ENGLISH

HMIEditor Programming Software User Manual

Contents

1 Welcome

Welcome to HMIEditorP User manual.

HMIEditorP is the software for the HMI (human machine interface), which could be used under Microsoft Windows XP, Windows Vista, Windows 7 and Windows 10.

HMIEditorP allows the operation and observance of the processes that run on a machine. The communication between HMIEditorP and HMI takes place via USB cable or Ethernet.

2 Installation Software

Introduction

The following steps will show how to install HMIEditorP.

Requirement

HMIEditorP installation package downloaded.

Windows 7 (32bit / 64bit)

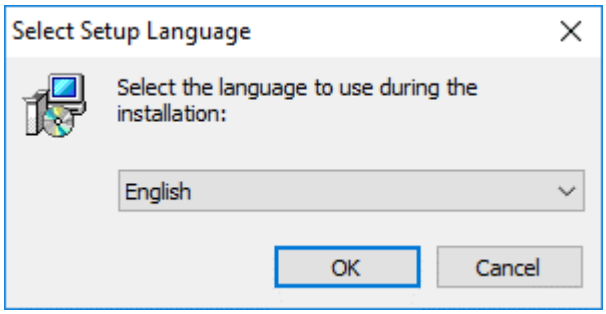
Windows 8 (32bit / 64bit)

Windows 8.1 (32bit / 64bit)

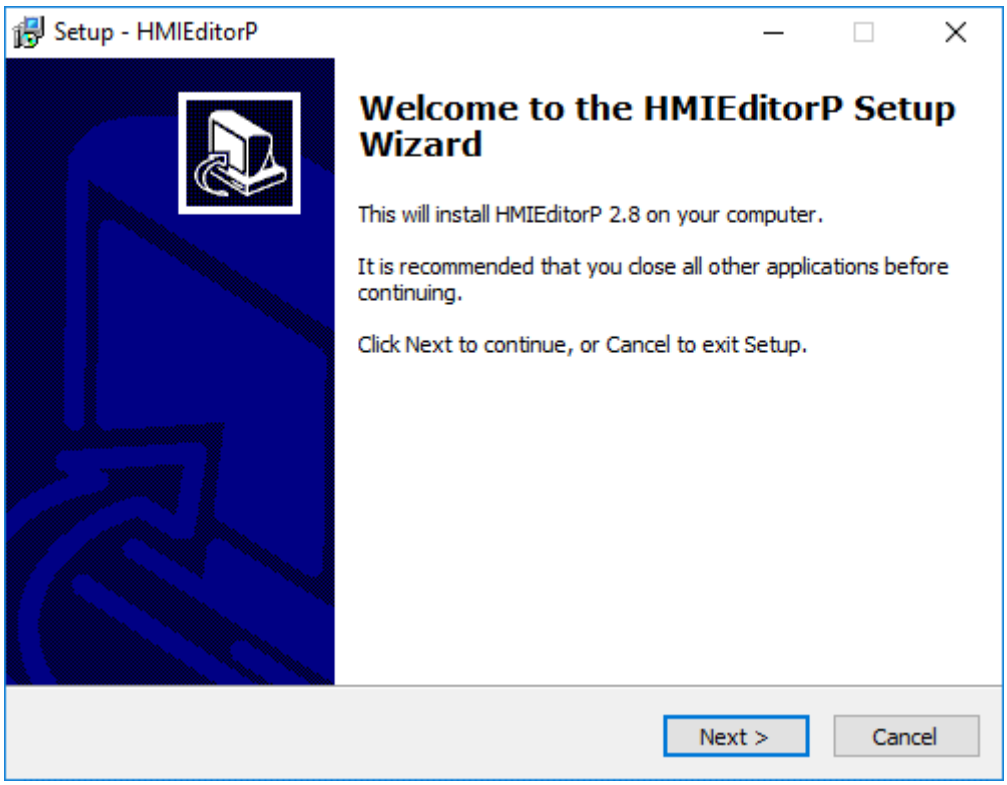
Windows 10 (32bit / 64bit)

Operating Procedure

1) Decompress downloaded file get HMIEditorP installation package;
2) Select HMIEditorP installation package;
3) Right click it;
4) Select [Run as administrator];
5) Select language for HMIEditorP interface, it supports Chinses (Simplified), Chinses (Traditional), English, Italian, Russian;

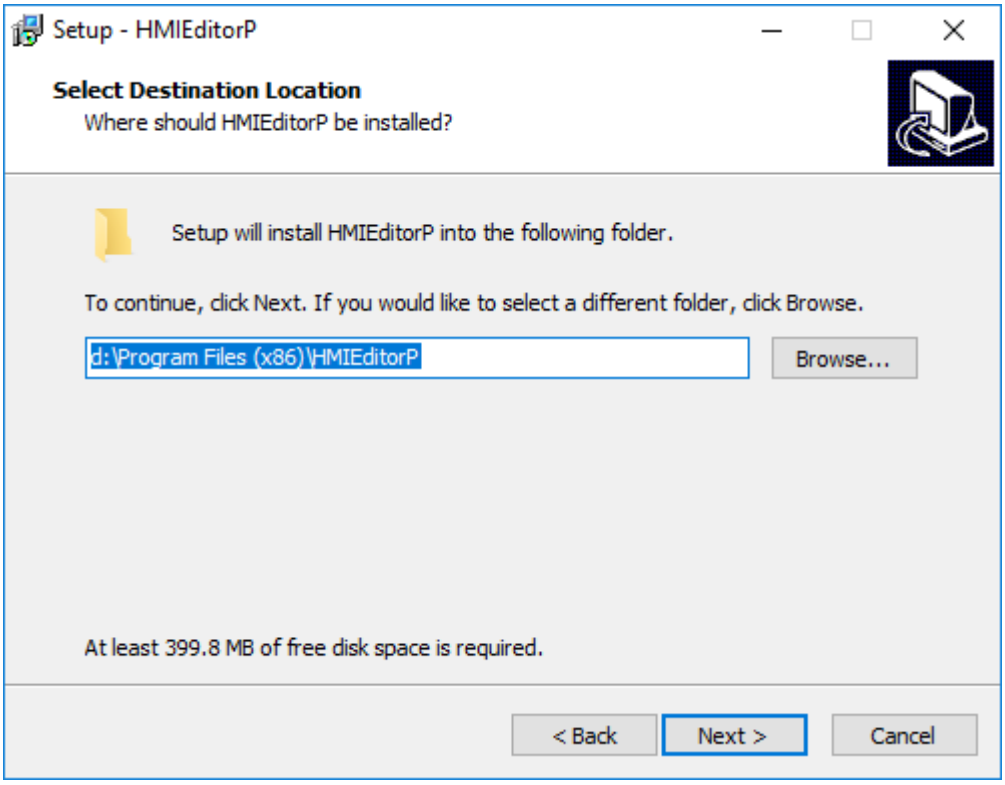


6) Click [Next];

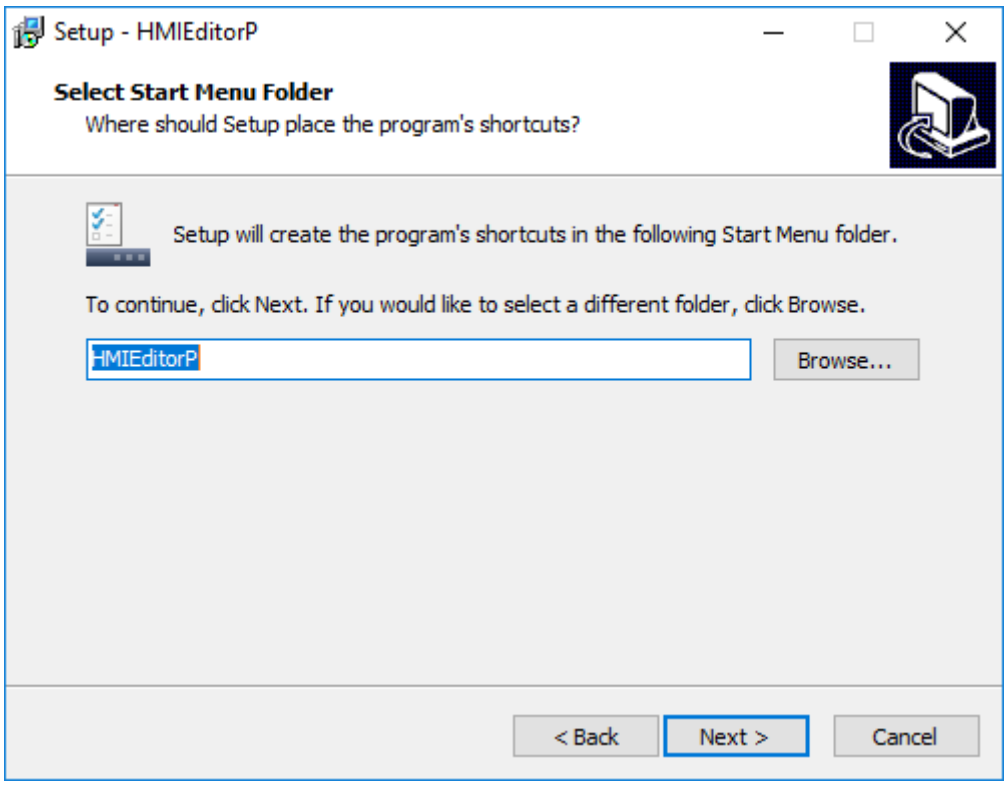


7) If there is a previous version of HMIEditorP on the PC, please remove it before installation.

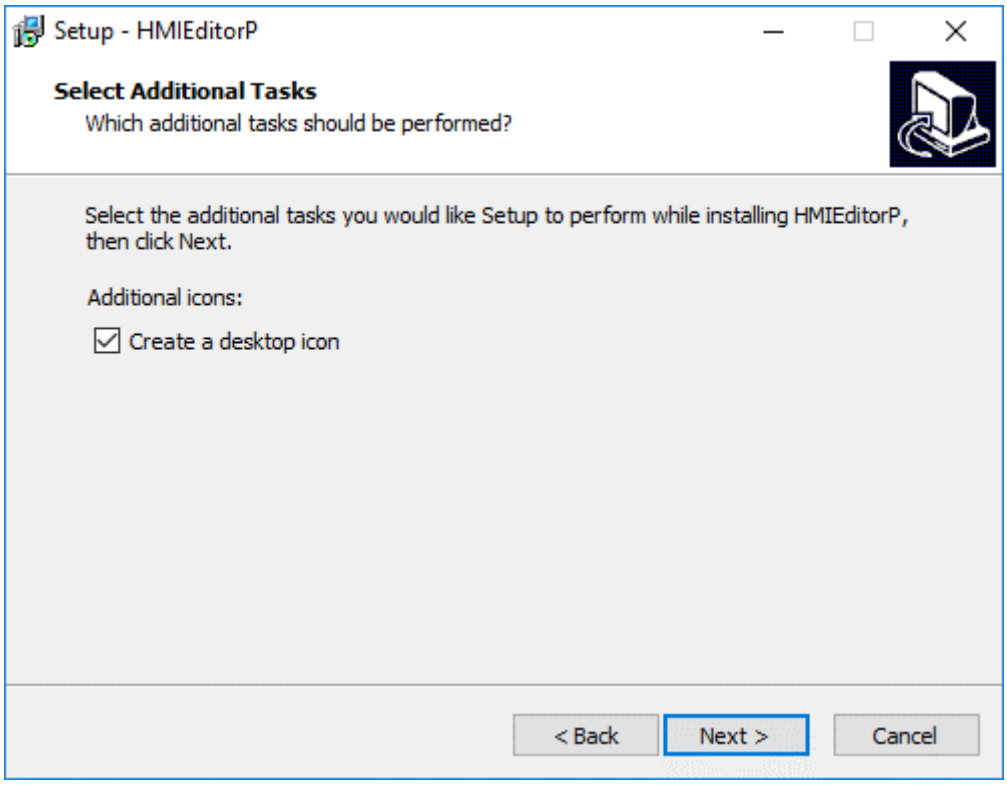
8) Select a folder for HMIEditorP installation, or use the default folder. Click [Next].



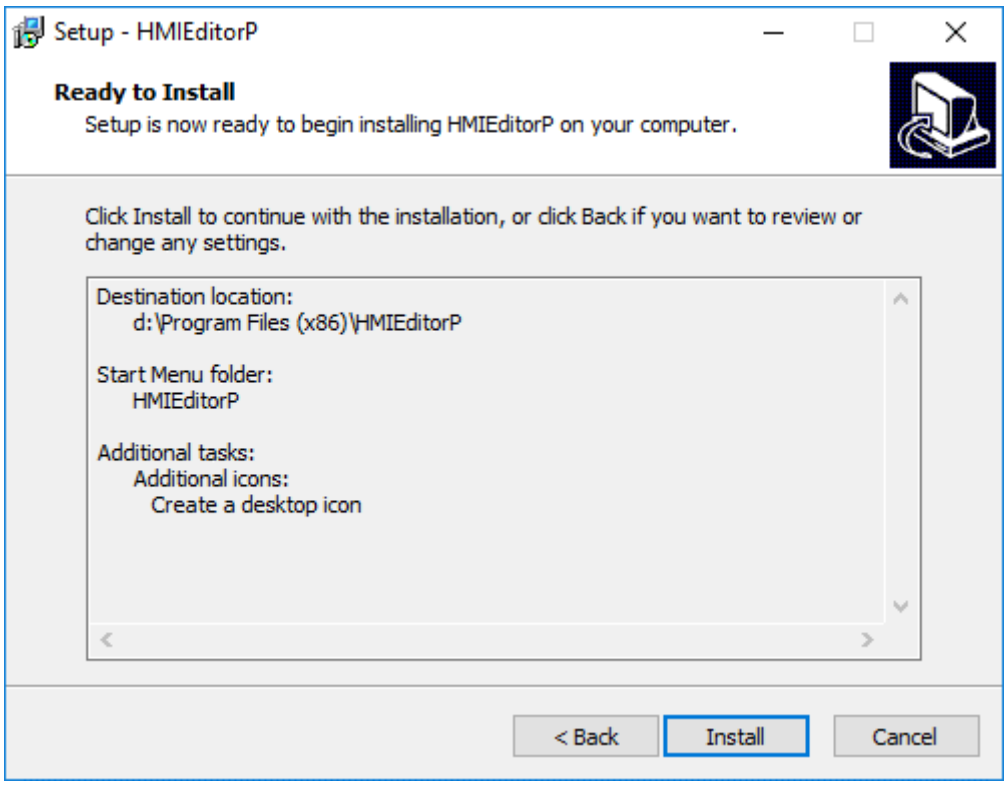
9) Click [Browse] to specify a folder, or use the folder suggested by the program, click [Next] to continue the installation process.



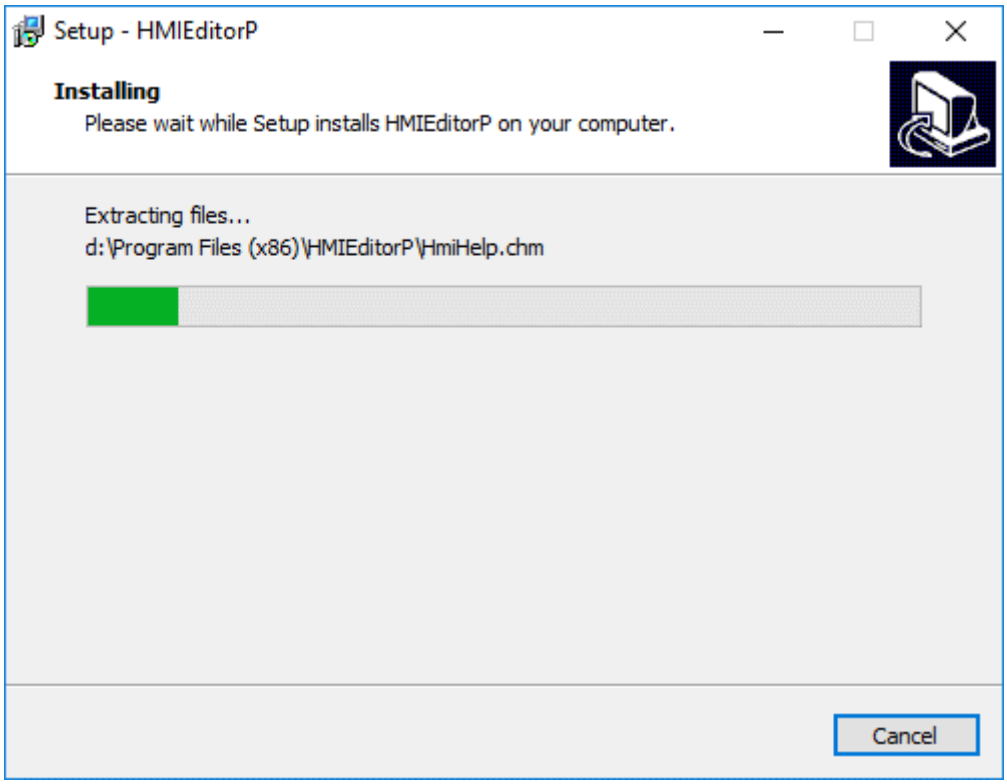
10) Select additional tasks, for example: [Create a desktop icon]. Click [Next].



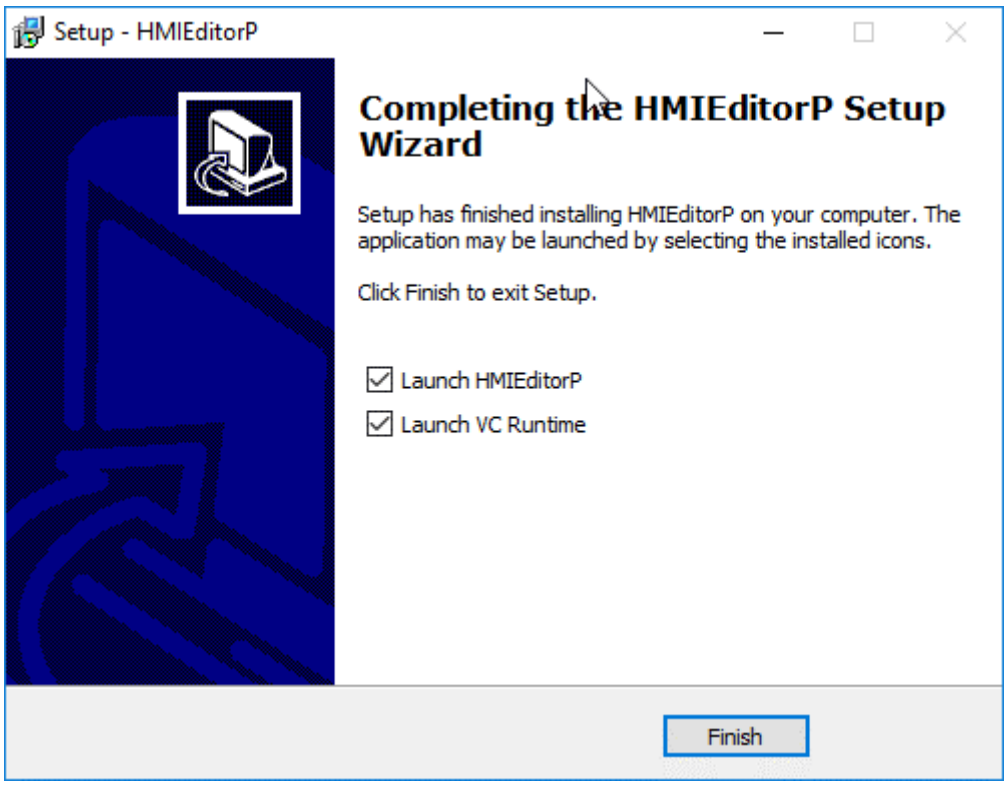
11) At this stage, all settings have been completed. Please check if it is correct. If there is any need to re-select the part, please press [Back]. If all is correct, please press [Install] to start the installation process.



12) Installer execution



13) Please check [Launch VC Runtime] to install [Microsoft Visual C++2008] in your PC;



Result

Users could see shortcuts to HMIEditorP's features in the [Start] » [All Programs] » [HMIEditorP] directory.

✎Note:

1) In case of the incompatible problems, it is suggested to install and run HMIEditorP as administrator.
2) Microsoft Visual C++ 2008 provides the necessary runtime components for HMIEditorP

3 Getting Started

This chapter provides a quick and precise introduction to HMIEditorP.

It does not contain a comprehensive list of all possible functions, but includes all necessary information to use HMIEditorP's main functions.

This chapter consists of the following section:

3.1 Creating a project

Introduction

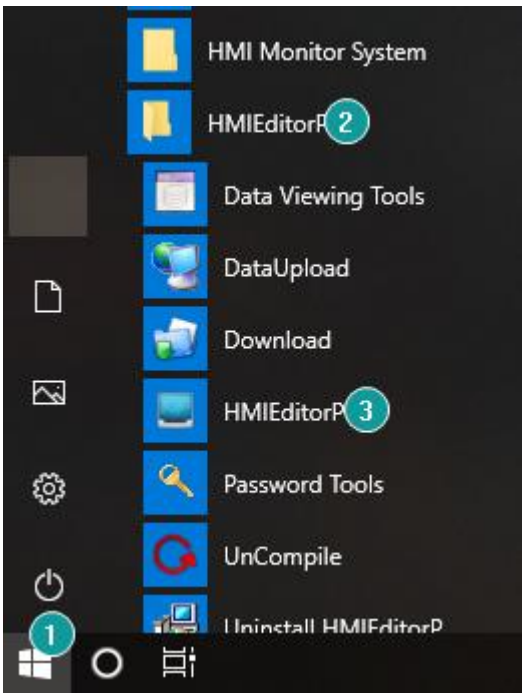
The following steps will show how to start HMIEditorP and create a project.

Requirement

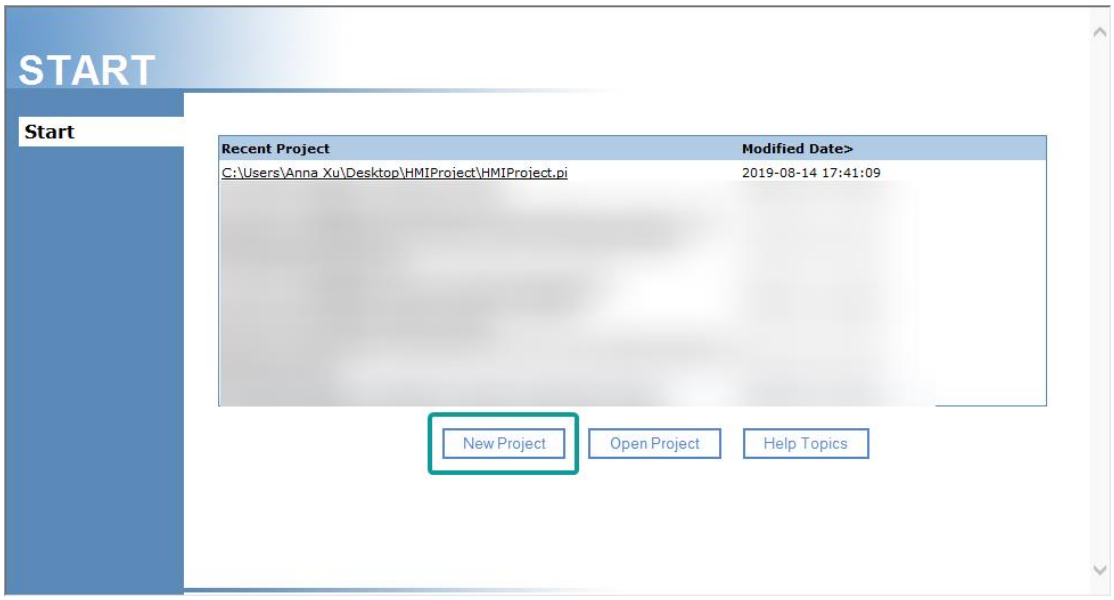
HMIEditorP programming software is installed.

Operating Procedure

1) Start HMIEditorP software by click icon, or from Start Menu;
2) Find [HMIEditorP] folder;
3) Click [HMIEditorP] icon to start software;



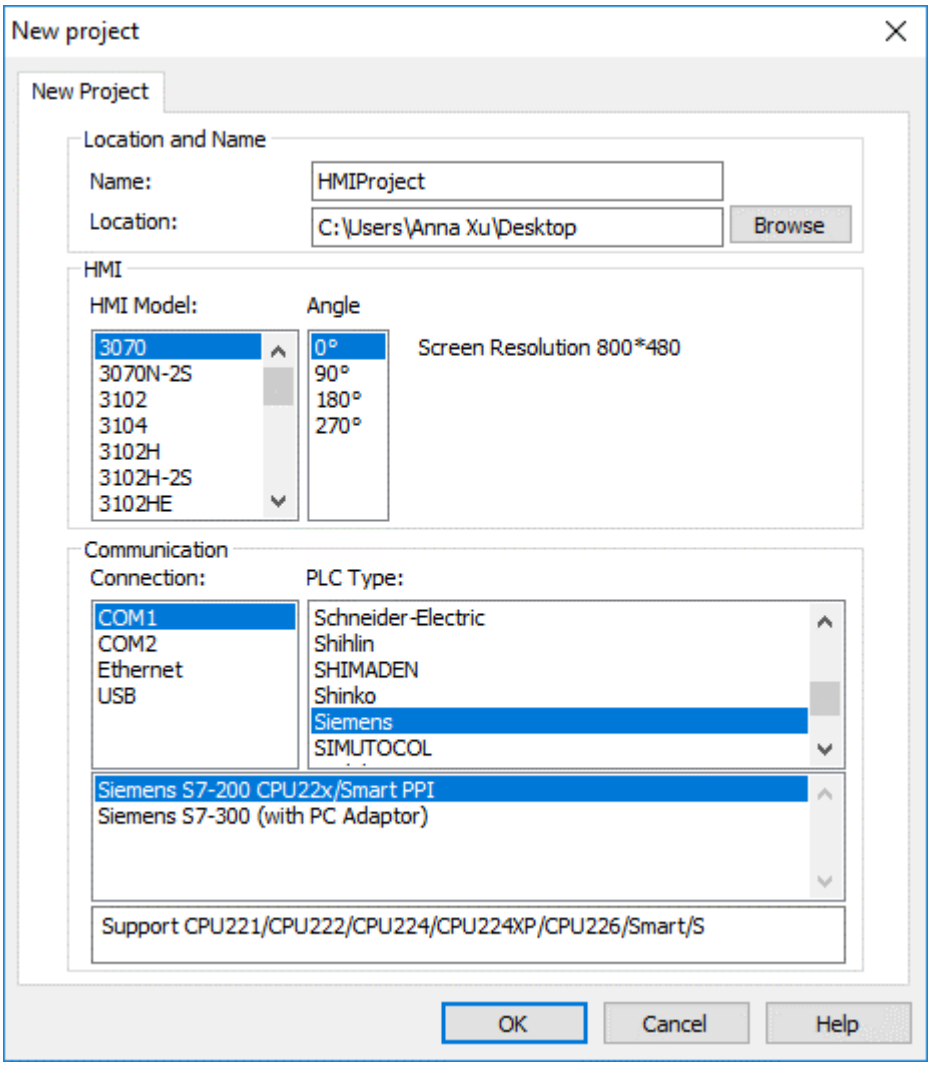
4) Click [New project];



5) Configure project name, project path;

6) Select HMI model and communication protocol;

7) Click [OK] to save setting;



Result

1) User could find a folder named HMIProject on the desktop.
2) In the folder user could find a file with a suffix named [.pi]. Double click the file to open the project.

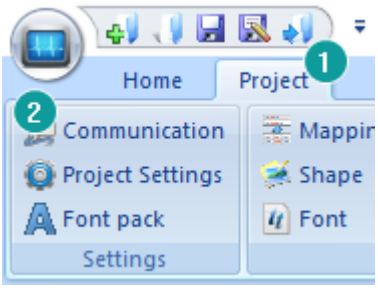
3.2 Configuring communication

Introduction

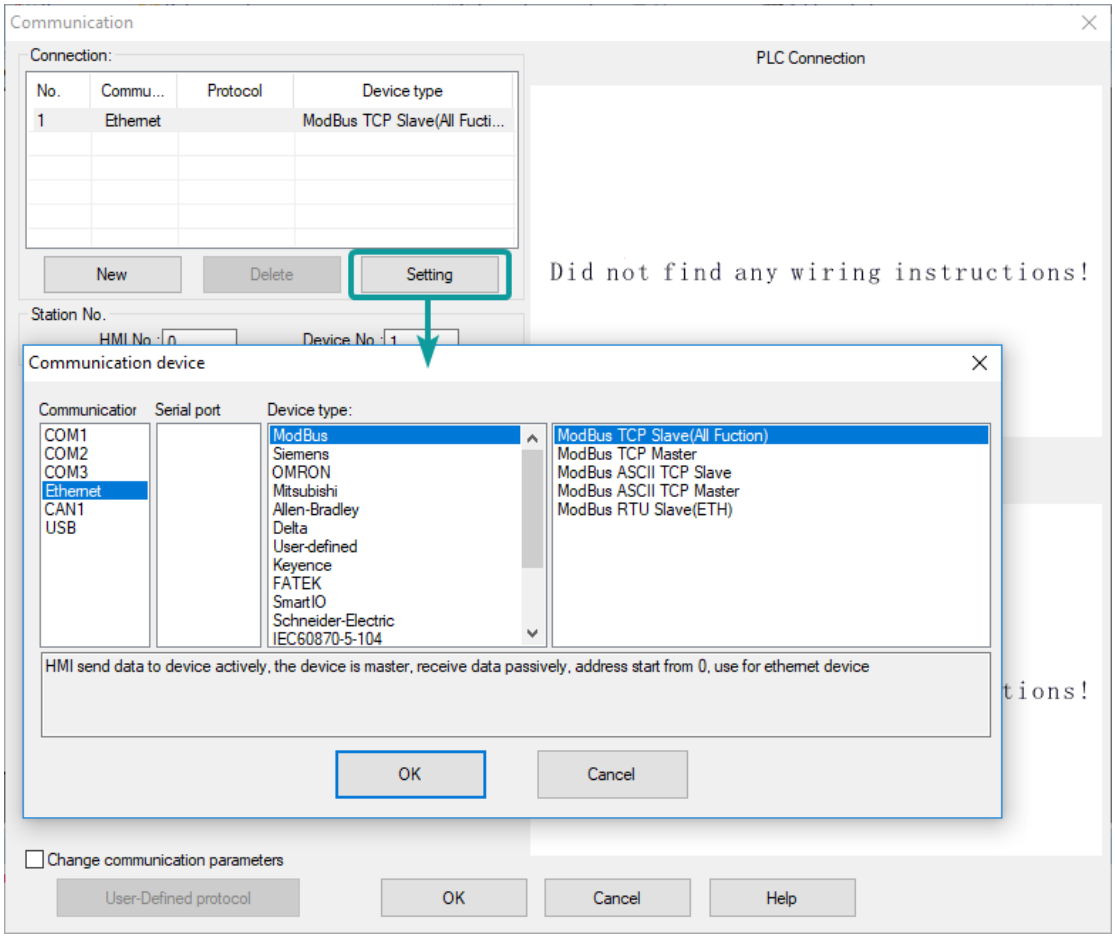
The following steps will show how to change HMI project communication settings.

Operating Procedure

1) Click [Project]->[Communication] to open setting window;

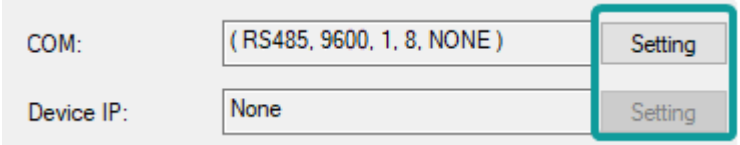


2) Click [Setting] to open [Communication device] window;



3) Select connection way, device protocol;

4) Click [Settings] to change communication parameters, COM is for serial connection, Device IP is for Ethernet connection;



5) Click [OK] to save changes;

Result

HMI communication is changed;

3.3 Configuring the Screens

Introduction

The following steps will show how to create and rename screens in HMIEditorP.

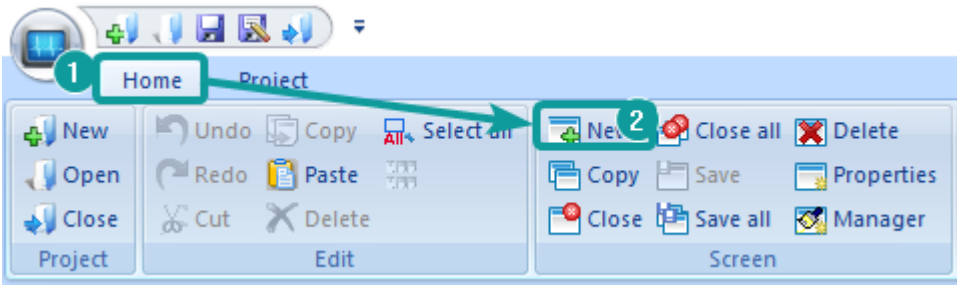
New screens, which are still blank, could be created using the [Common object]. User could choose different objects to design screen according to project's requirements.

Requirement

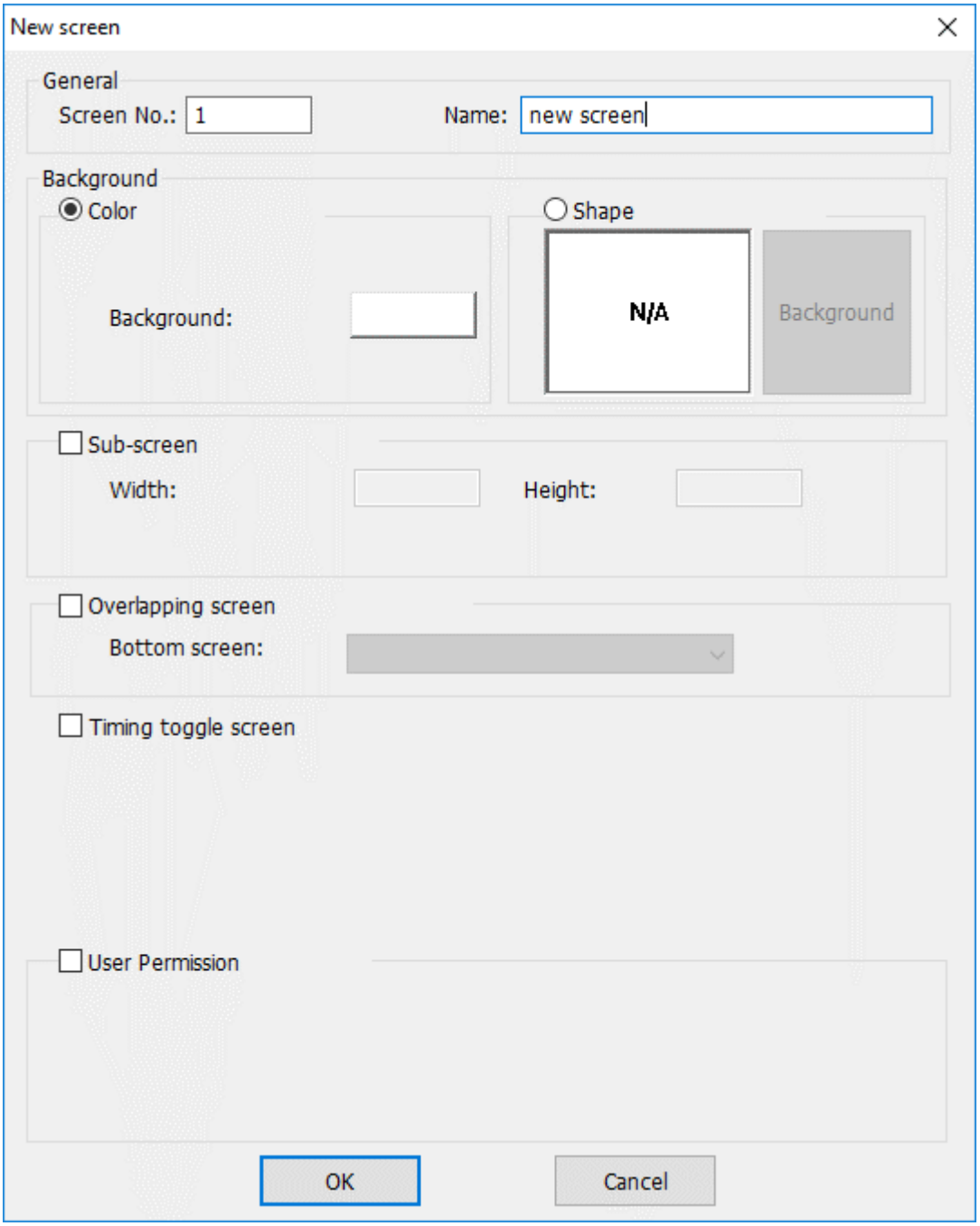
The [Quick_Start] project is open.

