below.



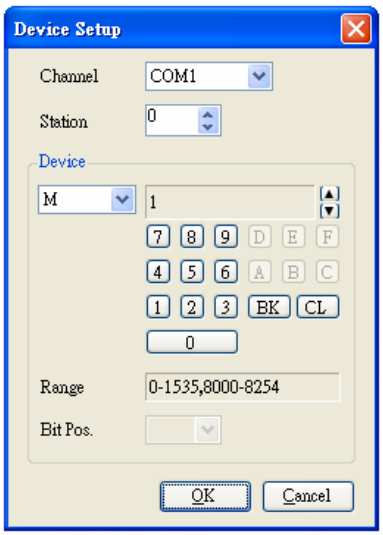

| Trigger Pattern | Description |
|---|---|
| **Ordinary** | No triggering pattern |
| **ON** | Action is taken only when the device in ON |
| **OFF** | Action is taken only when the device in OFF |
| **Range** | Action is taken only when the device value is within this range. |
| **Multi-Bit Trigger** | Set two or more devices (up to 8), and only when all the devices meet the condition will the action be taken. |
| **Rise** | Action is taken only when the device is switched from OFF to ON. |
| **Fall** | Action is taken only when the device is switched from ON to OFF. |
| **Sampling** | Action is taken only after the sampling time elapses. |

Fig. 3-6-7G-5 Trigger Pattern Setting

To set the trigger pattern as multi-Bit trigger with 2 devices, click Device... to open the device setting window and set the trigger devices as M1 and M2. Confirm the setting and have the file sent to HMI. So, only when M1 and M2 are both ON will the switch actions be started. See Figure 3-6-7G-6 below.



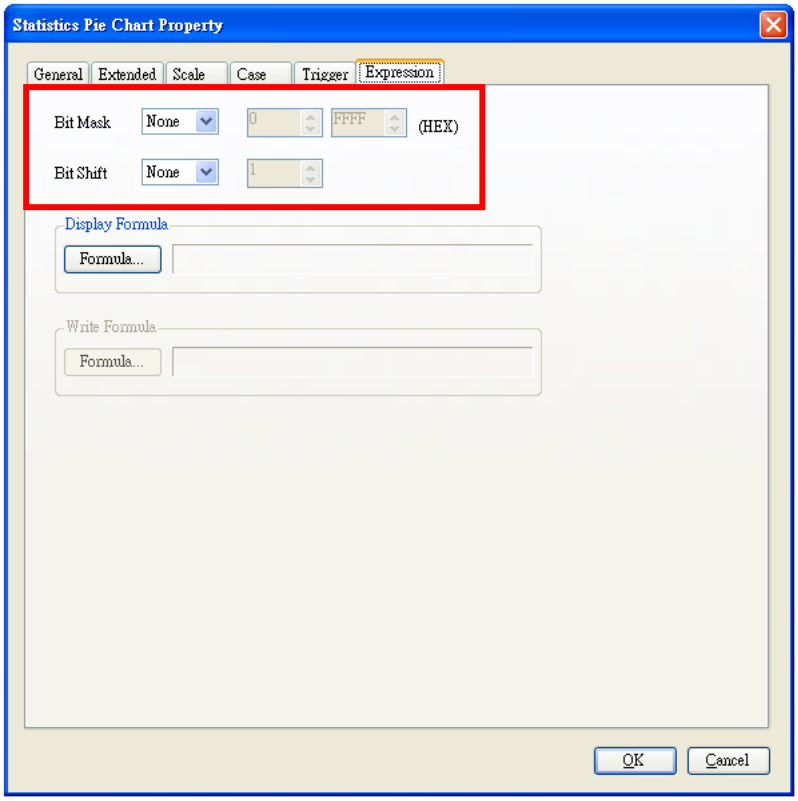

(a)




(b)

Fig. 3-6-7G-6 Multi-Bit Trigger (a) Setup of Multi-Bit Trigger (b) Device Setup

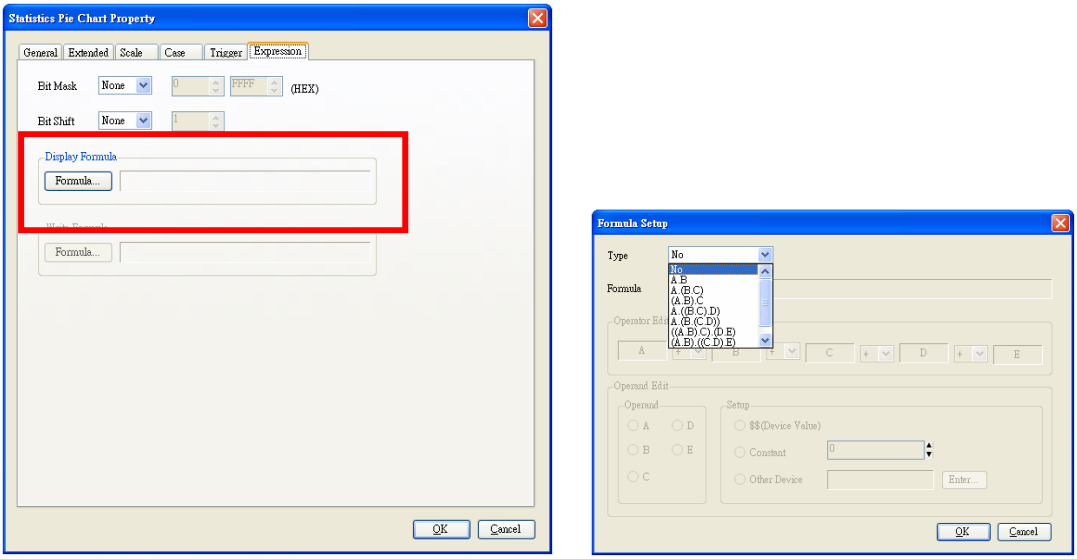
The Numeric Operation properties allow the user to set the value, bit mask, bit shift, and display formula s. The system uses hexadecimal input. See Figure 3-6-7G-7 below.




| Name | | Description |
|---|---|---|
| **Bit Mask** | **None** | No Bit mask. |
| | **AND** | Values are converted to binary for AND operation.<br>**EX~** Decimal value 8 ANDing with A gets 8. |
| | **OR** | Values are converted to binary for OR operation.<br>**EX~** Decimal value 8 ORing with A gets 10. |
| | **XOR** | Values are converted to binary for XOR operation.<br>**EX~** Decimal value 8 XORing with A gets 2. |
| **Bit Shift** | **None** | No Bit offset. |
| | **<<** | Values are converted to binary for left shift.<br>**EX~** Decimal value 8 left shifting 2 bits becomes 32. |
| | **>>** | Values are converted to binary for right shift.<br>**EX~** Decimal value 8 left shifting 2 bits becomes 2. |

Fig. 3-6-7G-7 Logic Operations

To set formula display, click Formula... to open the formula setup window, and pick up a preferred formula pattern, and then select from the A~E options, and then select $$ (device value) and any one of the constant or other device, and then select an operator. Confirm to finish the formula setting. See Figure 3-6-4A-133-6-7G-8 below.




(a) (b)

Fig. 3-6-7G-8 Displaying formula (a) Setting formula (b) formula Setting

NOTE

- To set the properties, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.

## h. Level Chart

To set up a level chart, click Unit and click Chart Dispaly and then click Level Chart, or directly click the shortcut, and in the editing window left click the mouse to set up the object. Click the object and then double left click the mouse to open the property window of the object and make the setting.

The General property setting allows the user to set the picture pattern, display color, transparency, line pattern, and background color. See Figure 3-6-7H-1 below.

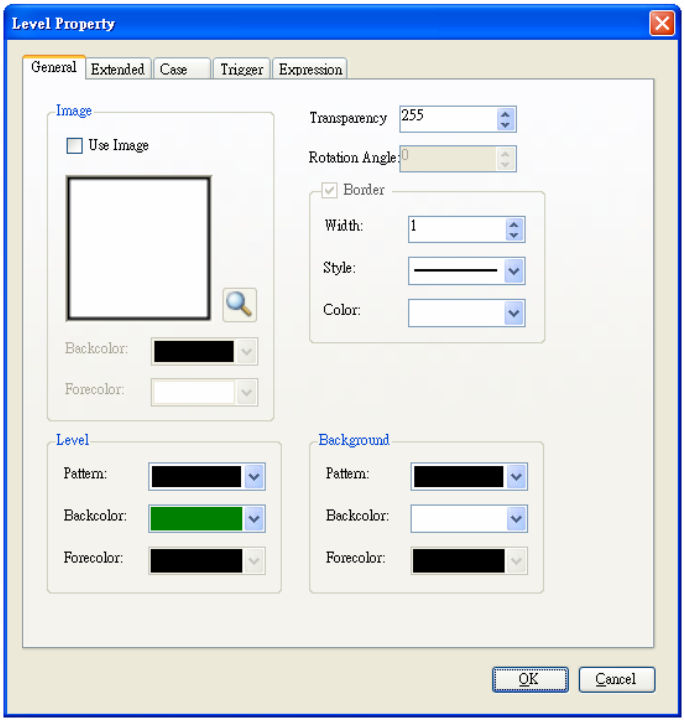



Fig. 3-6-7H-1 General Property Setting

Tick the option Use Image to change the picture. Click to open the picture library and select a desired picture. For detailed instructions, please see Section 3.4.2 Image Library.



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The Extension properties allow the user to set the security level, device, numeric type, meter direction, and horizontal/vertical upper and lower limits. Figure 3-6-7H-2 below demonstrates the setting of the object's security level. The security level (display) is ranged from 0 (least privilege) to 15 (highest privilege). The default security levels of the edit software and the system are both 0.

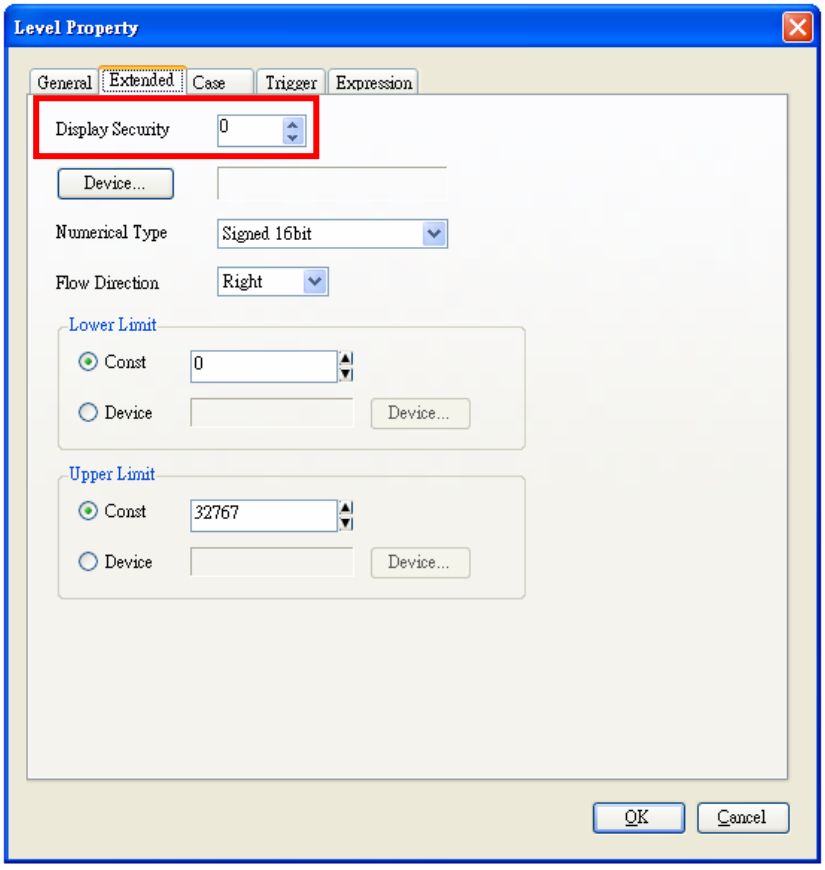
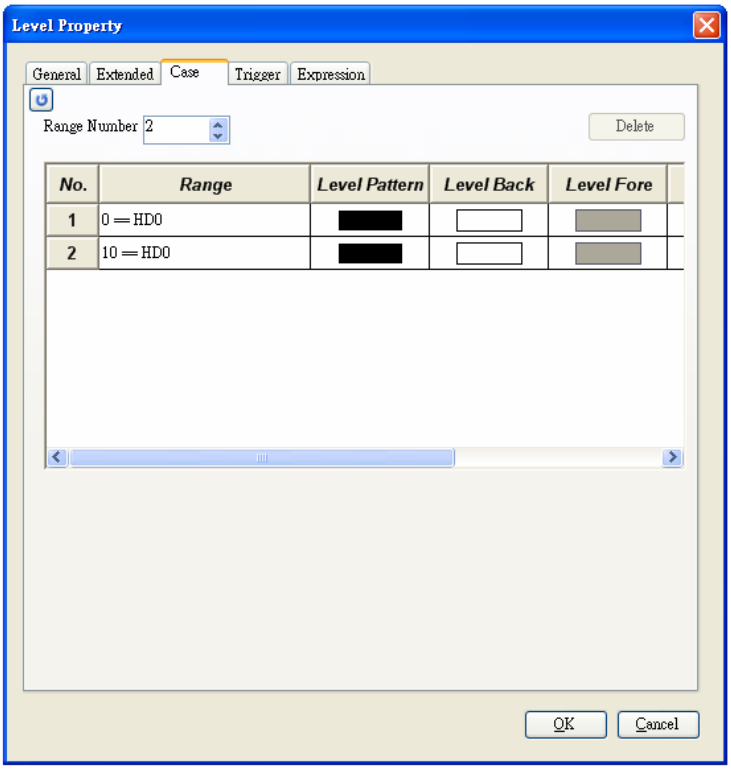
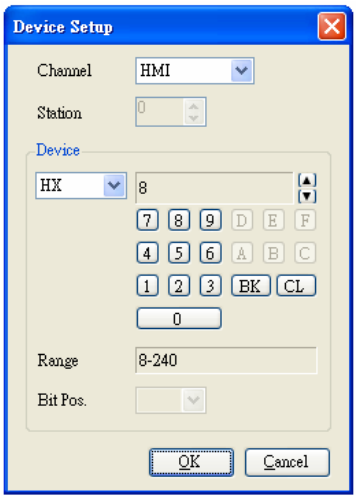



Fig. 3-6-7H-2 Security Levels

Figure 3-6-7H-3 below is the Range setup window. Set the number of ranges and they will be displayed in the table beneath for the user to set the device, color and pattern. Click to open the dialogue box and set the device.



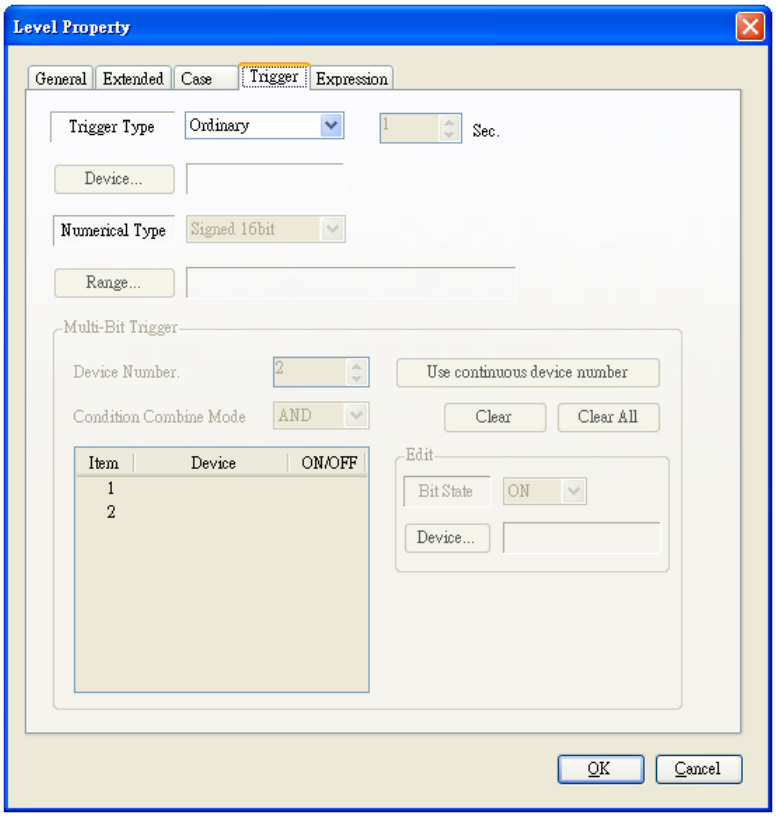

(a)




(b)

Fig. 3-6-7H-3 Range Setting (a) Edit Window (b) Setting Device

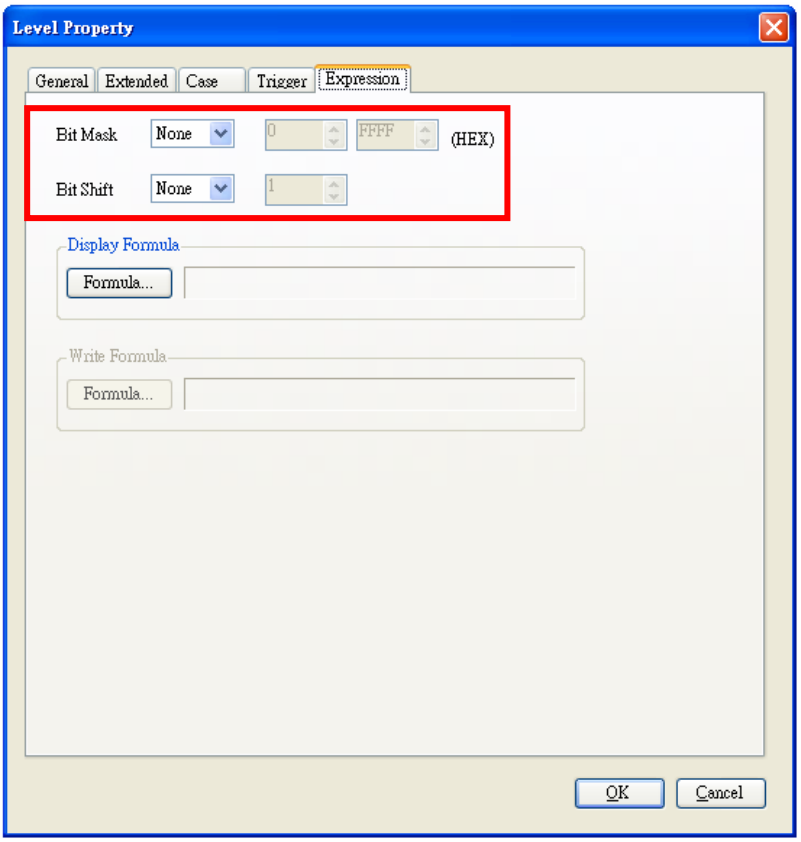
The Trigger properties allow the user to set trigger pattern. See Figure 3-6-7H-4 below.




| Trigger Pattern | Description |
|---|---|
| **Ordinary** | No triggering pattern |
| **ON** | Action is taken only when the device in ON |
| **OFF** | Action is taken only when the device in OFF |
| **Range** | Action is taken only when the device value is within this range. |
| **Multi-Bit Trigger** | Set two or more devices (up to 8), and only when all the devices meet the condition will the action be taken. |
| **Rise** | Action is taken only when the device is switched from OFF to ON. |
| **Fall** | Action is taken only when the device is switched from ON to OFF. |
| **Sampling** | Action is taken only after the sampling time elapses. |

Fig. 3-6-7H-4 Trigger Pattern Setting

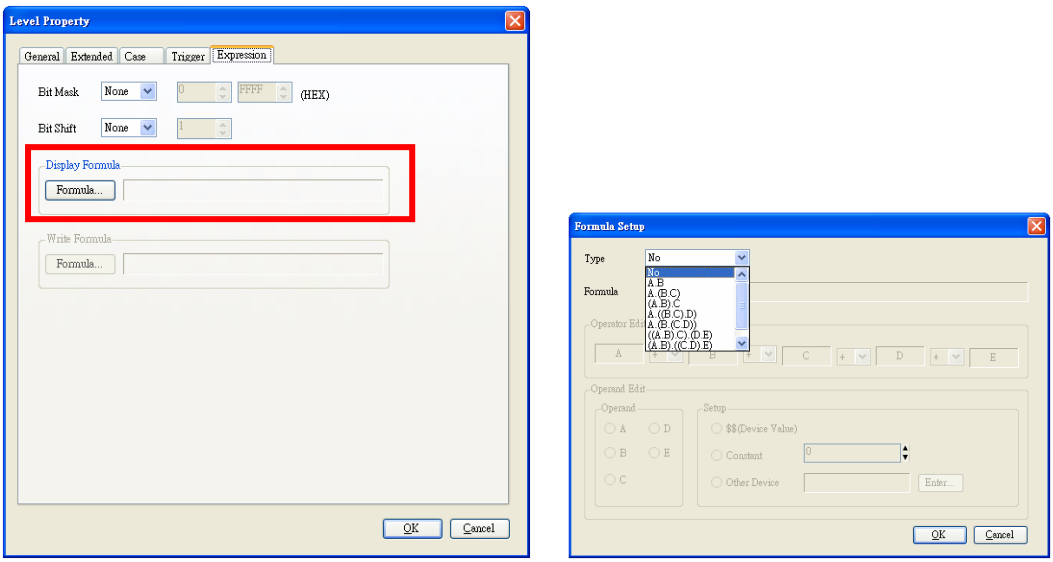
The Numeric Operation properties allow the user to set the value, bit mask, bit shift, and display formula . The system uses hexadecimal input. See Figure 3-6-7H-5 below.




| Name | | Description |
|---|---|---|
| **Bit Mask** | **None** | No Bit mask. |
| | **AND** | Values are converted to binary for AND operation.<br>**EX~** Decimal value 8 ANDing with A gets 8. |
| | **OR** | Values are converted to binary for OR operation.<br>**EX~** Decimal value 8 ORing with A gets 10. |
| | **XOR** | Values are converted to binary for XOR operation.<br>**EX~** Decimal value 8 XORing with A gets 2. |
| **Bit Shift** | **None** | No Bit offset. |
| | **<<** | Values are converted to binary for left shift.<br>**EX~** Decimal value 8 left shifting 2 bits becomes 32. |
| | **>>** | Values are converted to binary for right shift.<br>**EX~** Decimal value 8 left shifting 2 bits becomes 2. |

Fig. 3-6-7H-5 Logic Operations

To set formula display, click Formula... to open the formula setup window, and pick up a preferred formula pattern, and then select from the A~E options, and then select $$ (device value) and any one of the constant or other device, and then select an operator. Confirm to finish the formula setting. See Figure3-6-7H-6 below.




(a) (b)

Fig. 3-6-7H-6 Displaying formula (a) Setting formula (b) formula Set

NOTE

- To set the properties, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.

## i. Panel Meter

To set up a panel meter, click Unit and click Chart Dispaly and then click Panel Meter, or directly click the shortcut, and in the editing window left click the mouse to set up the object. Click the object and then double left click the mouse to open the property window of the object and make the setting.

The General property setting allows the user to set the picture pattern, display color, transparency, line pattern, and background color. See 3-6-7I-1 below.

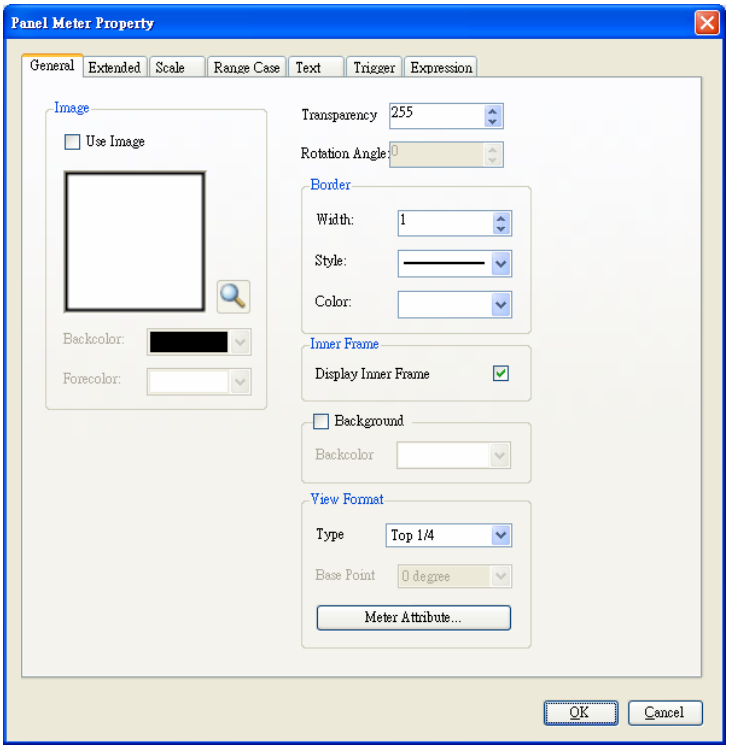



Fig. 3-6-7I-1 General Property Setting

Tick the option Use Image to change the picture. Click to open the picture library and select a desired picture. For detailed instructions, please see Section 3.4.2 Image Library.

To change the panel meter display pattern, make the setting in the window, as shown in the following Figure 3-6-7I-2. The setting is described in the following Table 3-6-7I-3.

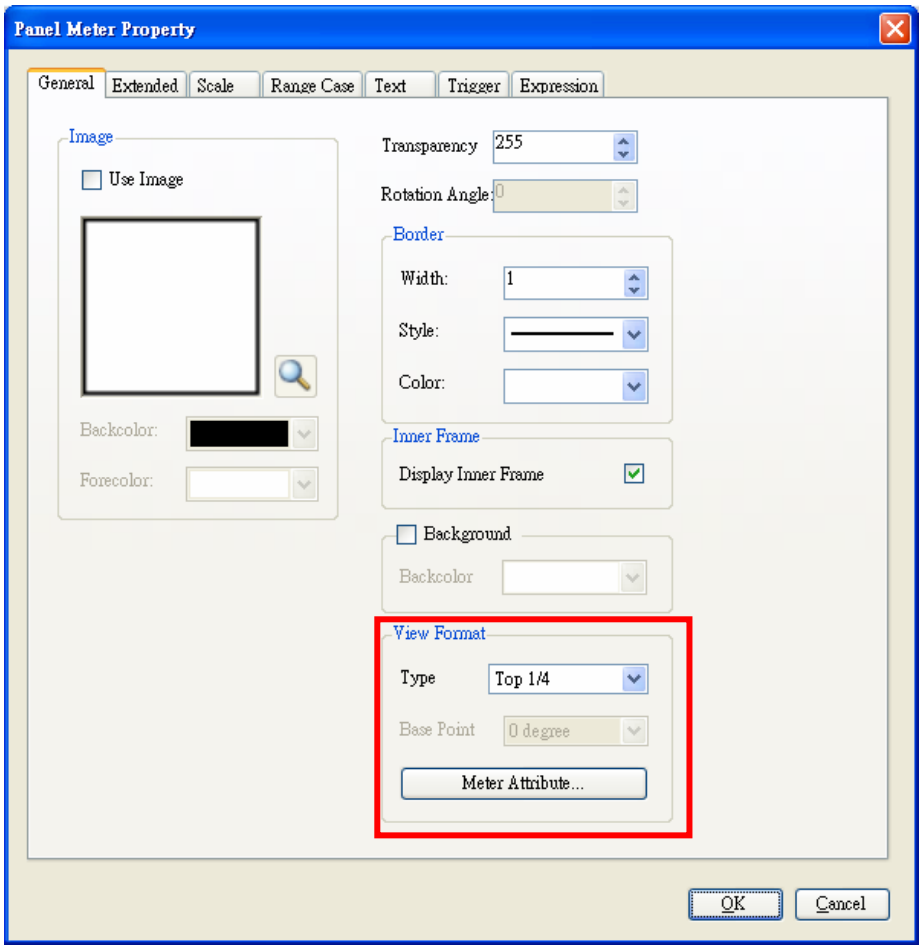
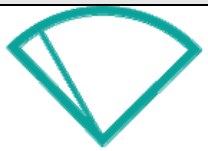



Fig. 3-6-7I-2 Display Pattern Setting

Table 3-6-7I-3 Display Patterns

| Patterns | | | |
|---|---|---|---|
| Top 1/4 |  | Bottom 1/4 | |
| Left Side 1/4 | | Right Side 1/4 | |
| Upper Left 1/4 | | Upper Right 1/4 | |
| Lower Left 1/4 | | Lower Right 1/4 | |
| Top 1/2 | | Bottom 1/2 | |
| Left Side 1/2 | | Right Side 1/2 | |
| 3/4 | | All | |



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To change the panel meter settings, click Meter Attribute... to open the panel meter property setting window. See Figure 3-6-7I-4 below.

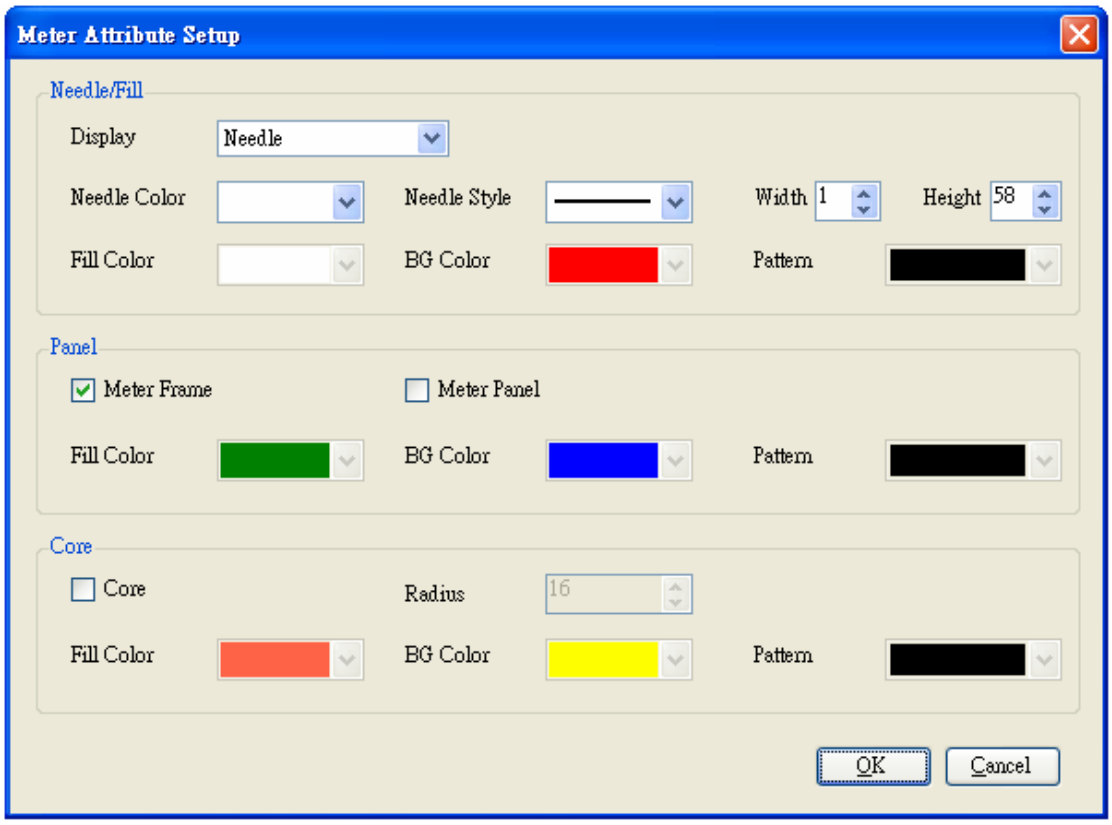



Fig. 3-6-7I-4 Panel Meter Property Setting

The Extension properties allow the user to set the security level, device, numeric type, direction, and horizontal/vertical upper and lower limits. Figure 3-6-7I-5 below demonstrates the setting of the object's security level. The security level (display) is ranged from 0 (lowest privilege) to 15 (highest privilege). The default security levels of the edit software and the system are both 0.

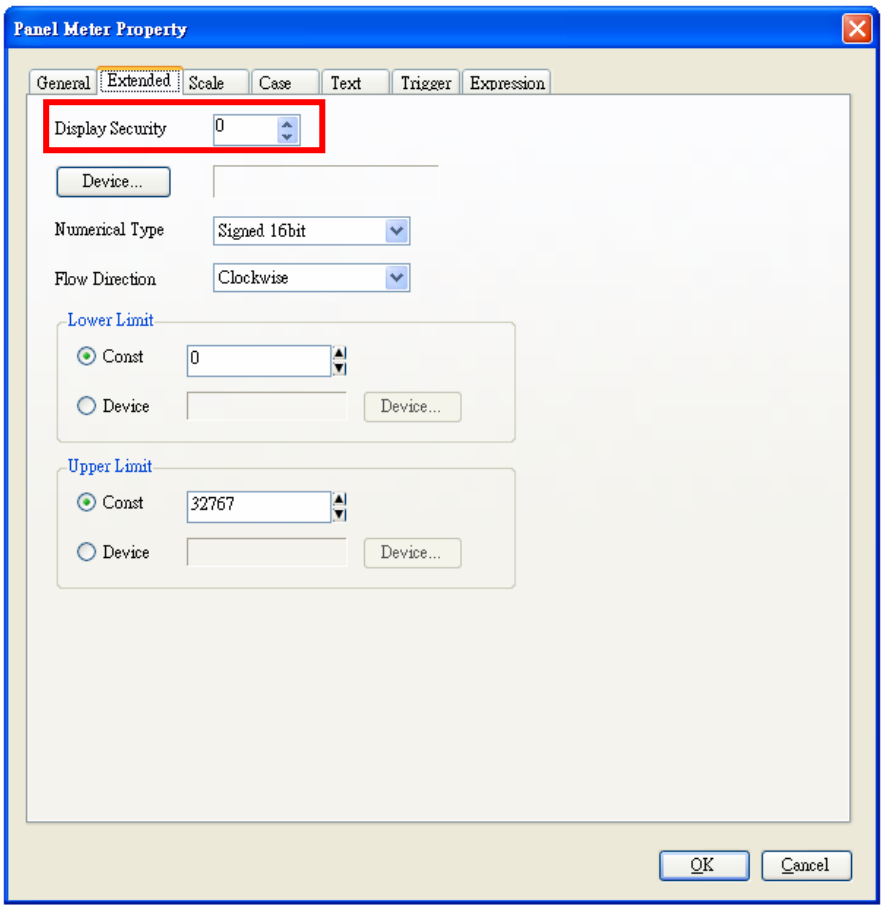



Fig. 3-6-7I-5 Security Levels

The Scale properties allow the user to set the scale display, color, font size, number of scales, and the maximum and minimum scale values. See Figure 3-6-7I-6 below.

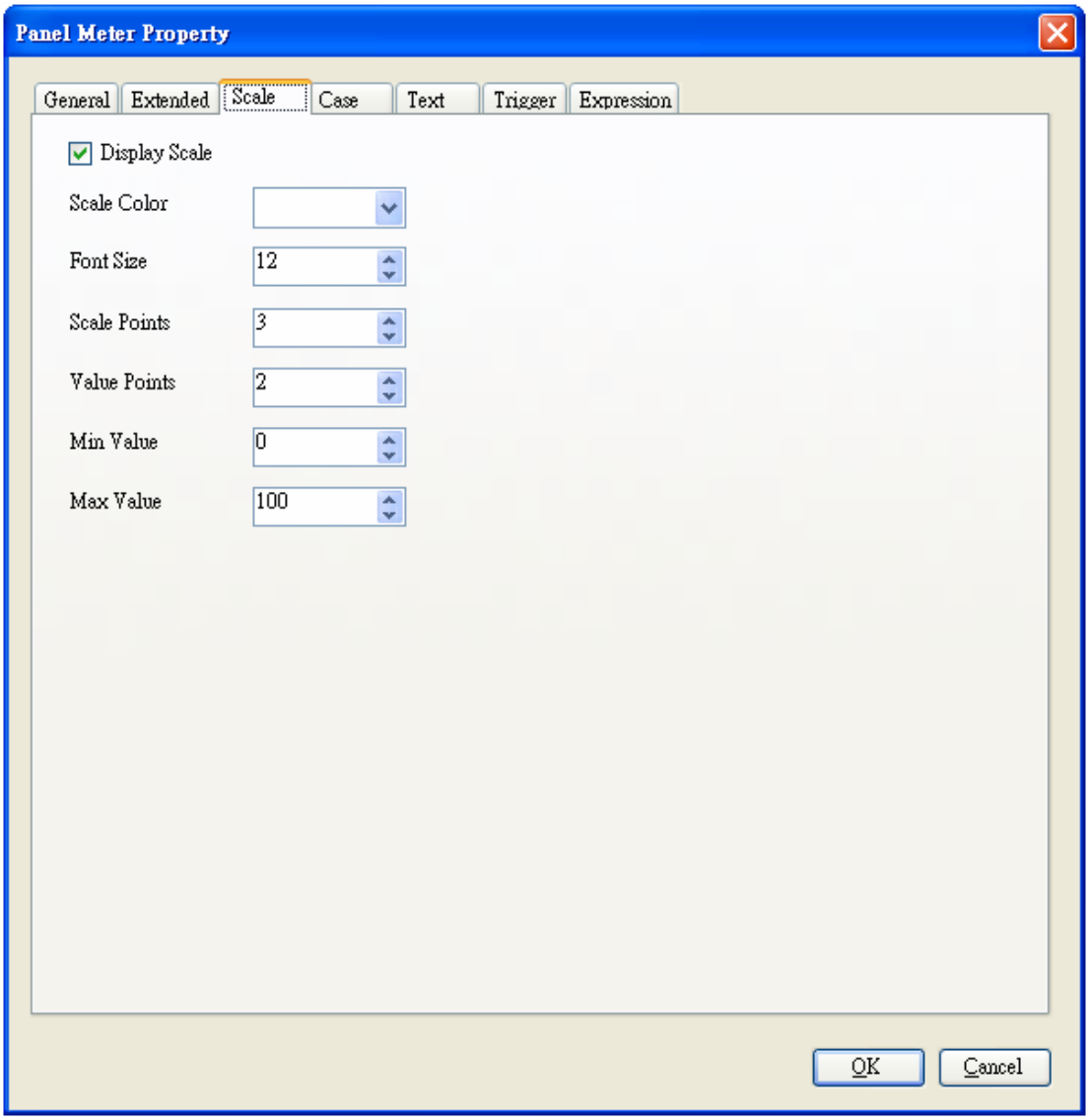
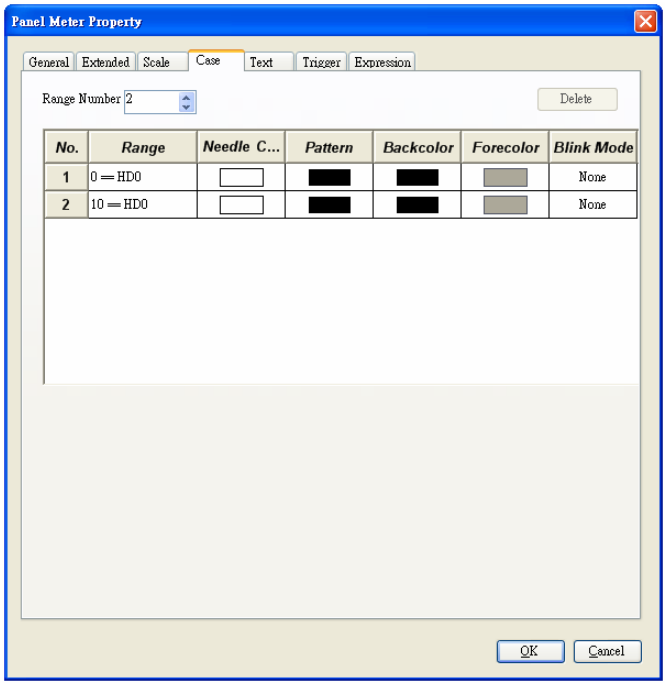
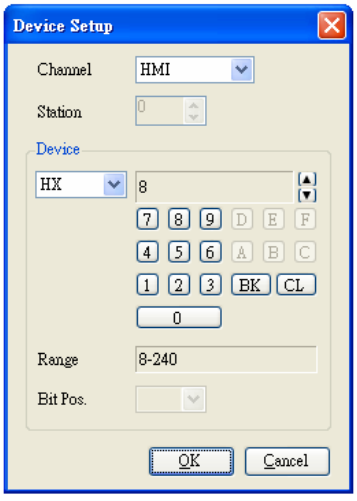



Fig. 3-6-7I-6 Scale Attributes

Figure 3-6-7I-7 below is the Range setup window. Set the number of ranges and they will be displayed in the table beneath for the user to set the device, color and pattern. Click to open the device dialogue box and set the device.




(a)




(b)

Fig. 3-6-7I-7 Range Setting (a) Edit Window (b) Setting Device

The Text property setting allows the user to set the display, color, font, editing position, alignment and the content. See Figure 3-6-7I-8 below.

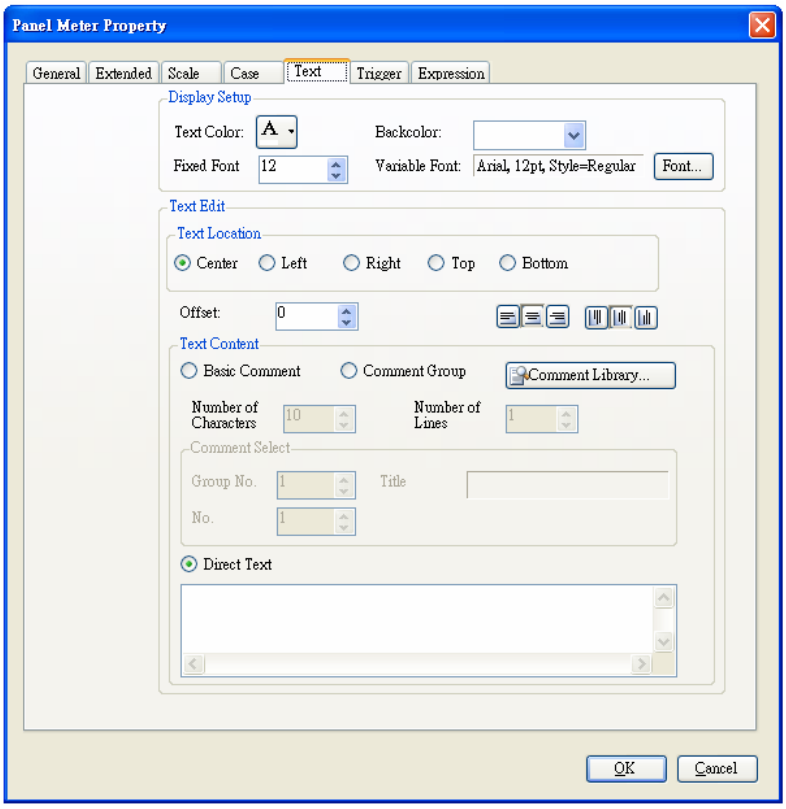


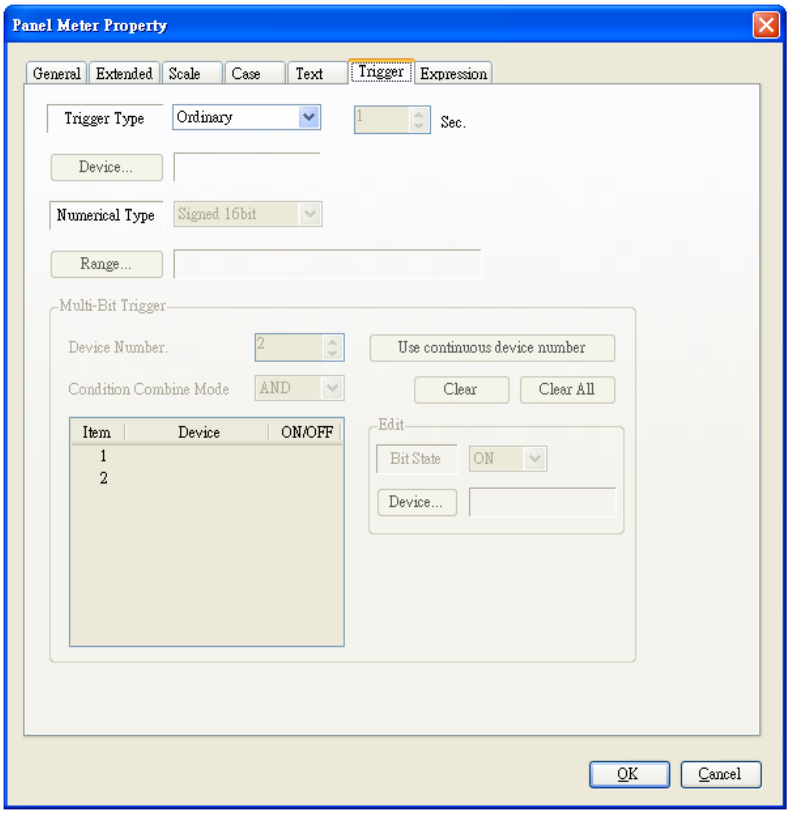

Fig. 3-6-7I-8 Text Property Setting

In the text editing, comments in the comment library can be set as text to display. To do this, click Comment Library... to open the comment library dialogue box. For detailed instructions, please see Section 3.4.4 Comment Library.

NOTE

- When the text alignment set for align left、align right、Align top、Align bottom, can be used to offset setting to adjust the text position.
- If basic comment or comment group is selected for the text contents, the text will be presented according to the Range settings (such color, blinking); if direct text is selected, the contents will be presented according to the Text settings.

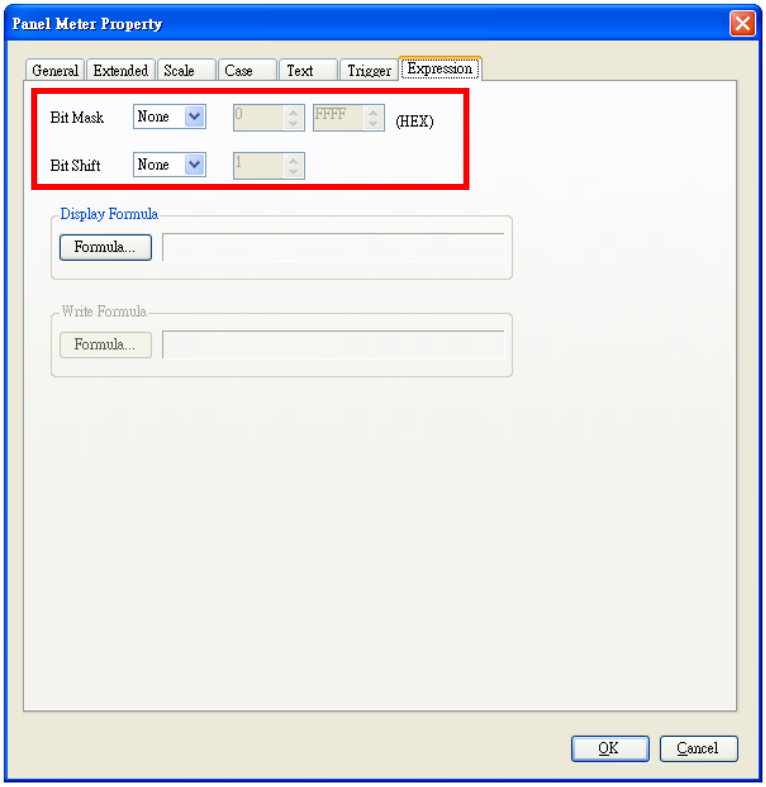
The Trigger property setting allows the user to change the trigger pattern. See Figure 3-6-7I-9 below.




| Trigger Pattern | Description |
|---|---|
| **Ordinary** | No trigger pattern |
| **ON** | Action is taken only when the device in ON |
| **OFF** | Action is taken only when the device in OFF |
| **Range** | Action is taken only when the device value is within this range. |
| **Multi-Bit Trigger** | Set two or more devices (up to 8), and only when all the devices meet the condition will the action be taken. |
| **Rise** | Action is taken only when the device is switched from OFF to ON. |
| **Fall** | Action is taken only when the device is switched from ON to OFF. |
| **Sampling** | Action is taken only after the sampling time elapses. |

Fig. 3-6-7I-9 Trigger Pattern Setting

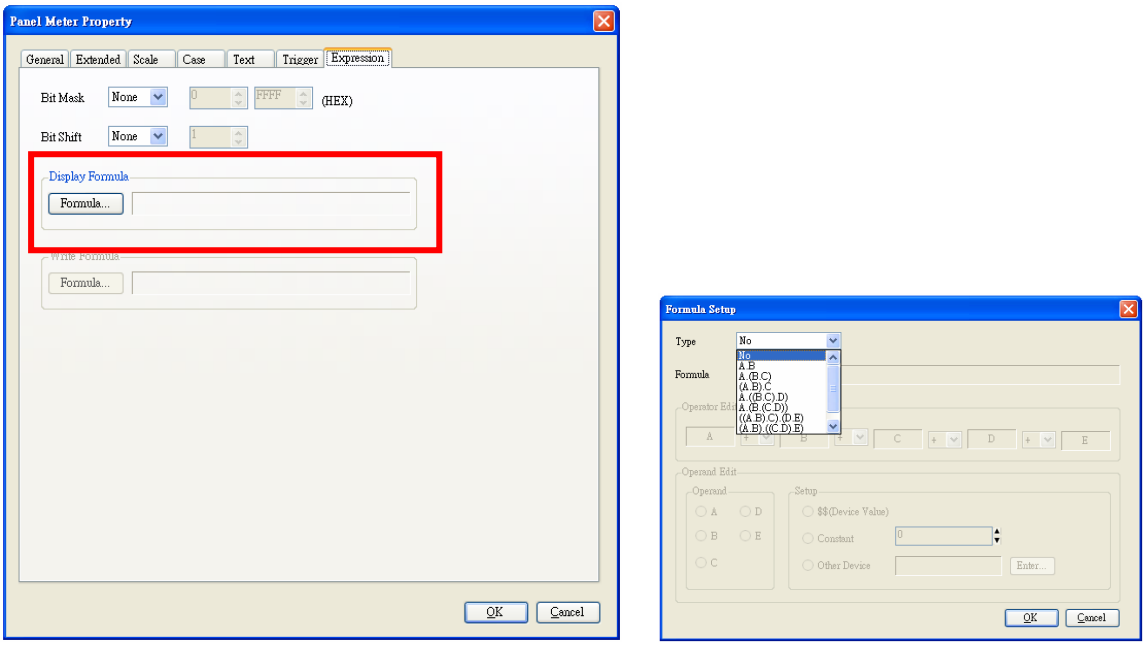
The Numeric Operation properties allow the user to set the value, bit mask, bit shift, and display formula. The system uses hexadecimal input. See Figure 3-6-7I-10 below.




| Name | | Description |
|---|---|---|
| **Bit Mask** | **None** | No Bit mask. |
| | **AND** | Values are converted to binary for AND operation.<br>**EX~** Decimal value 8 ANDing with A gets 8. |
| | **OR** | Values are converted to binary for OR operation.<br>**EX~** Decimal value 8 ORing with A gets 10. |
| | **XOR** | Values are converted to binary for XOR operation.<br>**EX~** Decimal value 8 XORing with A gets 2. |
| **Bit Shift** | **None** | No Bit offset. |
| | **<<** | Values are converted to binary for left shift.<br>**EX~** Decimal value 8 left shifting 2 bits becomes 32. |
| | **>>** | Values are converted to binary for right shift.<br>**EX~** Decimal value 8 left shifting 2 bits becomes 2. |

Fig. 3-6-7I-10 Logic Operations

To set formula display, click Formula... to open the formula setup window, and pick up a preferred formula pattern, and then select from the A~E options, and then select $$ (device value) and any one of the constant or other device, and then select an operator. Confirm to finish the formula setting. See Figure 3-6-7I-11 below.

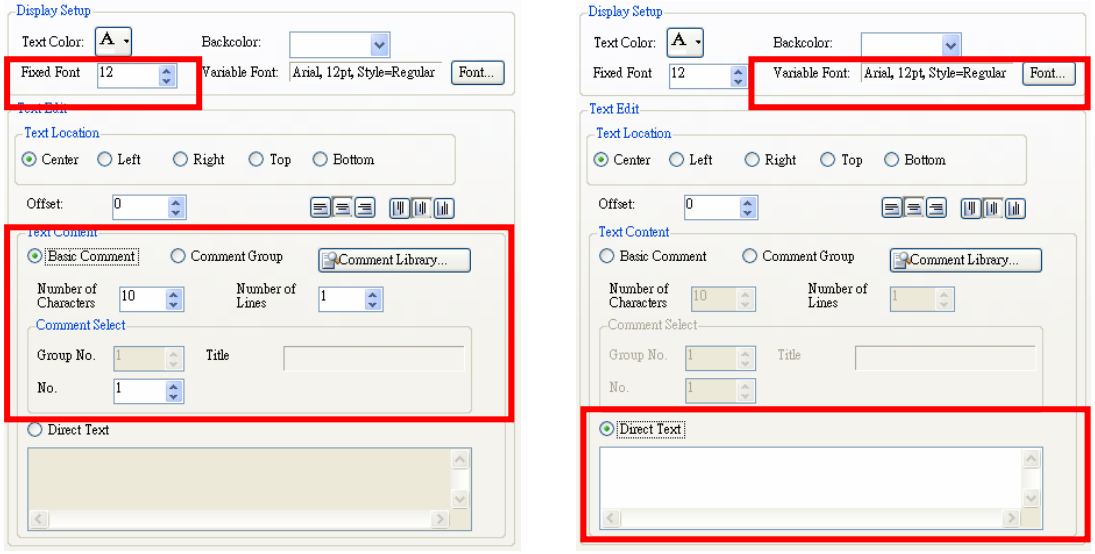



(a) (b)

Fig. 3-6-7I-11 Displaying formula (a) Setting formula (b) formula Set

NOTE

- To set the properties, you can also click Edit and then click Unit Property, or directly use the property window on the right of the screen, to make the setting.
- In the Text properties, the text contends can be comments and direct text. The comment takes fixed font, while the direct text takes variable fonts. See Figure 3-6-7I-12 below.




(a) (b)

Fig. 3-6-7I-12 Text Display Setting (a) Comment Text (b) Direct Text

### 3.6.8. Parts Display

Click Unit and then click Parts Display, or directly click the shortcut , and in the editing window left click the mouse to set up a part object. See Figure 3-6-8 below.

Fig. 3-6-8 Parts Display Menu



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### a. Bit Parts

To set up a Bit Parts, click Unit and click Parts Display and then click Bit Parts, or directly click the shortcut, and in the editing window left click the mouse to set up the object. Click the object and then double left click the mouse to open the property window of the object and make the setting.

The General property setting allows the user to set the transparency, component type, and display format. See Figure 3-6-8A-1 below.

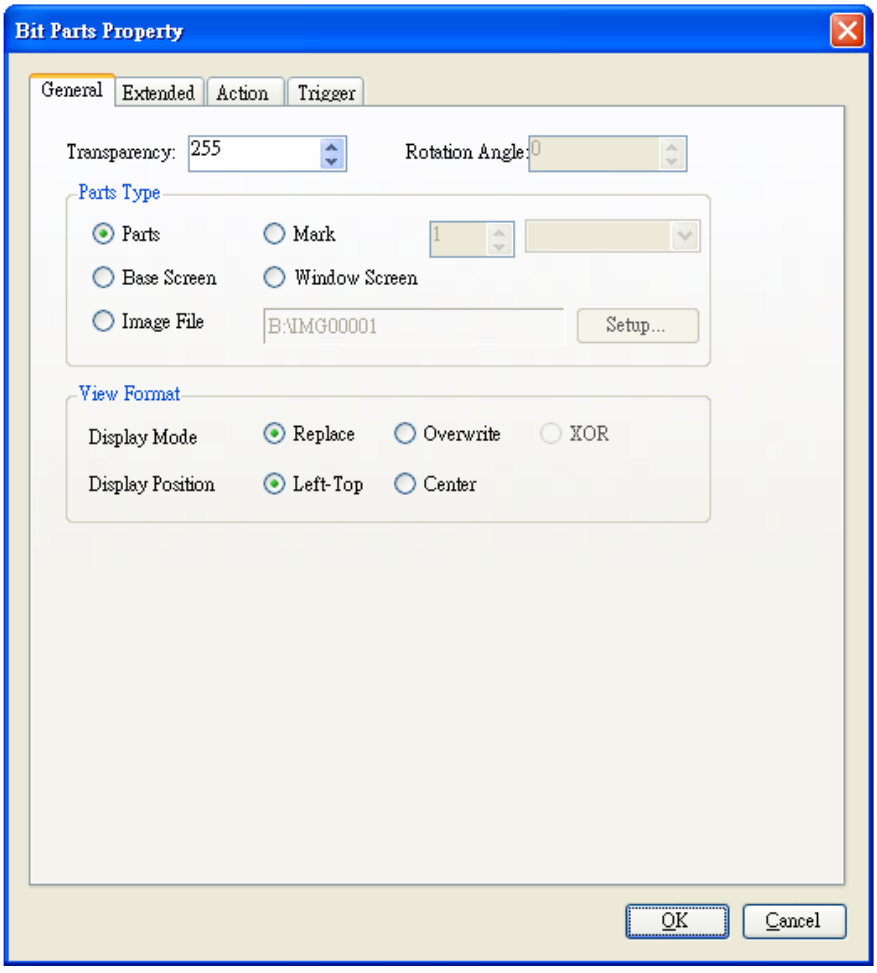
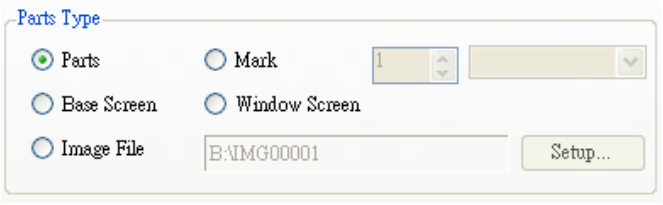



Fig. 3-6-8A-1 General Property Setting

The Bit parts include parts, mark, basic screen, window screen and image file. See Figure 3-6-8A-2 below.




| Part Type | Description |
|---|---|
| **Parts** | Set the Parts number (color is unchangeable). |
| **Mark** | Set the Mark number (color is changeable). |
| **Basic Screen** | Set the basic screen number. |
| **Window Screen** | Set the window screen number |
| **Image File** | Set the number of the image files on the external storage device. The image format is .png, and the maximum size of the image is 800X480mm.<br>Device name: Select a preferred external storage device.<br>Folder name: the name of the folder on the storage device. For naming, please see Section 3.2.17 Removable Drive Image Directory Setup.<br>File name: Set the image's file name.<br>Digits: The code number of the image's file name. |

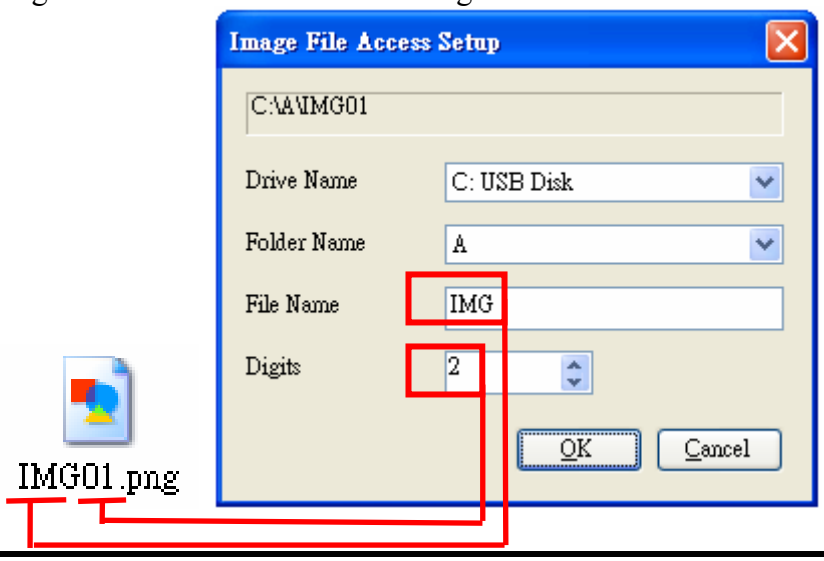


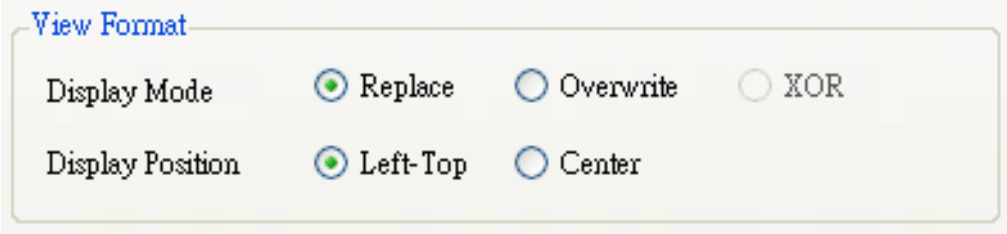

Fig. 3-6-8A-2 Bit Parts Setting

NOTE

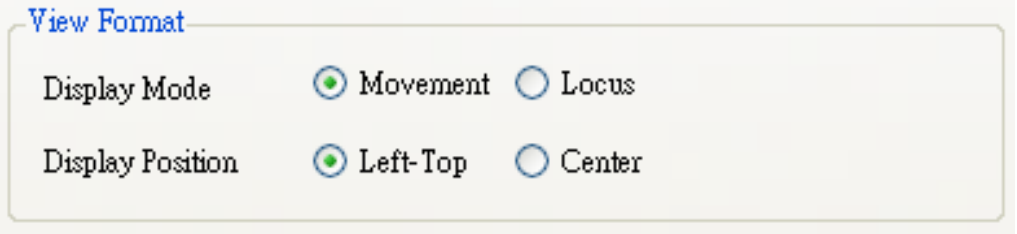
- Before print screen to USB/SD, an external memory (SD/USB) must be mounted, or the "Auto mount" function must be chosen. For details, see section 3.4 "Communication" described in EC200 hardware manual.

The display modes are Replacement, Coverage, Exclusive, Moving and Tracking. The positioning can be upper left-based and center-based. See Figure 3-6-8A-3 below.

The following display modes are available when the option of moving display ☐ Movement Display of the Extension properties is not ticked:




When the option of moving display ☑ Movement Display of the Extension properties is ticked:




| Display | Description |
|---|---|
| **Display Mode** | **Replace:** the 2nd parts object replaces the 1st one.<br>**Overwrite:** the 2nd parts object caps on the 1st one.<br>**XOR:** the non-overlapped portion of the 1st and 2nd parts object is displayed.<br>**Movement:** the parts moves with the moving pattern.<br>**Locus:** the parts object moves with the moving pattern, and keeps the last 9 ones on the track. |
| **Display Position** | **Left-Top:** based on the upper left corner of the parts.<br>**Center:** based on the center of the parts. |

Fig. 3-6-8A-3 Display Format Setting

The Extension properties allow the user to set the security level and moving display. Figure 3-6-8A-4 below demonstrates the setting of the object's security level. The security level (display) is ranged from 0 (lowest privilege) to 15 (highest privilege). The default security levels of the edit software and the system are both 0.

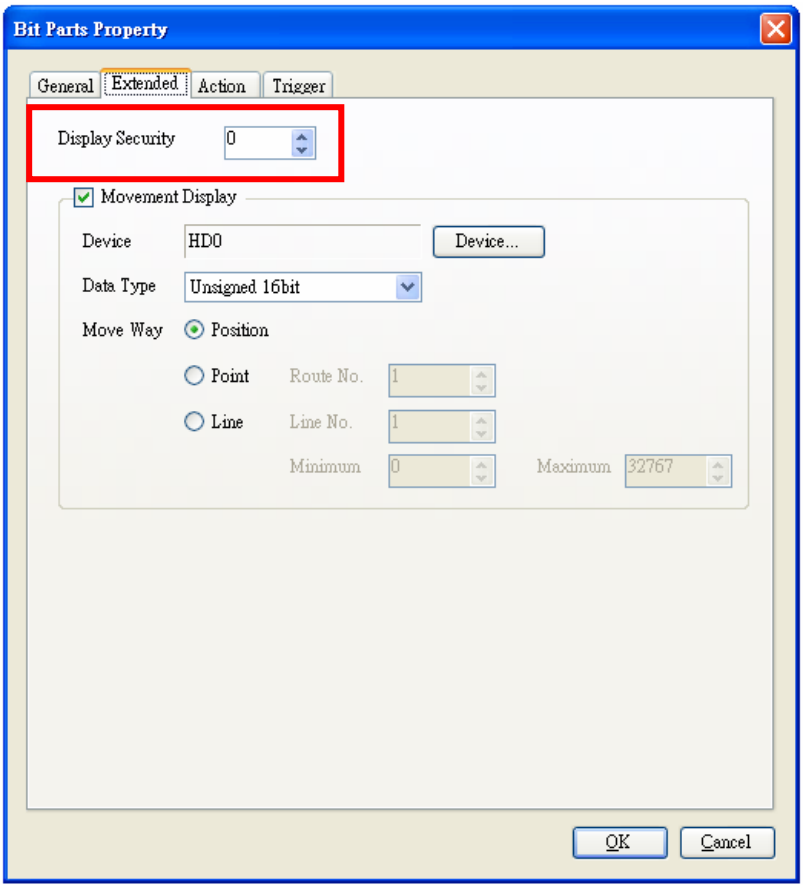



Fig. 3-6-8A-4 Security Level Setting

To move the parts, the user can change the device, numeric type and the moving method. See Figure 3-6-8A-5 below.

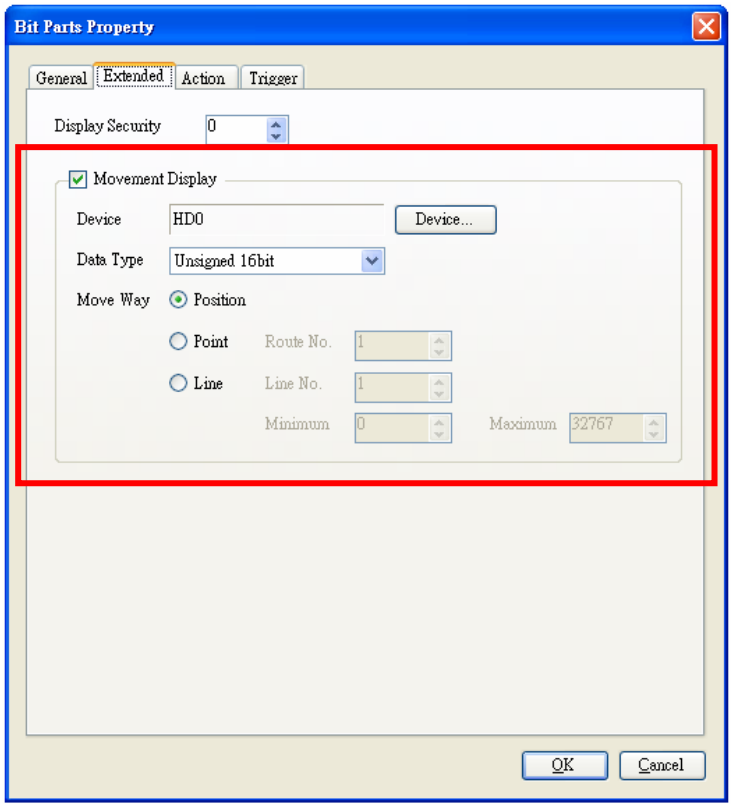



Fig. 3-6-8A-5 Moving Display Setting

Click Device... to open the device setup dialogue box and set up a device to store the parts screens. See Figure 3-6-8A-6 below.

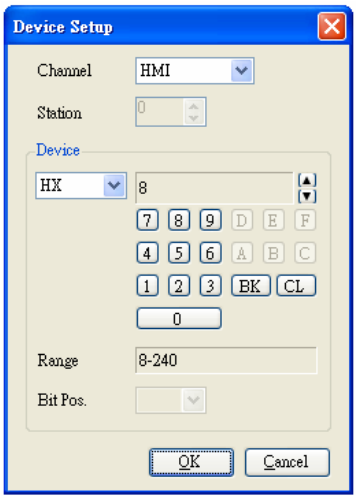
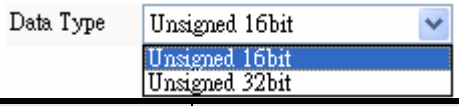



Fig. 3-6-8A-6 Device Setting

The parts device has 4 numeric types. See Figure 3-6-8A-7 below.




| Numeric Type | Value Range |
|---|---|
| **Unsigned 16 bit** | 0~65535 |
| **Unsigned 32 bit** | 0~4294967295 |

Fig 3-6-8A-7 Numeric Type Setting

The moving method allows the user to change the position, point and line. See Figure 3-6-8A-8 below.