Operating Procedure

1) Create a new process screen: Clicking [New] will appear [New screen] setting;



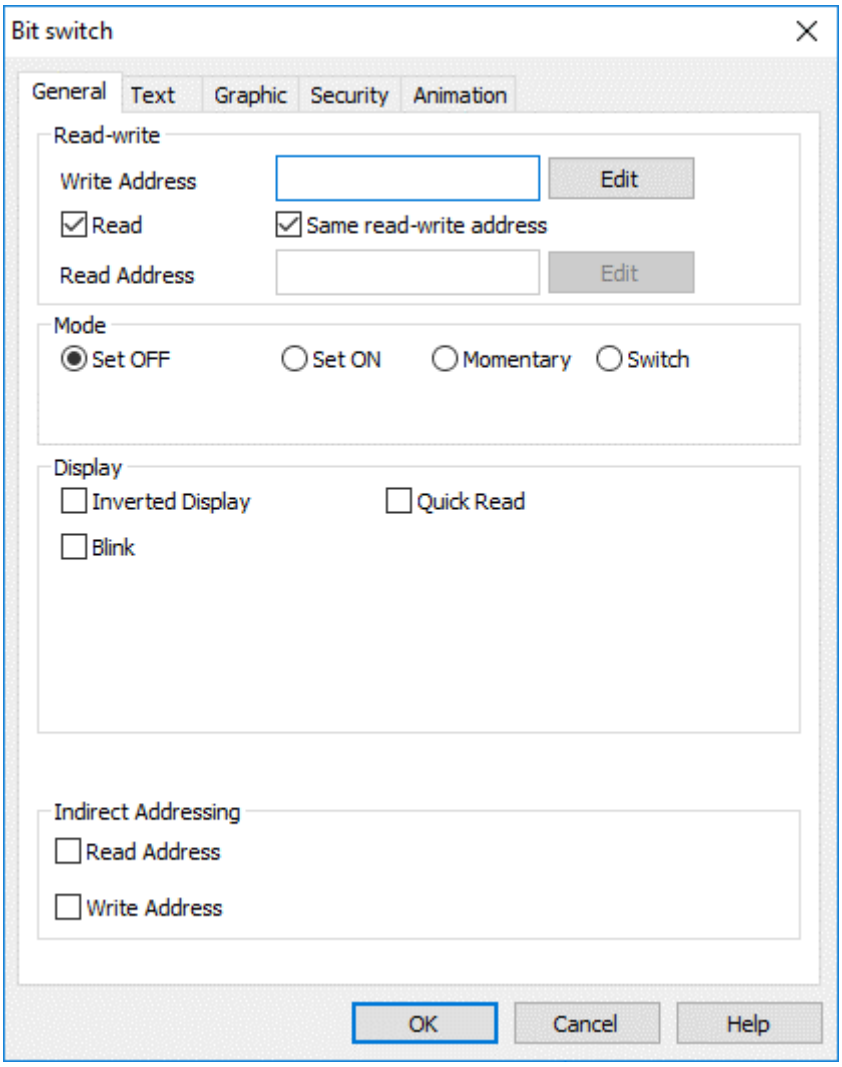
2) Set screen parameter in [New Screen], such as screen number, screen name, background type;



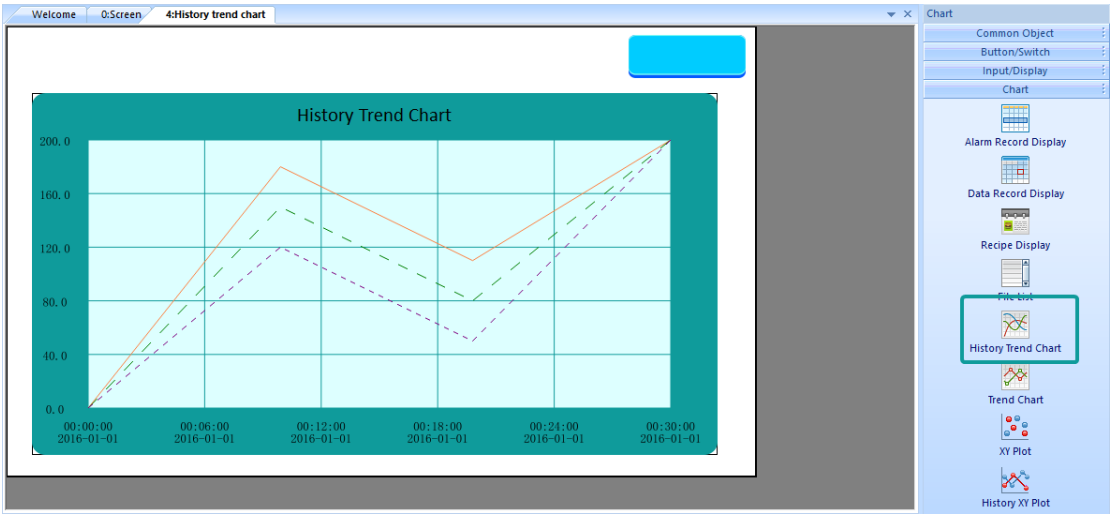
3) After making a new screen, user could insert objects in screen. For example, button and trend.

4) Add button object in screen;

5) Set button object parameters, such as read address, mode etc.;



6) Add [Trend Chart] from [Chart];



7) And [Function key] for screens switch;

Result

Do a project screen with bit button, one chart display object, and one Function key for switching screen

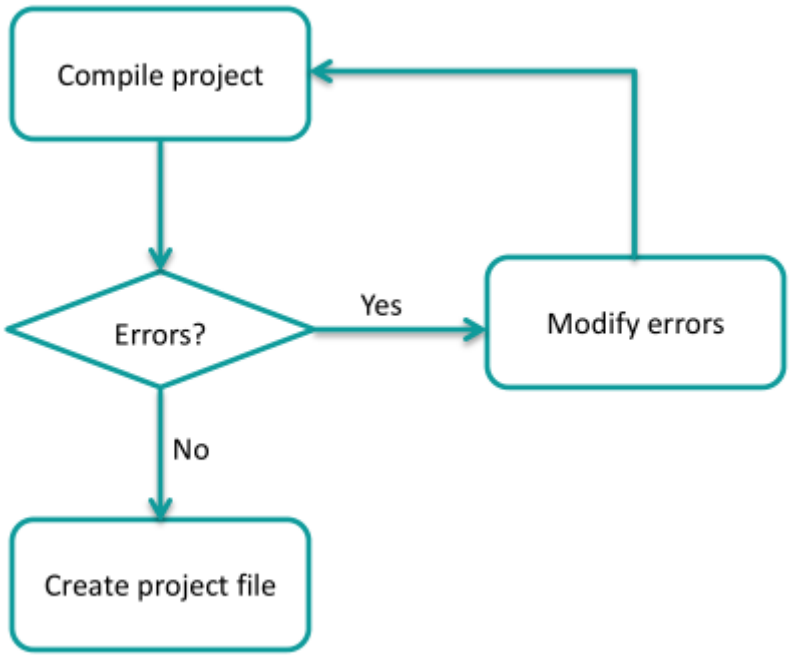
3.4 Compiling project

Introduction

This chapter provides information about the compiling project and a description of how to using compiling function and modify errors according to compiling outputs. Compiling project is the one of most important steps, it checks project, saves all settings and then creates project file.

General procedure

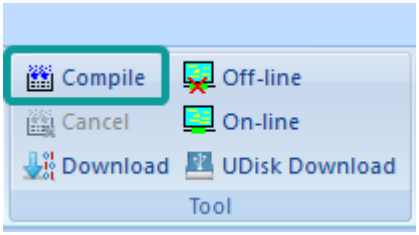
Users could use [HMIEditorP] to execute compiling, and check results in output windows. The follow procedure shows how compile a project.



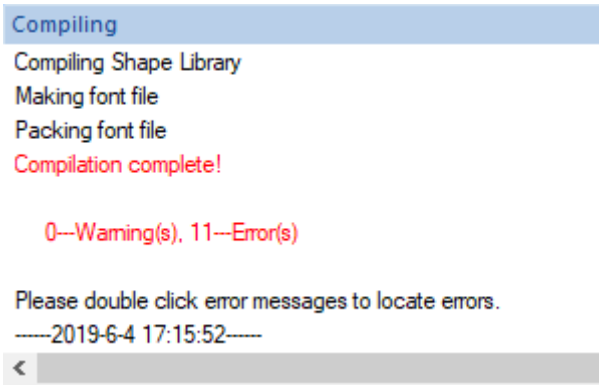
Users need to check the result, and modify errors. Project file is only created when compiling is successful.

Operating procedure

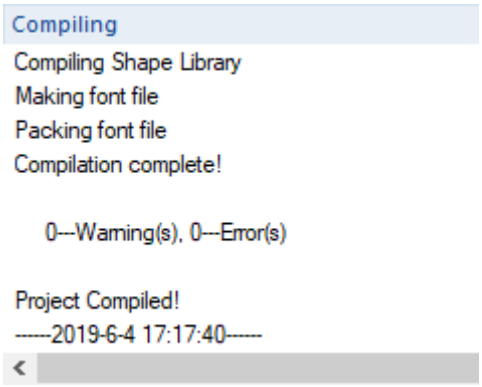
1) Finish project programming;
2) Click [Compile] button;



3) Check the compiling windows in below of software interface;



4) Check the information of error (in red);
5) Compile project again after modification;
6) Until get successful information of compilation;



Result

After compilation, HMIEditorP creates .wmt file for download.

3.5 Simulation

Introduction

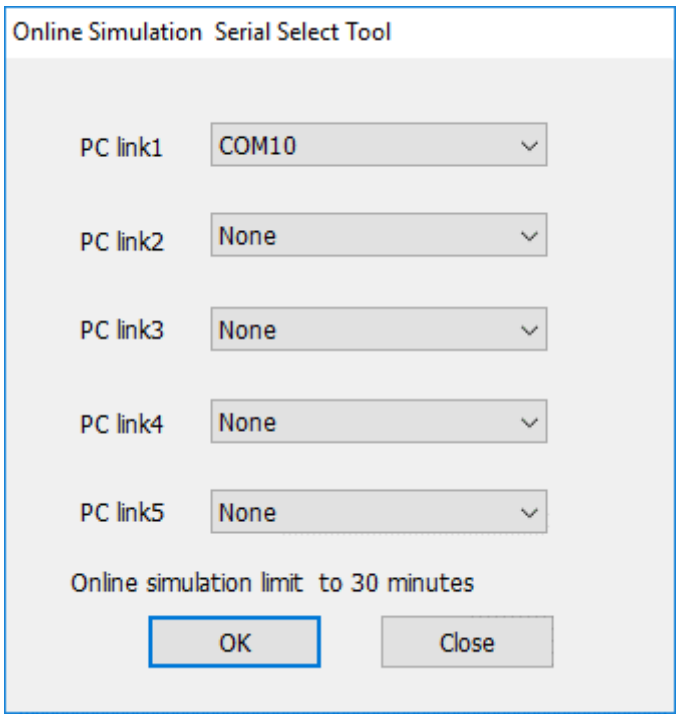
The following steps will show how to use simulator in HMIEditorP.

Operating procedure of offline simulation

1) Click [off-line] to open the simulation window;
2) Check HMI screen in window;

Operating procedure of online simulation

1) Click [on-line] to open [online simulation serial select tool];
2) Select COM port in PC for link;



3) Click [OK] to open simulation window;
4) Check HMI project in window

✎Note:

If HMI project uses Ethernet communication, no need selects any port in online simulation.

3.6 Download project

Introduction

This chapter provides information about the download project and a description of how to download project from PC to HMI device.

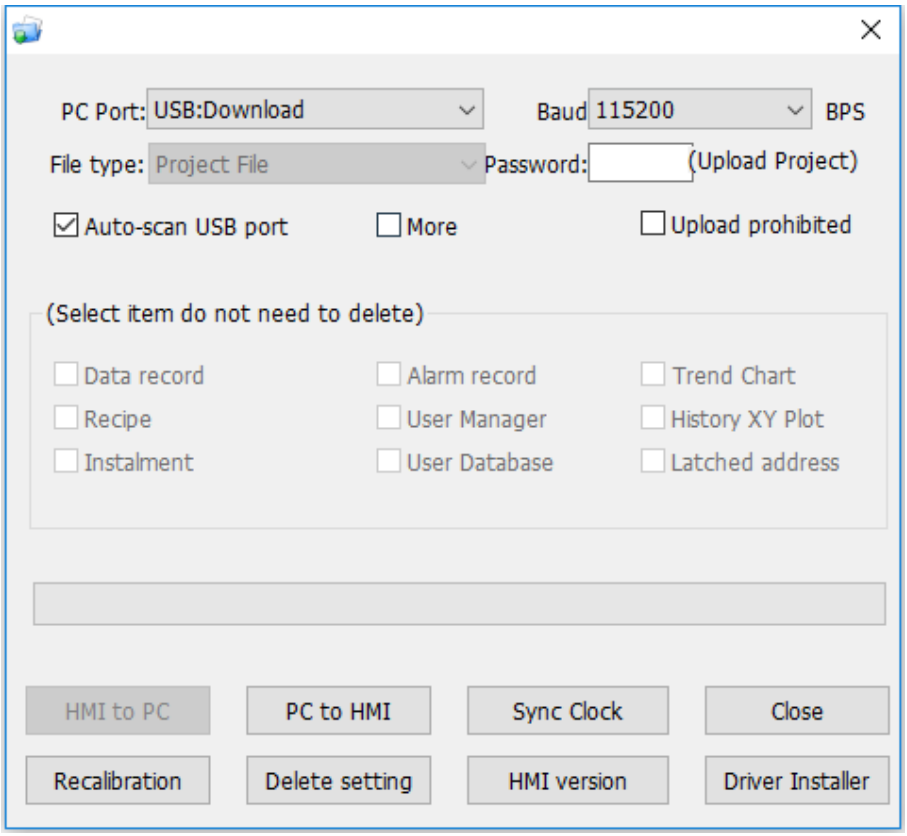
General procedure

Users could use [HMIEditorP] to execute download, also there is [Download.exe] for download. Users will need at least the following components to execute download.

- A .wmt file;
- HMI device;
- Programming cable or connect HMI to Local Area Network;

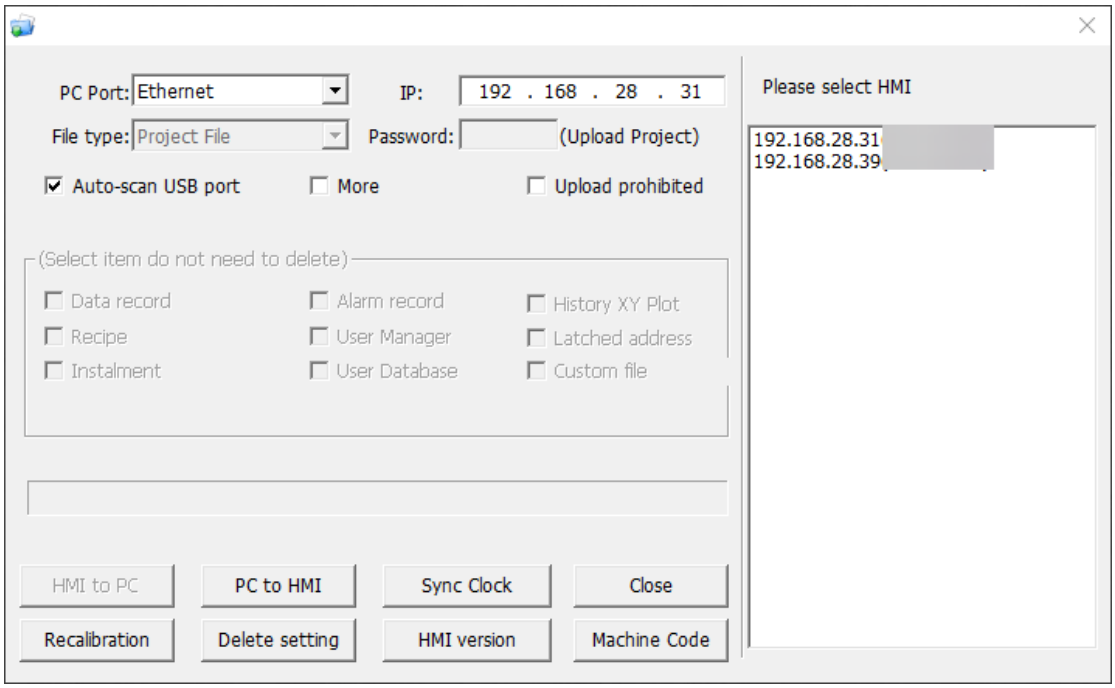
Operating procedure

1) Complete project programming and compile the project;
2) Connect HMI via USB programming cable;
3) Click the Download in toolbar;



4) Check the [PC Port] drop-list menu, if it shows [USB: Download], it means HMI is accessed by PC via USB download cable;

5) (Check the [PC Port] drop-list menu, select [Ethernet], and enter IP of HMI in [IP] enter bar)



6) Click [PC to HMI] button to execute project download;

Result

1) Download project file successfully;
2) HMI restarts;
3) HMI loads project;

4 Software Menu

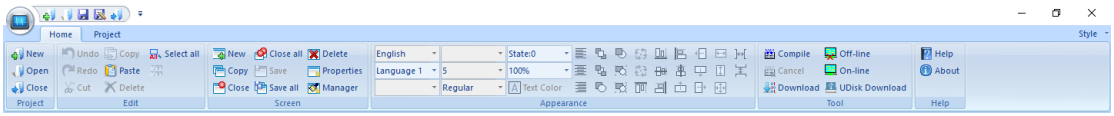
This chapter provides a precise introduction to HMIEditorP menu.

This chapter consists of the following section:

- Homepage menu
- Project menu
- Project screens menu

4.1 Homepage menu

This section introduces homepage menu functions, the homepage menu as following picture shows.



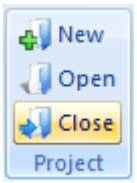
This section consists of following contents:

- Project
- Edit
- Screen
- Appearance
- Tool
- Help

4.1.1 Project

Introduction

[Project] toolbar provides basic operations for project files, this section introduces those functions in detailed.



Items	Description
New	Create a new project file, 3.1 Creating a project
Open	Open designated project;
Close	Close current project;

4.1.2 Edit

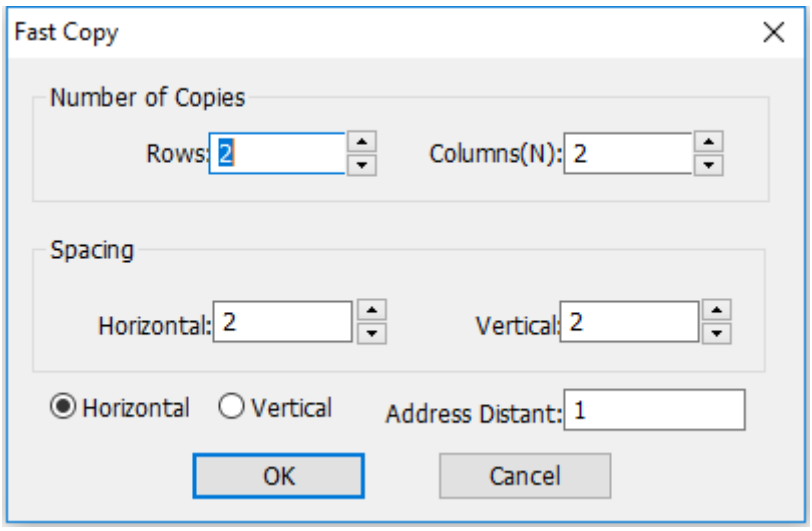
Introduction

This section provides the detailed induction of functions in toolbar menu.

Items	Description
Undo	Undo last action; it supports 10 actions;
Redo	Redo last action;
Cut	Remove the selected object (s) from the project screen and temporarily place it (them) on the clipboard;
Copy	Copy the selected object (s) from the project screen and temporarily place it (them) on the clipboard;
Paste	Place contents from clipboard to the project screen;
Delete	Remove the selected object (s) from the project screen;
Select All	Select all of the objects in the project screen.
Fast Copy	Select all of the objects in the project screen.

Operating procedure of Fast Copy

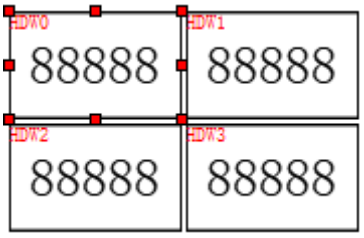
1) Selection object, for example using Numeric input/dislay(HDW0);
2) Click [ ], it will pop up [Fast Copy] setting window as following shows;



3) Configure number of copies, spacing in horizontal and vertical, and address interval;
4) Click [OK] to save and exit;

Result

It will create three objects and the address is from HDW1~HDW3, as following picture shows;



4.1.3 Screen

Introduction

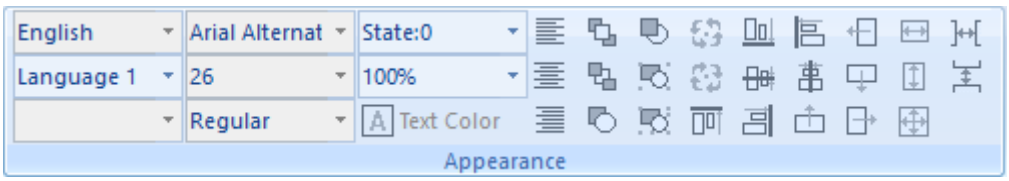
[Screen] toolbar provides functions for screen edit; this section introduces those functions in detailed.

Items	Description
New	Create a new screen, the screen number and name should be unique
Copy	Copy a new screen from another project or current project to the current project
Close	Close current screen
Close all	Close all screens displayed on the taskbar of the screen editing interface
Save	Save current screen modification
Save all	Save all screens modification
Delete	Delete current displayed screen
Properties	Pop-up [Screen Properties] window, it could edit screen properties
Manager	Pop-up [Screen Management] window, it could edit multiple screens' properties

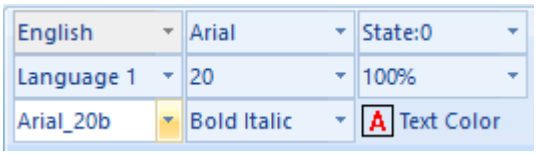
4.1.4 Appearance

Introduction

[Appearance] toolbar provides functions such as modifying object layout, object text fonts, etc. This section introduces those functions in detailed.



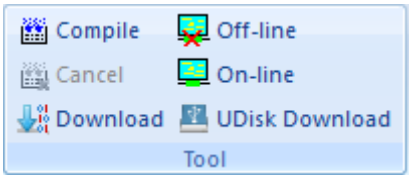
Items	Description

	Modify object text fonts and color
	Modify text layout in object, it provides three modes, align left, align center and align right
	Modify objects layout;

4.1.5 Tool

Introduction

[Tool] toolbar provides some tools for HMI project operation, like compile project, download project, offline, online and create USB download file, this section introduces those tools in detailed.

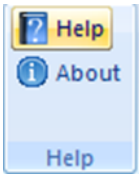


Items	Description
Compile	Compile current project and create .wmt file. 3.4 Compiling project
Cancel	Cancel the compilation of project
Download	Download HMI project from PC to HMI, the detailed operation please refer to 13.8 Download tool
Off-Line	Enable off-line simulator. 13.1 Offline Simulation
On-Line	Enable on-line simulator. 13.2 Online Simulation
UDisk Download	Enable [USB Flash disk download tool]. 13.3 USB flash disk download tool

4.1.6 Help

Introduction

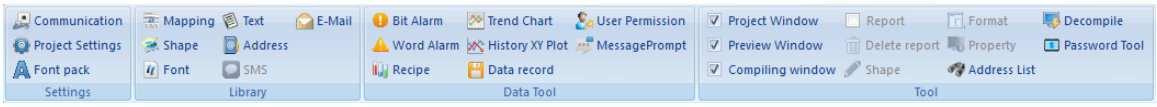
[Help] provides interface to the software help documentation and software version information.



Items	Description
Help	Help document about programming software
About	Programming software version information

4.2 Project menu

This section introduces project menu functions, the project menu as following picture shows.

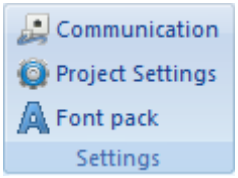


This section consists of following contents:

4.2.1 Settings

Introduction

[Settings] toolbar provides project settings, such as communication settings, project settings and font settings, this section will introduce how to use those functions.



Items	Description
Communication	Project communication settings 11. Communication
Project Settings	Project properties settings 5. Project setting
Font pack	Project font settings; 13.4 Font pack

4.2.2 Library

Introduction

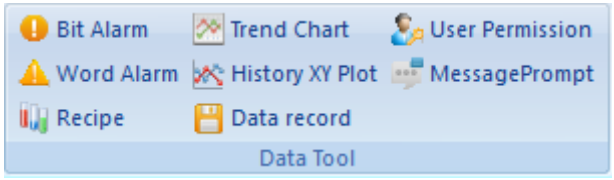
[Library] toolbar provides some library settings interface, such as text library, shape and other functions. The detailed introduction of those functions.

Items	Description
Mapping	Address mapping function 7.5 Address Mapping
Text	Set text library for HMI project 7.2 Text Library
E-mail	Set E-mail function 10.3 Email
Shape	Set shape (pictures) for HMI project 7.1 Shape
Address	Set address library for HMI project 7.3 Address Library
Font	Set font library for HMI project 7.4 Font Library

4.2.3 Data tool

Introduction

[Data tool] toolbar provides access for each data setting, users could click item to open configure windows;

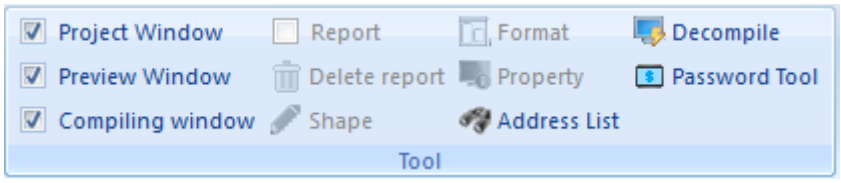


Item	Description
Bit alarm	Set bit alarm function 8.4.1 Bit Alarm
Word alarm	Set word alarm function 8.4.2 Word Alarm
Recipe	Set recipe function 8.5 Recipe
Trend chart	Set trend chart function 8.6 Trend Chart
History XY Plot	Set history XY Plot function 8.7 History XY Plot
Data record	Set data record function 8.3 Data Record
User Permission	Set user permission for HMI project 8.8 User Permission
MessagePrompt	Set message prompt for HMI 8.9 MessagePrompt

4.2.4 Tool

Introduction

[Tool] toolbar contains windows display settings, and other functions;

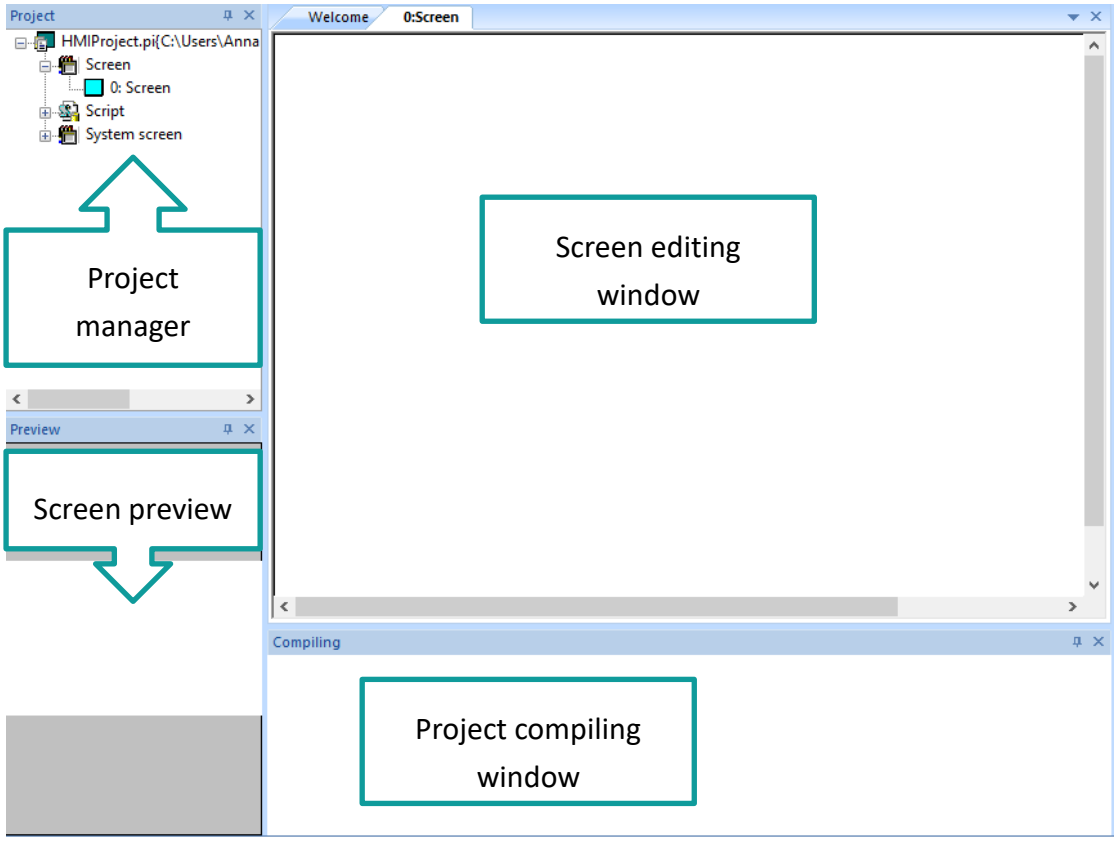


Items	Description
Project Window	Check it to display project window

Preview Window	Check it to display preview window
Compiling Window	Check it to display compiling window
Report	Check it to display report window
Delete report	Click it to delete converted report (LEVI to PI)
Shape	Click it to change selected object shape directly
Format	Click it to change selected object data format directly
Property	Click it to open selected object property window
Address list	Click it to open project address list 13.5 Address List
Decompile	Click it to open decompile tool 13.6 Decompile
Password Tool	Click it to open password tool 13.7 Password Tool

4.3 Project screens menu

This section introduces project screen menu functions, the project menu as following picture shows.



This section consists of following contents:

4.3.1 Project manager

Introduction

Project manager includes screen, script and system screen states, by double click the designated property to edit.

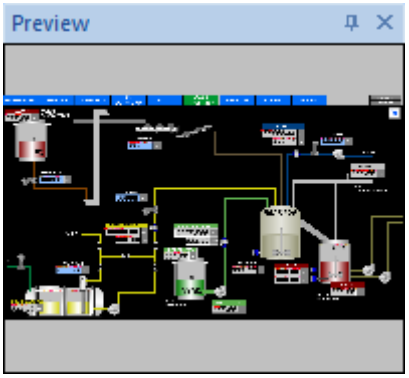
Description

1) Screen: all screens in current project are shown in the screen list.
2) Script: include global script and global function.
   - Background script: The scripts could run when project is running;
   - Background function: Background function is a form of code for using, it could be called in any script.
3) System screen: system sub-screen for keypad display.
   - Screen 1000: numerical input keypad
   - Screen 1001: text input keypad
   - Screen 1002: mutual screen, this screen will display on all other screens
   - Screen 1003: user login screen
   - Screen 1006: user login screen, include user name and password input
   - Screen 1007: password change screen
   - Screen 1008: installment payment password input screen
   - Screen 1009: installment payment alert screen
   - Screen 5001: timeout list
   - Screen 5002: Prompt message
   - Screen 5003: Format U_Disk
4) Screen editing: Choose the designated screen, then edit the parts and properties on this area.

4.3.2 Screen preview

Introduction

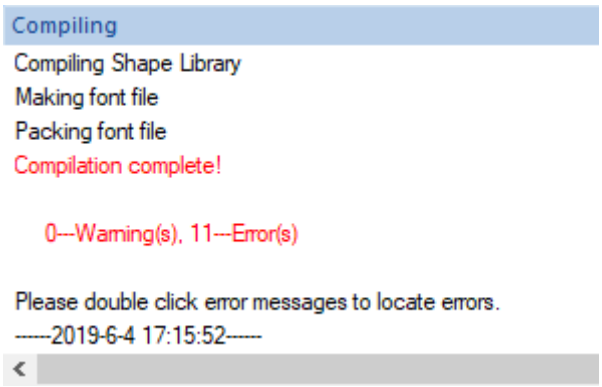
Preview could display the selected screen.



4.3.3 Compile window

Introduction

[Compile window] shows project compiling information, when an error occurs, it appears in a red font to make it easier for the user to notice the error information, and when double-clicking the error message, it automatically locates errors.

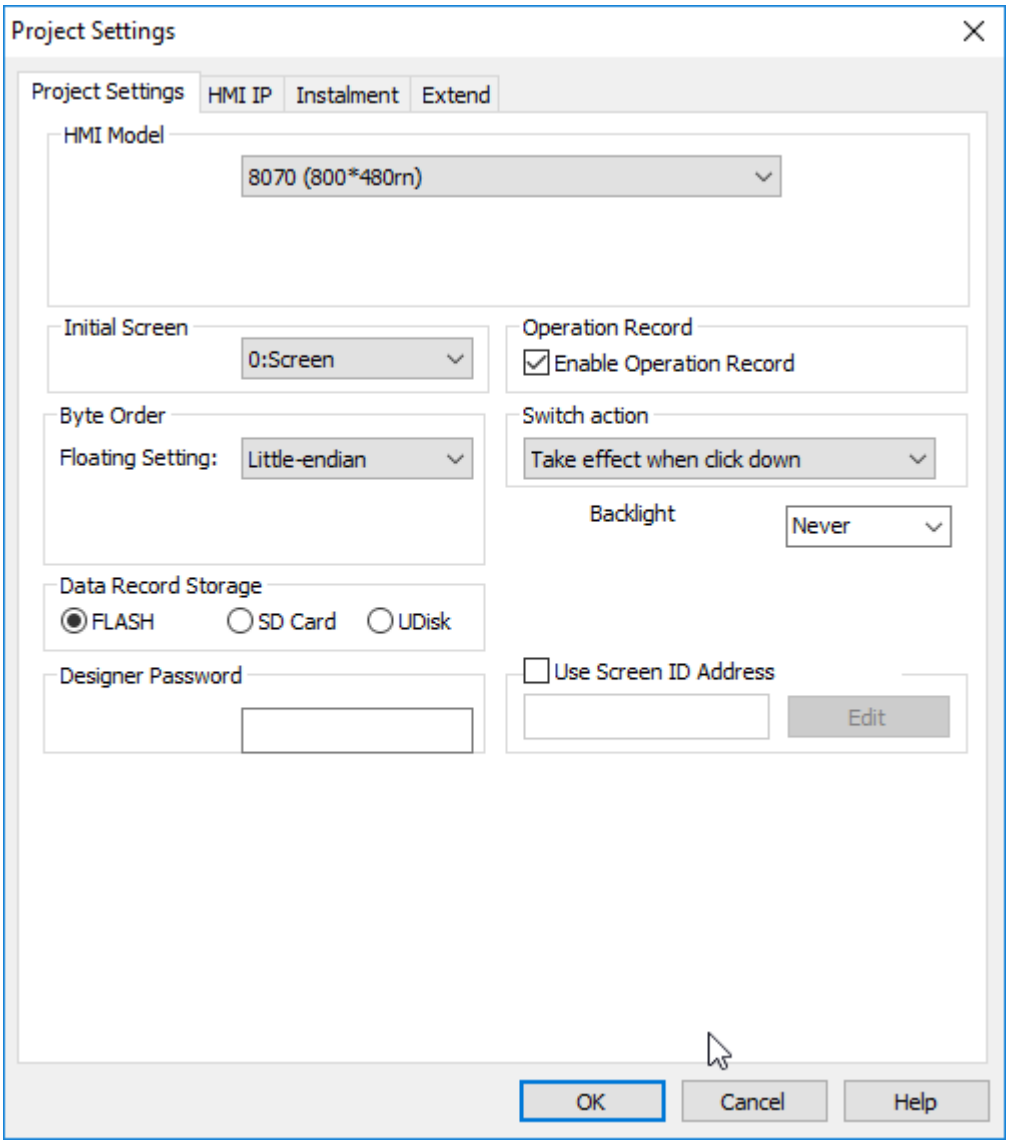


5 Project settings

Introduction

This chapter provides information about [Project setting]. [Project setting] contains four sub-screens, [Project setting], [HMI IP], [Instalment] and [Extend].

[Project settings] provides 15 settings for different functions. This chapter also introduces how to set parameters for project.

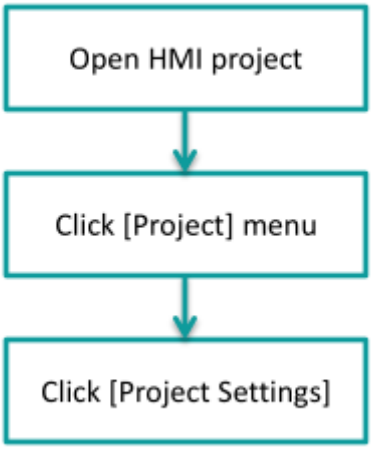


General procedure

Use the editor [Project setting] to configure the project parameters. Users will need at least the following component to configure the parameters.

- One project

The procedure of [Project settings] as below picture shows.



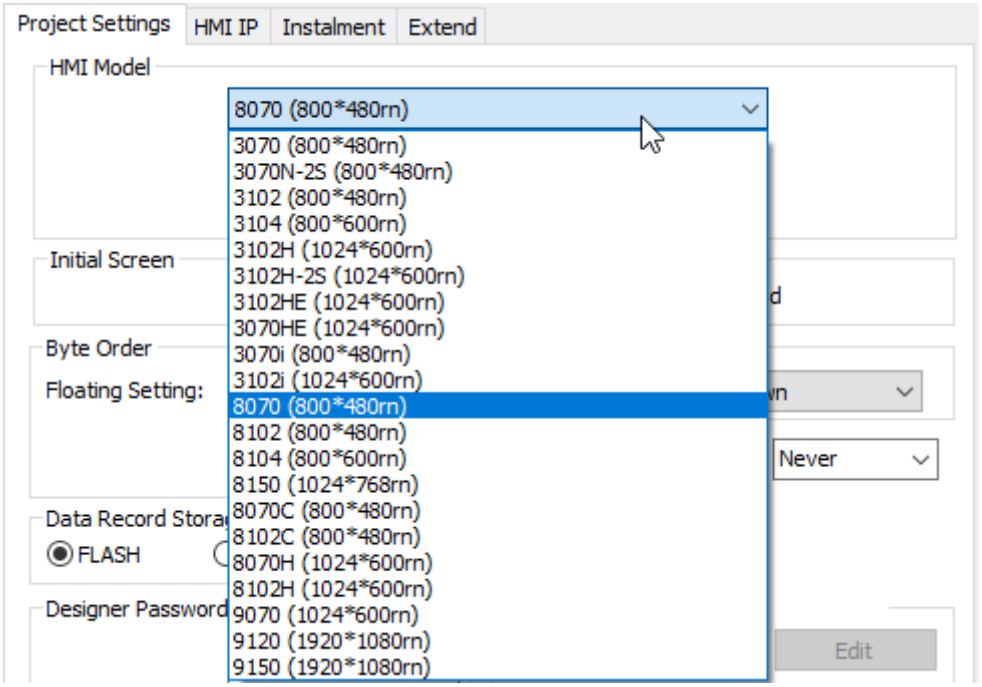
5.1 Project settings

5.1.1 HMI model

[HMI model] provides the function of modifying the HMI model to help the user switch the project to suit different models.

Operating procedure

1) Open [Project setting] windows;
2) Select HMI mode;



3) Click [OK] button to save setting and exit windows;

Result

HMI project adapts to the corresponding model.

5.1.2 Initial screen

Introduction

An HMI project could contain multiple screens, but only one of the screens could be displayed when the HMI is turned on. [Initial screen] provides the interface to user to set initial screen.

Operating procedure

1) Open [Project setting] windows;
2) Select initial screen in drop-list, use screen 2 as an example;

3) Click [OK] button to save setting and exit windows;

Result

When HMI boot up, the initial screen is screen 2.

5.1.3 Operation Record

Introduction

This setting needs to be used in conjunction with [User permission] function, which is valid only when [User permission] function is turned on. The default setting is checked. The detailed information of [User permission], please refer to software help document.

Result

When user permission function is enable, all the operations of every user will be recorded and the information will be displayed in object.

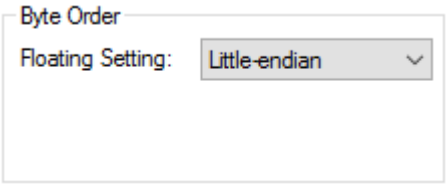
5.1.4 Byte Order

Introduction

Floating point is one of the commonly used data formats, and it is two-byte order mode. HMIEditorP provides the interface in [Project Settings] for setting the byte order. The default mode is Little-endian.

Operating procedure

1) Open [Project setting] windows;
2) Select [Little-endian] or [Big-endian] mode;



3) Click [OK] button to save setting and exit windows;

5.1.5 Switch action

Introduction

Some users have detailed requirements for the operation of the project; the [Switch action] provides the action trigger settings. There are two modes for actions. [Take effect when click down] and [Take effect when click up]. The default is [take effect when click down].