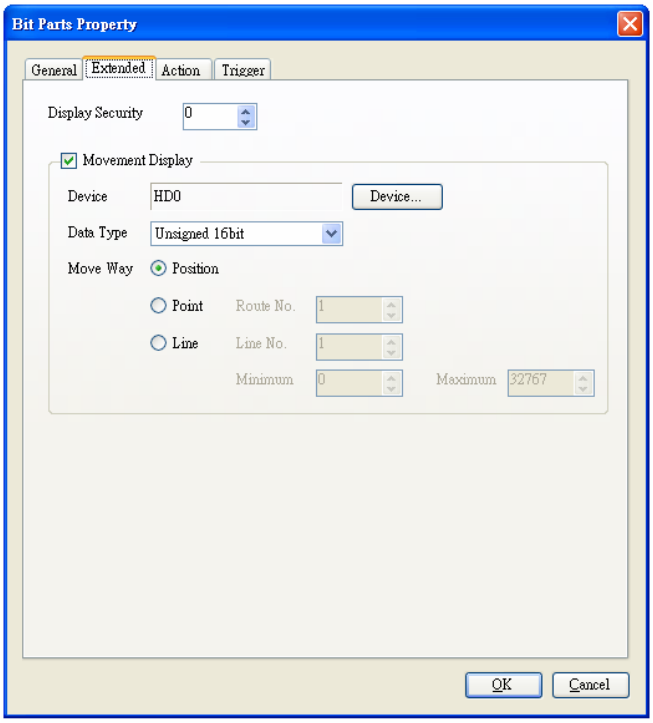



Fig. 3-6-8A-8 Moving Method Setting

The moving method takes HD0 as X-axis and automatically assigns HD1 as Y-axis, to decide the moving of the picture. The Point moving method needs a set of points in the editing screen, so that the parts can move along the points. The Line moving method needs a line in the editing screen so that the picture moves along the line. The maximum and minimum values can be set for the Line.

The Action property setting allows the user to change the device and its properties. See Figure 3-6-8A-9 below.

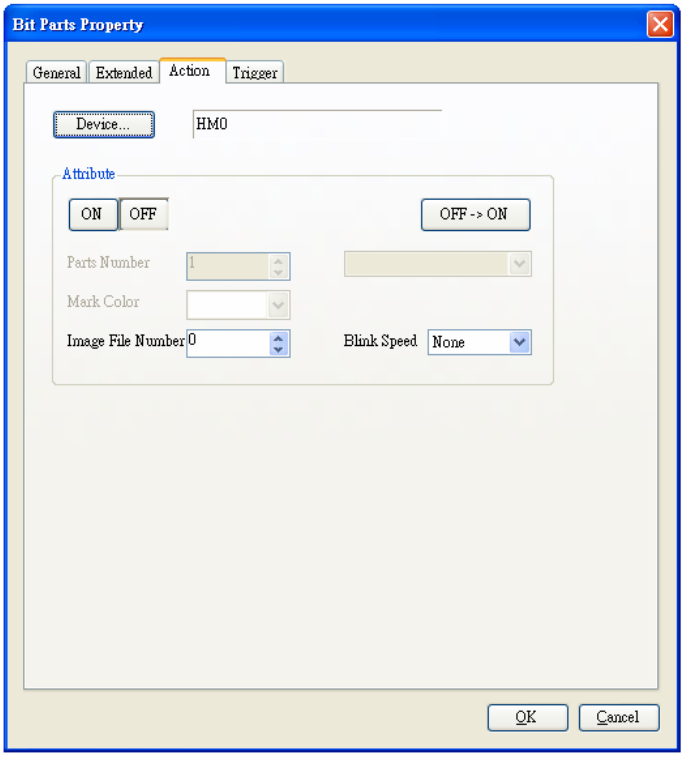



Fig. 3-6-8A-9 Action Attribute Setting

Click Device... to open the device setup dialogue box and change the device to store the parts. See Figure 3-6-8A-10 below.

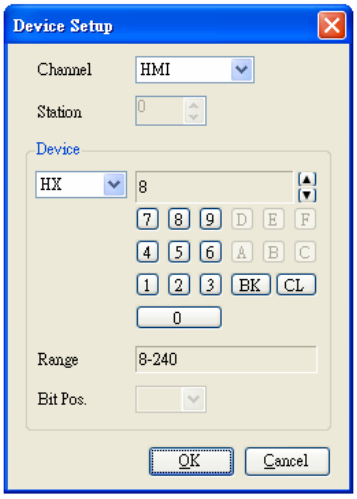



Fig. 3-6-8A-10 Device Setting

The properties allow the user to set the ON/OFF state, component number, mark color, file number, and blinking feature. See Figure 3-6-8A-11 below. The component number is used as an identifier for reading the parts library; the mark color can change the color of the parts number; the file number of the picture is the identifier for reading the external storage device.

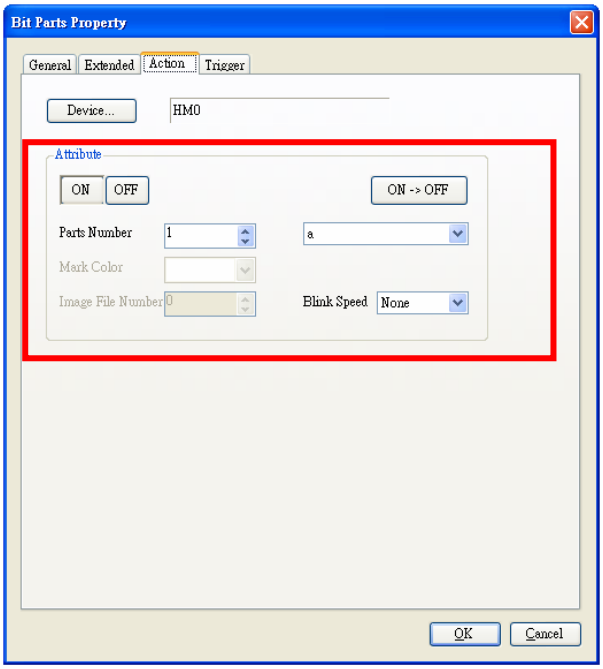



Fig. 3-6-8A-11 Moving Method Setting

To set the Bit parts blinking, use the pull-down menu to select one of the three blinking speeds provided by the system. See Figure 3-6-8A-12 below.

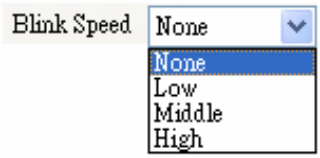
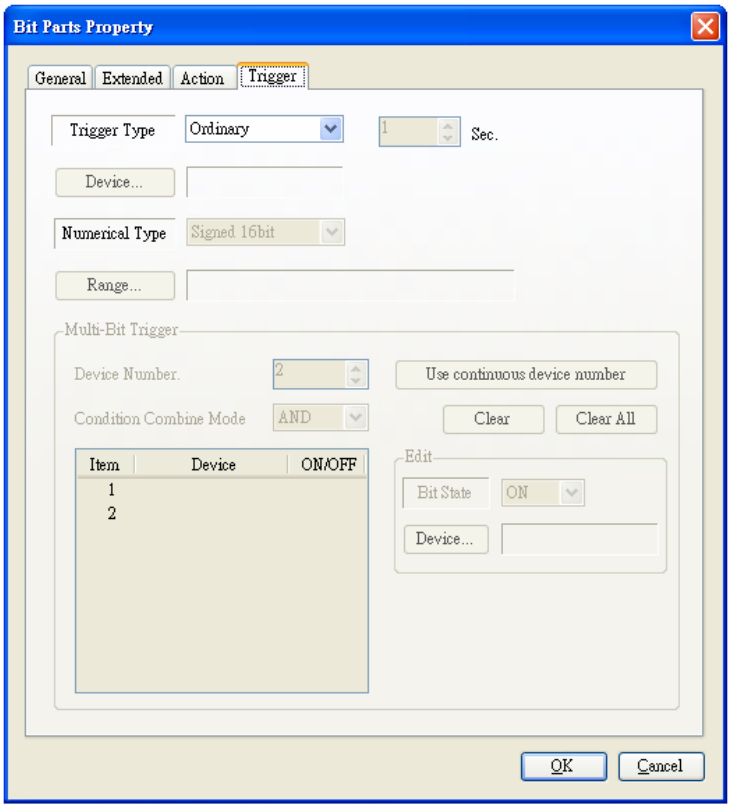



Fig. 3-6-8A-12 Blinking Speed Setting

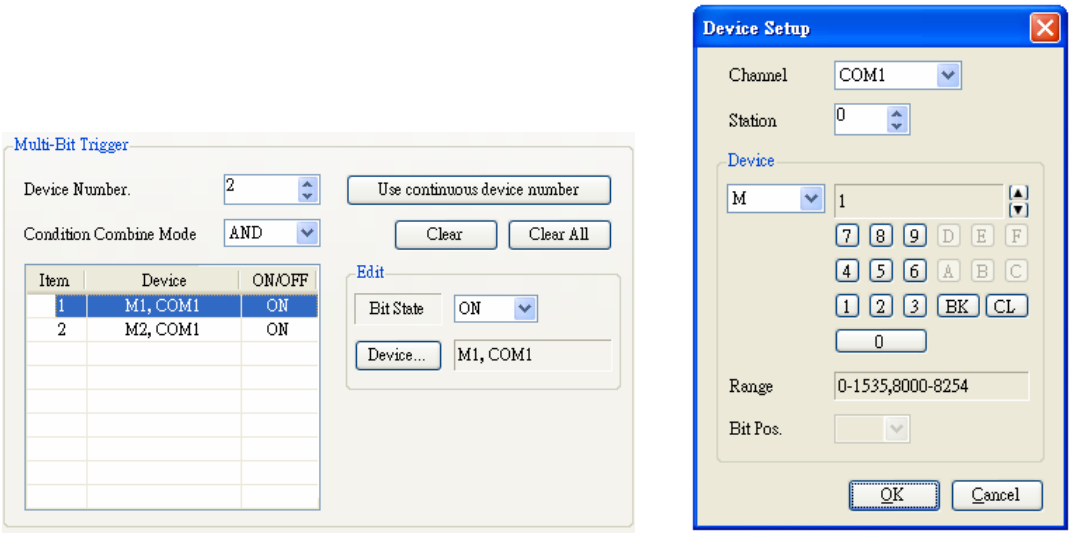
The Trigger property setting allows the user to set the conditions of the trigger pattern. See Figure 3-6-8A-13 below.




| Trigger Pattern | Description |
|---|---|
| **Ordinary** | No triggering pattern |
| **ON** | Action is taken only when the device in ON |
| **OFF** | Action is taken only when the device in OFF |
| **Range** | Action is taken only when the device value is within this range. |
| **Multi-Bit Trigger** | Set two or more devices (up to 8), and only when all the devices meet the condition will the action be taken. |
| **Rise** | Action is taken only when the device is switched from OFF to ON. |
| **Fall** | Action is taken only when the device is switched from ON to OFF. |
| **Sampling** | Action is taken only after the sampling time elapses. |

Fig. 3-6-8A-13 Trigger Pattern Setting

To set the trigger pattern as multi-Bit trigger with 2 devices, click Device... to open the device setting window and set the trigger devices as M1 and M2. Confirm the setting and have the file sent to HMI. So, only when M1 and M2 are both ON will the switch actions be started. See Figure 3-6-8A-14 below.




(a) (b)

Fig. 3-6-8A-14 Multi-Bit Trigger (a) Setup of Multi-Bit Trigger (b) Device Setup

- To set the properties, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.

## b. Word Parts

To set up a Word, click Unit and click Parts Display and then click Word Parts, or directly click the shortcut, and in the editing window left click the mouse to set up the object. Click the object and then double left click the mouse to open the property window of the object and make the setting.

The General property setting allows the user to set the transparency, component type and display format. See Figure 3-6-8B-1 below.

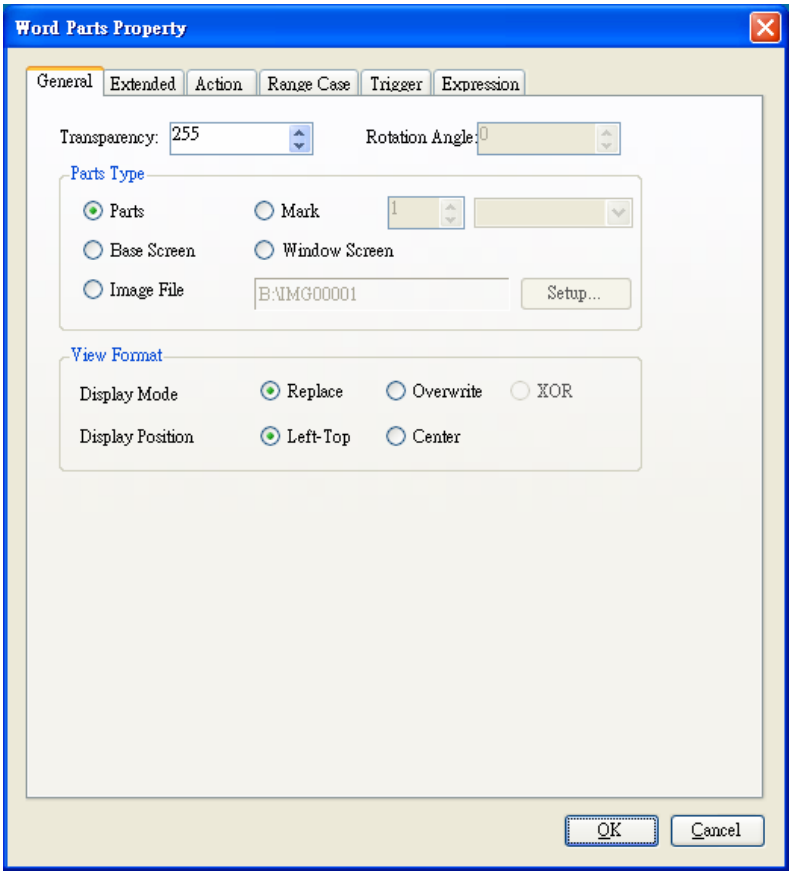
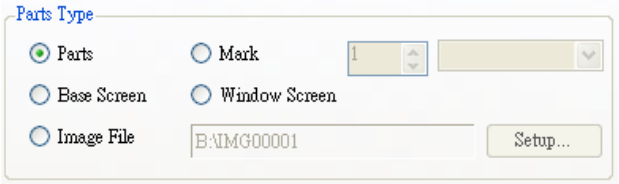



Fig. 3-6-8B-1 General Property Setting

The Word parts include Parts, Mark, Basic Screen, Window Screen and Image File. See Figure 3-6-8B-2 below.



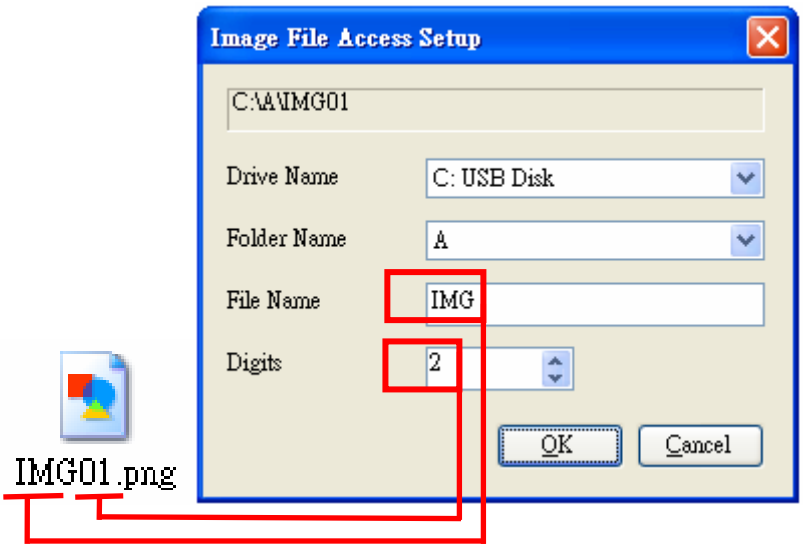

| Part Type | Description |
|---|---|
| **Parts** | Set the Parts number (color is unchangeable). |
| **Mark** | Set the mark number (color is changeable). |
| **Basic Screen** | Set the basic screen number. |
| **Window Screen** | Set the window screen number. |
| **Image File** | Set the number of the image file on the external storage device.<br>The image format is .png, and the maximum size of the image is 800X480mm.<br>Device name: Select a preferred external storage device.<br>Folder name: the name of the folder on the storage device. For naming, please see Section 3.2.17 Removable Drive Image Directory Setup.<br>File name: Set the image's file name.<br>Code number: The code number of the image's file name.<br>  |



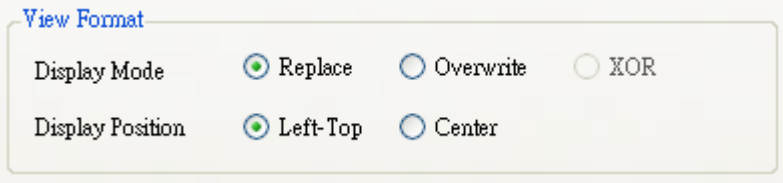
Fig. 3-6-8B-2 Word Parts Setting

NOTE

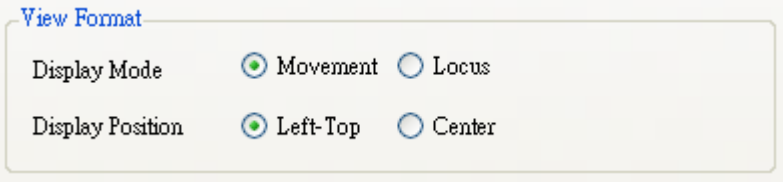
- Before print screen to USB/SD, an external memory (SD/USB) must be mounted, or the "Auto mount" function must be chosen. For details, see section 3.4 "Communication" described in EC200 hardware manual.

The display modes are Replacement, Coverage, Exclusive, Moving and Tracking. The positioning can be upper left-based and center-based. See Figure 3-6-8B-3 below.

When the option of moving display ☐ Movement Display of the Extension properties is not ticked:




When the option of moving display ☑ Movement Display of the Extension properties is ticked:




| Display | Description |
|---|---|
| **Display Mode** | **Replace:** the 2nd parts object replaces the 1st one.<br>**Overwrite:** the 2nd parts object caps on the 1st one.<br>**XOR:** the non-overlapped portion of the 1st and 2nd parts is displayed.<br>**Movement:** the parts moves with the moving pattern.<br>**Locus:** the parts object moves with the moving pattern, and keeps the last 9 ones on the track. |
| **Display Position** | **Left-Top:** based on the upper left corner of the parts.<br>**Center:** based on the center of the parts. |

Fig. 3-6-8B-3 Display Format Setting

The Extension properties allow the user to set the security level and moving display. Figure 3-6-8B-4 below demonstrates the setting of the object's security level. The security level (display) is ranged from 0 (lowest privilege) to 15 (highest privilege). The default security levels of the edit software and the system are both 0.

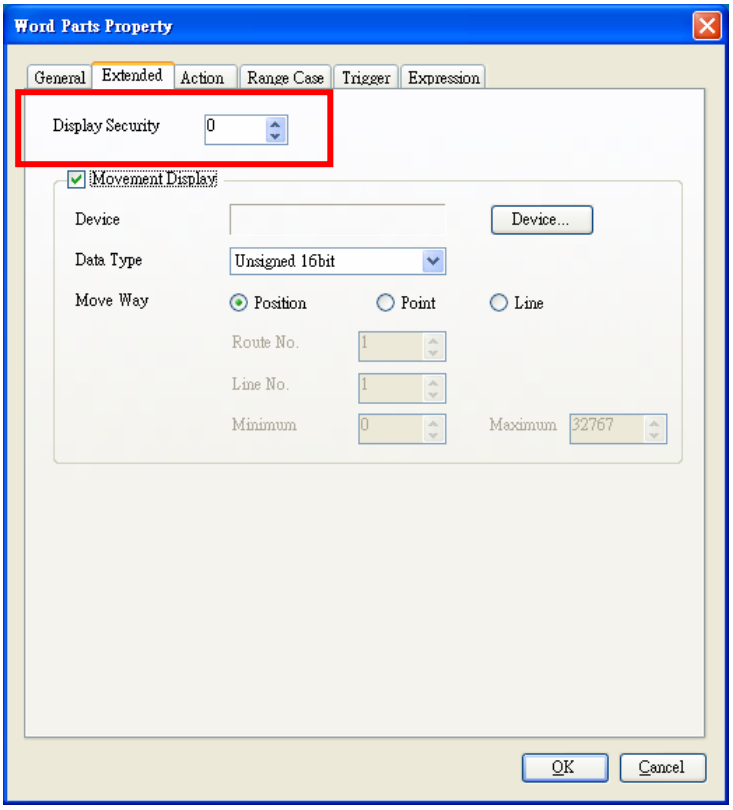



Fig. 3-6-8B-4 Security Level Setting

To move the parts, the user can change the device, numeric type and the moving method. See Figure 3-6-8B-5 below.

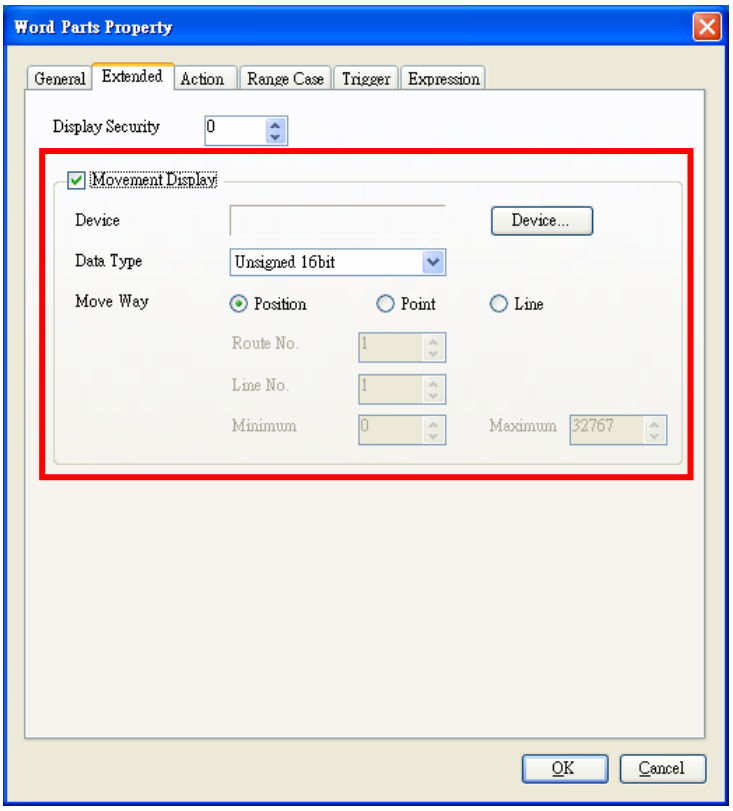



Fig. 3-6-8B-5 Moving Display Setting

Click Device... to open the device setup dialogue box and set up a device to store the parts screens. See Figure 3-6-8B-6 below.

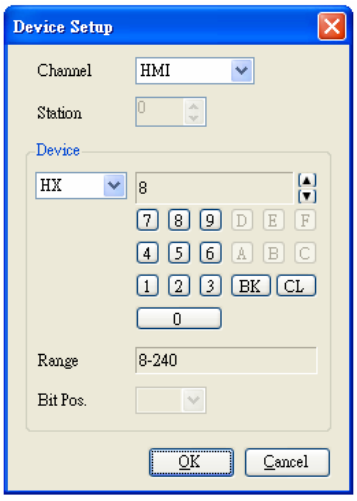
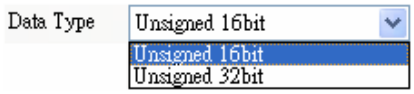



Fig. 3-6-8B-6 Device Setting

The parts device has 4 numeric types. See Figure 3-6-8B-7 below.




| Numeric Type | Value Range |
|---|---|
| Unsigned 16 bit | 0~65535 |
| Unsigned 32 bit | 0~4294967295 |

Fig. 3-6-8B-7 Numeric Type Setting

The moving method allows the user to change the position, point and line. See Figure 3-6-8B-8 below.

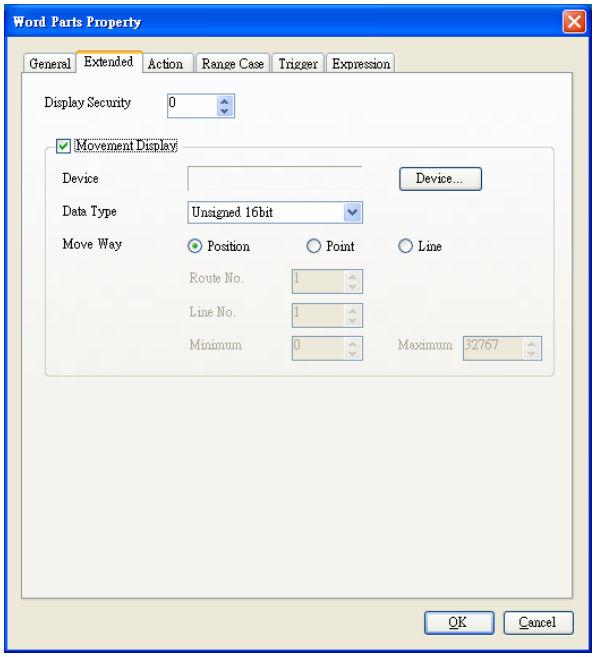



Fig. 3-6-8B-8 Moving Method Setting

The moving method takes HD0 as X-axis and automatically assigns HD1 as Y-axis, to decide the moving of the picture. The Point moving method needs a set of points in the editing screen, so that the parts can move along the points. The Line moving method needs a line in the editing screen so that the picture moves along the line. The maximum and minimum values can be set for the Line.

The Action property setting allows the user to change the device and its properties. See Figure 3-6-8B-9 below.

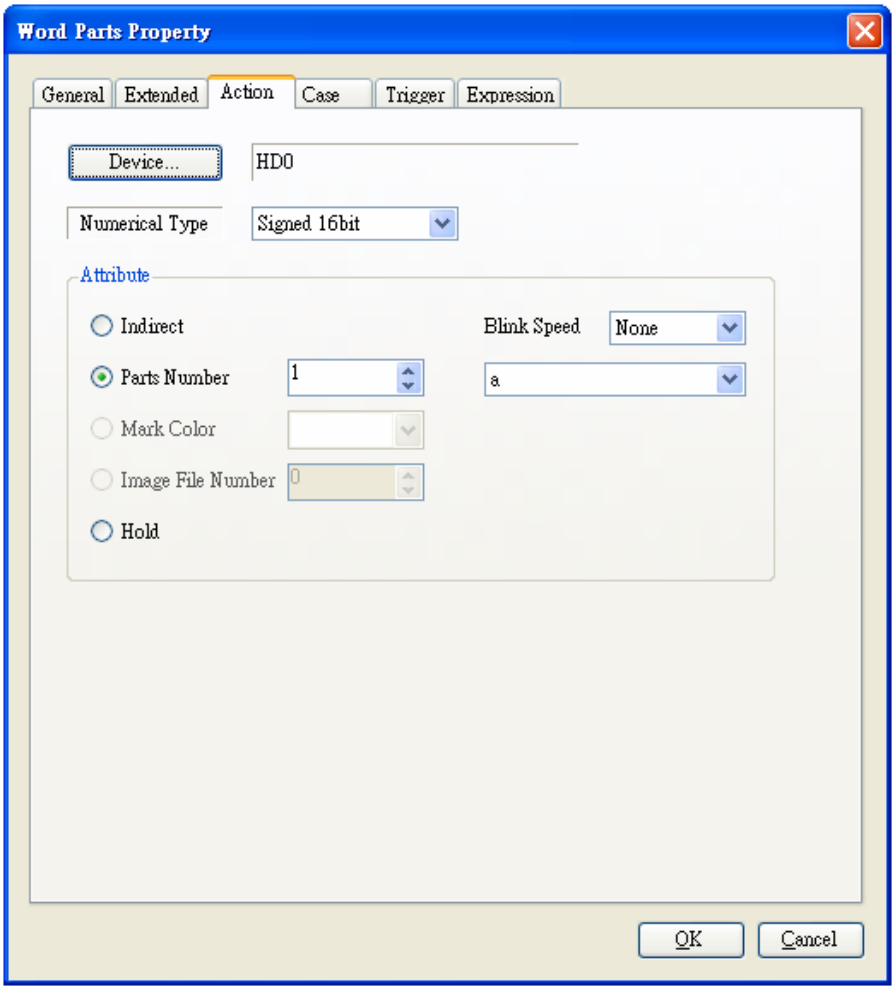



Fig. 3-6-8B-9 Action Property Setting

Click Device... to open the device setup dialogue box and change the device to store the parts. See Figure 3-6-8B-10 below.

Fig. 3-6-8B-10 Device Setting

The parts device has 4 numeric types. See Figure 3-6-8B-11 below.

| Numeric Type | Value Range |
|---|---|
| **Signed 16bit** | -32768~32767 |
| **Unsigned 16 bit** | 0~65535 |
| **Signed 32 bit** | -2147483648~2147483647 |
| **Unsigned 32 bit** | 0~4294967295 |

Fig. 3-6-8B-11 Numeric Type Setting

The properties allow the user to set Indirect, Blinking, component number, Mark color, file number and Maintain. See Figure 3-6-8B-12 below.

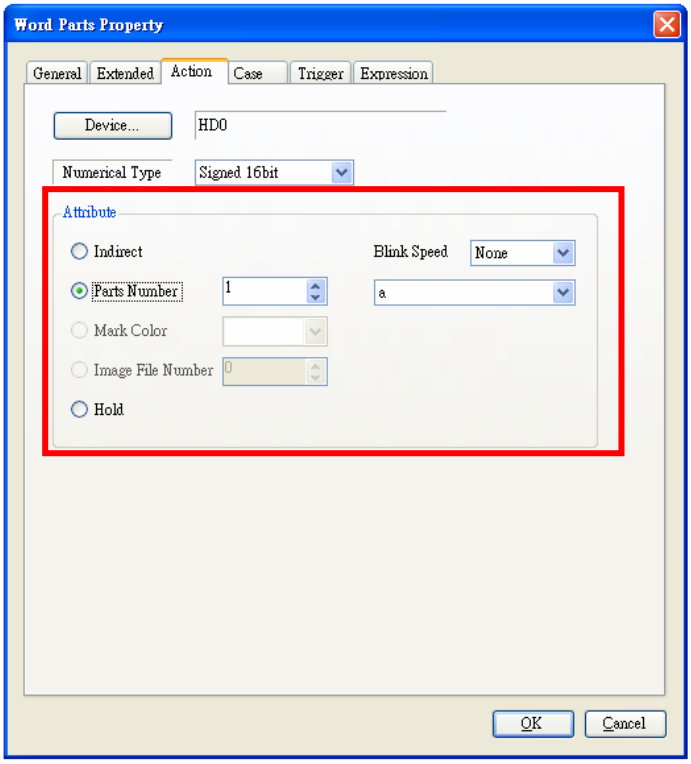



Fig. 3-6-8B-12 Moving Method Setting

The Indirect property is based on the device value to correspond to an parts number; the component number is the identifier for reading the parts library; the Mark color can change the color of the parts number; the image file number is the identifier for reading the external storage device; the Maintain property keeps the same parts number as the previous one.

To set Word parts blinking, use the pull-down menu to select one of the three blinking speeds provided by the system. See Figure 3-6-8B-13 below.

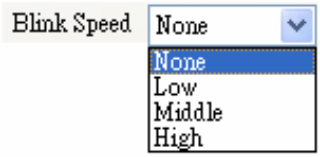



Fig. 3-6-8B-13 Blinking Speeds

The Condition Setup properties allow the user to add/delete/change devices, and assign properties, component numbers, colors, and the blinking feature. See Figure 3-6-8B-14 below.

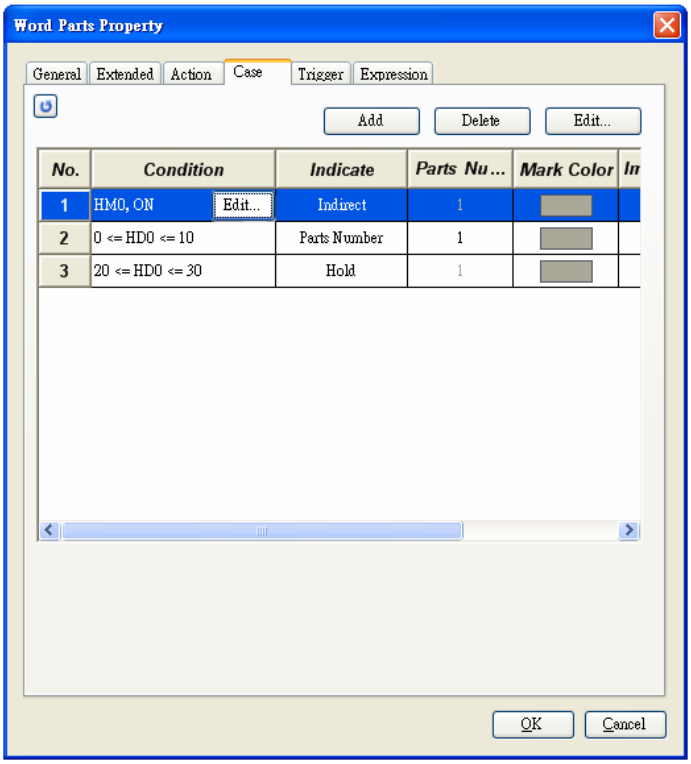



Fig. 3-6-8B-14 Condition Setting

To change the device settings of the Condition parts object, click

to open the Condition Setup dialogue box and change the Bit/Word device. See Figure 3-6-8B-15 below.

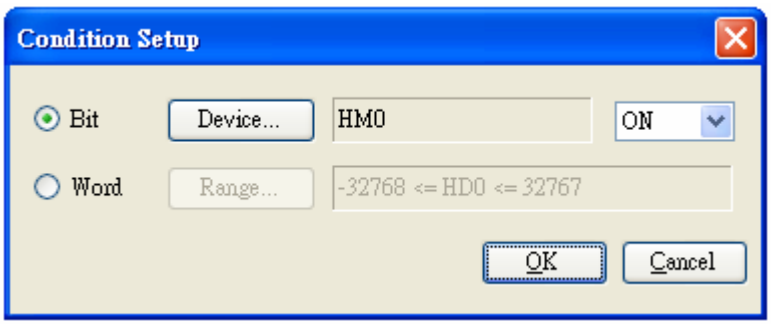
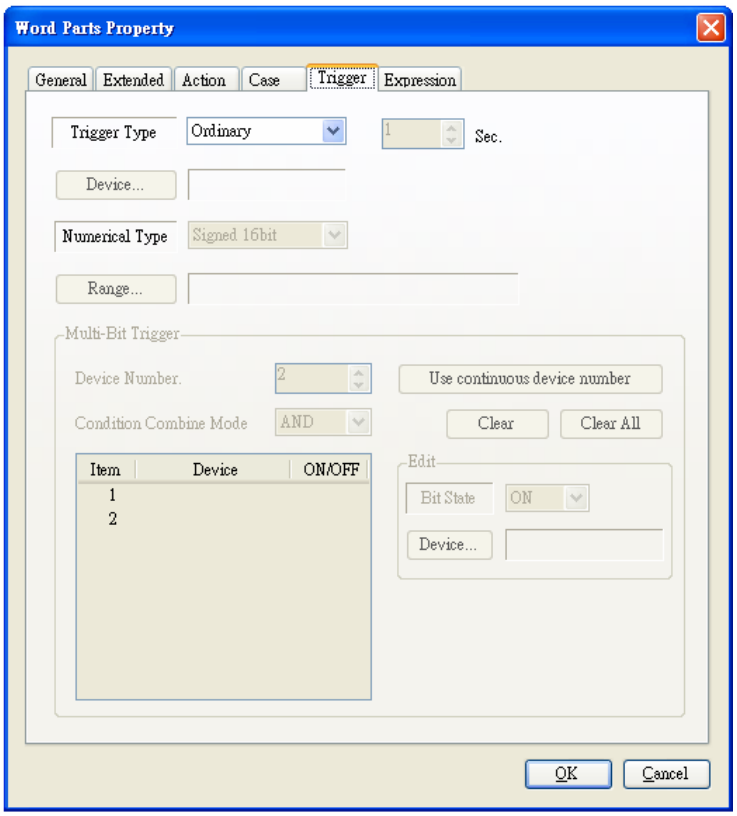



Fig. 3-6-8B-15 Condition Setting

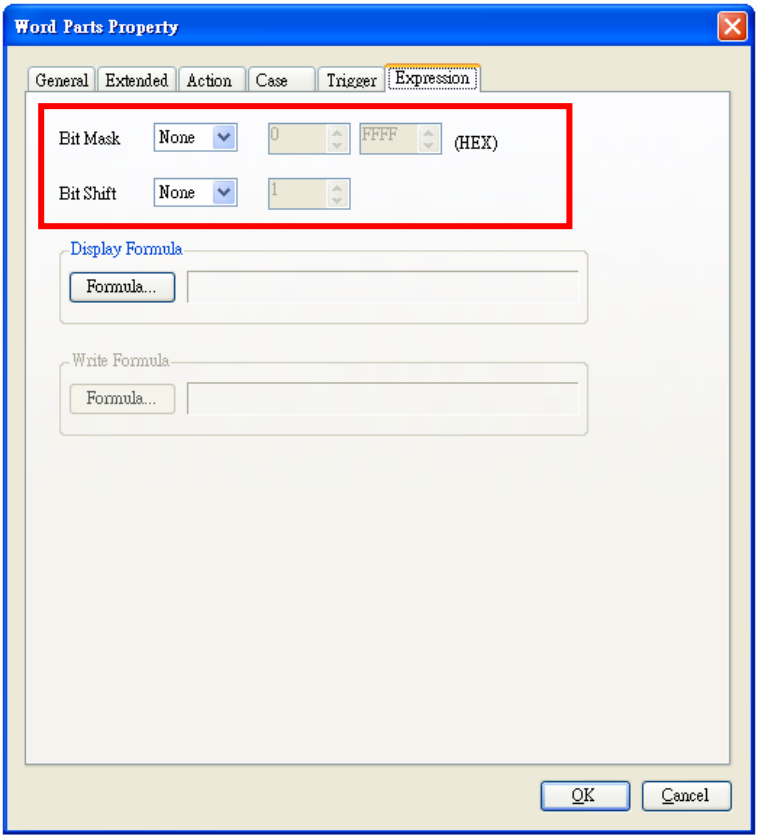
The Trigger property setting allows the user to change the trigger pattern. See Figure 3-6-8B-16 below.




| Trigger Pattern | Description |
|---|---|
| **Ordinary** | No triggering pattern |
| **ON** | Action is taken only when the device in ON |
| **OFF** | Action is taken only when the device in OFF |
| **Range** | Action is taken only when the device value is within this range. |
| **Multi-Bit Trigger** | Set two or more devices (up to 8), and only when all the devices meet the condition will the action be taken. |
| **Rise** | Action is taken only when the device is switched from OFF to ON. |
| **Fall** | Action is taken only when the device is switched from ON to OFF. |
| **Sampling** | Action is taken only after the sampling time elapses. |

Fig. 3-6-8B-16 Trigger Pattern Setting

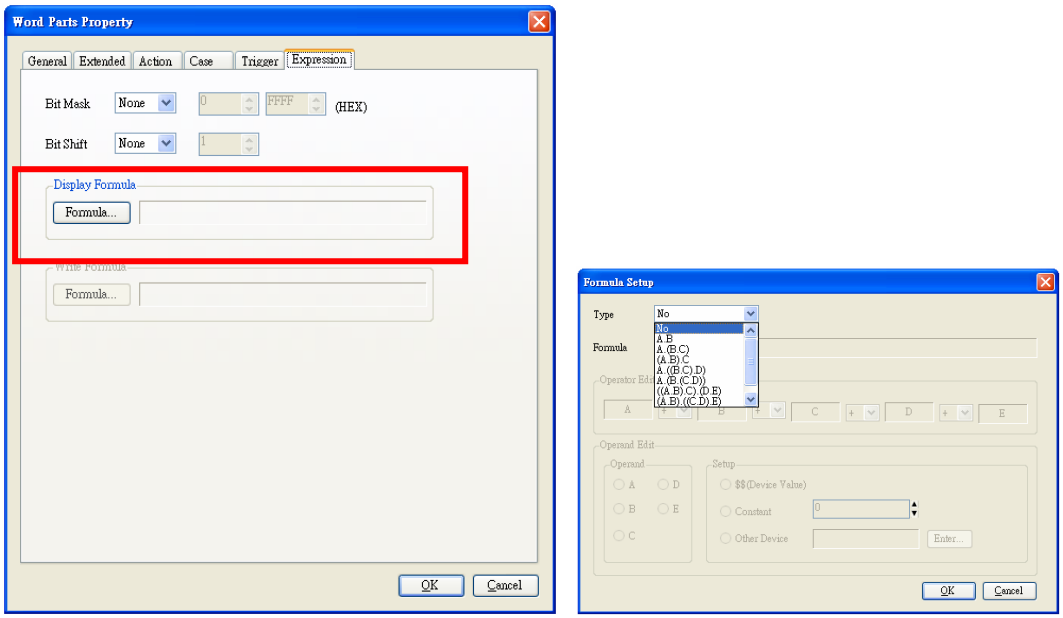
The Numeric Operation properties allow the user to set the values, bit mask, bit shift, and display formula. The system uses hexadecimal input. See Figure 3-6-8B-17 below.




| Name | | Description |
|---|---|---|
| **Bit Mask** | **None** | No Bit mask. |
| | **AND** | Values are converted to binary for AND operation.<br>**EX~** Decimal value 8 ANDing with A gets 8. |
| | **OR** | Values are converted to binary for OR operation.<br>**EX~** Decimal value 8 ORing with A gets 10. |
| | **XOR** | Values are converted to binary for XOR operation.<br>**EX~** Decimal value 8 XORing with A gets 2. |
| **Bit Shift** | **None** | No Bit offset. |
| | **<<** | Values are converted to binary for left shift.<br>**EX~** Decimal value 8 left shifting 2 bits becomes 32. |
| | **>>** | Values are converted to binary for right shift.<br>**EX~** Decimal value 8 left shifting 2 bits becomes 2. |

Fig. 3-6-8B-17 Logic Operations

To set formula display, click Function... to open the formula setup window, and pick up a preferred formula pattern, and then select from the A~E options, and then select $$ (device value) and any one of the constant or other device, and then select an operator. Confirm to finish the formula setting. See Figure 3-6-8B-18 below.




(a) (b)

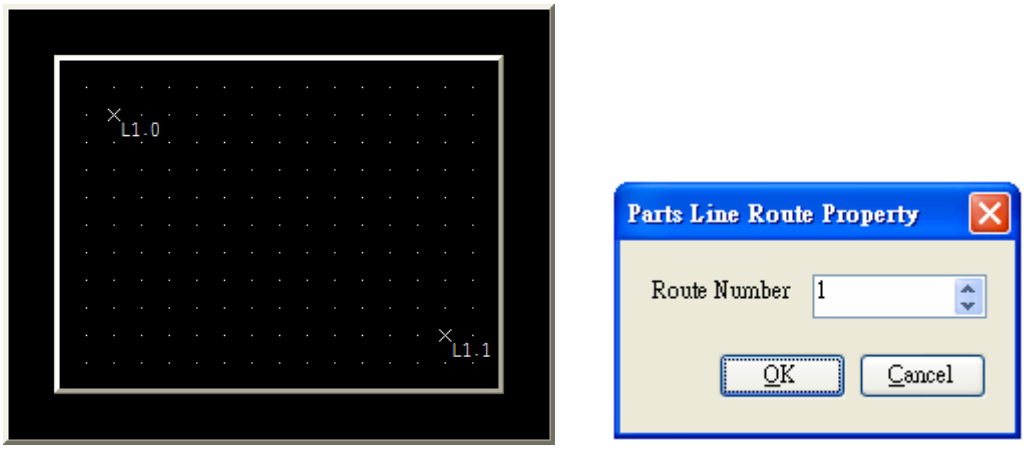
Fig. 3-6-8B-18 Displaying formula (a) Setting formula (b) formula Set

NOTE

- To set the properties, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.

### c. Line Route

To set up a Line Route, click Unit and click Chart Dispaly and then click Line Route, or directly click the shortcut, and in the editing window hold down the left button of the mouse to decide the first point of the line, then drag the line to the length and position you prefer and then release the left button to finish the setup of the object. Click the object and then double left click the mouse to open the property window of the object and make the setting. See Figure 3-6-8C-1 below.




(a) (b)

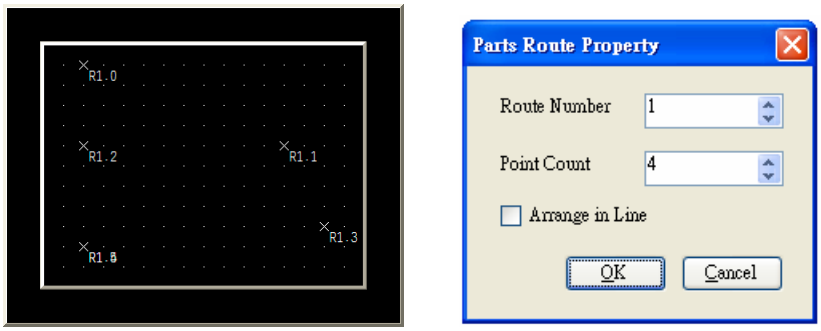
Fig. 3-6-8C-1 Line Route (a) Line Route Setup (b) Property Setting

NOTE

- To set the properties, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.
- Use Line Route with the Bit/Word parts to make the parts object moves along the path you have defined.

### d. Route

To set up a Route, click Unit and click Chart Dispaly and then click Route, or directly click the shortcut, and in the editing window left click the mouse to decide the first point of the track, and then move the mouse to a preferred position and left click the mouse again to decide the second point of the track, and then move the mouse and left click again to make the third point, and so on. Finally, right click the mouse to finish the setup of the object. There can be as many as 100 points on the track. Click the object and then double left click the mouse to open the property window of the object and make the setting. See Figure 3-6-8D-1 below.




(a) (b)

Fig. 3-6-8D-1 Route (a) Route Setup (b) Property Setting

NOTE

- To set the properties, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.
- Use Route with the Bit/Word parts to make the parts object moves along the path you have defined.

### 3.6.9. Clock

To set up a Clock, click Unit and then click Clock, or directly click the shortcut, and in the editing window left click the mouse to set up the object. Click the object and then double left click the mouse to open the property window of the object and make the setting.

The General property setting allows the user to set the picture pattern, display color, transparency and line pattern. See Figure 3-6-9-1 below.

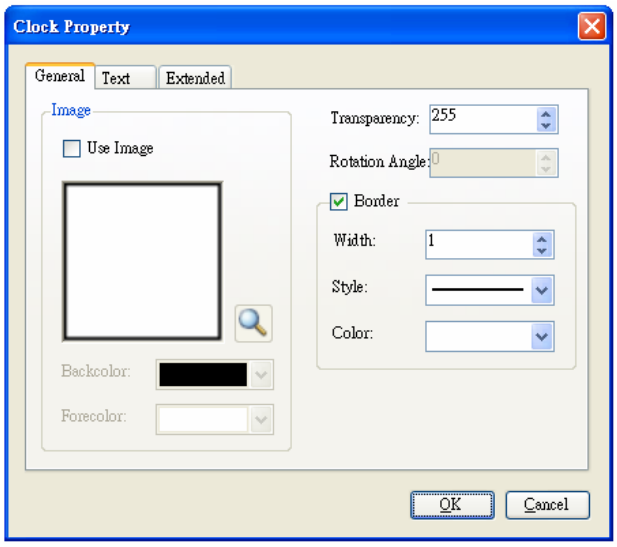



Fig. 3-6-9-1 General Property Setting

To change the picture, click to open the picture library. For detailed instructions, please see Section 3.4.2 Image Library.

The Text property setting allows the user to set the character spacing, size, color and alignment. See Figure 3-6-9-2 below.

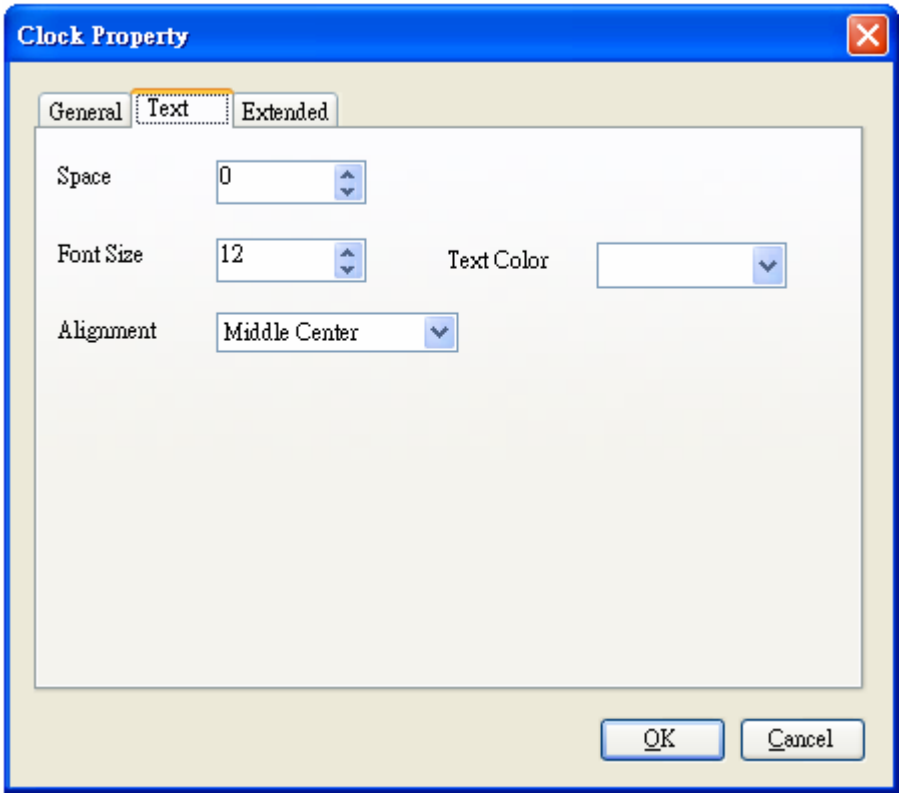



Fig. 3-6-9-2 Text Property Setting

The Extension properties allow the user to set the security level and the clock format. Figure 3-6-9-3 below demonstrates the setting of the object's security level. The security level (display) is ranged from 0 (lowest privilege) to 15 (highest privilege). The default security levels of the edit software and the system are both 0.

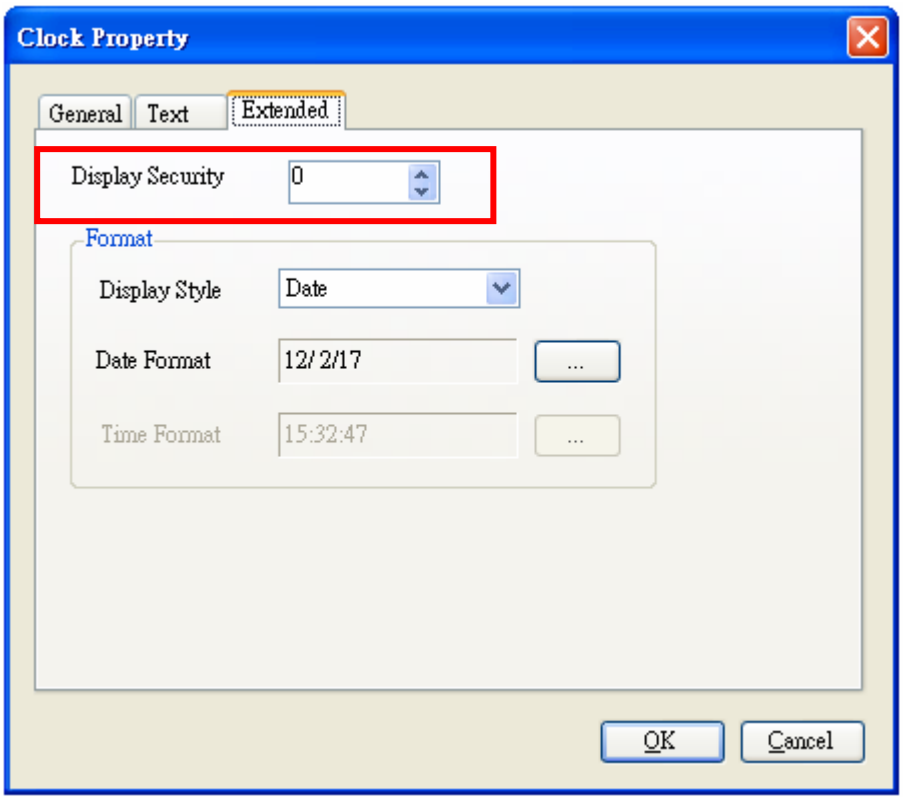



Fig. 3-6-9-3 Security Level Setting

NOTE

- To set the properties, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.

### 3.6.10. Dynamic Image

Click Unit and then click Dynamic Display , or directly click the shortcut , and in the editing window left click the mouse to set up a dynamic image. See Figure 3-6-10-1 below.

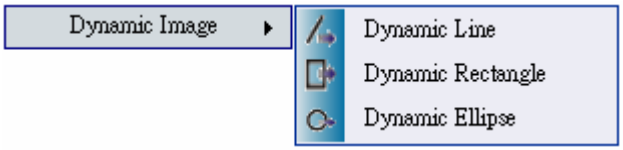



Fig. 3-6-10-1 Dynamic Image Menu

### a. Dynamic Line

To set up a dynamic straight line, click Unit and then click Dynamic Line, or directly click the shortcut, and in the editing window click and hold down the left button of the mouse to decide the first point of the line, and then drag the line to the preferred length and position and release the left button to finish the setup of the object. Click the object and then double left click the mouse to open the property window of the object and make the setting. See Figure 3-6-10A-1 below.

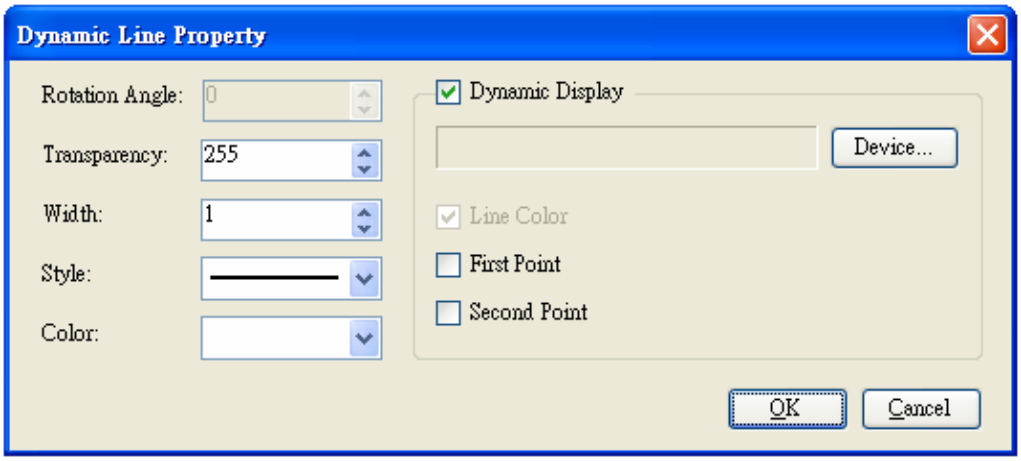



Fig. 3-6-10A-1 Dynamic Straight Line Property Setting

EX

Set device HD0 as the first (starting) device, the line color (RGB) stands for the devices HD0 and HD1; if the option First Point or Second Point is ticked, it means the devices HD2 and HD4.

NOTE

- To set the properties, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.
- Tick off the option Dynamic Display to return to normal display as a general straight line.

### b. Dynamic Rectangle

To set up a dynamic rectangle, click Unit and then click Dynamic Rectangle, or directly click the shortcut, and in the editing window click and hold down the left button of the mouse to decide the first point of the dynamic rectangle, and then drag the rectangle to the preferred size and release the left button to finish the setup of the object. Click the object and then double left click the mouse to open the property window of the object and make the setting. See Figure 3-6-10B-1 below.

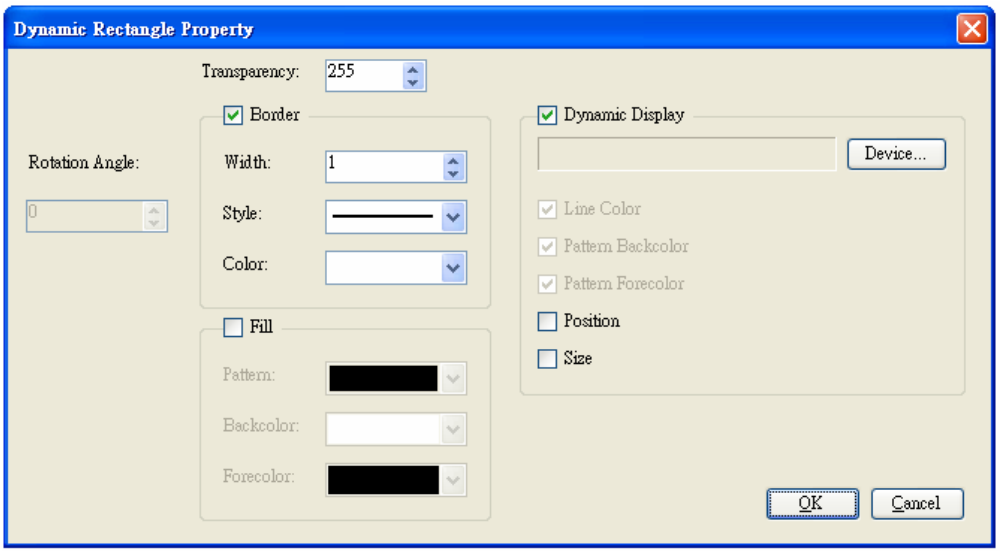
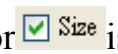



Fig. 3-6-10B-1 Dynamic Rectangle Property Setting

EX

Set device HD0 as the first (starting) device, and the line color (RGB) stands for the devices HD0 and HD1, then the picture's background and foreground colors are devices HD2, HD3, HD4 and HD5. If the option

or 

is ticked, it means the devices are HD6 and HD8.

NOTE

- To set the properties, you can also click

and then click

, or use the property window on the right of the screen, to make the setting.
- Tick off the option

to return to normal display as a general rectangle.

### c. Dynamic Ellipse

To set up a dynamic ellipse, click Unit and then click Dynamic Ellipse, or directly click the shortcut, and in the editing window click and hold down the left button of the mouse to decide the first point of the dynamic ellipse, and then drag the ellipse to the preferred size and release the left button to finish the setup of the object. Click the object and then double left click the mouse to open the property window of the object and make the setting. See Figure3-6-10C-1 below.

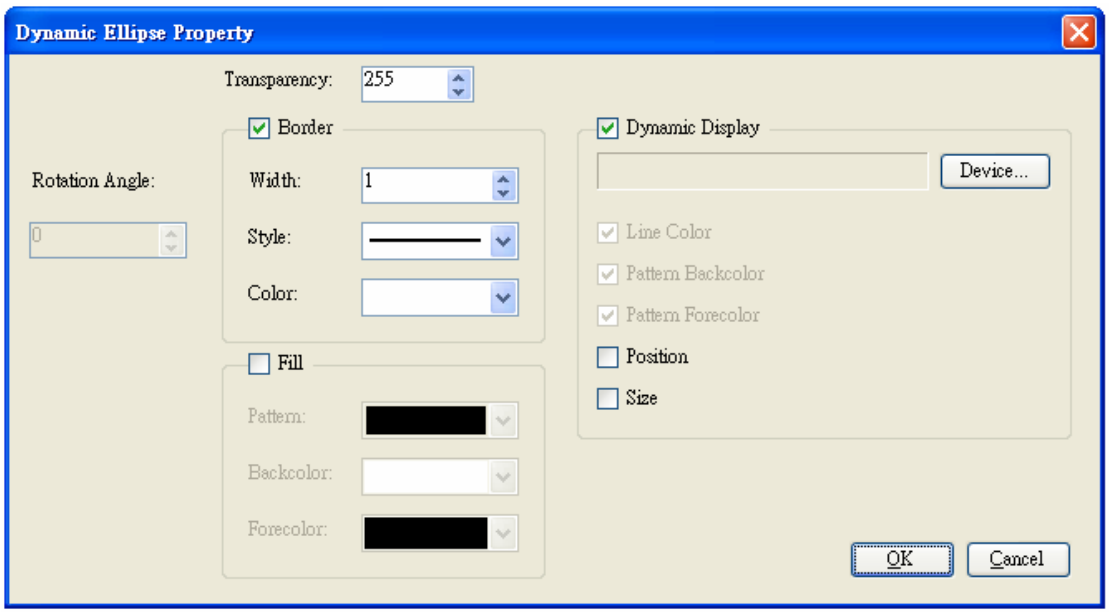



Fig. 3-6-10C-1 Dynamic Ellipse Property Setting

EX

Set device HD0 as the first (starting) device, and the line color (RGB) stands for the devices HD0 and HD1, then the picture's background and foreground colors are devices HD2, HD3, HD4 and HD5. If the option Position or Size is ticked, it means the devices are HD6 and HD8.

NOTE

- To set the properties, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.
- Tick off the option Dynamic Display to return to normal display as a general circle/ellipse.

### 3.6.11. Keypad

Click Unit and then click Keypad, or directly click the shortcut , and in the editing window left click the mouse to set up a keypad object. See Figure 3-6-11 below.

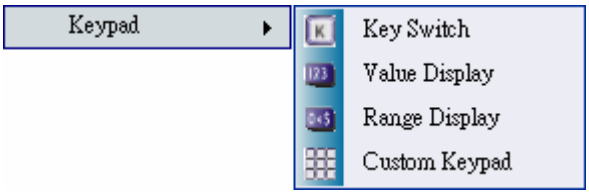



Fig. 3-6-11 Keypad Menu

### a. Key Switch

To set up a key switch, click Unit and click Keypad and then click Key Switch, or directly click the shortcut, and in the editing window left click the mouse to set up the object. Click the object and then double left click the mouse to open the property window of the object and make the setting.

The General property setting allows the user to set the picture ON/OFF, display color, transparency and line pattern. See Figure 3-6-11A-1 below.

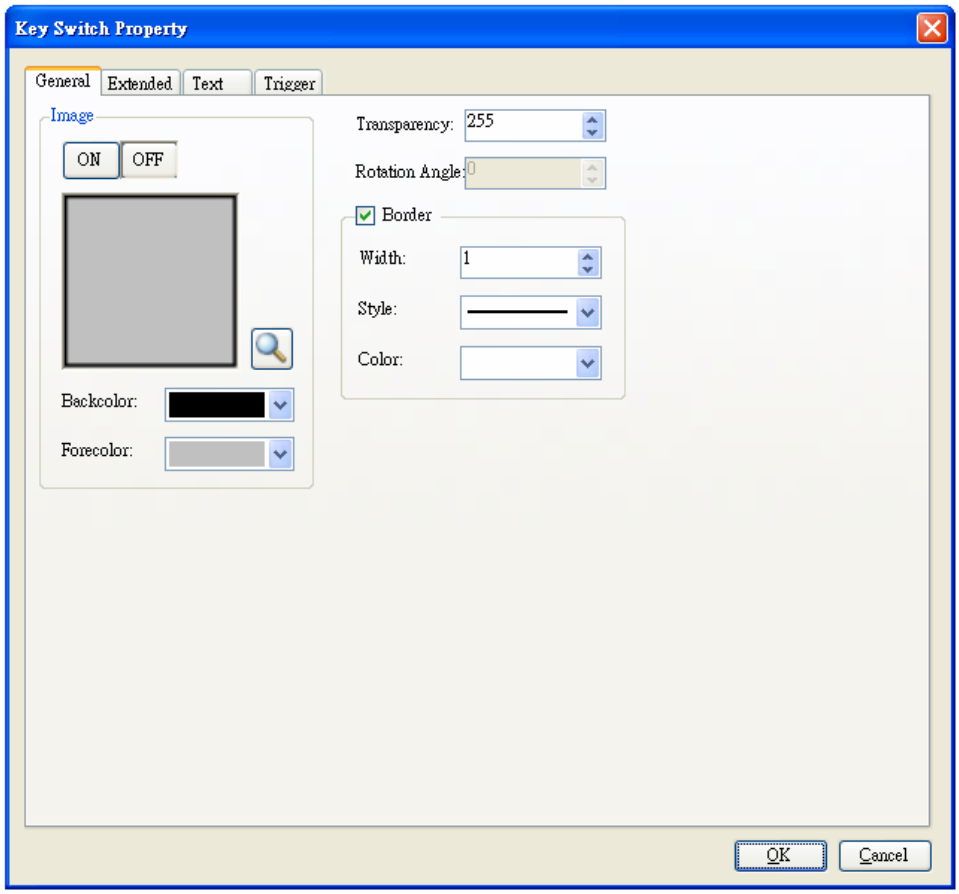



Fig. 3-6-11A-1 General Property Setting

To change the picture, click to open the picture library. For detailed instructions, please see Section 3.4.2 Image Library.

The Extension property setting allows the user to set the security level and functional options. Figure 3-6-11A-2 below demonstrates the setting of the object's security level. The security level (display) and security level (input) are both ranged from 0 (least privilege) to 15 (highest privilege). The default security levels of the edit software and the system are both 0.

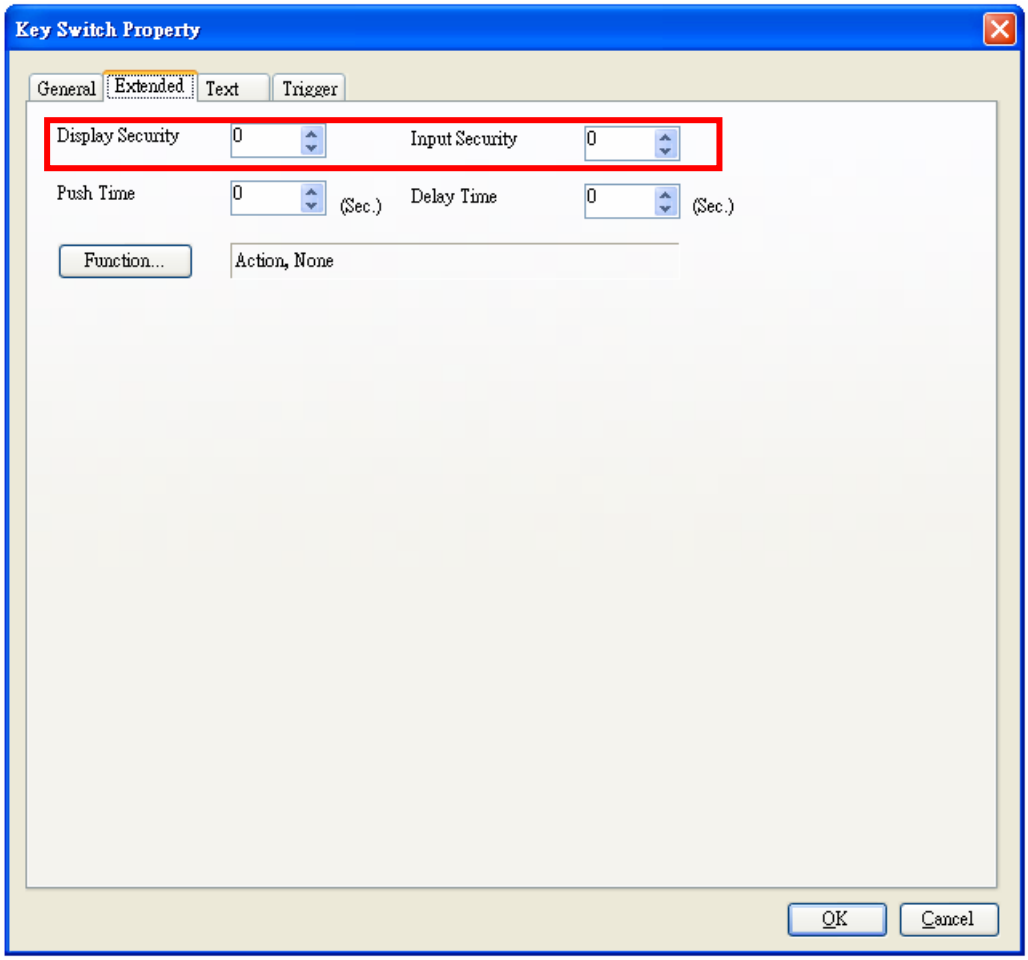
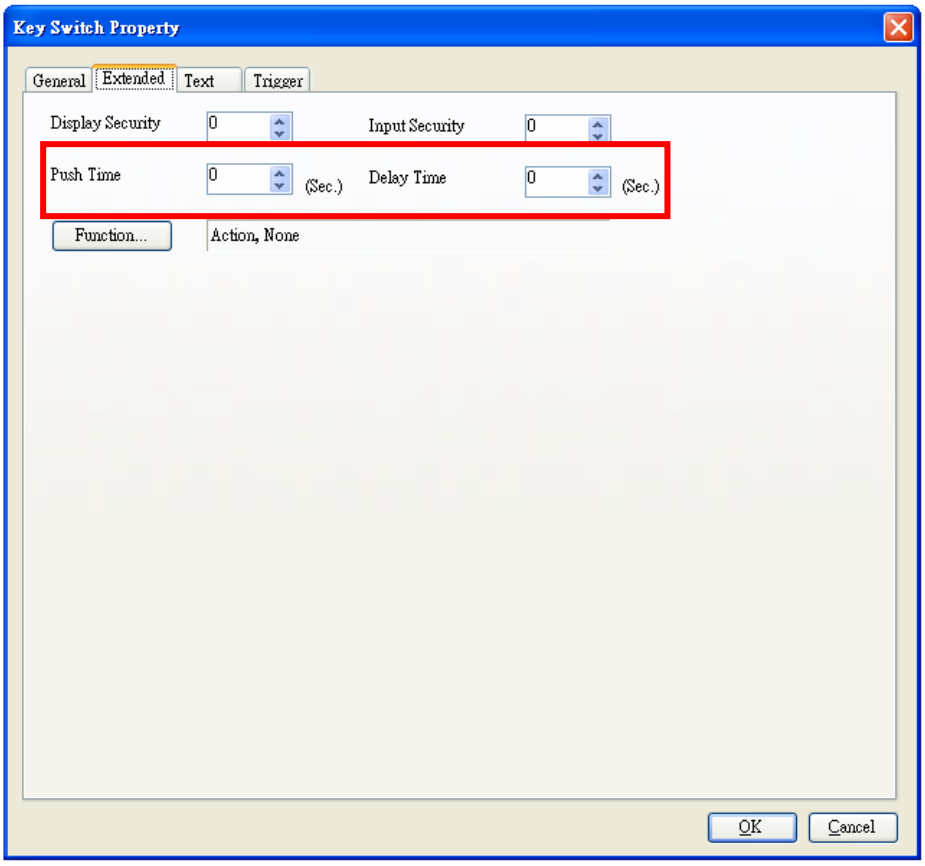



Fig. 3-6-11A-2 Security Level Setting

Figure 3-6-11A-3 below shows the setup of the object's action times of press-and-hold and latency.