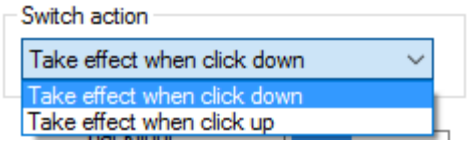
Explanation

Take effect when click down: the operation will be executed when pressing button;

Take effect when click up: the operation will be executed when releasing button;

Operating procedure

1) Open [Project setting] windows;
2) Select switch action mode;



3) Click [OK] button to save setting and exit windows;

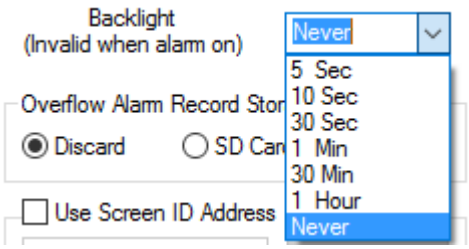
5.1.6 Backlight

Introduction

[Backlight] is for controlling LCD, after designated time of inactivity, HMI LCD will turn OFF automatically, but this setting will be invalid when alarm is ON. The default setting is never turning OFF LCD.

Operating procedure

1) Open [Project setting] windows;
2) Select time;



3) Click [OK] button to save setting and exit windows;

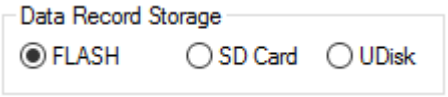
5.1.7 Data Record Storage

Introduction

This setting needs to be used in conjunction with [Data record] function, which is valid only when [Data record] function is effective. The default storage is [Flash]; the data record files will be saved in Flash. The detailed information of [data record], please refer to software help document.

Operating procedure

1) Open [Project setting] windows;
2) Select storage;



3) Click [OK] button to save setting and exit windows;

Result

All the data record files will be saved in setting storage

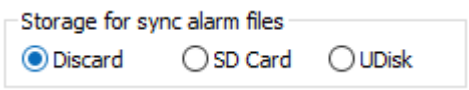
5.1.8 Storage for sync alarm files

Introduction

This setting needs to be used in conjunction with [Alarm] function, which is valid only when [Alarm] function is turned on. The default is [discard]; the alarm record files will be saved in Flash. The detailed information of [Alarm], please refer to software help document.

Operating procedure

1) Open [Project setting] windows;
2) Select storage;



3) Click [OK] button to save setting and exit windows;

5.1.9 Designer password

Introduction

[Designer Password] provides all the encryption functions of the HMI project, including upload and decompile operations. Also it affects the user permissions, installments and other functions.

[Designer Password] could well keep the project file from being cracked, also it is extremely important data, if the user set the password change, please do a good job of password backup, once lost it, the project will not be uploaded from the HMI to the computer, also nobody could decompile .wmt file without password.

Operating procedure

1) Open [Project setting] windows;
2) Enter password;
3) Click [OK] button to save setting and exit windows;

5.1.10 Use Screen ID Address

Introduction

[Use screen ID address] provides the function of controlling HMI screens by specific address' value. The address could be set by the user.

Operating procedure

1) Open [Project setting] windows;
2) Check [Use screen ID address];
3) Edit address;

4) Click [OK] button to save setting and exit windows;

Result

User HDW0 as an example:

If HDW0=0, HMI displays screen 0;

If HDW0=1, HMI displays screen 1;

…

5.1.11 Default Table Header

Introduction

There are some table display objects, such as data record table, alarm record table and so on, HMIEditorP provides two kinds of language for those tables header.

Operating procedure

1) Open [Project setting] windows;
2) Select language;
3) Click [OK] button to save setting and exit windows;

5.2 HMI IP

5.2.1 IP settings

Introduction

This is for setting HMI IP (also PI HMI could support DHCP mode). When enable DHCP mode, the setting is invalid.

There are system-special addresses for them, the detailed information of addresses, please refer to the help document.

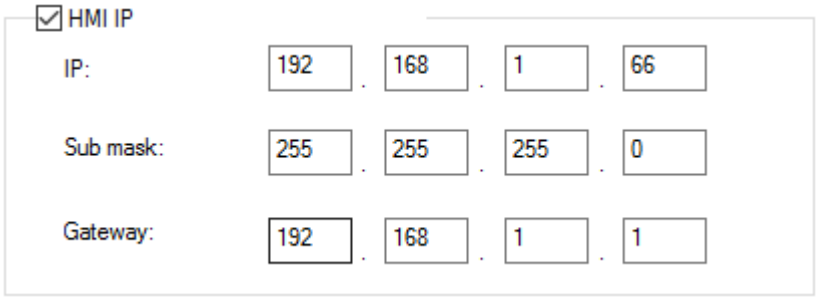
Operating procedure

1) Open [Project setting] windows;

2) Open [HMI IP] sub-windows;

3) Check [HMI IP];

4) Enter parameters;



5) Click [OK] button to save setting and exit windows;

5.2.2 Remote access password

Introduction

[Remote access password] is for 8000 & 9000 series HMI, the password is for remote function, when users use Smart APP on mobile or Cloud website on PC, which could access HMI screen remotely, the APP or website will require this password.

Operating procedure

1) Open [Project setting] windows;

2) Open [HMI IP] sub-windows;

3) Enter password;

4) Click [OK] button to save setting and exit windows;

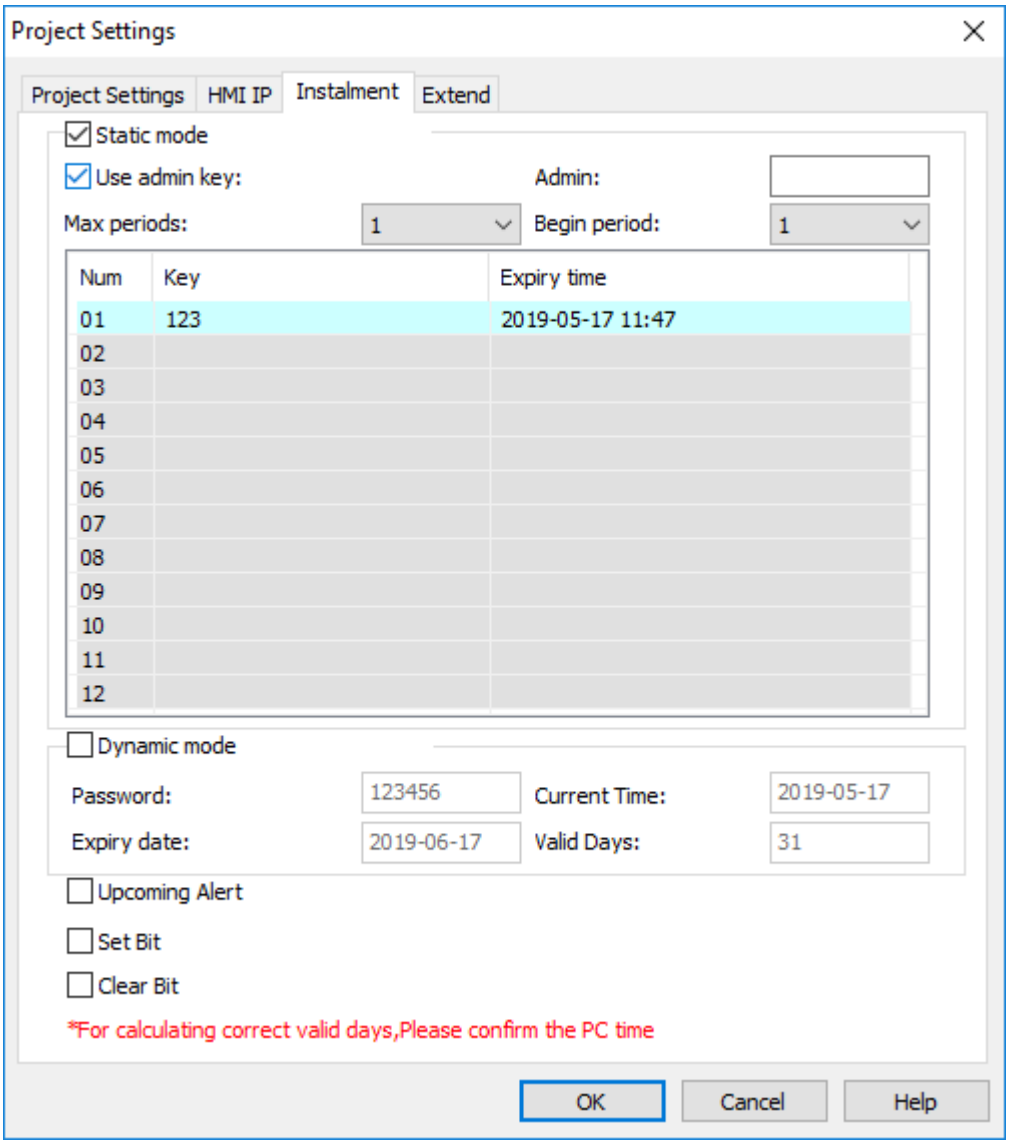
5.3 Installment

Introduction

[Installment] meets the needs of the designer or equipment manufacturer to provide the trial period to the end customer.

At the same time, it provides the function of installment charges to designers and equipment manufacturers. The expiration date could be defined by the user.

Operating procedure



1) Open [Project setting] windows;
2) Open [Instalment] sub-windows;
3) Select [Static mode] or [Dynamic mode];

4) Enter password, expire time and other parameters if necessary;
5) Click [OK] button to save setting and exit windows;

Result

At 17th May 2019, 11:47 HMI screen will be locked and ask enter password.

5.4 Extend

5.4.1 Into setup

Introduction

[Into setup] provides entering ways of the HMI setup interface and encrypting the setup screen;

Operating procedure of setting into setup way

1) Open [Project setting] windows;
2) Open [extend] sub-windows;
3) Select [Startup] or [Running];
4) Set [Time];

Result

1) If select [Startup] mode, and the [Time] is 5 seconds
   - When HMI is starting, holding press the top right corner of screen;
   - Keep press 5 seconds;
   - HMI will display setup screen;

2) If select [Running] mode, and the [Time] is 5 seconds
   - When HMI is running, holding press the top right corner of screen;
   - Keep press 5 seconds;
   - HMI will display setup screen;

Operating procedure of encrypting the setup

1) Open [Project setting] windows;
2) Open [extend] sub-windows;
3) Set password

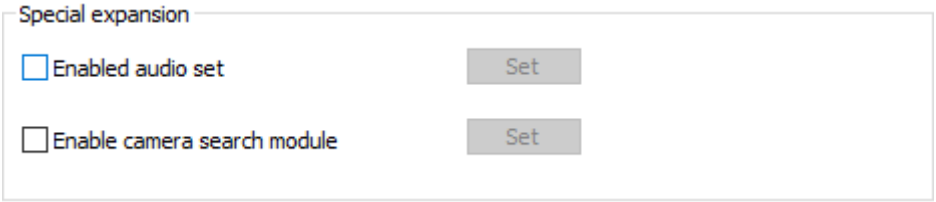
Result

Password is required during entering the setup screen;

5.4.2 Special expansion

Introduction

[Special expansion] is for extending audio play and camera input functions for special HMI models;



Operating procedure

1) Open [Project setting] windows;
2) Open [extend] sub-windows;
3) Check function;
4) Click [Set] button to open setting screen;
5) Do configuration for function;
6) Click [OK] to save and exist;

Result

Enable audio play function and camera function in HMI project;

✎Note:

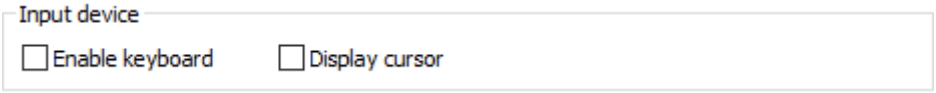
Those two functions are not available for all HMIs, only special HMI models could support them;

The details of function settings please refer to Advanced function;

5.4.3 Input device

Introduction

[Input device] is used for enable input devices, like keyboard and mouse.



Operating procedure

1) Open [Project setting] windows;
2) Open [extend] sub-windows;
3) Check [Enable keyboard] and [Display cursor]
4) Click [OK] to save and exist;

Result

The arrow will be display in screen when HMI is running, and keyboard could be used to enter code and control arrow;

5.5 Security

Introduction

Security means objects and screen security, but this function is only avaialble in 3000i series and 8000+ series;

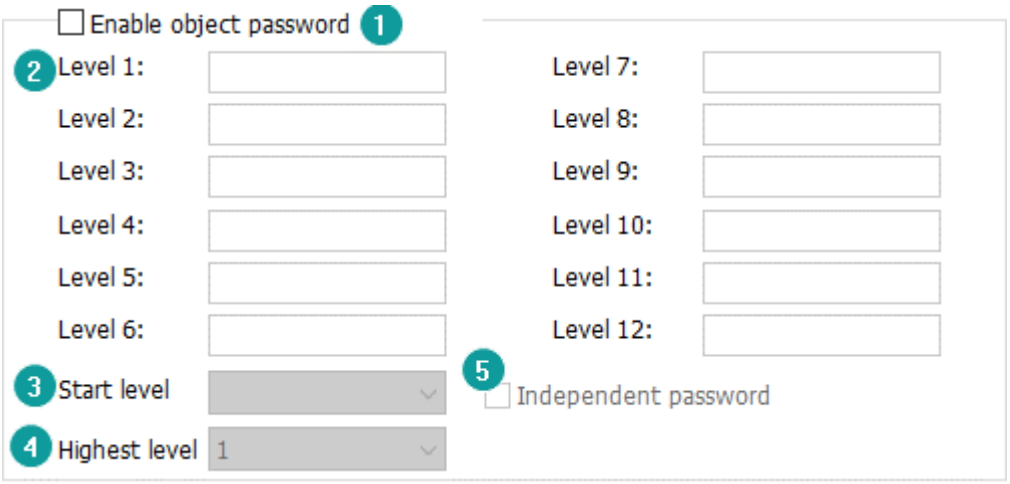
Only when object password is set, object password function could be used in object;

5.5.1 Objects password

Introduction

Users should type password to access the protected object. This could avoid some disoperation on object. There are 12 levels in object password setting, and each level corresponds to each password.

Description



1) **Enable object password:** Check it to enable object security function;
2) **Passwords for levels:** It is used for set password for every level, it is composed of numbers and letters (case sensitive)within 8 digits;
3) **Start level:** It is used for set initial level while this function is enbled;
4) **Highest level**: It is used for set how many levels of password could be used.
5) **Independent password:**

   Unchecked: Users should type the corresponding level password when unlocking each level of object, and the higher level password could unlock the lower level object.

   Checked: Users could only type the corresponding level password when unlocking each level of object.

✎Note:

1) Object level password could be enabled in [bit switch],[word switch],[function switch],[combination switch],[numeric input],[character input],[drop down list]

etc.

2) The configured password could not be empty, otherwise when users close the configuration screen ,there will be an error: [please set password for level].

3) If configured object password level is higher than highest password setting in project settings, there will be an error note during compiling: “the security level of this object is out of range! ”.Users need to set password level again to solve the problem.

5.5.2 Screen lock

Introduction

The screen lock function provides another way for the security of HMI operation. When clients do not perform any operation for a set period of time, the HMI screen would be locked, and the password is required when HMI is operated again.

Description

Screen lock: Check it to enable this function;

Password: this password is used for unlocking screen, it is composed of numbers and letters (case sensitive)within 8 digits.

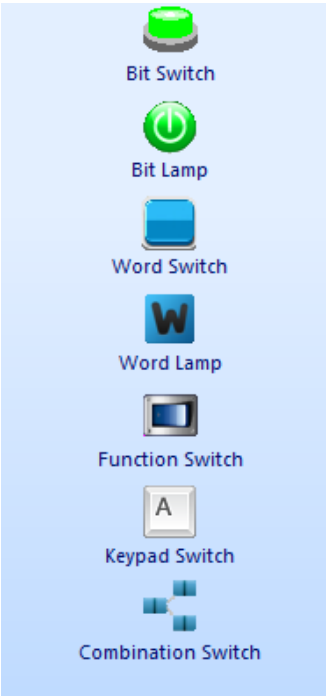
Lock time: It is used for setting time how long the screen will be locked if users do not operate, range:1-240 minutes(integer).

6 Objects

This chapter provides information about objects and a description of how to configure objects in HMIEditorP.

This chapter consists of the following section:

6.1 Button/Switch



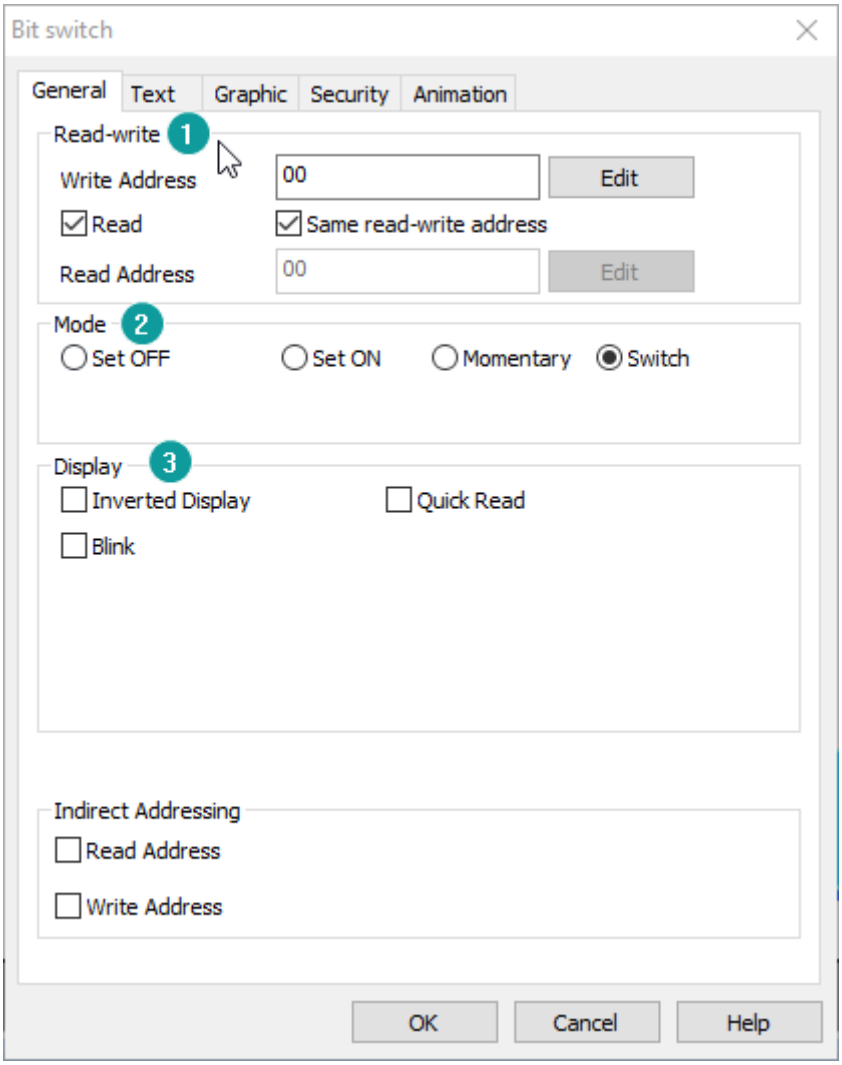
Different button has different function. Such as: Bit Switch; Bit lamp; Word Switch; Word lamp; Function Switch; Keypad Switch; Combination Switch.

6.1.1 Bit switch

Introduction

Bit switch is designed to access the bit-address of the PLC/HMI. When bit switch is triggered, the changing of [write address] depends on the mode setting. When [Read] option is selected, the [read address] is editable.

Description



1) Read-write

Write address: Bit switch controls PLC or HMI address.

Read address: Read and display PLC or HMI bit address state.

2) Mode

Set OFF: set off the write address;

Set ON: set on the write address;

Momentary: set on the write address when switch is pressed, set off when switch is released;

Delay: set off the write address after a delay; (*for example: assign the delay time as 5, write address will be set off after released 5 ms)

Switch: switch toggle between 0 and 1 each time the switch is triggered;

3) Display

Display inverted: Display the reversed state picture and text;

Blinking: Blinking while control bit is triggered, the frequency is editable;

Blink when ON: blink when control bit is ON;

Blink when OFF: blink when control bit is OFF;

Control Bit: it is effective when blink is ON;

6.1.2 Bit lamp

Introduction

[Bit lamp] could monitor and display the specified PLC or HMI bit address, and its state changes according to the specified address value.

Description

1) Address

[Read Address] is for setting specified PLC or HMI bit address;

2) Hide

Display inverted: Display reverse state of the picture and text. *for example, the value of write address is set ON, the OFF mode is displayed.

Blinking: Blinking while control bit is triggered, the frequency is editable;

Blink when ON: blink when control bit is ON;

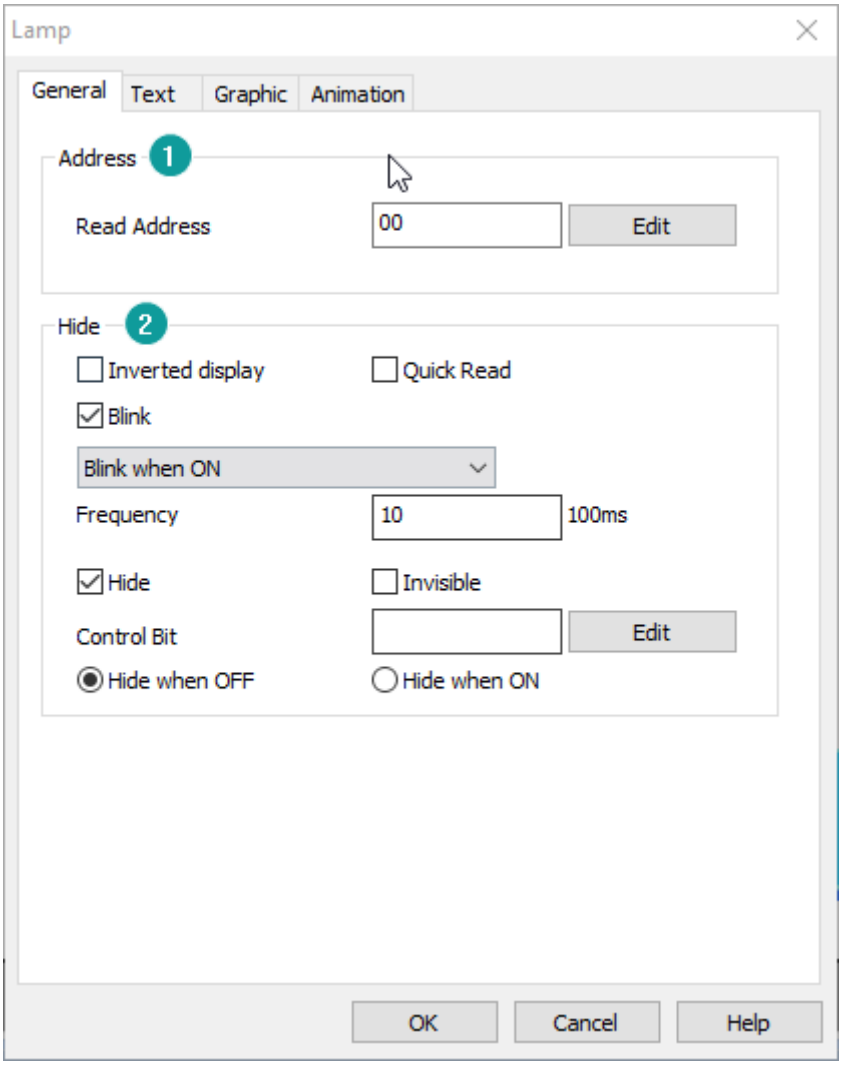
Blink when OFF: blink when control bit is OFF;

Hide: Display or hide object by [Control Bit] state

Control bit: For hide control;

Hide mode: hide when OFF; hide when ON; it could not operate if [Invisible] is checked.

Invisible: object keeps hidden during project running.

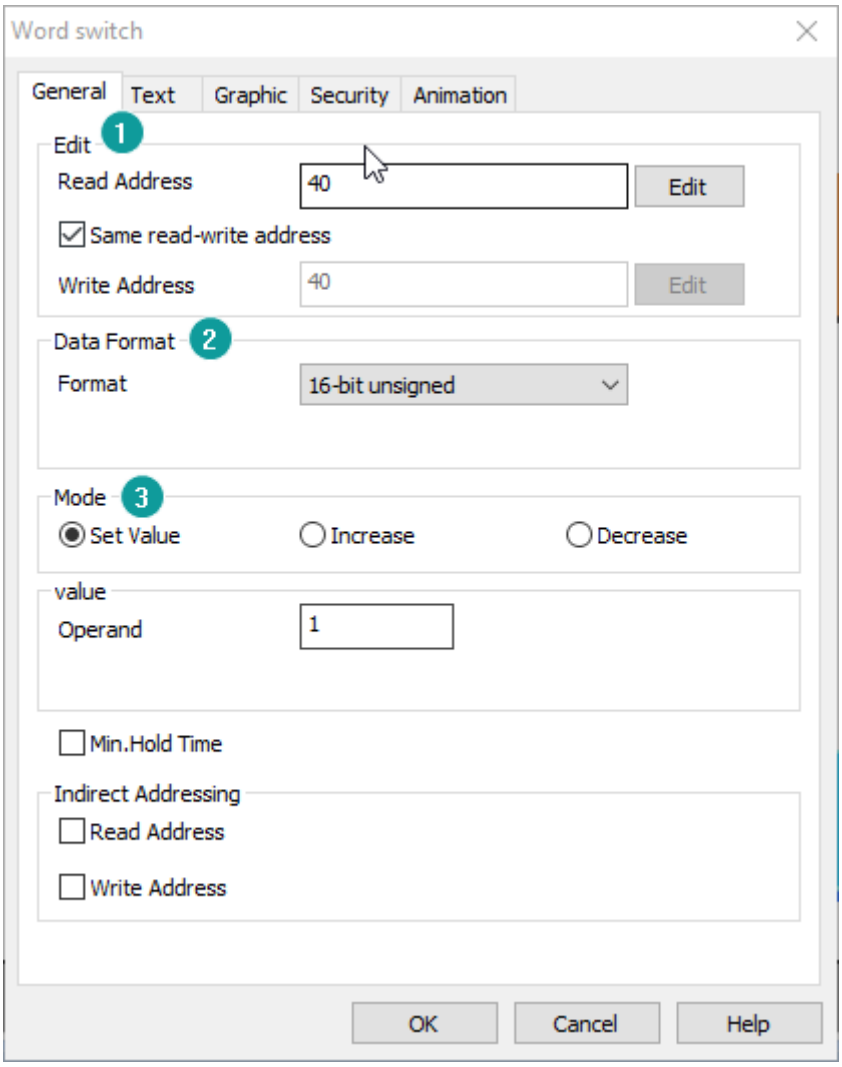


6.1.3 Word switch

Introduction

[Word switch] could change value of specified PLC or HMI word address, when the switch is triggered the value will be written to specified address.

Description



1) Edit

Read address: Read value from specified address;

Write address: Write value to specified address;

Read and write address could be the same;

2) Data format

Format: It is for setting operating data format; it could support six modes;

3) Mode

[Mode] is for setting operating mode for value, it could support 3 modes;

Set value: Set a constant value for the word address.

Increase: Increase the [operand] value for each time the switch is triggered.

Decrease: Decrease the [operand] value for each time the switch is triggered.

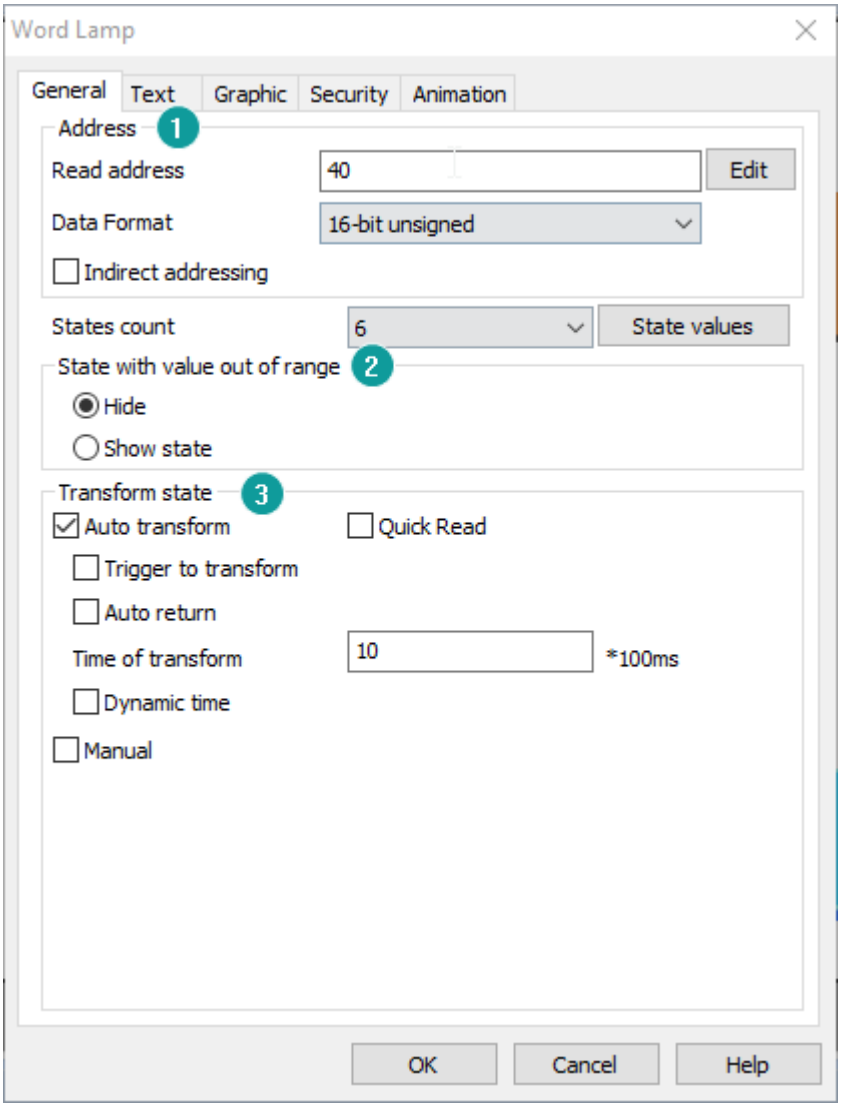
High/Low limit: The value will not increase/decrease when the value reaches limits.

6.1.4 Word lamp

Introduction

[Word lamp] could display value of specified PLC or HMI word address, the display state of the component changes as the value of the read address changes.

Description



1) Address

Read address: read the value from specified address.

2) States settings

States count: The default Word state displays the number of States 1, which could be selected by the drop-down list to display the state of object, range: 1-128.

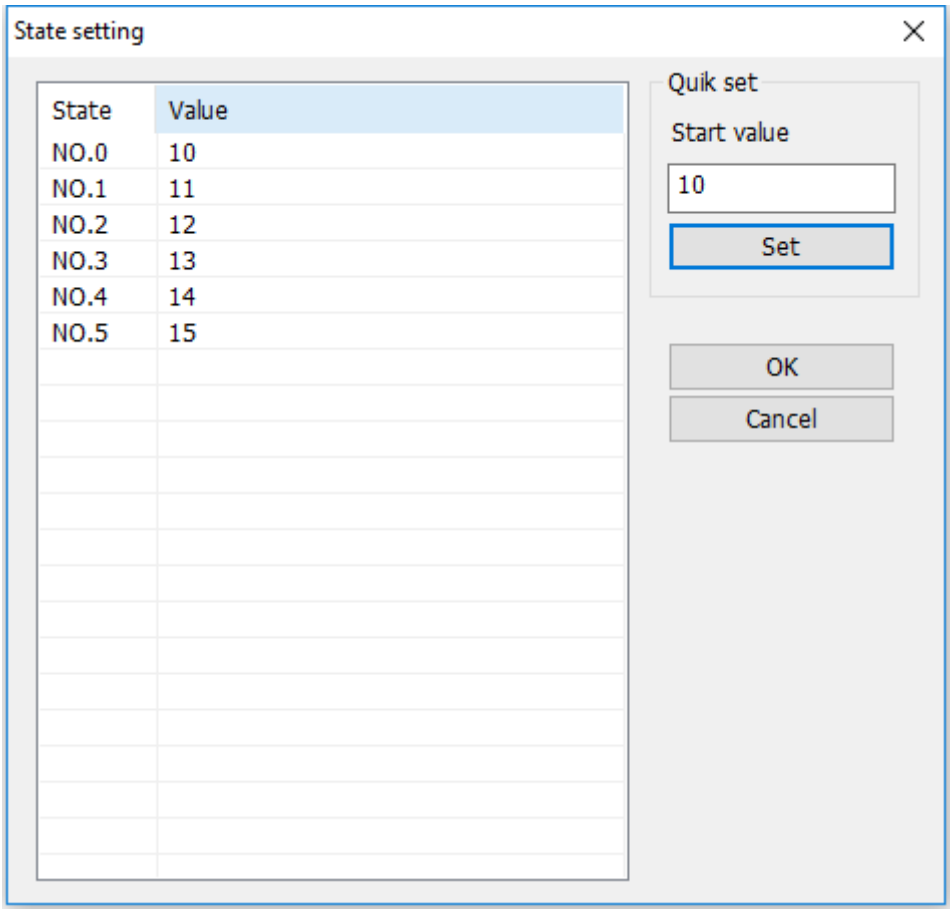
State value: Users could set different values to correspond to different states, the setting window as below figure shows.

For example

By default, when value of read address is 0, object displays state 0.

If change settings as below figure shows

When value of read address is 11, object displays state 1.



State of value out of range: When the value of read address exceeds the maximum state number, there is no corresponding state to be displayed. So there are two modes of processing for it: "Hide" and "Show state"

Hide: When the value of the read address exceeds the set range value, the word state display object will be blank.

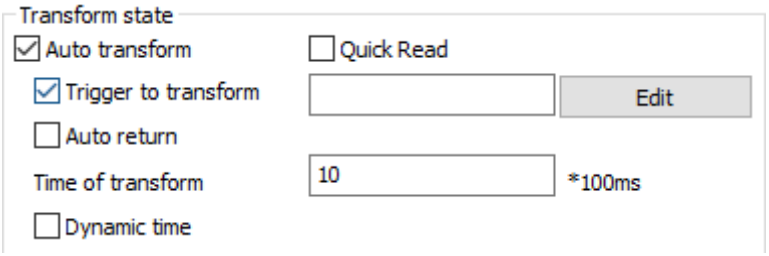
Show state: When the value of the read address exceeds the set range value,

the object will display the "Specified state". For example, set the maximum is state 7 (value is 6), when the read address of the value is greater than 6, it will display state 2 text and pictures.

3) Transform state

Quick Read: Directly read the value of the connected device without going through the HMI cache

Auto transforms: Object switch states automatically



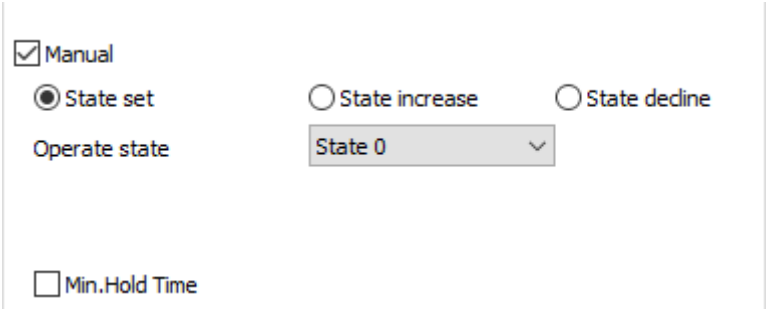
Trigger: Control bit to enable switch automatically

Auto return: return to the initial state after reaching the final state;

Time of transform: it is used for setting the frequency in automatic switching state. Unit: 100ms.

Dynamic interval: set the frequency of automatic switching state and read it from the address. Unit: 100ms. If the value in address is 10, then the frequency of automatic switching state is 10*100ms = 1s.

Manual



Set state: Set a constant value for the word address.

State increase: Increase state for each time the switch is triggered.

State decrease: Decrease state for each time the switch is triggered.

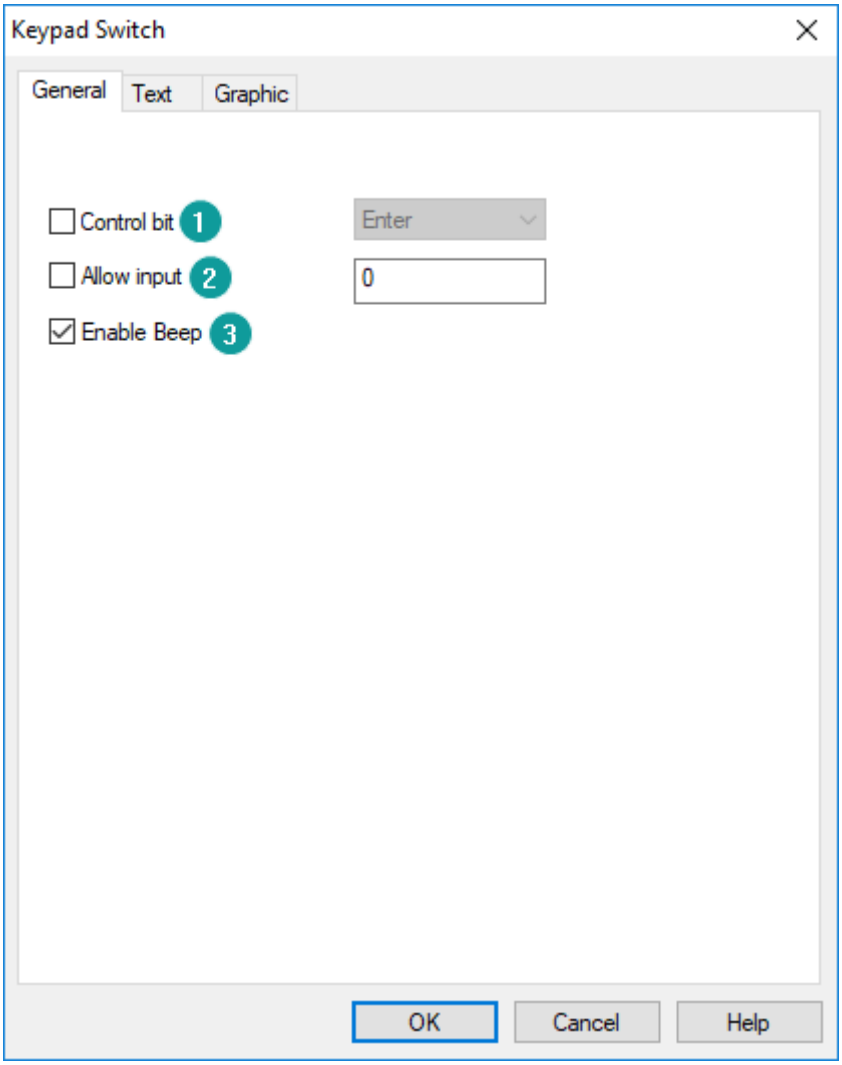
Last state: The state will not increase/decrease when reaches limits.

6.1.5 Keypad switch

Introduction

Keypad switch is designed to input data manually; this object need to work with the Keypad. User could assign letters or numbers for each switch, when the switch is triggered the data will input to the textbox.