EX

| Action Time | Description |
|---|---|
| **Push Time** | When the time is set to 5 seconds, press and hold down the switch for 5 seconds to start action. |
| **Delay Time** | When the time is set to 5 seconds, press the switch and wait for 5 seconds for action to start. |

Fig. 3-6-11A-3 Action times

To set up a key code of the keypad, click Function... to open the dialogue box of the keypad key code and set up the keypad input character and its action. See Figure 3-6-11A-4 below.

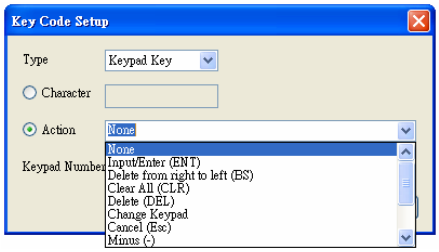



Fig. 3-6-11A-4 Keypad Key Codes Setting

The Text property setting allows the user to set the display ON/OFF, color, font, edit position, alignment, and text content. See Figure 3-6-11A-5 below.

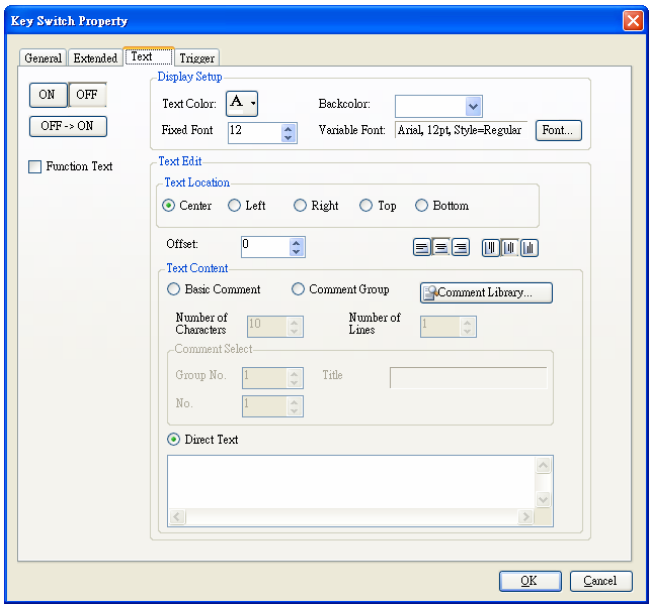



Fig. 3-6-11A-5 Text Property Setting

In the text editing, comments in the comment library can be set as text to display. To do this, click Comment Library... to open the comment library dialogue box. For detailed instructions, please see Section 3.4.4 Comment Library.

NOTE

- When the text alignment set for align left、align right、Align top、Align bottom, can be used to offset setting to adjust the text position.

To display the keypad function directly on the switch, tick Function Text to change the display ON/OFF, color and font. See Figure 3-6-11A-6 below.

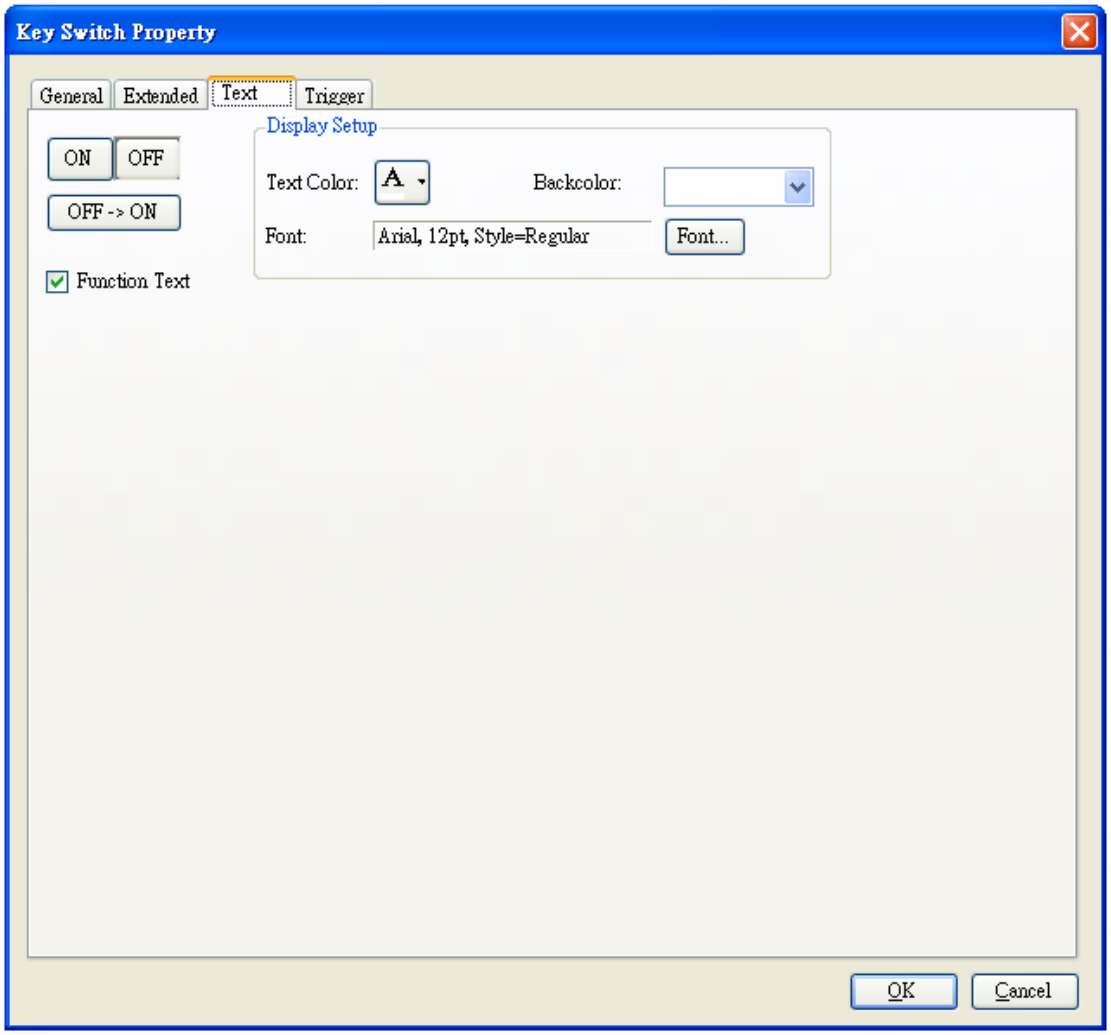
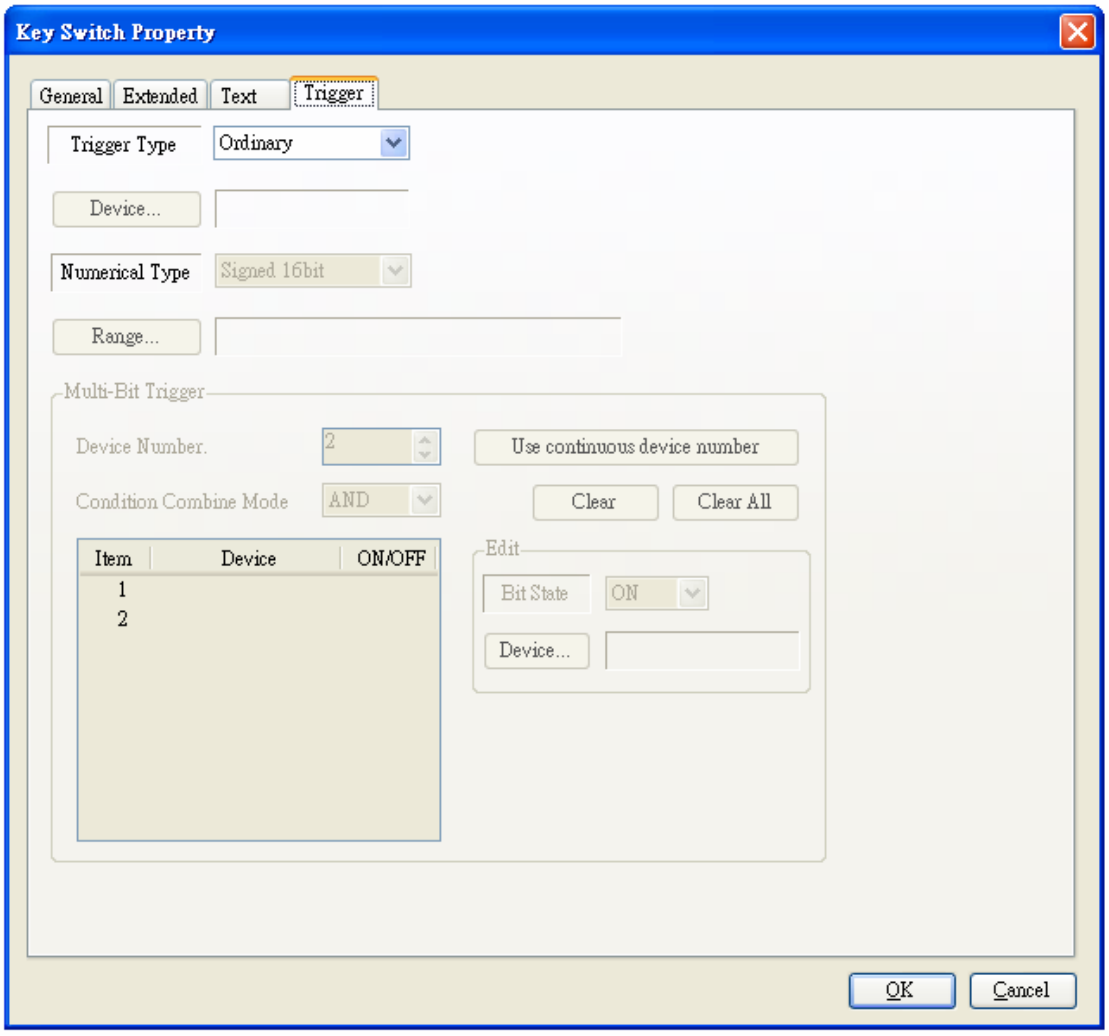



Fig. 3-6-11A-6 Functional Text

The Trigger property setting allows the user to set the conditions of the trigger pattern. See Figure 3-6-11A-7 below.

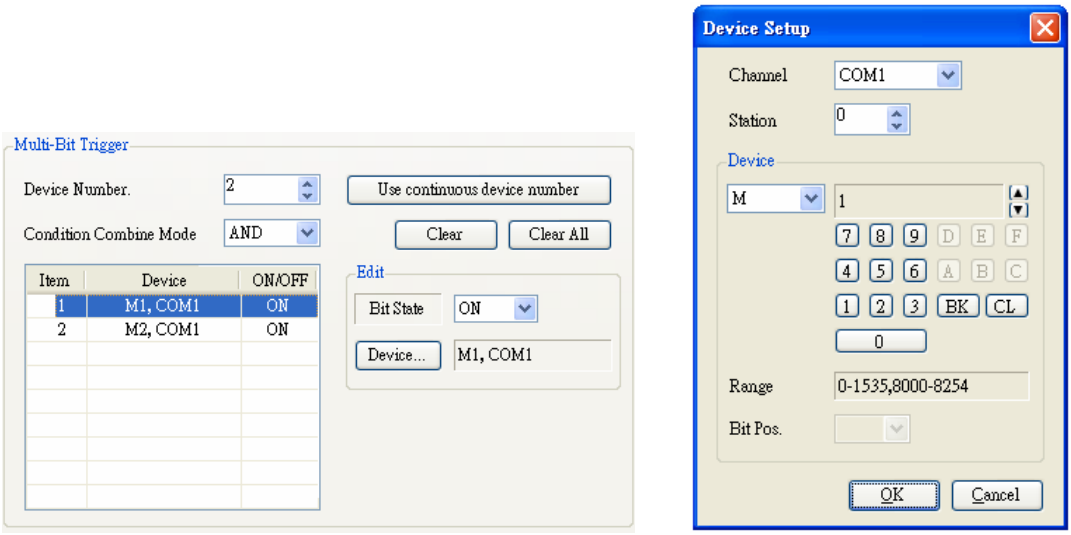



| Trigger Pattern | Description |
|---|---|
| **Ordinary** | No triggering pattern |
| **ON** | Action is taken only when the device in ON |
| **OFF** | Action is taken only when the device in OFF |
| **Range** | Action is taken only when the device value is within this range. |
| **Multi-Bit Trigger** | Set two or more devices, and only when all the devices meet the condition will the action be taken. |

Fig. 3-6-11A-7 Trigger Pattern Setting

EX

To set the trigger pattern as multi-Bit trigger with 2 devices, click Device... to open the device setting window and set the trigger devices as M1 and M2. Confirm the setting and have the file sent to HMI. So, only when M1 and M2 are both ON will the switch actions be started. See Figure3-6-11A-8 below.




(a) (b)

Fig. 3-6-11A-8 Multi-Bit Trigger (a) Setup of Multi-Bit Trigger (b) Device Setup

NOTE

- To set the properties, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.

### b. Value Display

To set up a data display keypad, click Unit and click Keypad and then click Value Display, or directly click the shortcut, and in the editing window left click the mouse to set up the object. Click the object and then double left click the mouse to open the property window of the object and make the setting.

The General property setting allows the user to set the picture pattern, display color, transparency and line pattern. See Figure 3-6-11B-1 below.

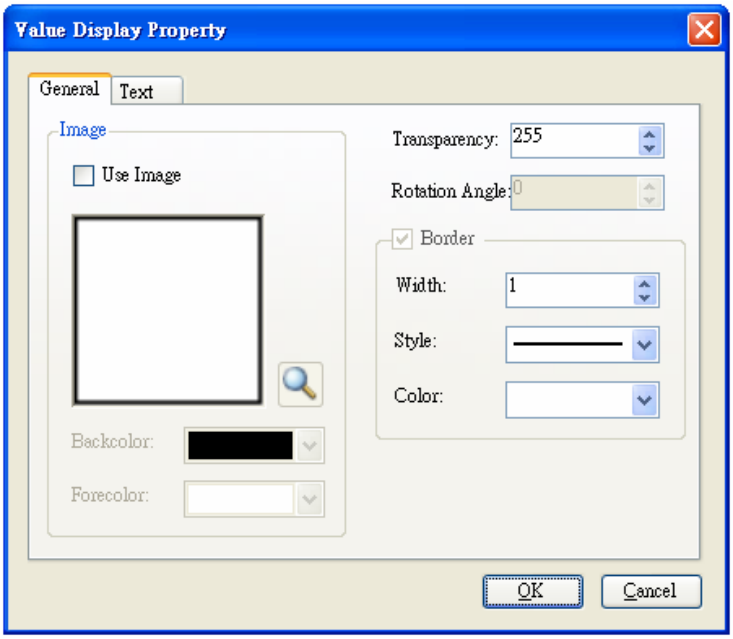



Fig. 3-6-11B-1 General Property Setting

To change the picture, click to open the picture library. For detailed instructions, please see Section 3.4.2 Image Library.

The Text property setting allows the user to set the numeric type, figure, character font and spacing, and alignment. See Figure 3-6-11B-2 below.

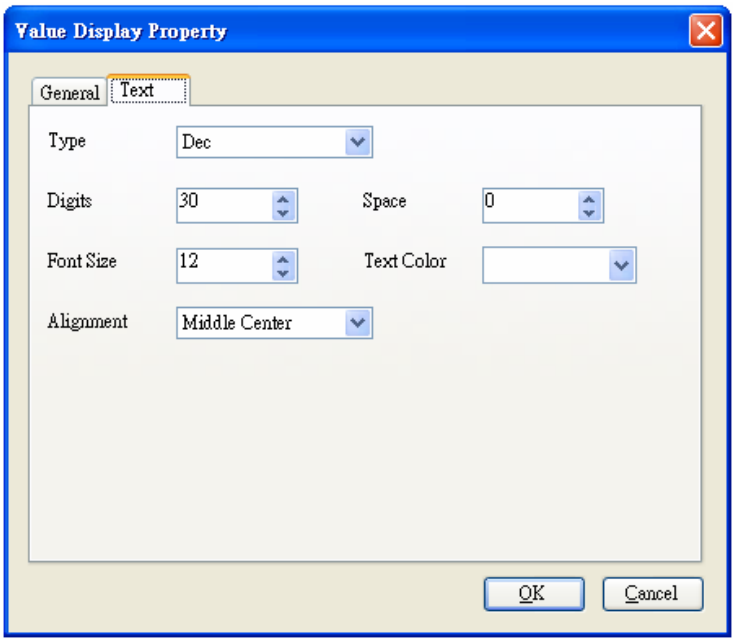



Fig. 3-6-11B-2 Text Property Setting

NOTE

- To set the properties, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.

### c. Range Display

To set up a range display keypad, click Unit and click Keypad and then click Value Display, or directly click the shortcut, and in the editing window left click the mouse to set up the object. Click the object and then double left click the mouse to open the property window of the object and make the setting.

The General property setting allows the user to set the picture pattern, display color, transparency and line pattern. See Figure 3-6-11C-1 below.

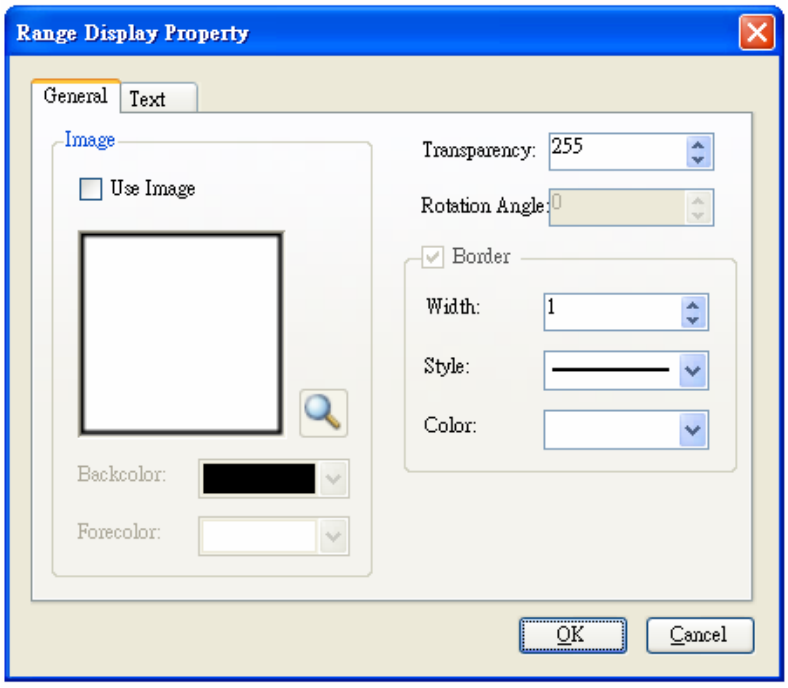



Fig. 3-6-11C-1 General Property Setting

To change the picture, click to open the picture library. For detailed instructions, please see Section 3.4.2 Image Library.

The Text property setting allows the user to set the numeric type, digits, font size and space, and alignment. See Figure 3-6-11C-2 below.

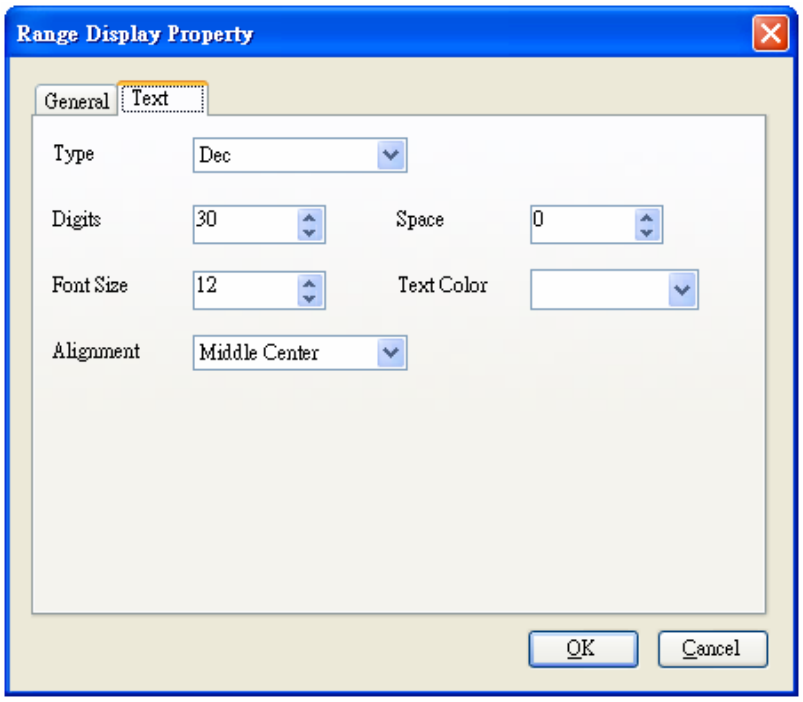



Fig. 3-6-11C-2 Text Property Setting

NOTE

- To set the properties, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.

### d. Custom Keypad

To set up a custom keypad, click Unit and click Keypad and then click Custom Keypad, or directly click the shortcut to open the package list window. Use the built-in numeric/character keypad in the package list, and drag it to the editing window and ungroup it to edit. The user can also define the package for the edit of add/open/delete/rename. See Figure 3-6-11D-1 below.

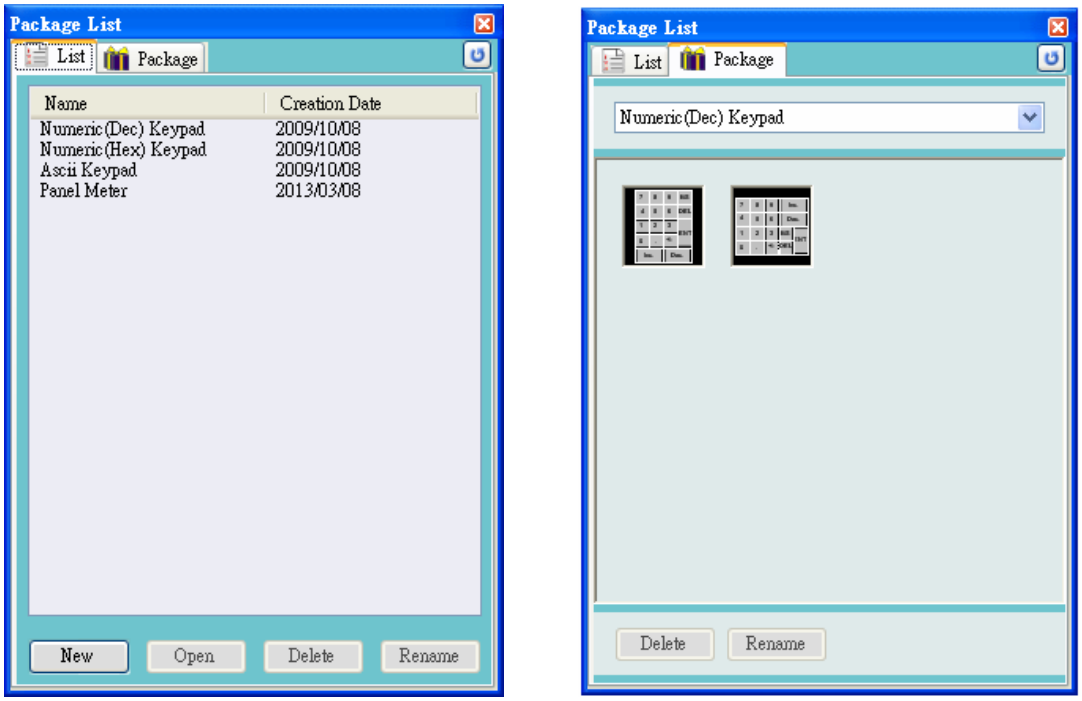
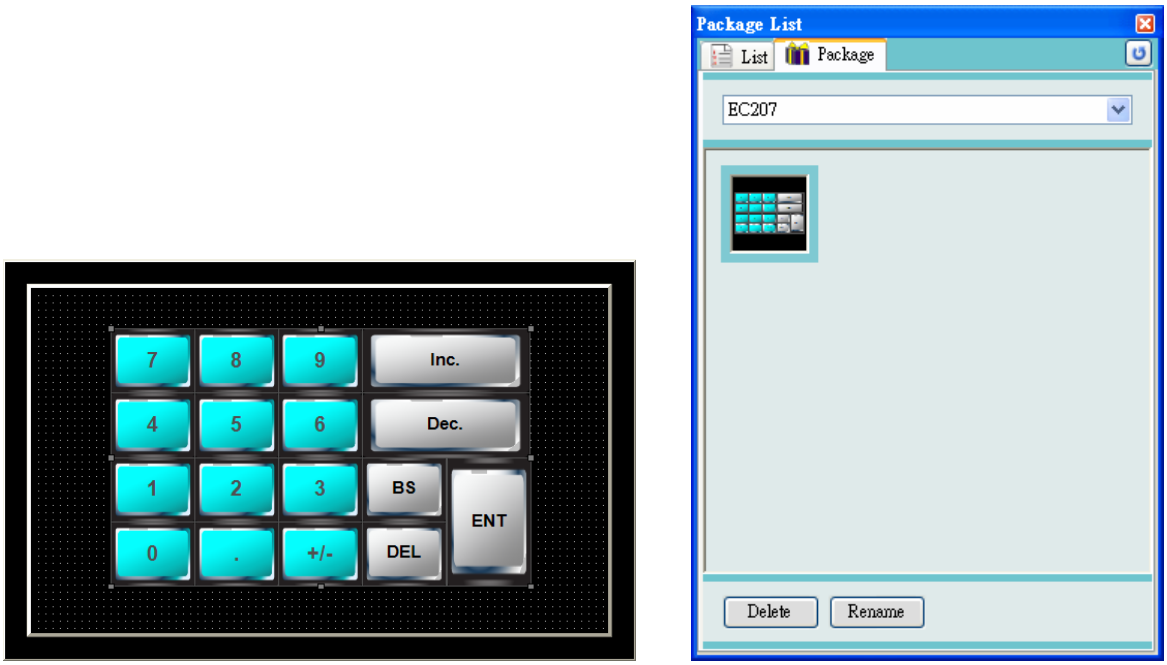



Fig. 3-6-11D-1 Package List

NOTE

- The value display and range display can only be set up in the keypad screen.

To add user-defined keypads to the package list, click New to enter the new package name, and then select the needed keypad from the basic screen and left click the mouse and hold, and drag the keypad to the package list to finish the job. To use the keypad in the package list, just click the needed keypad and drag them to the screen. See Figure 3-6-11D-2 below.




(a) (b)

Fig. 3-6-11D-2 Editing Package List (a) Keypad of Basic Screen (b) Dragging to Package List

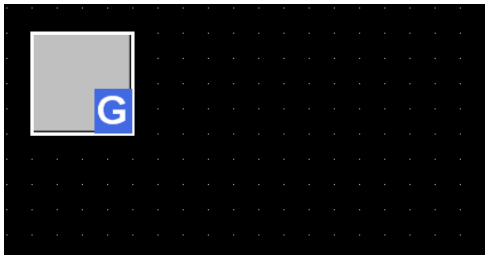
NOTE

- To set the properties, you can also click Edit and then click Unit Property, or use the property window on the right of the screen, to make the setting.

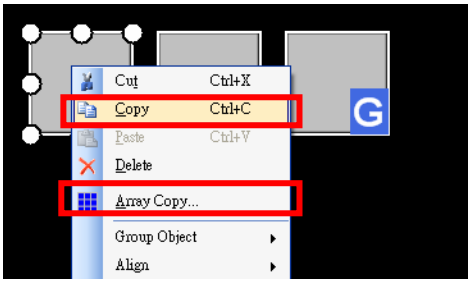
### 3.6.12. Global Unit

If you want to create global units, click the global unit in the toolbar, as shown in figure 3-6-7. When you edit the global unit in the window, the icon G will appear on the bottom right of the global units (for details, see section 3.2.13 “Show Global Unit Tag”). The use of global units is described in figure 3-6-8.

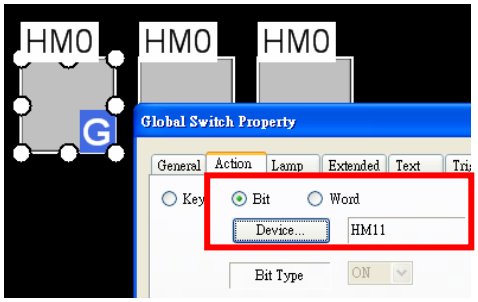
Figure 3-6-7: Global unit toolbar



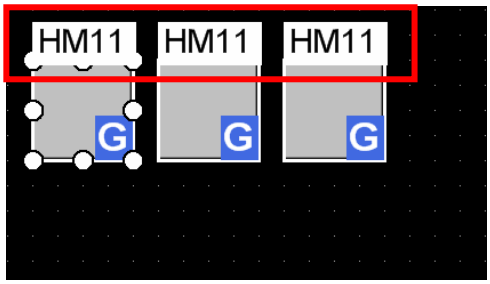
1. Add a new global unit in edit window




2. Use copy/array copy tool to add global units




3. Randomly change global unit setting in general group




4. Change all global units settings in general group

Figure 3-6-8: Use of global units

NOTE

Global unit does not support copy / paste on other projects.

## 3.7. Screen Menu

### 3.7.1. Description of Screen Functions

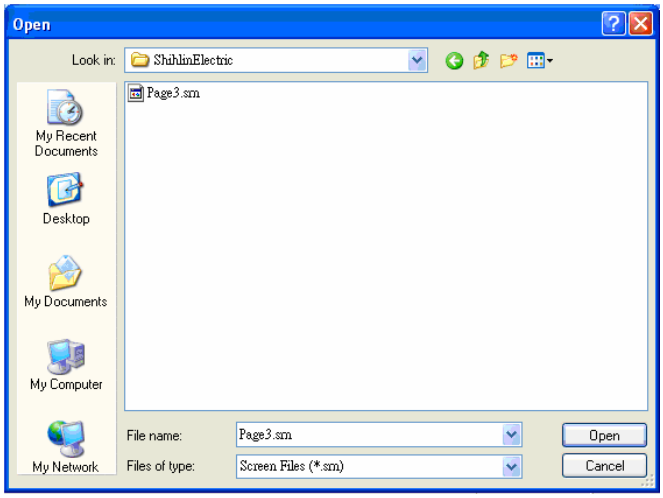
All the functions of the Screen menu are listed in the Table 3-7-1 below.

Table 3-7-1 Image Menu

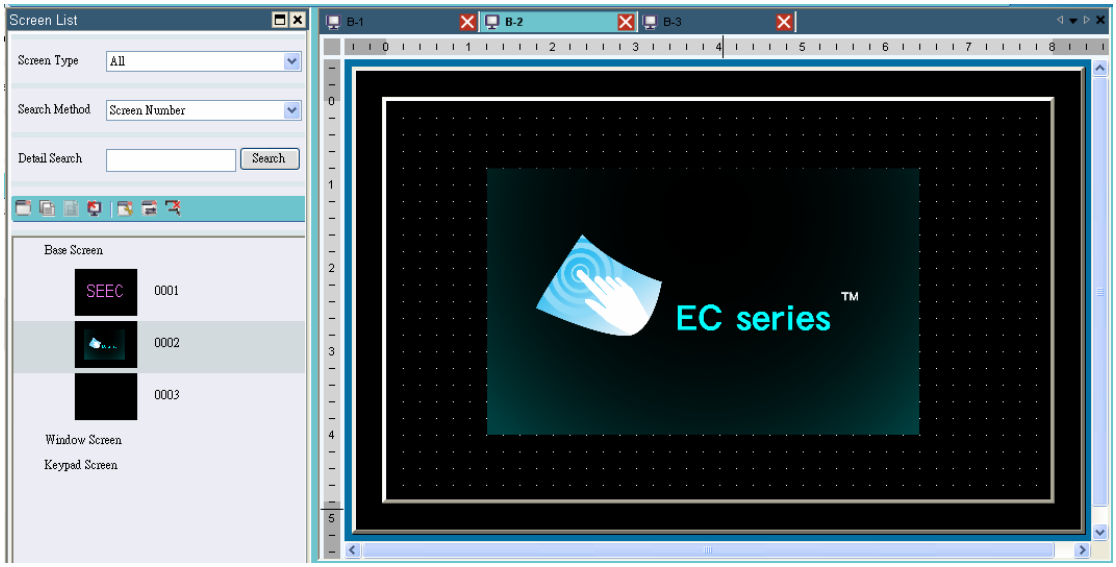
| Name | Function |
|---|---|
| Load... | Load the saved screen data. |
| Save As... | Save the screen data as a new file. |
| New Screen... | Add a new edit screen. |
| Delete Screen | Delete an edit screen. |
| Page Up | View the previous screen page. |
| Page Down | View the next screen page. |
| Page Skip... | Select the screen page to be viewed. |
| Screen Open Marco... | Edit the macro of opening a single screen. |
| Screen Close Macro... | Edit the macro of closing a single screen. |
| Screen Cycle Macro... | Edit the cyclic macro of a single screen. |
| Screen Property... | Set properties of screen display. |

### 3.7.2. Load

Click Screen and the click Load... to open the Load dialogue box and select the screen file (*.srn) to be loaded. When the screen is loaded, it will be placed behind the screen of the original number. See Figure 3-7-2 below.




(a)




(b)

Fig. 3-7-2 Loading Screen (a) Opening Screen File (b) Loading Completed

### 3.7.3. Save As

Click Screen and then click Save As... to open the Save dialogue box and enter a filename, and then confirm to finish saving the screen file (*.srn). See Figure 3-7-3 below.

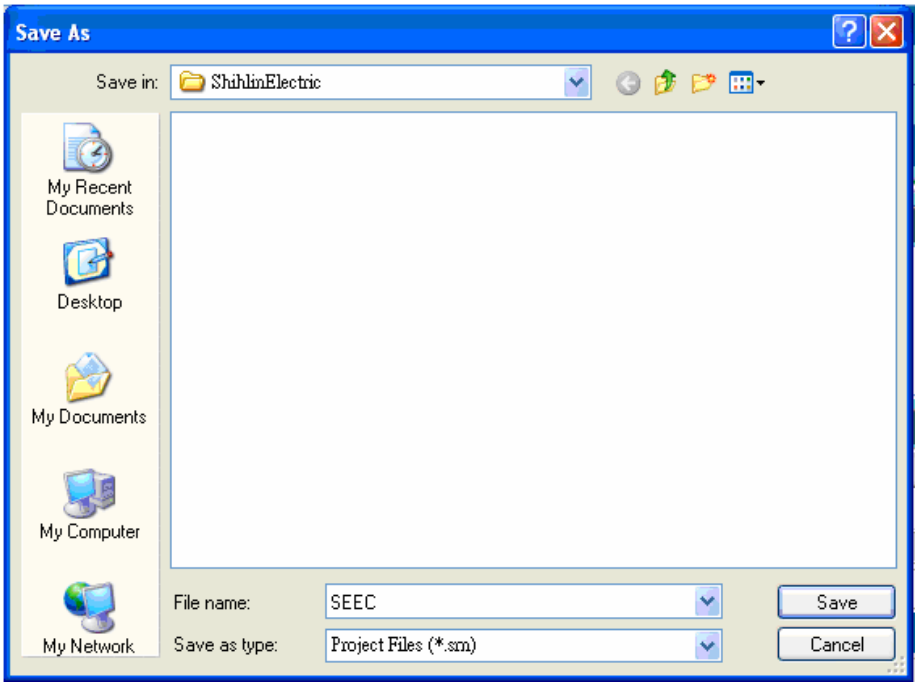



Fig. 3-7-3 Saving Screen

### 3.7.4. New Screen

Click Screen and then click New Screen..., or directly click the shortcut to open the New Screen dialogue box and add a basic screen/window screen/keypad screen, or change the color and security level. See Figure 3-7-4-1 below.

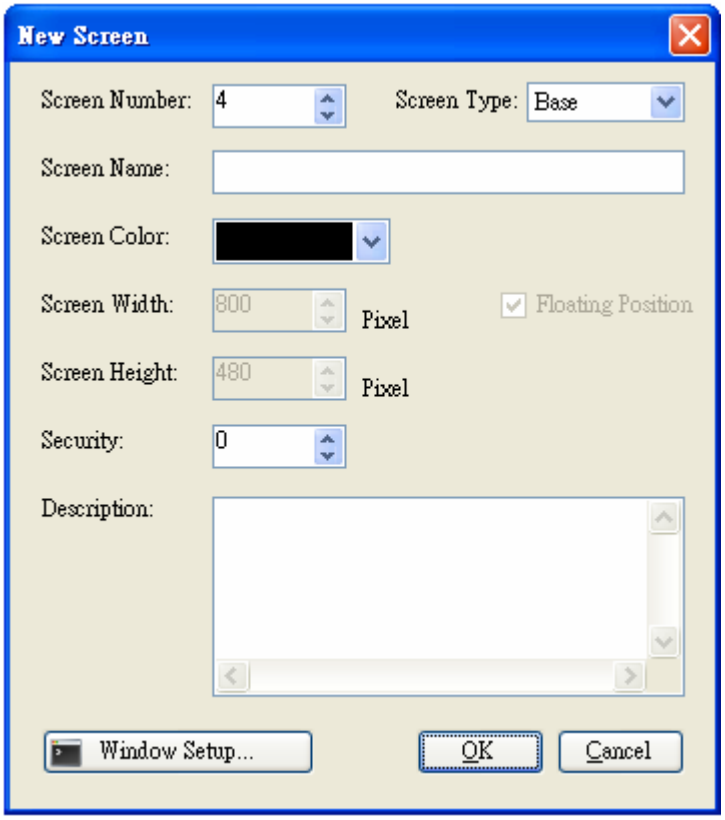



Fig. 3-7-4-1 New Screen Dialogue Box

Click Window Setup... to open the dialogue box of the window screen position setting and change the window screen's display position. See Figure 3-7-4-2 below.

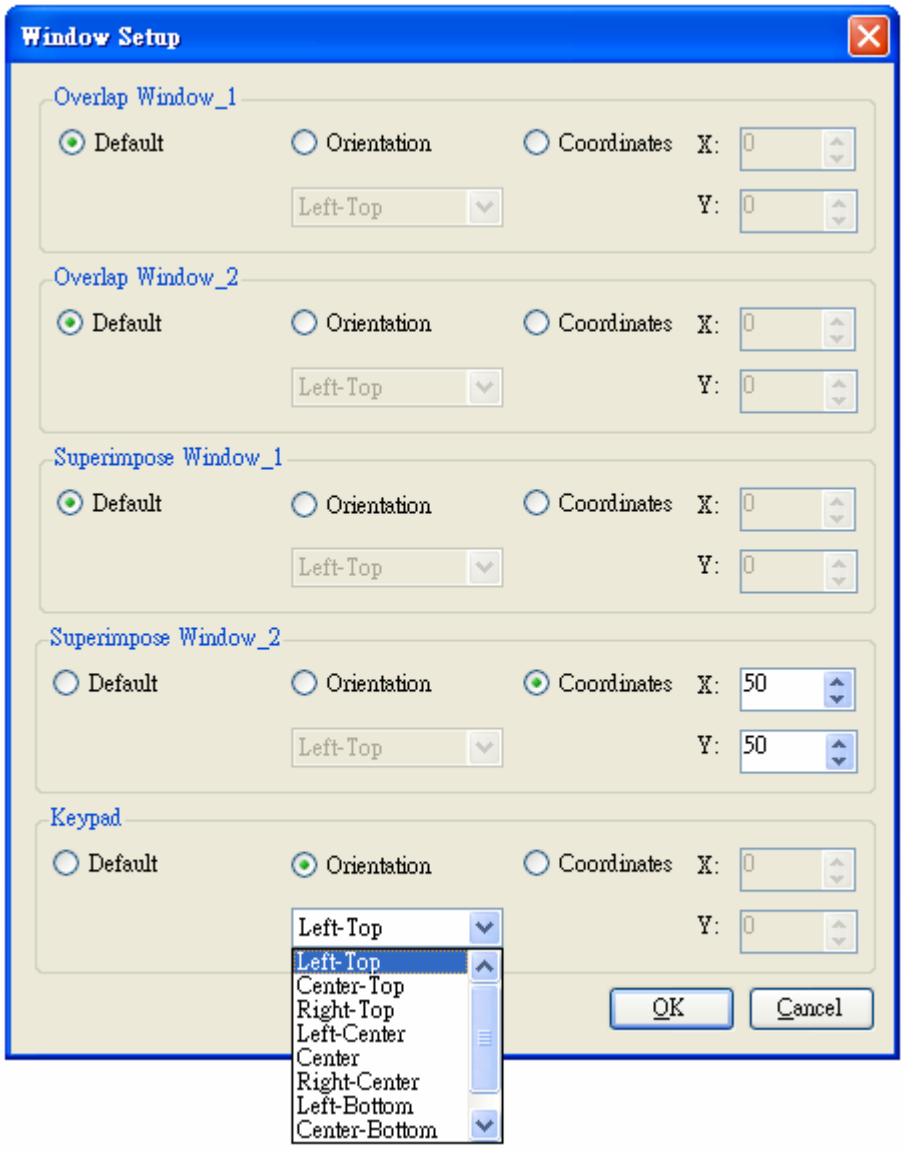



Fig. 3-7-4-2 Window Screen Setting

### 3.7.5. Delete Screen

Click Screen and then click Delete Screen, or directly click the shortcut to pop up the confirmation box for the deletion. Confirm to finish the deletion. See Figure 3-7-5 below.

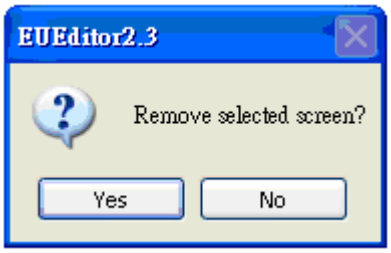



Fig. 3-7-5 Deletion Dialogue Box

### 3.7.6. Page Up

Click Screen and then click Page Up, or directly click the shortcut to view the first page or the previous page.

### 3.7.7. Page Down

Click Screen and then click Page Down, or directly click the shortcut to view the next page or the last page.

### 3.7.8. Page Skip

Click Screen and then click Page Skip..., or directly click the shortcut to open the dialogue box of options. See Figure 3-7-8 below.

EX

For example, the screen numbers are P1, P5, P10, and the screen names are One, Five, Ten, correspondingly. To jump to page P5, enter “2” for page jump; enter “5” for screen number jump; enter “Five” for screen name jump.

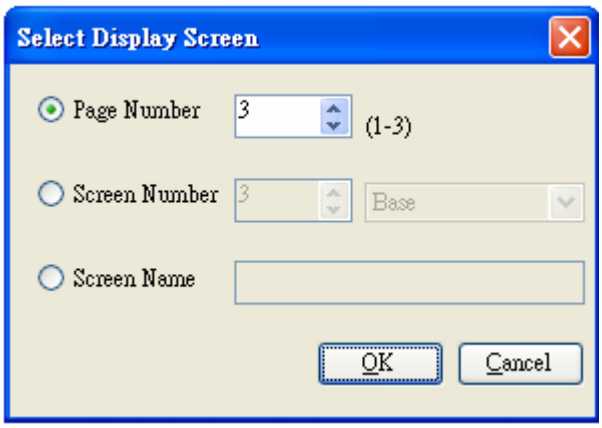



Fig. 3-7-8 Screen Selection

### 3.7.9. Screen Open Macro

Click Screen and then click Screen Open Macro... to open the dialogue box of the screen open macro. See Figure 3-7-9 below. This is used for editing a single-page macro. When the screen is opened, the macro will be executed. For detailed information about editing macro, please see Section 3.4.5 Macro Library.

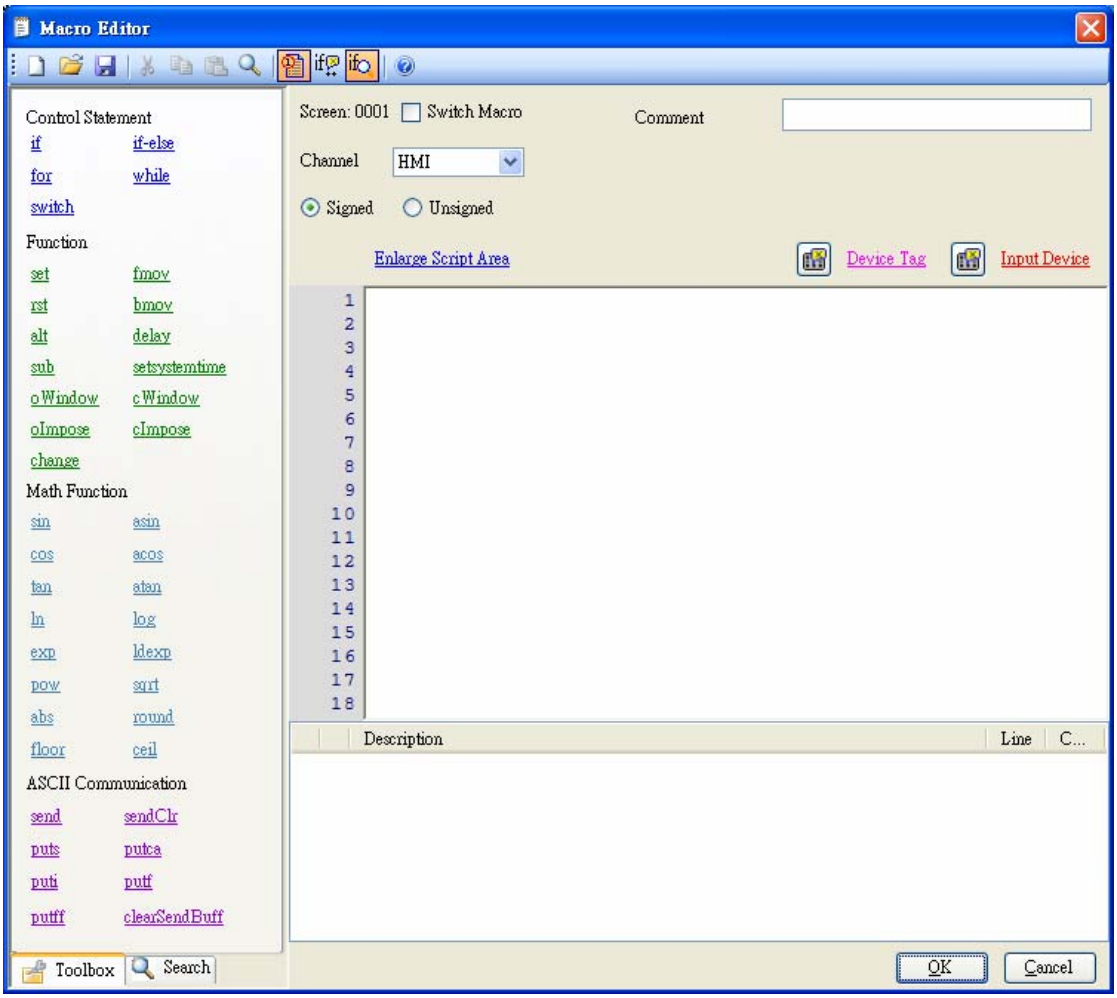



Fig. 3-7-9 Setup of Screen Open Macro

### 3.7.10. Screen Close Macro

Click Screen and then click Screen Close Macro... to open the dialogue box of the screen close macro. See Figure 3-7-10 below. This is used for editing a single-page macro. When the screen is closed, the macro will be executed. For detailed information about editing macro, please see Section 3.4.5 Macro Library.

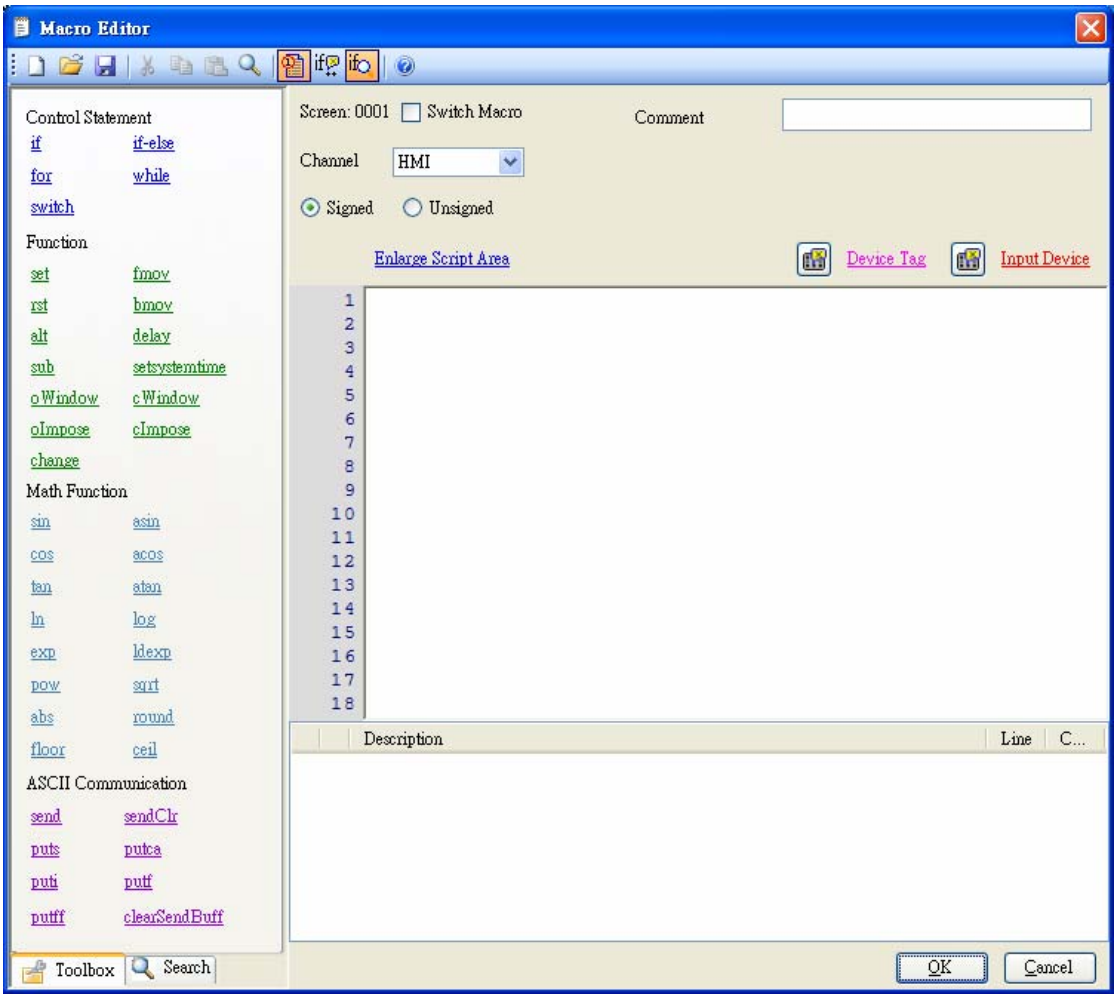



Fig. 3-7-10 Setup of Screen Close Macro

### 3.7.11. Screen Cycle Macro

Click Screen and then click Screen Cycle Macro... to open the dialogue box of the screen cycle macro. See Figure 3-7-11 below. This is used for editing a single-page macro. When the screen is opened, the macro will be executed cyclically till the screen is closed. For detailed information about editing macro, please see Section 3.4.5 Macro Library.

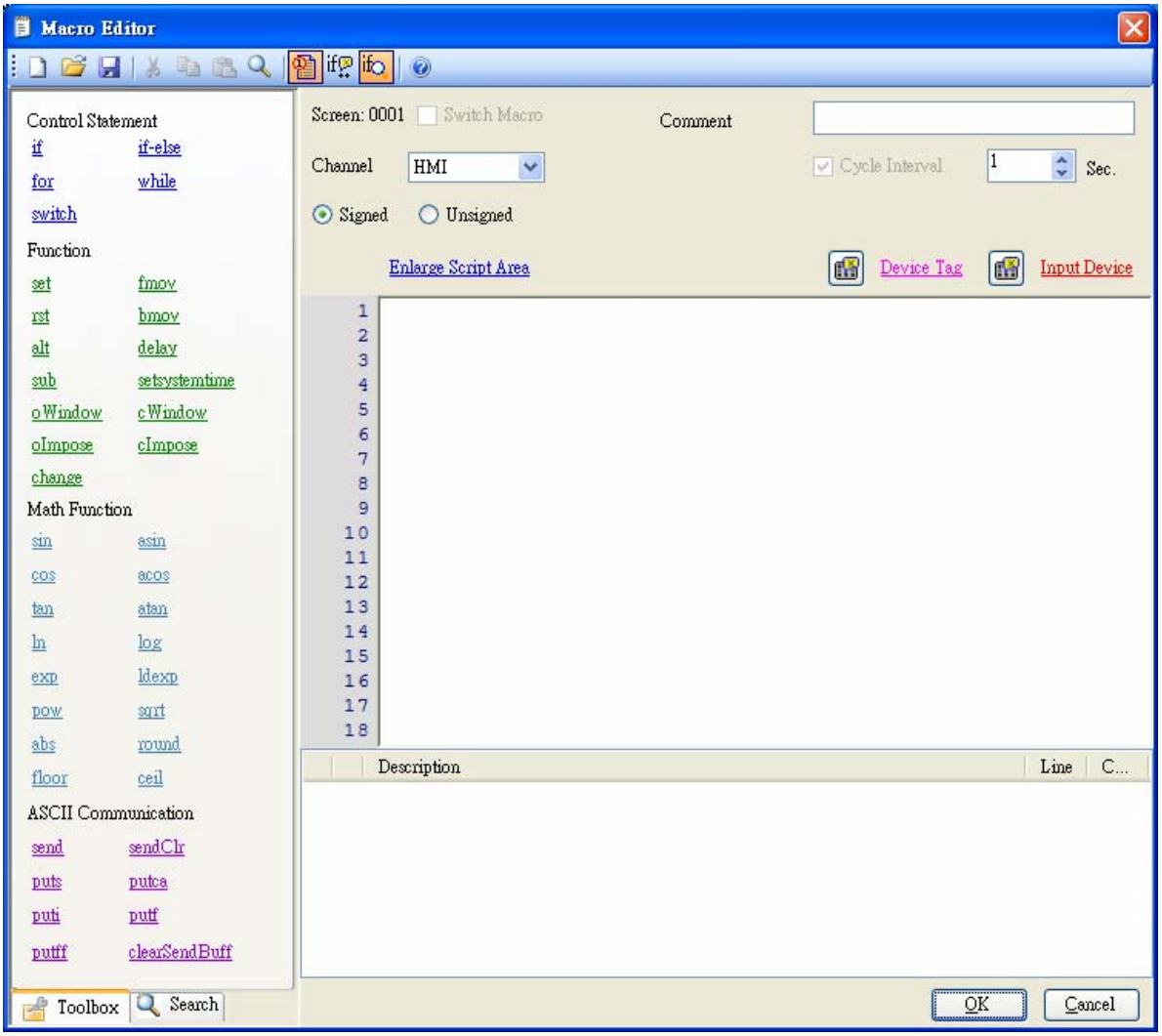



Fig. 3-7-11 Setup of Screen Cycle Macro

### 3.7.12. Screen Property Setting

Click Screen and then click Screen Property... to open the dialogue box of the screen property setting and make the property setting. See Figure 3-7-12 below.

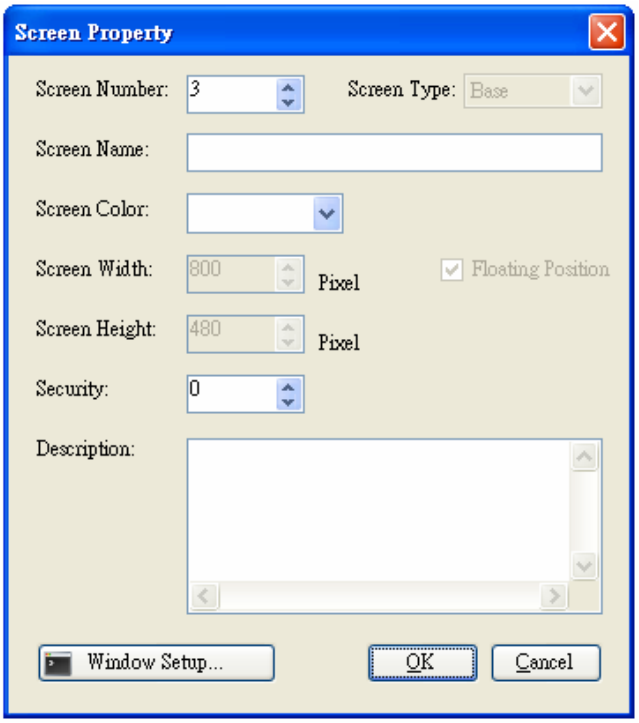



Fig. 3-7-12 Screen Property Window

NOTE

- To set the properties, you can also select from the property window on the right of the screen, or double left click the mouse on the blank space of the screen, to make the setting.

### 3.7.13. Background Screen Select

Click the right mouse button in the edit window to open the shortcut edit menu, and then click the “Background Screen Select” to choose an base screen as the background screen, as shown in figure 3-7-13.

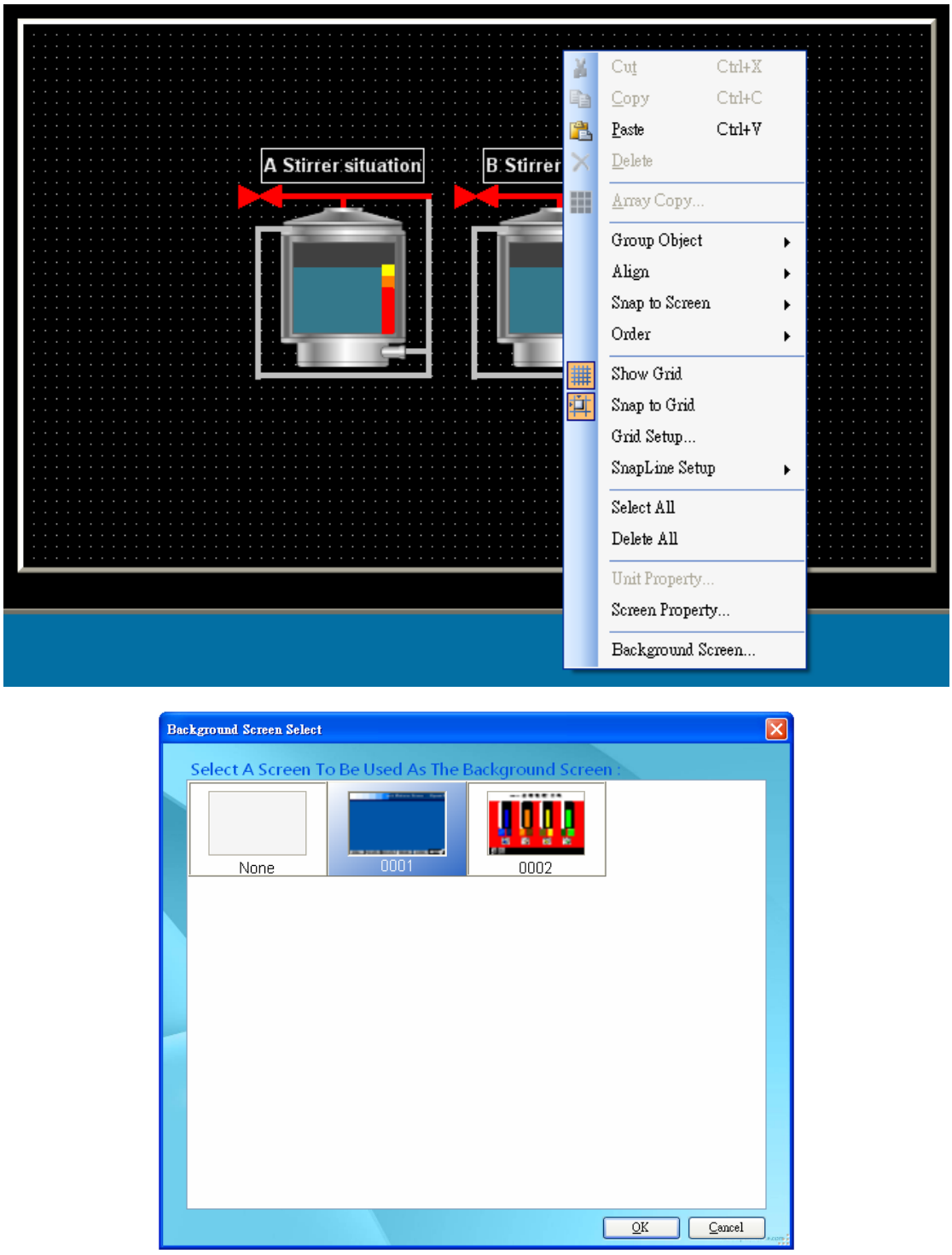



Figure 3-7-13: Select background screen

After selecting the background screen, the background screen will be placed on the bottom, as shown in figure 3-7-14. The background screen is only displayed on the bottom and cannot be edited. If you want to edited the background screen, you must go to the initial screen of the background screen to edit, as shown in figure 3-7-15.

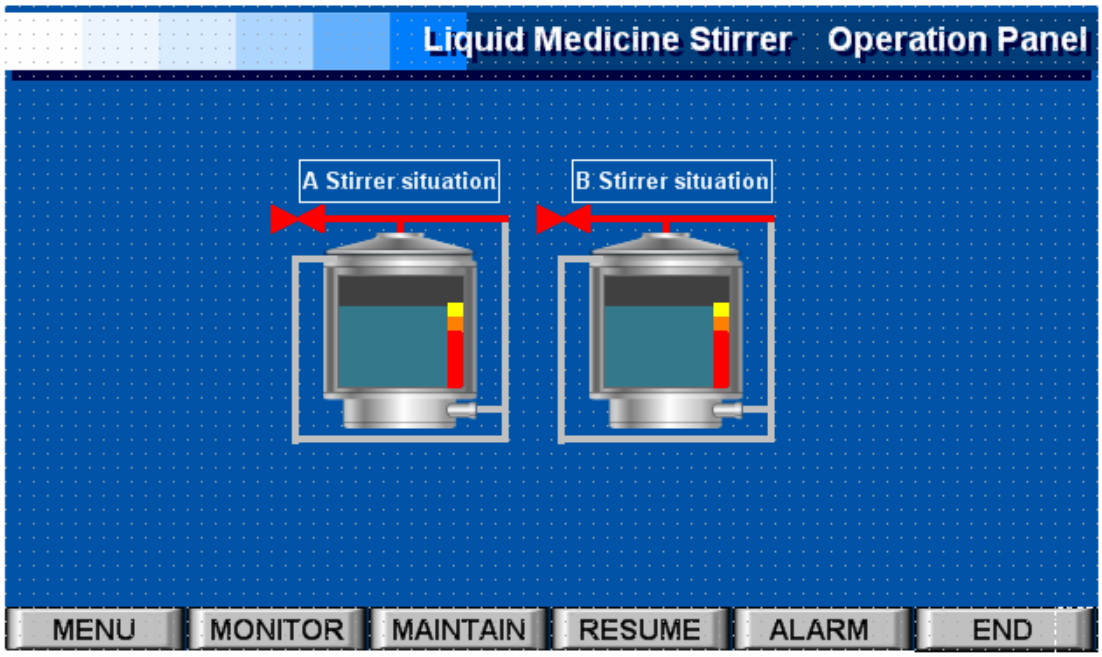



Figure 3-7-14: Display background screen

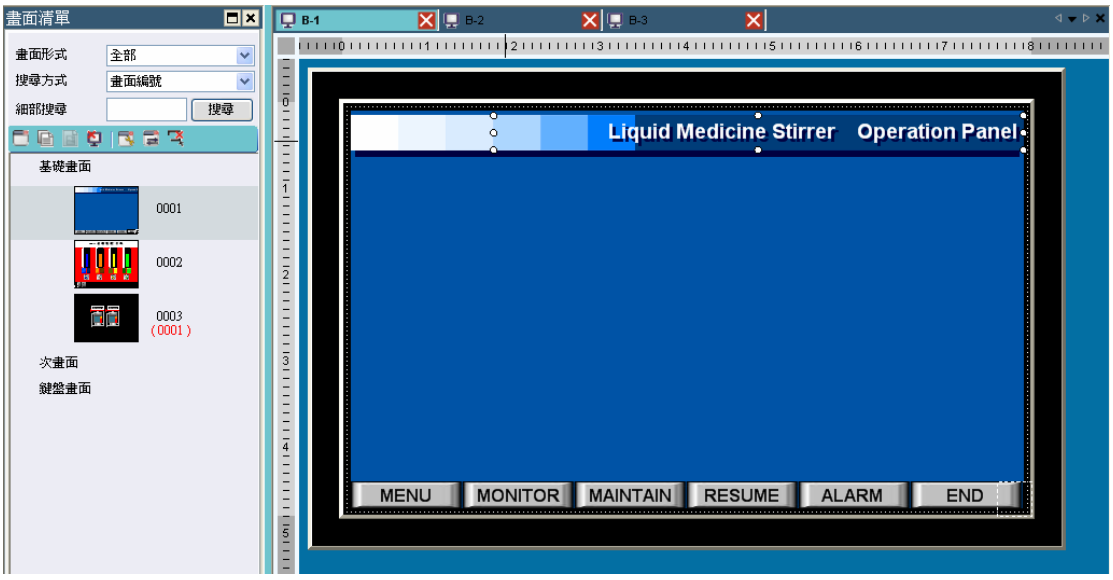



Figure 3-7-15: Edit background screen image in initial screen

NOTE

- In the screen list, the background screen number will be showed . See Figure 3-7-16 below.

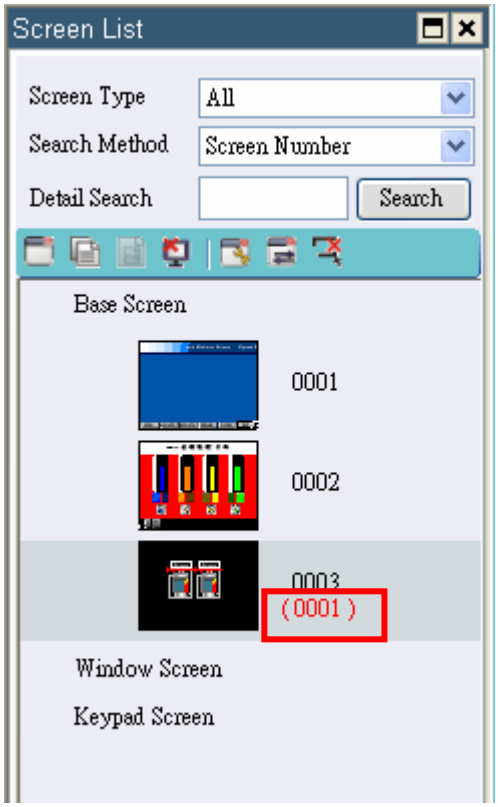



Figure 3-7-16: Numbered background images

## 3.8. Operations Menu

### 3.8.1. Operational Functions

All the functions in the Operation menu are listed in Table 3-8-1 below.

Table 3-8-1 Menu of Operational Functions

| Name | Function |
|---|---|
| Error Check | Check for any errors in the editing screen. |
| Transfer Tool... | Set the data transmission method. |
| Simulation File Generator... | Generate a simulation file |
| Environment Setup... | System's detailed environment setting. |

### 3.8.2. Error Checks

Click Operation and then click Error Check, or directly click the shortcut, and in the editing screen make the error detection. See Figure 3-8-2 below.

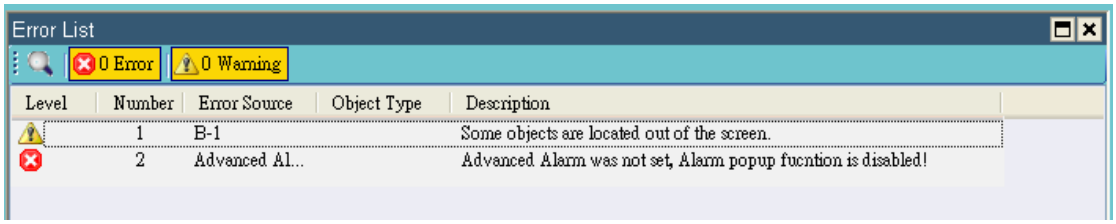



Fig. 3-8-2 Error List

NOTE

- Double left click the mouse can switch the screen and jump to the selected object.