Description



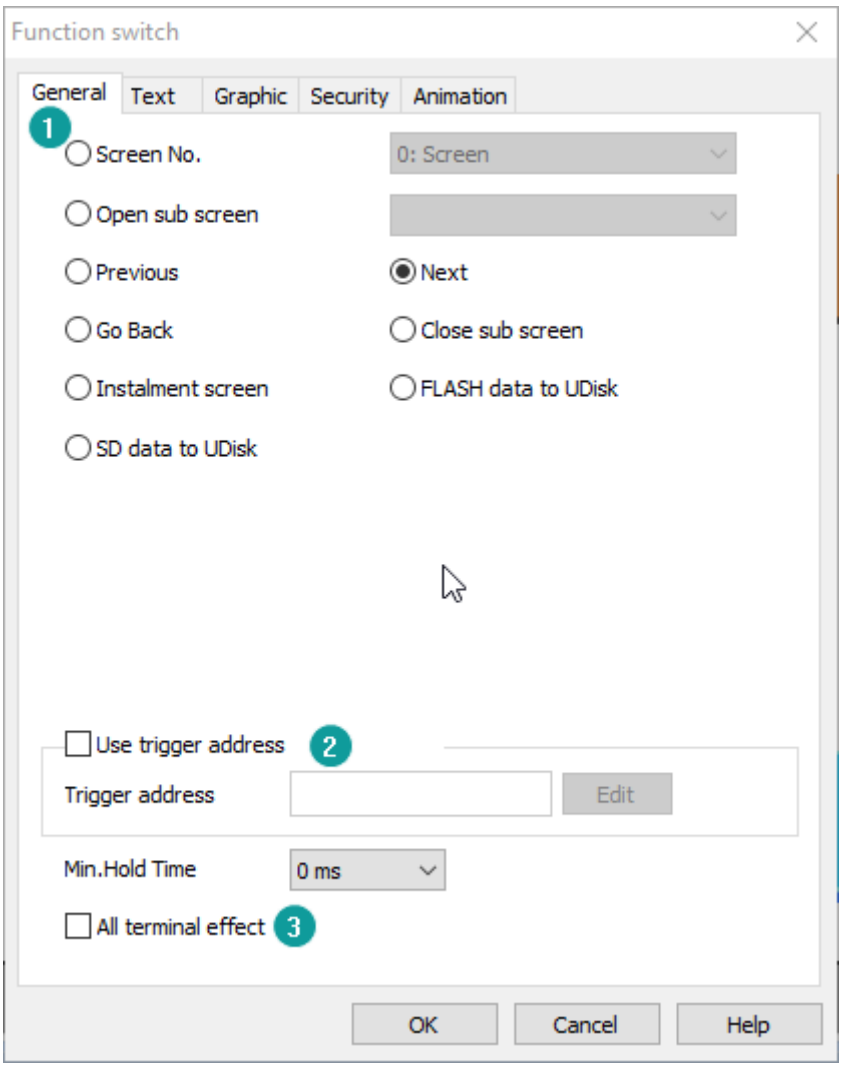
1) **Control bit:** This is for control operation, such as [Enter], [Delete], [Space], [Esc] and so on;
2) **Allow input:** It supports input with ASCII character;
3) **Enable Beep:** It is for beep function, enable or disable;

6.1.6 Function switch

Introduction

Function switch is designed to switch screens, and call and close sub screen, and transfer data record files.

Description



1) Operation

Screen No.: Switch to the selected screen, it could not be sub screen;

Open sub screen: Pop-up selected sub screen, and set sub screen position, default

position is (0, 0), this is the coordinates of the top left corner of the screen;

Previous: Switch to the previous screen in the screen list;

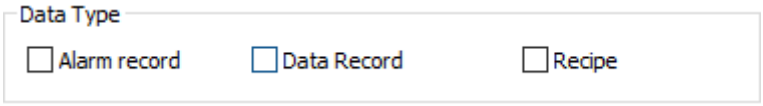
Next: Switch to the next screen in the screen list;

Go back: Switch to the previous operating screen;

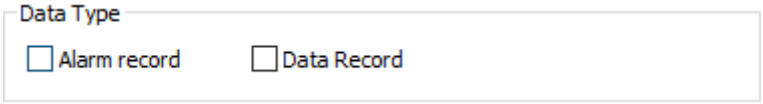
Close sub screen: Close current sub screen;

Instalment screen: Pop-up instalment setting screen, only valid when the instalment is enabled;

Flash data to Udisk: Copy data file from HMI Flash to Udisk, alarm, data record and recipe files could be copied;



SD data to Udisk: Copy data file from SD card to Udisk, alarm and data record files could be copied;



2) Using trigger address

As the figure above, when 00 is ON, then selected operation of the function switch will be executed.

3) All terminals effect

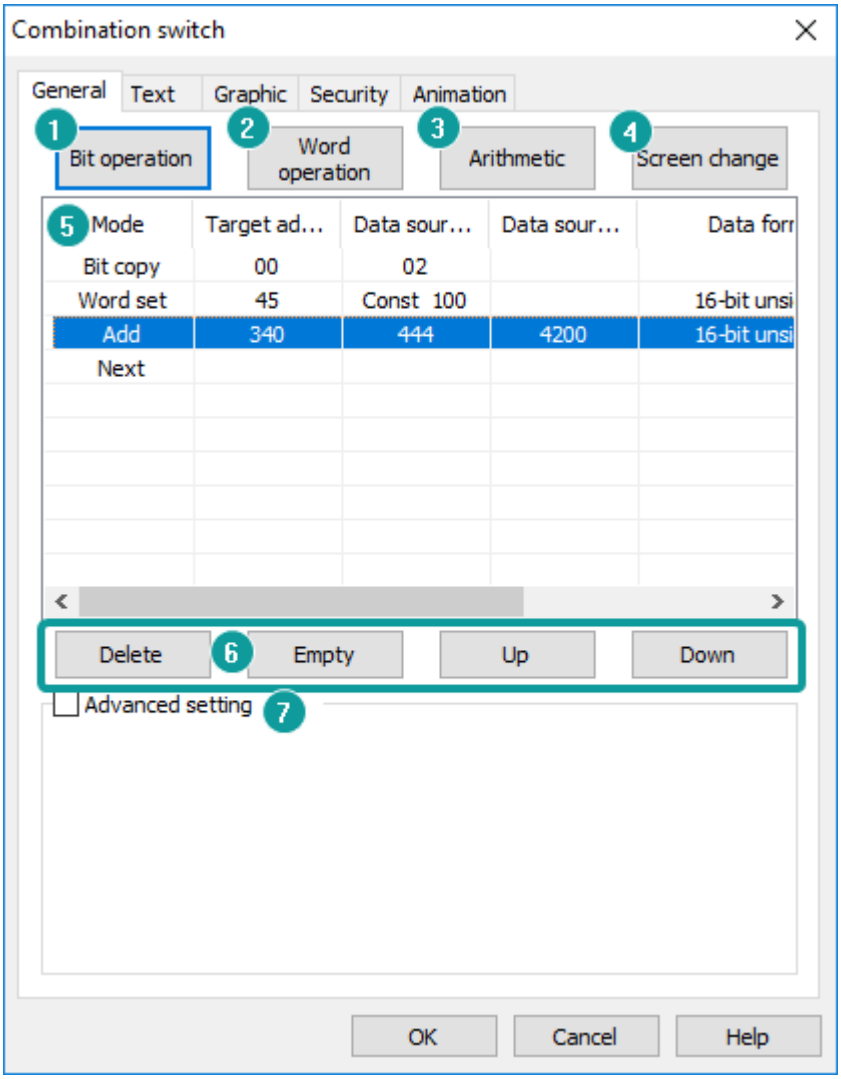
When this function is enabled, all terminals (screen, phone, iPad, PC, etc.) will perform the function of the function switch simultaneously. For example, each terminal displays different screens. When click “Home” switch to jump to the "Home" screen, all the terminals will display home screen.

6.1.7 Combination switch

Introduction

The combination switch supports the collection of multiple functions onto one object. When the object is pressed, multiple functions are arranged in sequence to meet the special requirements of user.

Description

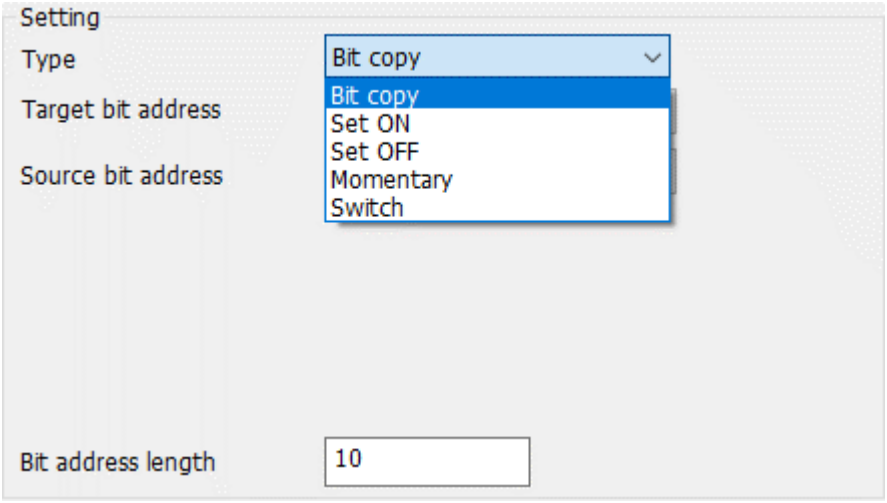


1) Bit operation

It provides [Bit copy], [Set ON], [Set OFF], [Momentary] and [Switch] functions, and it could operate continuous bit addresses according to setting length, and the maximum length is 2048 bits.

Bit address length: The length of operated addresses;

Example: [Target bit address] is 00, [Type] is Set ON, the length is 3, when press the button, the 00~02 will be ON.



2) Word operation

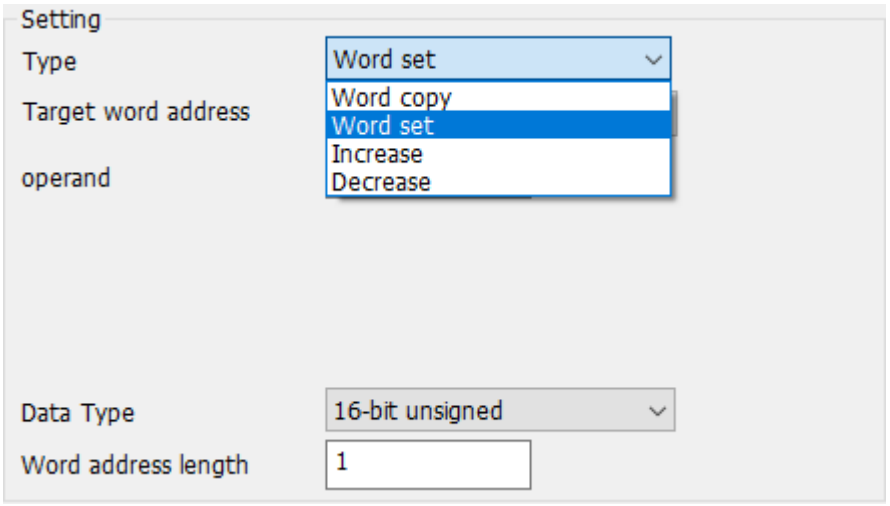
It provides [Word copy], [Word set], [Increase] and [Decrease] functions, it could operate maximum 2048 word addresses, and the operating length will be changed according to data formats.

If data format is 16-bit signed (unsigned), the operation address is the source address 0~source address +2048;

If data format is 32-bit signed (unsigned), the operation address is the source address 0~source address +4096;

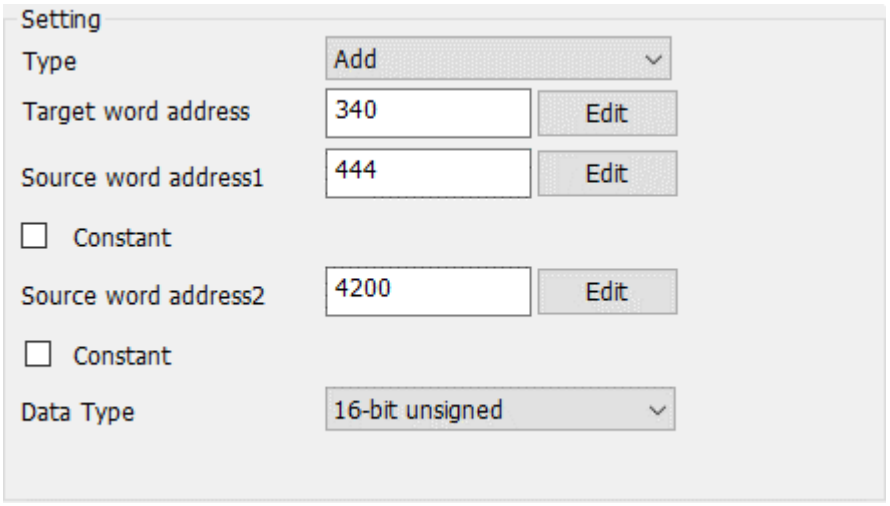
Word addresses length: The length of operated addresses;

Example: [Target word address] is 40, [Type] is Set 10, the length is 3, when press the button, the 40~42 will be 10.



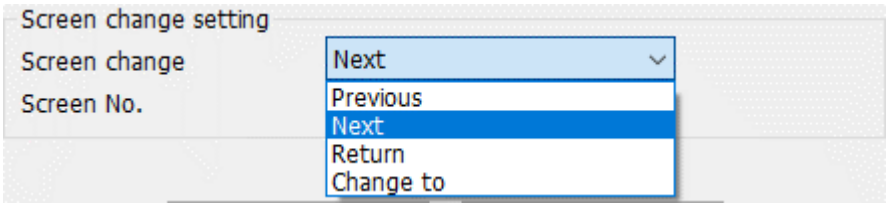
3) Arithmetic

It provides [Add], [Subtract], [Multiply], [Divide], [Mod] and [Power] functions.



4) Screen change

It provides screen switch function as [Function Switch], it supports [Previous], [Next], [Return] and [Change to] operations.



5) Operations list

[Operations list] displays all operations, HMI will execute operations in order, but

[screen switch] will be listed as the last execution item directly.

6) Operation button

Delete: Delete selected item function;

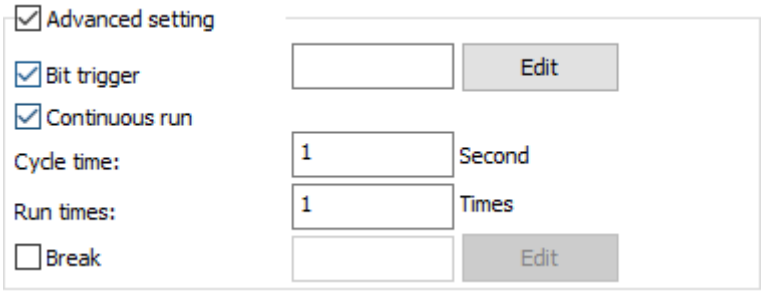
Empty: Delete all items in operation list;

Up: Move the selected item up one row in operation list;

Down: Move the selected item down one row in operation list;

7) Advanced setting

Control the whole combination switch configuration.



Bit trigger: it controls sub-function option of combination switch configuration by trigger address is ON;

Continuous run: it executes each sub-function according to [Cycle time] and [Run times];

Cycle time: Interval between sub-functions execute once with next time;

Run times: Configuration function execute times. 0 means unlimited times;

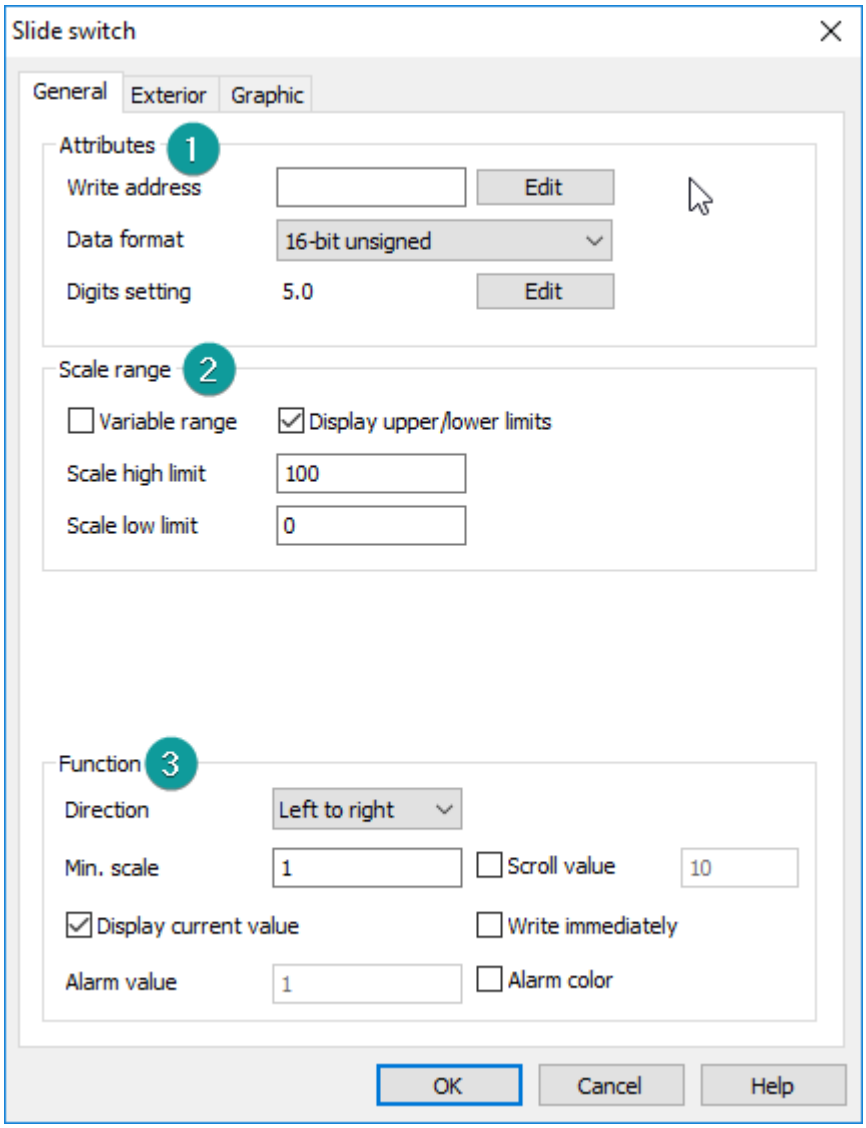
Break: Stop executing sub-function when trigger address is ON;

6.1.8 Slider switch

Introduction

Slide switch is a special switch object. By changing the position of the slider, the corresponding address value would be changed. At the same time, the slider position will change according to the address value.

Description



1) Attributes:

Write address: The address needs to be written and monitored

Data format: Support 16-bit signed / unsigned decimal number, 32-bit signed / unsigned decimal number, floating number is not supported.

2) Scale range:

Upper/lower limit: The range of data that can be manipulated by the slider. The value is scaled according to the decimal place of the data format.

Variable range: When this function is checked, the value of the filling address will be used as the upper and lower limits of the scale.

Display upper/lower limit: When this function is checked, the upper and lower limit data will be displayed in the slide switch.

3) Function:

Direction: The slide switch provides four directions: from top to bottom, bottom to top, left to right, and right to left.

Min. scale: The minimum scale unit when the slider is moved. The value is scaled according to the format. (Need to drag to move)

Scroll value: The smallest unit of scale when the slider is moved. This value is scaled according to the format. (Need to drag to move)

Write address: Display current value: Show the current value of the device address above the slider

Write immediately : Write the value of the slide switch during the sliding process to the device address in real time

Alarm value: input the alarm value

Alarm color : When “Alarm color” is ticked off, and the value of the device address reaches "Alarm value", the foreground color of the slide switch will be displayed as a warning color.

✎ **Note:** Setting the number of decimal place will scale the data range in the data format and it is valid for all kind data formats

4) Slide rail

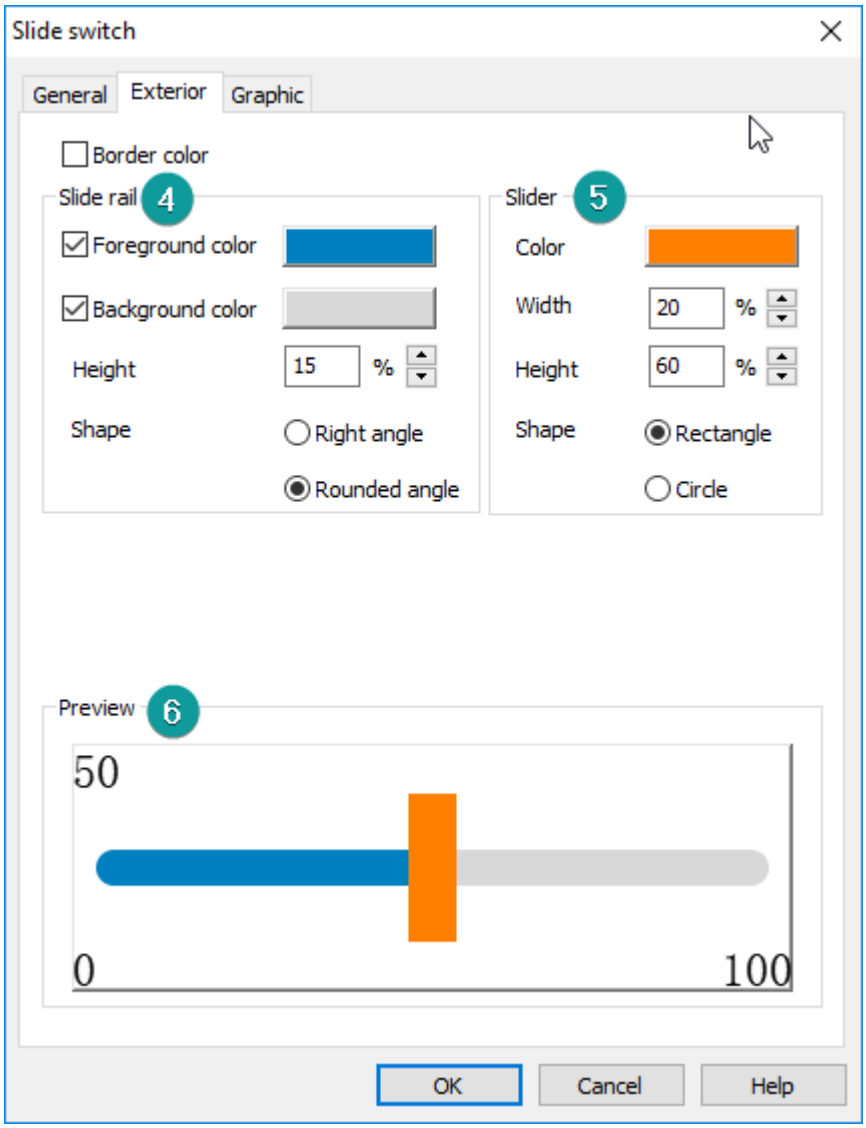
Border color: Tick off to display the border color

Foreground color: The color of the slide rail where the slider slides over. If not checked, the color will be displayed transparently

Background color: The color of the slide rail where the slider does not slide over. If it is not checked, it will be displayed transparently.

Height: slide rail height

Shape: Set the style (right or rounded angle) of the rails



5) Slider

Color: Tick off to display the slider color, otherwise it is displayed transparently.

Shape: Set the slider style (square or circle).

When circle is selected, need to set the diameter of the slider.

When square is selected, need to set the height and width of the slider.

The width, height and diameter of the slide rail and slider are displayed as a percentage relative to the height of the object.

a) When the slide rail is displayed horizontally:

- The height of the slide rail is displayed as a percentage of the height of the object;
- The diameter of the circular slider is displayed as a percentage of the

height of the object, and it is recommended that the diameter of the slider be greater than or equal to 2 times the height of the slide rail;

- The width and height of the square slider are displayed as a percentage of the height of the part, and it is recommended that the width of the slider should be greater than or equal to the height of the slide rail.

b) When the rails are displayed vertically:

- The height of the slide rail is displayed as a percentage of the width of the part;
- The diameter of the circular slider is displayed as a percentage of the width of the object, and it is recommended that the diameter of the slider should be greater than or equal to 2 times the width of the slide rail;
- The width and height of the square slider are displayed as a percentage of the width of the object, and it is recommended that the width of the slider should be greater than or equal to the width of the slide rail.

6) Preview

Display the setting result of slider switch.

6.2 Input/Display

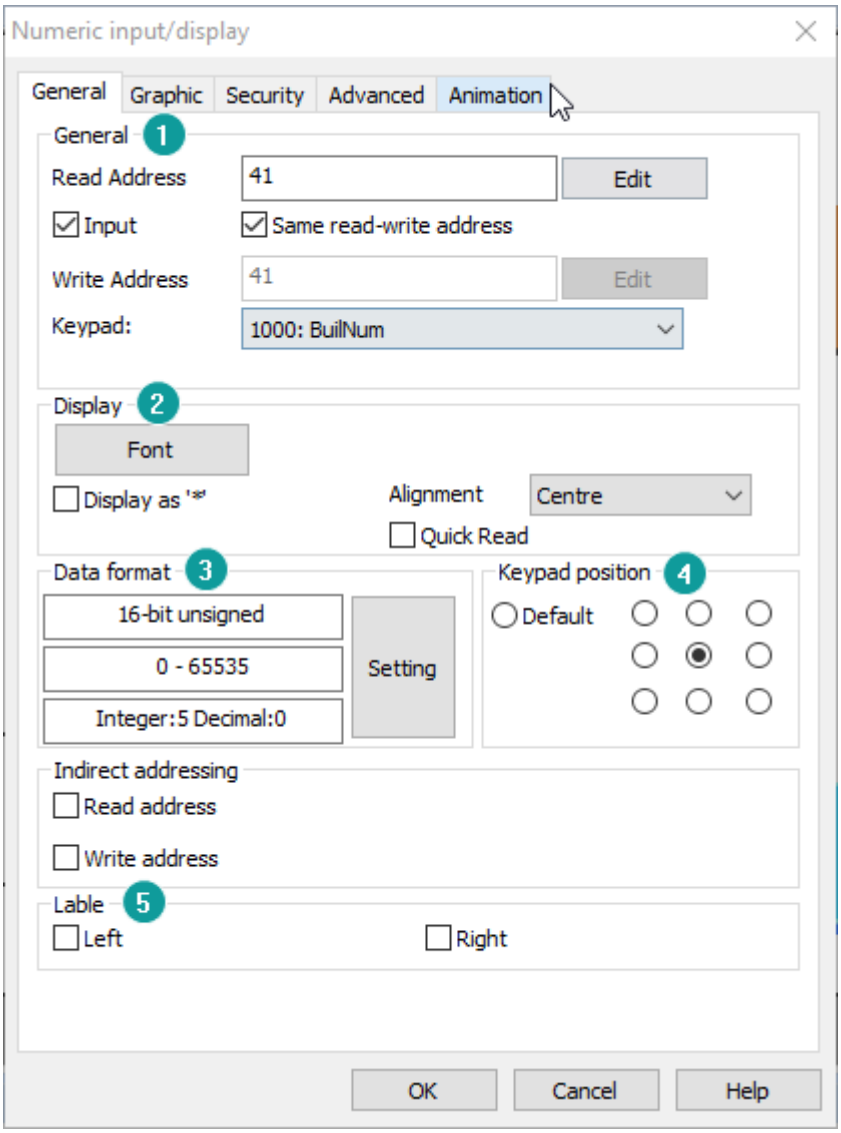
This object can input/display number or character. User just needs to set a controller's address and set data format. HMI will be able to display/control controller's data.

6.2.1 Numeric Input/Display

Introduction

[Numeric Input/Display] displays the device's data or writes data to the device in a specified numeric format, and the data could be scaled.

Description



1) General

Read address: The data from designated address will be displayed.

Input: Enable input function and [Write Address] configuration;

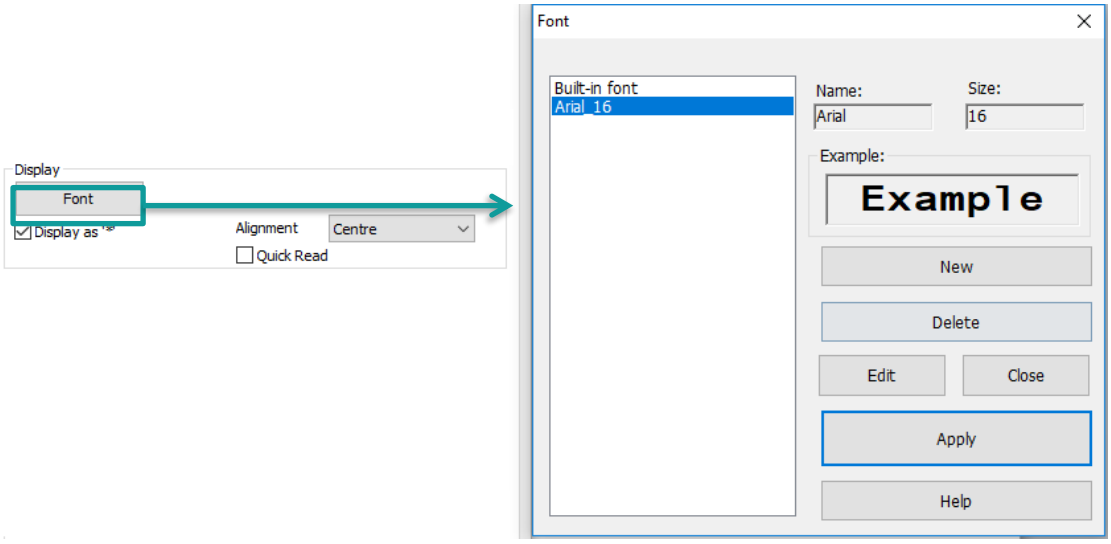
Same read-write address: Configure [Write Address] is the same as [Read Address];

Write address: Write data to designated address. The address could be different [Read Address];

Keypad: it is standard numeric keypad, allow to input decimal and floating;

Note: Check it to use the comment information on the keyboard. When the user clicks on the part, the comment information will be written into the HUW1402 for display. The maximum length allowed for the comment is 63 characters;

2) Display



Font: It is located to font list; user could select font directly;

Input as "*": the data shown as "*";

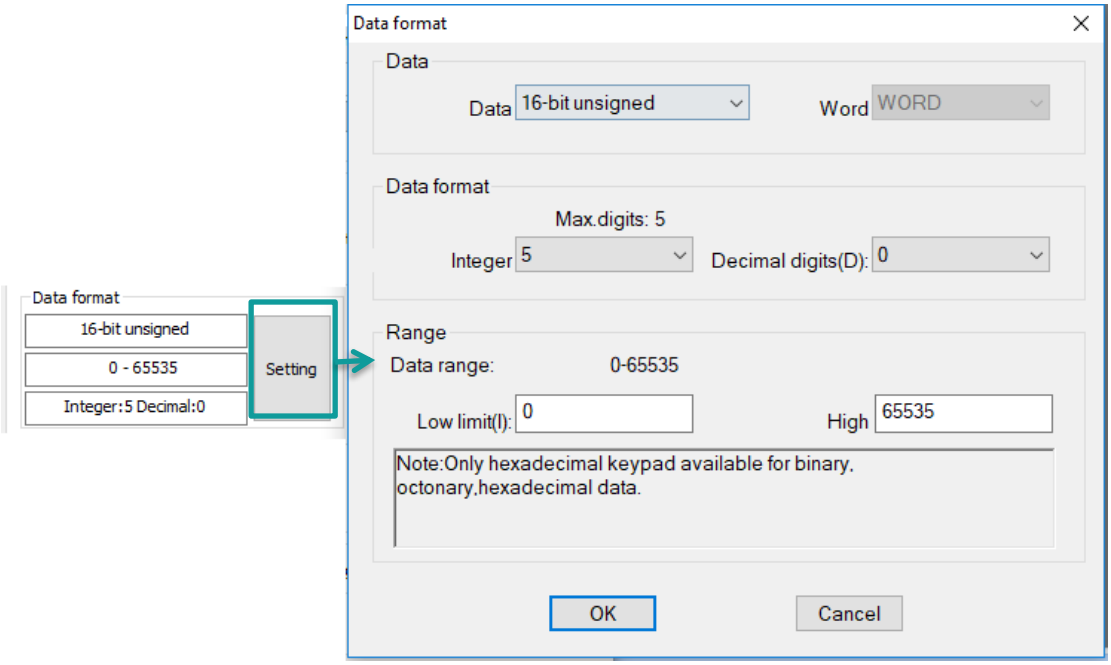
Alignment: There are three modes;

Center: data display on the center of object;

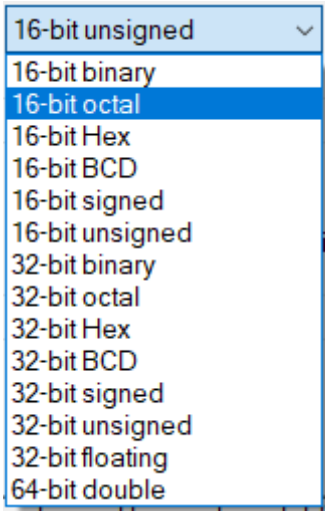
Align left: data display on the left;

Align right: data display on the right;

3) Data format



Date: Select data format, below format could be supported;



Data format: Configure data display format;

Range: beyond the data range will be not inputted;

4) Keypad position

It is used for setting keypad position when input data;

5) Label

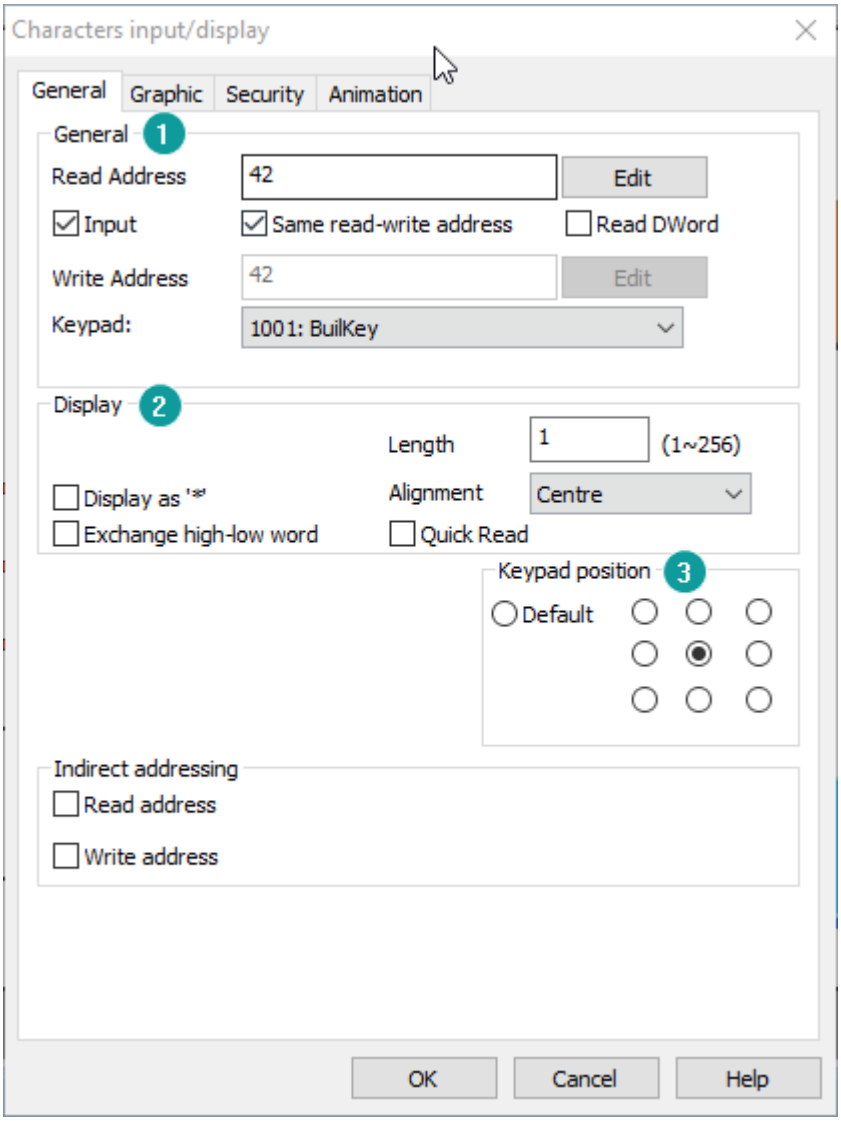
Configure label shown on the left/ right side of data;

6.2.2 Character Input/Display

Introduction

[Numeric Input/Display] displays the device's character or writes character to the device.

Description



1) General

Read address: The data from designated address will be displayed.

Input: Enable input function and [Write Address] configuration;

Same read-write address: Configure [Write Address] is the same as [Read Address];

Read DWord: Read address is 2 words format

Write address: Write data to designated address. The address could be different [Read Address];

Keypad: it is standard numeric keypad, allow to input decimal and floating;

Note: Check it to use the comment information on the keyboard. When the user clicks on the part, the comment information will be written into the HUW1402 for display. The maximum length allowed for the comment is 63 characters;

2) Display

Input as "*": the data shown as "*";

Alignment: There are three modes;

Center: data display on the center of object;

Align left: data display on the left;

Align right: data display on the right;

Exchange high-low byte: Exchange High-low byte: Check it to exchange and display the contents of the high and low bytes. If the number of contents is not a multiple of 2, the rounding process will be performed;

Length: The length for characters, the maximum length is 256;

Exchange high-low word: Check it to exchange and display the contents of high and low word. Only valid if the number of operating characters of the part is a multiple of 4.

3) Keypad position

It is used for setting keypad position when input data;

6.3 Chart

Chart can display the data by trend graph or data table. HMIEditorP supports different function's Chart. It contains Trend Chart, History Trend Chart, Alarm Record Display, Data Record Display, Alarm Record Display, Recipe Display, List Box, File List Display, XY Plot, History XY Plot. Different chart has different function. Please check the detail information in the Help of HMIEditorP.

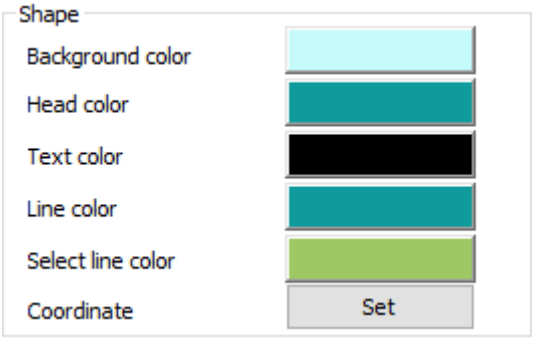
For example: Trend graph shows the data as a dynamic curve, the X axis represent the time, Y axis represent the data. Alarm Record Display record alarm, the time span set by the user, and the alarm record will list by the time sequence.