### 3.8.3. Transfer Tool

Click Operation and then click Transfer Tool..., or directly click the shortcut to send/receive projects and update the O.S. programs. See Figure 3-8-3-1 below.

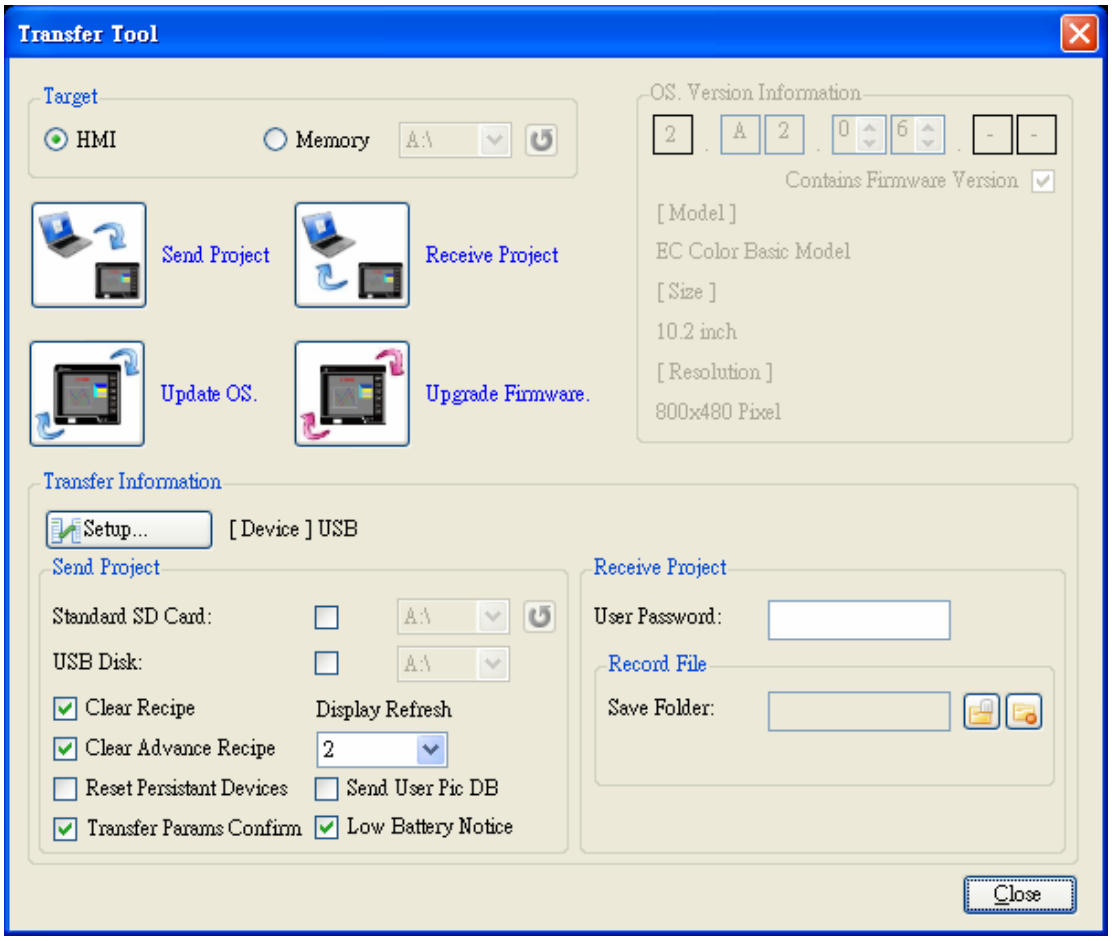



Fig. 3-8-3-1 Transmission Tool

**a. Send Project**

Click

the to send projects to HMI, and then The following dialog box appears if to send parameter settings to HMI (for details, see section **3.9.11 "Parameter setup"**), as shown in figure 3-8-3-2.

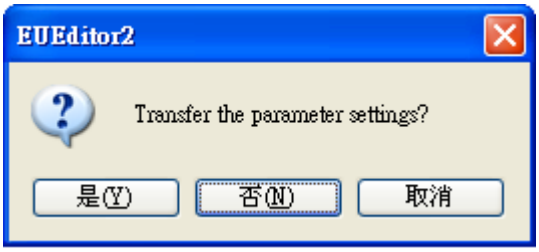



Figure 3-8-3-2: Confirmation of parameter transfer

Send a project to HMI, as shown in figure 3-8-3-3.

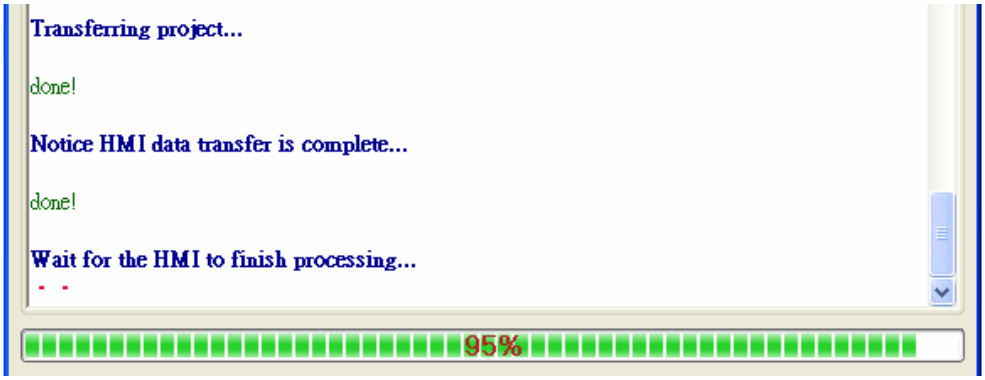



Figure 3-8-3-3: Project transferring

The project transfer is finished, as shown in figure 3-8-3-4.

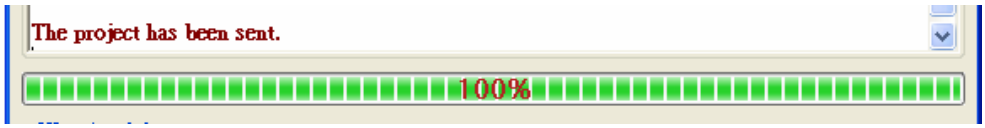



Figure 3-8-3-4: Completion of project transfer

The type set in the editor is inconsistent with the HMI type, as shown in figure 3-8-3-5.

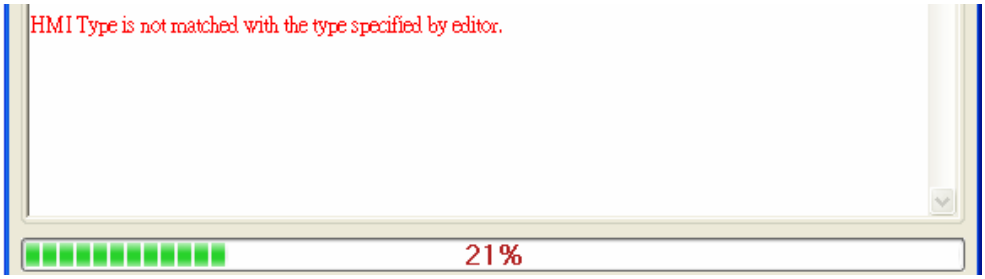



Figure 3-8-3-5: Project type is inconsistent with HMI type

The USB transfer cable does not connect to PC and HMI, as shown in figure 3-8-3-6. If it connects to both ends but it still fails to link, re-plug it to ensure a complete connection.

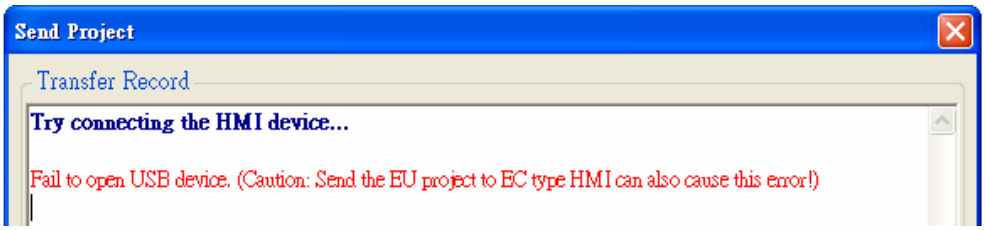



Figure 3-8-3-6: USB transfer cable fails to connect completely

The Eternet transfer cable does not connect to PC and HMI, as shown in figure 3-8-3-7. If it connects to both ends but it still fails to link, re-plug it to ensure a complete connection.

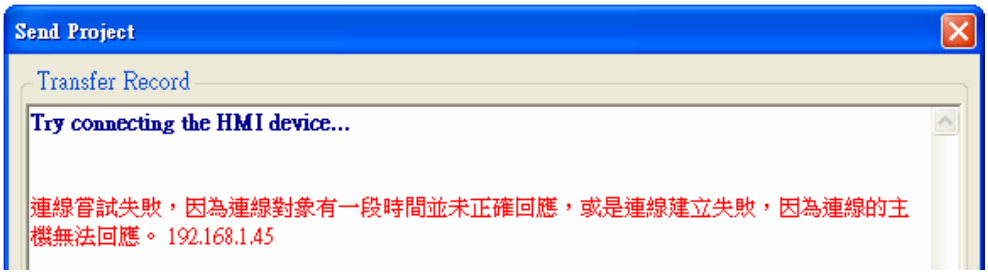



Figure 3-8-3-7: Eternet transfer cable fails to connect completely

### b. Receive Project

Click

the to receive projects from HMI to your PC. Choose if to import the user library to the editor, and then choose the user library file (*.gfc), as shown in figure 3-8-3-8.

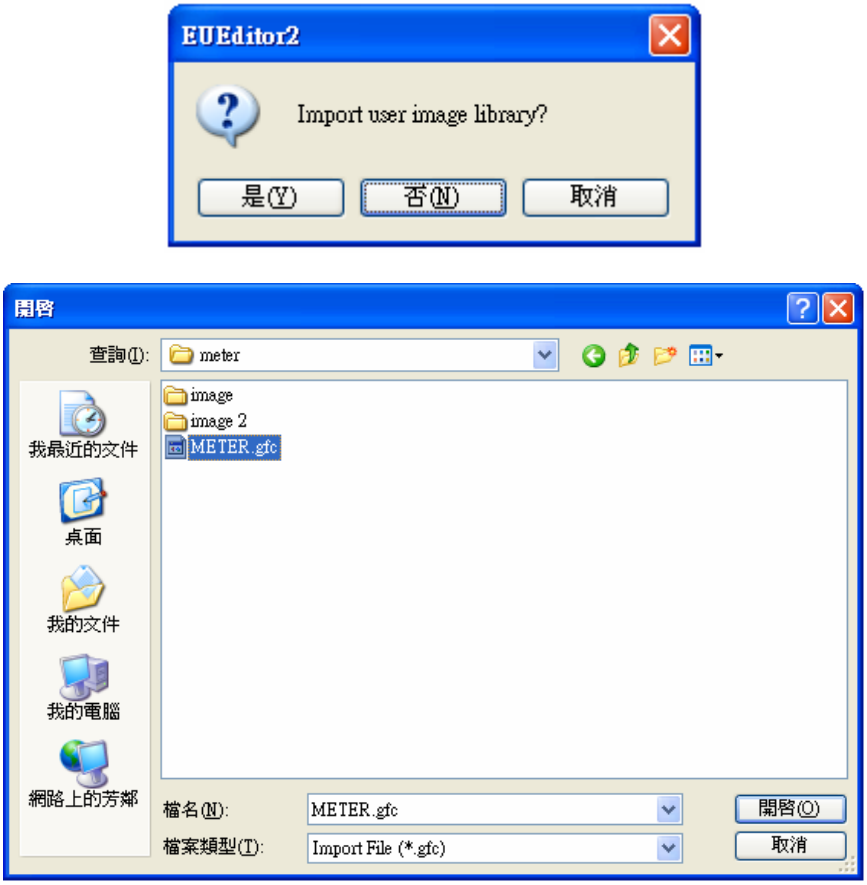



Figure 3-8-3-8: Import user library

Receive a project to the editor, as shown in figure 3-8-3-9.

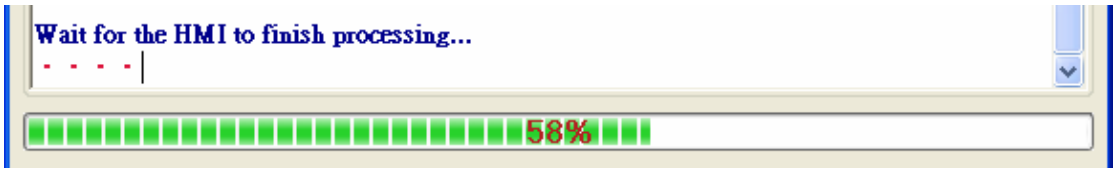



Figure 3-8-3-9: Project receiving

The project is already received, as shown in figure 3-8-3-10.

Figure 3-8-3-10: Completion of receiving project

The USB transfer cable does not connect to PC and HMI, as shown in figure 3-8-3-11. If it connects to both ends but it still fails to link, re-plug it to ensure a complete connection.

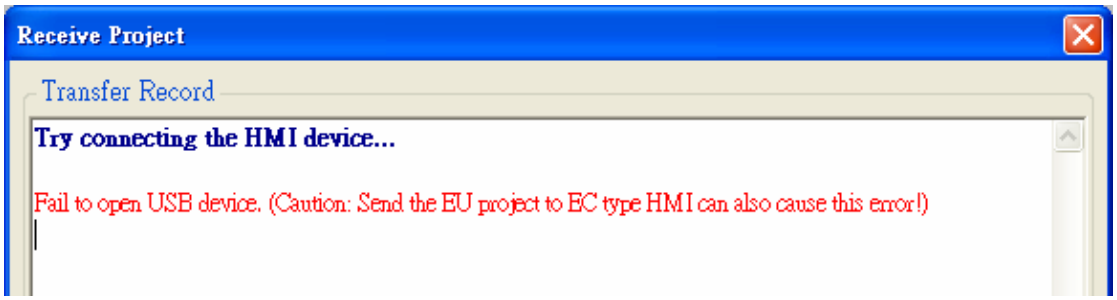



Figure 3-8-3-11: USB transfer cable fails to connect completely

The Eternet transfer cable does not connect to PC and HMI, as shown in figure 3-8-3-12. If it connects to both ends but it still fails to link, re-plug it to ensure a complete connection.

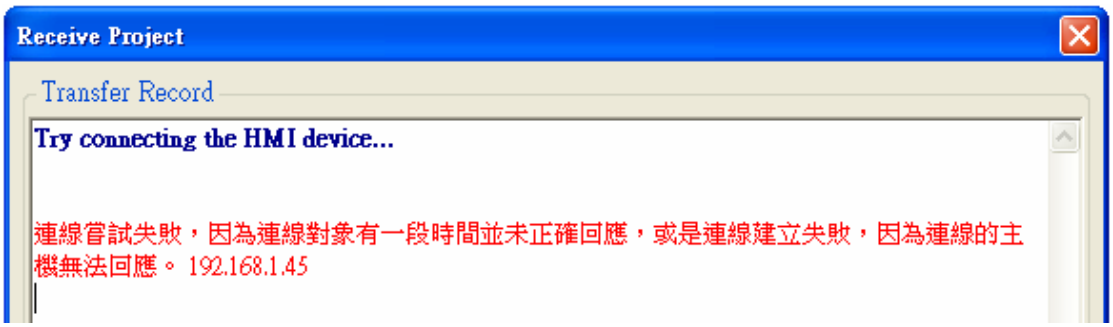



Figure 3-8-3-12: Eternet transfer cable fails to connect completely

### c. Update OS

Click

the to update the OS software, and open the OS software file of PC, as shown in figure 3-8-3-13. For example, in EC.2.A4.04.01, the corresponding OS software name and the HMI type are listed in table 3-8-3-14.

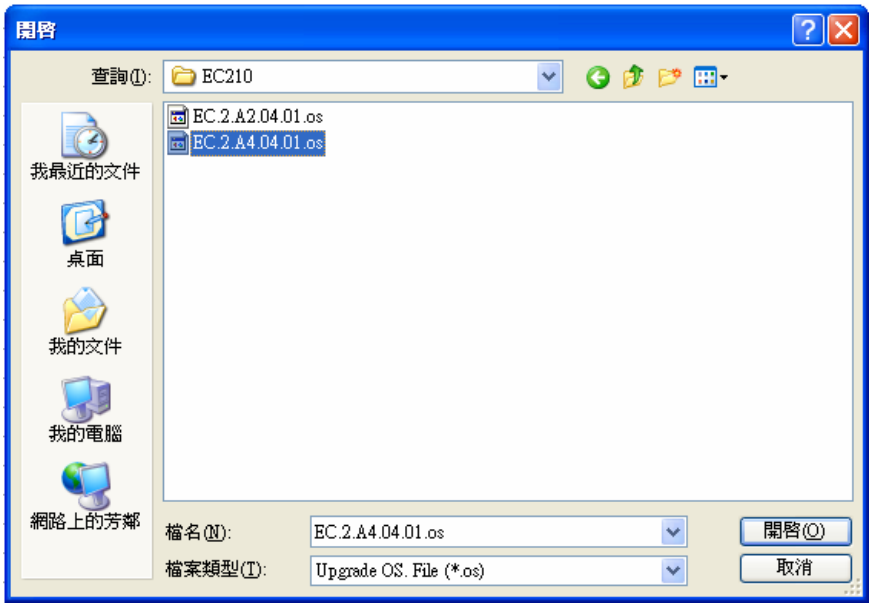



Figure 3-8-3-13: Select OS software

| EC.2.□□.04.01 | | | |
|---|---|---|---|
| No. (□□) | Corresponding | No. (□□) | Corresponding |
| **56** | EC205-CT0A | **82** | EC208-CT00 |
| **72** | EC207-CT00 | **84** | EC208-CT11 |
| **74** | EC207-CT11 | **A2** | EC210-CT00 |
| **75** | EC207-CT0S | **A4** | EC210-CT11 |
| **76** | EC207-CT0A | | |
| **77** | EC207-CT1S | | |

Table 3-8-3-14: OS software name and HMI type

OS software is sent to HMI, as shown in figure 3-8-3-15.

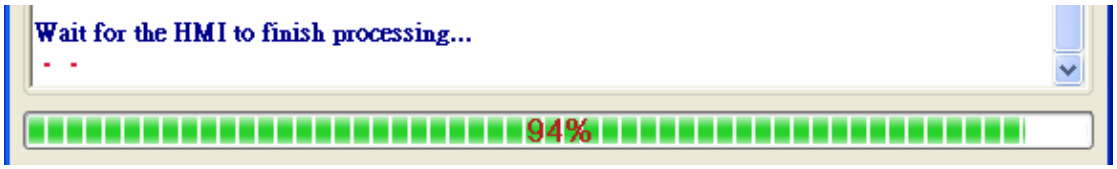



Figure 3-8-3-15: OS transfer screen

OS transfer is finished, as shown in figure 3-8-3-16.

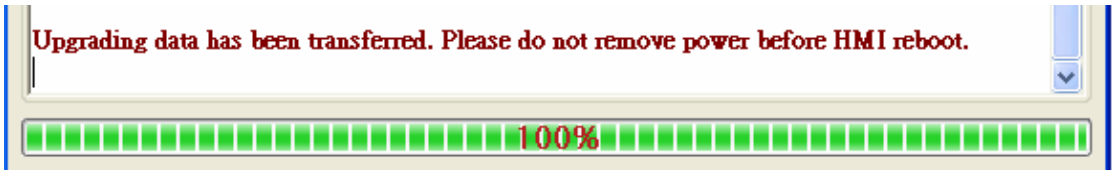



Table 3-8-3-16: Completion of OS transfer

The type set in the editor is inconsistent with the HMI type, as shown in figure 3-8-3-17.

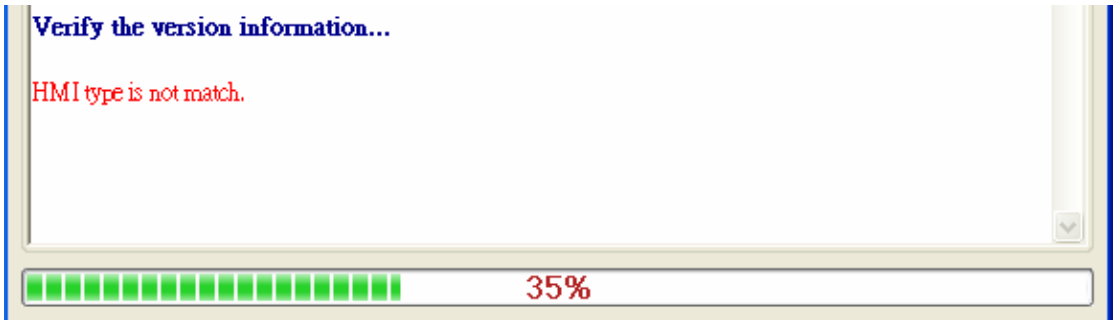
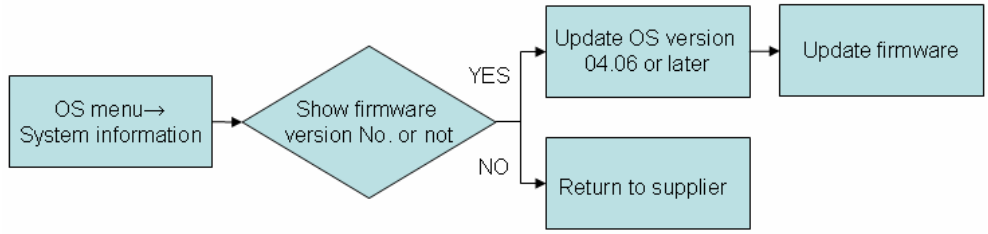



Table 3-8-3-17: OS file is inconsistent with HMI type

## d. Update firmware

1. Firmware updating flow chart:




2. Description for firmware update:
Before firmware update:
Before updating firmware, go to the OS system screen → System information to check if the version number inside the red frame displays, as shown in figure 3-8-3-18.

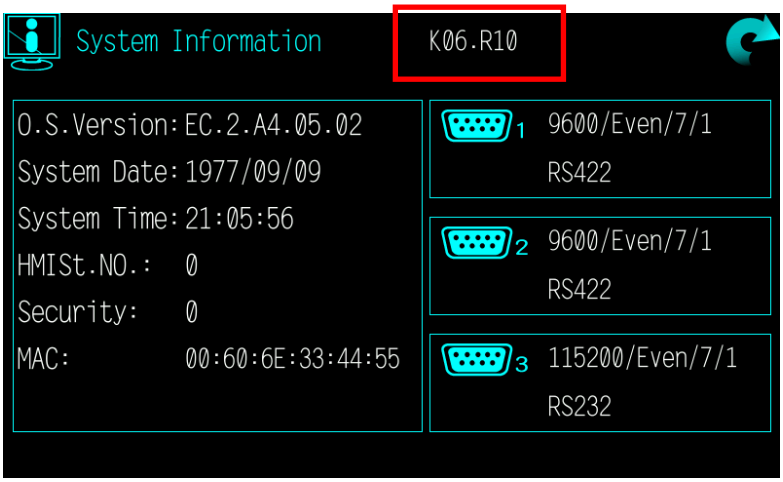



Figure 3-8-3-18: Confirm firmware version number

- **Firmware version number appears:** Update OS software (EC.2.□□.04.06 or later). For detailed OS update information, refer to 3.8.3.c. Update OS. After updating OS, install firmware according to the steps as below.

NOTE If you never update firmware for HMI, after updating OS, as shown in figure 3-8-3-19, the HMI will stay in the startup screen, as shown in figure 3-8-3-20. Continue to update firmware. After updating firmware, the OS system screen will appear, as shown in figure 3-8-3-21.

- **No firmware version number appears:** The version is too old, return the HMI to the supplier to update.

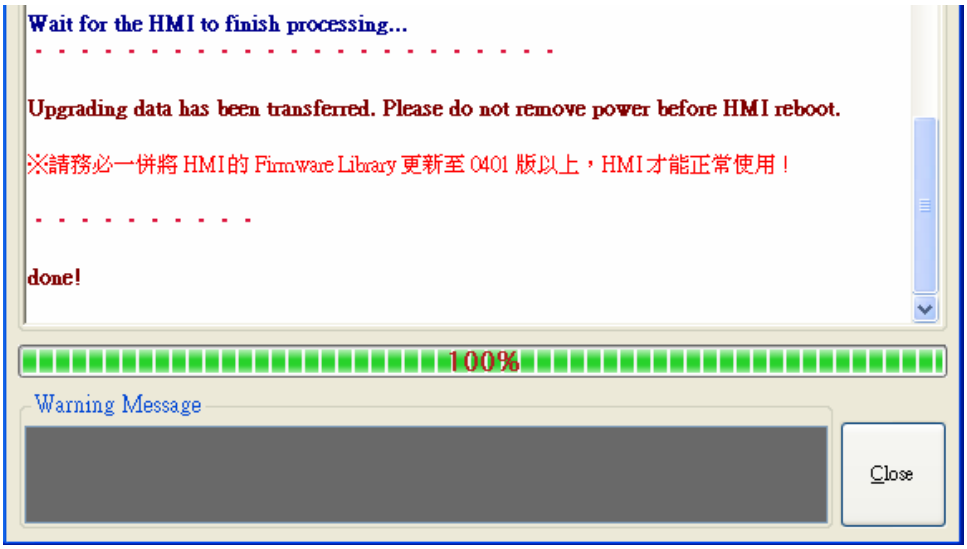



Figure 3-8-3-19: OS update is complete

Figure 3-8-3-20: Startup screen

Figure 3-8-3-21: OS system screen

Firmware update:

Click

the button to update firmware, start the user disc (ver. 1.09 or later), select

the firmware file (.lib) from the folder, as shown in figure 3-8-3-22.

Figure 3-8-3-22: Select firmware file

Firmware is sent to HMI, as shown in figure 3-8-3-23.

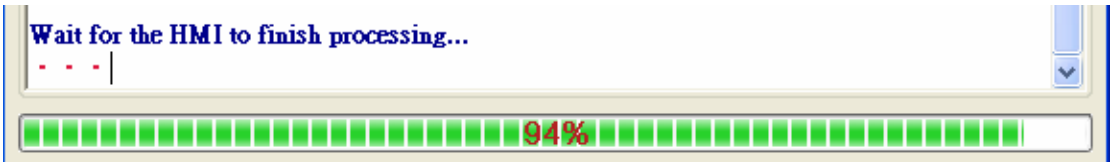



Figure 3-8-3-23: Firmware sending screen

After sending firmware, it is as shown in figure 3-8-3-24.

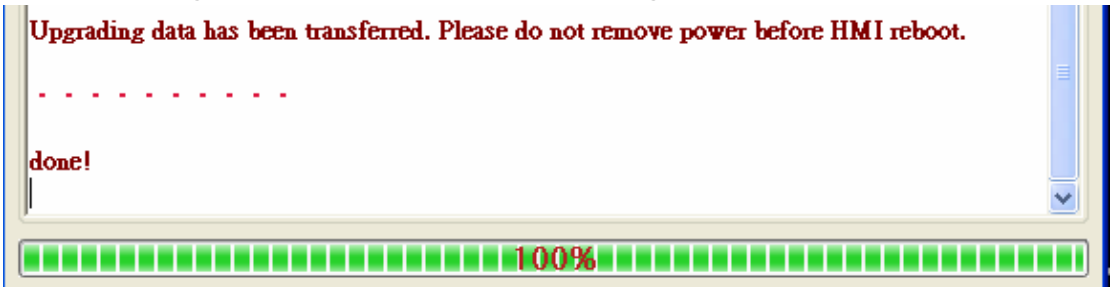



Figure 3-8-3-24: Completion of firmware transmission

If the HMI has a firmware of higher version, EU Editor2 will stop updating firmware, as shown in figure 3-8-3-25.

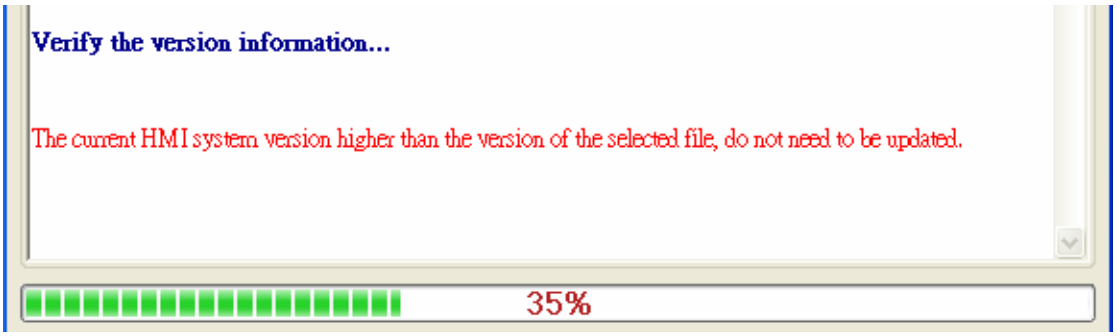



Figure 3-8-3-25: HMI system version is higher than the selected version

### e. Send to memory card

When you want to send files to Memory, after selecting the storage location, confirm if the firmware version appears in the HMI system information, as shown in figure 3-8-3-26. If the firmware version is selected, check the Contains Firmware Version, as shown in figure 3-8-3-27. If no firmware version appears, do not check it.

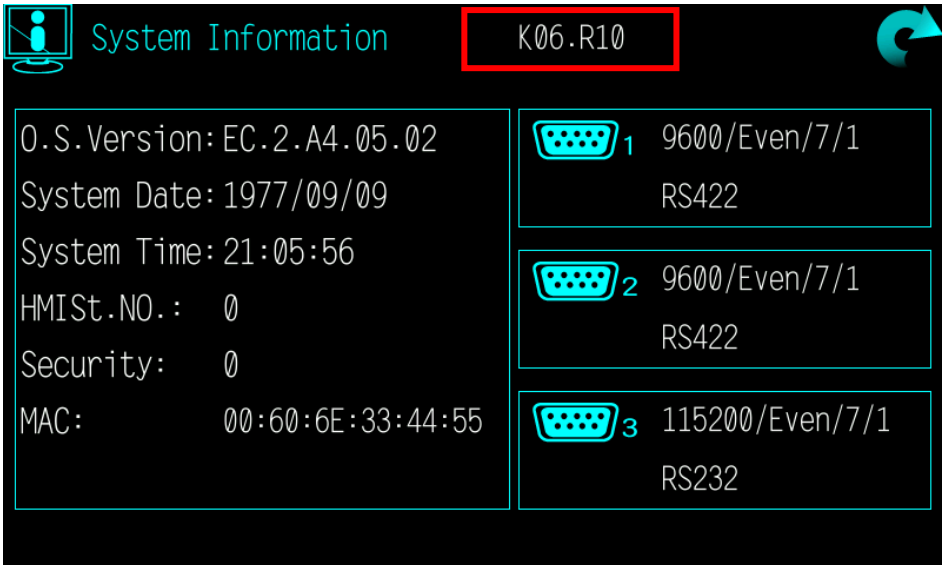



Figure 3-8-3-26: Firmware version

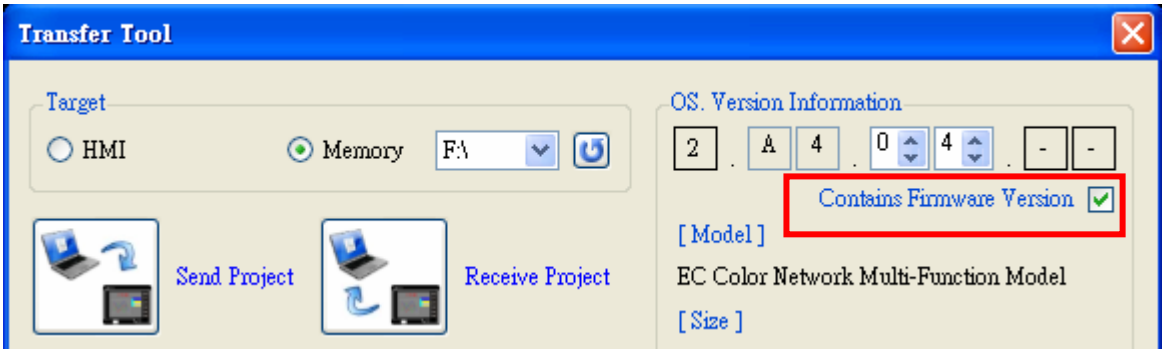



Figure 3-8-3-27: Whether has version number option or not

OS version information must be the same as the current OS version of HMI, as shown in figure 3-8-3-26.

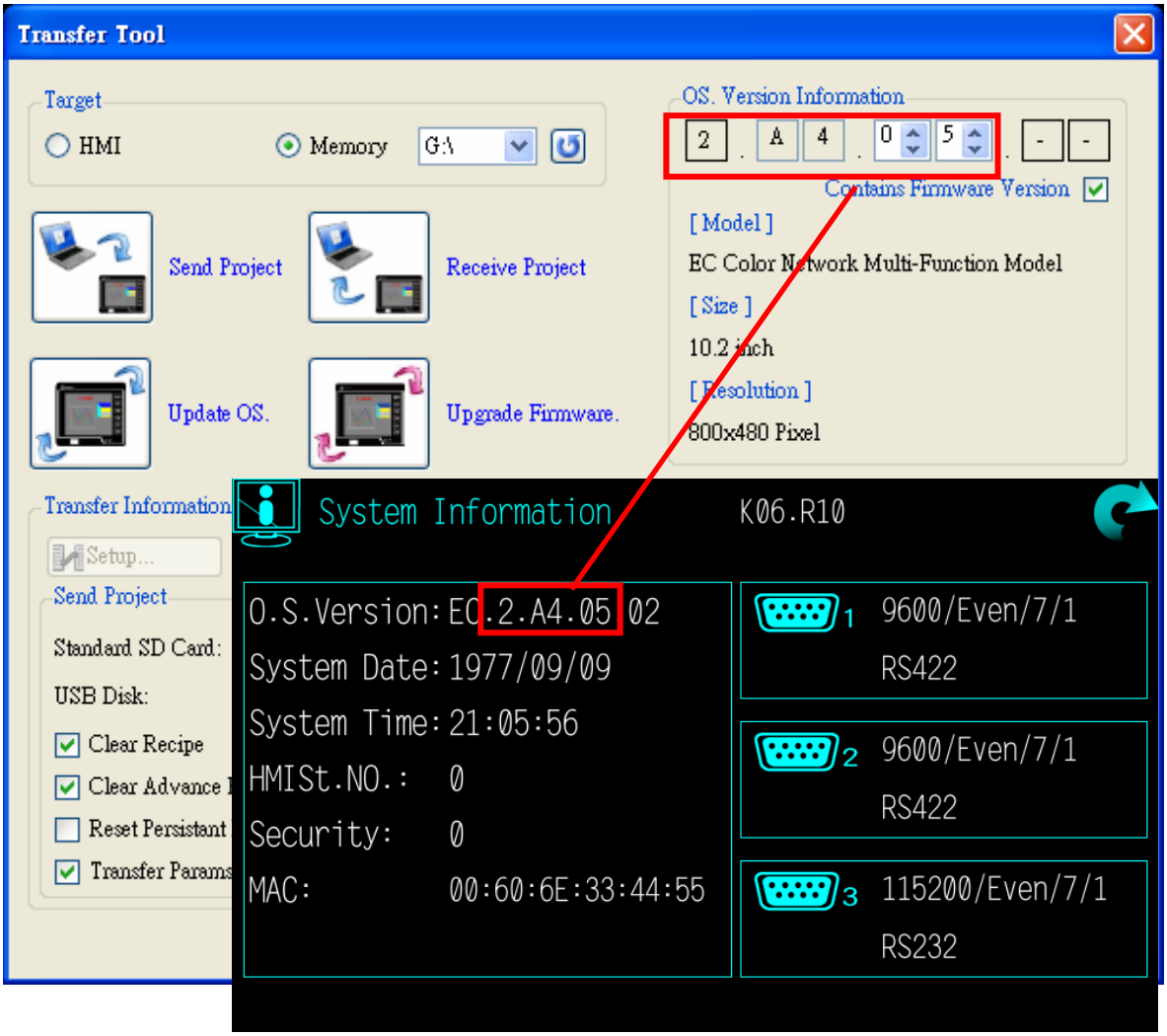
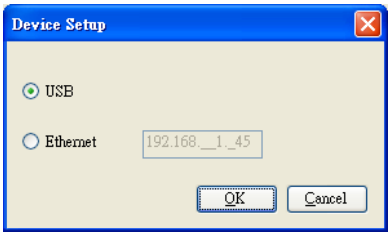



Figure 3-8-3-26: OS version information setting

## f. Transfer Information

Click the Setup... button to open the Device Setup dialog box as shown in figure 3-8-3-29.




| Function | Description |
|---|---|
| USB | Use the USB cable to transmit. |
| Ethernet | Use Ethernet to transmit.<br>(HMI default IP: 192.168.1.45) |

Figure 3-8-3-29: Device setup

The Send Project is set as shown in figure 3-8-3-30.

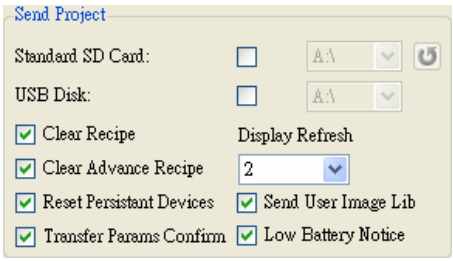



Figure 3-8-3-30: Setup of Send Project

| Function | Description |
|---|---|
| Standard SD Card：<br>USB Disk： | When an animation object uses pictures in the SD Card/ USB Disk, check the box next to the SD Card or the USB Disk. Before sending project, it will detect if pictures and projects in the SD Card/ USB Disk exceed the memory capacity of the HMI. |
| Clear Recipe | Before sending a project, clear the recipe saved in the HMI (Note 1). |
| Clear Advance Recipe | Before sending a project, clear the advance recipe saved in the HMI (Note 1). |
| Reset Persistent Devices | Before sending a project, clear the data of the persistent devices (HB, HW) in the HMI. |
| Transfer params confirm | ☑ Transfer Params Confirm : Before sending a project, the editor software will pop up a “Transfer the parameter setting?” window.<br>☐ Transfer Params Confirm : When checking, the editor software will automatically send the parameter settings to the HMI. |
| Display Refresh | Rate 1: It refreshes the HMI display one time in 100ms.<br>Rate 2: It refreshes the HMI display one time in 200ms. (Note 2) |
| Sand user image library | When sending a project to the HMI, it will send the user library to the HMI. |
| Low battery notice | When low battery, HMI pop-up "low battery" window.(Note 3)(Note 4) |
| Note 1: “Clear recipe” and “Clear advance recipe” are only for the save path toward “internal memory”.<br>Note 2: The default refresh rate is 2 which is recommended.<br>Note 3: Please Replace the batteries, when low battery.<br>Note 4: EC207-CT0S、EC207-CT1S models does not support the “Low battery notice” function. | |

Have set the receive project password (eceive project password settings, refer to **3.9.3. The password setup** chapters), shown in Figure 3-8-3-25 user password input shown.

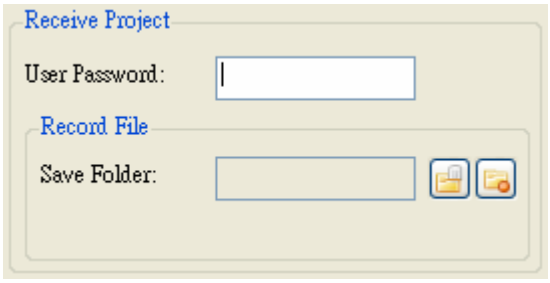
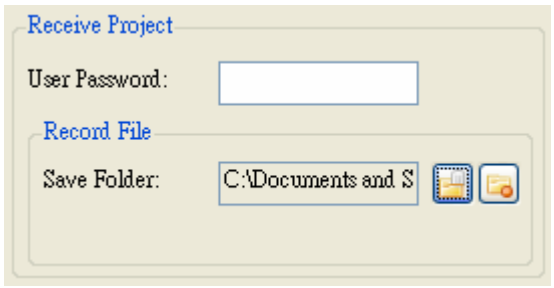



Fig. 3-8-3-25 User password input

When setting the record files , receiving the project will be the way saved all record file of HMI, see Figure 3-8-3-26 below,record file contains the following table 3-8-3-27.




| Record file |
|---|
| Advanced Alarm |
| Alarm History |
| Recipe |
| Advanced Recipe |
| Logging |
| Resume |

Fig. 3-8-3-26 Record file save 3-8-3-27 Record file

- Please be aware the basic model does not have the Ethernet communication port!!!
- Do not unplug the transmission line during the data transmission!
- When it is done using the USB to update the O.S., it is suggested to unplug the USB transmission line before using it for other transmissions.

### 3.8.4. Simulation File Generator

Click the Operation and then click Simulation File Generator... to open a dialog box, and after clicking the Browse... button, save the simulation file (file extension:.emu0), as shown in figure 3-8-4-2. click then the Generate button to create a simulation file, as shown in figure 3-8-4-1.

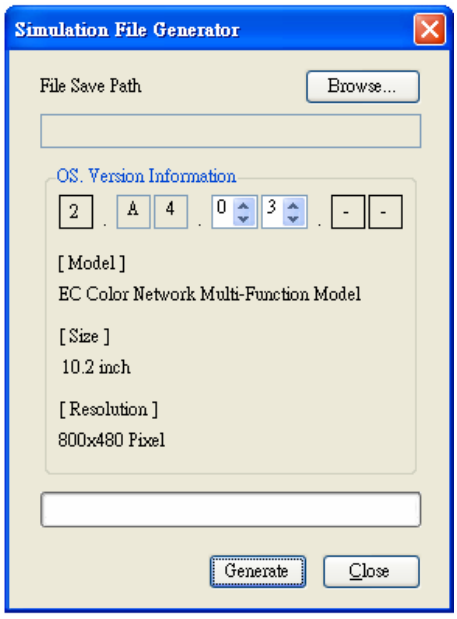



Figure 3-8-4-1: Create simulation file

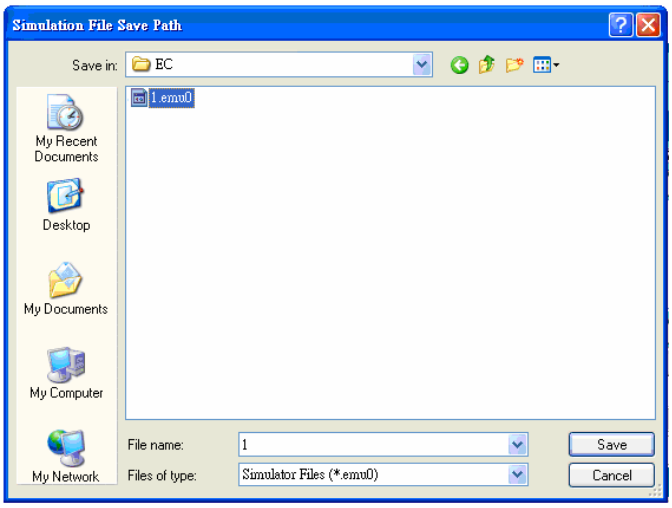



Figure 3-8-4-2: Save simulation file

After creating a simulation file, start the EC Simulator2 and click the left mouse button to open the simulation file (file extension: .emu0), as shown in figure 3-8-4-3, so as to implement simulation, as shown in figure 3-8-4-4.

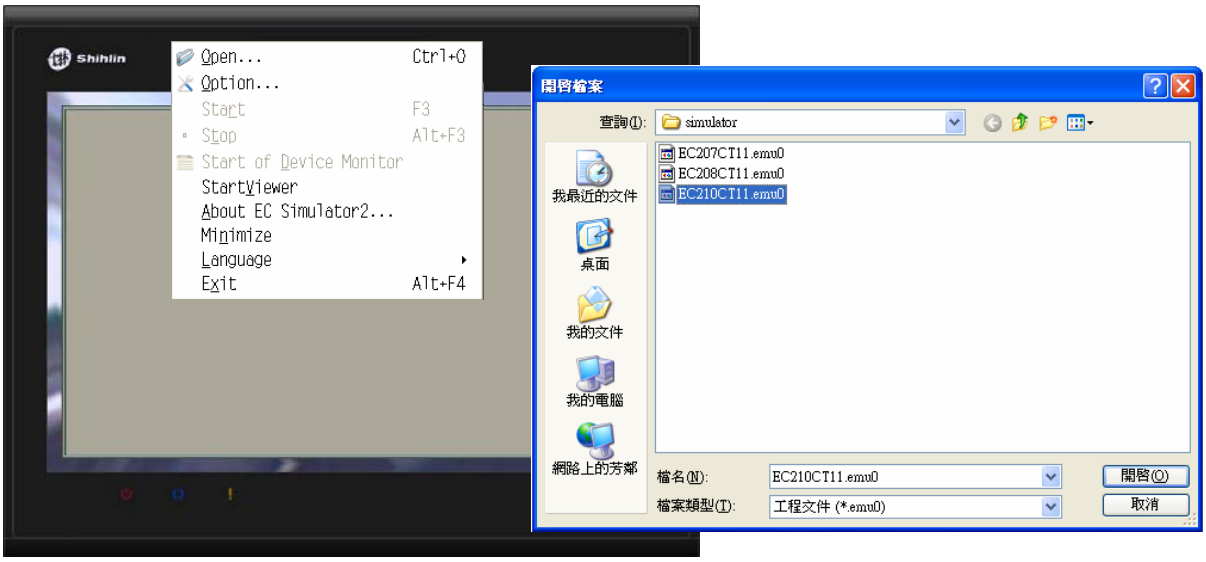
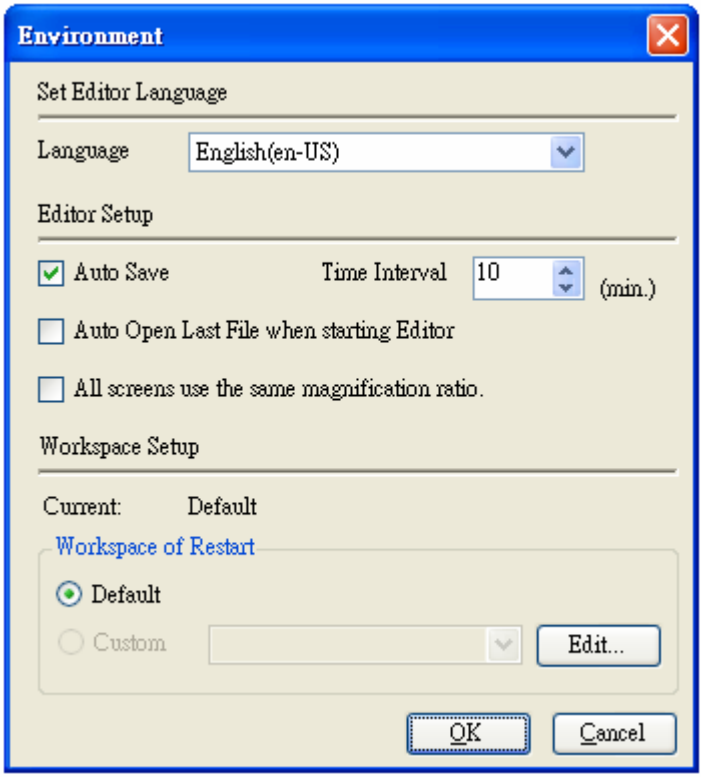



Figure 3-8-4-3: Open simulation file

Figure 3-8-4-3: Display simulation file

### 3.8.5. Environment Setup

Click Operation and then click Environment Setup... to open the environment setup dialogue box. See Figure 3-8-5 below.




| Function Setting | | Description |
|---|---|---|
| **Set Editor Language** | | The language options are traditional Chinese, simplified Chinese, English , and Russian . |
| **Editor Setup** | **Auto save** | Automatically save the file at the predefined time. |
| | **Auto open last file when starting editor** | Upon the start of the editing software, automatically open the last saved file. |
| | **All screens use the same magnification ratio.** | Upon the screen scaling, all the screens of the project are scaled at the same time. |
| **Workspace Setup** | | The user can define the usual work space, so when the editing software is started, the screen will be displayed at the predefined space. |

Fig. 3-8-5 Environment Setting

## 3.9. System Menu

### 3.9.1. System Functions

All the functions in the System menu are listed in the Table 3-9-1 below.

Table 3-9-1 Menu of System Functions

| Name | Function |
|---|---|
| HMI Type/Device Setup | Change HMI model/device |
| Password Setup | Set up the password device and its security level. |
| Recipe | Edit/read recipe data. |
| Floating Alarm | Set the floating alarm's message. |
| Barcode Setup... | Read external barcode information. |
| Logging | Set device to monitor historical data. |
| Advanced Alarm Observation | Set device to monitor alarm information. |
| Advanced Alarm Popup Display | Set pop-up display of advanced alarm. |
| Auxiliary Setup | Set screen switch and simple macro. |
| Parameter Setup | Set HMI's internal parameters. |
| Startup Logo | Set HMI's system start-up screen. |
| Time Action... | Edit scheduling data. |
| Sound Setup | Set sound data. |

### 3.9.2. HMI Model/Device Setup

Click System and then click HMI Type/Device Setup to change the HMI/device/model. Make the setting based on the connected communication port, device and model. Confirm to finish the setting, See Figure 3-9-1 below.

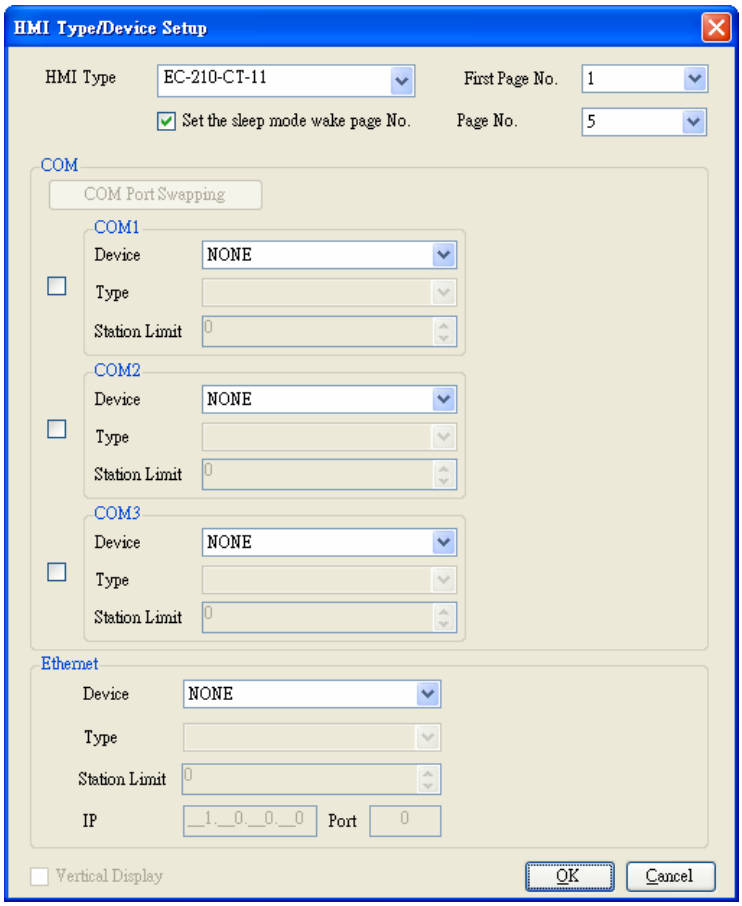



Figure 3-9-2-1: HMI type/device change setup

| Function | Description |
|---|---|
| **Home number** | When a page is set to first page by specifing its number, it will be the start page when starting the machine. |
| **Use Sleep Mode to Wake Page Skip** | **EX:**<br>The default sleep time of HMI is 10 minutes, as shown in figure 3-9-2-2. After checking the "Use Sleep Mode to Wake Page Skip" and when the page number is set to 5 and the standby time exceeds 10 minutes, HMI will automatically switch to the 5th page. |

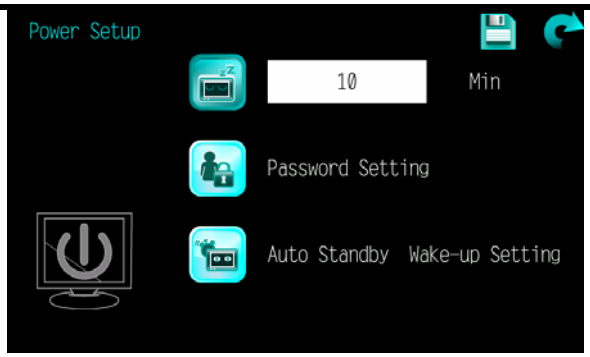
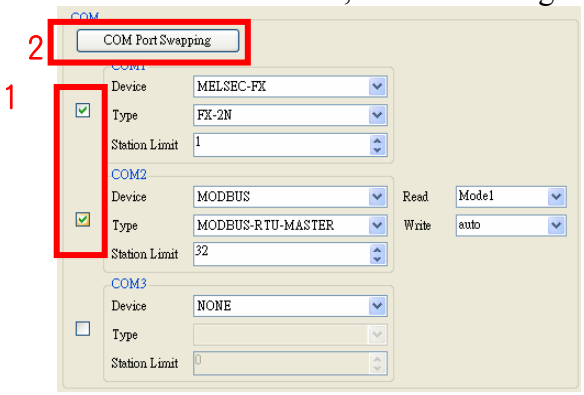
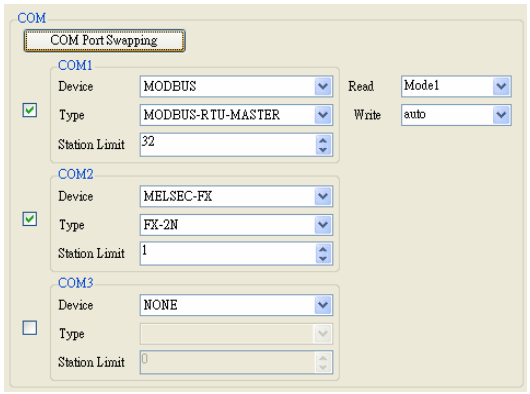
<table>
<tr><td></td><td> 

Figure 3-9-2-2: HMI sleep mode setup</td></tr>
<tr><td>COM swap</td><td>After checking 2 COM devices to be swapped, the swap is completed when you click the COM Port Swapping button, as shown in figure 3-9-2-2.<br> 

(a)<br> 

(b)<br>Figure 3-9-2-2: COM swap (a) Select COM port and set COM swap (b) Completion of COM devices swap</td></tr>
<tr><td>High limit of office number</td><td>It sets the maximum number of devices being connected to the COM port.</td></tr>
<tr><td>Vertical display</td><td>It sets the screen to display vertically (only available for model EC205-CT0A)</td></tr>
</table>

NOTE

- For detailed description of communication port, please refer to the EC200 Hardware Manual.

### 3.9.3. Password Setup

Click System and then click Password Setup to open the password setting dialogue box and change the device, security level and the password for data transmission. See Figure 3-9-3-1 below.

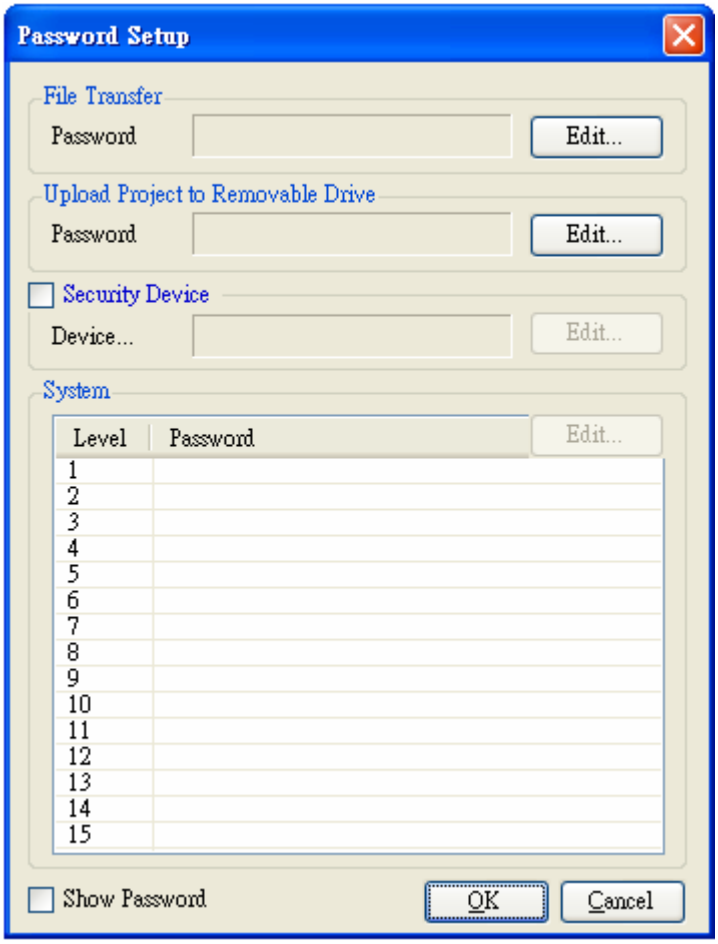
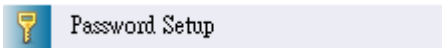


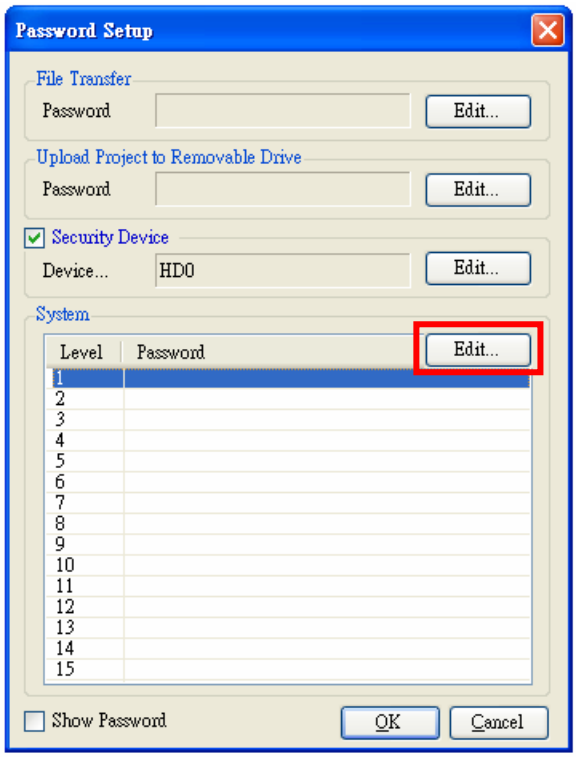

Fig. 3-9-3-1 Password Setting

The password device allows the user to set a device management security level. Tick Security Device and set up the device, and then confirm to finish the setting of the security level device.

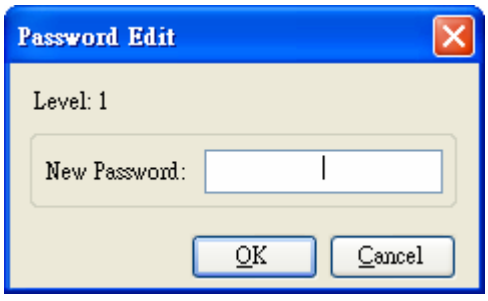
To set a user password, in the system menu click 

to open the password setup dialogue box, and select a level number, and then click

to do the password editing. Confirm to finish the setting of the password security level. See Figure 3-9-3-2 below.




(a)




(b)

Fig. 3-9-3-2 Setup of Password Security Level (a) Password Setting Dialogue Box (b) Password Setting

To set the password for data transmission, in the system menu click Password Setup to open the password setup dialogue box, and then click Edit... to do the password editing. Confirm to finish the setting of the data transmission password. See Figure 3-9-3-3 below.

(a) (b)

Fig. 3-9-3-3 Password Setting: (a) Send file (b) Edit password

NOTE

When you set the data transfer password, use the user password in the Transfer Tool... . Before receiving a project, you must enter the transfer password, as shown in figure 3-9-3-4.

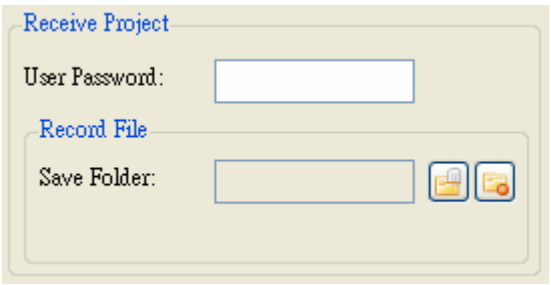
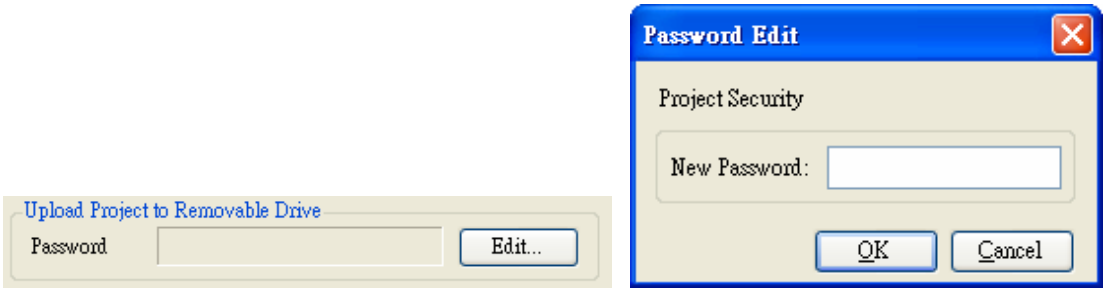



Figure 3-9-3-4: Enter the user password for receiving a project

Click the Edit... button on the "upload a project to an external memory" dialog box as shown in figure 3-9-3-5 if you want to set a password when you send a project to an external memory. When sending a project to an external memory, a keyboard will pop up so that you can use the keyboard to enter the required password, as shown in figure 3-9-3-6.




(a) (b)

Figure 3-9-3-5: Set a password for "upload a project to an external memory": (a) Upload a project to an external memory (b) Set password

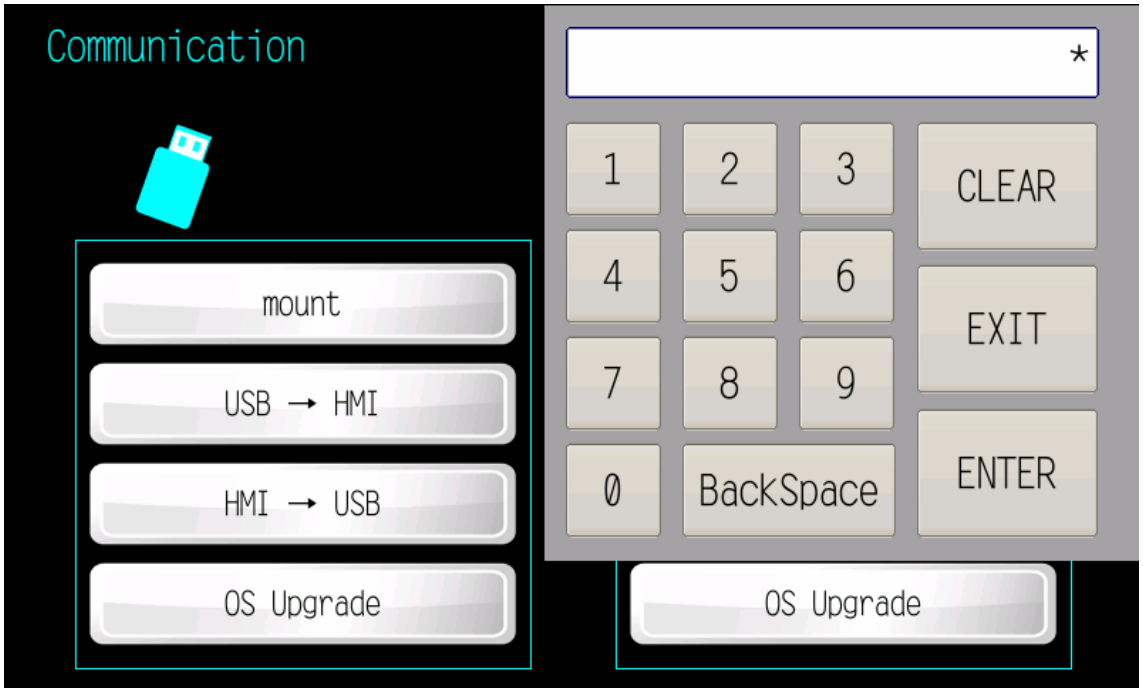



Figure 3-9-3-6: Enter a password

### 3.9.4. Recipe

Click System, and in the menu click Recipe to make recipe-related setting. See Figure 3-9-4 below.

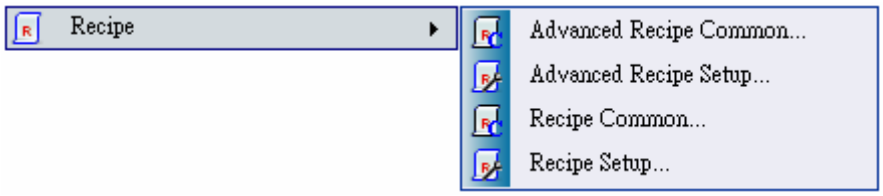



Fig. 3-9-4 Recipe Function List

### a. Advanced Recipe Common Setup

To set up a recipe commonality, click System, and click Recipe and then click Advanced Recipe Common... to open the dialogue box of the advanced recipe commonality. Then, tick External Control Device for the device controlling the reading and writing of the recipe data, and the device controlling the recipe numbers and record numbers. To set up the device, click Device... to open the device setup dialogue box. See Figure 3-9-4A-1 below.

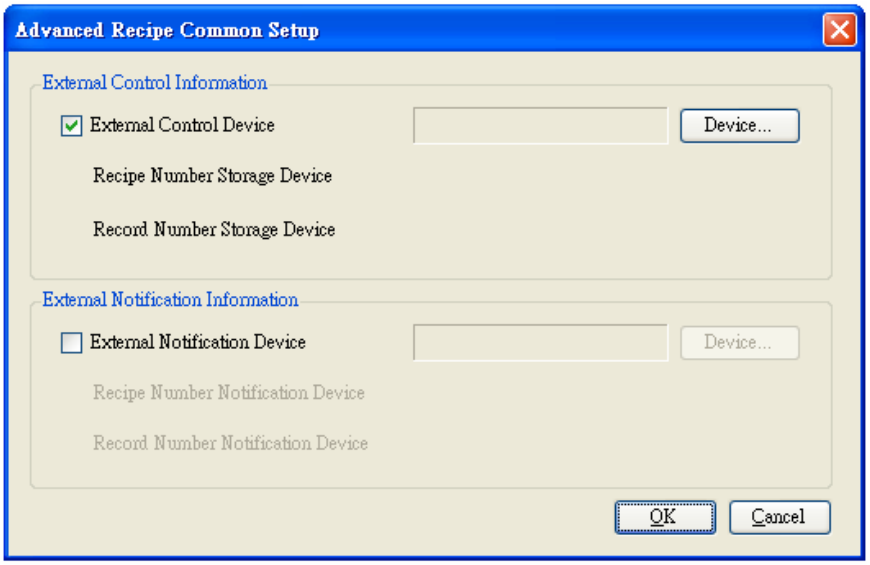



Fig. 3-9-4A-1 Advanced Recipe Commonality

| function | Description | |
|---|---|---|
| **External control information** | External control device | Use word device to control<br>bit0 is ON: read composition writing device<br>bit1 is ON: reading device writes composition<br>Both conditions cannot exist at the same time. |
| | Recipe number storage device | Offer a device for saving and displaying composition number. |
| | Record number storage device | Offer a device for saving and displaying record number. |
| **External notification information** | Send external control signal to the external notification device. This function only displays information and cannot be used as a controller. | |

## b. Advanced Recipe Setup

Click System and click Recipe, and then click Advanced Recipe Setup... to open the dialogue box of the advanced recipe setting. There can be as many as 255 advanced recipes. Click New... to open the advanced recipe editing. See Figure 3-9-4B-1 below.