6.3.1 Common settings in Chart objects

Introduction

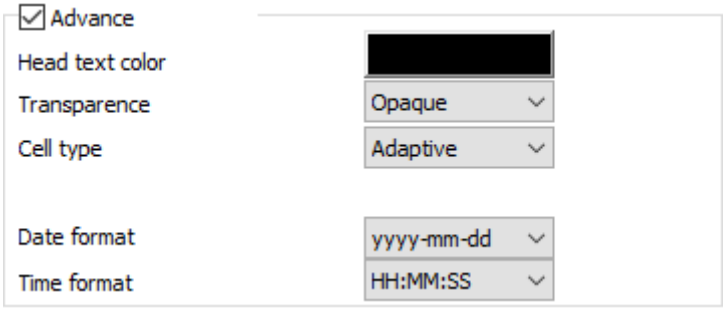
This section will introduce common settings in Chart objects

1) Shape



Set appearance of object, includes background color, head color, text color, line color, select row color

2) Advance



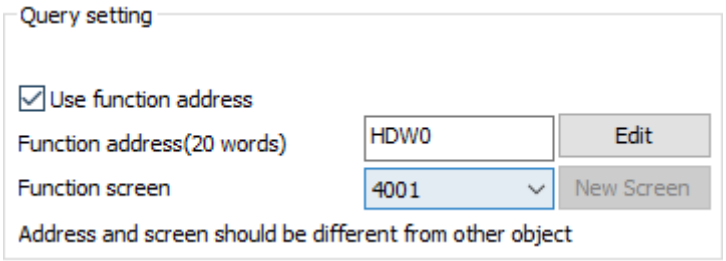
Head text color: It sets the text color of the header;

Transparency: It sets transparency of the table background, 0% represents full transparency, and 100% represents completely opaque;

Cell type: Default is adaptive width. After select a customization, customization could set the width of the cell;

Date and time format: According to the needs to select the date and time display format. "NONE" means no display; please do not set both time and date to "NONE";

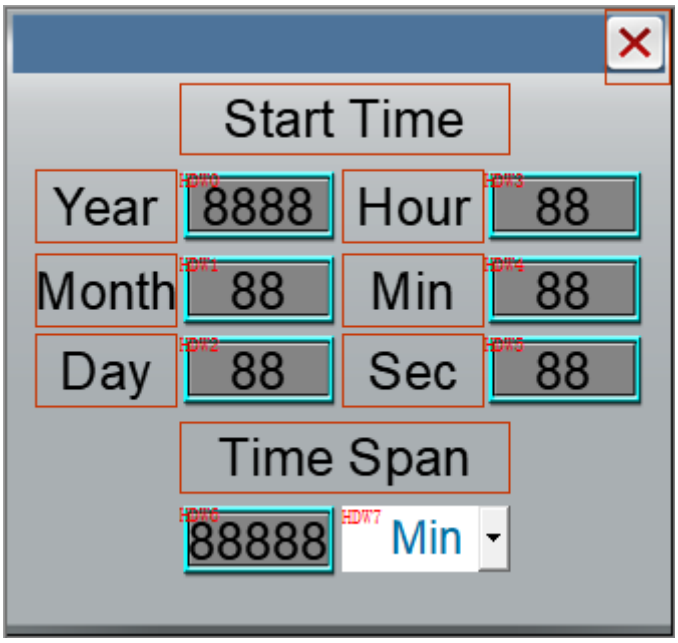
3) Use function address:



Customization for query function, HMI system assign address according to the

settings, and four control key and query screen will be created, user could see the query details in this query screen.

For example: Function address (20 words) is HDW0, the function screen as below shows;



If the start address set as HDW0 the next 10 address perform the following functions.

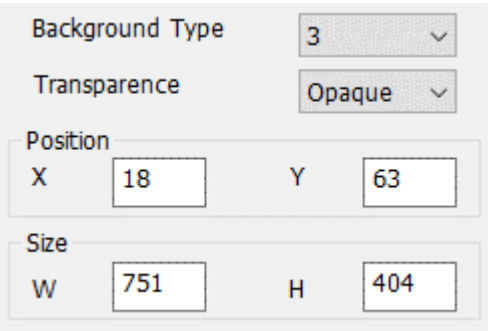
Address	Type	Object	Function
HDW0	Word	Numerical input/display	Start time: year
HDW1	Word		Start time: month
HDW2	Word		Start time: day
HDW3	Word		Start time: hour
HDW4	Word		Start time: minute
HDW5	Word		Start time: second
HDW6	Word		Time span
HDW7	Word		Time span settings, 0=minute, 1=hour, 2=day
HDW8	Word	Word switch	Default value: 1 Page forward: value-1, minimum value is 1 Page backward: value +1, minimum value is 65535

HDX9.0	Bit	Bit switch	Auto refresh	
HDX13.0	Bit		Calculate the span method: =0: Calculate the time span of the query by using the span value and the span unit; =1: Calculate the time span of the query with the start and end time.	
HDW14	Word	Numerical input/display	Effective when HDX13.0=1	End time: year
HDW15	Word			End time: month
HDW16	Word			End time: day
HDW17	Word			End time: hour
HDW18	Word			End time: minute
HDW19	Word			End time: second

Note:

- [Function address (20 words)] need to be HMI internal address;
- When the start time and end time of the query are enabled, if the end time is smaller than the start time, the system automatically swaps the start and end times to calculate the span of the query;
- After manually setting the start time and end time of the query, you need to manually update the data (the default will be automatically updated);

4) Appearance

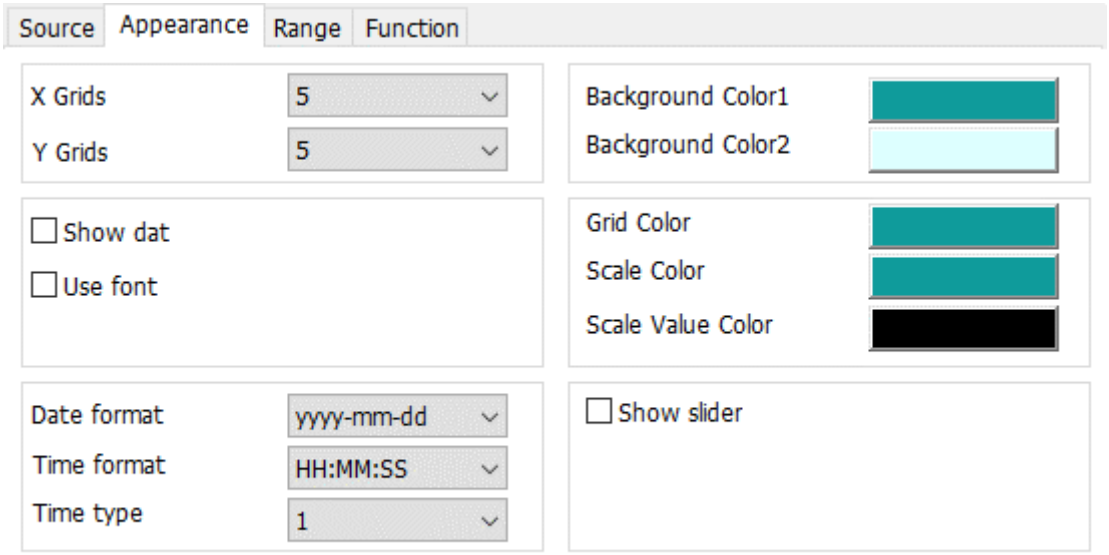


Background type: There are four modes, style 1 and style 2 is gradient mode, style 3 is solid color mode, style 4 is transparent;

Transparency: transparency could be set from 0% to 100%. when set to 0%,the background is completely transparent;

Position: Show position coordinates for X and Y axes;

Size: Set object size;



Number of X, Y axis: Set the number of grids on the XY axis could be set from 1 to 10 divisions.

Color setting: Color 1 is for object frame; color 2 is for grid background.

Show dot: Display the data points of each trend graph;

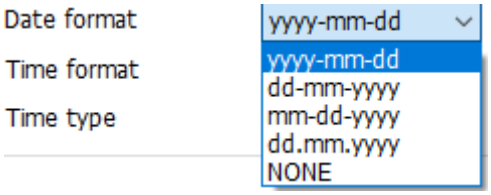
User font: If check it, user could change the font for grid and time, if uncheck it, object uses build-in font;

Grid color: Set color for grid, the default is black;

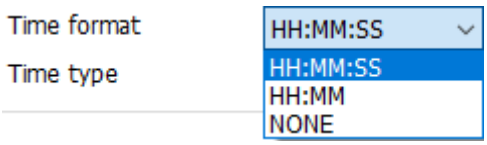
Scale color: Set color for scale, the default is black;

Scale value color: Set color for scale value, the default is black;

Data format: select data format in object, it provides below format;



Time format: Select time format in object, it provides below format;



Time type: There are two time displaying type, one is only displaying the start and end time, and the other is displaying time for each cell;

Curve Fitting (XY)

Line type: Set the line type (line, curve) between two points.

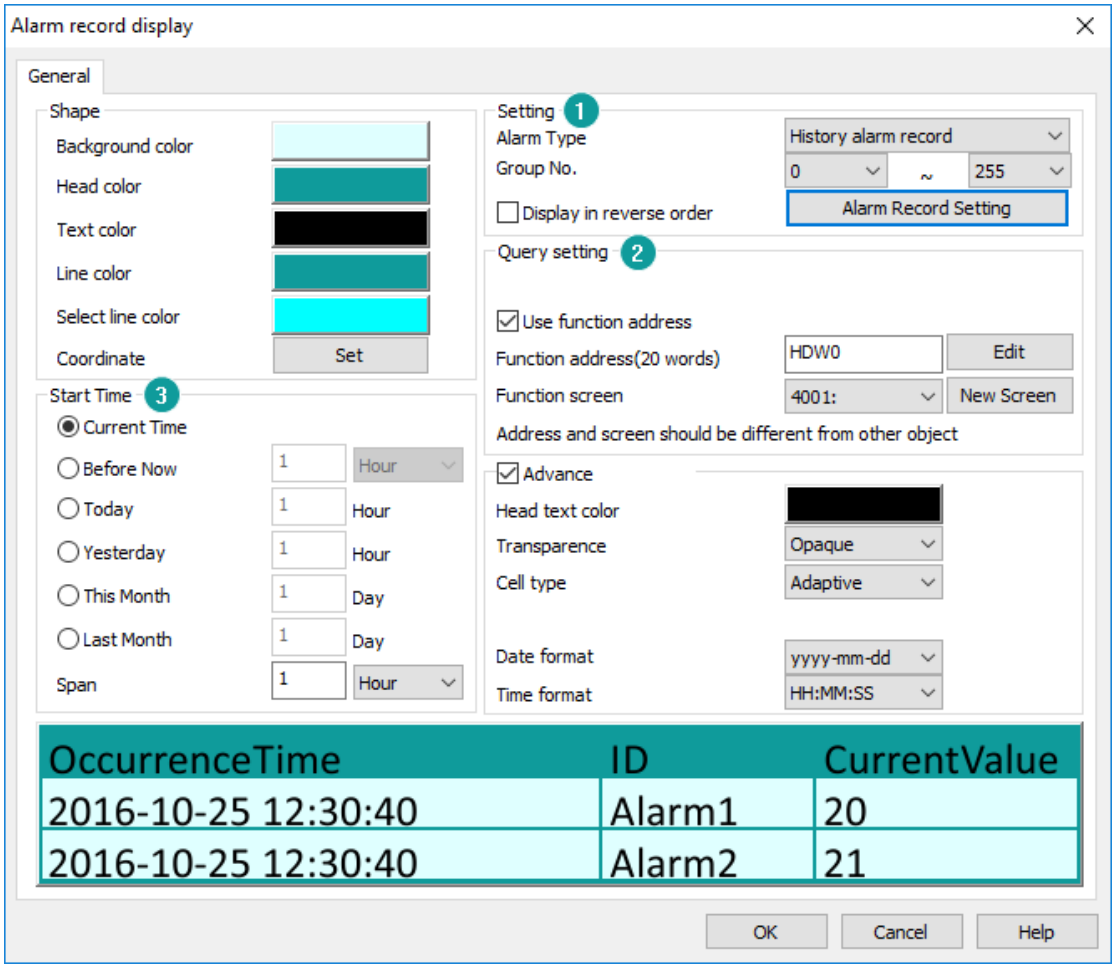
Smoothness: it sets the smoothness of curve. Smoothness sets the curve smoothness. Conversely, the corner of the curve is sharper.

6.3.2 Alarm Record Display

Introduction

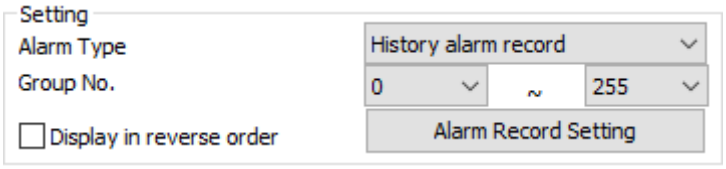
Display current alarm and history alarm information. After setting the time span, the history alarm record will list by the time span.

This object only displays content normally after the [Alarm Record] function is set.



Description

1) Settings

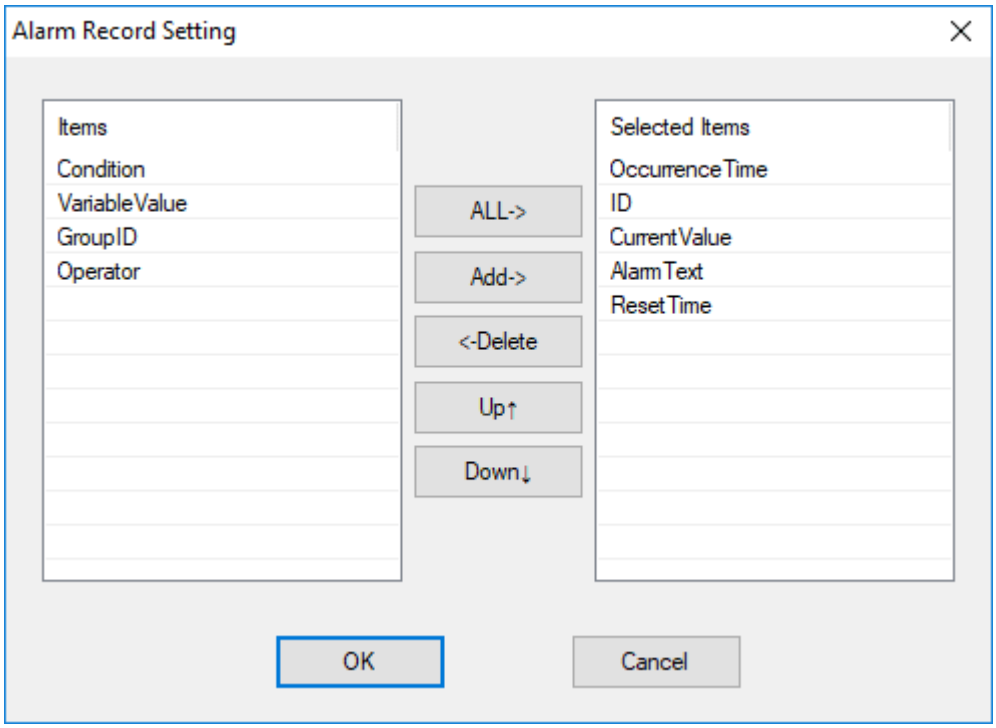


Alarm type: There are two types for alarm function; one is [Current alarm record] and the other is [History alarm record];

Group No.: This group number is located to alarm settings; this object only displays the alarm content within the setting range;

Display in reverse order: The latest alarm information will be displayed at the top of object;

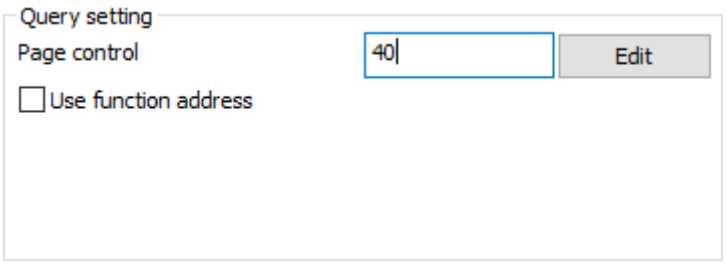
Alarm Record Setting: This is for setting display items in object, the setting window as below shows;



2) Query setting

There are two modes for this settings, one is [Page control], and the other is [Use function address].

Page control: it controls what object currently displays;



For example: Page control is 40,

40=1 means this object displays first page;

40=2 means this object displays second page;

40=3 means this object displays third page;

...

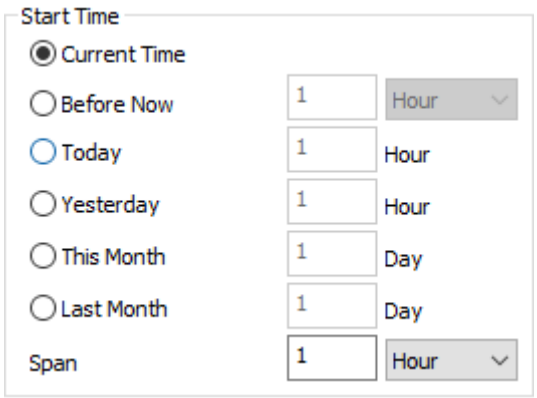
40=10 means this object display 10th page;

Note:

Every page contains 50 records;

3) Start time

It configures start query time.



Span: set the time span from start time to end time of query;

Result

When all configurations are completed, when the HMI is running, alarm display object displays as shown below.

The query key is automatically displayed when user double-clicks object, and the system automatically generates a sub-screen that sets the query span.

OccurrenceTime	ID	CurrentValue	AlarmT
2019-06-18 11:08:48	1	0	too low
2019-06-18 11:09:29	2	0	too low
2019-06-18 11:10:10	3	0	too low
2019-06-18 11:10:51	4	0	too low
2019-06-18 11:11:32	5	0	too low
2019-06-18 11:12:13	6	0	too low
2019-06-18 11:12:54	7	0	too low
2019-06-18 11:13:35	8	0	too low
2019-06-18 11:14:16	9	0	too low
2019-06-18 11:14:57	10	0	too low
2019-06-18 11:15:38	11	0	too low

-  Query setting
-  Refresh page
- Up operation buttons: [^] means moving up one row; [≪] means page up;
- Down operation buttons: [ᵛ] means moving down one row; [≫] means page down;
- Left operation buttons: [<] means moving left column; [<<] means moving the display to the left;
- Right operation buttons: [>] means moving right column; [>>] means moving the display to right;

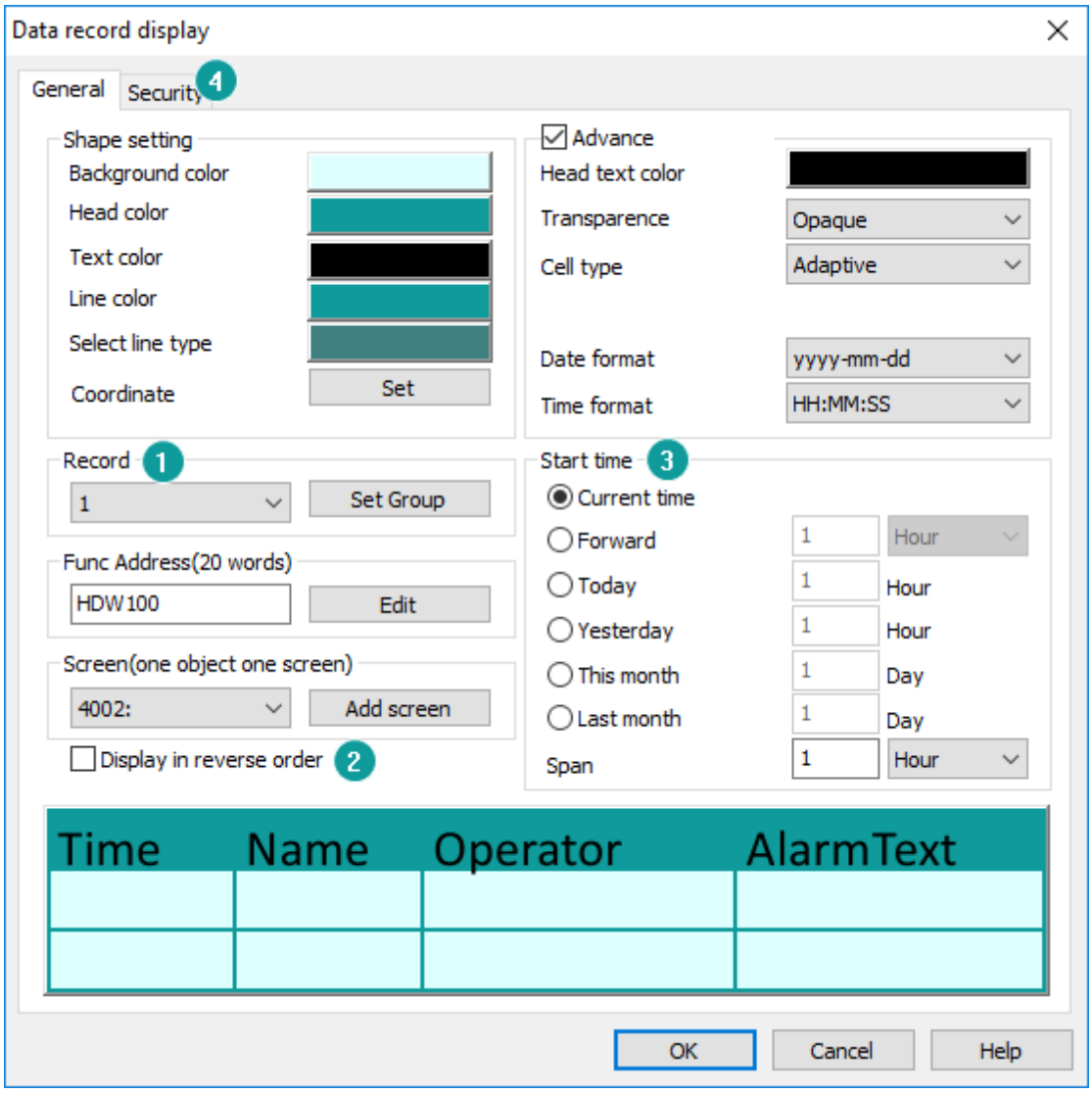
6.3.3 Data Record Display

Introduction

[Data Record Display] displays the value of the address set by the user in the data record in the form of a table. And it provides the function of query; the user could query a certain piece of data according to the recording time.

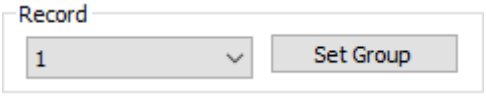
This object only displays content normally after the [Data record] function is set.

Description



1) Record

Multiple groups could be set in the data record, but [Data Record Display] could only display the data of one group at the same time. Therefore, during configuring, user need to specify the corresponding data record group number for each object.

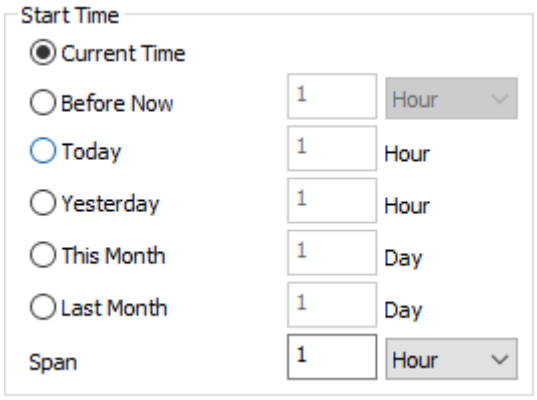


2) Display in reverse order

The latest data record will be displayed at the top of object;

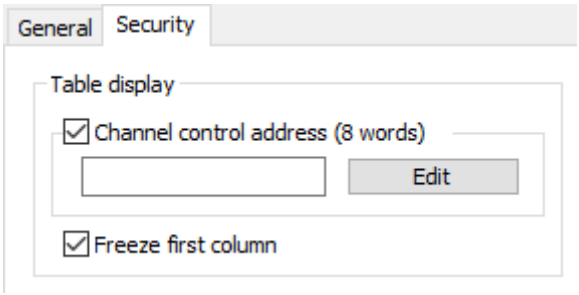
3) Start time

It configures start query time.



Span: set the time span from start time to end time of query;

4) Security



Channel control address: It continuously occupies 8-word addresses, the first 100-bit addresses control 100 channels of display/hide function. For example, if the address is set to HDW10, then HDX10.0=1 is hidden channel 1; HDX10.1=1 is hidden channel 2, and so on.

Freeze first column: Enable it, the first column (time column) of the data record will not move with the left and right pages.

Result

When all configurations are completed, when the HMI is running, data record display object displays as shown below.

The query key is automatically displayed when user double-clicks object, and the system automatically generates a sub-screen that sets the query span.

Data record function

Time	Channel1	Channel2	Ch
2019-06-18 15:08:33	0	0	0
2019-06-18 15:08:43	50	0	0
2019-06-18 15:08:53	100	0	0
2019-06-18 15:09:03	150	0	0
2019-06-18 15:09:13	200	0	0
2019-06-18 15:09:23	45	0	0
2019-06-18 15:09:33	95	0	0
2019-06-18 15:09:43	145	0	0
2019-06-18 15:09:53	195	0	0
2019-06-18 15:10:03	40	0	0
2019-06-18 15:10:13	90	0	0

-  Query setting
-  Refresh page
- Up operation buttons: [^] means moving up one row; [⩓] means page up;
- Down operation buttons: [ˇ] means moving down one row; [⩔] means page down;
- Left operation buttons: [<] means moving left column; [<<] means moving the display to the left;
- Right operation buttons: [>] means moving right column; [>>] means moving the display to right;

6.3.4 Recipe display

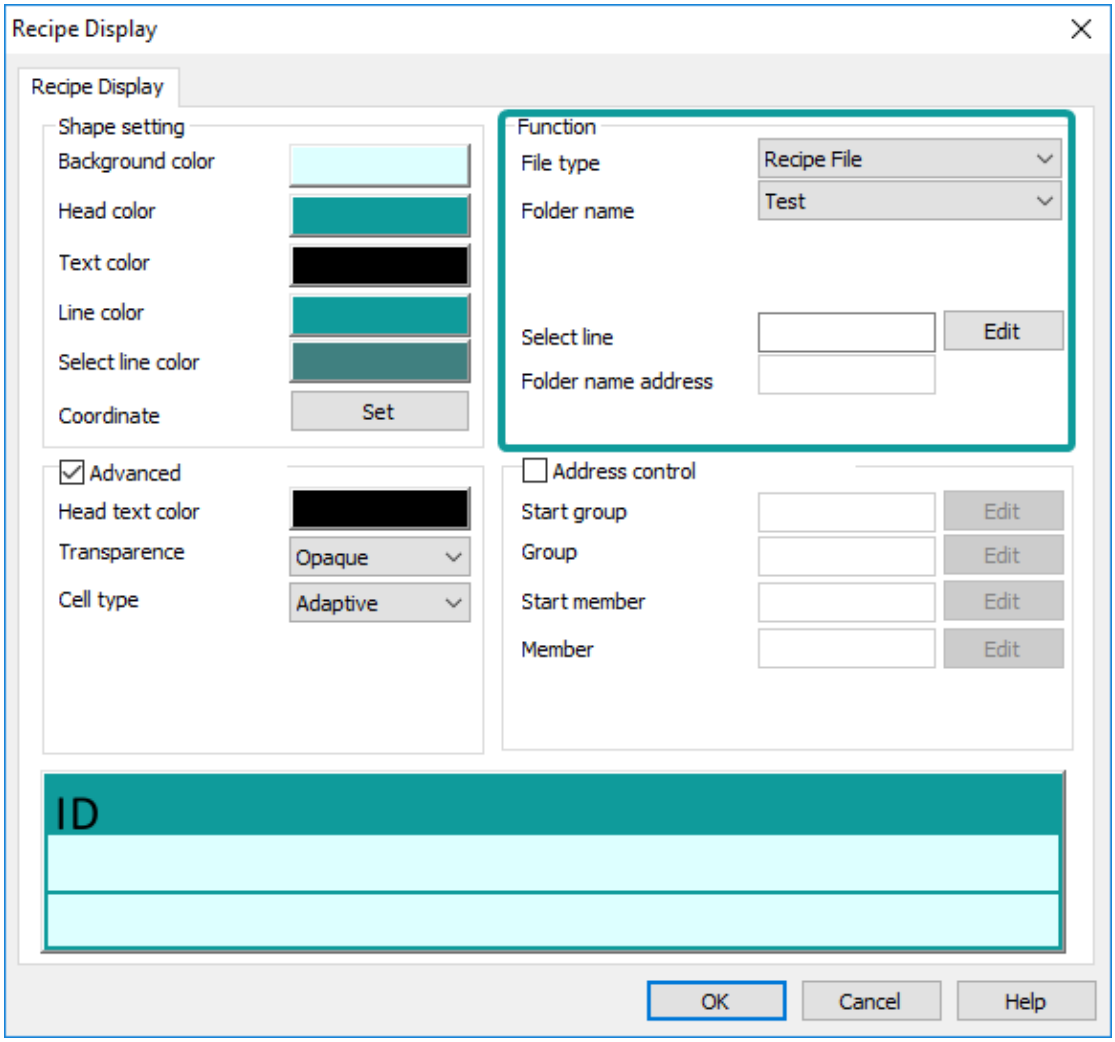
Introduction

[Recipe display] displays information (such as recipe, operations, and so on) in the form of a table.

This object not only displays the recipe, but also displays other content. The specific

functions are described in detail later. And it only displays content normally after function is set.

Description



1) Function (Recipe file)

File type: There are more than one function in this object, this is for selecting function, select [Recipe File], when [Recipe function] is set, it will display recipe data in the form of a table;

Folder name: This is located to recipe function setting;

Select line: Set address for select row,

For example, set 40,

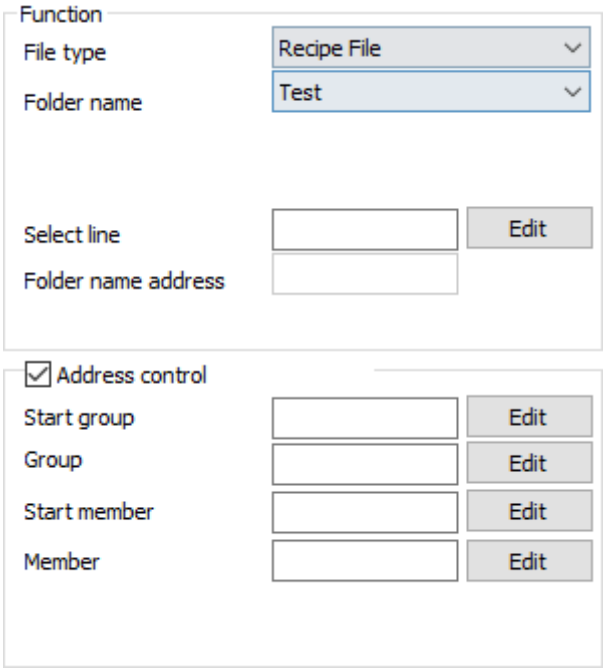
if 40=1, the first row of object is selected;

If 40=2, the second row of object is selected;

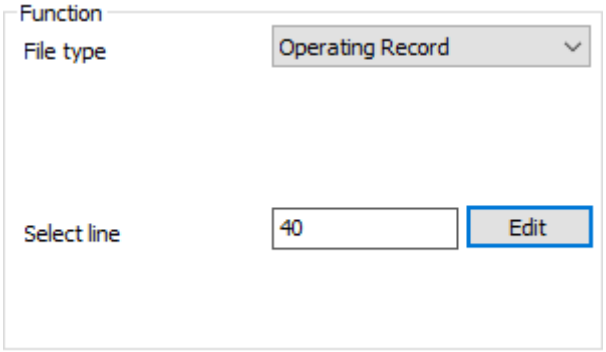
...

If 40=10, the 10th row of object is selected;

Folder name address: This is for setting recipe file name, in advance recipe mode;



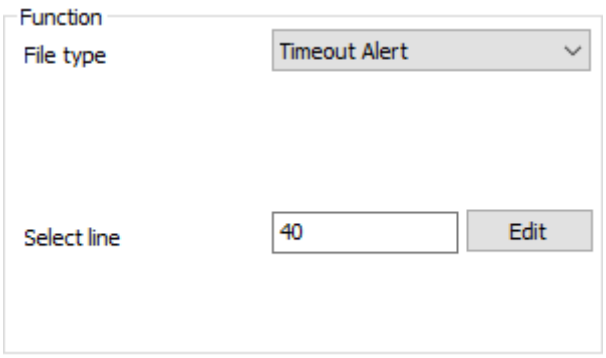
2) Function (Operating Record)



File type: There are more than one function in this object, this is for selecting function, select [Operating Record], when [User Permission] is enabled, the operation record of each user in HMI is recorded and displayed in the form of a table, and the time and date display format could be set as needed;

Select line: Set address for select row;

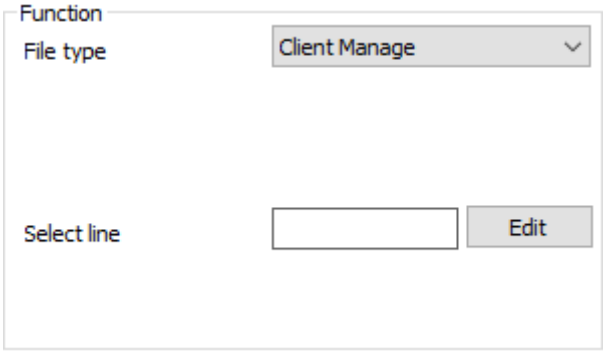
3) Function (Timeout Alert)



File type: There are more than one function in this object, this is for selecting function, select [Timeout], it displays the current HMI project communication timeout information. (The built-in screen has this special function; it will pop up automatically when timeout, users do not need to set)

Select line: Set address for select row;

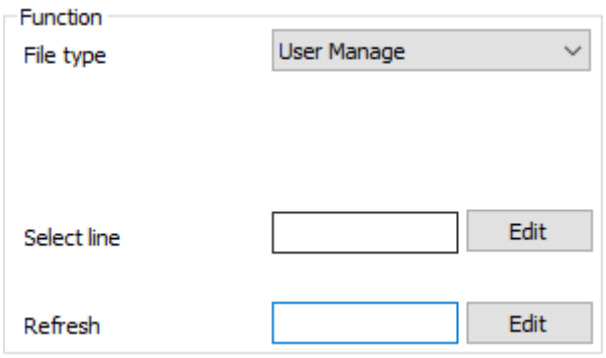
4) Function (Client Manage)



File type: There are more than one functions in this object, this is for selecting function, select [Client manage], it displays the current visitors' screens information.

Select line: Set address for select row;

5) Function (User Manage)

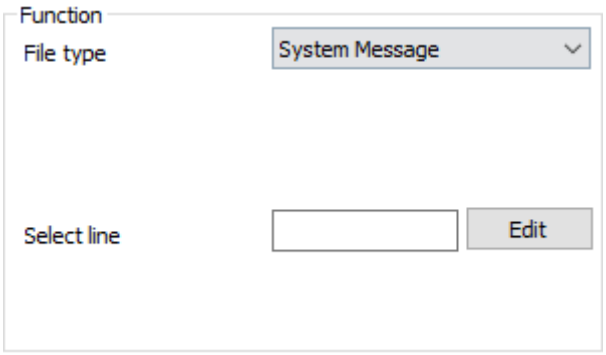


File type: There are more than one functions in this object, this is for selecting function, select [User Manage], when [User Permission] is enabled, it displays all users' information;

Select line: Set address for select row;

Refresh: Set address for refresh users list; (bit address)

6) Function (System Message)



File type: There are more than one functions in this object, this is for selecting function, select [System message], when event occurs, it displays prompt messages automatically;

Select line: Set address for select row;

7) Address control

Start group: control displaying start from specified row, which means display from specified group.

For example set 40,

If 40=1, Start from first row (first group);

If 40=2, Start from second row (second group);

...

If 40=10, Start from 10th row (10th group);

Group number address: Control the number of rows displayed;

For example set 410,

If 410=1, this object only displays 1 row (1 group);

If 410=2, this object displays 2 rows (2 groups);

...

If 410=10, this object displays 10 rows (10 groups);

Start address: Control displaying start from specified column, which means display from specified member.

For example, set 420,

If 420=1, Start from first column (first member);

If 420=2, Start from second column (second member);

...

If 420=10, Start from 10th column (10th member);

Address number: Control the number of columns displayed;

For example, set 430,

If 430=1, this object only displays 1 column (1 member);

If 430=2, this object displays 2 columns (2 members);

...

If 430=10, this object displays 10 columns (10 members);

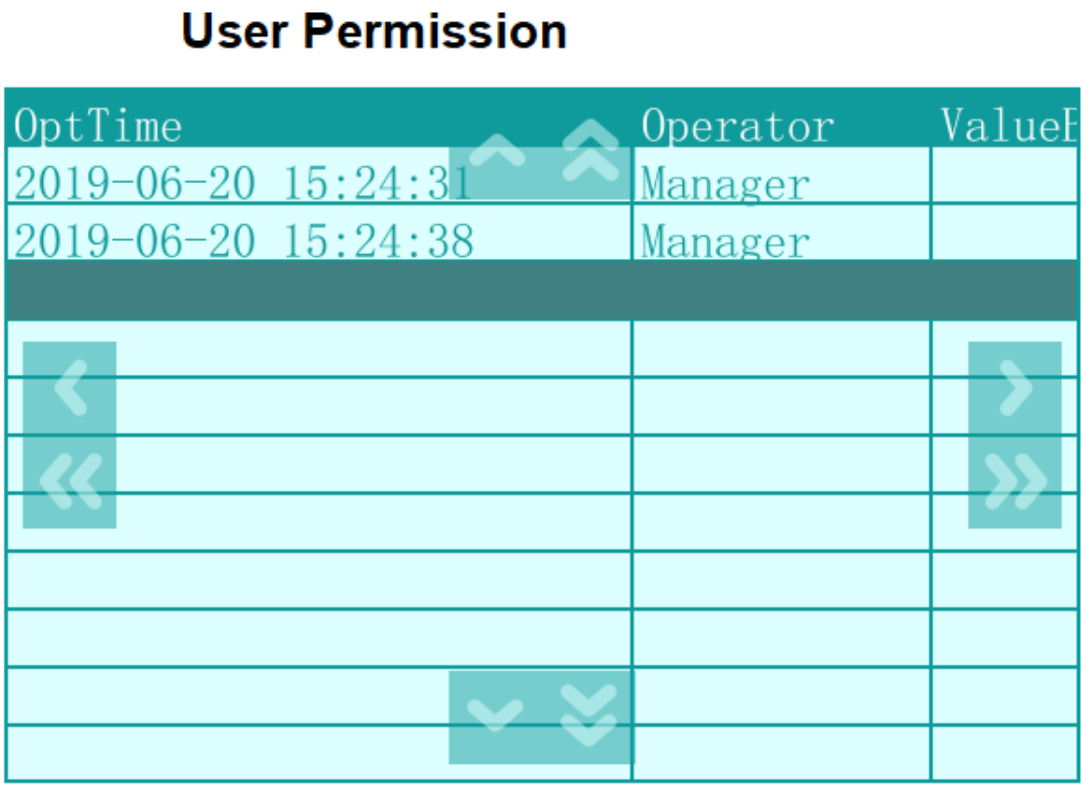
Result

When all configurations are completed, when the HMI is running, object will display like below.