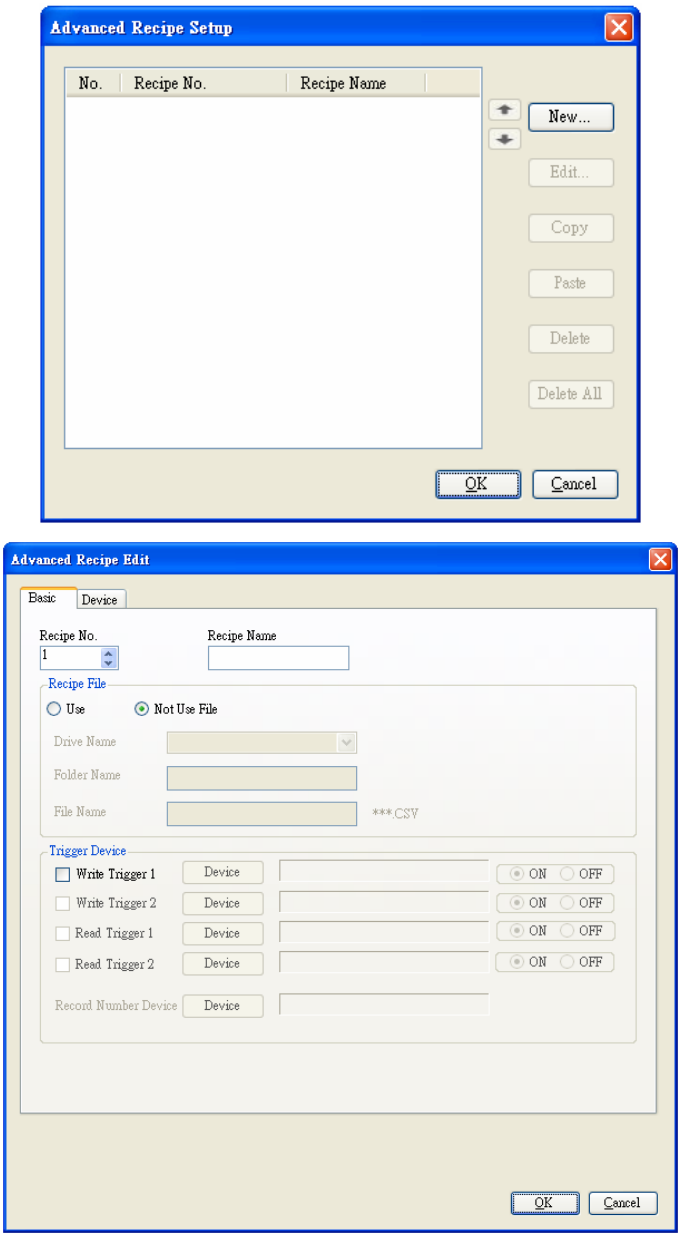
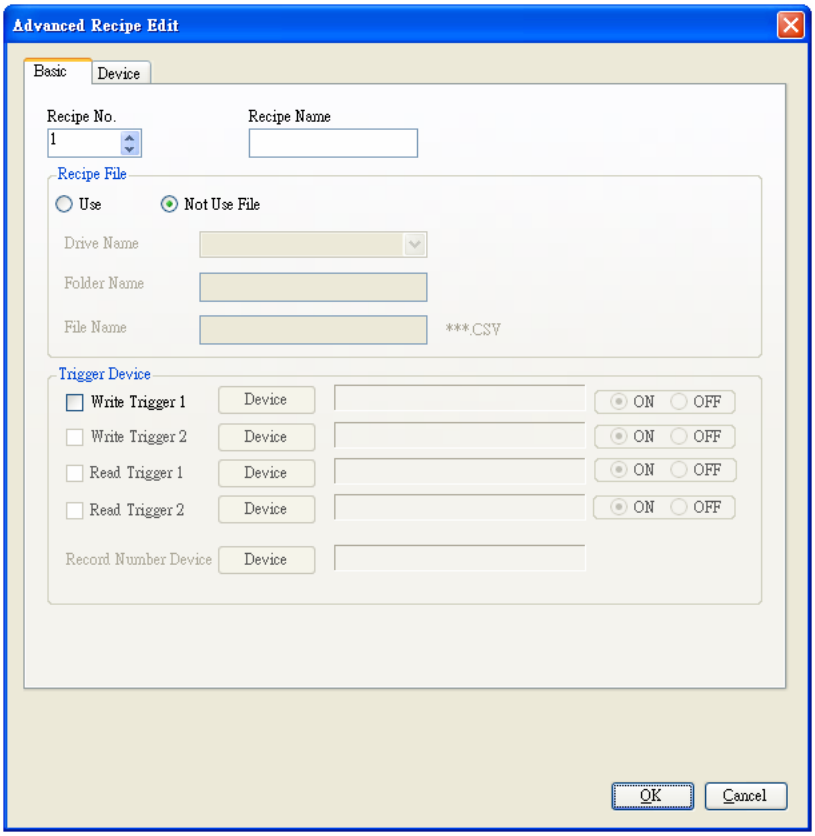



Fig. 3-9-4B-1 Advance Recipe Setting

The basic setting allows the user to set the recipe number, recipe name, recipe file, and trigger device. See Figure 3-9-4B-2 below.



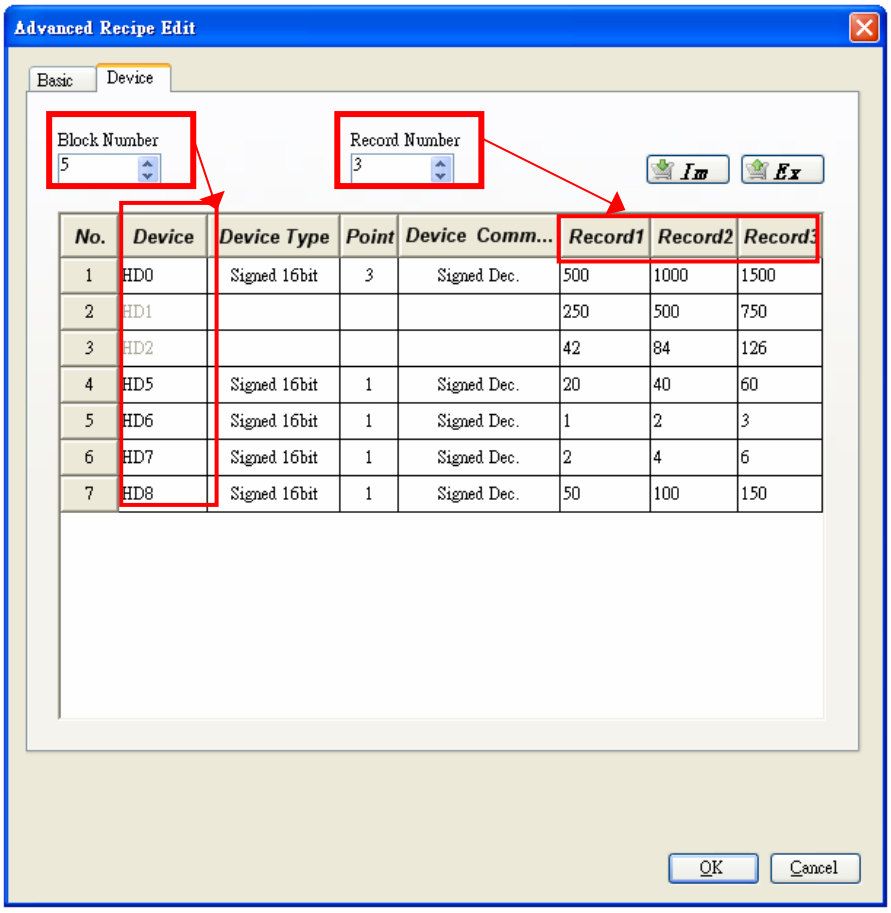

| Function | | Description |
|---|---|---|
| **Recipe File** | | In the file access, the writing trigger and reading trigger enable the writing and reading of the external storage device. |
| **Trigger Device** | **Write Trigger** | Write the recipe value to the device. See section **3.9.4-d Recipe Setup** to know the setting. |
| | **Read Trigger** | Read the value from the device and write it to the recipe. See section **3.9.4-d Recipe Setup** to know the setting. |
| **Record Number Device** | | Save the record point number set by the device. |

Fig. 3-9-4B-2 Basic Setting

NOTE

- When selecting an external memory(SD/USB) to store recipe data, an external memory(SD/USB) must be mounted, or the "Auto mount" function must be chosen. For details, see section 3.4 "Communication" described in EC200 hardware manual.

The device setting allows the user to set the number of modules, number of records, devices, points, and record points. The devices can be serially numbered by setting the points. See Figure 3-9-4B-3 below.




| Function | Description |
|---|---|
| **Number of Modules** | Device can set as many as 1024 transactions (including the points). |
| **Points** | Devices can be serially numbered via the setting of the points. |
| **Number of Records** | There can be as many as 1024 transactions. ((recipe devices)x(recipe records) must not be greater than 255k capacity) |

Fig. 3-9-4B-3 Device Setting

### c. Recipe Common Setup

To set up a recipe commonality, click System and click Recipe and then click Recipe Common... to open the dialogue box of the recipe commonality. Tick External Control Device for the device controlling the reading and writing of the recipe data, and the device controlling the recipe numbers. To set up the device, click Device... to open the device setup dialogue box. Select the device to finish the device setting. When the option of the extension notification device External Notification Device is ticked, the information of the extension notification device will be displayed. See Figure 3-9-4C-1 below.

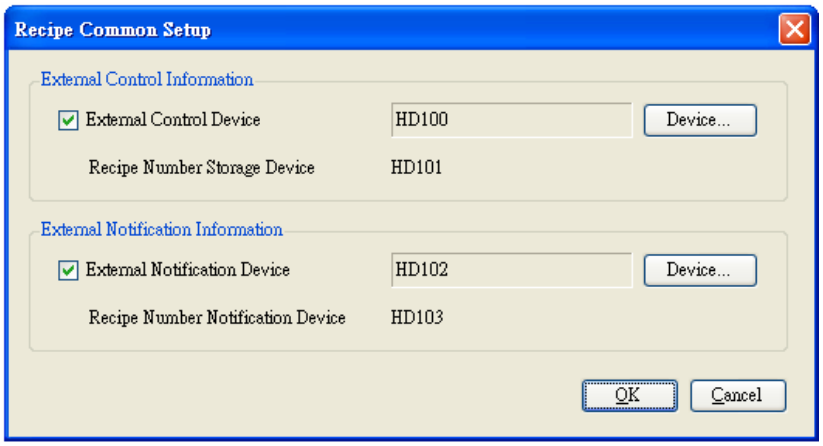
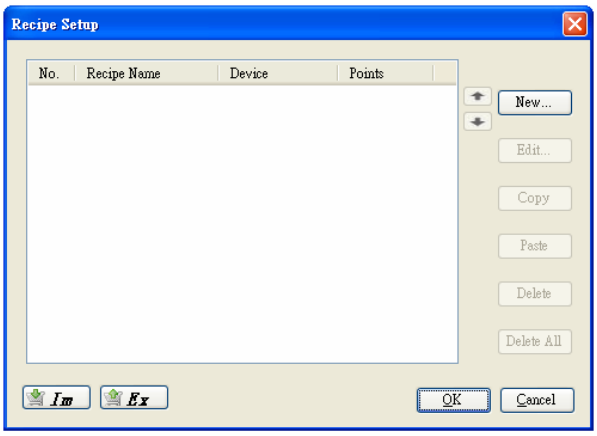



Fig. 3-9-4C-1 Recipe Commonality

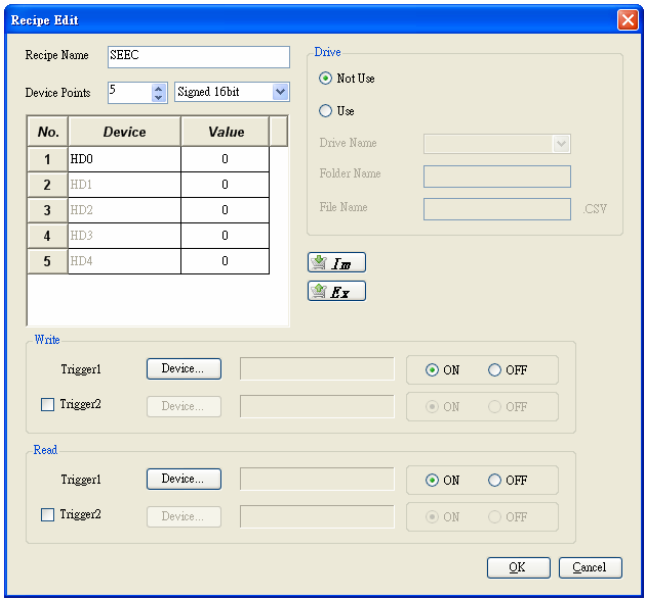
| function | Description | |
|---|---|---|
| **External control information** | External control device | Use word device to control<br>bit0 is ON: read composition writing device<br>bit1 is ON: reading device writes composition<br>Both conditions cannot exist at the same time. |
| | Recipe number storage device | Offer a device for saving and displaying composition number. |
| **External notification information** | Send external control signal to the external notification device. This function only displays information and cannot be used as a controller. | |

## d. Recipe Setup

Click System and click Recipe and then click Recipe to open the recipe setting dialogue box. There can be as many as 255 recipes. Click New... to open the recipe edit dialogue box and set the recipe name, number of devices (up to 1024 devices), import/export, storage device, and the functions of the reading/writing device. See Figure 3-9-4D-1 below.




(a)




(b)

Fig. 3-9-4D-1 Recipe Setting (a) Recipes (b) Recipe Editing

To set a Writing device, click Device... to open the device setting dialogue box and select a device to finish the setting. Tick ON or OFF to decide the trigger pattern preferred. If setting 2 switches is needed, tick Trigger2 and then click Device... to select the second writing device. The action of the Writing device is when you click the trigger switch, the software will write the original value you set. See Figure 3-9-4D-2 below.

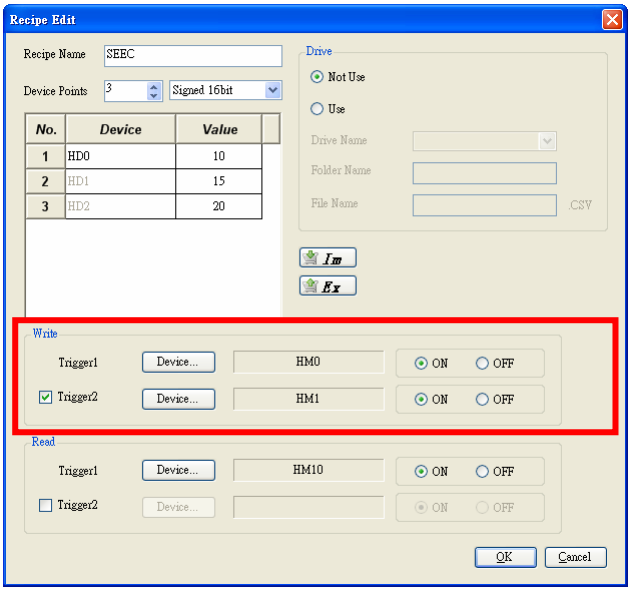



Fig. 3-9-4D-2 Writing Recipe Device

EX

If the read switch HM10 is not pressed, and you want to restore the value you set in the recipe, press HM0 and HM1, the software will then write 10, 15 and 20 to HD0, HD1 and HD2, respectively.

If the values in the devices are 1, 2 and 3, when you click the read switch HM10, and then click HM0 and HM1, the software will then wrirte1, 2 and 3 to HD0, HD1 and HD2, respectively.

To set a Reading device, click Device... to open the device setting dialogue box and select the device to finish the setting. Tick ON or OFF to decide the trigger pattern preferred. The action of the Reading device is that when you click the trigger switch, the software will read the value you set from the device. See Figure 3-9-4D-3 below.

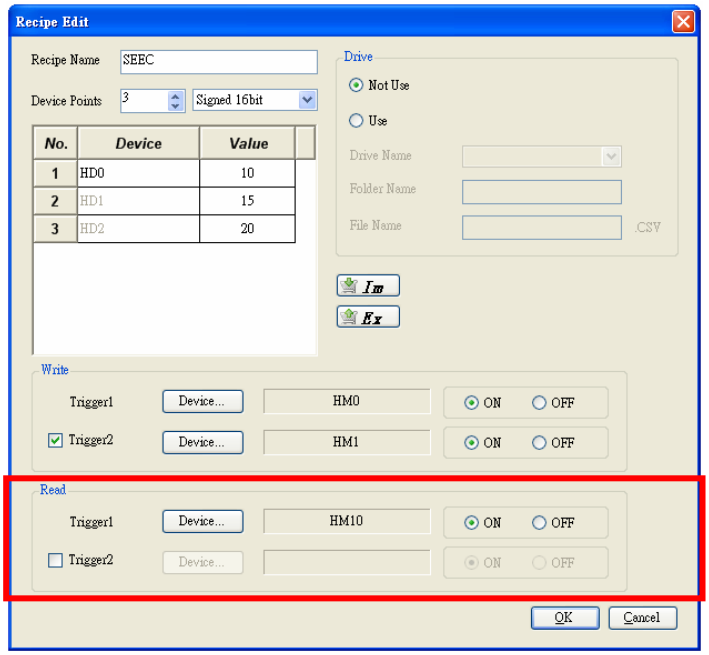
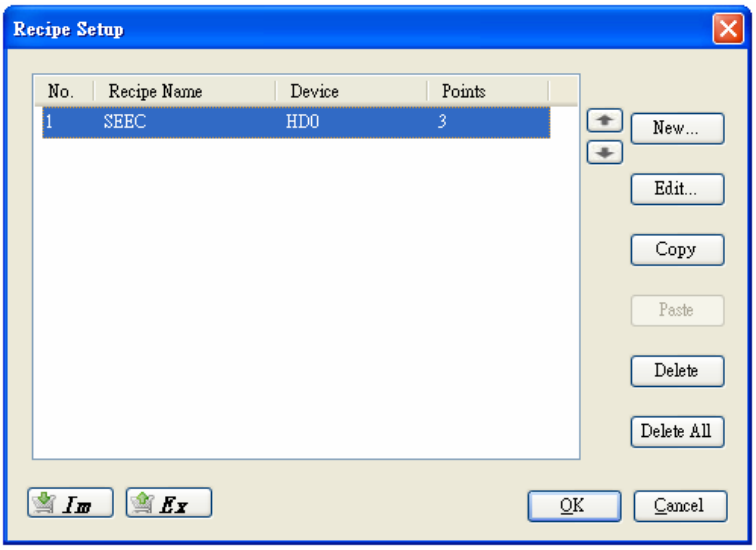



Fig. 3-9-4D-3 Reading Recipe Device

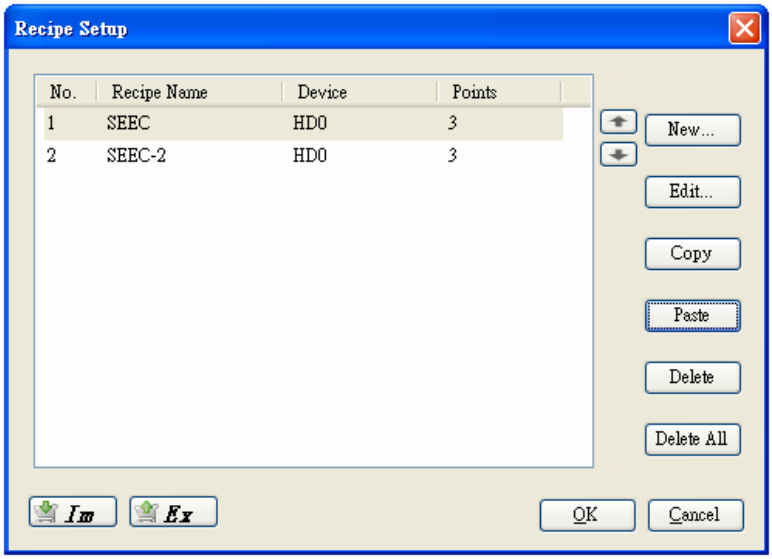
EX

If the values in the devices HD0, HD1 and HD2 are 10, 15 and 20, respectively, when you click the HM10 switch, the software will re-read from the devices to overwrite the original values of 10, 15 and 20.

When the recipe is set and confirmed, the recipe information will be displayed in the recipe dialogue box. To copy the recipe value, select the recipe to be copies and then click Copy, and then confirm to finish the copy. Afterwards, click Paste to copy the recipe value onto the next line. See Figure 3-9-4D-4 below.



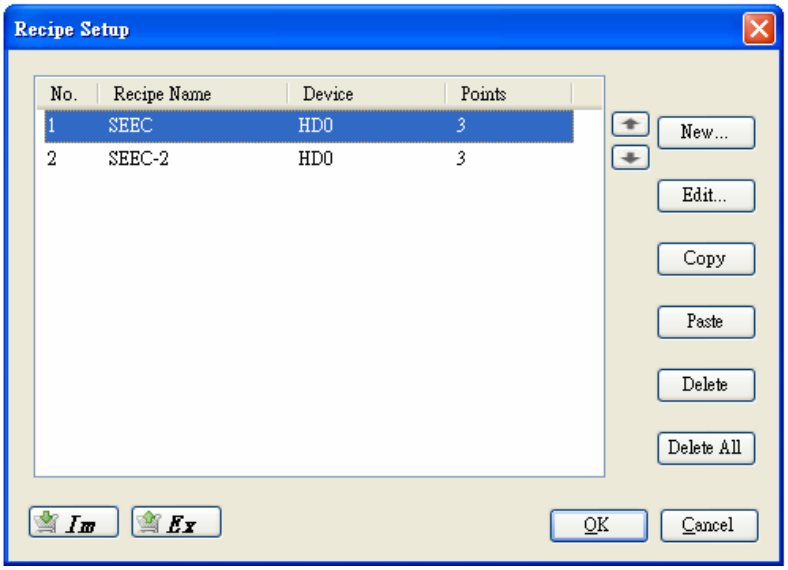

(a)



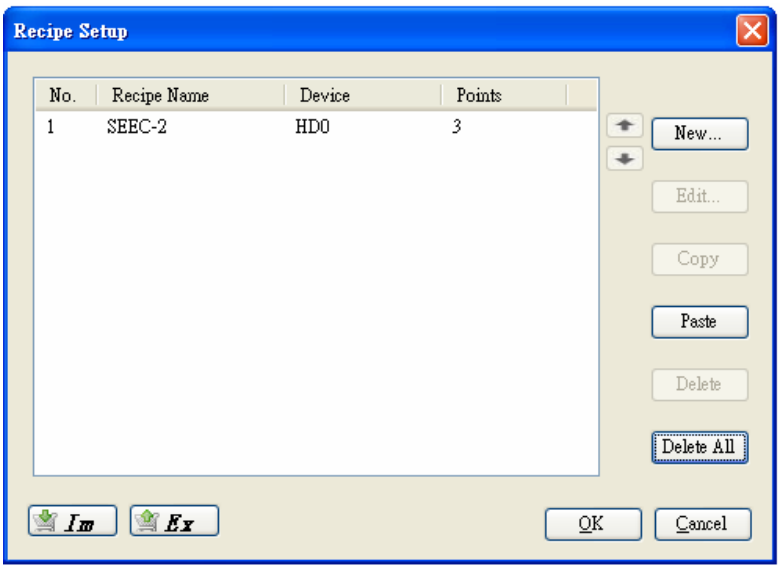

(b)

Fig. 3-9-4D-4 Copying Recipe (a) Selecting Recipe (b) Copy Completed

To delete a recipe value already set, select the recipe value by clicking it and then click Delete to finish the deletion. See Figure 3-9-4D-5 below.



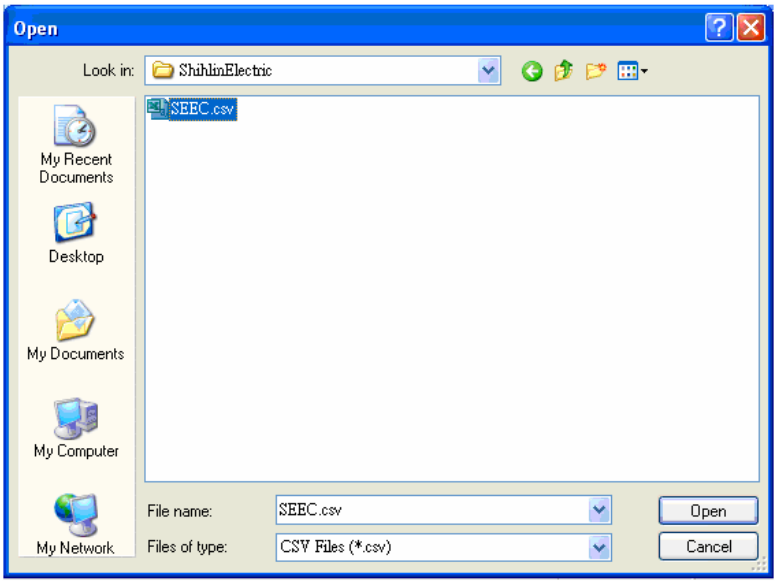

(a)



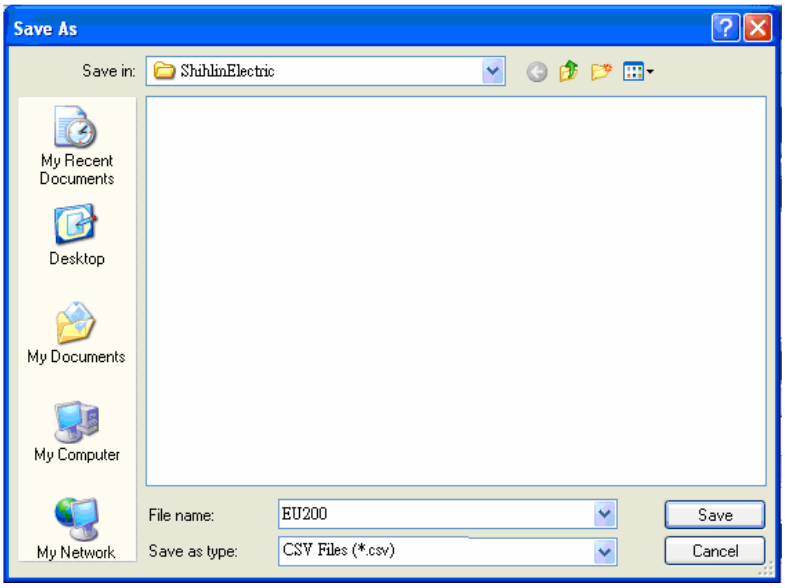

(b)

Fig. 3-9-4D-5 Deleting Recipe (a) Selecting Recipe (b) Deletion Completed

To import recipe data, click to open the dialogue box, and select the recipe data to be imported (.csv). Confirm to finish the import. To export recipe data, click to open the dialogue box and export the recipe data (.csv) to the destination. Confirm to finish the export. See Figure 3-9-4D-6 below.



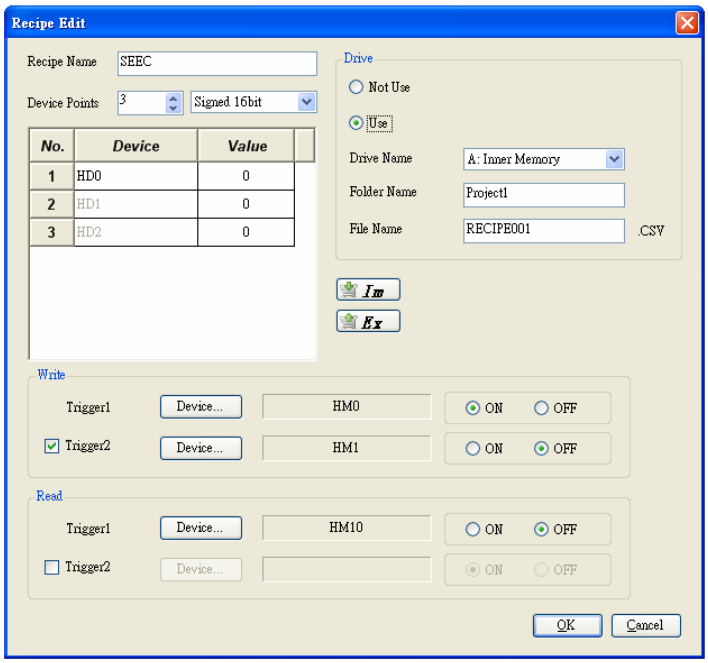

(a)




(b)

Fig. 3-9-4D-6 Recipe Data (a) Recipe Import (b) Recipe Export

Recipe data can be imported from and exported to an external device. The user can change the device name, data folder name, and the filename. See Figure 3-9-4D-7 below.




| Memory Drive | Description |
|---|---|
| **Drive Name** | Selecting external memory device.<br>A：Inner Memory<br>B：Standard SD Card<br>C：USB Disk |
| **Folder Name** | The name of the folder storing recipes. |
| **File Name** | The name of the file containing the recipe. |

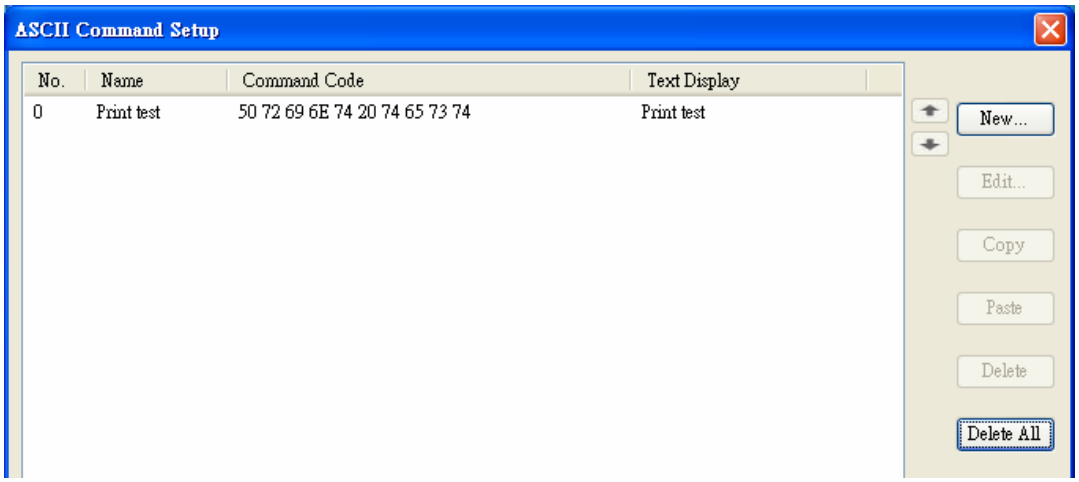
Fig. 3-9-4D-7 Memory Device Setting

NOTE

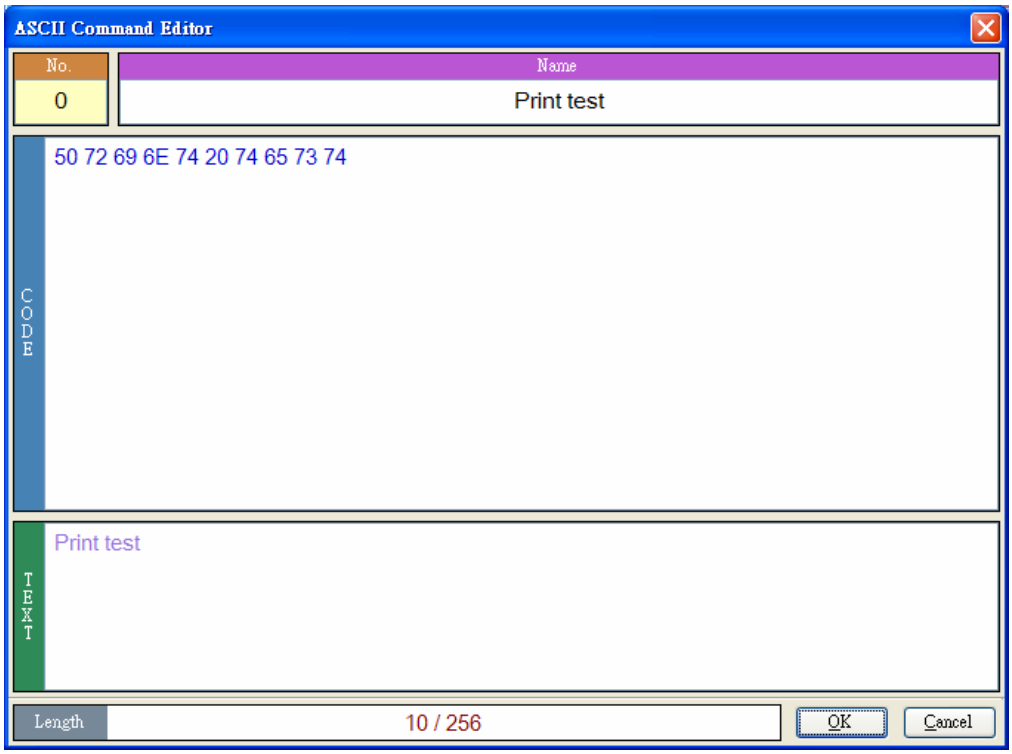
- When the memory drive of recipes is not used, it means that when you trigger the read/write drive, the action will point to the data at the edit-end.
- If the memory device is used, it means that when you trigger the read/write drive, the action will point to the csv files; if there is no csv file available, the action will point to the data at the edit-end.
- When selecting an external memory(SD/USB) to store recipe data, an external memory(SD/USB) must be mounted, or the “Auto mount” function must be chosen. For details, see section 3.4 “Communication” described in EC200 hardware manual.

### 3.9.5. ASCII Communication Device

Click System and then click ASCII Communication Device to open the ASCII Command Setup editing ASCII command. See Figure 3-9-5-1 below.



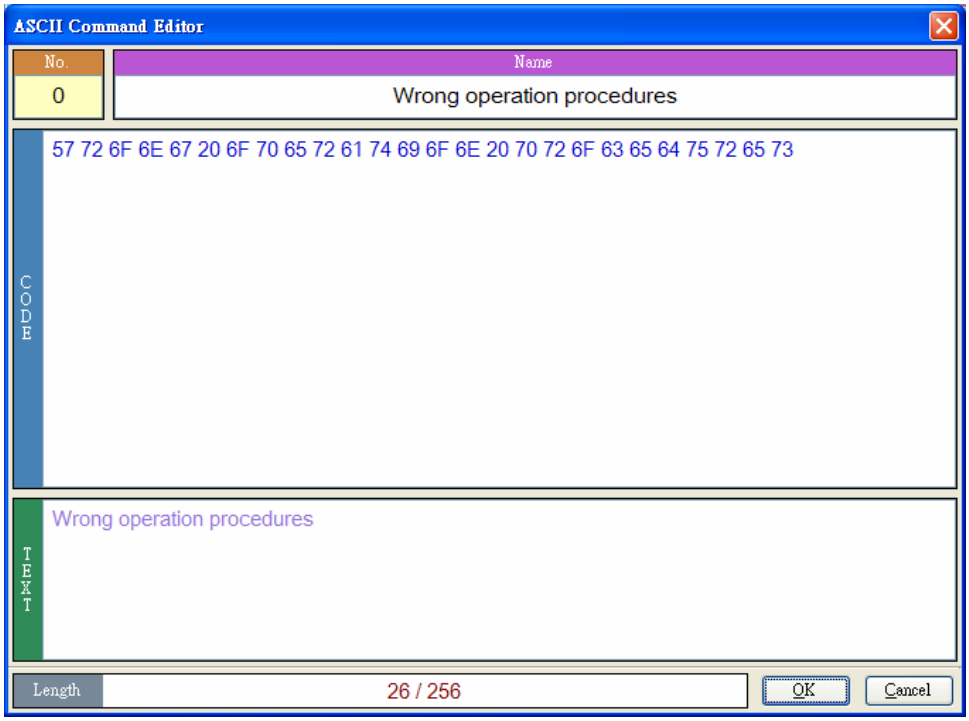

(a)




(b)

Fig. 3-9-5-1 ASCII Communication Device (a) ASCII command setup (b) ASCII command editor

ASCII commands used with ASCII communication instruction of macro editor ,can be transmitted ASCII commands to the specified communications device, See Figure 3-9-5-2 below, puts (_); instruction will store No. 0 ASCII command in the buffer.




(a)

```
1 if(M22)
2 {
3 puts(0);//NO.0 ASCII Command store in the buffer
4 send(2);//Transfer to COM2 Printer
5 }
6
7
8
9
```

(b)

Fig. 3-9-5-2 ASCII command transfer to communications device (a) ASCII command editor (b) Macro edit

NOTE

- The ASCII command editor according to ASCII command coding rules of the the specified communications device.
- Detailed description of the print funtion, refer to Appendix print section.

### 3.9.6. Floating Alarm

Click System and then click Floating Alarm to open the floating alarm setting dialogue box and set the number of devices and their types, comment, outline, display and the text. See Figure 3-9-6-1 below.

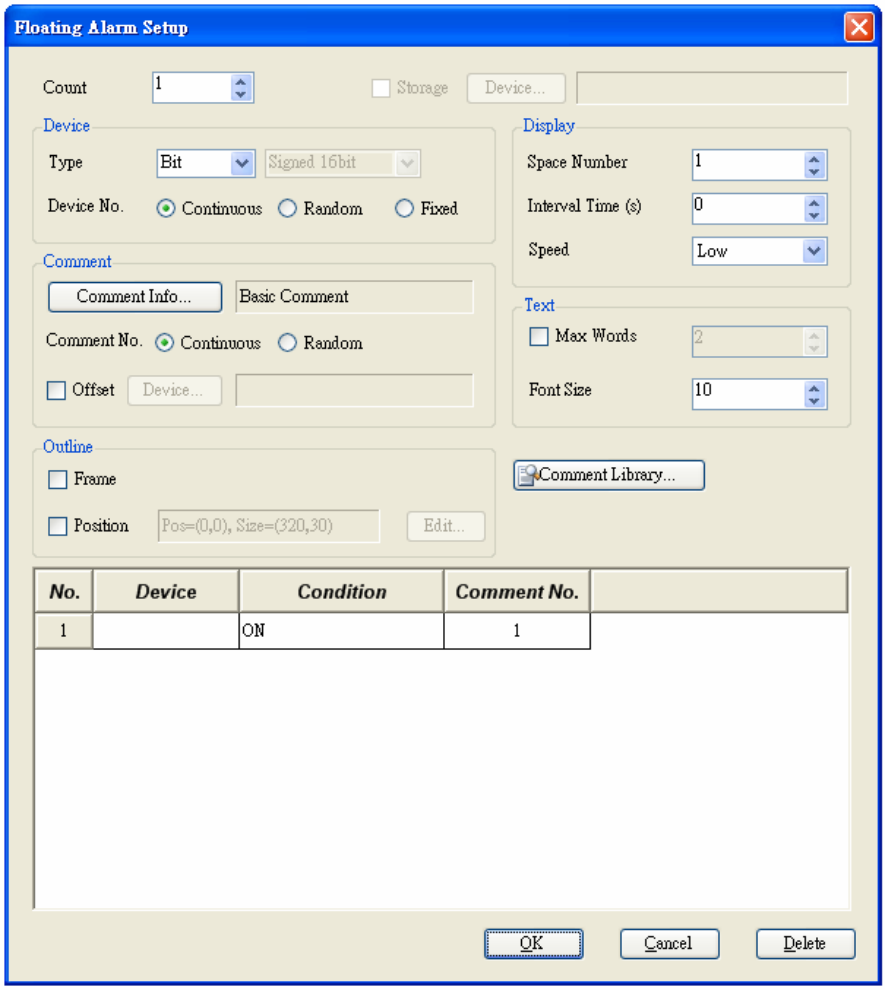



Fig. 3-9-6-1 Floating Alarm Setting

NOTE

- Whenever the device's setting is changed, the floating alarm background will be started.

To select the Bit action device, its types are ON/OFF display. The user can change the comment information, number and offset. See Figure 3-9-6-2 below.

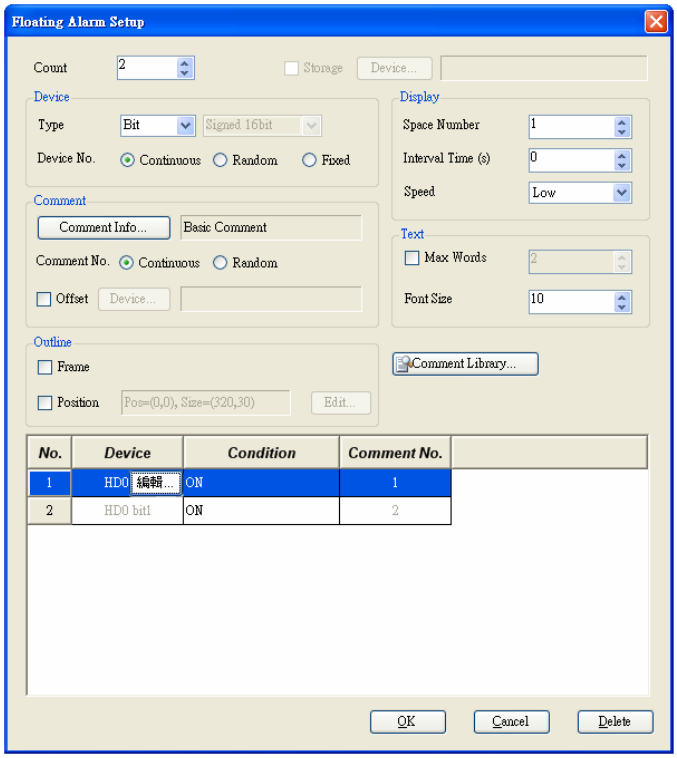



Fig. 3-9-6-2 Bit Floating Alarm

Click Comment Info... to open the comment information dialogue box and select basic comment or comment group. See Figure 3-9-6-3 below.

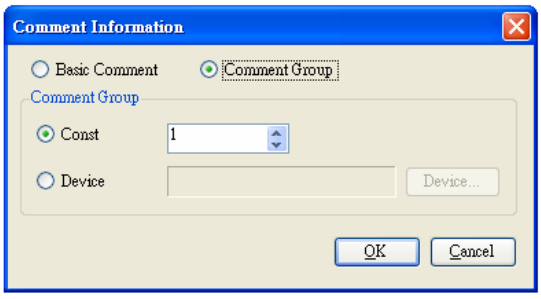



Fig. 3-9-6-3 Comment Information Setting

EX

Tick ☑ Offset and select device HD10 to offset the comment number. The action is HD10 adds its internal value up to the original comment number, and then the operational equation calculates the new comment number as HD10 + original comment number. If the internal value of HD10 is 10, after the offset operation the HD0 internal comment number will become 11. See Figure 3-9-6-4 below.

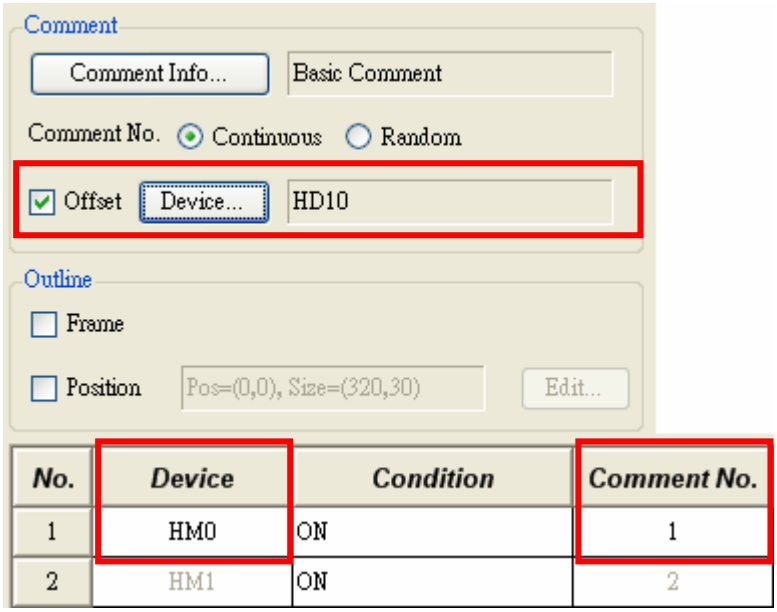
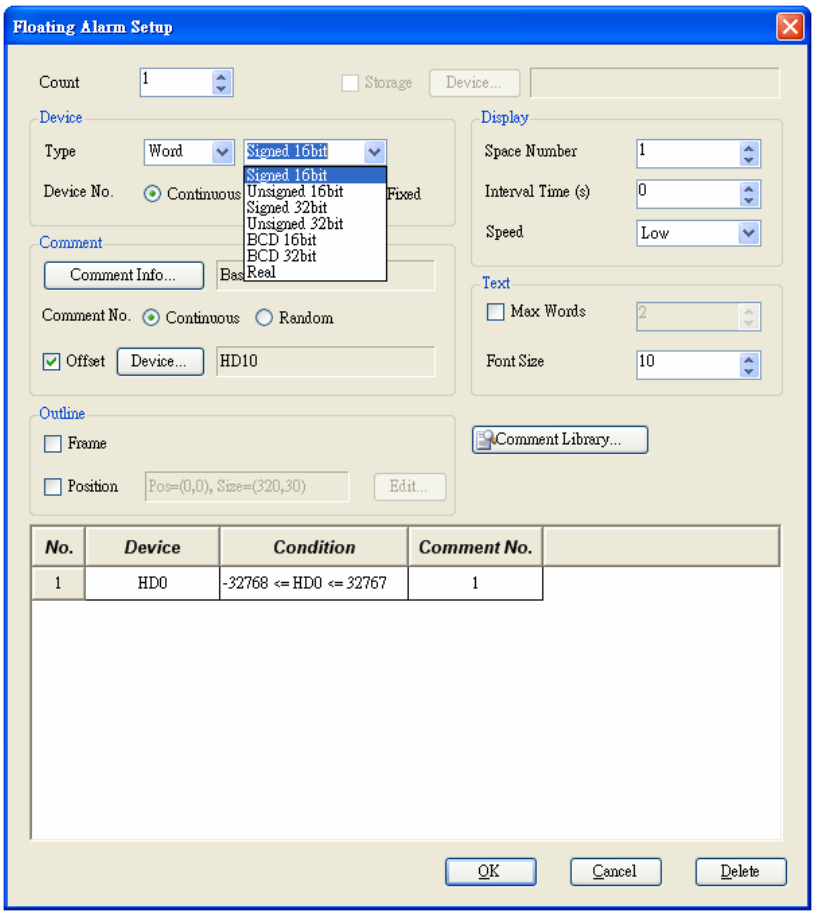



Fig. 3-9-6-4 Offsetting Device

To select the Word action device, there are 7 numeric types available. The user can change the comment information, number and offset. See Figure 3-9-6-5 below.




| Numeric Type | Value Range |
|---|---|
| **Signed 16bit** | -32768~32767 |
| **Unsigned 16 bit** | 0~65535 |
| **Signed 32 bit** | -2147483648~2147483647 |
| **Unsigned 32 bit** | 0~4294967295 |
| **BCD16 bit** | 0~9999 |
| **BCD32 bit** | 0~99999999 |
| **Real** | -2.147484E+09~2.147484E+09 |

Fig. 3-9-6-5 Word Floating Alarm

Click Comment Info... to open the comment information dialogue box and select basic comment or comment group. See Figure 3-9-6-6 below.

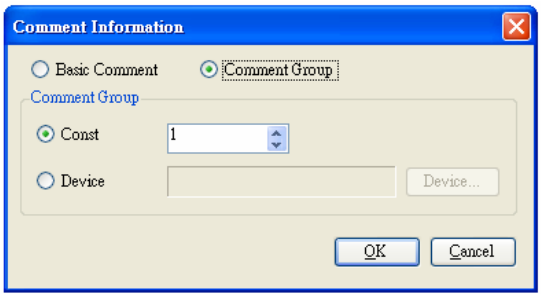



Fig. 3-9-6-6 Comment Information Setting

EX

Tick Offset and select device HD10 to offset the comment number. The action is HD10 adds its internal value up to the original comment number, and then the operational equation calculates the new comment number as HD10 + original comment number. If the internal value of HD10 is 10, after the offset operation the HD0 internal comment number will become 11. See Figure 3-9-6-7 below.

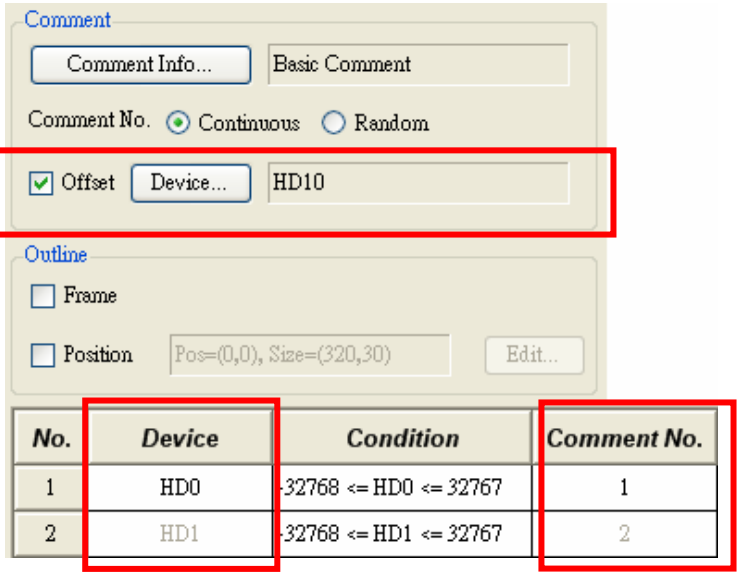



Fig. 3-9-6-7 Offsetting Device

For the display of the floating alarm and its text, the user can change the spacing of the floating alarm character, cyclic time, speed, maximum number of characters, and the font size. See Figure 3-9-6-8 below.

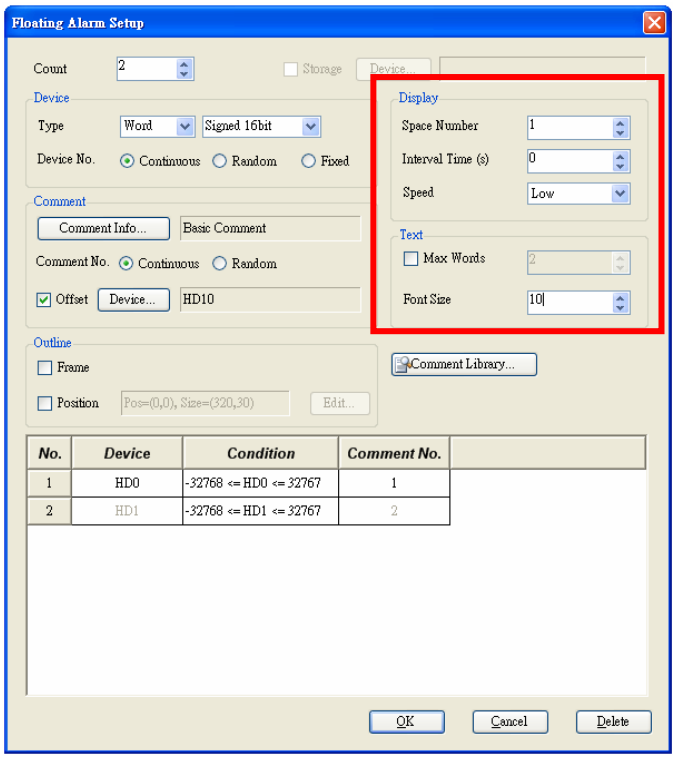



Fig. 3-9-6-8 Floating Alarm Display and Text Setting

To set the floating alarm's outer frame and its position, tick

and tick

to change the settting. See Figure 3-9-6-9 below.

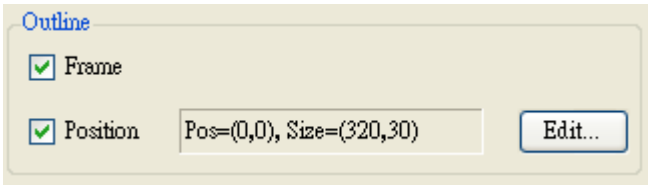


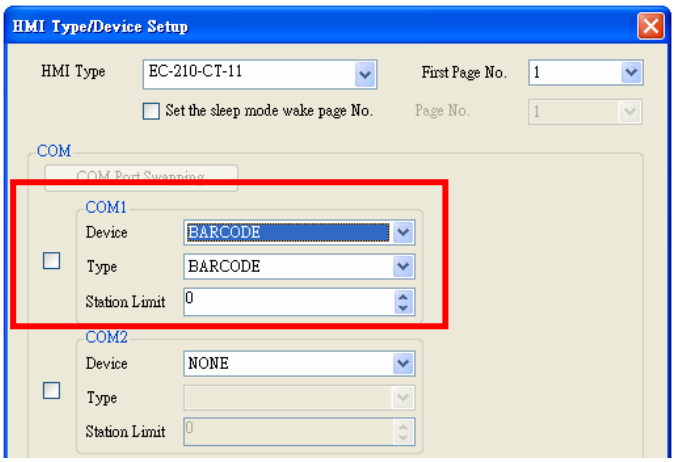

Fig. 3-9-6-9 Profile Setting

In the editing of the text, the comments of the comment library can be set as the text content. To do this, click

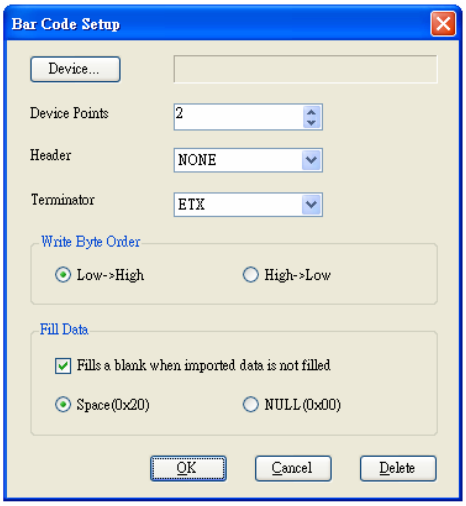
to open the dialogue box of the comment library. For detailed instructions, please see Section 3.4.4 Comment Library.

### 3.9.7. Barcode Setup

Click HMI Type/Device Setup from the System menu, click BARCODE from the drop-down menu of the COM1/COM3 device to start the function (choose either COM1 or COM3 to use BARCODE), and click the Barcode Setup... to open the barcode setting dialog box, as shown in figure 3-9-7-1.



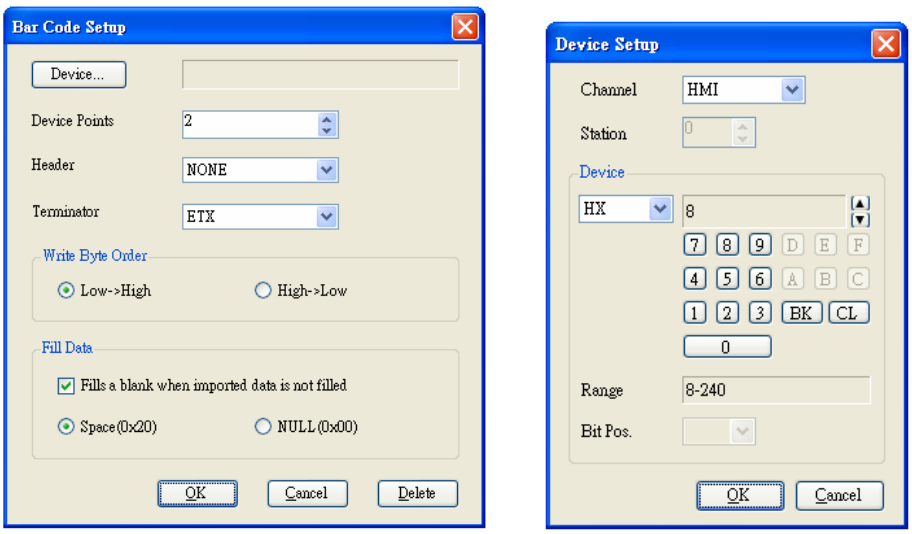

(a)




(b)

Fig. 3-9-7-1 Opening Barcode Device (a) Changing Device (b) Barcode Setting

Click Device... to open the device setting dialogue box, and then select the device to finish the setting. See Figure 3-9-7-2 below. The settings are detailed in Table 3-9-7-3 below.




(a) (b)

Fig. 3-9-7-2 Barcode Device (a) Barcode Setting (b) Device Setting

Table 3-9-7-3 Barcode Setting Descriptions

| Name | Description |
|---|---|
| **Devices Points** | One Word device can contain two characters.<br>For example, to read the character string ABCDEF, there will be 3 Word devices needed. |
| **Header** | **NONE:** no start code is required to do the scan.<br>**STX:** scan starts when the string STX is read. |
| **Terminator** | **ETX:** scan stops when the string ETX is read.<br>**LF:** scan stops when the line-feed character is read.<br>**CR:** scan stops when the carriage-return character is read.<br>**LF+CR:** scan stops when LF+CR are read. |
| **Write Byte Order** | Set the writing to start from low bit or high bit. |
| **Fill Data** | When data is not long enough, use blanks or null string to fill up the space. |

NOTE

- For information about connection of barcode scanner, see EC hardware operation manual .

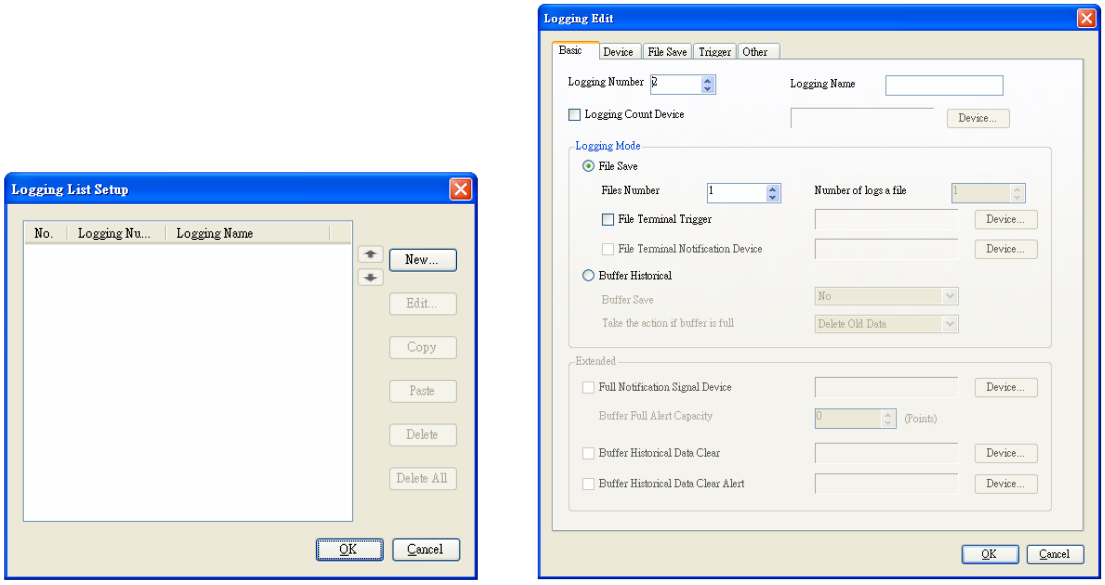
### 3.9.8. Logging

Click System and then click Logging to make the setting of the historical data resume. See Figure below 3-9-7 below.

Fig. 3-9-8 Menu of Historical Data Resume

## a. Logging Setup

To set up a Logging, click System and click Logging and then click Logging Setup... to open the Logging dialogue box. Then, click New... to open the Logging edit dialogue box and set the Logging name, Logging pattern, device, file storage, trigger, and others. See Figure 3-9-8A-1 below.




(a) (b)

Fig. 3-9-8A-1 Resume Setting (a) Adding Resume (b) Editing Resume

The basic properties allow the user to set the Logging number, Logging name, counter device, Logging pattern, and extension functions. To set up a Logging counter device, Tick Logging Count Device to show the counts of the Logging's appearance. Click Device... to open the device setup dialogue box and select a device. See Figure 3-9-8A-2 below.

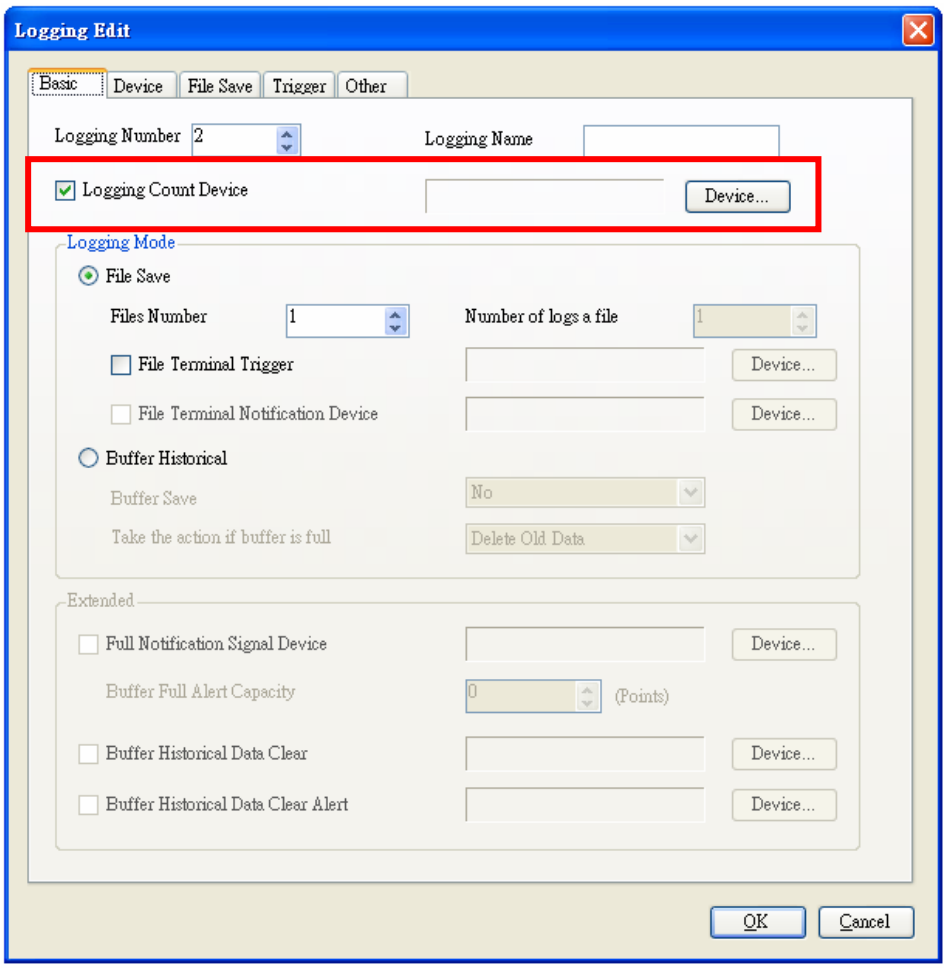



Fig. 3-9-8A-2 Basic Propertys

For storing the files, the user can set the number of files, number of Logging, file termination device, and termination notification device. See Figure 3-9-8A-3 below.

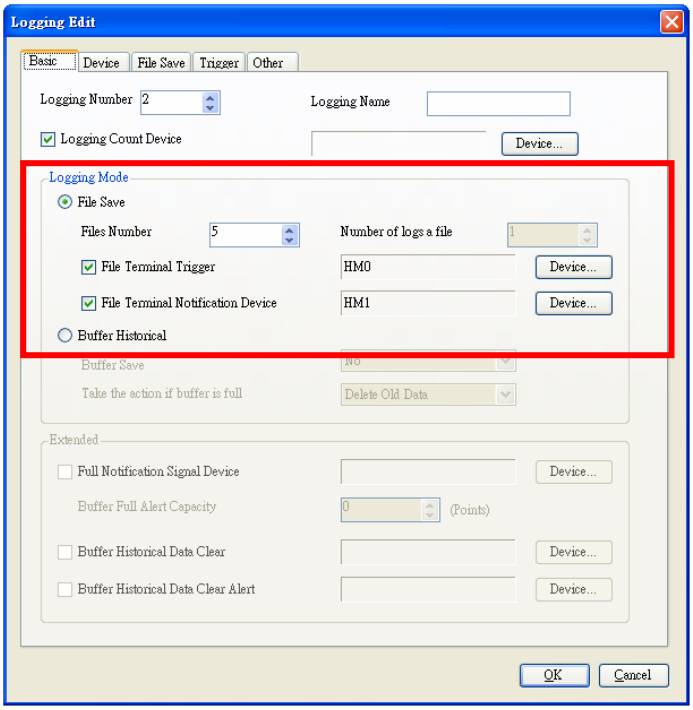



Fig. 3-9-8A-3 Logging File Storage

EX

Set 5 file folders with each containing 10 Loggings so that there will be 50 Loggings in total. When the File Termination Device HM0 is click-triggered, the writing of the resume file will stop immediately. When the File Termination Notification Device HM1 is on, it will show the stoppage of the writing. See Figure 3-9-8A-4 below.

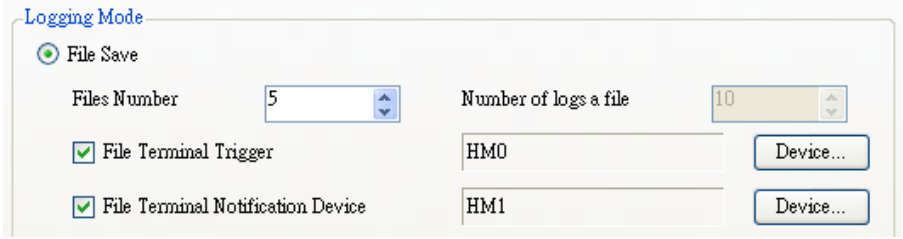
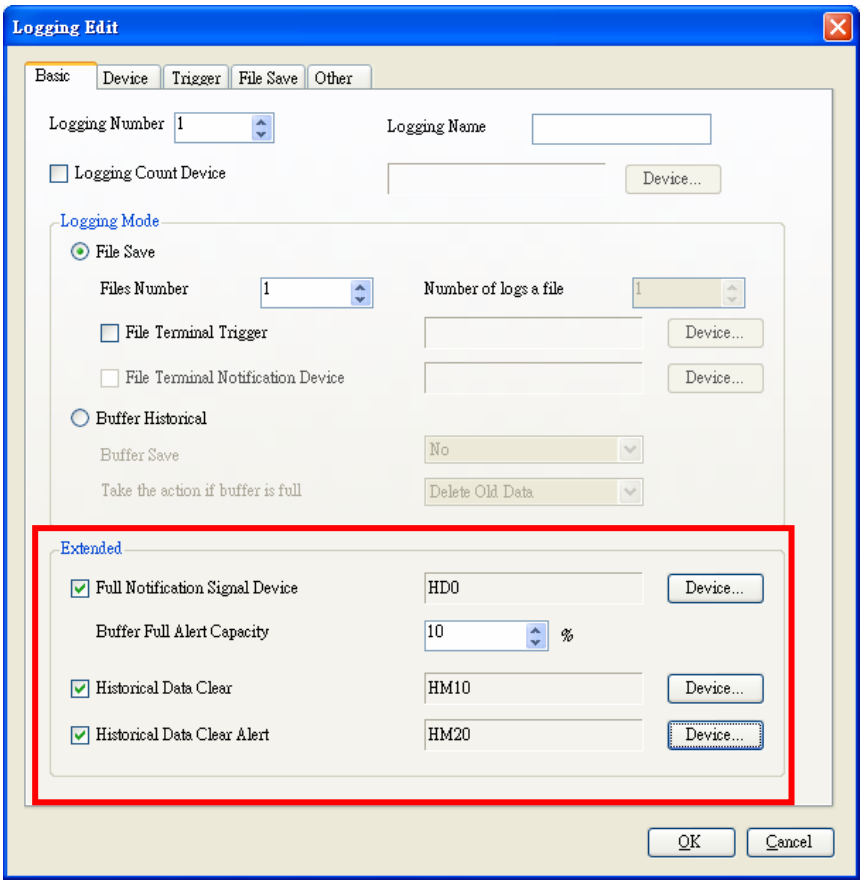



Fig. 3-9-8A-4 File Saving

File save extending function description is as shown in figure 3-9-8A-5.




| Function | Description |
|---|---|
| **Full Notification Signal Device** | Percentage of the disk Memory that are used.<br>**EX:**<br>The Full Notification Signal Device setting HD0, When the memory has been used for 50%, HD0 display "50". |
| **Buffer Full Alert Capacity** | When Percentage of the disk Memory that are used <= Buffer Full Alert Capacity ,HMI will delete old data.<br>**EX:**<br>The Buffer Full Alert Capacity setting 10%, When the memory has been used for 90%, HMI will delete old data. |
| **Historical Data Clear**<br>**Historical Data Clear Alert** | **EX:**<br>The historical data clear setting HM10 and the historical data clear alert setting HM20<br>When triggering HM10, the system will clear the last historical file and meanwhile the Clear Alert Device HM20 will start. |

Figure 3-9-8A-5: Extended function

For the buffer Logging, the user can set the save-or-not option, action for saturated buffer, notification, and data erasing device. See Figure 3-9-8A-5 below.

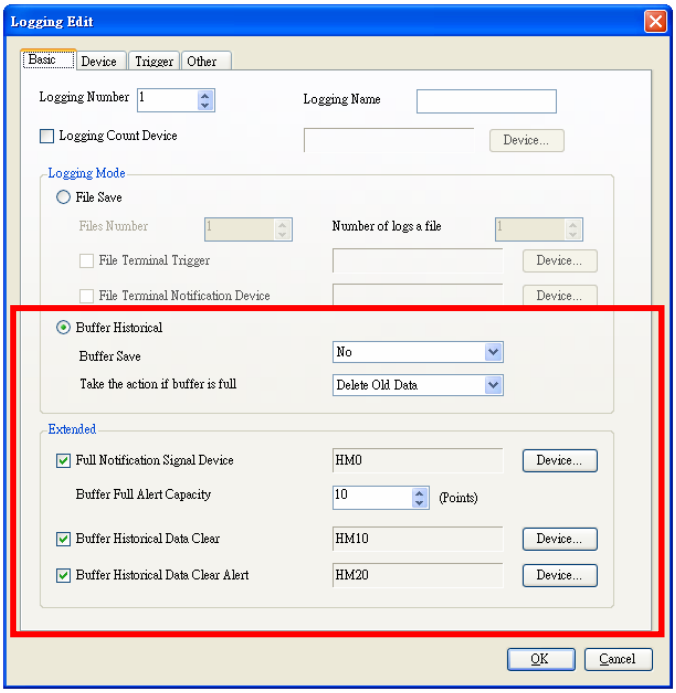



Fig. 3-9-8A-5 Buffer Resume

If the number of Loggings is set to 50 transactions, when the number of Loggings reaches 40, the HM0 device will be switched on, so that when the user click the HM10 device, the Logging data will be erased, and the Erase Alarm Device HM20 will be switched on at the same time. See Figure 3-9-8A-6 below.