1) Recipe

ID	Red	Green	Blue
1	15	155	155
2	20	100	70
3	10	150	200

2) Operating record



3) Client Manage

User Permision

ID	Name	PassWord	Description	IsHide
1	user0	user0	user0	0
2	user1	user1	user1	0
3	user2	user2	user2	0
4	user3	user3	user3	0

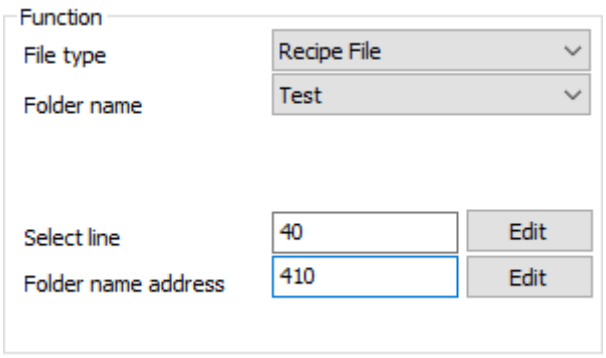
6.3.5 File list

Introduction

[File list] displays recipe files in [Flash], and also shows custom folder information;

Description

1) Function (Recipe File)



File type: [Recipe File] is for display recipe files in Flash;

Folder name: This is located to recipe function setting;

Select line: Set address for select row,

For example, set 40,

if 40=1, the first row of object is selected;

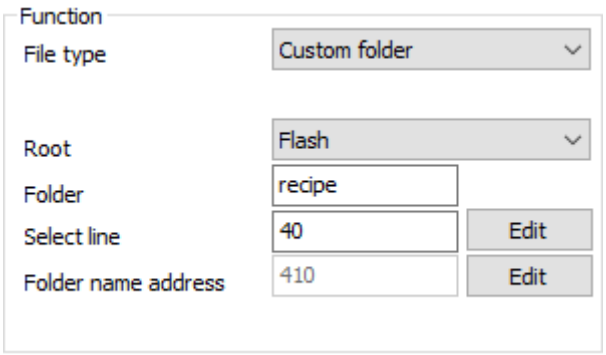
If 40=2, the second row of object is selected;

...

If 40=10, the 10th row of object is selected;

Folder name address: This is for setting recipe file name, in advance recipe mode;

2) Function (Custom folder)



File type: [Custom folder] means this object displays files under the specified path;

Root: It means storage; there are three options, [Flash], [Udisk] and [SDcard];

Folder: Set folder name, such as recipe;

Select line: Set address for select row,

For example, set 40,

if 40=1, the first row of object is selected;

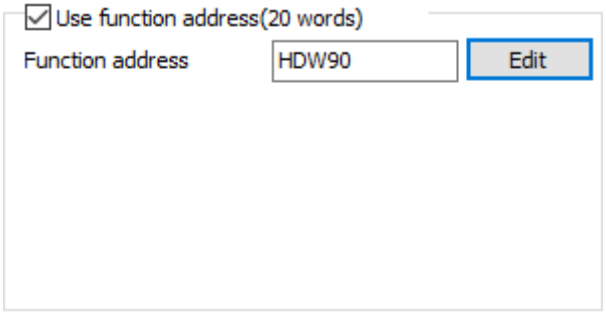
If 40=2, the second row of object is selected;

...

If 40=10, the 10th row of object is selected;

Folder name address: This is for setting recipe file name, in advance recipe mode;

3) Use function address (20 words)



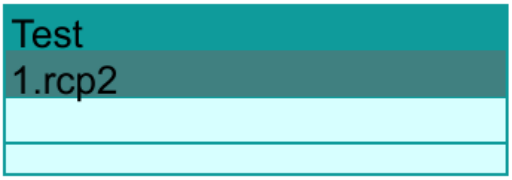
Function address includes copy, past, delete and rename. And HMI automatically assigns the functions to bit addresses.

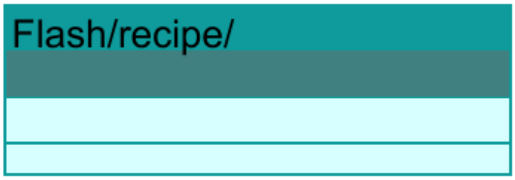
For example, function address is HDW 90, the detailed information as below:

Address	Address type	Object type	Function
HDX90.0	Bit	Bit switch	Copy selected files / all files
HDX90.1	Bit		Paste selected files/ all files
HDX90.2	Bit		Delete selected files/ all files
HDX90.3	Bit		Select all files
HDX90.4	Bit		Rename select files (Do not include suffix)
HDX90.5	Bit	Bit switch	Rename select files (Include suffix)

Result

When all configurations are completed, when the HMI is running, it displays object displays as shown below.



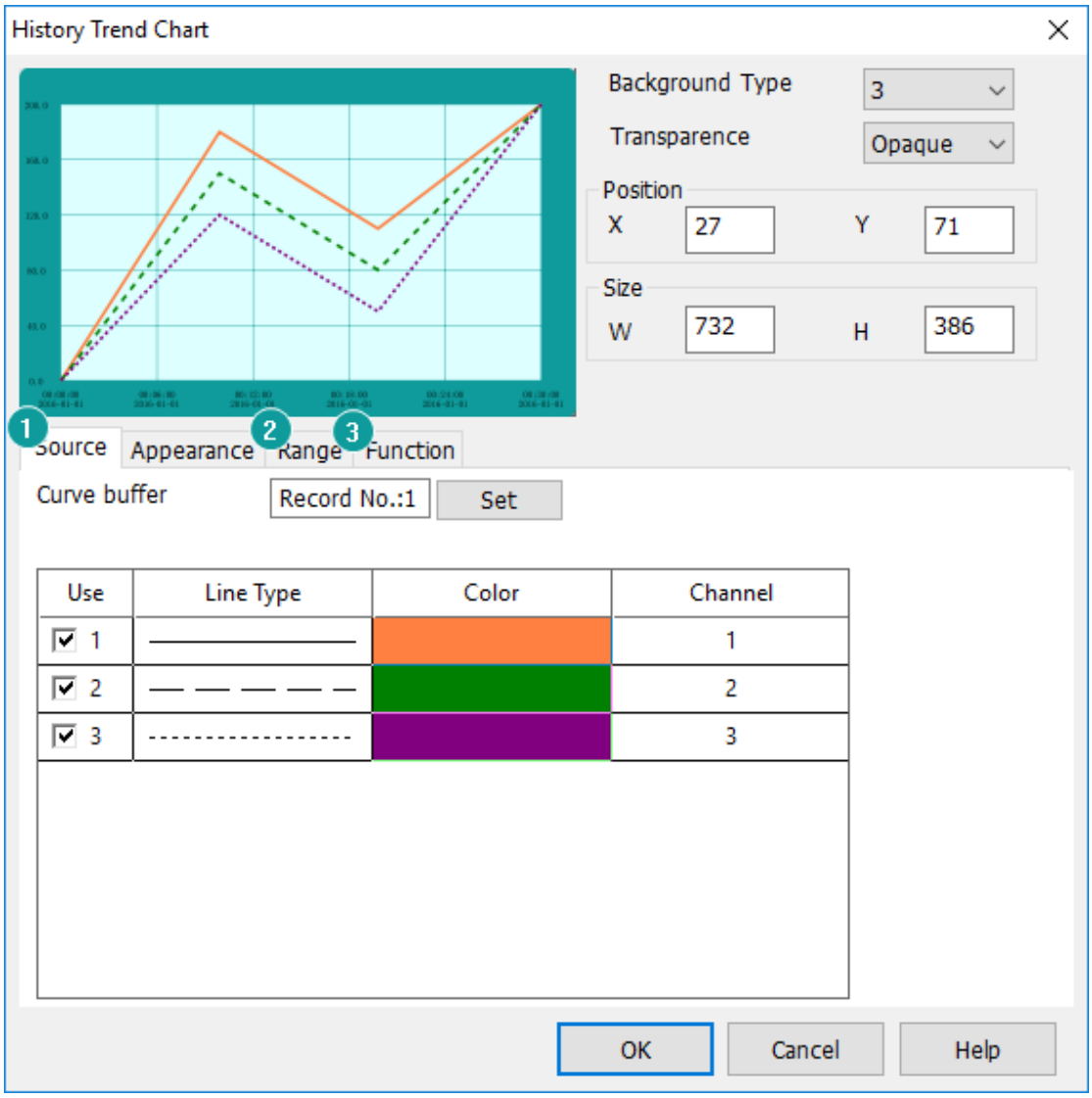


6.3.6 History Trend Chart

Introduction

The history trend will display data record with graph. X axis represents as time, and Y axis represents as data.

Description



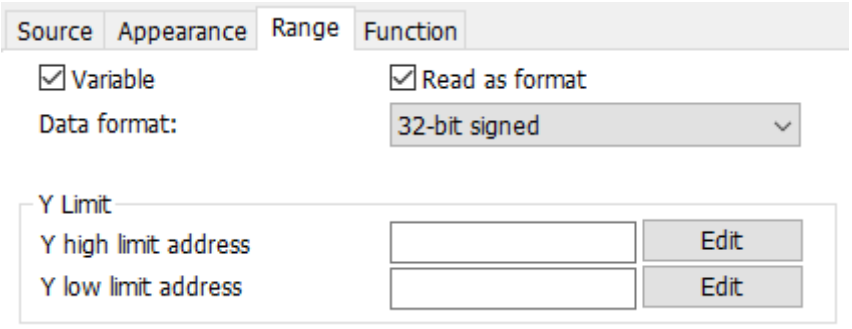
1) Source

Curve buffer: Select data from [Data record], and display data in term of curve;

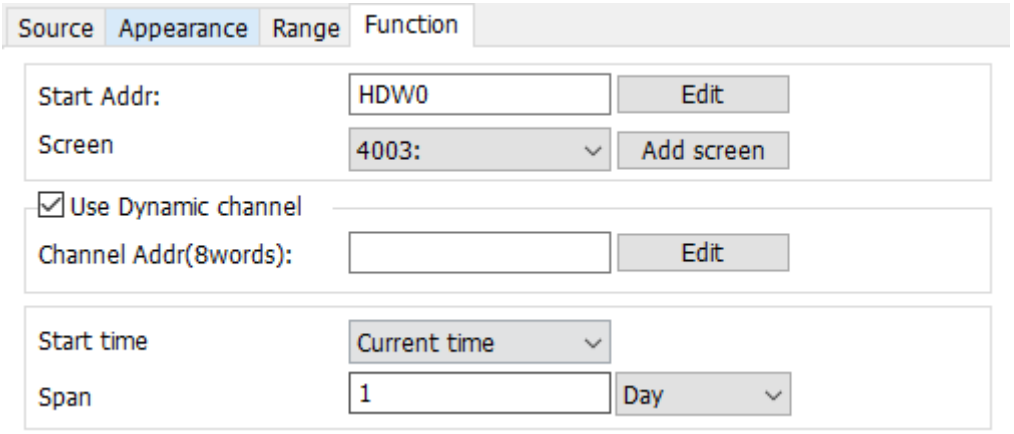
Curve displays: HMI will display curves according to select [Data record], and user could select which curves need to be displayed and select [Line type], [Color] and select [Channel] for each curve;

2) Range

Set data range limit of curve (max and min). Also could set variable to control data range;



3) Function



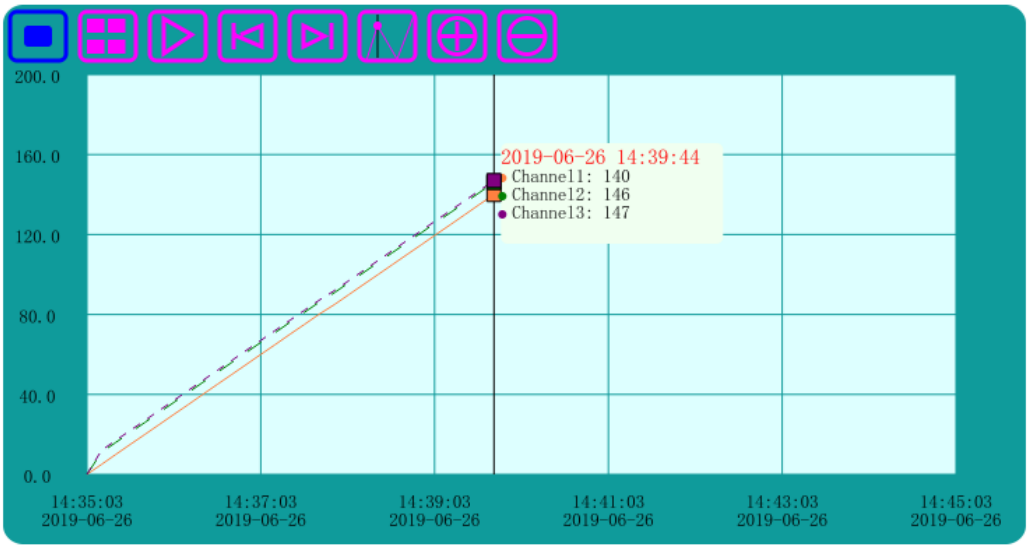
Start address: Custom object for query function, HMI system assigns address according to the settings, and four control key and query screen will be created, user could see the query details in this query screen.

Use Dynamic channel: It occupies 8 addresses; each address corresponds to the curve channel number. For example, the address is set to HDW10, it takes up HDW10 to HDW17. Where the value of HDW10 is 3, then the first curve in the trend graph shows the value of channel 3.

Start time: Set start time and span for curve display.

Result

When all configurations are completed, when the HMI is running, it displays as shown below.



There are 7 buttons will display in below the graph, shown as following:

 : It turns on the right buttons;

 : it sets time range;

 : page up in the time range;

 : page down in the time range;

 : refresh object display;

 : It shows the data for the slider;

 : Zoom in by one time according to the length of the span;

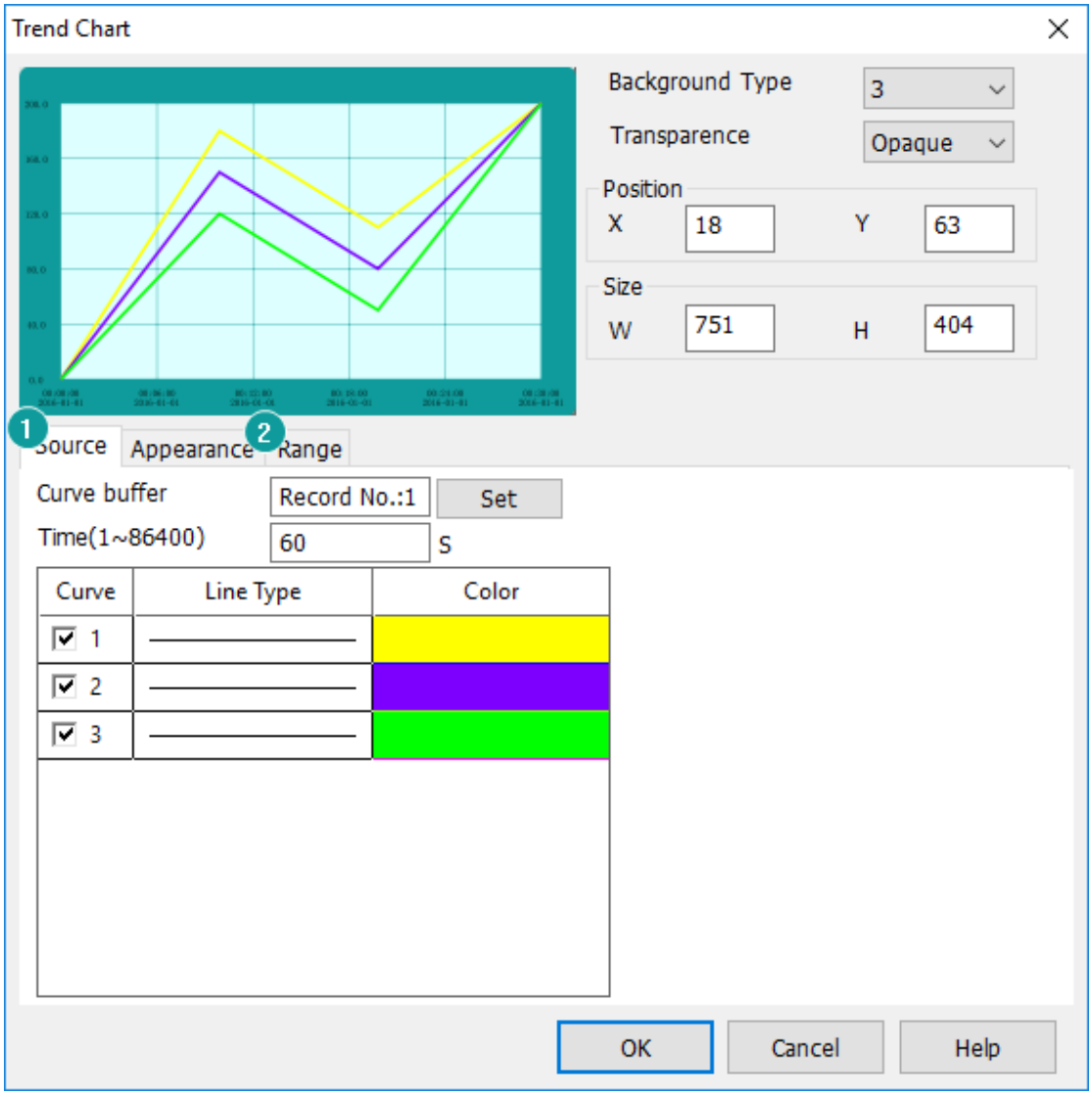
 : Zoom out by one time according to the length of the span;

6.3.7 Trend Chart

Introduction

Trend graph shows the data as a dynamic curve, X axis represent the time span, Y axis represent the data.

Description



1) Source

Curve buffer: Select data from [Trend Chart], and display data in term of curve;

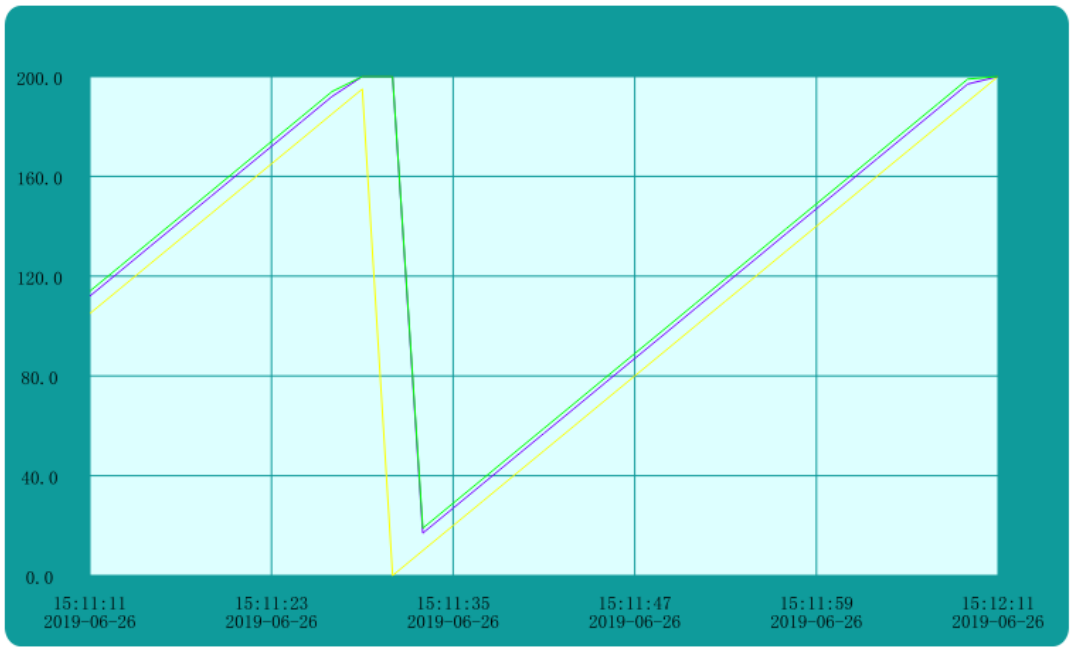
Curve displays: HMI will display curves according to select [Trend Chart], and user could select which curves need to be displayed and select [Line type] and [Color] for each curve;

2) Range

Set data range limit of curve (max and min). Also, could set variable to control data range;

Result

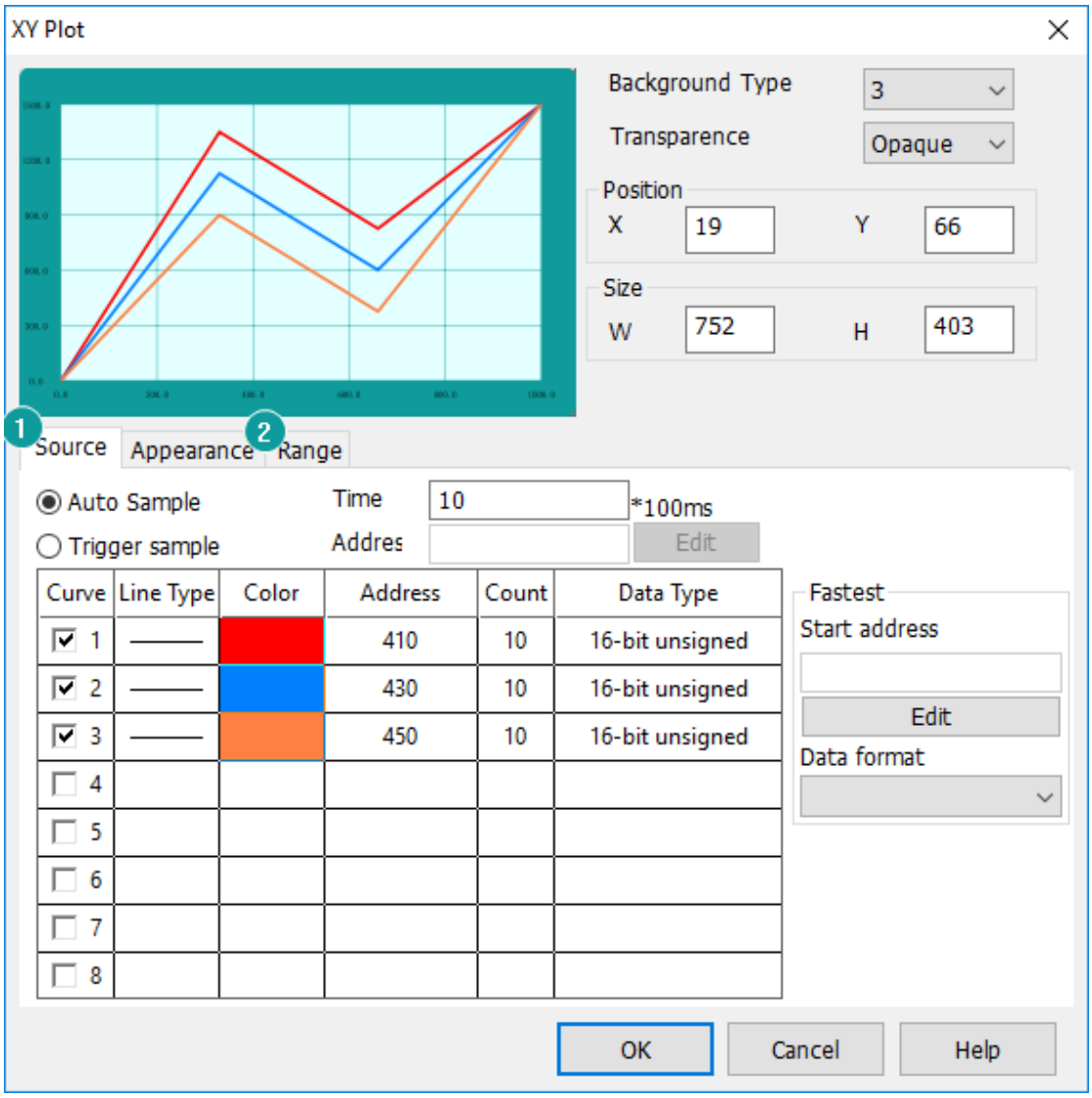
When all configurations are completed, when the HMI is running, it displays as shown below.



6.3.8 XY Plot

Introduction

The real time data in cache will display as continuous curve or separated points, each point in XY plot needs 2 addresses to set a point.



Description

1) Source

Auto sample: Select data from [XY plot] and displayed in a curve according to the set time;

Trigger Sample: When the trigger address is set, the data is collected and displayed in a curve. After the data is collected, the trigger address is automatically reset;

Curve settings: According needs to set style and color for each curve.

Read address: *for example, PLC word address is D, it points number is m. (point numbers no more than 800);

Word address D is the X coordinate of the first point

Word address D+1 is the Y coordinate of the first point;

Word address D+2 is the X coordinate of the second point;

Word address D+3 is the Y coordinate of the second point;

.....

Word address D+2m-1 is the X coordinate of the m^{th} point;

Word address D+2m is the Y coordinate of the m^{th} point;

Because if the number of XY points is m, it is necessary to continuously read 2m words from the address D of the PLC to draw a complete XY picture.

Quick setting: Fill in the starting address, according to the parameter settings, automatic allocation of addresses.

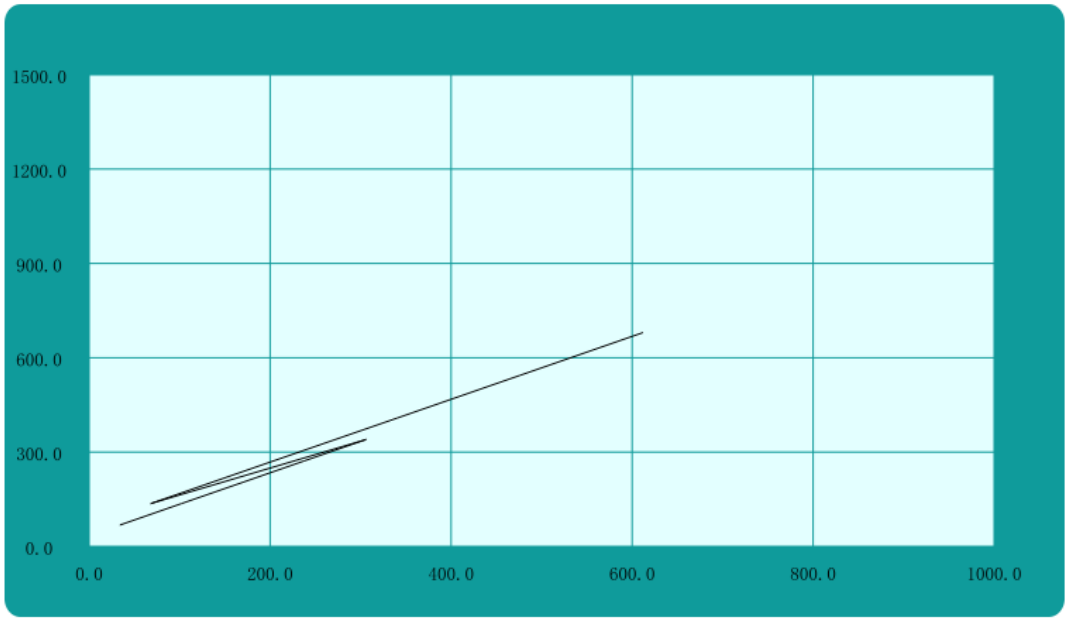
2) Range

Variable: The data range for the graph could be set as a variable;

X, Y Limit: Set the max and min value of displaying curve;

Result

When all configurations are completed, when the HMI is running, it displays as shown below.

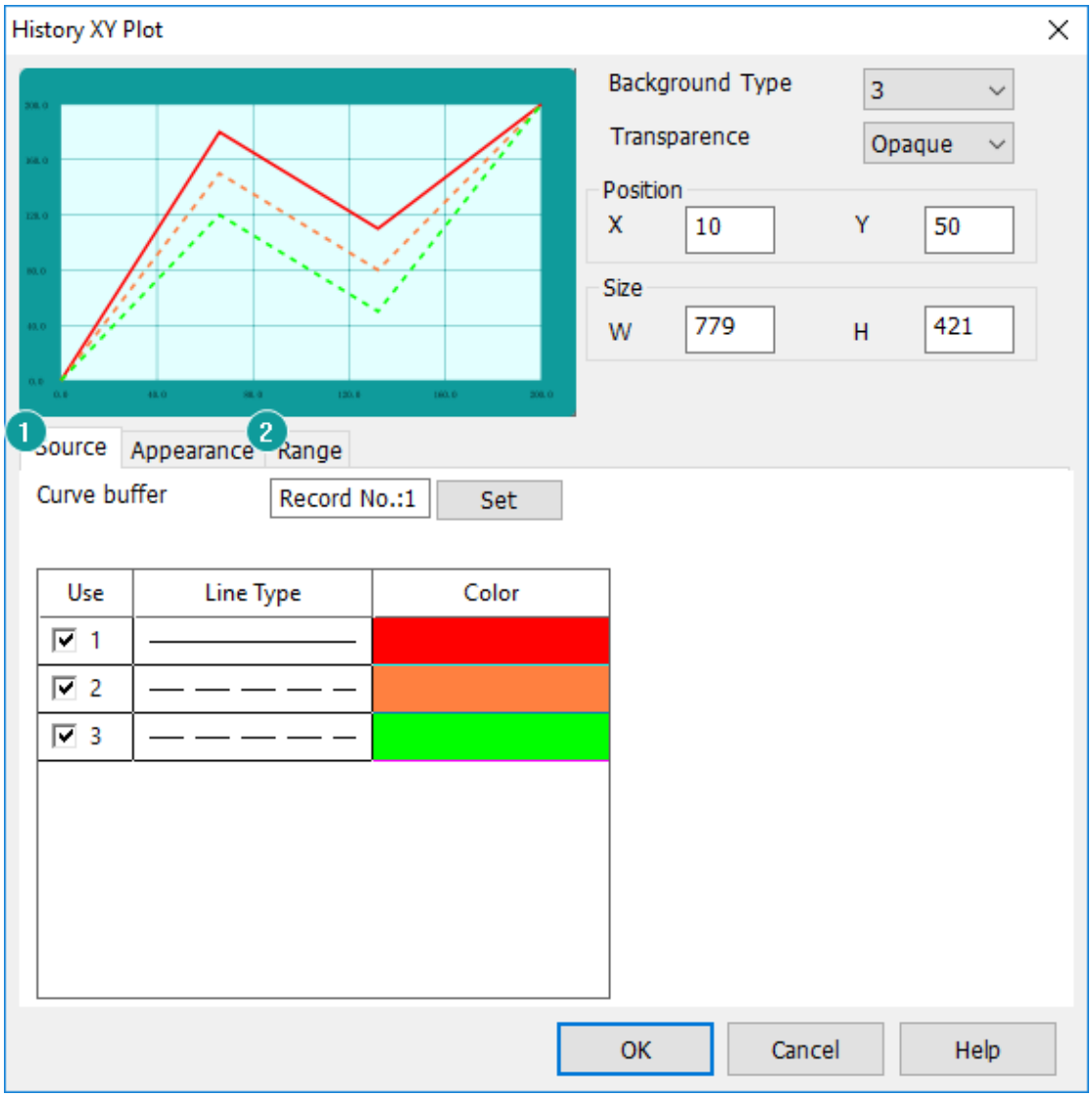


6.3.9 History XY Plot

Introduction

The data in cache will display as continuous curve or separated points, each point in XY plot needs 2 addresses to set a point.

Description



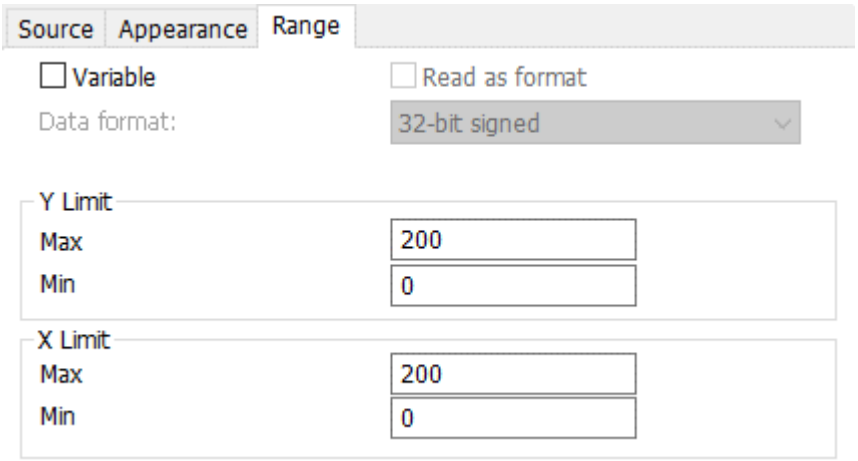
1) Source

Curve buffer: Select data from [History XY Plot] settings and display data in term of curve;

Curve displays: HMI will display curves according to select [Data record], and user could select which curves need to be displayed and select [Line type] and [Color]

for each curve;

2) Range

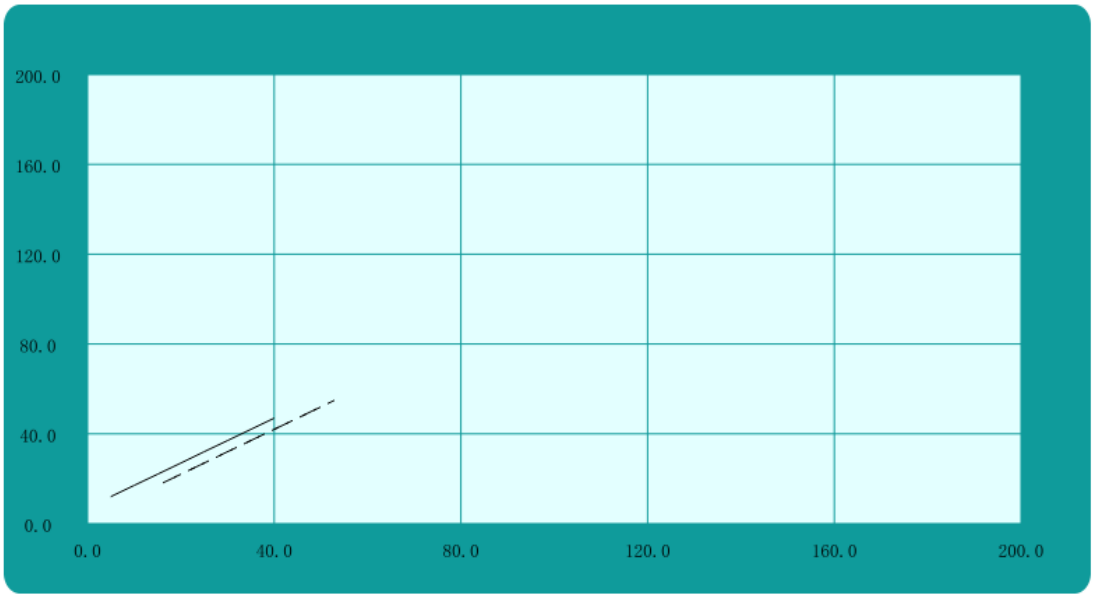


Variable: The data range for the graph could be set as a variable;

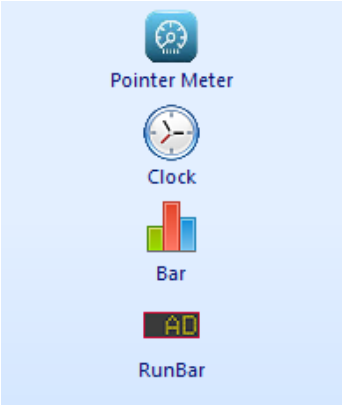
X, Y Limit: Set the max and min value of displaying curve;

Result

When all configurations are completed, when the HMI is running, it displays as shown below.



6.4 Meter



Meter display can display data as a meter. It contains Meter, Bar chart, Clock, Run Bar.

6.4.1 Pointer Meter

Introduction

The meter responds to changes in the value of the indicated word address by means of a dial and a pointer. The meter looks very similar to the actual meter.

Description

1) Basic

Read address: Read the value from the set PLC address;

Data format: It is for data setting;

Digits setting: it means the decimal point position. the decimal point position is effective only when data format is floating and decimal;

Min angle and max angle: Data range, if data beyond range will be not inputted;

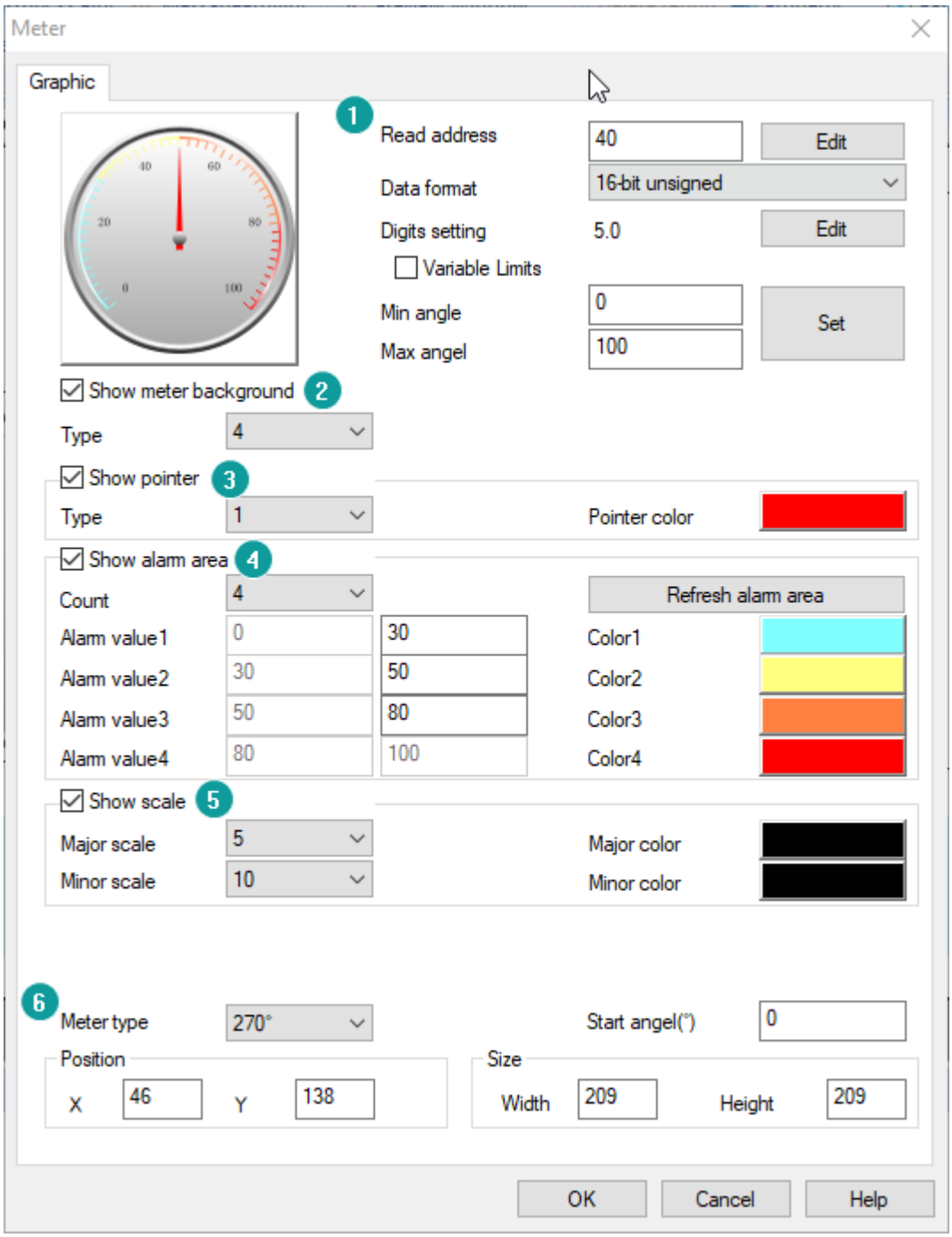
Variable limits: when checked, low limit address and high limit address could be edit showed below;

2) Show meter background

This is for setting meter background, there are four types, users could select it according to needs.

3) Show pointer

Users could select show pointer or not according to need, and it provides two types for pointer and users could select pointer color.



4) Show alarm area

It provides alarm function in meter, users could set alarm range, users could set the 4 ranges. And each range corresponds to a different alarm color.

5) Show scale

It provides settings for scale on meter, users could select [Major scale] and [Minor scale], and set color for them.

6) Meter angel settings

Meter Type: It sets the angel between the maximum and minimum value. It provides 7 kinds of styles, they are 180°, 210°, 240°, 270°, 300°, 330° and 360°.

Start angle: It sets the position where the minimum value is displayed.

Result

When configuration is completed, the object is shows as below picture, when HMI is running.

6.4.2 Clock

Introduction

This object displays HMI system time.

Description

1) Display settings

Back type: It is for clock dial style settings; it provides three types;

1: Fully transparent

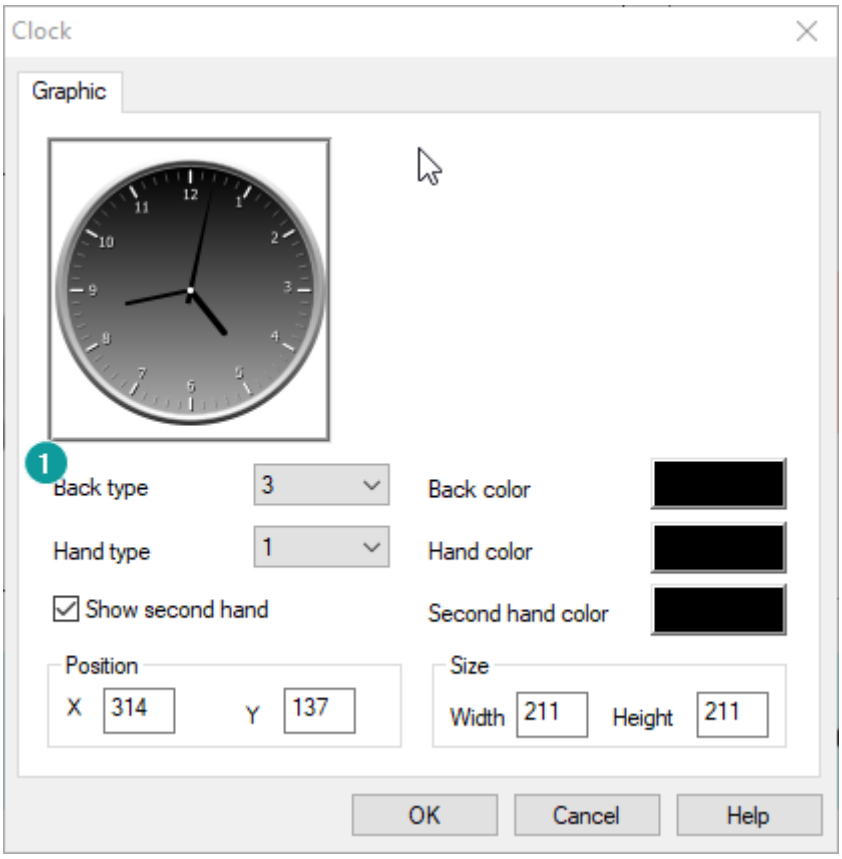
Back color: It is for setting color for clock dial, it is invalid when back type is 1;

Hand type: It is for clock hand style settings; it provides three types;

Hand color: It is for setting color for hand;

Show second hand: Check it to display second hand in clock;

Second hand color: It is for setting color for second hand;



Result

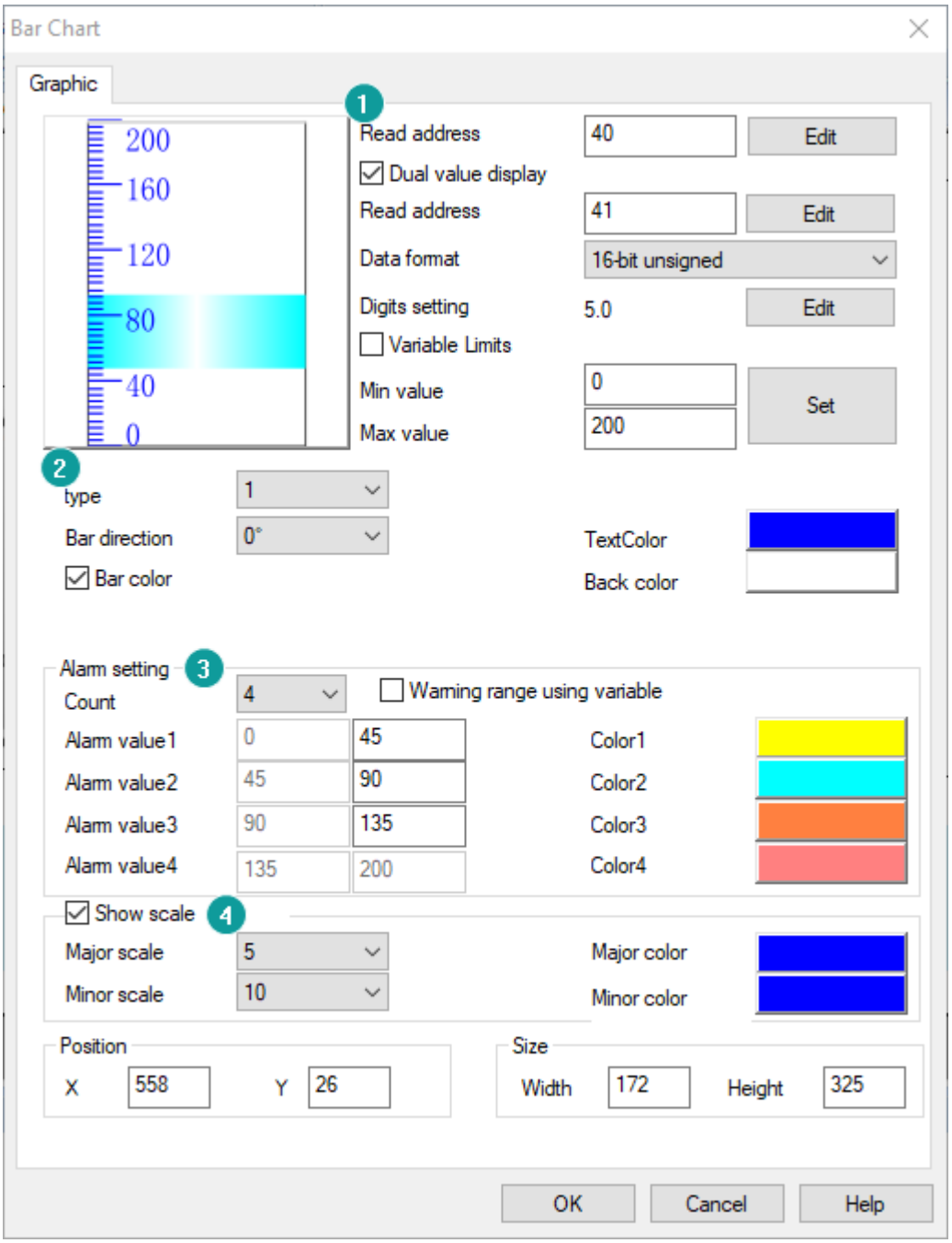
As soon as configuration is completed, the object is shows as below picture, during HMI is running.

6.4.3 Bar

Introduction

The bar graph shows the change in the value of the read address by means of a histogram.

Description



1) Data setting

Read address: Read the value from the set PLC address;

Dual Value Display: Set two read addresses. The bar graph will show the value segment between the two read addresses.

Data format: It is for setting data format from read address;

Digits setting: It means the decimal point position. The decimal point position is effective only when data format is floating and decimal.

2) Display settings

Type: It is for setting bar display type, it provides two types.

- Type 1: single scale display;
- Type 2: double scales display;

Bar direction: horizontal display or vertical display;

Back color: User could freely set the color when check it;

Text color: Display color of the scale value;

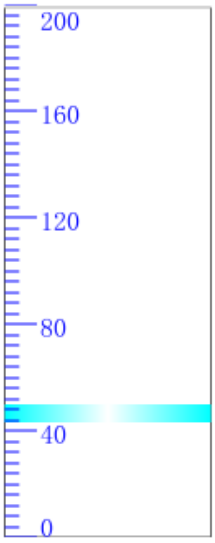
3) Alarm settings

It provides alarm function in meter, users could set alarm range, users could set the 4 ranges. And each range corresponds to a different alarm color.

4) Show scale

It provides settings for scale on meter, users could select [Major scale] and [Minor scale], and set color for them.

Result



When configuration is completed, the object shows as above picture, when HMI is running.

6.4.4 Runbar

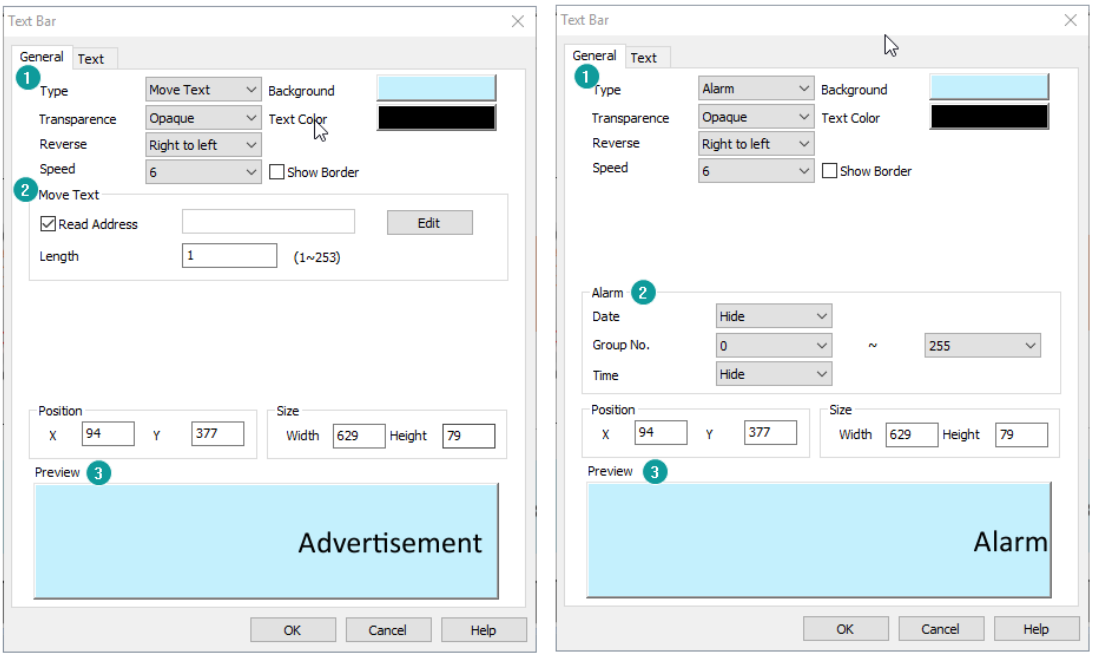
Introduction

Run bar object could display normal text and alarm text. User could select display content according to requirement.

When the alarm text is displayed, it could quickly and timely reflect the status of the current HMI alarm function for easy management and control.

When normal text is displayed, it provides two ways to set the display content to user (static text and dynamic text);

Description



1) Basic settings

Type: It is for display content settings

- Move Text: Normal text;
- Alarm: Alarm text;

Transparence: It sets the transparency of the object background;

Reverse: it sets text move right to left or left to right;

Speed: It sets text moving speed;

Background: It sets object background color;

Text color: It sets text color;

Show Border: Check it to show border for object;

Border: It sets object border color; it is visible only when [Show Border] is checked;

2) Display content settings

If it shows static text, please set content in [Text];

If it shows dynamic text, please check [Read Address], and set address and length for it;

If it shows alarm text, please select alarm information, such as time and date, alarm group number range;

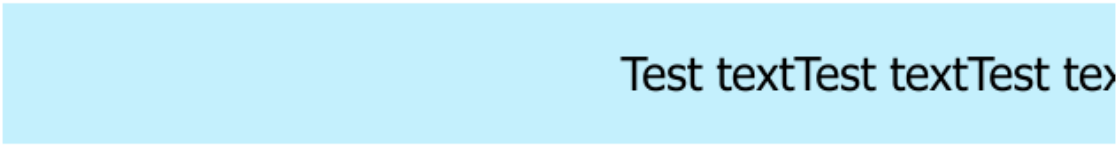
3) Preview

It is for preview text content in object;

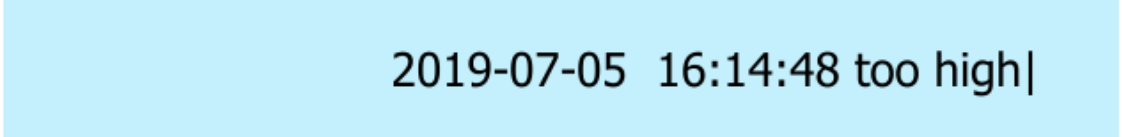
Result

When configuration is completed, the object is shows as below picture, when HMI is running.

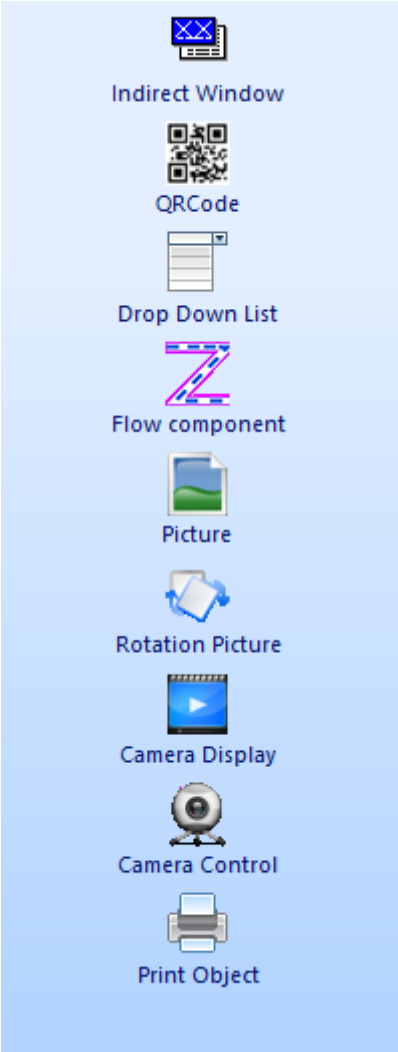
1) Normal text



2) Alarm text



6.5 Display



Display objects are used for displaying sub-screen, animation, screen or picture.it contains Indirect Windows, Picture, Rotation Picture, Drop-down List, Camera Control/Display, QR Code, Flow Components.

6.5.1 Indirect window

Introduction

Indirect window is used for displaying sub-screen in HMI project. Users could control it display different sub-screens by change read address value;

Description

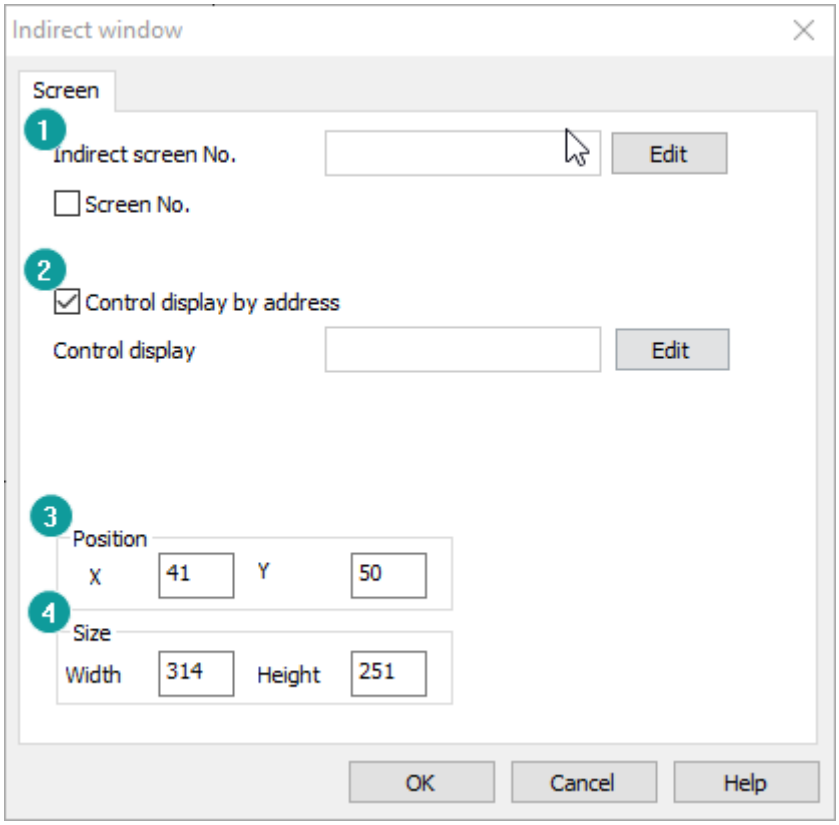
1) Screen No.

There are two modes for sub-screen display, one is static screen, and the other is dynamic screen, and switch screen by change read address value. User could only

choose one of the two modes.

Indirect scree No.: It is for setting read address to switch sub-screen;

Screen No.: Check it to enable static screen mode, and select screen for object;



2) Control display by address

Control display of the indirect object through bit address.

- Set ON: Display;
- Set OFF: Hide;

3) Position

It is for setting the position of sub-screen, the value is for coordinates of the top left point of it;

4) Size

It is for setting the size of sub-screen;

Result

When configuration is completed as below, sub screen will be displayed as picture

show.

1) Display static sub-screen;
2) Use HDX0.0 to control display or hide;

6.5.2 QR code

Introduction

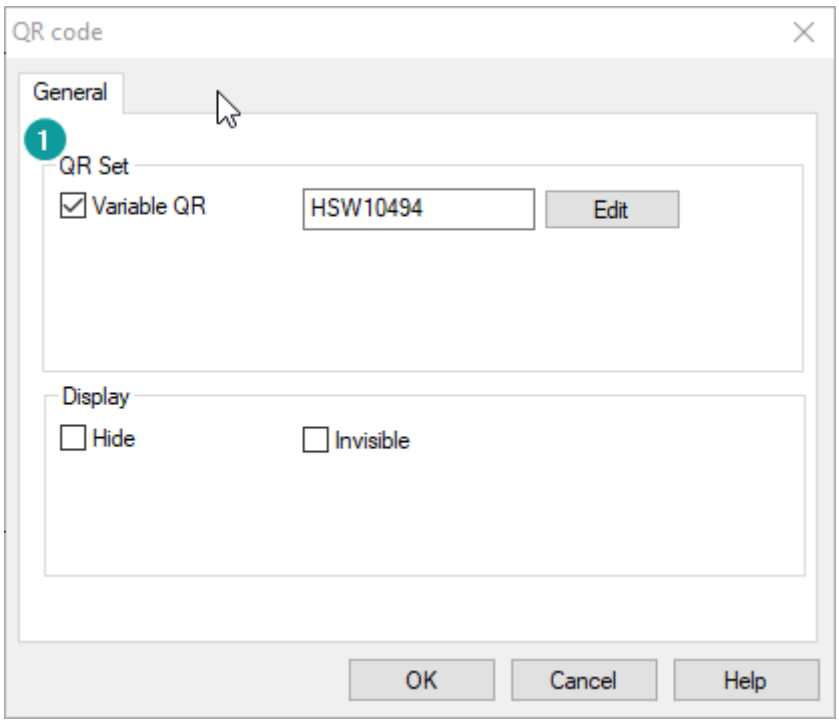
Similar to the universal QR code, users could scan this object to get the connection or content. But it provides settings content for QR code.

Description

1) **QR set**

   Variable QR: It is for setting read address, the content of QR code is from this setting address;

   QR String: It is for set static content for QR code;



✎Note:

- HMI machine ID address: HSW10494 ~ HSW10558;
- So if user want to use QR code to display machine ID in project screen, please check [Variable QR], and set address is HSW10494;

6.5.3 Drop-Down list

Introduction

Drop-Down list is designed for display the designated state by text, to select the text in the list, the corresponding state will change, and the write address will change to the designated state value.

Description

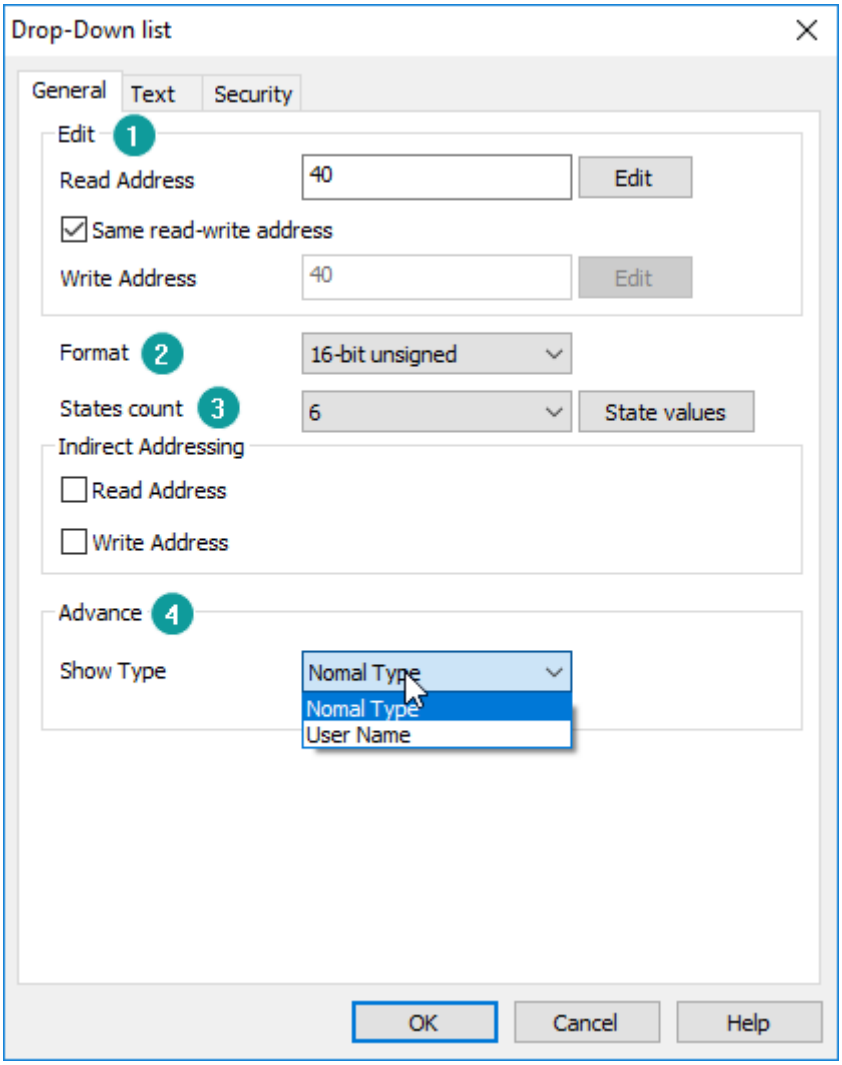
1) Edit

Read address: The data from designated address will be displayed.

Same read-write address: Configure [Write Address] is the same as [Read Address];

Write address: Write data to designated address. The address can be different

[Read Address];



2) Format

Set data format for object, it provides 16-bit unsigned and 16-bit BCD;

3) State count

It can support up to 128 states (0~127);

State value

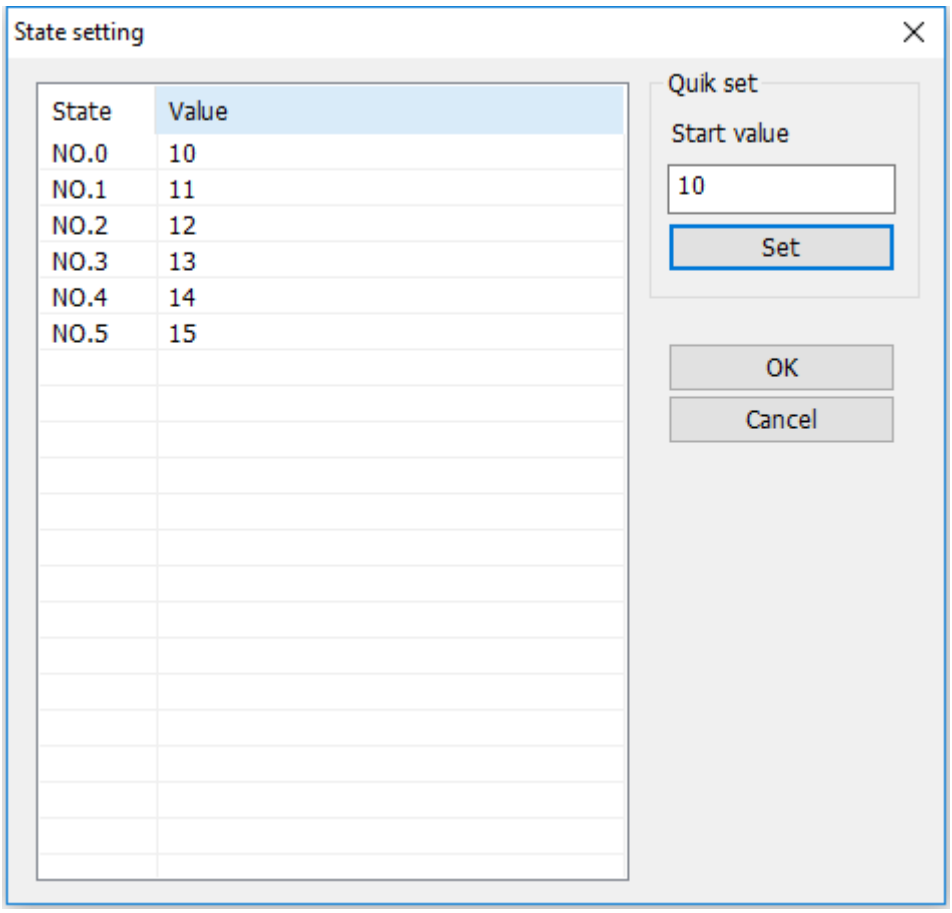
State value: Users can set different values to correspond to different states, the setting window as below figure shows.

For example

By default, when value of read address is 0, object displays state 0.

If change settings as below figure shows

When value of read address is 11, object displays state 1.



4) Advance

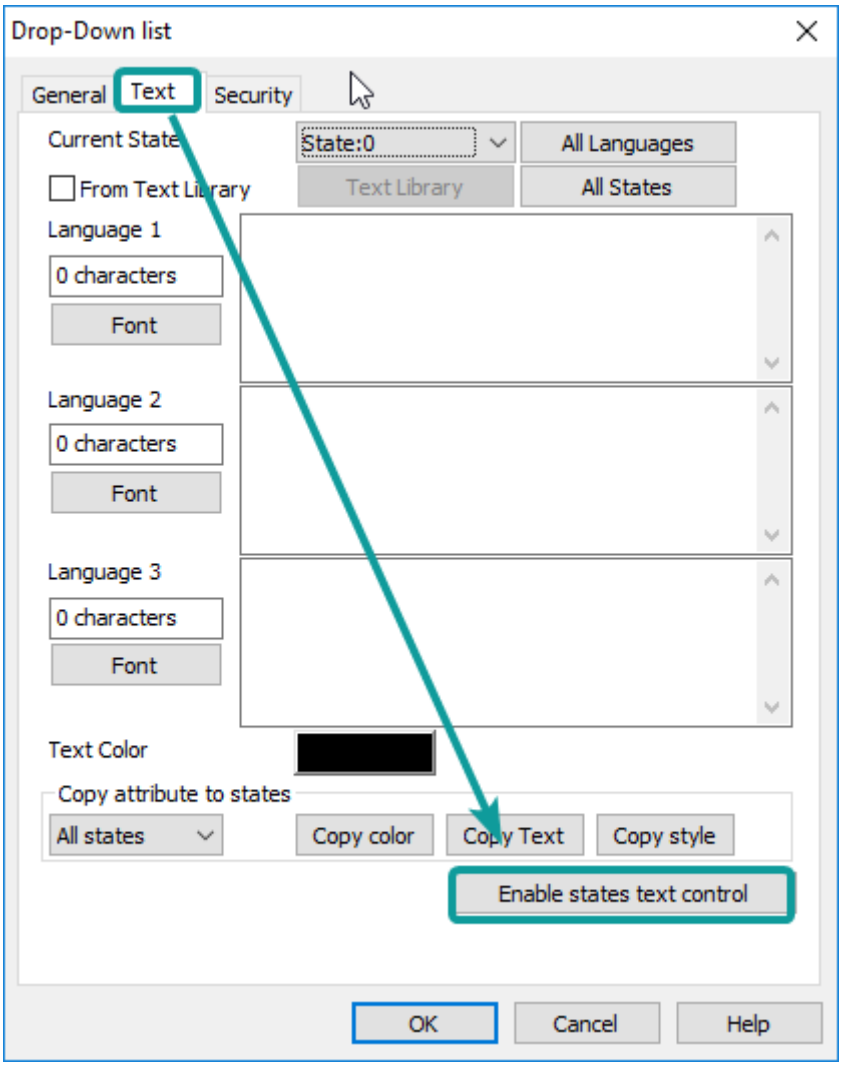
It provides two types for this object.

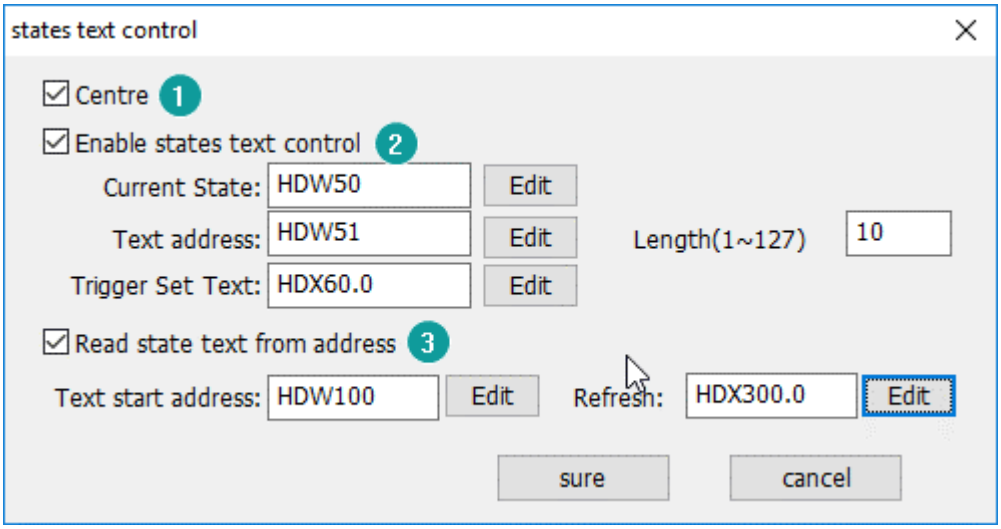
Normal Type: It makes object as normal drop-down list object;

User name: it is for user login permissions. User name and group name in user permissions are mainly displayed;

Text settings

Every state requires text, the settings as below description, the normal settings please refer to common setting section. This section will show special settings for it.





1) Centre

Check it to make the text centered;

2) Enabling states text control

User can dynamically modify the text content in different states. When this feature is enabled, the text for each state set in the normal mode is invalid.

- **Current state:** It is for setting state number for modification. For example, if the value is 3, it means that the text information in state 3 will be modified;
- **Text address:** This address is used for the operation of the text component and is used to input the content displayed in the state. The length of the text is the number of text characters that can be entered, ranging from 1-127 characters;
- **Trigger set text:** This address is used for saving modification;

3) Read state text from address

- **Text start address:** the first address of occupied multiple consecutive addresses. Address length: [Text length/2] *[state number +1]. For example, 10 states, the address length= (10/2) *(10+1) =55. It set HDW100 as start address, so the HDW100-HDW104 stores the currently selected text content, the HDW105-HDW109 displays the text in the first state, the HDW110-HDW114 displays the second, and so on.
- **Refresh:** The drop-down list status value is updated according to the text address content. The drop-down list is not updated immediately, when the data in the text address change is completed, only the refresh is triggered, it will update.

6.5.4 Flow component

Introduction

The flow components are mainly used to reflect the flow state in process flow production. User can set the style of flow components according to requirements.

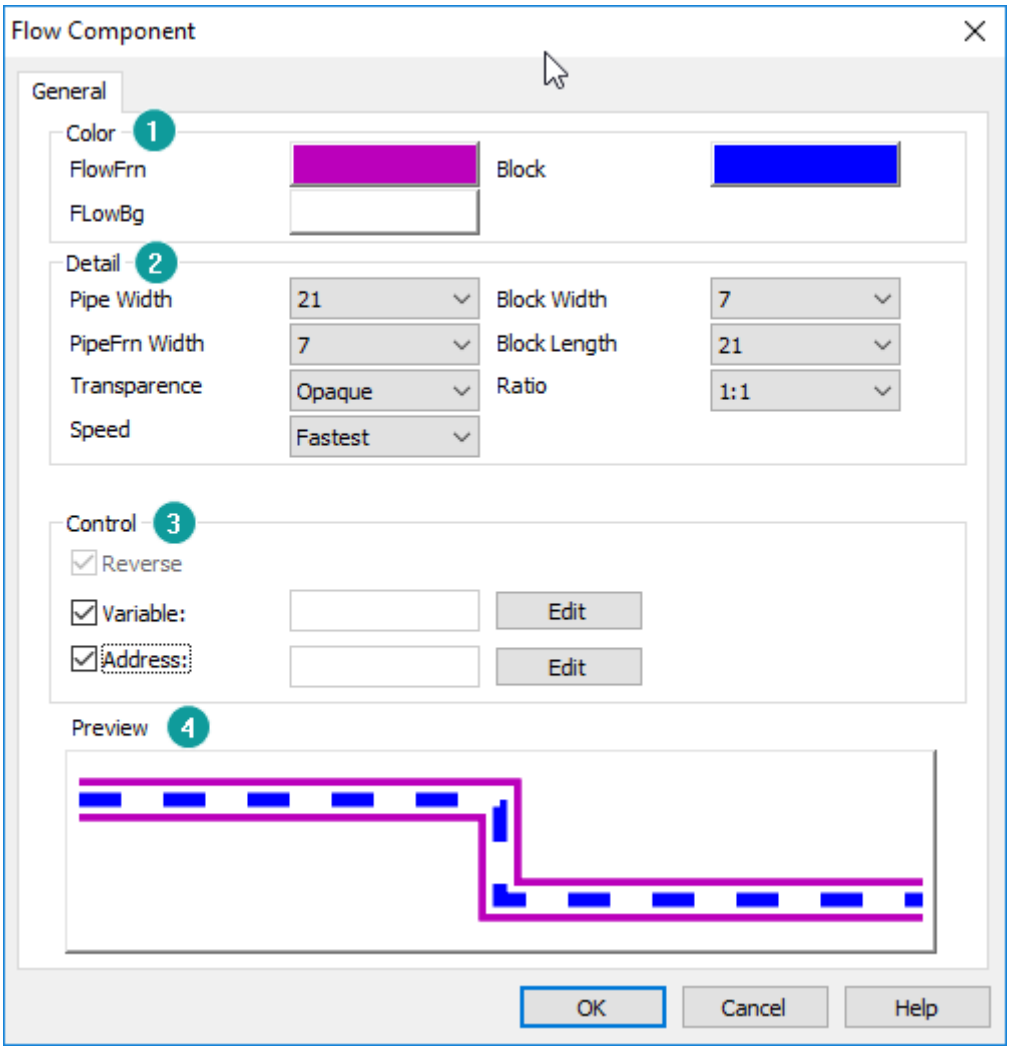
Description

1) Color

FlowFrn: It sets outer border color of flow component;

Block: It sets the block color of flow component;

FlowBg: It sets background color of flow component;



2) Detail

Pipe width: It sets background width of flow component;

Block width: It sets block width of flow component;

PipeFrn width: It sets outer border width of flow component;

Block length: It sets block length of flow component;

Transparence: It sets transparence of flow component. (opaque (0) full transparence (100)), user can cooperate with transparence and other settings to meet display requirements;

Ratio: It sets display ratio of block and background (Display density of the block in flow component);

Speed: It sets flow speed of the block during HMI running;

3) Control

Reverse: It sets flow in reverse (default is left to right);

Variable: It sets bit address to control reverse flow or not.

- **Set OFF:** Forward
- **Set ON:** Reverse

Address: It sets bit address to control flow or not.

- **Set OFF:** Stop
- **Set ON:** Flowing

4) Preview

It is for preview object;

6.5.5 Picture

Introduction

Picture object is for displaying picture in HMI screen.

Description

1) Shape

Shape: Click shape to open the Shape Library for shape selection;

Default shape: Every object has its own default shape, click it will back to default;

Discard: Click it, object will display without shape;

2) Set Color

This is for set object color basic on shape, not all shape supports change color;

3) Picture display function

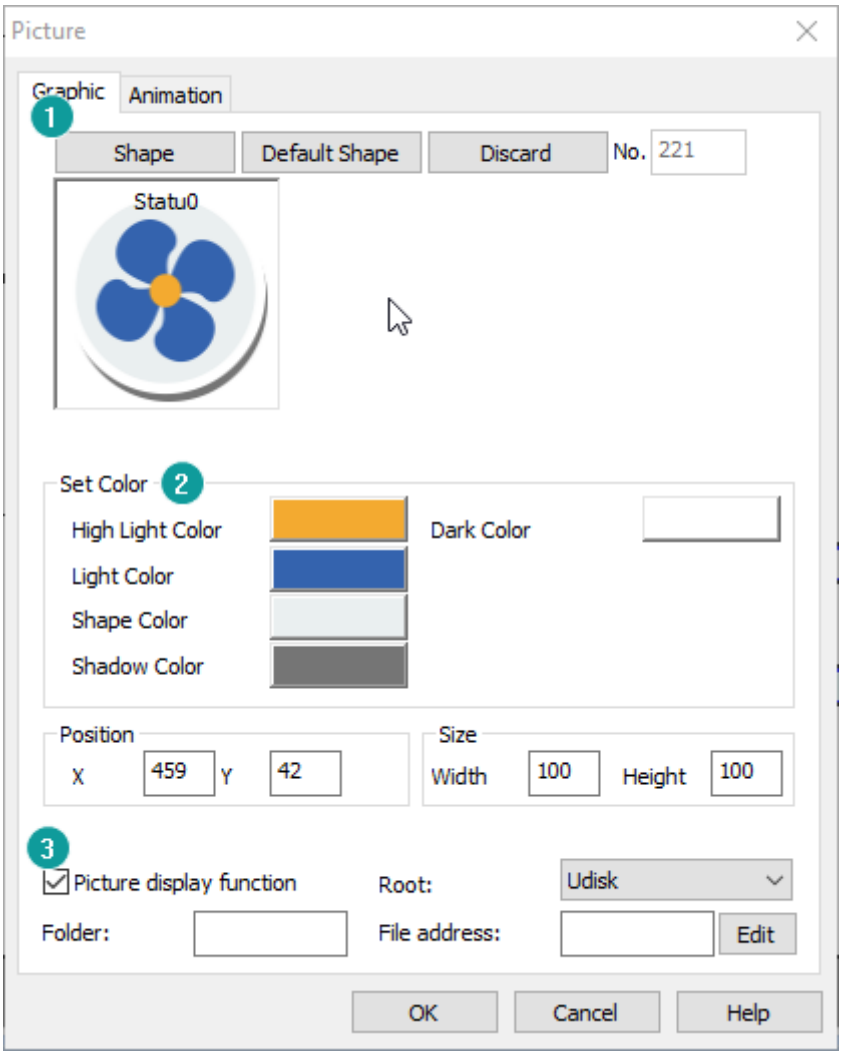
This is advanced function of picture object; user can change display picture when HMI is running. The supported formats are bmp, jpg, png, jpeg. This feature is unavailable for offline and online simulation.