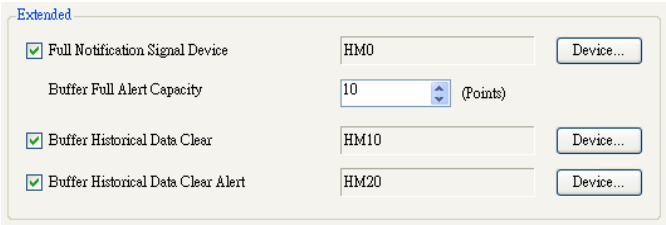



Fig. 3-9-8A-6 Extension Functions Setting

For the Device properties, the user can set the number of modules, export properties, import/export, device type, display of points and comment. See Figure 3-9-8A-7 below.

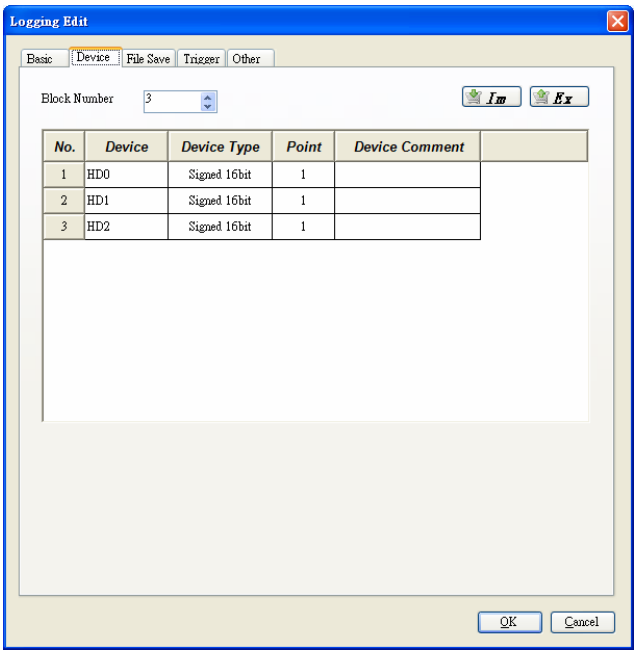



Fig. 3-9-8A-7 Device Setting

To import the Logging file, click to open the dialogue box and select the Logging file (.csv) to be imported. Confirm to finish the import. To export the Logging file, click to open the dialogue box and export the Logging file (.csv) to the specified destination. Confirm to finish the export. See Figures 3-9-7A-9 and 3-9-8A-10 below.

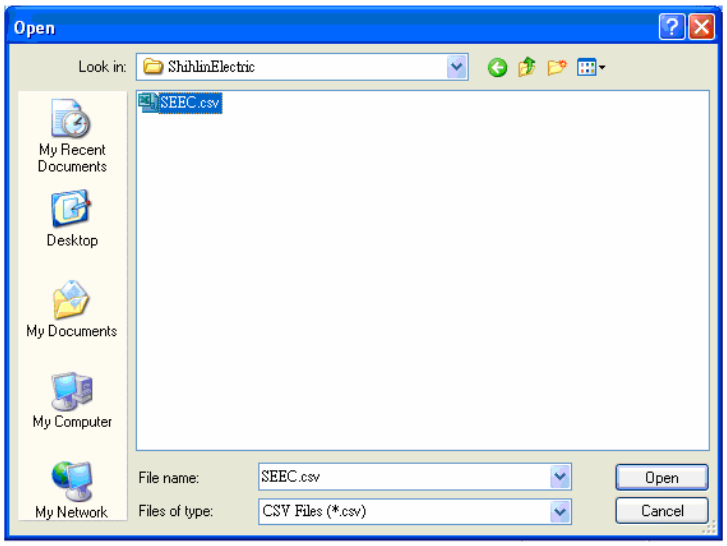



Fig. 3-9-8A-9 Logging Import

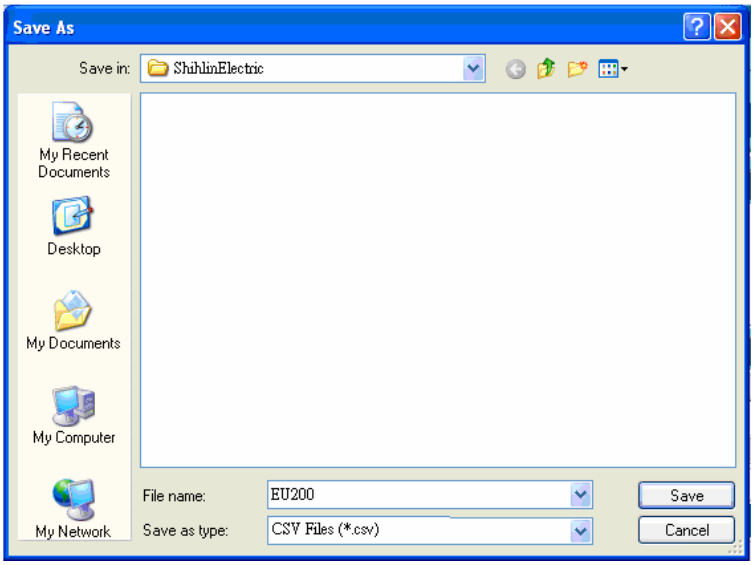
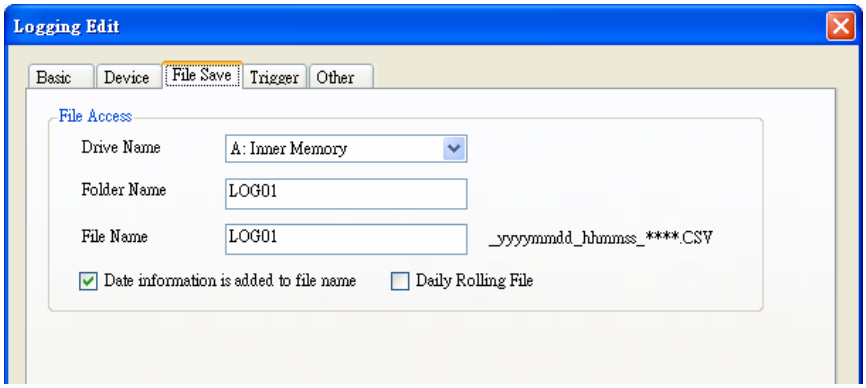



Fig. 3-9-8A-10 Logging Export

For the File Saving properties, the user can set the storage device name, attached file and information format. See Figure 3-9-8A-11 below.




| File save setup | | Description |
|---|---|---|
| **Memory device** | **Drive name** | A: Inner Memory<br>B: Standard SD Card<br>C: USB Disk |
| | **Folder name** | Name of the folder for saving historical data. |
| | **File name** | Name of file for saving historical data. |
| **Date information is added to file name** | | It shows the file name in the format of "yyyymmdd_hhmmss_file name.CSV".<br>**EX:**20131015_093215_LOG01.CSV |
| **Daily rolling file** | | The file of logging data is saved based on day. The maximum storage volume of a file depends on the available space of the object to be saved. (each day can save 86400 historical data) |

Fig. 3-9-8A-11 File Saving

NOTE

- When selecting an external memory(SD/USB) to store logging file, an external memory(SD/USB) must be mounted, or the "Auto mount" function must be chosen. For details, see section 3.4 "Communication" described in EC200 hardware manual.

To set file export format, tick File Output Time Information Format and change the formats of the date and time. See Figure 3-9-8A-12 below.

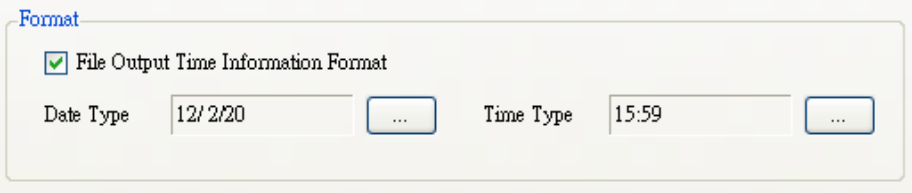
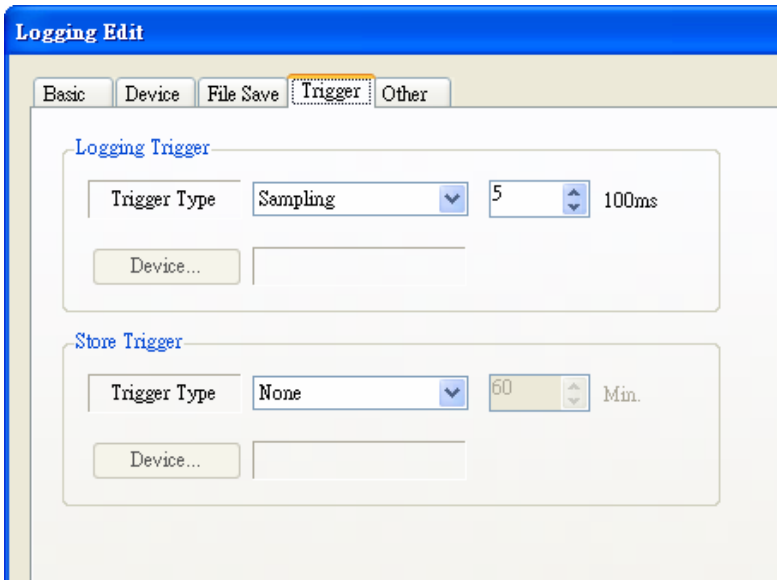



Fig. 3-9-8A-12 File Export Format

The Trigger properties allow the user to set the triggers of Logging recording and Logging saving. See Figure 3-9-8A-13 below.




| Trigger Pattern | Description |
|---|---|
| **None** | No triggering pattern. |
| **Rise** | Action is taken only when the device is switched from OFF to ON. |
| **Fall** | Action is taken only when the device is switched from ON to OFF. |
| **Sampling** | Action is taken only after the sampling time elapses. |
| **ON Sampling** | Action is taken only when the device in ON and the sampling item elapses. |
| **OFF Sampling** | Action is taken only when the device in OFF and the sampling item elapses |

Fig. 3-9-8A-13 Trigger Properties

- When the EC205-CT0A,EC207-CT0S,and EC207-CT1S model is used logging trigger function, the minimum sampling time is 60000 ms.
- When the non-trigger type is selected and the number of records stored is reached, it will automatically save records into a memory device (HMI inner memory or external storage devices).

For Other properties, the user can set the Notification Device and the number of stored buffer Loggings. See Figure 3-9-8A-14 below.

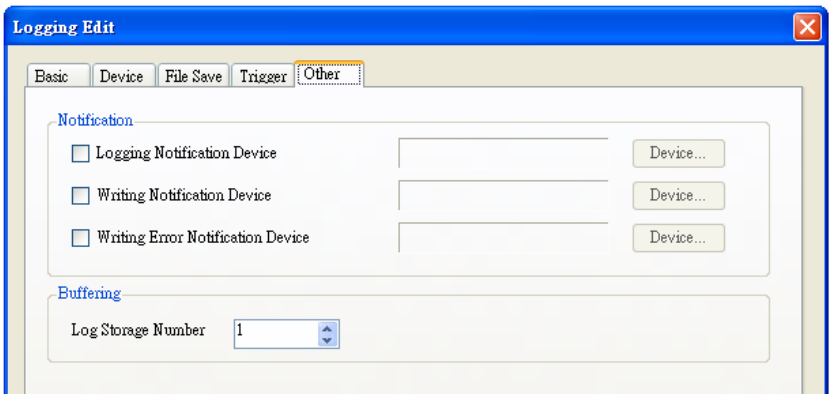



Fig. 3-9-8A-14 Other Properties

EX

Tick ☑ Logging Notification Device and set the device to HM0, so when a record is generated, the HM0 device will be switched on; tick ☑ Writing Notification Device and tick ☑ Writing Error Notification Device and set the devices as HM10 and HM20, respectively, so when the data is being written or when a write error occurs, the devices HM10 and HM20 will be respectively switched on. See Figure 3-9-8A-15 below.

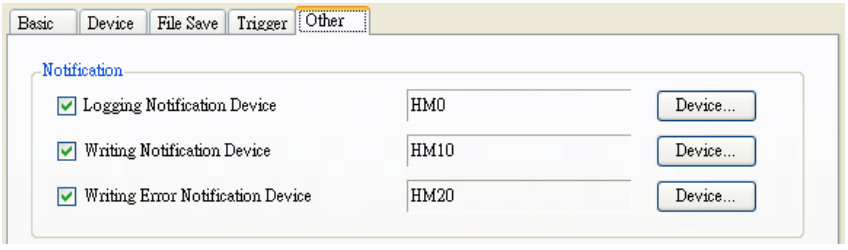



Fig. 3-9-8A-15 Notification Device

For the number of stored Loggings, the user can set the number of Loggings to be stored and retrieved. Do the setting with the buffer Logging mode. See Figure 3-9-8A-16 below.

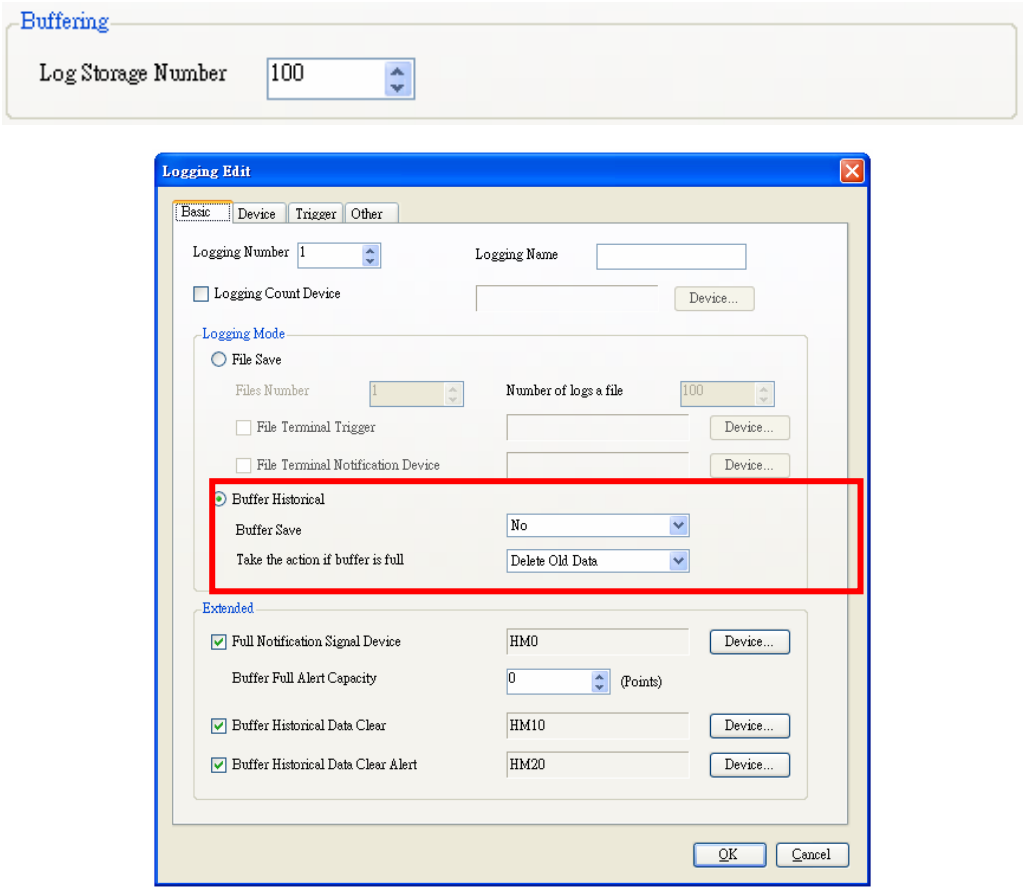



Fig. 3-9-8A-16 Number of Stored Loggings

NOTE

- Click System and click Logging and then click Logging Setup... to make the setting in order to use the historical trend chart.
- In the function manager, double left click the mouse to open the corresponding dialogue box.

### 3.9.9. Advanced Alarm Observation

Click System and click Advanced Alarm Observation to make the setting of the advanced alarm observation. See Figure 3-9-8 below.

Fig. 3-9-9 Menu of Advanced Alarm observation

### a. Advanced Alarm Common

To set up an advanced alarm common, click System and click Advanced Alarm Observation and then click Advanced Alarm Common... to open the dialogue box of the common advanced alarm, and set the concurrent language switch and fixed line numbers. See Figure 3-9-9A-1 below.

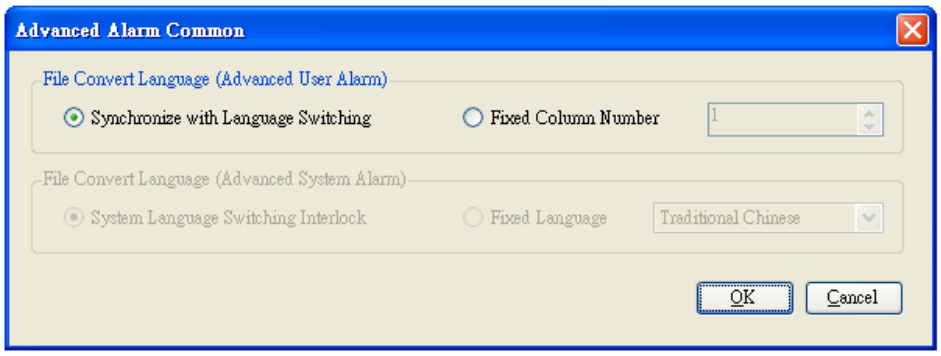


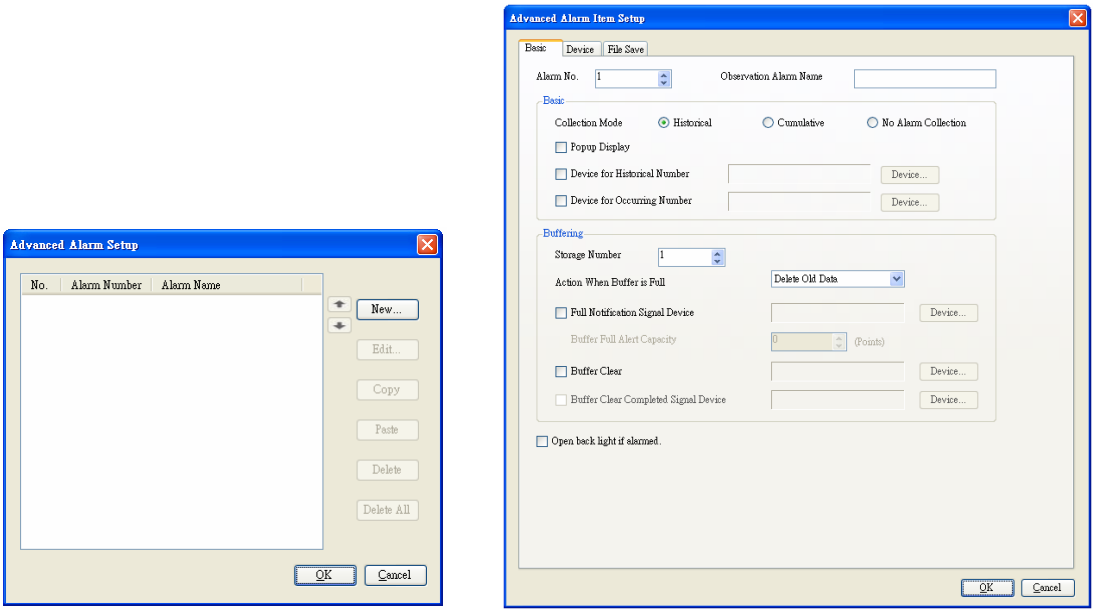

Fig. 3-9-9A-1 Common Advanced Alarm Setting

NOTE

- Click System and click Advanced Alarm Observation and then click Advanced Alarm Common... to make the setting in order to start using the advanced alarm file conversion.
- In the function manager, double left click the mouse to open the corresponding dialogue box.

## b. Advanced Alarm Setup

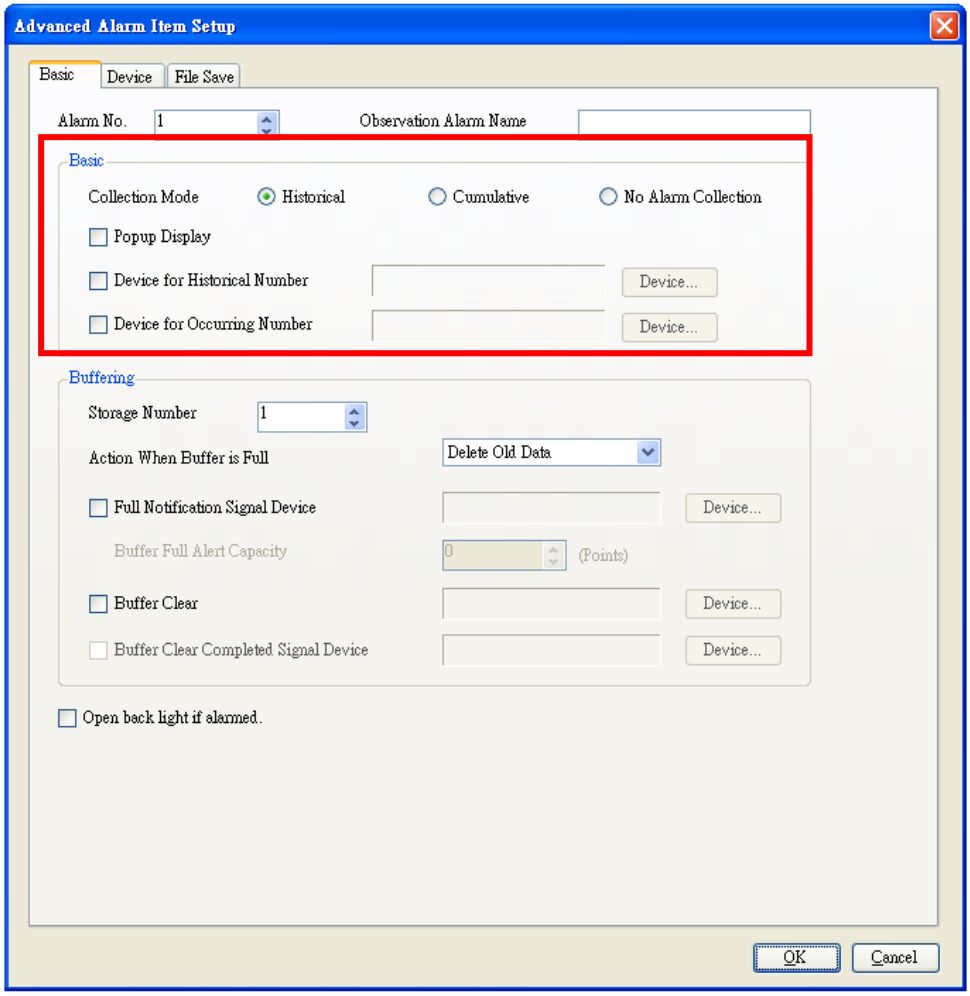
To make the advanced alarm setup, click System and click Advanced Alarm Observation and then click Advanced Alarm Setup... to open the dialogue box of the advanced alarm setting. Then, click New... to open the dialogue box of the advanced alarm editing. There can be as many as 32 sets of alarm. The user can set the alarm name, buffer, device, and file saving. See Figure 3-9-9B-1 below.




(a) (b)

Fig. 3-9-9B-1 Advanced Alarm Setting (a) Adding Advanced Alarm (b) Editing Advanced Alarm

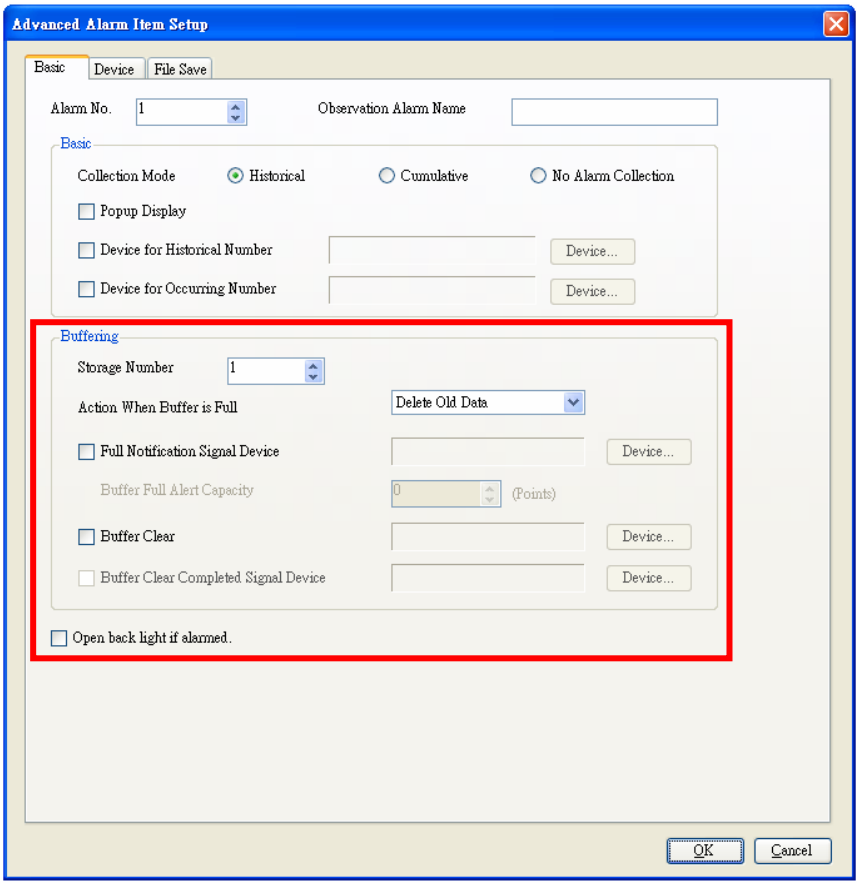
The basic properties allow the user to set collection model, pop-up display, class and event numbering device. See Figure 3-9-9B-2 below.




| Basic | Description |
|---|---|
| **Collection Mode** | **Historical:** every alarm is recorded in the buffer.<br>**Cumulative:** the number of repeats of a same alarm is recorded in the buffer.<br>**No alarm collection:** alarm appears only once and is not recorded. |
| **Popup Display** | When the option is ticked, the alarm message will be displayed at the bottom of the screen. |
| **Device for Historical Number** | Device display the cumulative number of alarm since the HMI boot. |
| **Device for Occurring Number** | Device display the current alarm number. |

Fig. 3-9-9B-2 Basic Setting

The Buffer properties allow the user to set the number of stored alarms, action to saturation, Saturation Notification Device, and Erasion-complete Notification Device. See Figure 3-9-9B-3 below.




| Buffer | Description |
|---|---|
| **Storage Number** | The maximum number of alarms to be stored in the buffer. |
| **Action When Buffer is Full** | Delete old data: delete the earliest data to make room for the incoming data.<br>Stop New Addition: no more data will be added to buffer. |
| **Full Notification Signal Device** | Notify the storage is filled up and saturated. |
| **Buffer full Alert Capacity** | Notify data stored is about to reach the capacity limit. |
| **Buffer Clear** | Erase all data in buffer. |
| **Buffer Clear Completed Signal Device** | Notify data in buffer is erased. |
| **Open Back Light if Alarmed** | In the sleep state, when there is an alarm issued, the HMI will automatically turn on the backlight. |

Fig. 3-9-9B-3 Buffer Setting

The Device properties allow the user to set the monitoring period, alarm points (up to 32767 transactions), type, number, detailed number, comment, displayed items, and device. In the editing of the text, the comments in the comment library can be set as the text content. To do this, click Comment Library... to open the dialogue box of the comment library. For detailed instructions, please see Section 3.4.4 Comment Library. See Figure 3-9-9B-4 below.

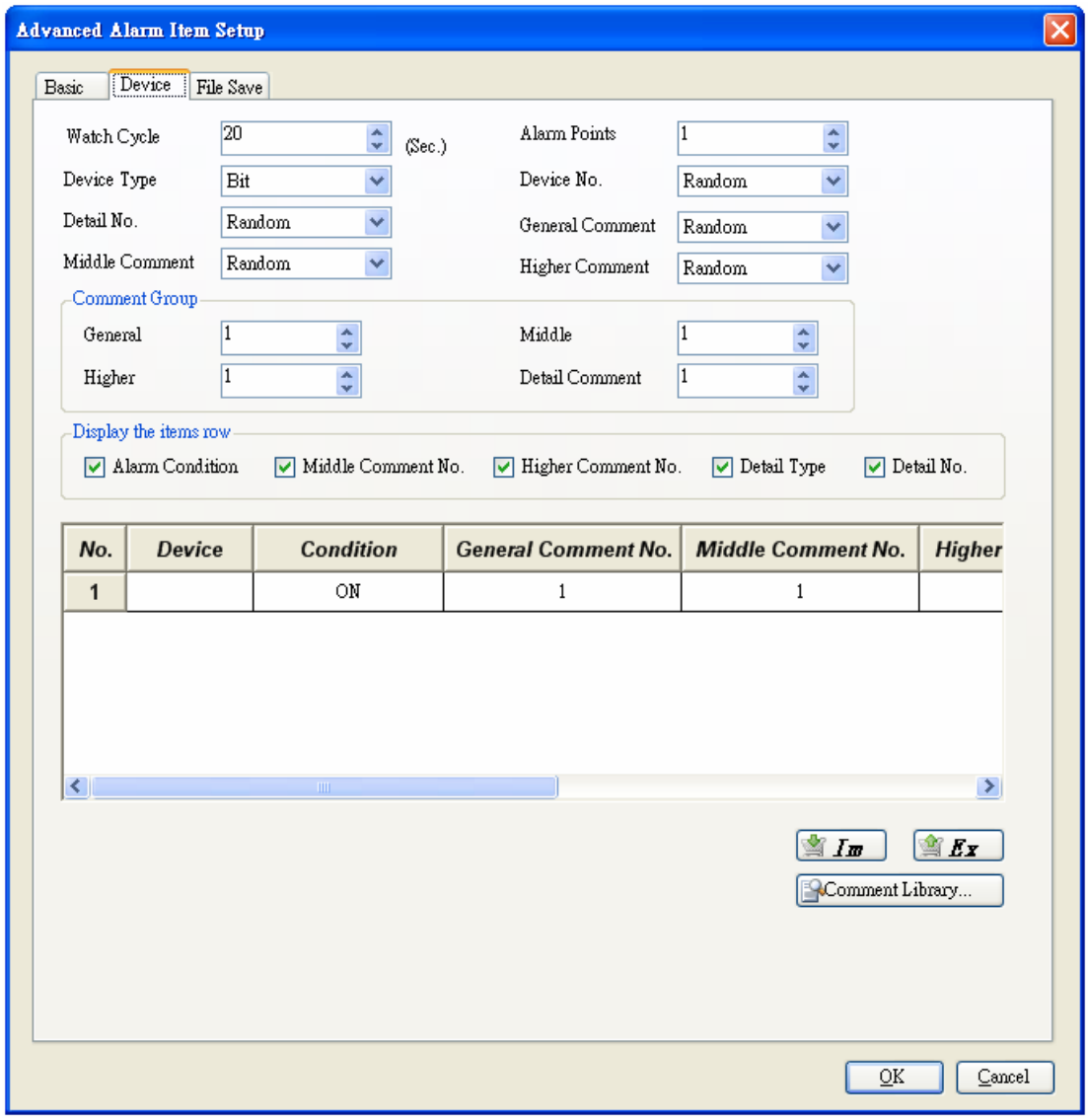
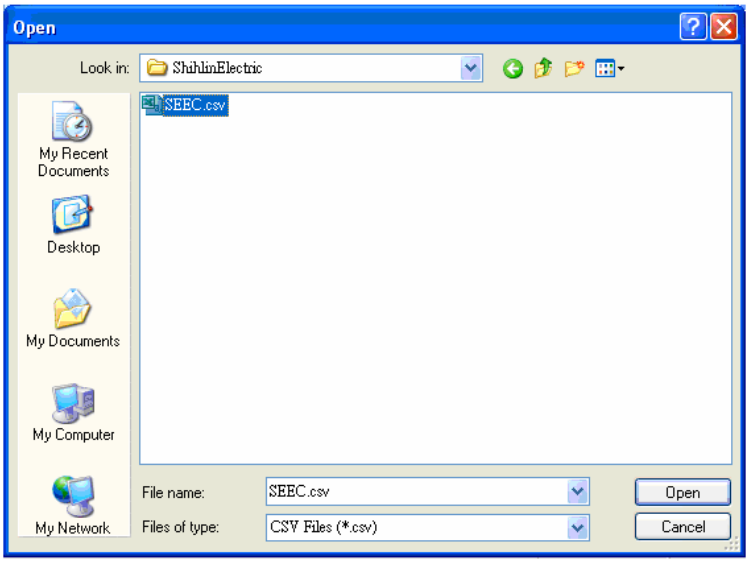
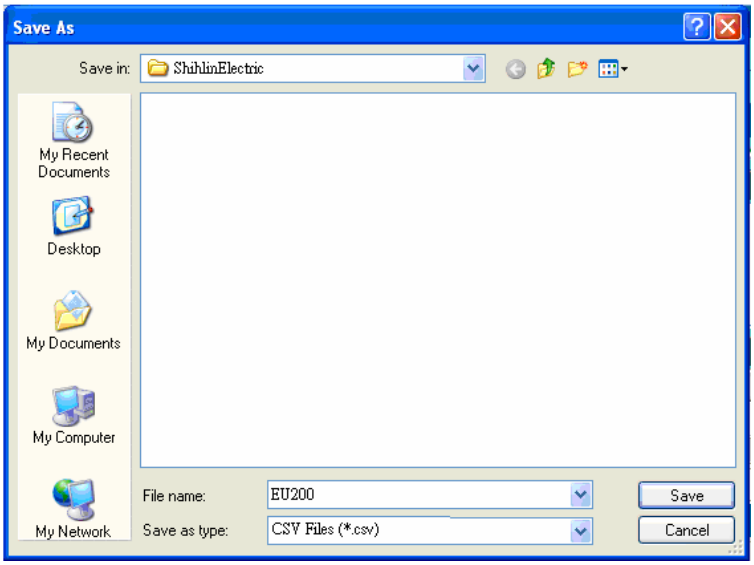



Fig. 3-9-9B-4 Device Properties

To import the alarm file, click to open the dialogue box and select the alarm file (.csv) to be imported. Confirm to finish the import. To export the alarm file, click to open the dialogue box and export the alarm file (.csv) to the specified destination. Confirm to finish the export. See Figures 3-9-9B-5 below.



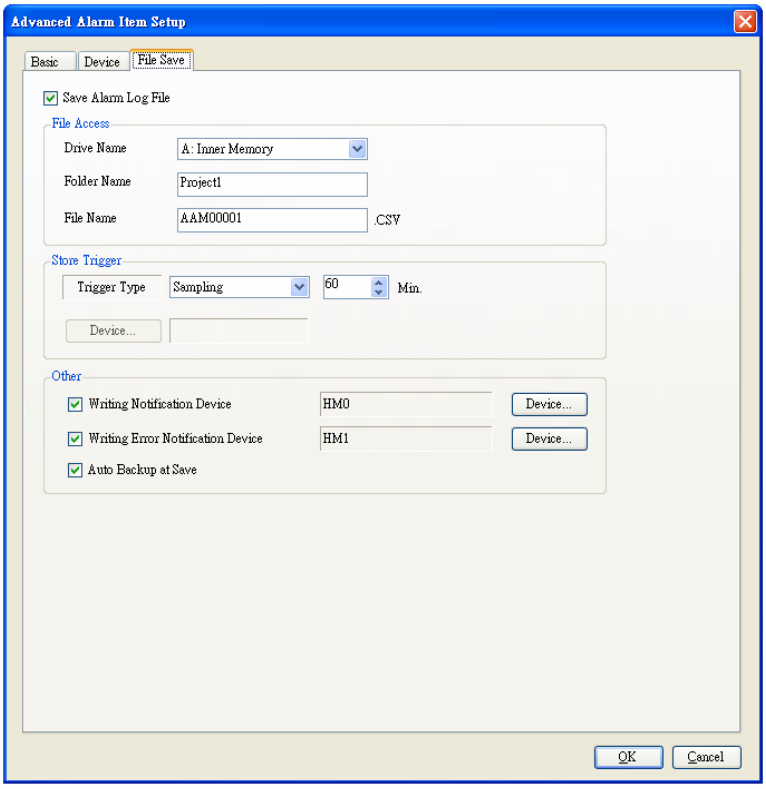

(a)




(b)

Fig. 3-9-9B-5 Import/export alarm file (a) Alarm file Import (b) Alarm file Export

The File Saving properties allow the user to set the file saving, trigger saving and others. See Figure 3-9-9B-6 below.



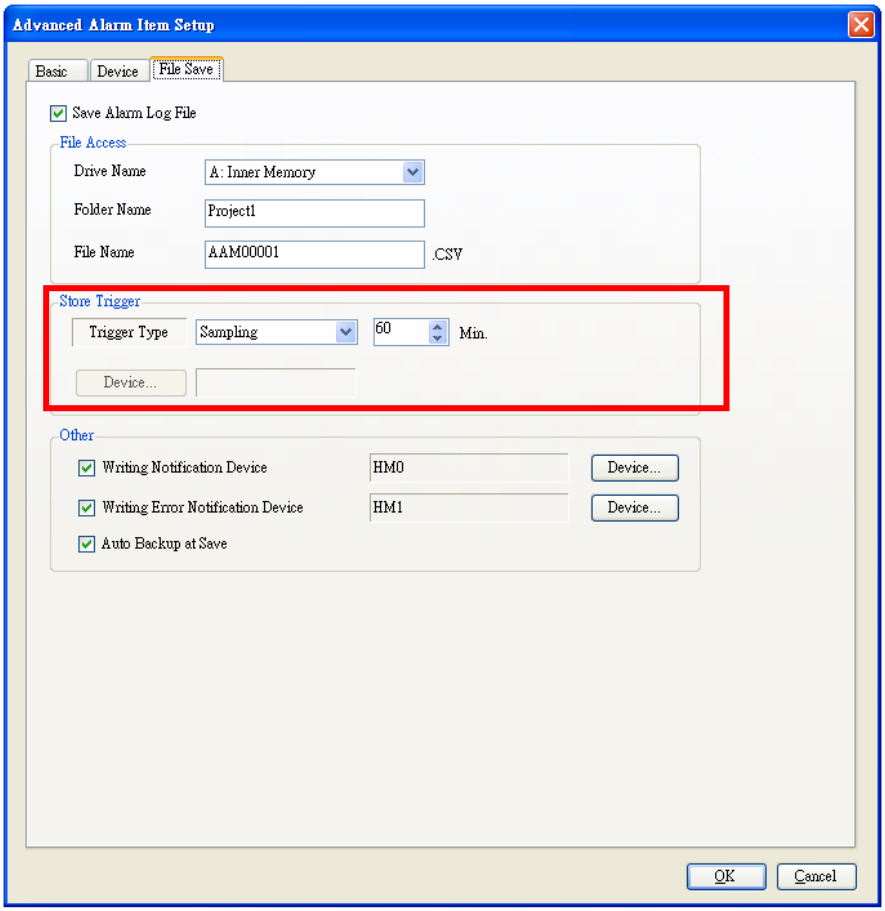

| File Access | Description |
|---|---|
| **Device Name** | A：Inner Memory<br>B：Standard SD Card<br>C：USB Disk |
| **Folder Name** | The name of the folder storing alarm. |
| **File Name** | The name of the file containing alarm. |

Fig. 3-9-9B-6 File Access

NOTE

- When selecting an external memory(SD/USB) to store alarm history, an external memory(SD/USB) must be mounted, or the “Auto mount” function must be chosen. For details, see section 3.4 “Communication” described in EC200 hardware manual.

The Trigger Saving properties allow the user to set the conditions of the trigger pattern and device. See Figure 3-9-9B-7 below.




| Trigger Pattern | Description |
|---|---|
| **Rise** | Action is taken only when the device is switched from OFF to ON. |
| **Fall** | Action is taken only when the device is switched from ON to OFF. |
| **Sampling** | Action is taken only after the sampling time elapses. |
| **ON Sampling** | Action is taken only when the device in ON and the sampling item elapses. |
| **OFF Sampling** | Action is taken only when the device in OFF and the sampling item elapses |

Fig. 3-9-9B-7 Trigger Properties

EX

Tick Writing Notification Device and tick Writing Error Notification Device and set the devices as HM0 and HM1, respectively, so when the data is being written or when a write error occurs, the devices HM0 and HM1 will be respectively switched on. See Figure 3-9-9B-8 below.

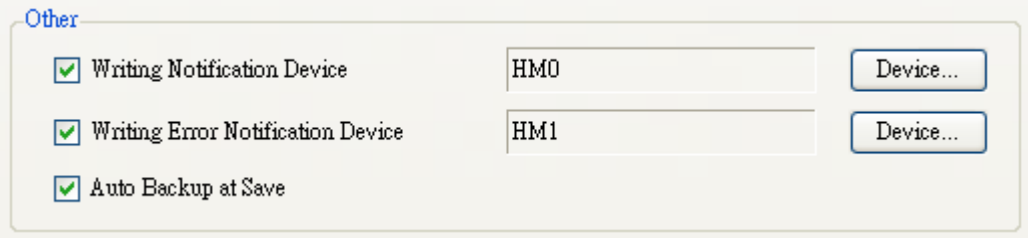



Fig. 3-9-9B-8 Notification Device

NOTE

- In the function manager, double left click the mouse to open the corresponding dialogue box.

### 3.9.10. Advanced Alarm PopUp Display

To set up an advanced alarm pop-up display, click System and then click Advanced Alarm Popup Display to open the dialogue box of the advanced alarm pop-up display and set the pop-up display, touch mode, text, advanced device, and external export. See Figure 3-9-10-1 below.

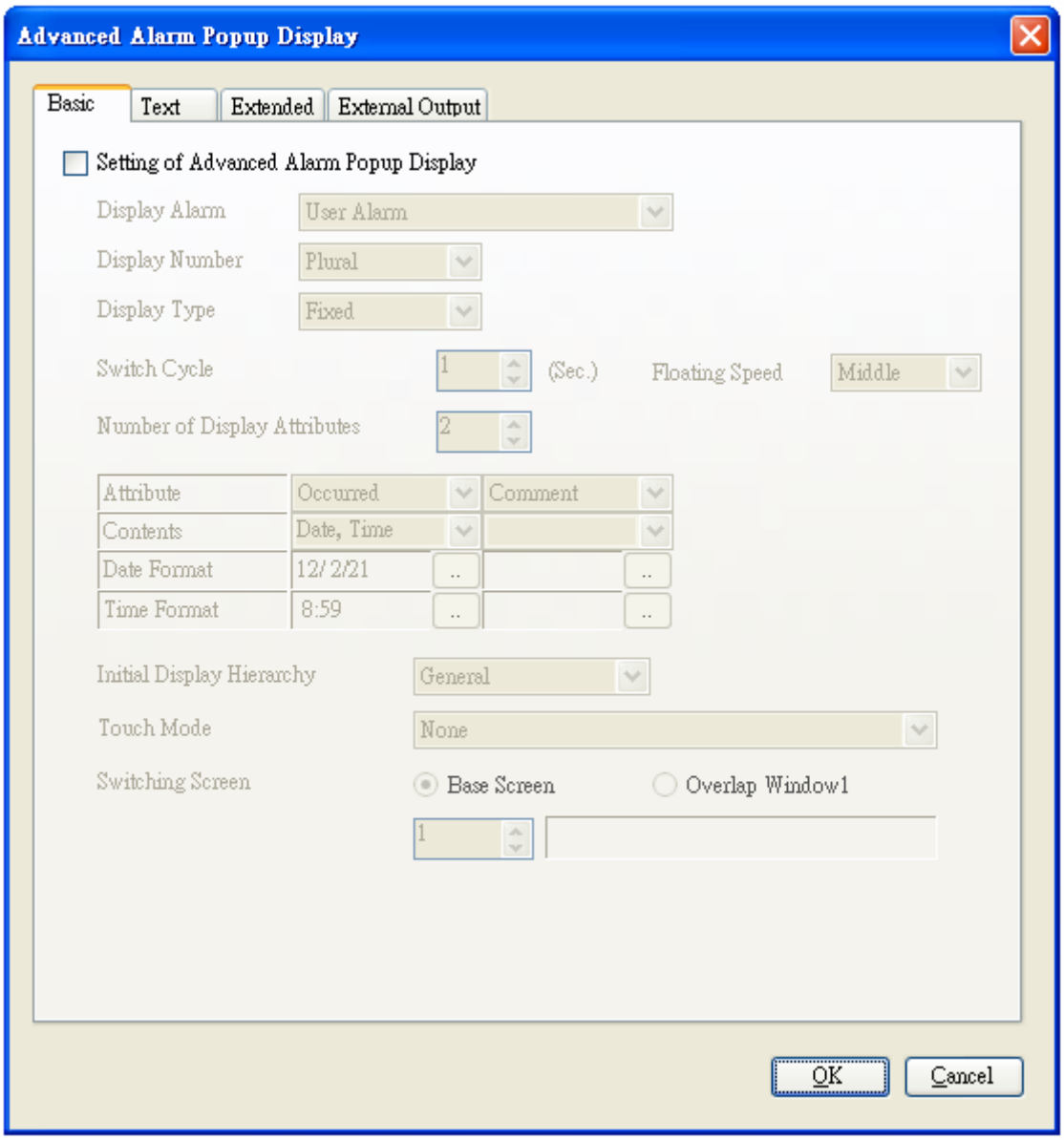
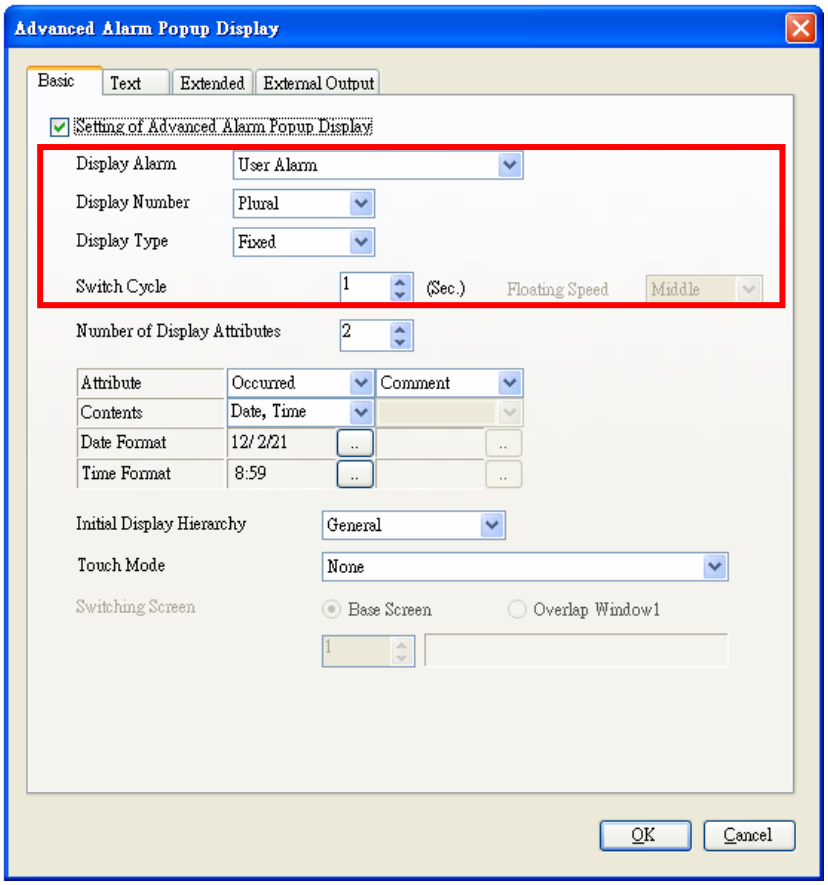



Fig. 3-9-10-1 Advanced Alarm Pop-Up Display

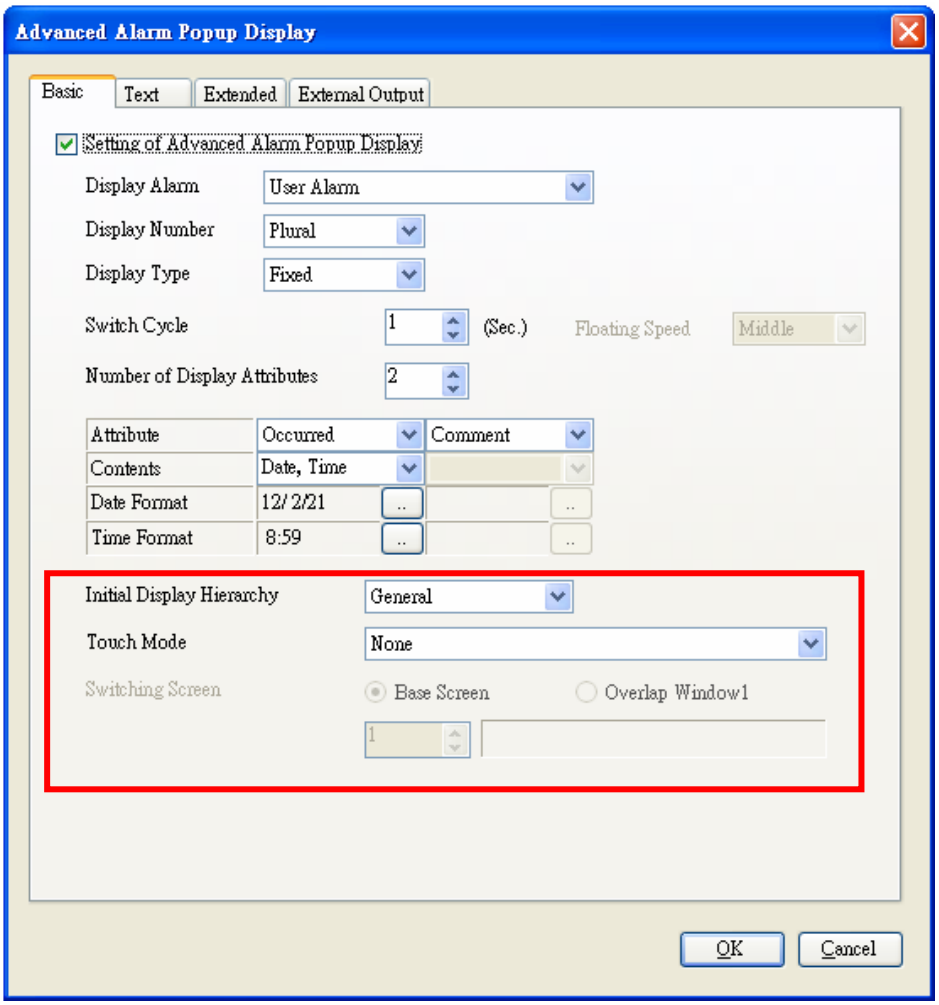
For displaying alarms, the user can change the display of alarms, the number of alarms and the types. See Figure 3-9-10-2 below.




| | Description |
|---|---|
| **Display Alarm** | **User Alarm:** displays user alarms.<br>**System Alarm:** displays system alarms.<br>**User Alarm+System Alarm:** displays both the user alarms and the system alarms. |
| **Display Number** | **Plural:** multiple alarms are cyclically displayed at the bottom of the screen.<br>**Singular:** only a single alarm is displayed at the bottom of the screen. |
| **Display Type** | **Fixed:** the alarm message is statically displayed at the bottom of the screen, and can be periodically displayed.<br>**Floating Alarm:** the alarm message is running displayed. There are 3 running speeds available. |

Fig. 3-9-10-2 Basic Properties

For displaying the alarms, the user can change the display and the number of alarms, and their types. See Figure 3-9-10-3 below.




| | Description |
|---|---|
| **Initial Display Hierarchy** | **General:** displays the general class.<br>**Middle:** displays the middle class.<br>**Higher:** displays the high class. |
| **Touch Mode** | **None:** no effect.<br>**Screen Switch:** jump to the specified basic screen or the overlapped window screen.<br>**Stage Hierarchy Switching/Detail Display:** from high to low, cyclically switch class/details display. |
| **Switching Screen** | The screen-switch option must be first selected in order to make the switch. There are basic screen and window screen to switch to. |

Fig. 3-9-10-3 Basic Properties

The Text properties allow the user to set the alarm format, text color switch, class, group, comment and the background display. See Figure 3-9-10-4 below.

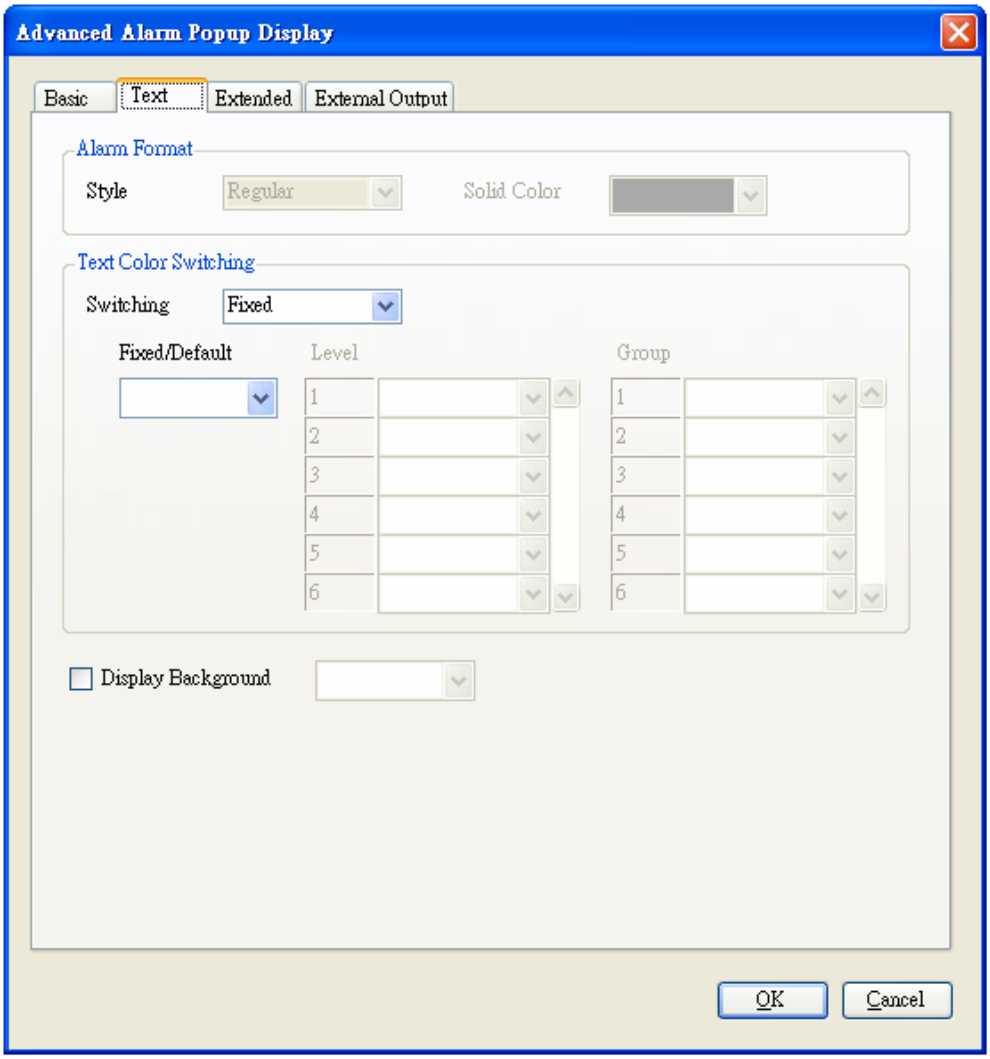



Fig. 3-9-10-4 Text Properties

The Text color switch comes with 4 different types which correspond to fixed, Level, group and comment color. See Figure 3-9-10-5 below. The comment display uses the color set in the comment library.

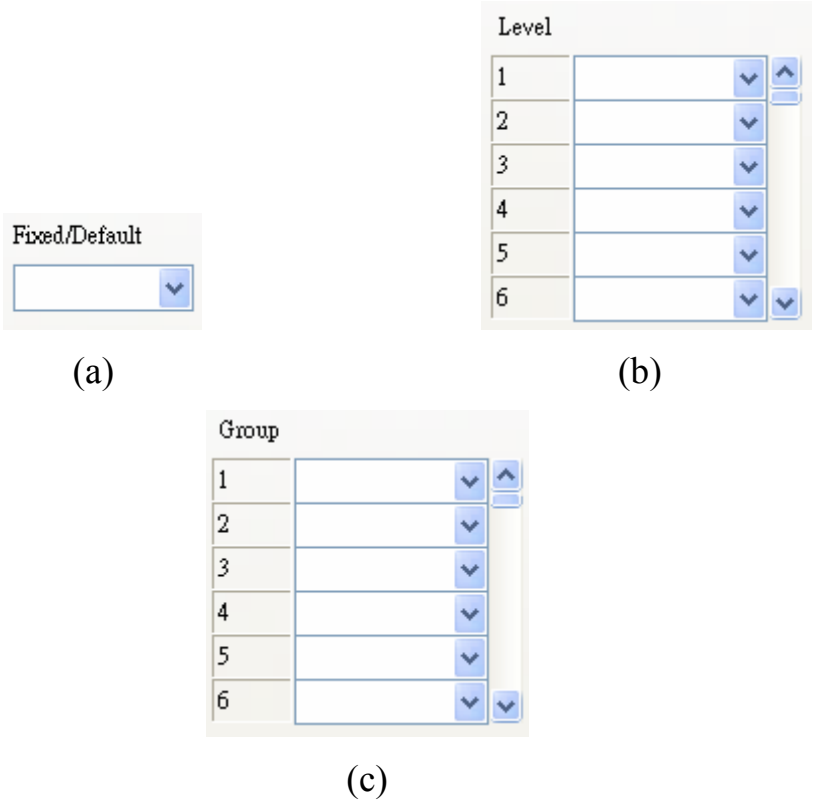



Fig. 3-9-10-5 Text Color Switch (a) Fixation (b) Class (c) Group

The functions of switching devices are to tick the option to set the device and change the value in the device to switch the alarm pop-up status. See Figure 3-9-10-6 below.

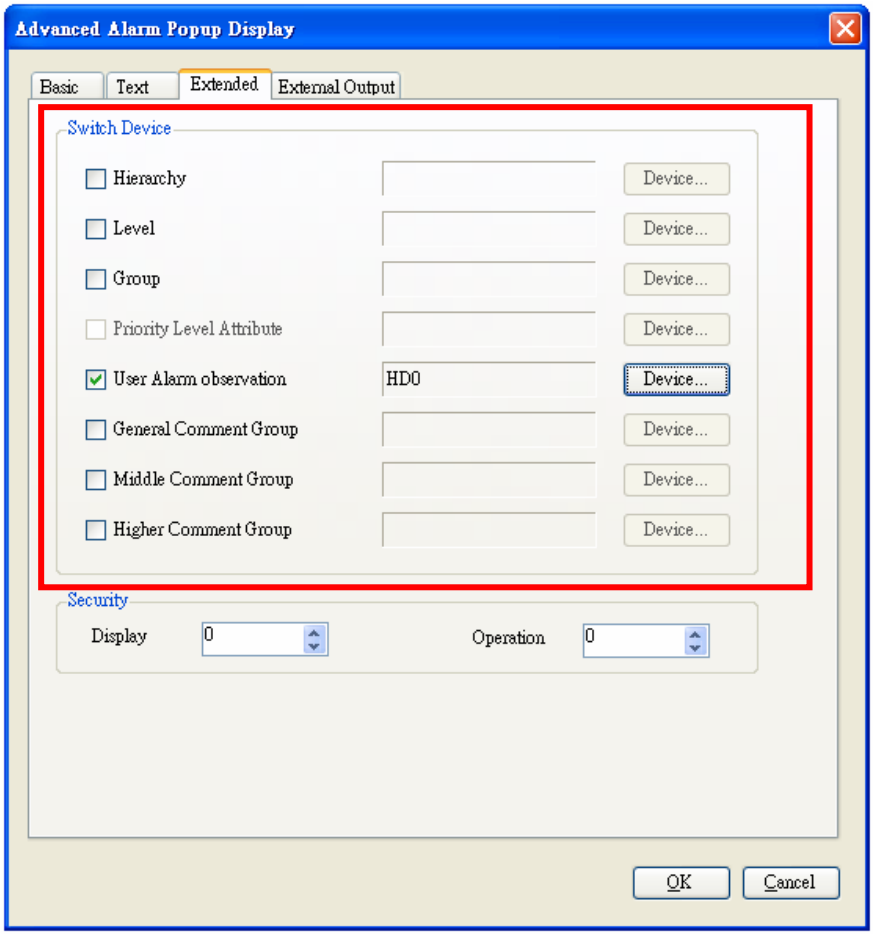



Fig. 3-9-10-6 Other Properties

EX

When the option User Alarm observation is ticked, and the HD0 device is set to 1, the advanced alarm will pop up the display of the alarm numbered 1; if HD0 is set to 2, the alarm numbered 2 will be displayed, and so on.

Figure 3-9-10-7 below shows the setting of the object's security level. The security level (display) and security level (operation) are both ranged from 0 (least privilege) to 15 (highest privilege). The default security levels of the edit software and the system are both 0.

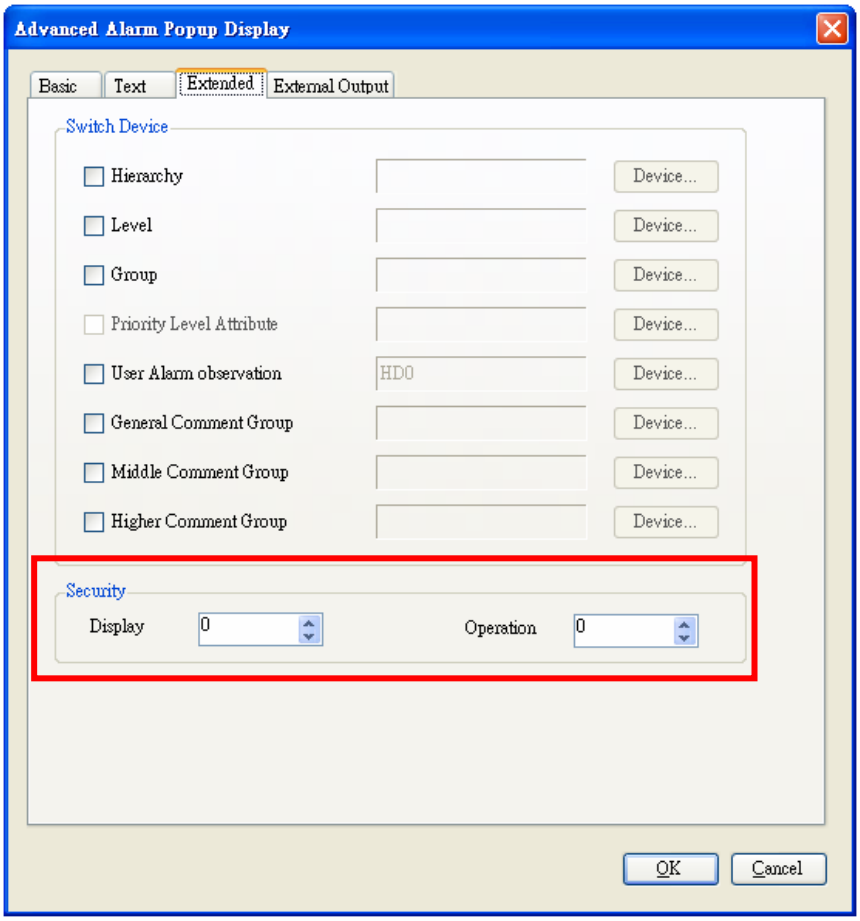



Fig. 3-9-10-7 Security Levels

In the “External output” tab as shown in figure 3-9-10-8, you can choose to change the trigger type and display the device. For details, please see external output function described in section 3.6.6-e “Advanced alarm”.

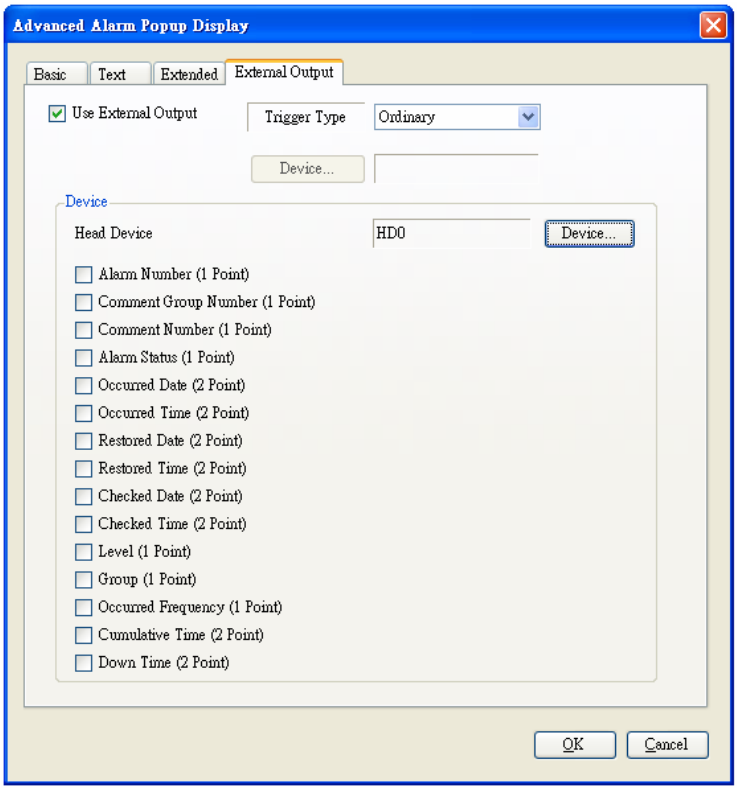



Fig. 3-9-10-8 External Export Properties

NOTE

- In the function manager, double left click the mouse to open the corresponding dialogue box.

### 3.9.11. Auxiliary Setup

Click System and then click Auxiliary Setup to open the dialogue box for the auxiliary setting and set the screen switch and simple macro. See Figure 3-9-11-1 below.

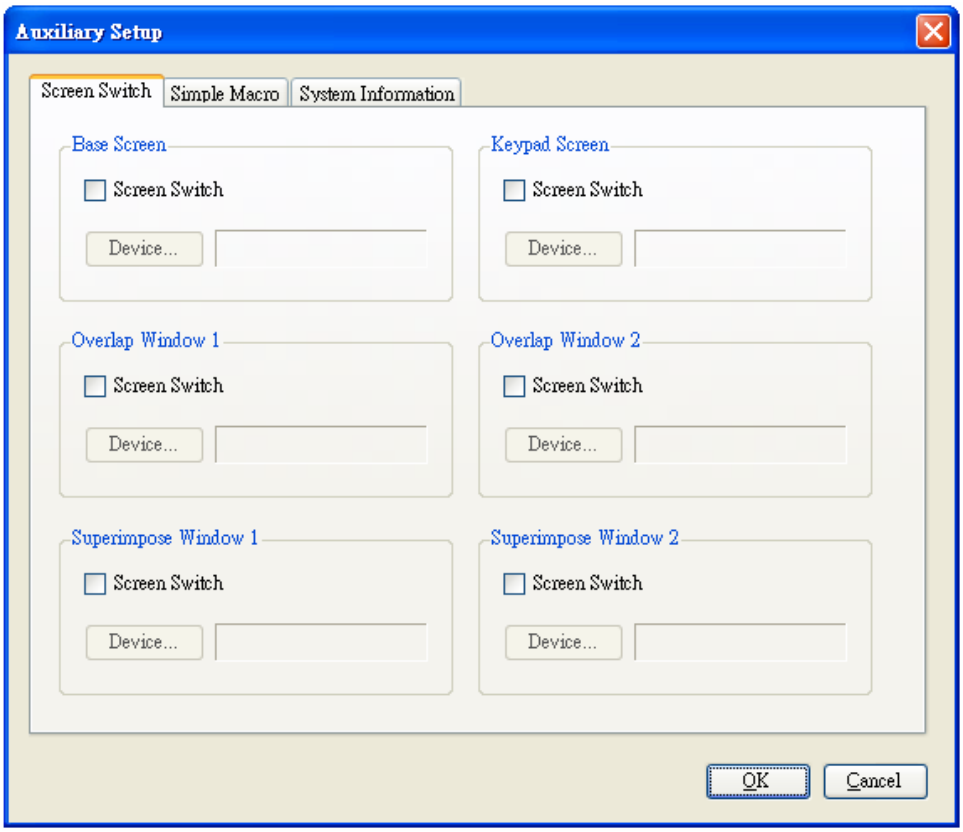



Fig. 3-9-11-1 Auxiliary Setting

The Screen Switch properties allow the user to monitor the device doing screen switch. See Figure 3-9-11-2 below.

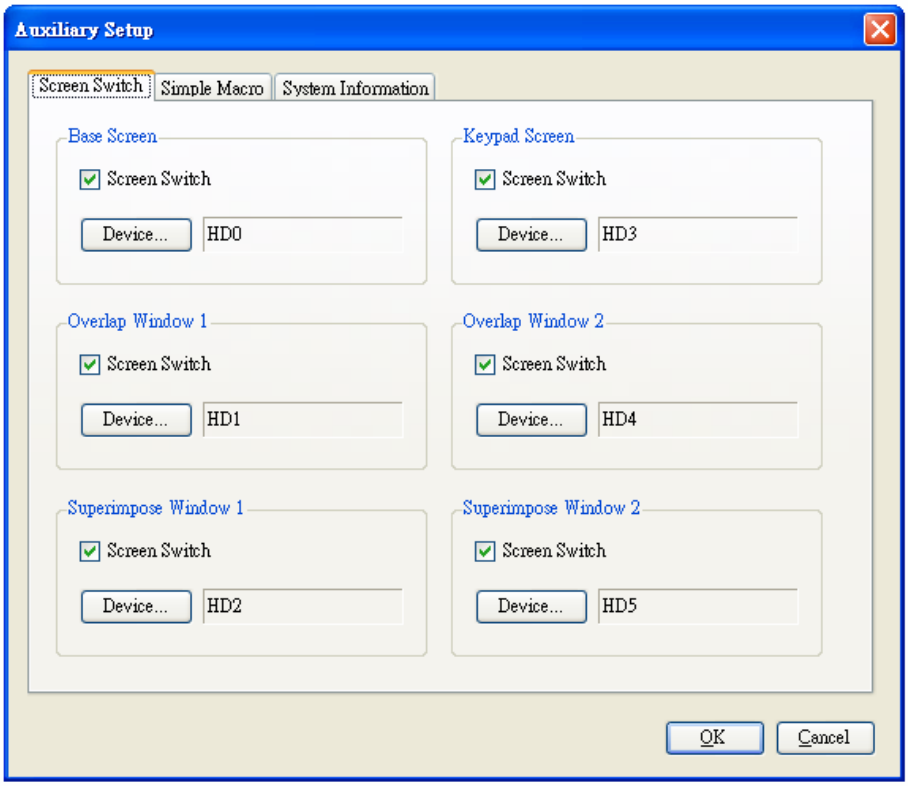



Fig. 3-9-11-2 Screen Switch

Set the numbers of the edit screens as P1, P5, P10, and the Basic Screen Switch device to HD0, so when HMI detects the value of HD0 is 5, the basic screen will pop up to P5; if HD0 is 10, the basic screen will pop up to P10; if HD0 has any other value, the HMI will not make any action. The above scenarios also apply to the setting of window screen and keypad screen. See Figure 3-9-11-3 below.

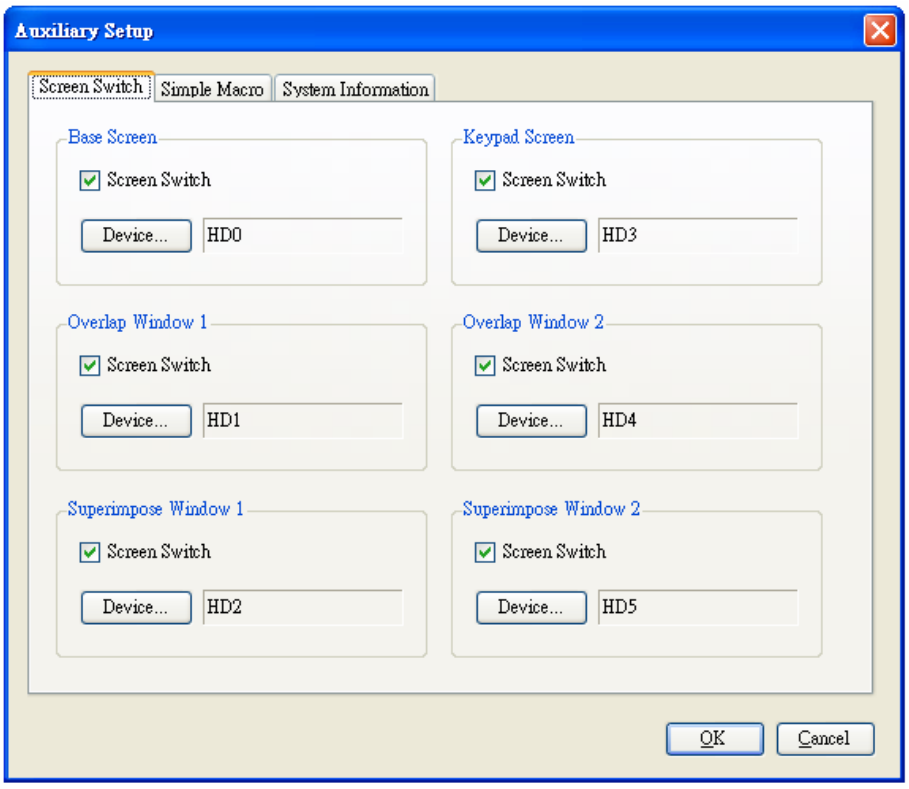
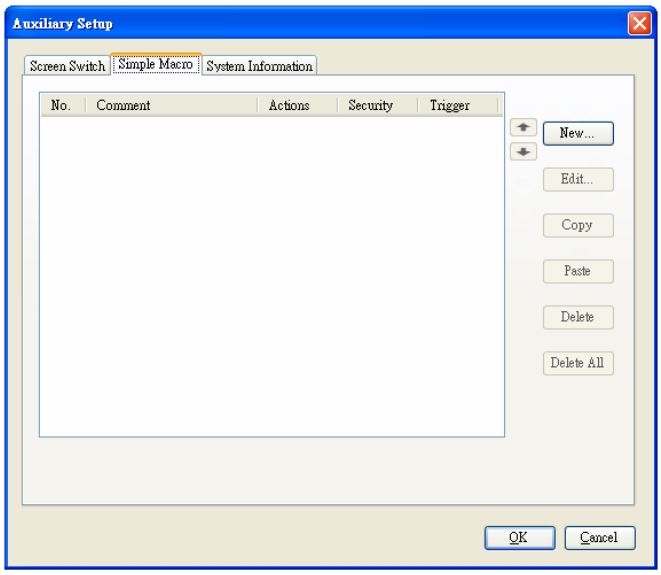
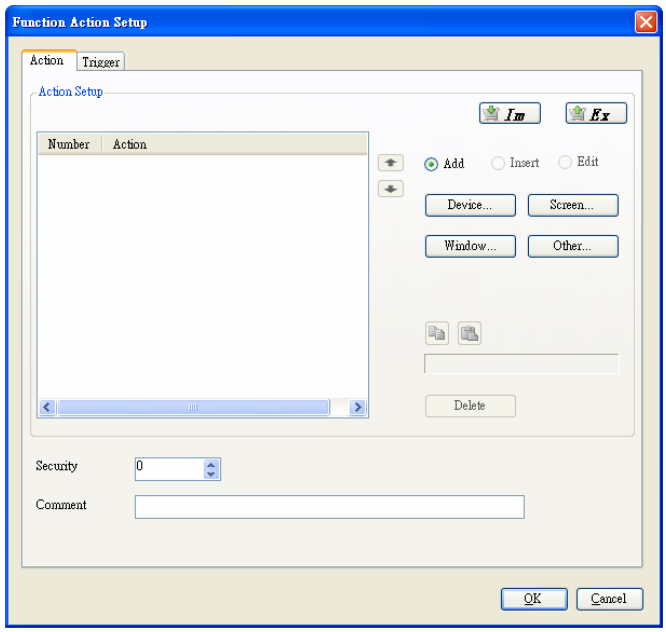



Fig. 3-9-11-3 Screen Switch

The Easy Macro properties provides background execution. The system gives higher priority to this area in execution. Click New... to open the setting of the functional actions. See Figure 3-9-11-4 below.




(a)




(b)

Fig. 3-9-11-4 Using Simple Macro (a) Opening Simple Macro (b) Setting Functional Action

The user can set the actions and the trigger conditions. Confirm to finish the setting of the simple macro. See Figure 3-9-11-5 below.

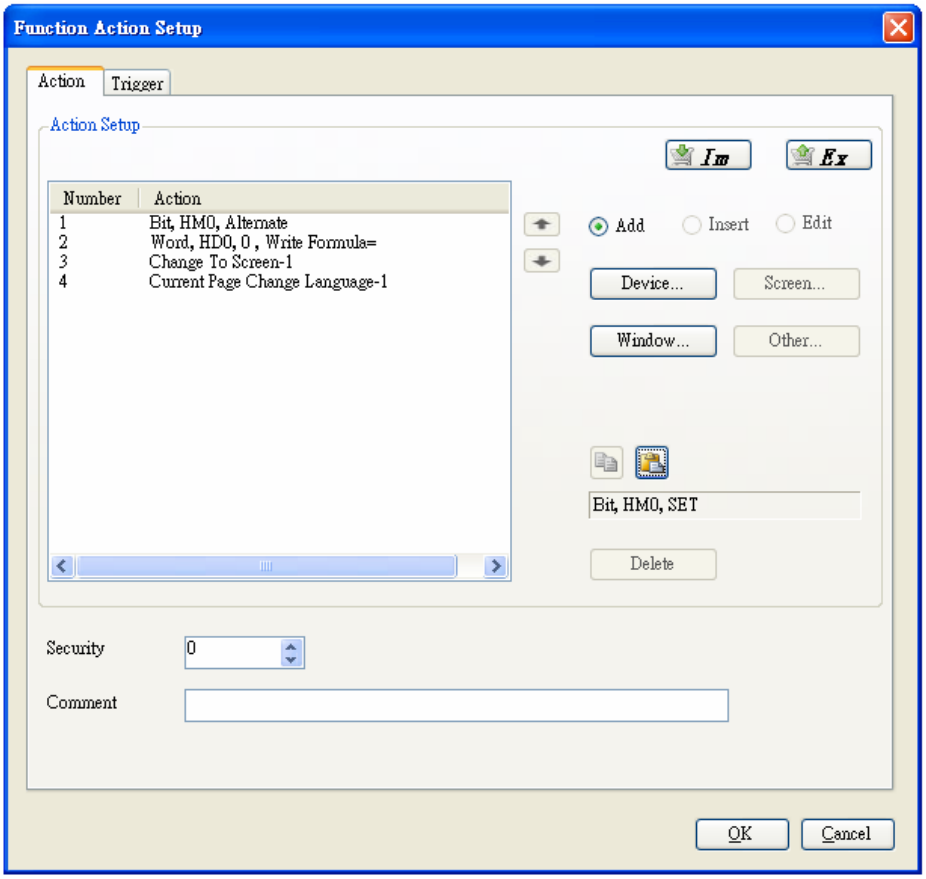



Fig. 3-9-11-5 Completion of Simple Macro Setting

To do copy/paste of devices, pick up a device and set it up first, and then click to make the copy. The device information copied will be displayed in the text box beneath. Then, click to finish the copy/paste of the device. See Figure 3-9-11-6 below.

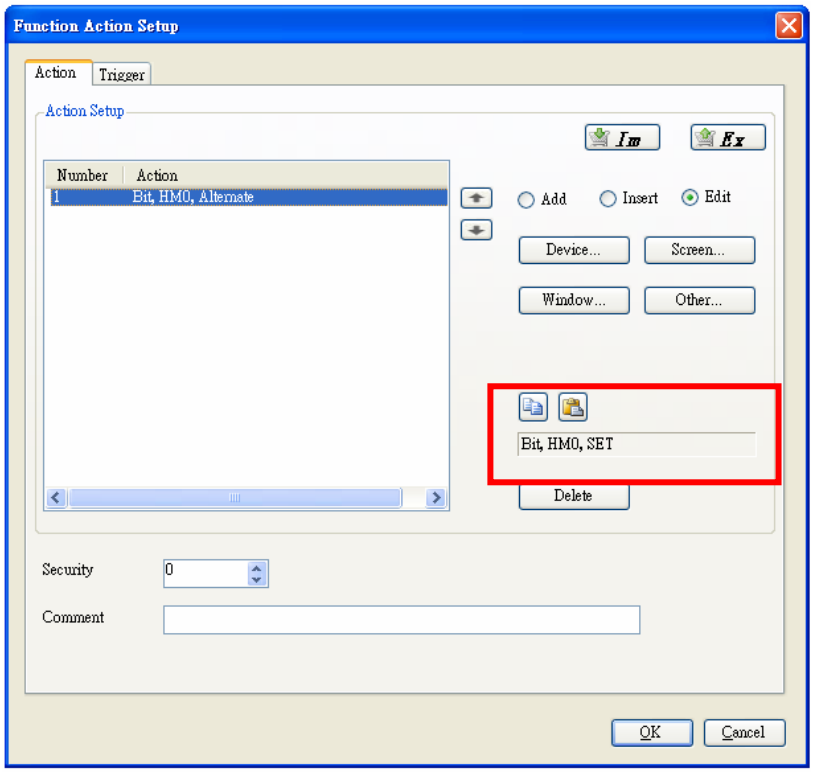



Fig. 3-9-11-6 Copy/Paste Device

Figure 3-9-11-7 below shows the setting of the object's security level. The security level is ranged from 0 (lowest privilege) to 15 (highest privilege). The default security levels of the software and the system are both 0.

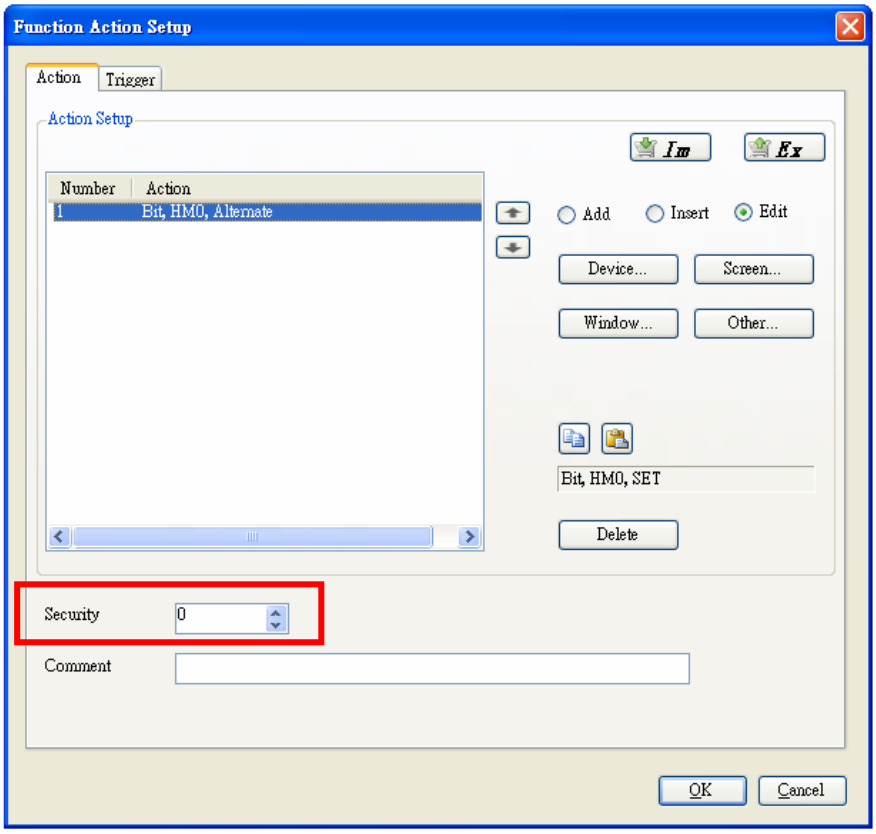
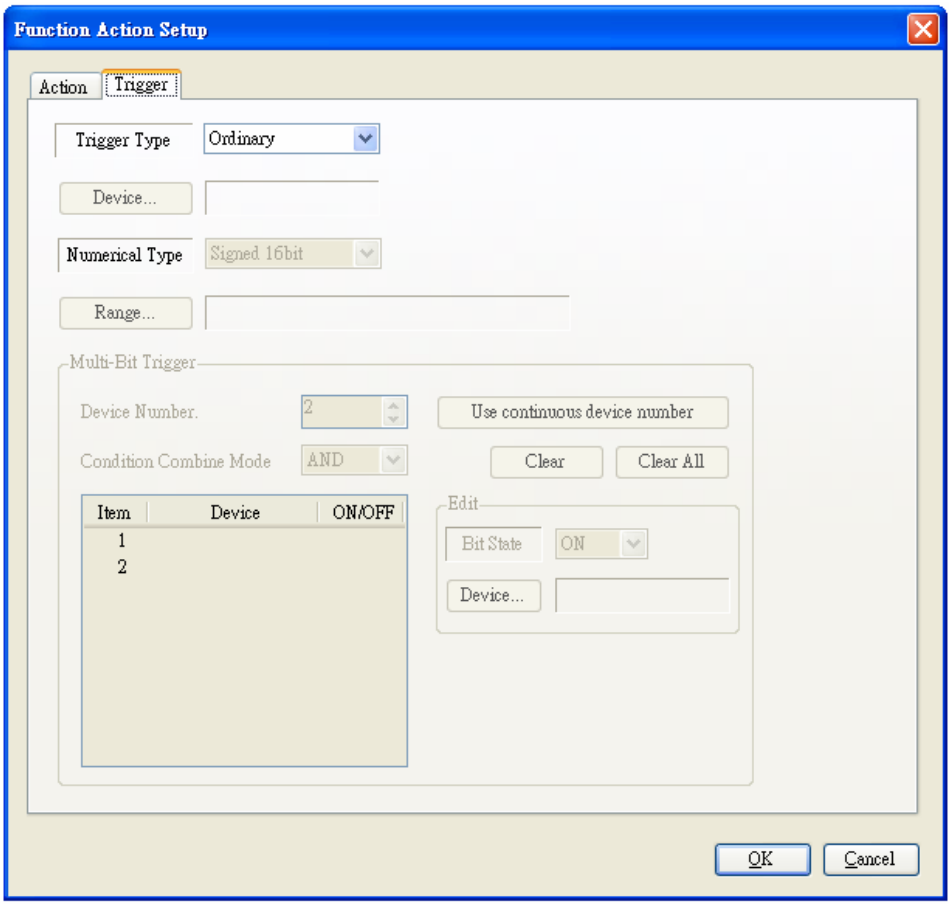



Fig. 3-9-11-7 Security Levels

The Trigger properties allow the user to set the conditions of the trigger pattern. See Figure 3-9-11-8 below.

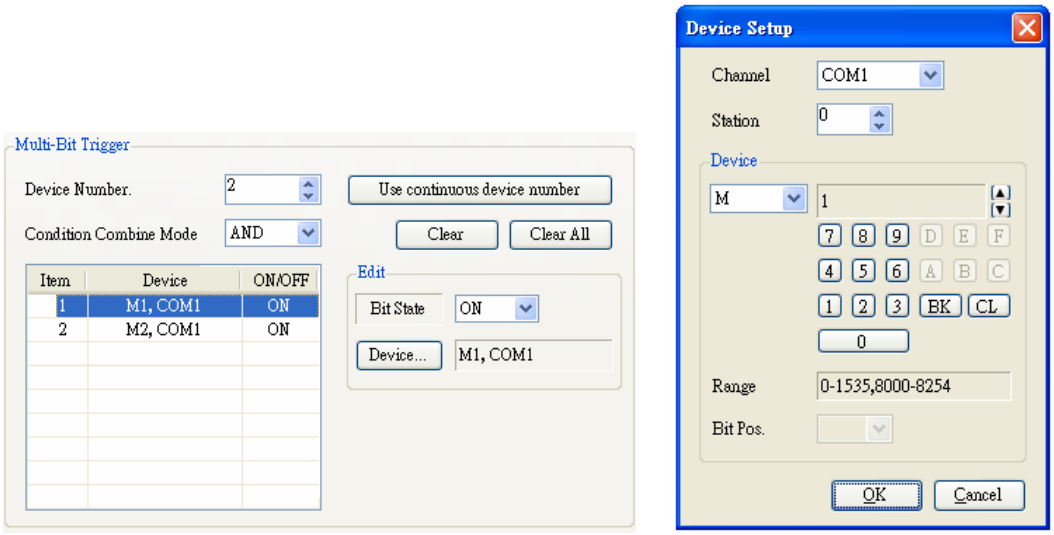



| Trigger Pattern | Description |
|---|---|
| **Ordinary** | No triggering pattern |
| **ON** | Action is taken only when the device in ON |
| **OFF** | Action is taken only when the device in OFF |
| **Range** | Action is taken only when the device value is within this range. |
| **Multiple Bit Trigger** | Set two or more devices (up to 8), and only when all the devices meet the condition will the action be taken. |

Fig. 3-9-11-8 Trigger Pattern Setting

EX

To set the trigger pattern as multi-Bit trigger with 2 devices, click Device... to open the device setting window and set the trigger devices as M1 and M2. Confirm the setting and have the file sent to HMI. So, only when M1 and M2 are both ON will the switch actions be started. See Figure 3-9-11-9 below.




(a) (b)

Fig. 3-9-11-9 Multi-Bit Trigger (a) Setup of Multi-Bit Trigger (b) Device Setup

NOTE

- To delete a single simple macro, select the simple macro to be deleted and then click Clear to make the deletion; to delete all the simple macros, click Clear All to make the overall deletion. Confirm to finish the deletion.
- Be aware that too many macros may bring heavy load to the system.

The System Information provides the display of screen numbers, the setting of basic screen in the numeric display component, and the setting of overlapped window screen device or attached window screen device. See Figure 3-9-11-10 below.

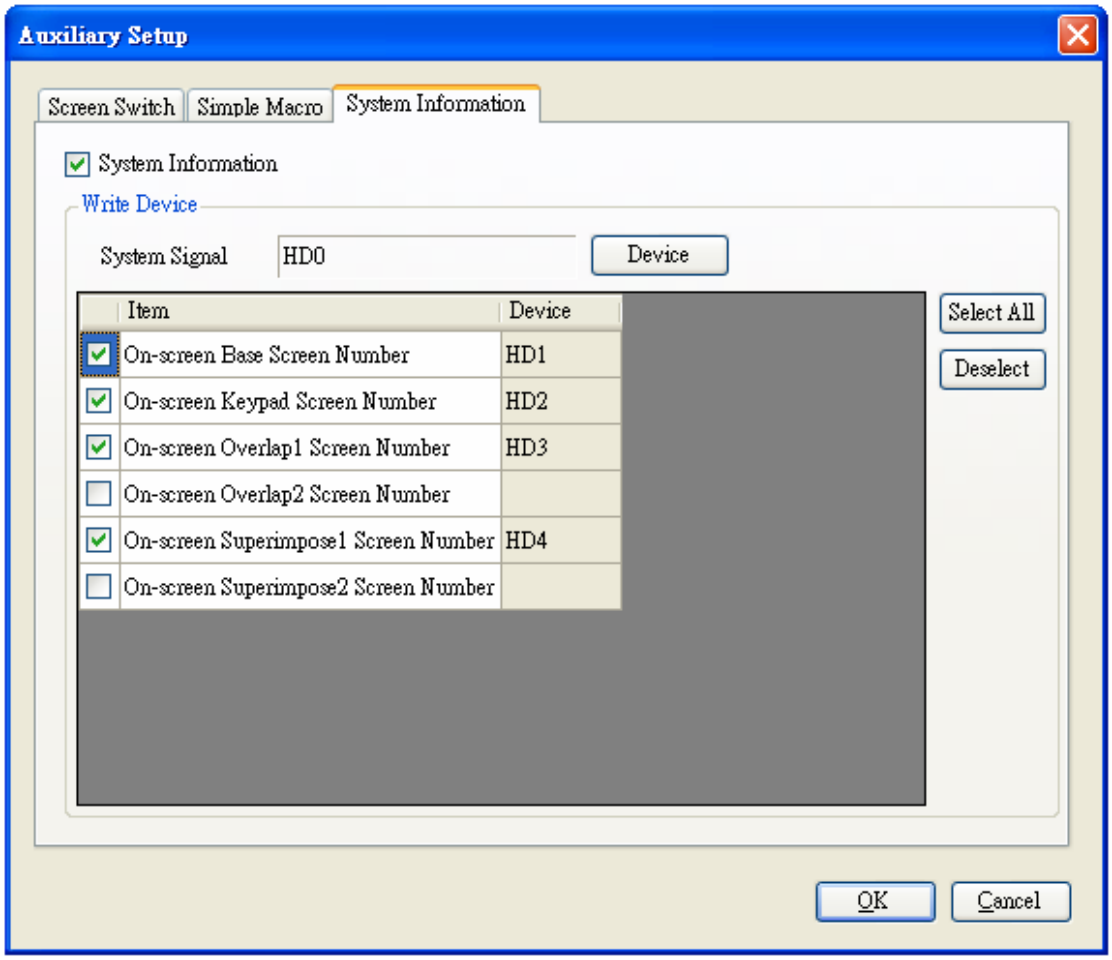



Fig. 3-9-11-10 System Information Setting

### 3.9.12. Parameter Setup

Click System and then click Parameter Setup to open the HMI parameter setup dialogue box and set the HMI's internal parameters. See Figures 3-9-12-1 thru 3-9-12-4 blow. Confirm, and click Operation and then click Transfer Tool..., or directly click the shortcut, to get to the transmission tool dialogue box to execute the file transmission and get done the HMI's internal parameter setting.

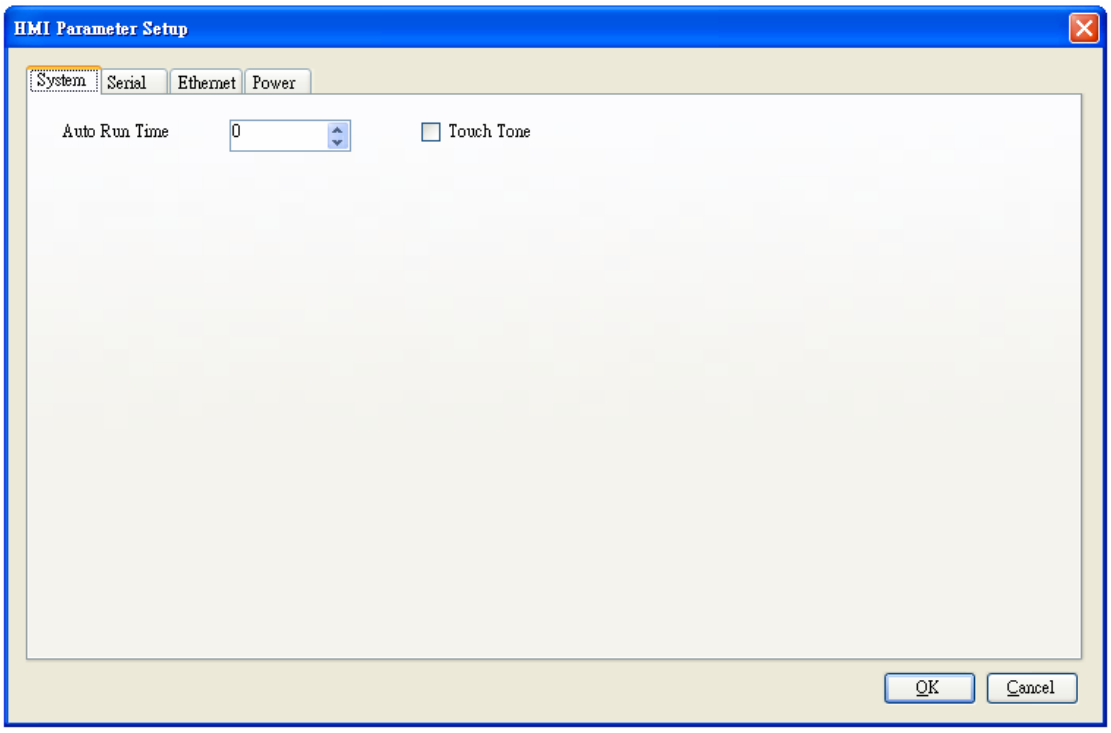



Fig. 3-9-12-1 System Setting

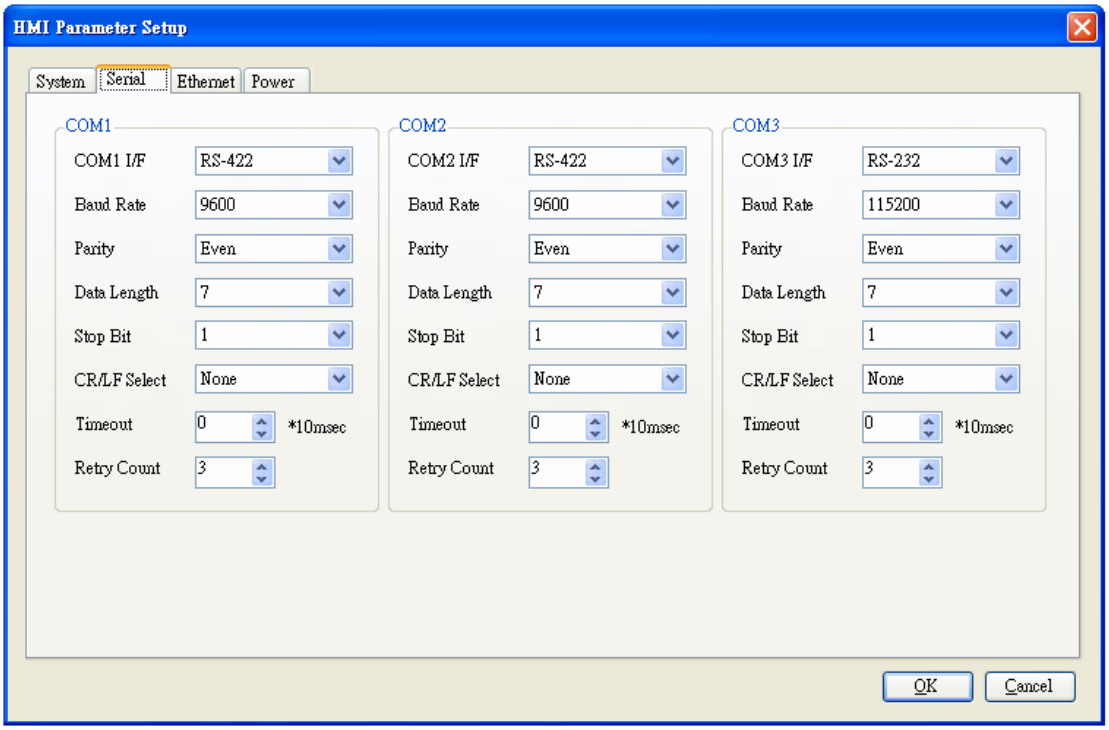



Fig. 3-9-12-2 Serial Port Setting

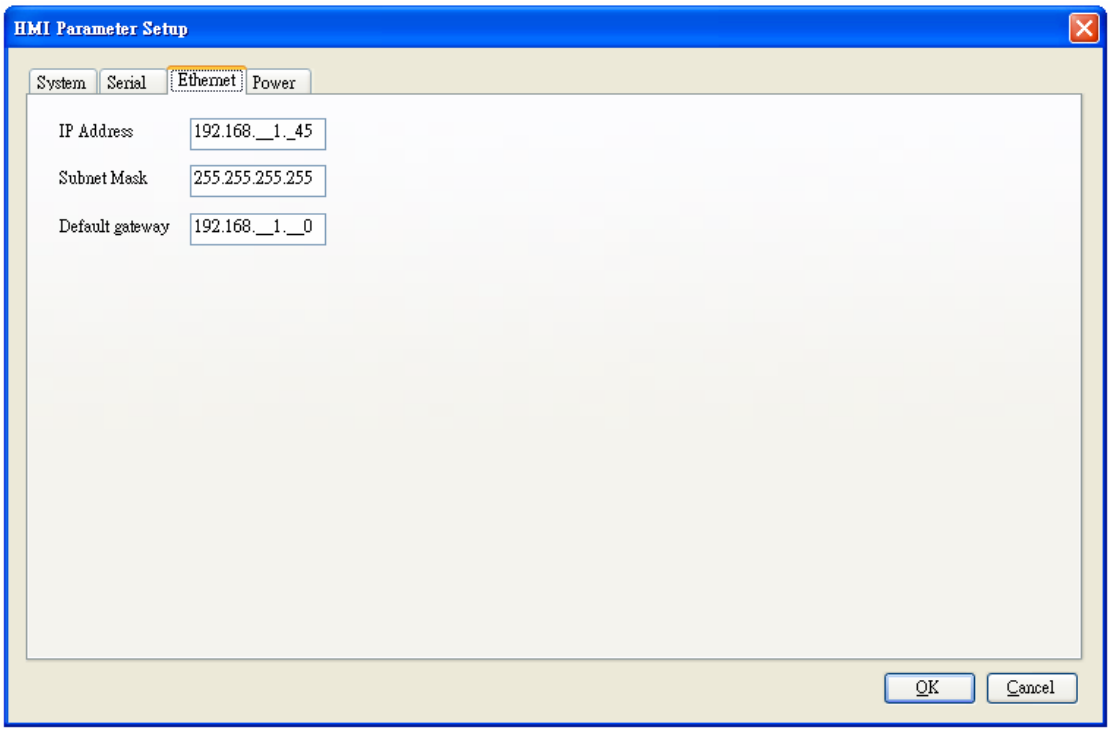



Fig. 3-9-12-3 Ethernet Network Setting

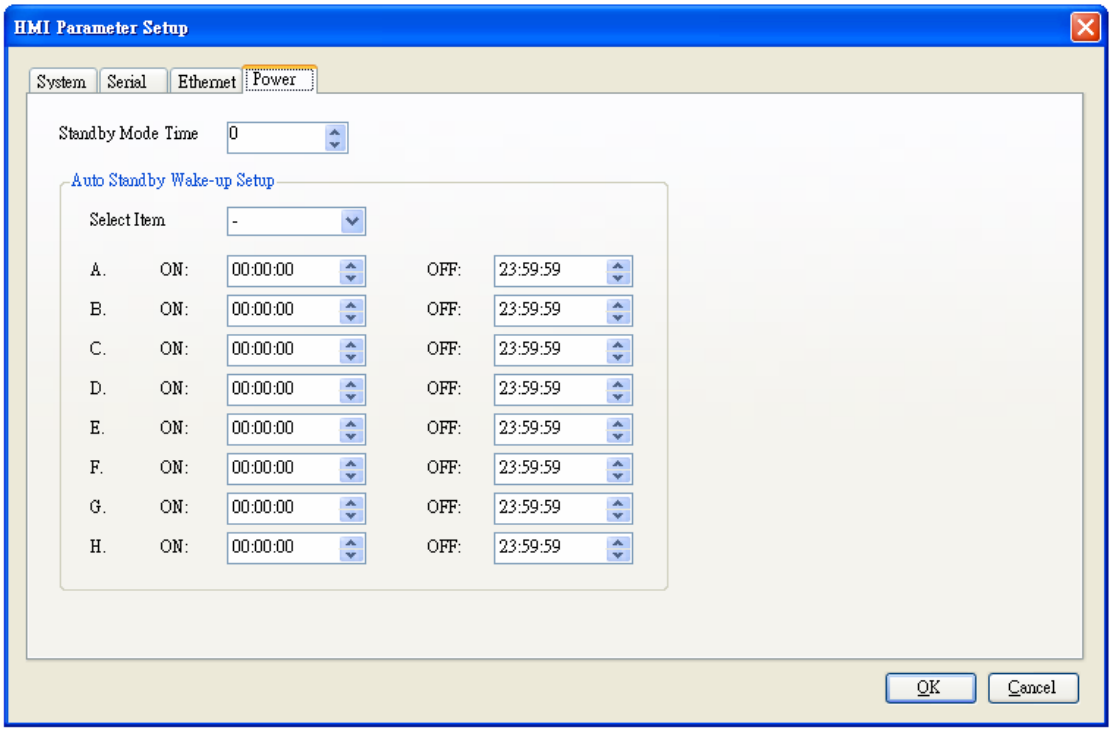


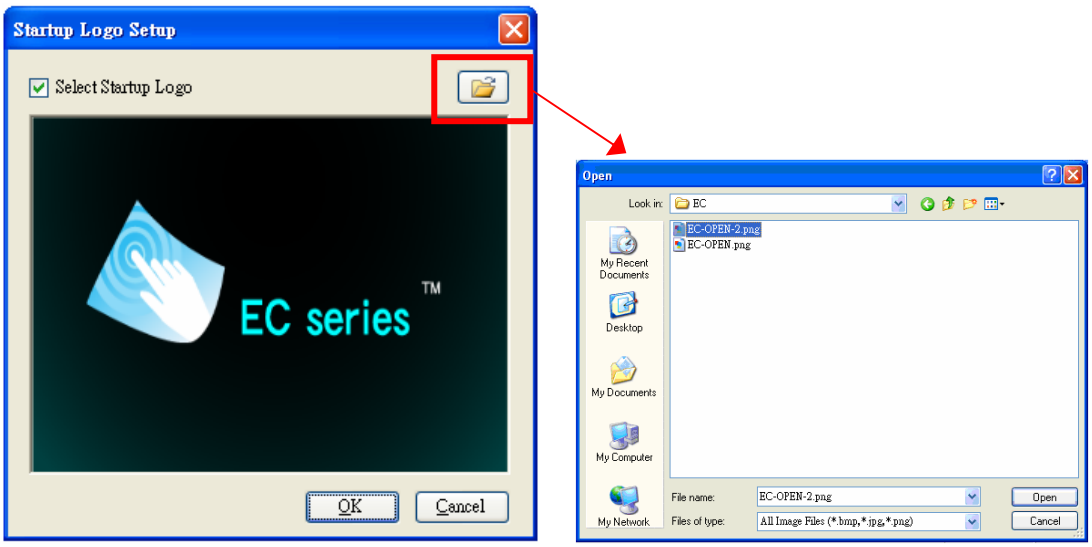

Fig. 3-9-12-4 Electrical Power Setting

NOTE

- The parameter data for the setting can only be written in from the PC-end to HMI. And there is no way of monitoring the HMI's internal parameters from the PC-end.

### 3.9.13. Startup Logo

Click System and then click Startup Logo to open the dialogue box of the Start-up Screen and set the HMI's start-up screen. See Figure 3-9-13-1 below.

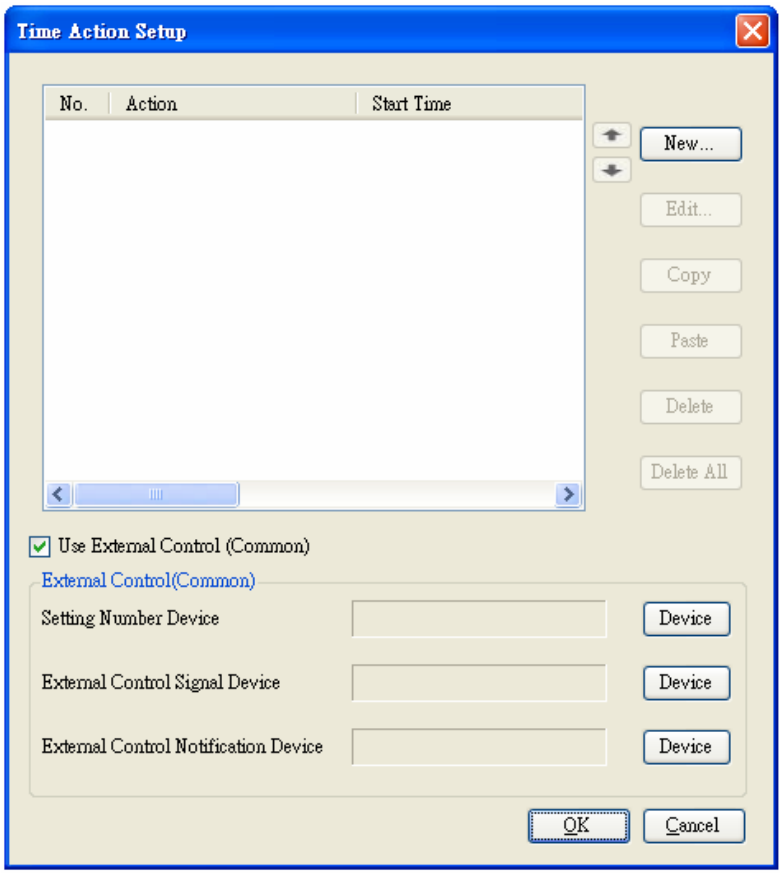



(a) (b)

Fig. 3-9-13-1 Start-up Screen (a) Start-up Screen Setting (b) Opening File Window

### 3.9.14. Time Action

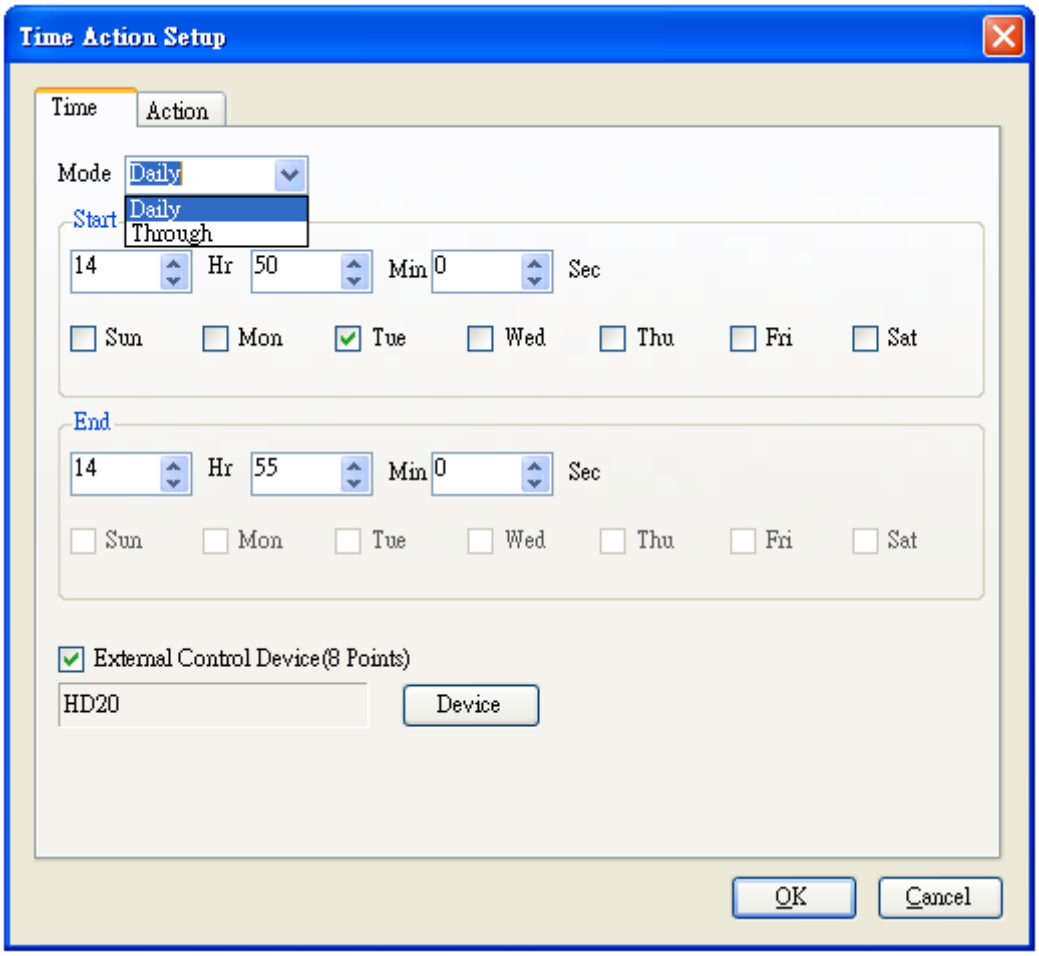
Click System and then click Time Action... to open the Time Action dialogue box. When the option Use External Control (Common) is ticked and the Extension Control device is set, use the HMI interface to do the external control. See Figure 3-9-14-1 below.




| Device | Description |
|---|---|
| **Setting Number Device** | Set the Time Action number and save it. |
| **External Control Signal Device** | After setting schedule number, this device is used to read and write schedule.<br>Enter digit 1: read schedule writing device.<br>Enter digit 2: reading device writes schedule. |
| **External Control Notification Device** | Notify this device about the external control signal. This function is for message display only, with no control mechanism. |

Fig. 3-9-14-1 External Control Setup

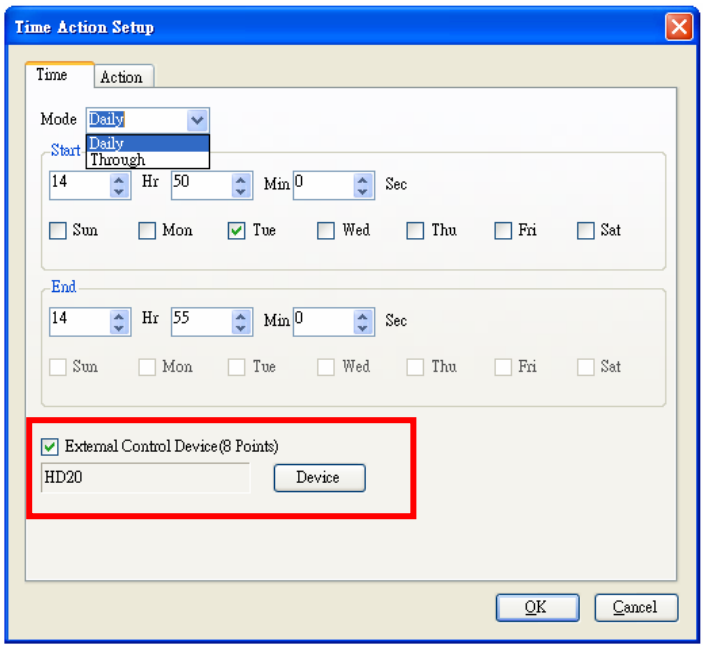
The Time setting allows the user to set the time mode, start time, end time, and extension control device. See Figure 3-9-14-2 below.




| Mode | Description |
|---|---|
| **Daily** | Only set a single week. |
| **Through** | Set start week and end week. |

Fig. 3-9-14-2 Scheduling Setup

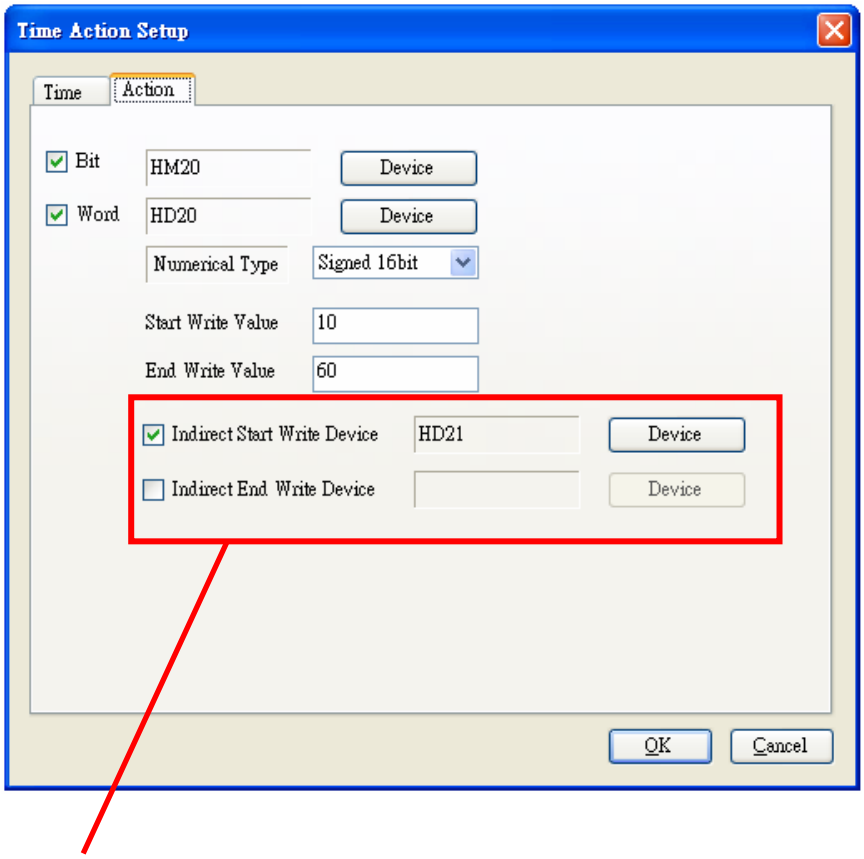
Use the Extension Control device to do the external control of the time setting. The device setting is shown in Figure 3-9-14-3 below.




| Device | Description |
|---|---|
| External Control Device | Bit 0 (OFF): daily.<br>Bit 0 (ON): through. |
| Device +1 | Start Time / End Time<br>Bit 0：Sun / Bit 8：Sun<br>Bit 1：Mon / Bit 9：Mon<br>Bit 2：Tue / Bit 10：Tue<br>Bit 3：Wed / Bit 11：Wed<br>Bit 4：Thu / Bit 12：Thu<br>Bit 5：Fri / Bit 13：Fri<br>Bit 6：Sat / Bit 14：Sa |
| Device +2 | Start Time (hour) |
| Device +3 | Start Time (minute) |
| Device +4 | Start Time (second) |
| Device +5 | End Time (hour) |
| Device +6 | End Time (minute) |
| Device +7 | End Time (second) |

Fig. 3-9-14-3 Extension Control Device

Action setting means the device triggered upon the scheduled time. The Bit device and Word device can be set up at the same time. The Word device can be set with the start input value and the end input value, so when it is triggered, the pre-set value will be written to the device. When the option ☑ Indirect Start Write Device or ☑ Indirect End Write Device is ticked, it means to add up the value of the indirect device and the start/end input value of the Word device, and write the sum to the Word device. See Figure 3-9-14-4 below.




**At start time : Word device = start write value + value of indirect start write device**

**At end time: Word device = end write value + value of indirect end write device**

Fig. 3-9-14-4 Action Setting

### 3.9.15. Sound Setup

Click System and then click Sound Setup to open the dialogue box for the sound setting. Then, click New to enhance the audio effect by setting the sound source, storage device, play mode, end mode, and trigger pattern. See Figure 3-9-15-1 below.

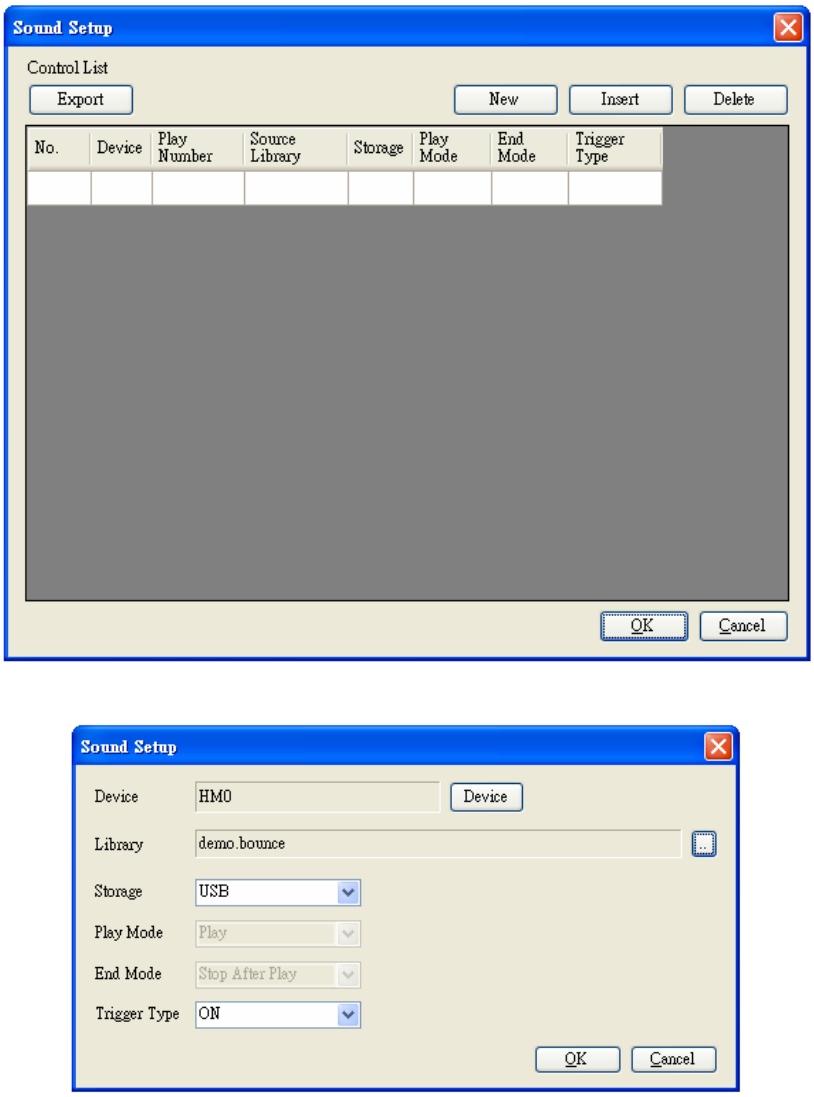



Fig. 3-9-15-1 Sound Setting

To change the sound source, click to open the sound library and select a preferred sound file. For operational instructions, please see Section 3.4.6 Sound Library. See Figure 3-9-15-2 below.

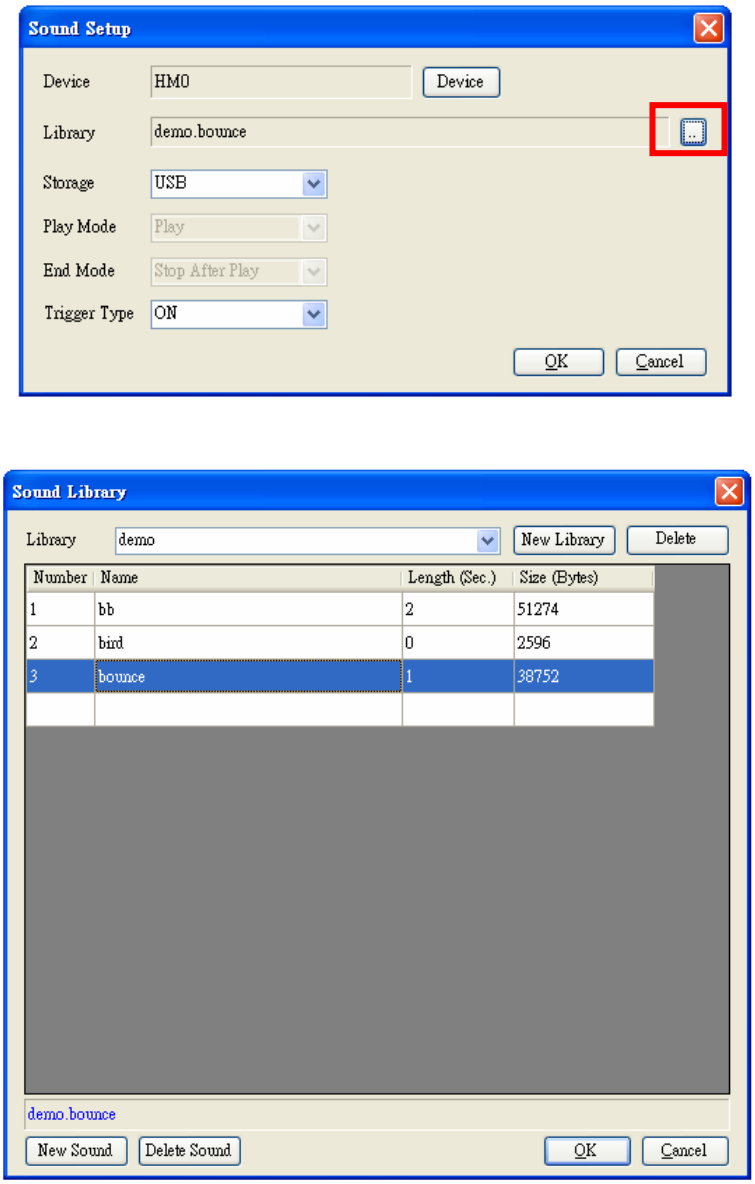
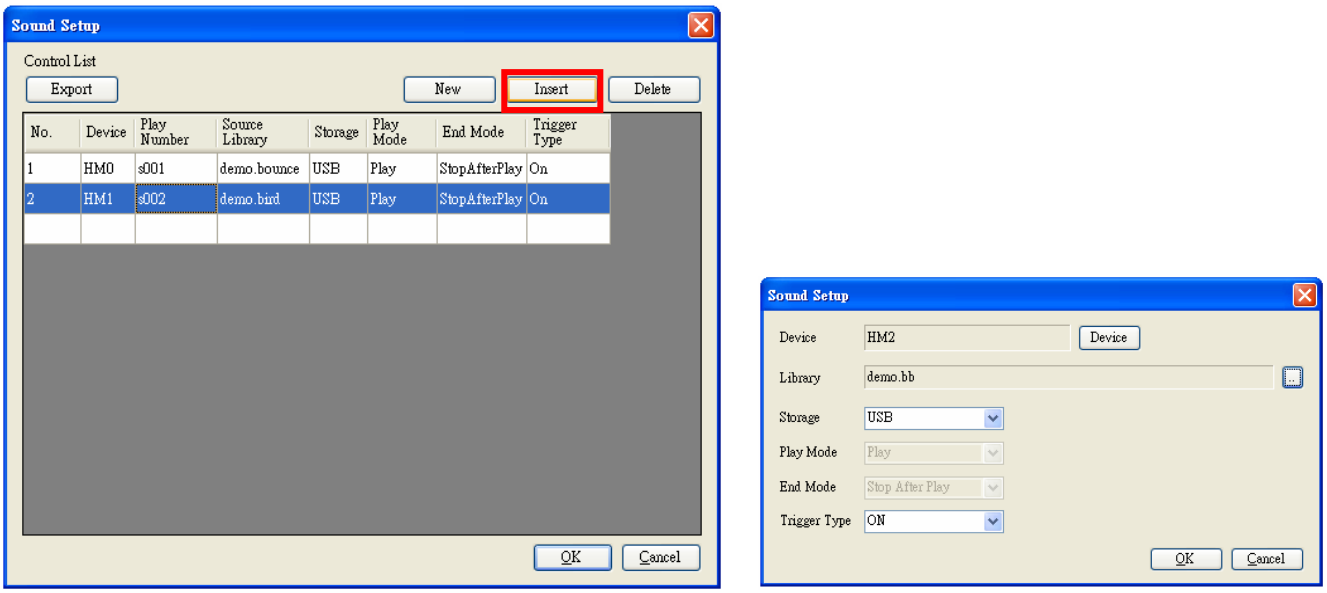
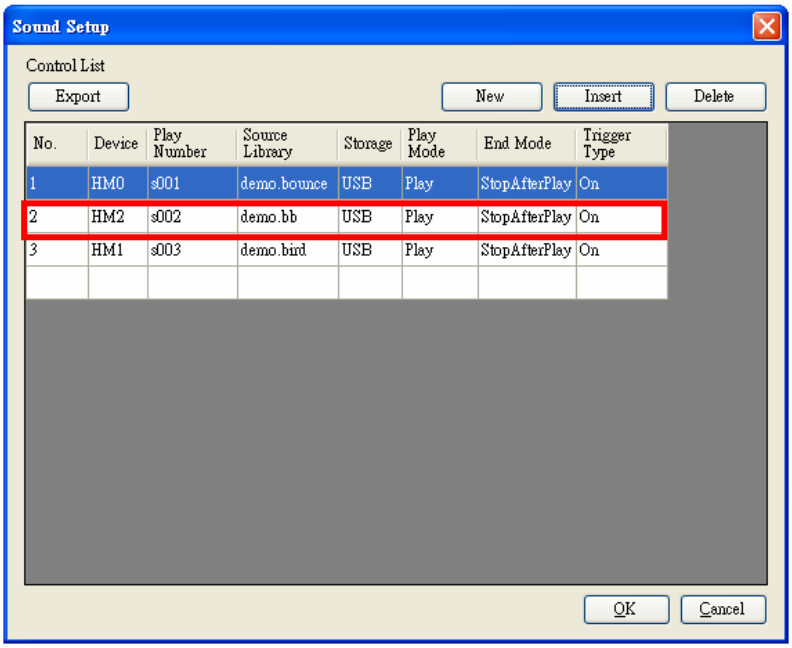



Fig. 3-9-15-2 Sound Source Setting

To insert a sound file, click Insert to set up the sound file to be inserted. See Figure 3-9-15-3 below.



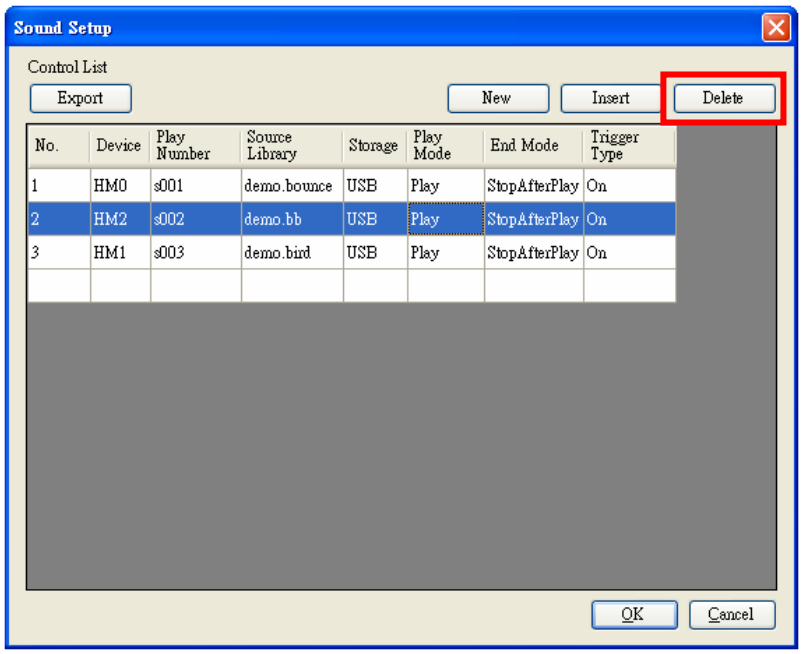

(a) (b)



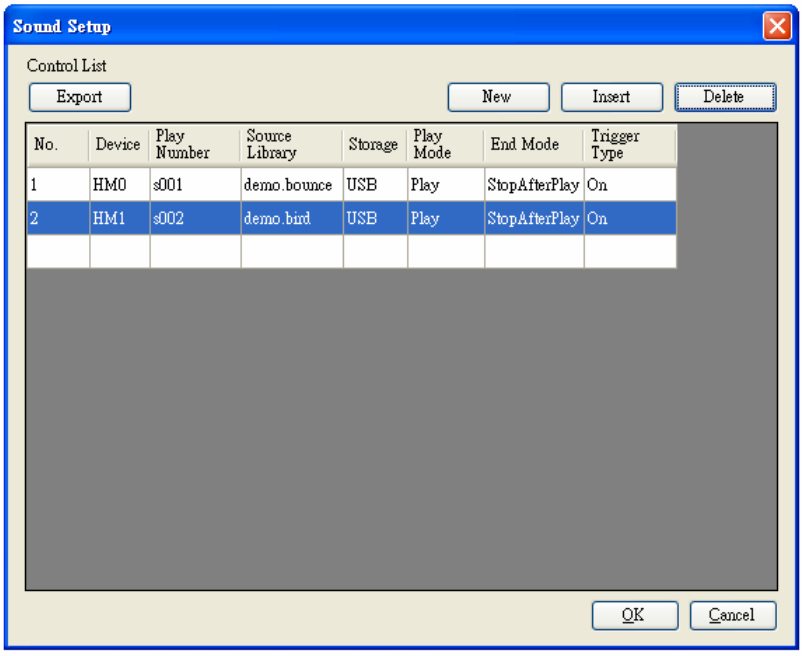

(c)

Fig. 3-9-15-3 Inserting Sound (a) Clicking the Insert Key (b) Sound Setting (c) Sound Inserted

To delete a sound file, select the file and then click Delete to delete it. See Figure 3-9-15-4 below.



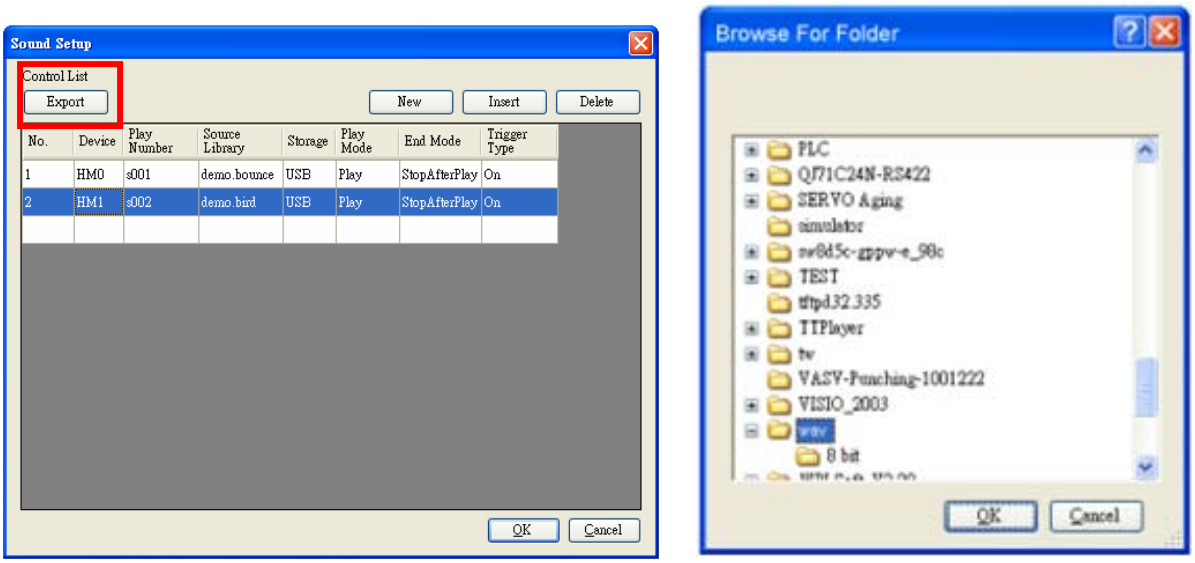

(a)




(b)

Fig. 3-9-15-4 Deleting Sound (a) Selecting the file and clicking the Delete key (b) Sound Deleted

After the sound has been set up, click Export to export the sound file to the designated storage device (i.e. “storage device” specified in the sound setting), and then load it to HMI. So, when the device triggers, the audio will take effect. See Figure 3-9-15-5 below.




(a) (b)

Fig. 3-9-15-5 Export (a) Clicking Export Switch (b) Export to Storage Device Browse For Folder.

NOTE

- Before print screen to USB/SD, an external memory (SD/USB) must be mounted, or the “Auto mount” function must be chosen. For details, see section 3.4 “Communication” described in EC200 hardware manual.

# Appendix A Supplementary Information

## A.1. Device Description

The HMI provides devices for the user to edit. The descriptions of devices are detailed in the Table A-1-1 below.

Table A-1-1 Devices and Functions

| Internal device | | | | ModBus device | | | | |
|---|---|---|---|---|---|---|---|---|
| **Device** | **Type** | **Range** | **Description** | **Device** | **Type** | **Range** | **Command code** | **Description** |
| **HX** | Bit | 0~7 | I/O module input | **MB** | Bit | 0~65535 | 0x01<br>0x05 | Read/Write |
| | | 8~255 | General use | | | | | |
| **HY** | Bit | 0~7 | I/O module output | **MBR** | | | 0x02 | Read only |
| | | 8~255 | General use | | | | | |
| **HM** | Bit | 0~65535 | General use | **MW** | Word | | 0x03<br>0x06<br>0x10 | Readable and writeable |
| **HB** | | | For Use at Power Failure | | | | | |
| **HD** | Word | 0~32767 | General Usage | | | | | |
| **HDR** | | 0~255 | | **MWR** | | | 0x04 | Read only |
| **HW** | | 0~8192 | For Use at Power Failure | | | | | |

NOTE

- Since EC200 series has no I/O module, it is suggested not to use HX0~7 and HY0~7 devices in the setup job.
- If the third character of the device name is R: read-only device; W: write-only device (EX: HDR device is a read-only device).
- EC205-CT0A,EC207-CT0S and EC207-CT1S models will save the HMI internal power-cut retaining data every 1 minute, and other models will save data in real time.

Part of HB/HDR devices provide special functions, The internal device values are described in the Table A-1-2 below.

Table A-1-2: Internal device

| Device | Function | Set value | | Remark |
|---|---|---|---|---|
| HB | **Date control** | 65000(ON): uses date display function.<br>65000(OFF): closes date display function. | | |
| | **Communication error control** | 65001(OFF): displays communication error information.<br>65001(ON): not display communication error information. | | |
| | **Backlight control** | 65002(ON): uses backlight function.<br>65002(OFF): closes backlight function. | | |
| | **Backlight** | 65003(Rise): backlight turns on.<br>65003(Fall): backlight turns off. | | HB65002 device shall be set to ON before using backlight function. |
| | **Keyboard action notice** | 65004(ON): when trigger “Enter” key of keyboard.<br>65004(OFF): when starts keyboard function. | | |
| | **Language switching device control** | 65005(ON): uses Language switching device.<br>65005(OFF): closes Language switching device. | | |
| | **Alarm sound** | 65006(Rise): alarm sound turns on. | | When the HMI touch sound off, alarm sound function is invalid. |
| | **FTP read record file control** | 65008(ON): Use the read USB disk record file.<br>65008(OFF): Close the read USB disk record file.<br>65009(ON): Use the read SD card record file.<br>65009(OFF): Close the read SD card record file. | | |
| | **Battery capacity detection** | 65010(ON): Battery low.<br>65011(ON): Battery no quantity. | | EC207-CT0S、EC207-CT1S models does not support the function. |
| HDR | **Date&Time** | 00: Years<br>01: Months<br>02: Dates<br>60: Weeks | 03: Hours<br>04: Minutes<br>05: Seconds | HB65000 device shall be set to ON before using date&time function. |
| | **Communication error** | 06~14: monitors station 0~128 of COM1 | | |
| | | 15~23: monitors station 0~128 of COM2 | | |

| | | | |
|---|---|---|---|
| | | 24~32: monitors station 0~128 of COM3 | |
| | **Dev.Station** | 33~41: monitors station 0~128 of COM1 | When the station is not used, Bit device ON. The station number setting：Os menu→ Communication →Dev.station setting. |
| | | 42~50: monitors station 0~128 of COM2 | |
| | | 51~59: monitors station 0~128 of COM3 | |
| | **Language switching device** | 61: Language switching device | HB65005 device shall be set to ON before using Language function. |

If you want to use the HDR device to show months and dates, create 2 groups of numerical display blocks, and set devices as HDR1 and HDR2 respectively. If you want to show time and weeks, create 4 groups of numerical display blocks, and set devices as HDR3, HDR4, HDR5 and HDR60.

The HMI can use special devices to connect to Shihlin's converter for communication. The descriptions of the devices are shown in Table A-1-3 below.

Table A-1-3 Comparative Table of Shihlin Converters and Corresponding Devices

| Bit Device | Function | Description | Word Device | Function | Description |
|---|---|---|---|---|---|
| **ISR0** | Converter State | In Operation | **IDR0** | Operational Model | Read |
| **ISR1** | | Forward Operation | **IDR1** | Monitoring | Output Frequency |
| **ISR2** | | Reverse Operation | **IDR2** | | Set Frequency |
| **ISR3** | | Frequency Reached | **IDR3** | | Output Current |
| **ISR4** | | Overload | **IDR4** | | Output Voltage |
| **ISR5** | | Key Tone | **IDR5** | | Abnormal Content |
| **ISR6** | | Frequency Detected | **IDR6** | | Abnormal Content |
| **ISR7** | | Exception Occurs | **IDR7** | | Abnormal Content |
| **ISR8** | | RES ON | **IDR8** | | Abnormal Content |
| **ISR9** | | STF ON | **IDR9** | Display Message | Read |
| **ISR10** | | STR ON | **IDR10** | Converter Status | Read |
| **ISR11** | | EXT RUN PUSH STOP | **IDW0** | Operational Model | Write |
| **ISR12~15** | | Reserved | **IDW1** | Operational Instructions | Write |
| **IIW0** | Operational Instructions | Reserved | **IDW2** | Operational Frequency | Write |
| **IIW1** | | Reverse Operation | **IDW3** | Converter Reset | Write |
| **IIW2** | | Reverse Operation | **IDW4** | Erase Convert Parameters and Error Codes. | Write |
| **IIW3** | | Low Speed | **IP** | Parameters | Read/Write |
| **IIW4** | | Medium Speed | | | |
| **IIW5** | | High Speed | | | |
| **IIW6** | | Second Selection of Acceleration and Deceleration | | | |
| **IIW7** | | Converter Stops Output | | | |
| **IIW8~15** | | Reserved | | | |

## A.2. Numeric Operations

The Shihlin's HMI provides abundant numeric operations in various applications. Figure A-2-1 below shows the flow chart of the numeric operations.

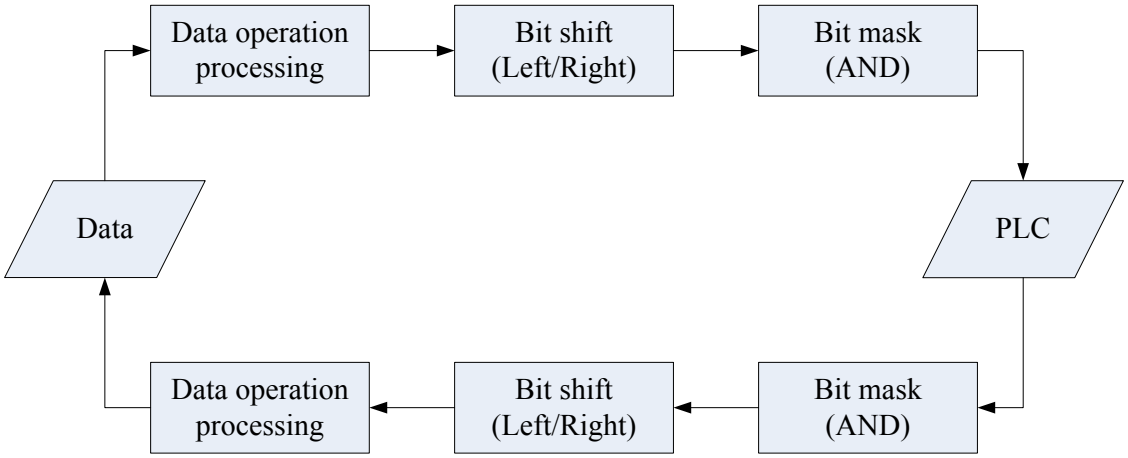



Fig. A-2-1 Numeric Operation Flow

EX

Figure A-2-2 below is the formula for computing the mask value. The softeware will calculate based on the user input, display, and current values.

{(Input Value ) AND (Mask Value)} OR {(Current Value ) AND (Reversed Mask Value )}

Fig. A-2-2 Operational Formula

## A.3. Bit Operation

### A.3.1. AND

The input states are True and False for AND logic operation. The true values are listed in Table A-3-1 below.

Table A-3-1 AND Logic

| AND | True(1) | False(0) |
|---|---|---|
| **True(1)** | 1 | 0 |
| **False(0)** | 0 | 0 |

The 2 input values are transformed into binaries and then applied to AND operations. The results are listed in Table A-3-2 below.

Table A-3-2 Results of AND Operations

| Bit Address | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **15** | **14** | **13** | **12** | **11** | **10** | **9** | **8** | **7** | **6** | **5** | **4** | **3** | **2** | **1** | **0** |
| 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 |
| **AND** | | | | | | | | | | | | | | | |
| 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 |
| ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |

### A.3.2. OR

The input states are True and False for OR logic operation. The true values are listed in Table A-3-3 below.

Table A-3-3 OR Logic

| OR | True(1) | False(0) |
|---|---|---|
| **True(1)** | 1 | 1 |
| **False(0)** | 1 | 0 |

The 2 input values are transformed into binaries and applied to OR operations. The results are listed in Table A-3-4 below.

Table A-3-4 Results of OR Operations

| Bit Address | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **15** | **14** | **13** | **12** | **11** | **10** | **9** | **8** | **7** | **6** | **5** | **4** | **3** | **2** | **1** | **0** |
| 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 |
| **OR** | | | | | | | | | | | | | | | |
| 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 |
| ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 |

### A.3.3. XOR

The input states are True and False for XOR logic operation. The true values are listed in Table A-3-5 below.

Table A-3-5 XOR Logic

| XOR | True(1) | False(0) |
|---|---|---|
| True(1) | 0 | 1 |
| False(0) | 1 | 0 |

The 2 input values are transformed into binaries and applied to XOR operations. The results are listed in Table A-3-6 below.

Table A-3-6 Results of XOR Operations

| Bit Address | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 |
| XOR | | | | | | | | | | | | | | | |
| 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 |
| ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |

### A.3.4. Left

Transform the input value into binary and then make it left-shifted. See Table A-3-7 below.

Table A-3-7 Left Shift

| Bit Address | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **15** | **14** | **13** | **12** | **11** | **10** | **9** | **8** | **7** | **6** | **5** | **4** | **3** | **2** | **1** | **0** |
| 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 |
| **Left Shifted 2 Bits** | | | | | | | | | | | | | | | |
| 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |

### A.3.5. Right

Transform the input value into binary and then make it right-shifted. See Table A-3-8 below.

Table A-3-8 Right Shift

| Bit Address | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **15** | **14** | **13** | **12** | **11** | **10** | **9** | **8** | **7** | **6** | **5** | **4** | **3** | **2** | **1** | **0** |
| 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 |
| **Right Shift 2 Bits** | | | | | | | | | | | | | | | |
| 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 |

Assume the PLC device's current value is ABCD, the user input value is 12 in hexadecimal, and the mask value is FF, the calculated result will be AB12. See Figure A-3-9 below.

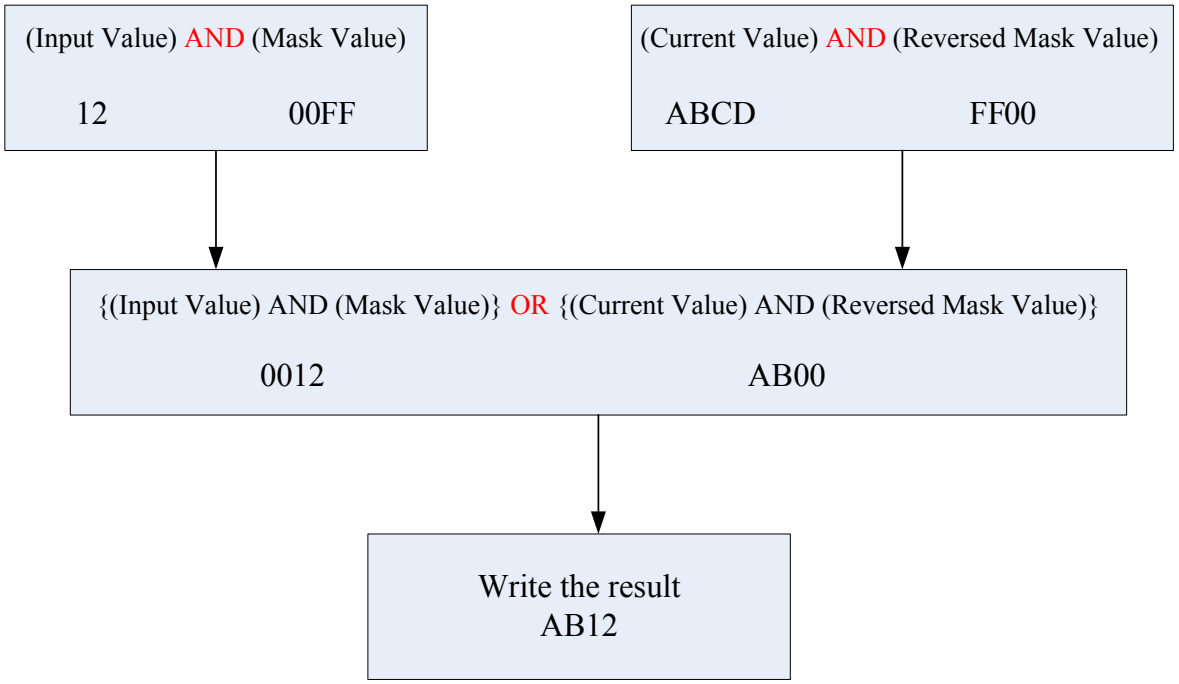



Fig. A-3-9 Mask Operation

## A.4. Function use limits

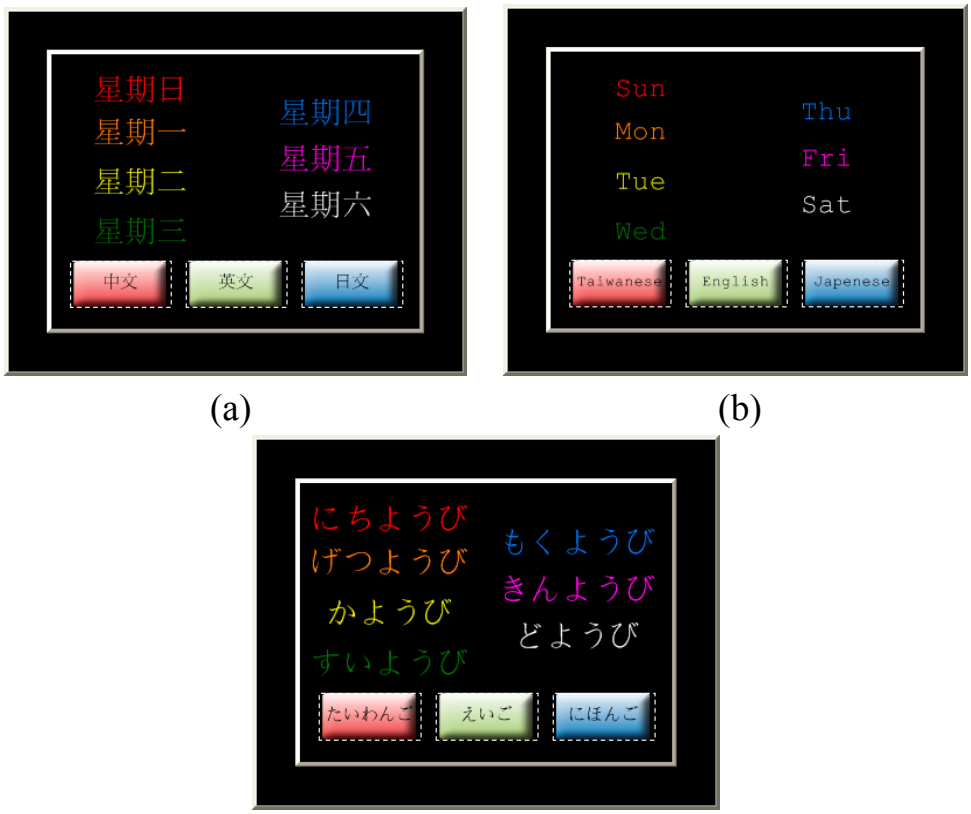
Function use limits are described in table A-4-1.

Table A-4-1: Function use limits

| Function | | Use limit | Remark |
|---|---|---|---|
| Total Unit quantity | | <=2500 pieces | If the quantity exceeds 2,500 pieces, the running speed of HMI may slow. |
| Combo box item quantity | | <=64 sets | |
| Cell quantity of table (column x row) | | 30x30 | |
| Basic comment quantity | | <=1024; each note <=512 characters | |
| Comment group | Total group quantity | <=16 groups | |
| | Language available | <=100 | |
| | Quantity of each group | <=1024; each note <=512 characters | |
| | Language quantity of each group | <=10 | |
| Total macro group quantity | | <=64 groups; each group of macro <=8192 characters | |
| Simple macro | Total group quantity | <=64 groups | |
| | Action quantity of each group | <=32 actions | |
| Sound effect | File size | <=512KB | Supports WAV files |
| | Audio size | =8-bit | |
| Recipe | Total group quantity | <=255 groups | |
| | device quantity | <=1024 devices | |
| Advanced recipe | Total group quantity | <=255 groups | But device quantity x record quantity is limited to 261,120. |
| | device quantity | <=1024 devices | |
| | Record quantity | <=1024 records | |
| Time action group quantity | | <=255 groups | |
| Floating Alarm and Local Floating Alarm | device quantity | <=512 devices | |
| | Interval time | <=10 s | |
| | Spaces number | <=255 spaces | |
| | Alarm character quantity | <=127 characters | |
| Daily storage quantity of logging | | <=1024 devices | |
| Alarm device quantity of alarm list | | <=1024 devices | |
| Alarm History | device quantity | <=1024 devices | |
| | Storage quantity | <=1024 | |
| | Daily storage quantity (Daily rolling file) | <=1024 | |
| ASCII command | Total group quantity | <=1024 groups | |
| | Command length | <=256 characters | |

## A.5. Example – Multiple Languages

The mechanism of multiple languages facilitates the user to have multiple languages displayed in a single screen, without the need of repetitively editing the same screen, thus saves lots of work. Figure A-5-1 below illustrates the screen of multiple languages, which can switch among 3 different languages by just clicking the switches.




(a) (b)

(c)

Fig. A-5-1 Multiple Languages Screen (a) Chinese (b) English (c) Japanese

To make a multiple-language screen, click Library and then click Comment Library... to open the comment library dialogue box and then select an comment group to set up the needed language. See Figure A-5-2 below.

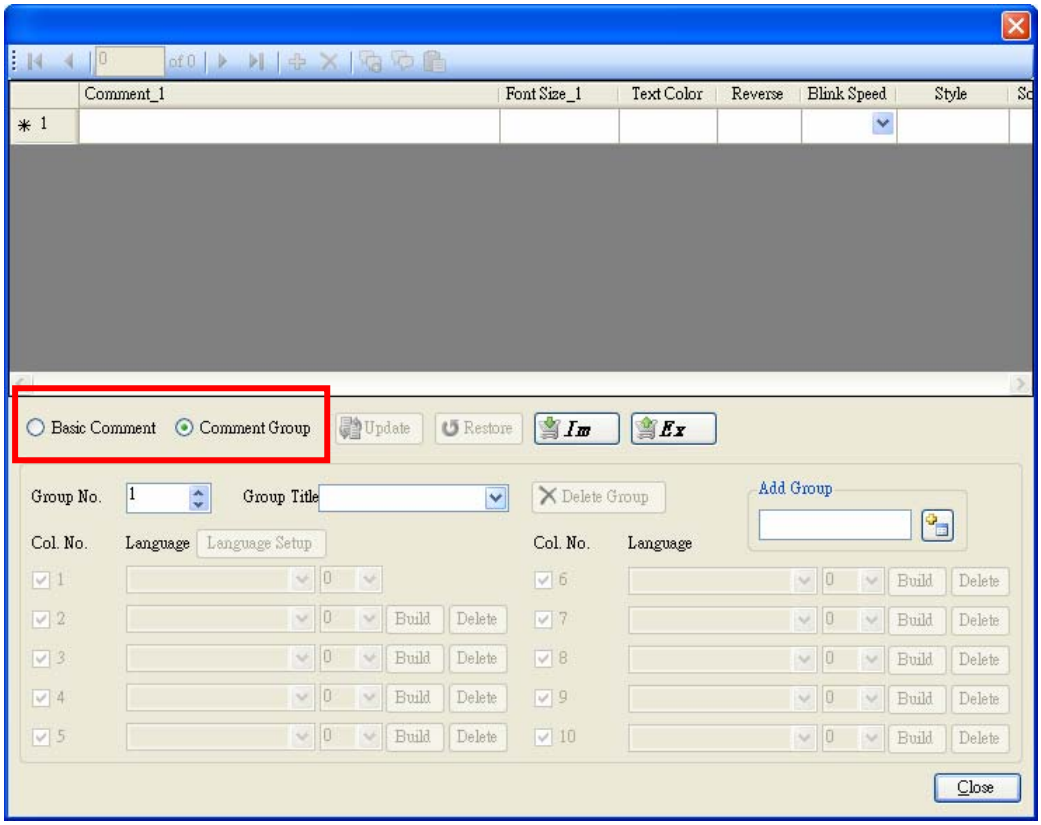



Fig. A-5-2 Comment Group

Click to add a new group named “Language”, and in the rows select the needed languages to set up 3 comment groups. The languages in the comment groups are Chinese, English, and Japanese. Confirm and then click to finish the setup of the comment group. See Figure A-5-3 below.

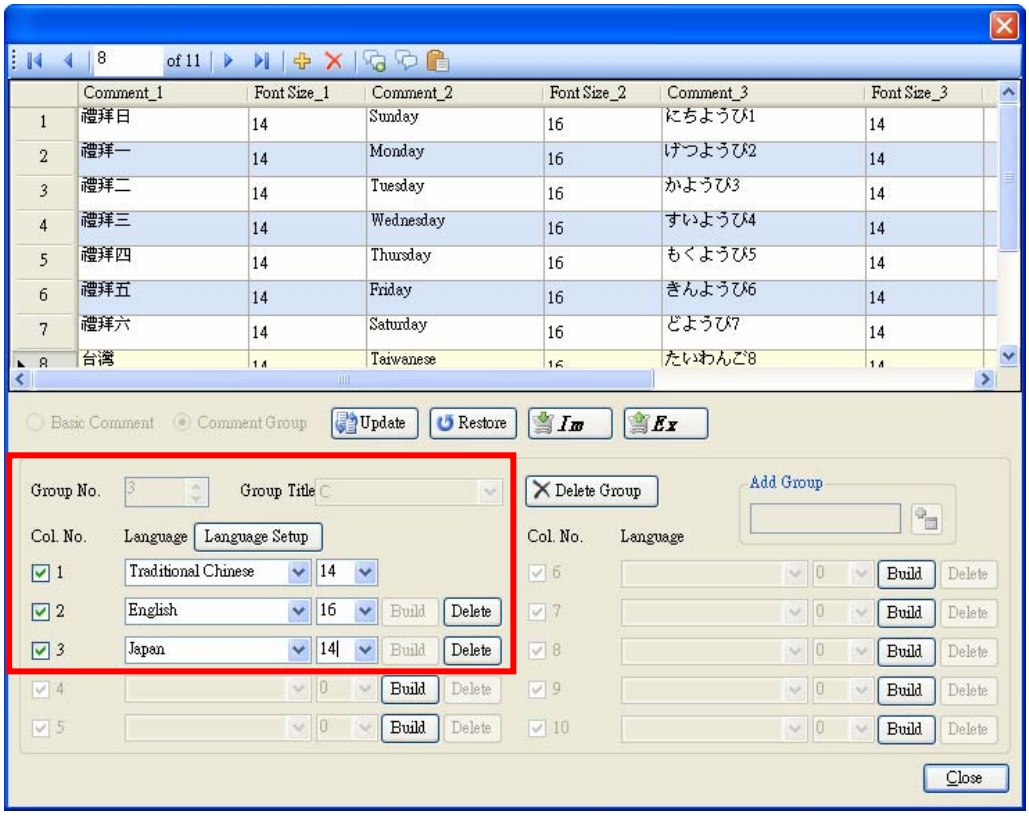



Fig. A-5-3 Editing Comment Group

When the setting of the comment library is done, return to the edit screen and set up 7 static text objects and 3 switches. Then, click the static text and double left click the mouse to open the Text property setting. Click Comment Group and select a needed comment number. This example assumes the group number is 1 and the comment number is also 1, so the screen displays the word of "Sunday". The rest comment words are also set the same way. See Figure A-5-4 below.

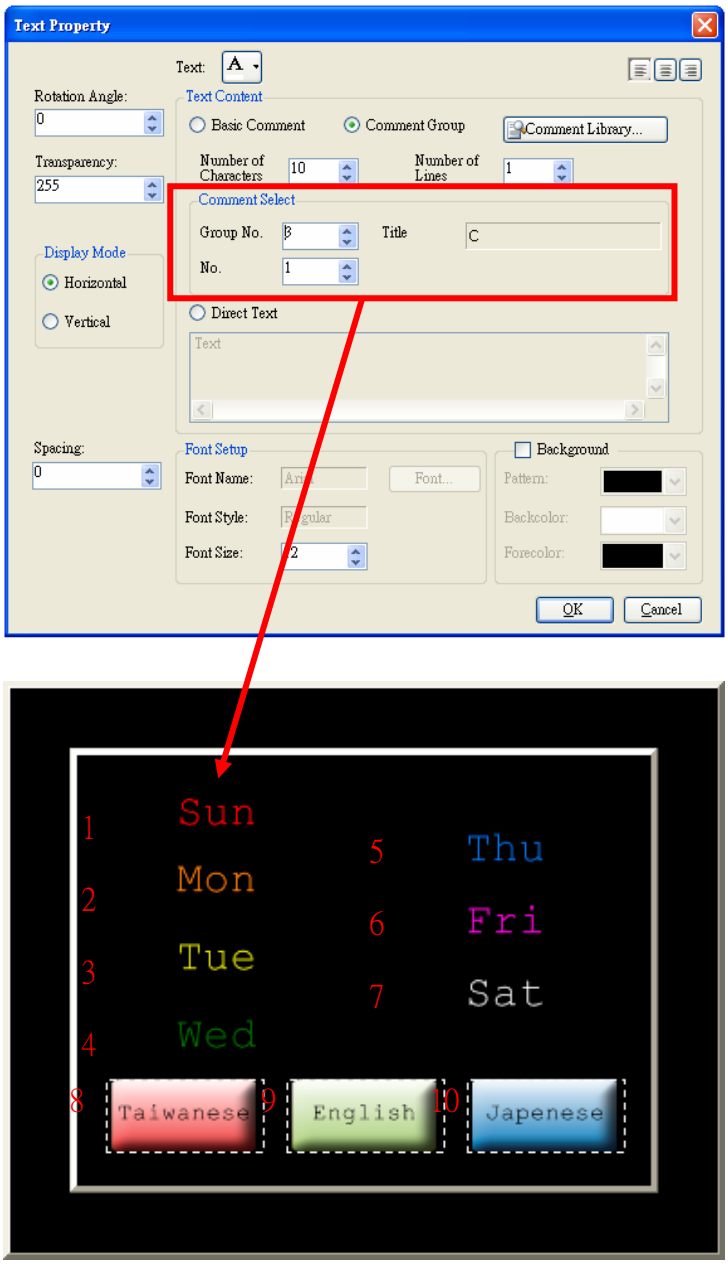



Fig. A-5-4 Comment Word Property Setting

Click the switch and then double left click the mouse to open the property setting of the switch. Then, click Comment Group and select a needed comment number. This example assumes the group number is 1 and the comment number is 8, so the screen displays the word of “Chinese”. The rest comment words are also set the same way. See Figure A-5-5 below.

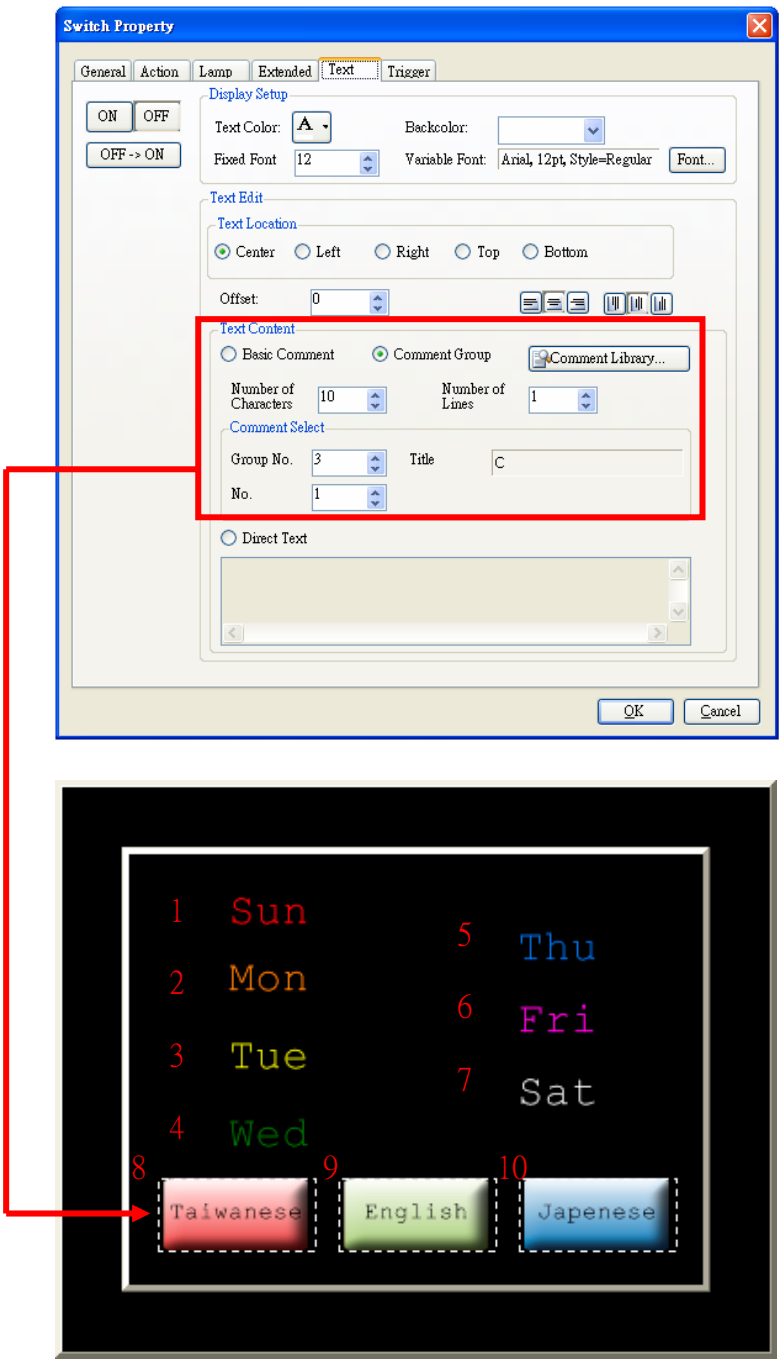



Fig. A-5-5 Comment Switch Property Setting

When the comment word setting is done, proceed with the setting of the switch functions. Click the switch and then double left click the mouse to open the switch's property setting. Click Function... to open the dialogue box of function selection and set the language number to 1. So, when the switch is pressed, the language will be switched to Chinese. The rest switches are also set the same way. See Figure A-5-6 below.

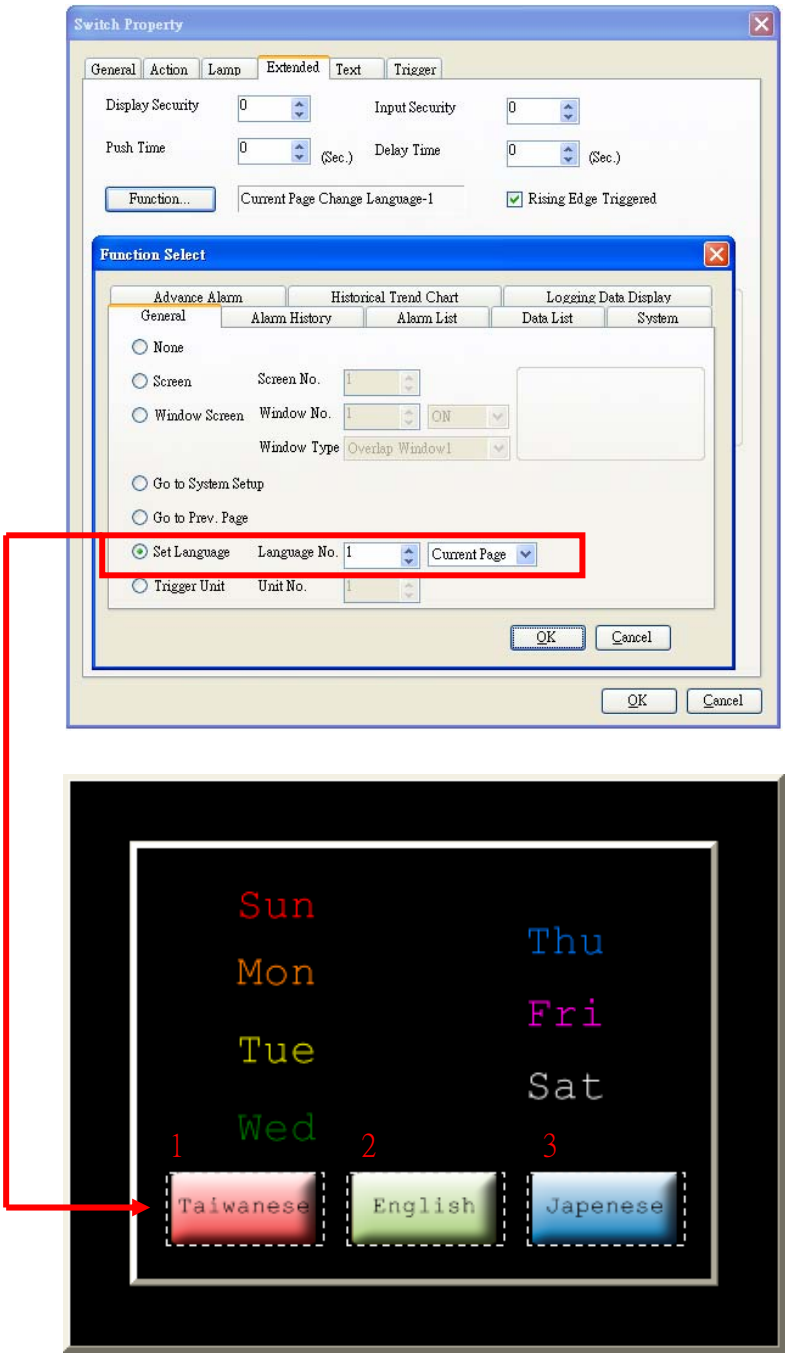



Fig. A-5-6 Language Setting

Follow the above steps to finish the multiple-language setting and have it sent to the HMI. The way of using it is when the “Chinese” switch is pressed, the text content will be comment_1 words read from the comment library; when the “English” switch is pressed, the text content will be comment_2 words read from the comment library; while to get comment_3, press the “Japanese” switch. See Figure A-5-7 below.

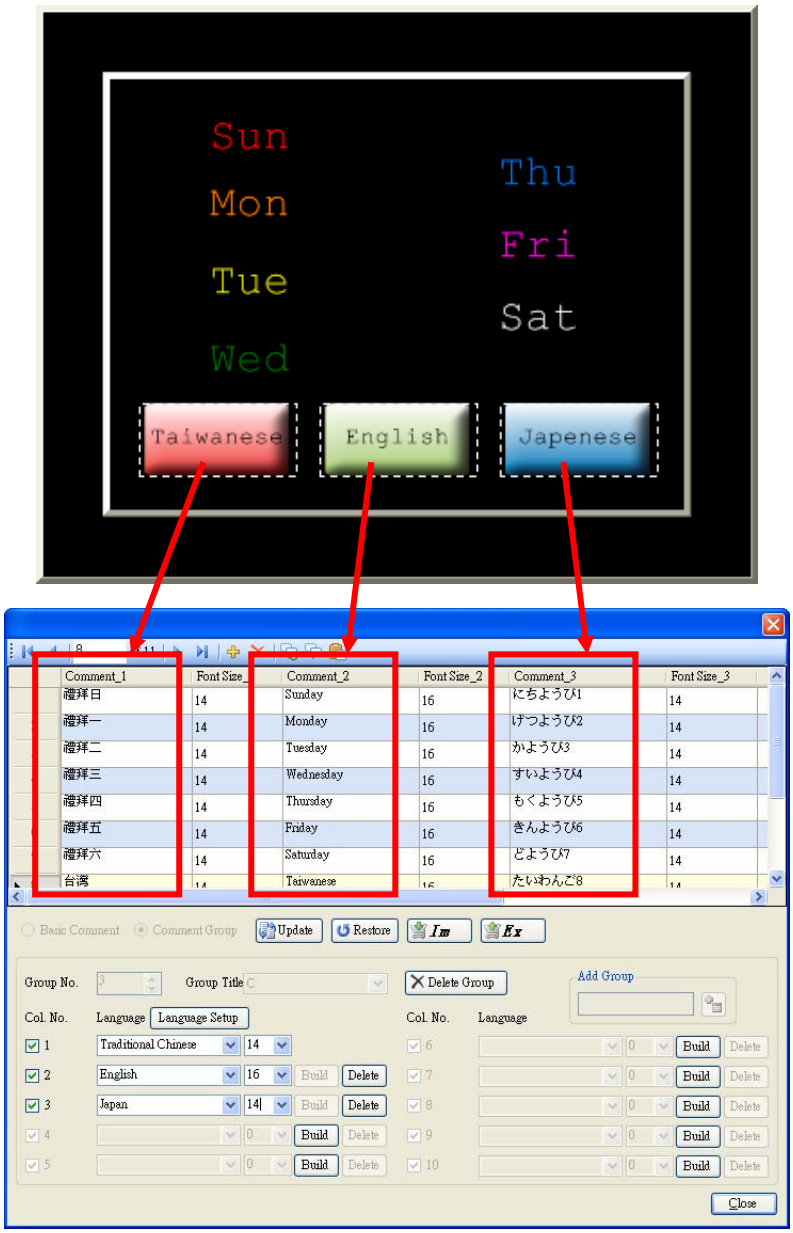
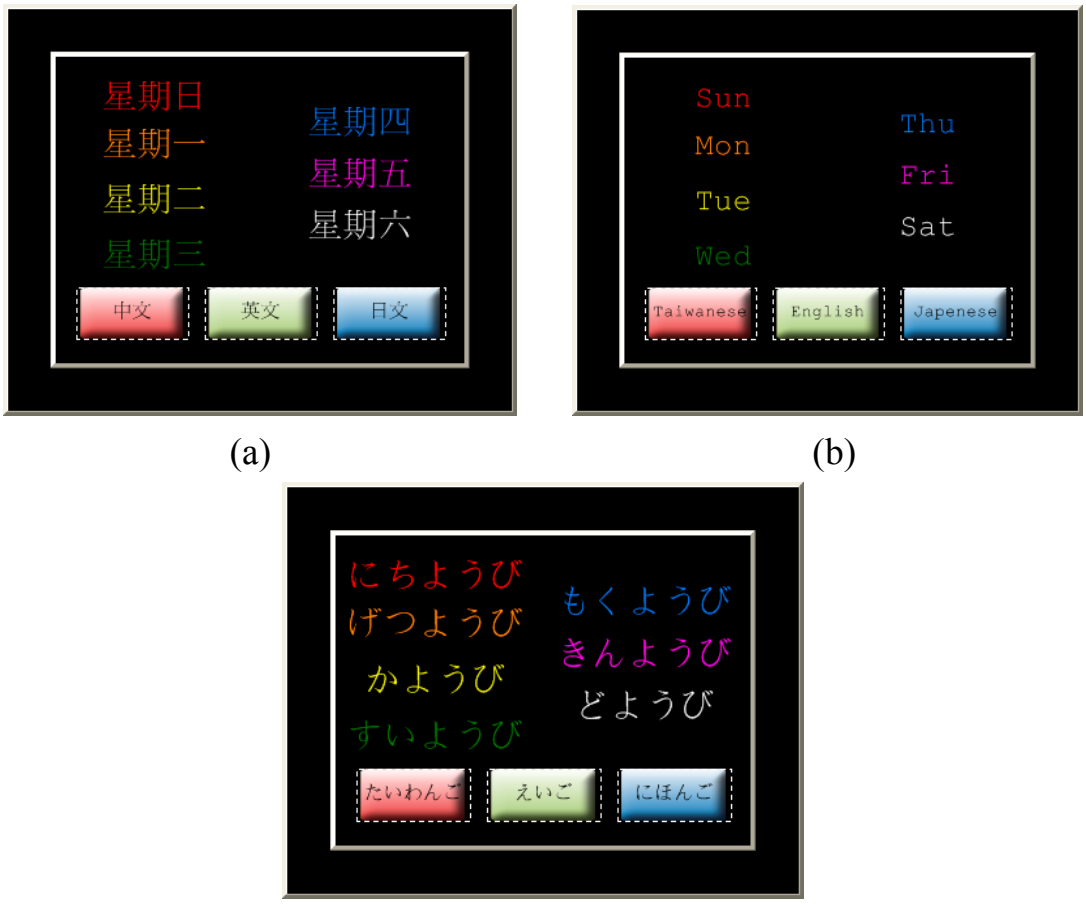



Fig. A-5-7 Language Switch

After the language setting is completed, use the switch to change among different languages. This example illustrates 3 languages. To display more languages, just add other new language words in the comment library. See Figure A-5-8 below.




(a) (b)

(c)

Fig. A-5-8 Multi-language Screen (a) Chinese (b) English (c) Japanese

NOTE

- When the alarm is set to the comment window, the language in the comment window will be switched based on “Language Setting – All Pages”. If “Language Setting – Current Page” is selected, there will be no action of language switch. For the setting of the comment window, please see Figure A-5-9 below.

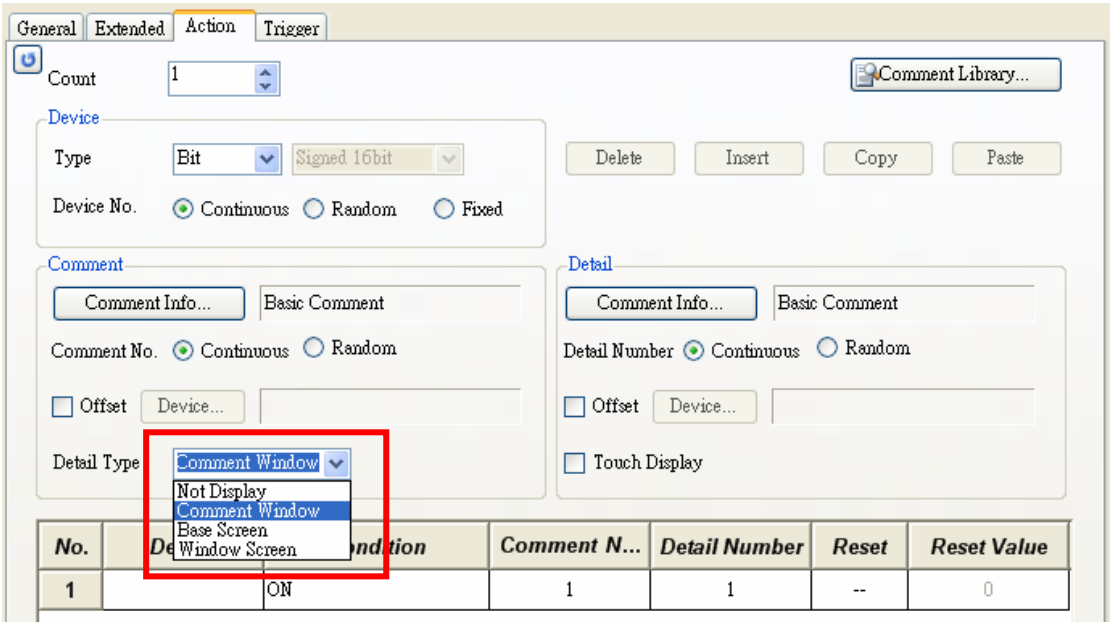



Fig.A-5-9 Comment Window Setting

## A.6. Example – External Keypad

The edit software provides a default keypad and a user-defined external keypad. The default keypad is the system built-in keypad. To set up a user-defined keypad, use the external keypad to make the user-defined settings. See Figure A-6-1 below.

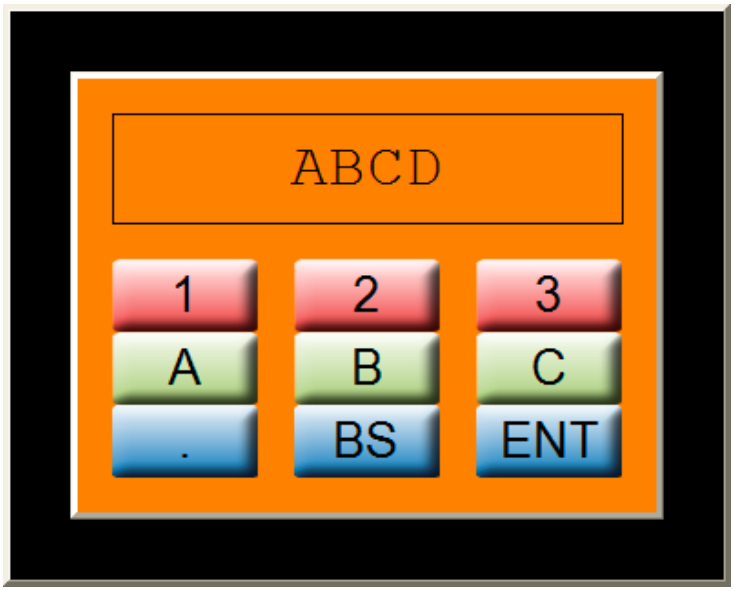



Fig. A-6-1 External Keypad

First, set up a keypad key code of "3". To do this, click Unit and click Keypad and then click Key Switch, or directly click the shortcut, and in the editing window left click the mouse to set up a keypad key code. Then, double left click the mouse to open the property setting of the keypad key code, and click Function... to open the dialogue box of function selection and enter the character "3". See Figure A-6-2 below.

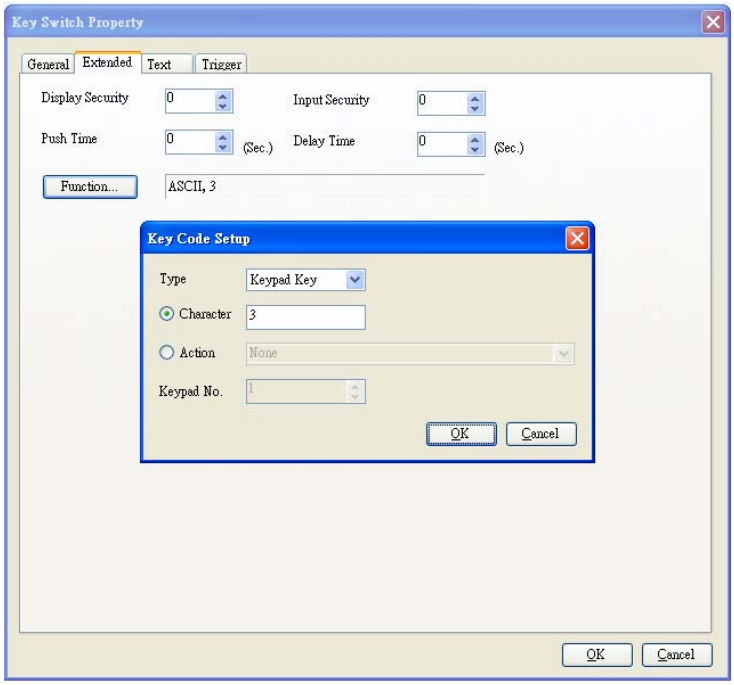



Fig. A-6-2 Keypad Key Code

Then, click Function Text to display the keypad function on the key switch. If the character entered was “3”, the keypad key code will also show the character “3”. When the display of ON (or OFF) is set, remember to click ON -> OFF (or OFF -> ON ) to copy the word to another state. Confirm to finish setting the keypad key code “3”. See Figure A-6-3 below.

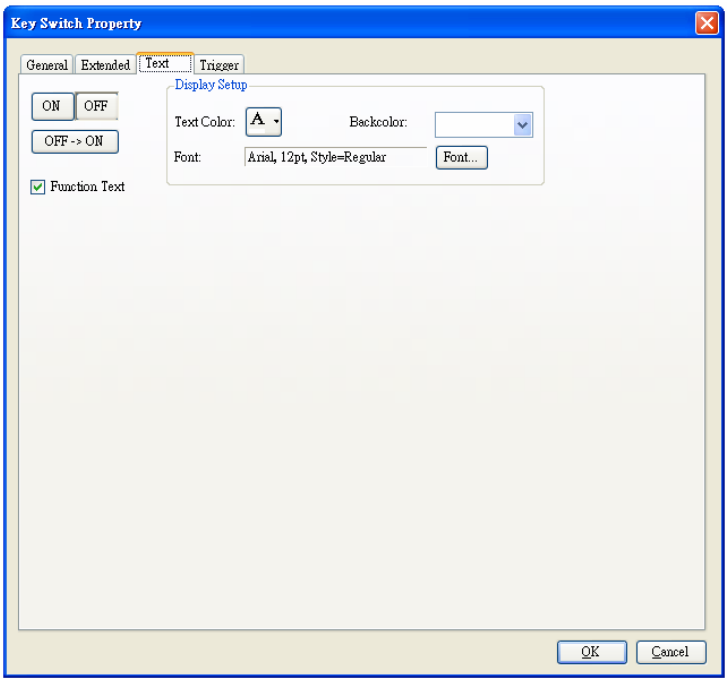



Fig. A-6-3 Functional Word

Now, set up the keypad key code “ENT”. To do this, click Unit and click Keypad and then click Key Switch, or directly click the shortcut, and in the editing window left click the mouse to set up a keypad key code. Then, double left click the mouse to open the property setting of the keypad key code, and click Function... to open the dialogue box of function selection and use the pull-down menu to select “Input/Confirm (ENT)”. See Figure A-6-4 below.

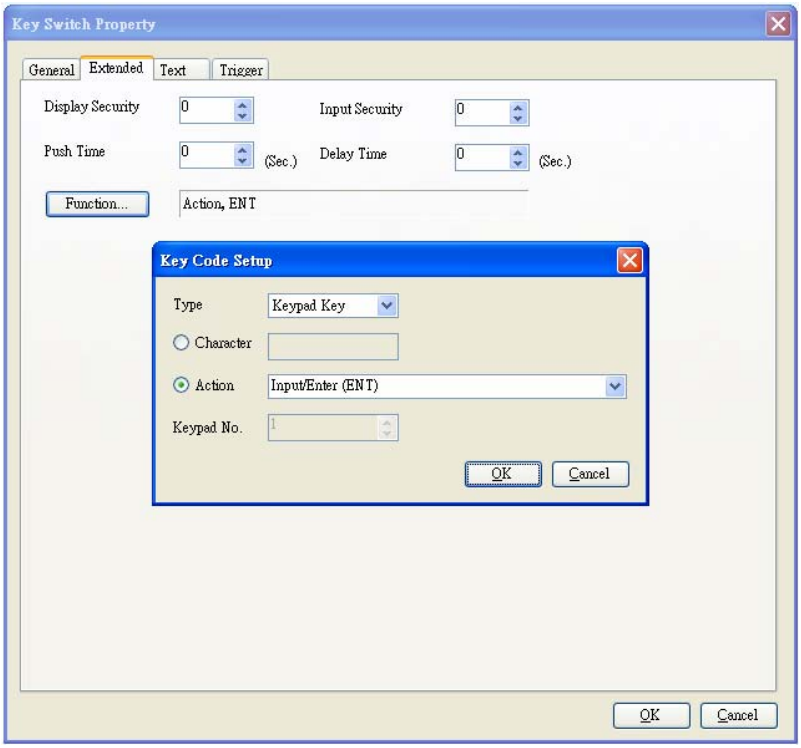



Fig. A-6-4 Keypad key code

Then, click Function Text to directly display the keypad function on the key switch. When “ENT” is selected, the word displayed on the keypad key code will be “ENT”. When the display of ON (or OFF) is set, remember to click ON -> OFF (or OFF -> ON ) to copy the word to another state. Confirm to finish the setup of the keypad key code“ENT”. See Figure A-6-5 below.

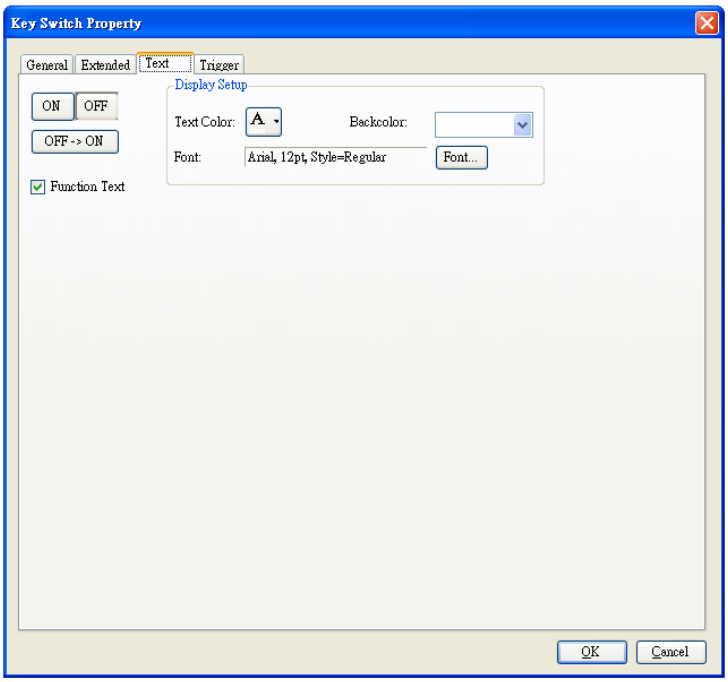



Fig. A-6-5 Functional Word

Setup of other keypad key codes is the same as the above steps. Repeat the steps to finish 9 keypad key codes on the screen.

After the 9 keypad key codes are established, there still needs to set up a character input to display the input value from the external keypad. Click Unit and click Data Input and then click Character Input Box, or directly click the shortcut, and in the editing window left click the mouse to establish the input box, and then double left click the mouse to open the dialogue box of the character input. Set the device to HD0 and select the external keypad. See Figure A-6-6 below.

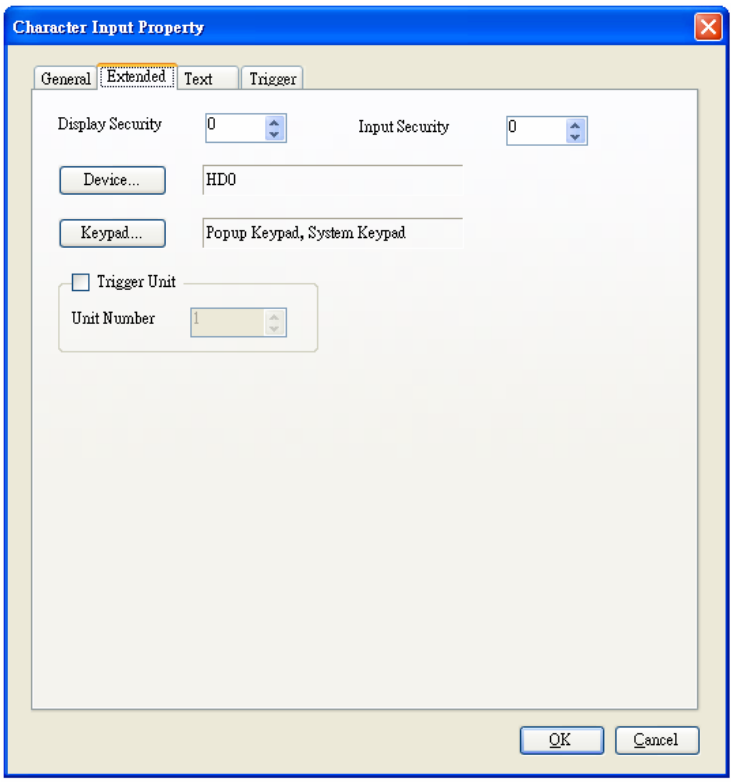



Fig. A-6-6 External Keypad

The user can adjust the look of the character input box and the size of the character.

Execute the above steps to finish the external keypad screen and send it to HMI. This process is click the character input box once first, and then click the keypad key on the screen, the character represented by the key will then be displayed in the character input box. See Figure A-6-7 below.

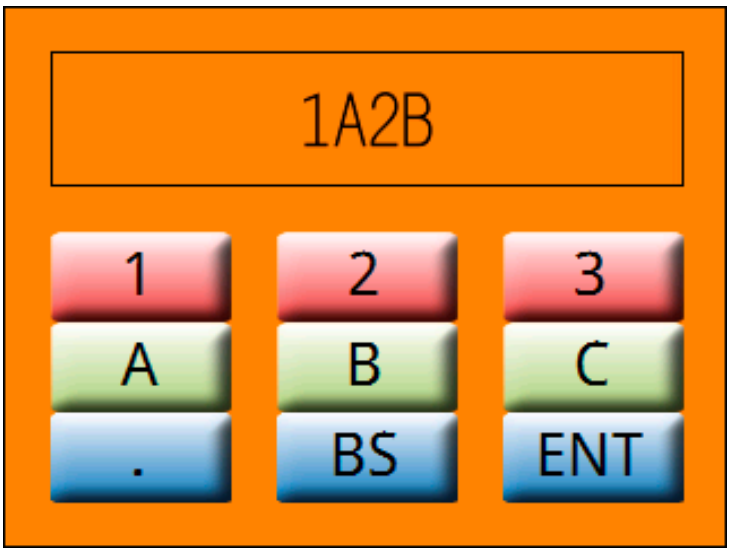



Fig. A-6-7 External Keypad

## A.7. Example – Import user image library

When sending a project file to PC from the manufacturing site, if the project file in the HMI contains the user customized images, you must import the user gallery in advance so that images can be completely presented. First of all, the image export file shall be obtained from the project file designer, as shown in figure A-7-1. When receiving the project file, import the image file to the editor software, as shown in figures A-7-2 to A-7-4.

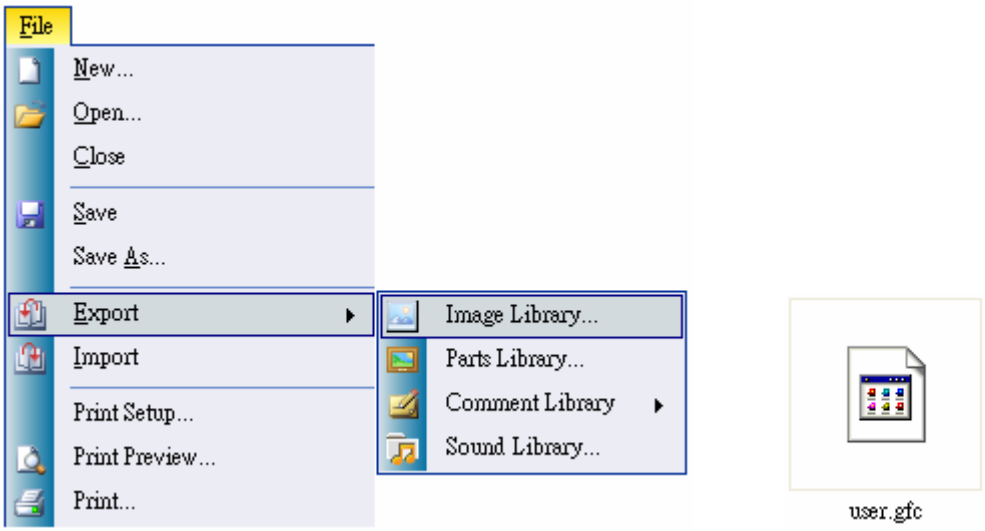



Figure A-7-1: Image database export file (extension name: .gfc)

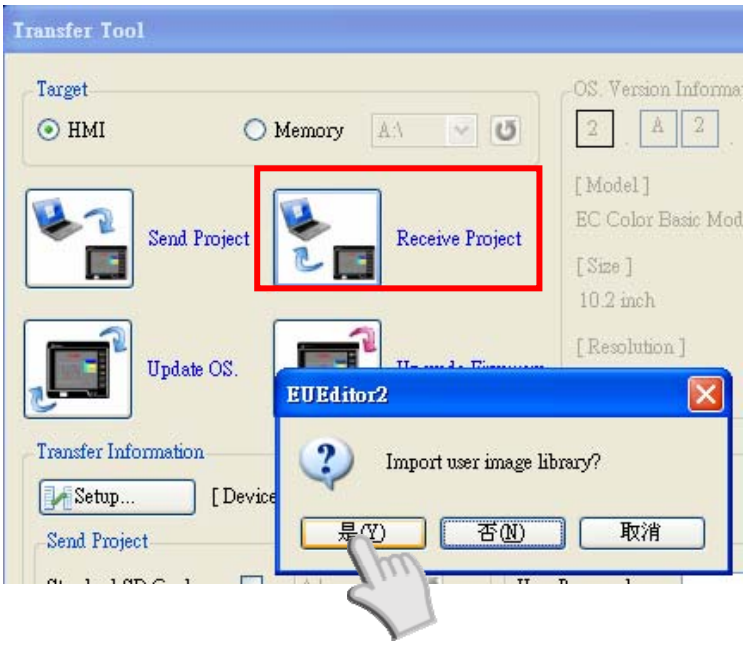



Figure A-7-2: Receive project file → Import user image library

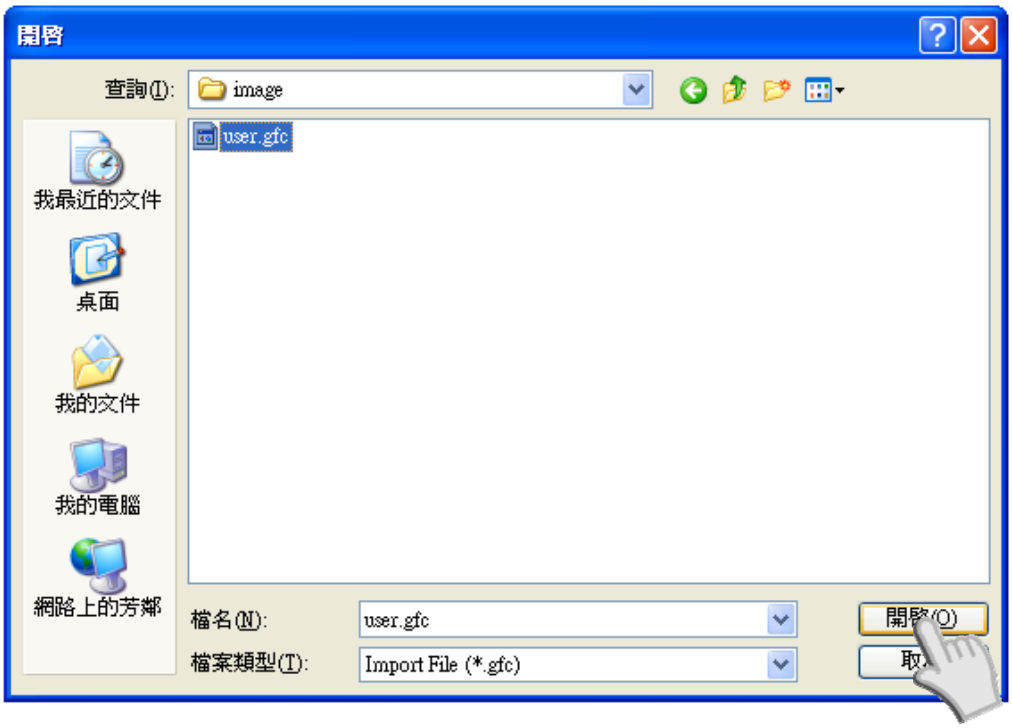



Figure A-7-3: Open user gallery file

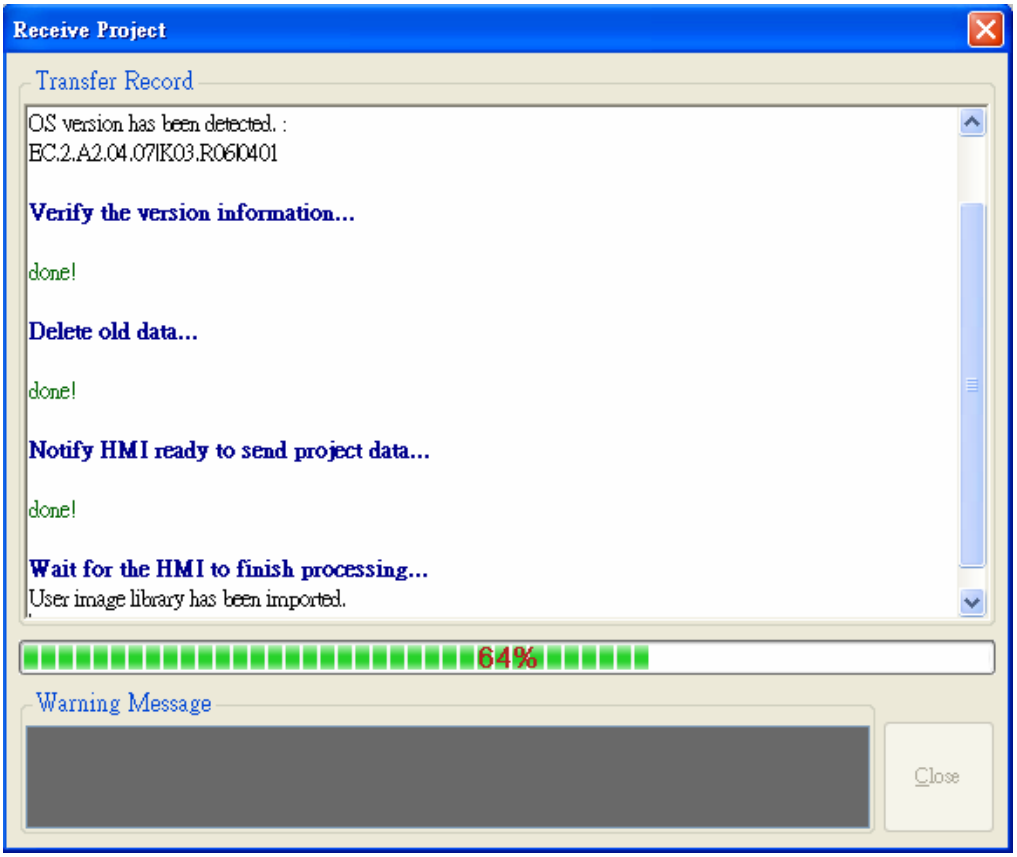



Figure A-7-4: Receive project file

## A.8. Example – Print(Micro printer)

When the HMI is connected micro printer, EU works2 software settings as described below：

Click System and click HMI Type/Device Setup..., Select Free-Print Device, as shown in figures A-8-1.

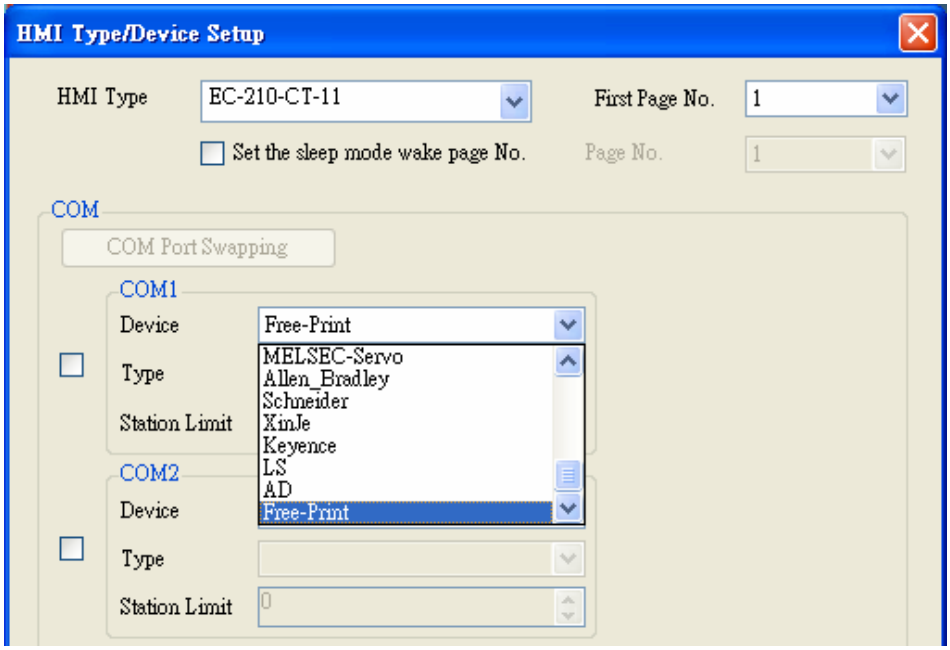



Figure A-8-1: Device setting

ASCII command send to micro printer by macro instruction, as shown in figures A-8-2.

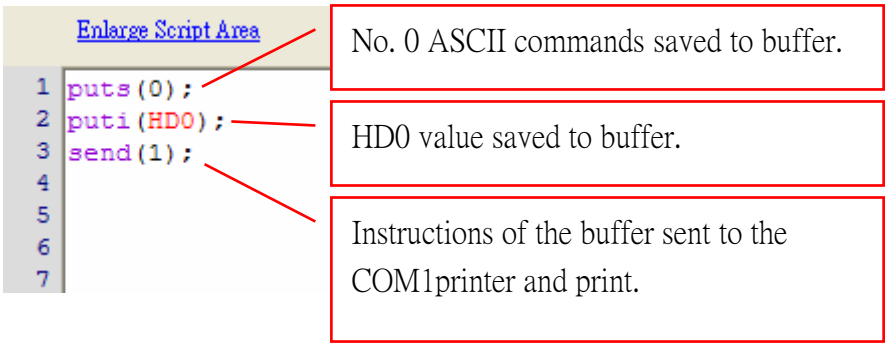



Figure A-8-2: Macro edit

Click System and click ASCII Communication Device edit NO.0 ASCII command, as shown in figures A-8-3.

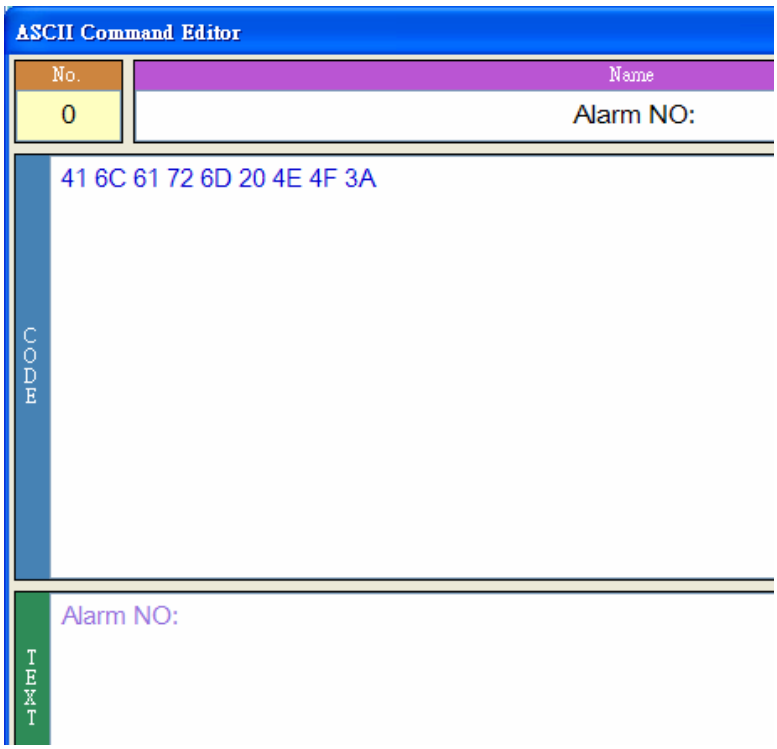



Figure A-8-3: ASCII command edit

NO.0 ASCII command is "Alarm NO:", HD0 is "2", when the send(1); instruction is executed, COM1 printer will print the "Alarm NO: 2".

NOTE

- Detailed description of the ASCII macro instruction , refer to the Macro Library section.
- Detailed description of the wiring and communication parameter setting, refer to the Micro Printer Manual.