Root: Set the save location of the picture, which can be set to U disk, SD card, but could not be set to Flash;

Folder: Set the name of the folder where the picture is located. The folder name

can be up to 31 characters;

File address: 16 consecutive addresses enter a picture name in the address (need to be the full name of the suffix), if the picture exists, the picture content is displayed; otherwise the default picture is displayed;

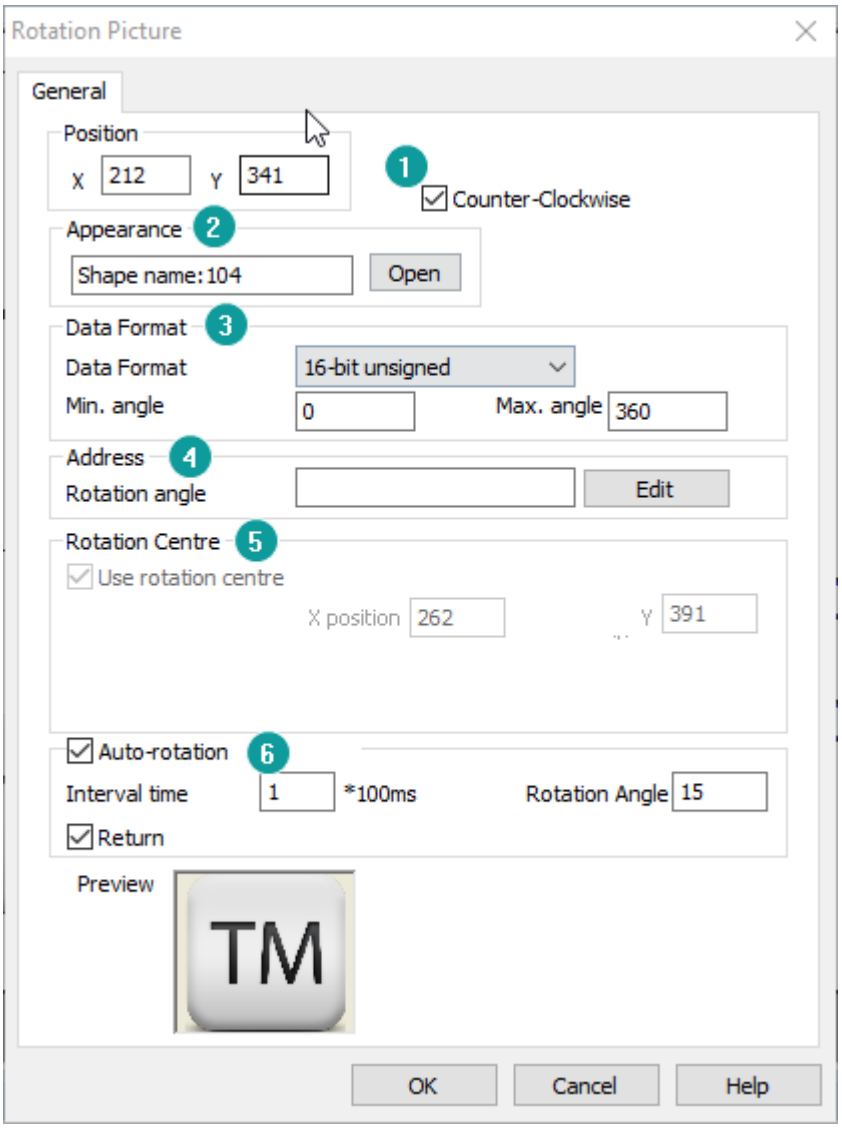


6.5.6 Rotation picture

Introduction

Rotation picture can rotate the image at a specified center or rotate it in a certain way. The way is determined by the property settings.

Description



1) Counter-Clockwise

It sets the rotation direction of the picture. The default is to rotate clockwise. When checked, the rotation direction is counterclockwise.

2) Appearance

It sets picture for object, the picture is selected from Shape.

3) Data format

Data format: It sets data format for [Address]->[Rotation angle];

Min. angle: It sets the starting angle of rotation (Valid in auto-rotation mode);

Max. angle: It sets the ending angle of rotation (Valid in auto-rotation mode);

4) Address

Rotation angle: the rotating angle is determined by designated address; this mode and auto-rotation mode could not be used at the same time;

5) Rotation center

It shows the rotation center coordinates;

6) Auto-rotation

Cycle time: Object will rotate every cycle time. Unit: 100 ms;

Rotation angle: Object rotates designated angle every time;

Return: Object will be reset to original position after maximum angle reached.

6.5.7 Camera display

Introduction

Video display is advanced function in PI HMI, this object displays the camera screen in HMI, there are two modes, one is IP camera, and the other is USB camera. But IP camera requires settings in [Project settings], the detailed information, please refer to [Camera].

✎Note:

This function requires special HMI model, the detailed information, please contact sales.

Description for IP camera

1) Mode select

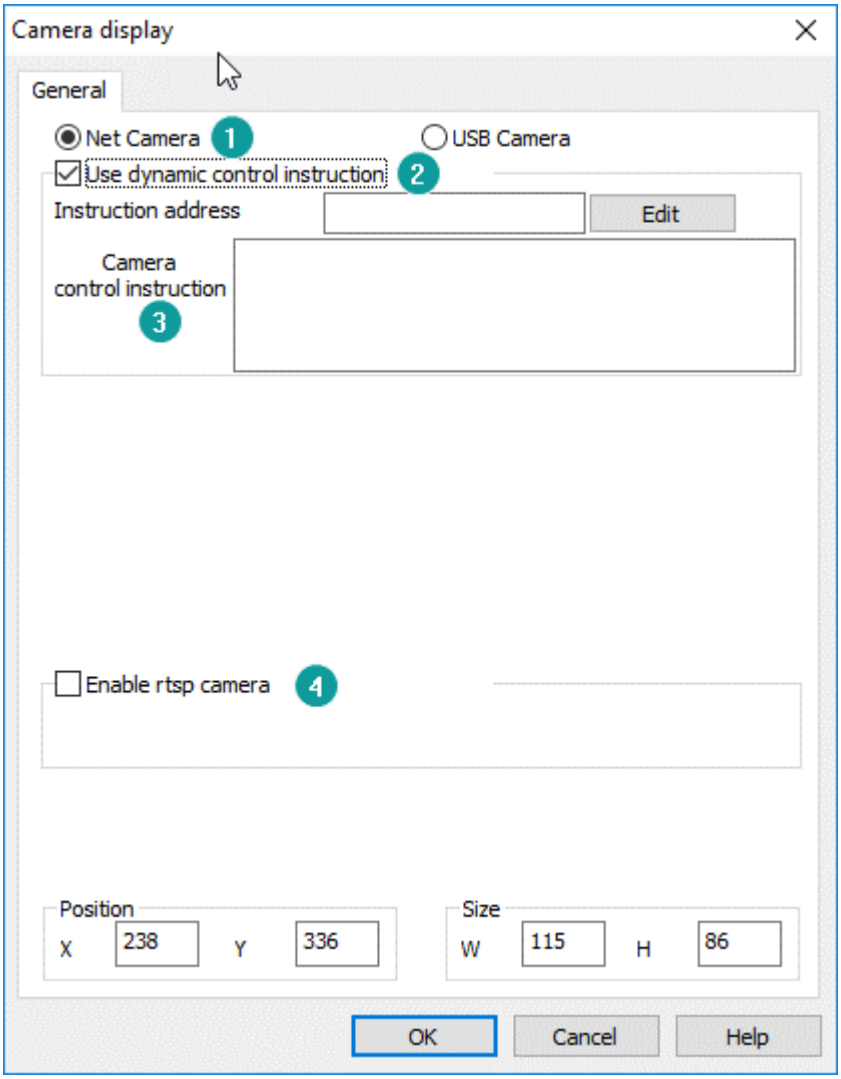
It is used for selecting modes; each mode uses different settings;

2) Use dynamic control instruction

Read a string from designated system address, and then combine the instruction to control the camera image.

When the dynamic control command is disabled, the complete camera control

command need to be entered in order to display the camera contents.



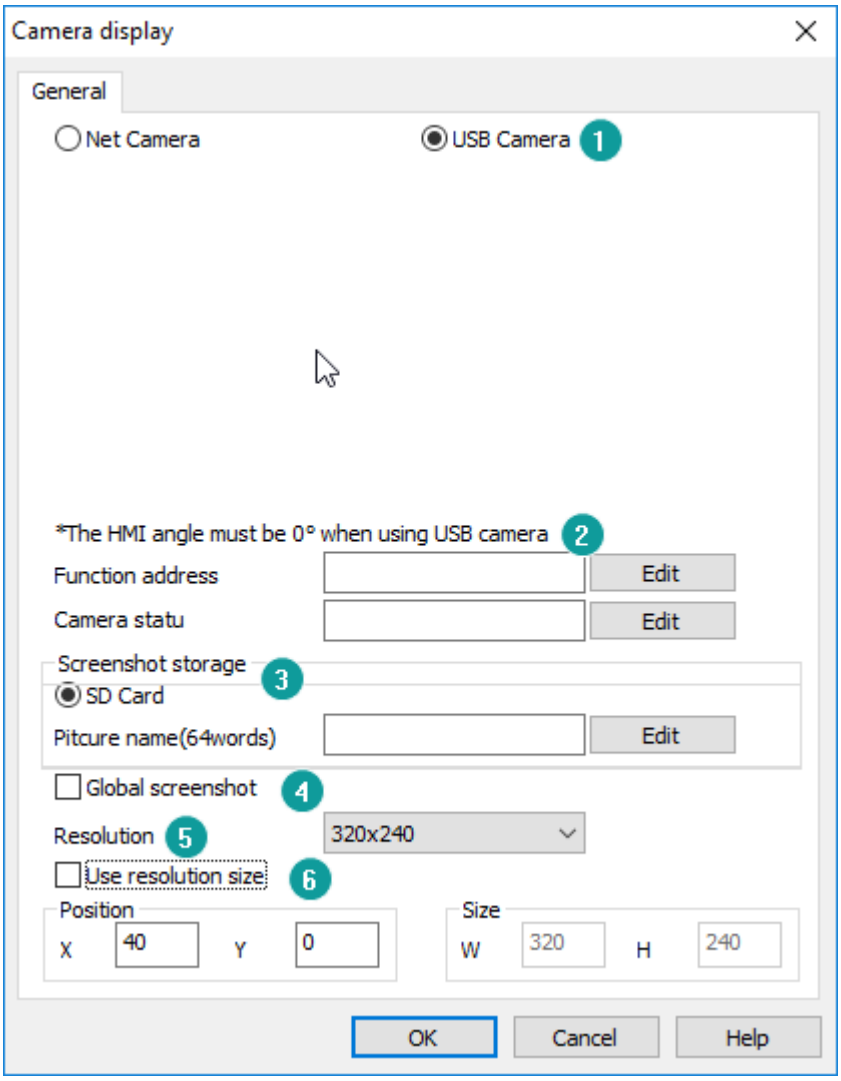
3) Camera control instruction

This is for entering static instruction for camera, so that users can operation camera when HMI running;

4) Enable rtsp camera

This is another way to control camera, check it and set the function address.

Description for USB camera



1) Mode select

It is used for selecting modes; each mode uses different settings;

2) Camera settings

Function address: It occupies a word for functional operation. Different value means different operations, as below table shows:

Value	Operation
1	Enable the screenshot function
2	refresh camera display object

Camera state: It shows the current camera states. It occupies a word address.

Different value means different operations, as below table shows:

Value	Operation
1	Load the camera function successfully
2	Failed to load the camera function
3	Camera does not exist
4	Camera is not running
5	Initialize the camera successfully
6	Failed to initialize the camera
7	Screenshot successfully
8	Failed to screenshot
9	Connected camera
10	Removed camera
11	The cache is full
12	The cache is abnormal

3) Screenshot storage

The current screenshots are only allowed on the SD card. When the SD card does not exist the system will cache the latest 10 screenshots.

Picture name: The name of the image is controlled by the address. The length of the file name is limited to 64 words. If the image name address is not set, it will be named according to the time and displayed as [YYYYMMDDHHMMSS.bmp] and screenshot format is [.bmp].

4) Global screenshot

If this function is enable, camera display object can perform the screenshot operation when HMI is running and save it as a .BMP image.

If this function is disabled, camera display object only performs the screenshot operation when it is displayed on screen.

5) Resolution

The resolutions of different types of USB cameras are different, and the user can select the corresponding resolution according to the camera. When the user is

unsure of the resolution of the camera, start with the smallest resolution until the image is clear.

6) Use resolution size

Coordinate displays the object location in the screen, and size is the length and width of the object.

✎Note:

1) When using USB camera, HD USB camera is not recommended, which is limited by the resolution displayed by HMI itself.
2) When HMI is displayed horizontally, the USB camera screen displays normally. If select vertical display, USB camera can't display normally. (USB camera can only display normally when the display Angle of HMI is 0.)
3) One HMI is only allowed to connect with one USB camera device. There is only one USB camera display part in the whole project screen, and the camera display part is not allowed to be placed on the public screen (1002: common Windows).
4) Sometimes the USB camera may lose the image because of the influence in the field, then we suggest to 9000 HMI and the recommended USB camera model.
5) All below USB camera model have been tested by to ensure the compatibility.
   - REB-USB 100W07M (supports 720p)
   - WX152HD (supports 720p)
   - RMONCAM G200 (supports 720p)
   - ASHU S300 (640*480)

6.5.8 Camera Control

Introduction

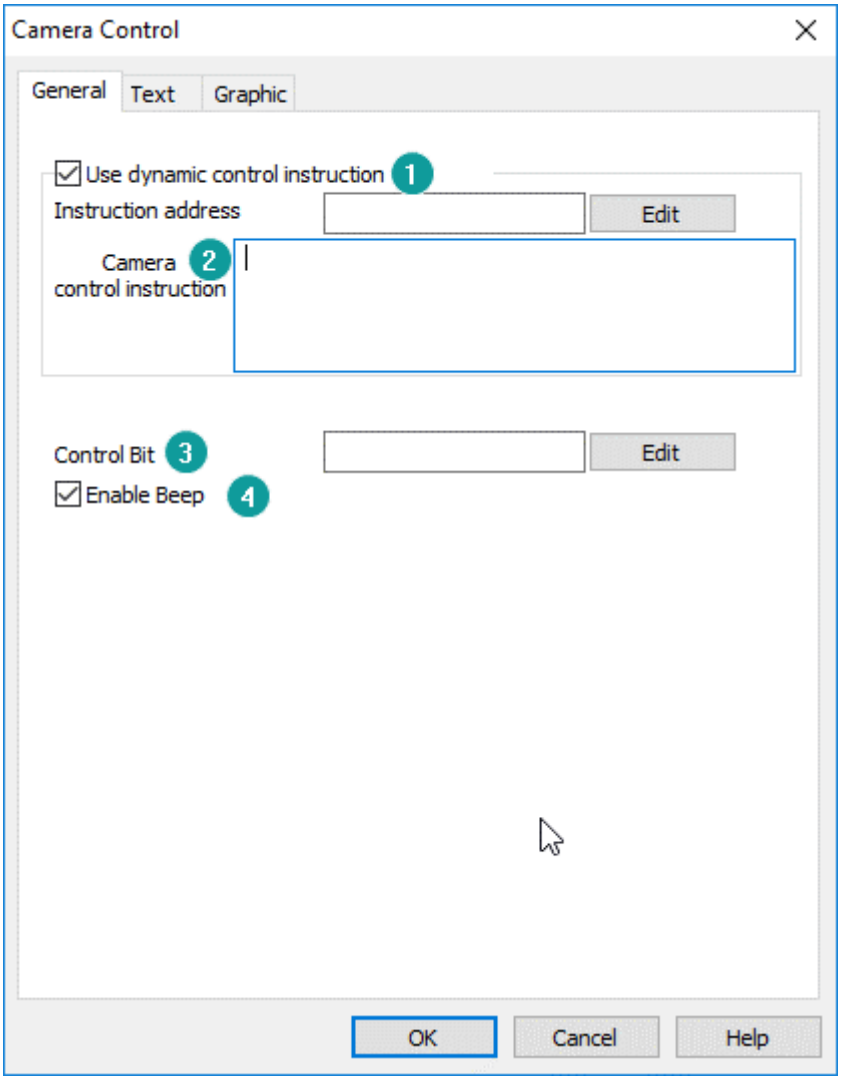
This is for control camera; this object need to be used with camera display object.

Description

1) Use dynamic control instruction

Read a string from designated system address, and then combine the instruction to control the camera image.

When the dynamic control command is disabled, the complete camera control command be entered in order to display the camera contents.



2) Camera control instruction

This is for enter static instruction for camera, so that users can operation camera when HMI running;

3) Control bit

Trigger the switch to control the instruction.

4) Enable beep

The object will beep when operate.

6.5.9 Printer

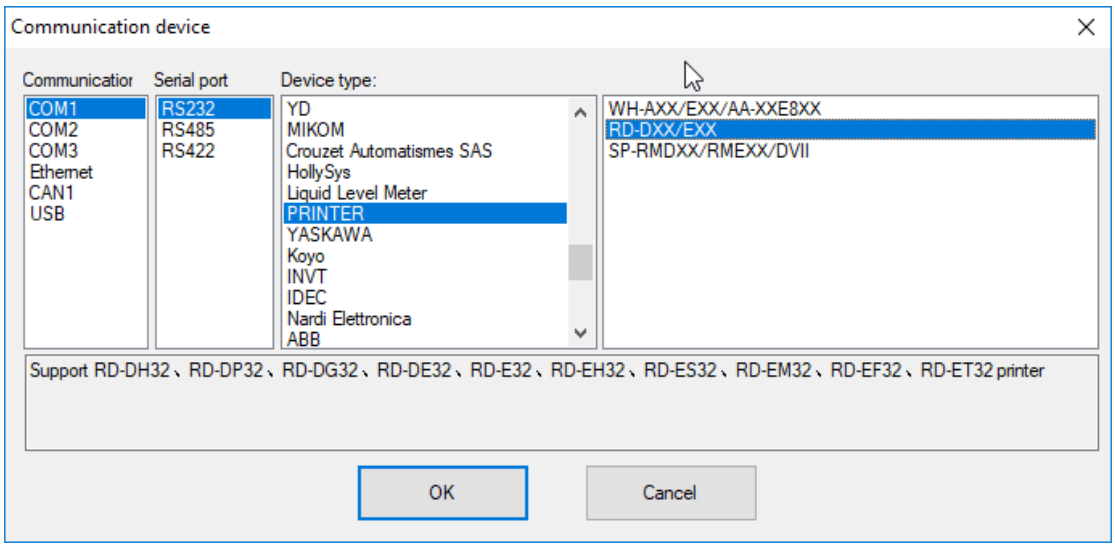
Introduction

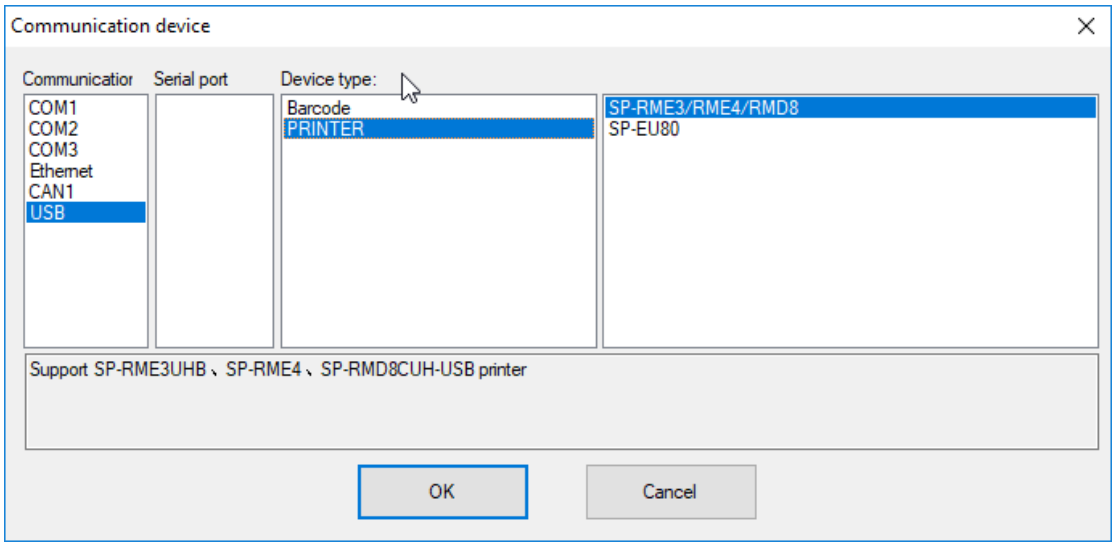
The printing object is primarily suitable for print out or screenshots saving when connected to micro printer.

Printer has two types: serial printer and USB printer. Printf (printext function) should be called when it's used to print fixed message in a script.

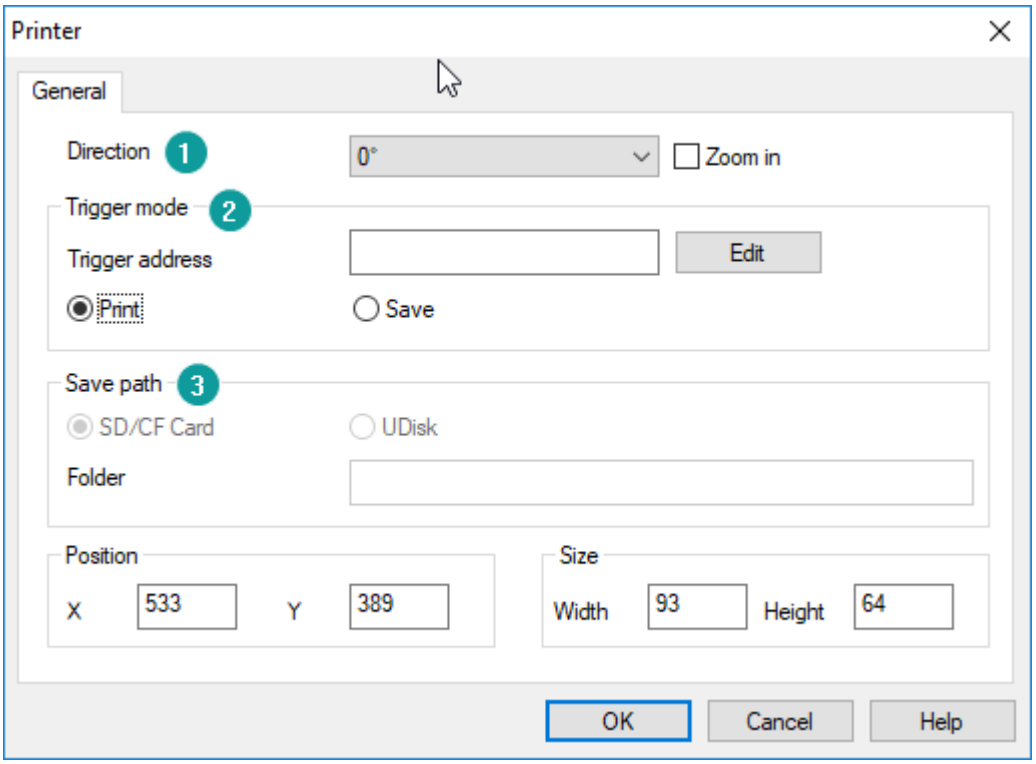
Printer protocol

HMI provides printer protocol to users as below. If users want to connect printer to HMI, protocol is necessary.





Description



1) Display settings

Direction: Four direction choices in printing: 0, 90, 180, and 270.

Zoom in: Check [Zoom in] to zoom printing content in proportion with paper size.

2) Trigger mode

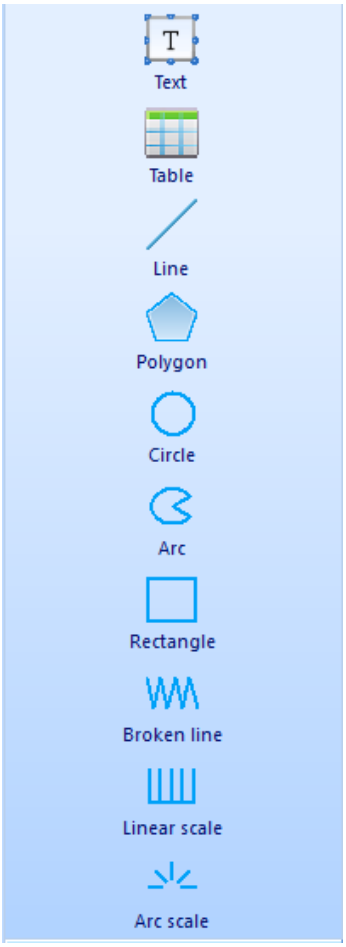
Trigger address: When trigger address turns ON. Printer starts to respond operation.

Printer\ Save: It sets operation for this object, printer object can support sending printing command to printer device, and including screenshot;

3) Save path:

Valid when the save mode is selected, screenshot the content in printing object area and the save it in specified storage and folder, when trigger address turns ON.

6.6 Draw



it provides function of drawing graphics, setting text, displaying pictures, this part contains Text, Line, Polygon, Cycle, Arc, Rectangle, Broken Line, Linear Scale, Arc scale, Table.

6.6.1 Date

Introduction

Date object displays local system date on the HMI screen

Description

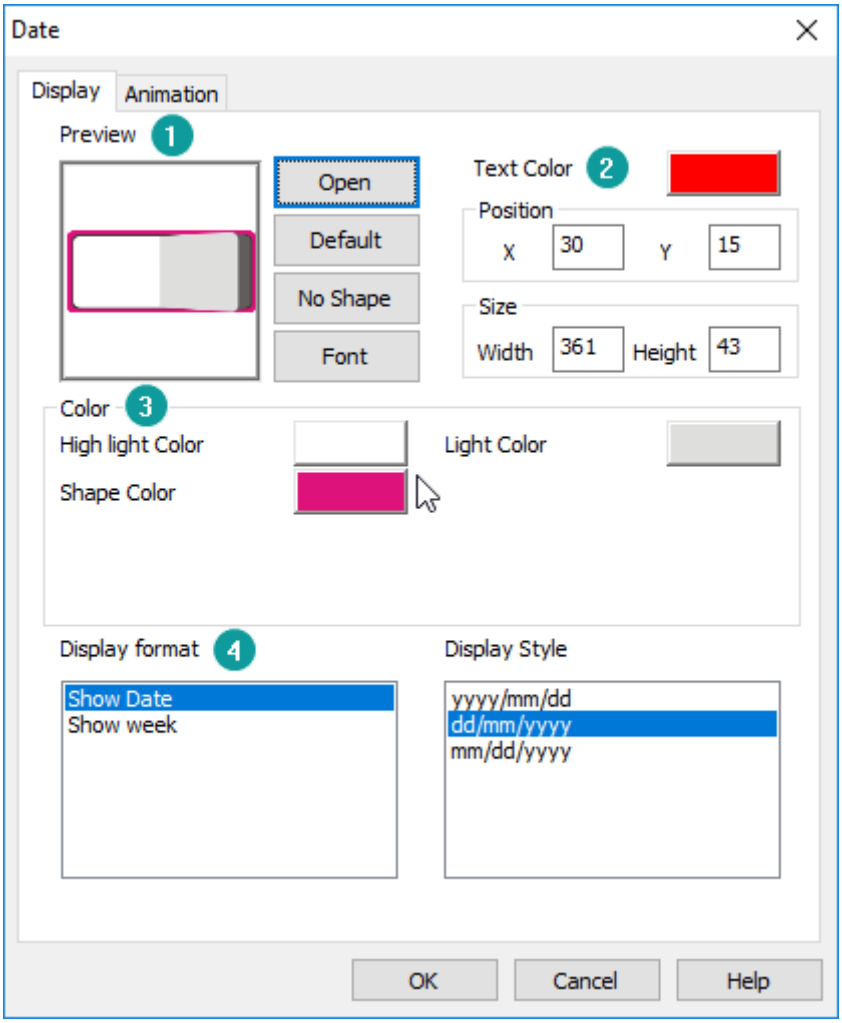
1) **Display**

Open: It locals to [Shape] to select object background picture;

Default: Click it to reset object background;

No Shape: It sets transparent background for this object;

Font: It locals to [Font library] to select font for text in object;



2) Text color

It sets color for text in object;

3) Color

Valid when select SVG picture from [Shape], user can modify SVG color according to requirements;

4) Data format

It sets object display date or week, and format, detailed please refer to below table.

Classification	Properties	Display style
Format	Show date	YYYY/MM/DD: year/month/day MM/DD/YYYY: month/day/year

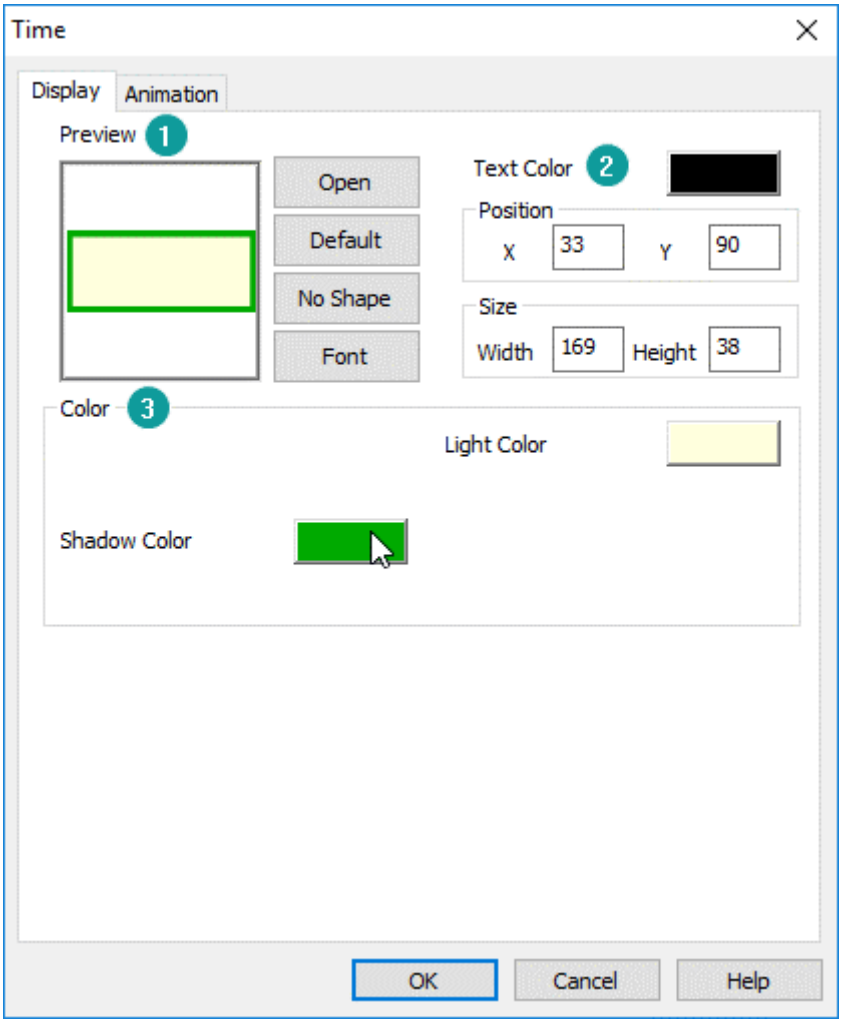
		DD/MM/YYYY: day/month/year
	Show week	Chinese 1 English 1 Chinese 2 English 2

6.6.2 Time

Introduction

Date object displays local system time on the HMI screen

Description



1) Display

Open: It locals to [Shape] to select object background picture;

Default: Click it to reset object background;

No Shape: It sets transparent background for this object;

Font: It locals to [Font library] to select font for text in object;

2) Text color

It sets color for text in object;

3) Color

Valid when select SVG picture from [Shape], user can modify SVG color according to requirements;

6.6.3 Text

Introduction

It adds text to HMI screen, and a object can be displayed in 8 languages (set in "All Languages") with a special address setting.

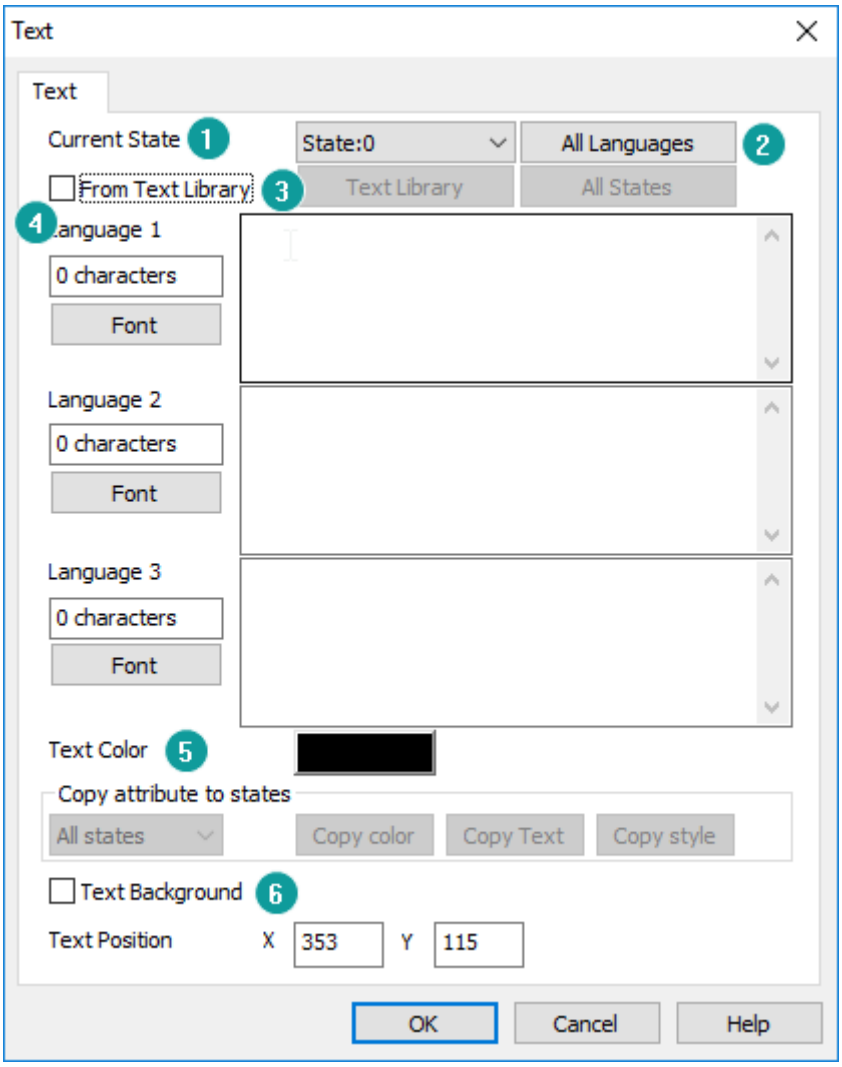
Description

1) Current state

It used to switch the object states, but [Text] object only has one state, so this function is invalid.

2) All language

Because in PI HMI, all object can support text in 8 languages, so click it to open the 8 language edit window as below shows. And each language can set different font.



3) From text library

If user already setting text in [Text library], user can use text from [Text library] directly.

4) Windows

It displays three languages content and provides text display setting access

5) Text color

It sets color for text in object;

6) Text background

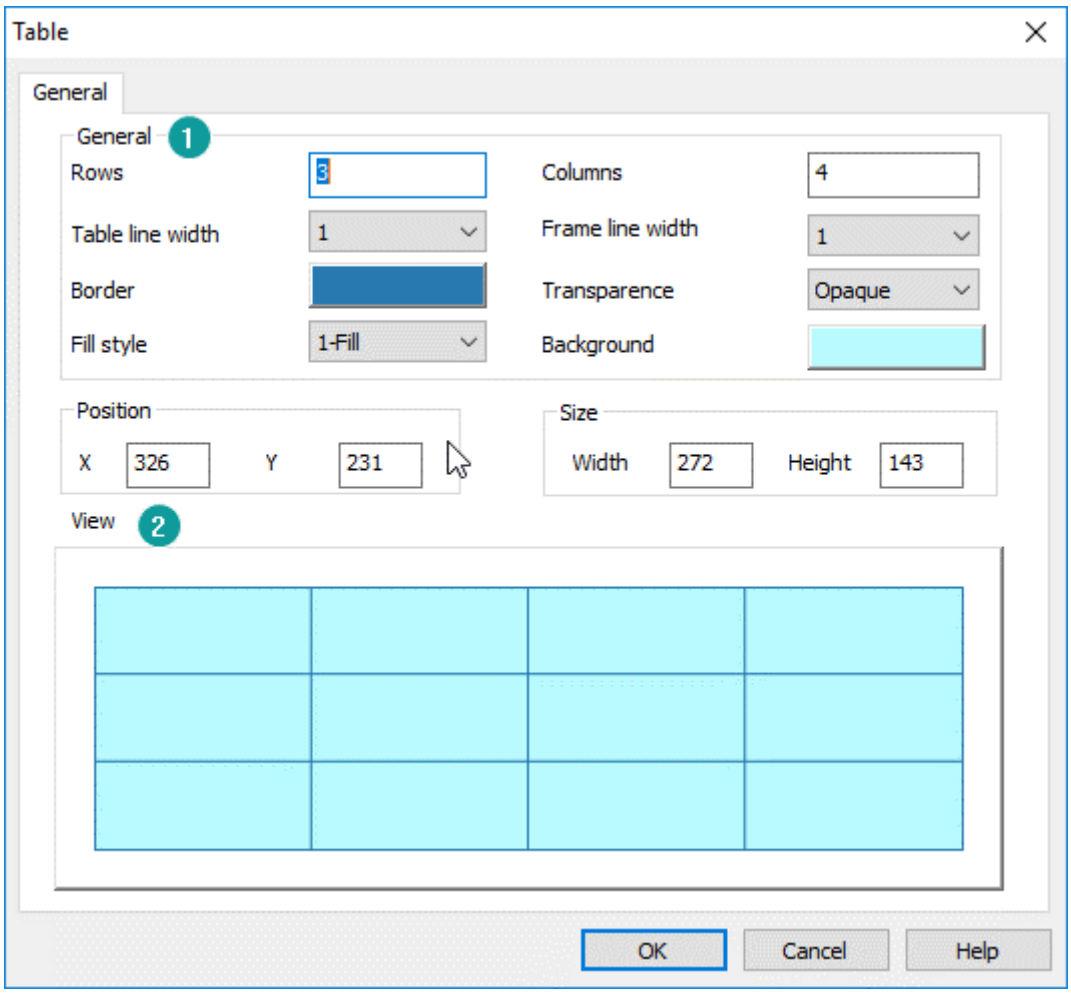
It sets object background; it only supports color;

6.6.4 Table

Introduction

It is displayed in a table format in the HMI screen to meet the display needs of user.

Description



1) **General**

Rows: It sets rows for table;

Columns: It sets columns for table;

Table line width: It sets table line width, the larger the value, the thicker the line;

Frame line width: It sets table frame line width, the larger the value, the thicker the line;

Border: It sets table line color, including table line and frame line;

Transparence: It sets the transparency of the object background;

Fill style: There are two options for it, one is display background, and the other is no background;

Background: Valid when select display background in [Fill style];

2) View

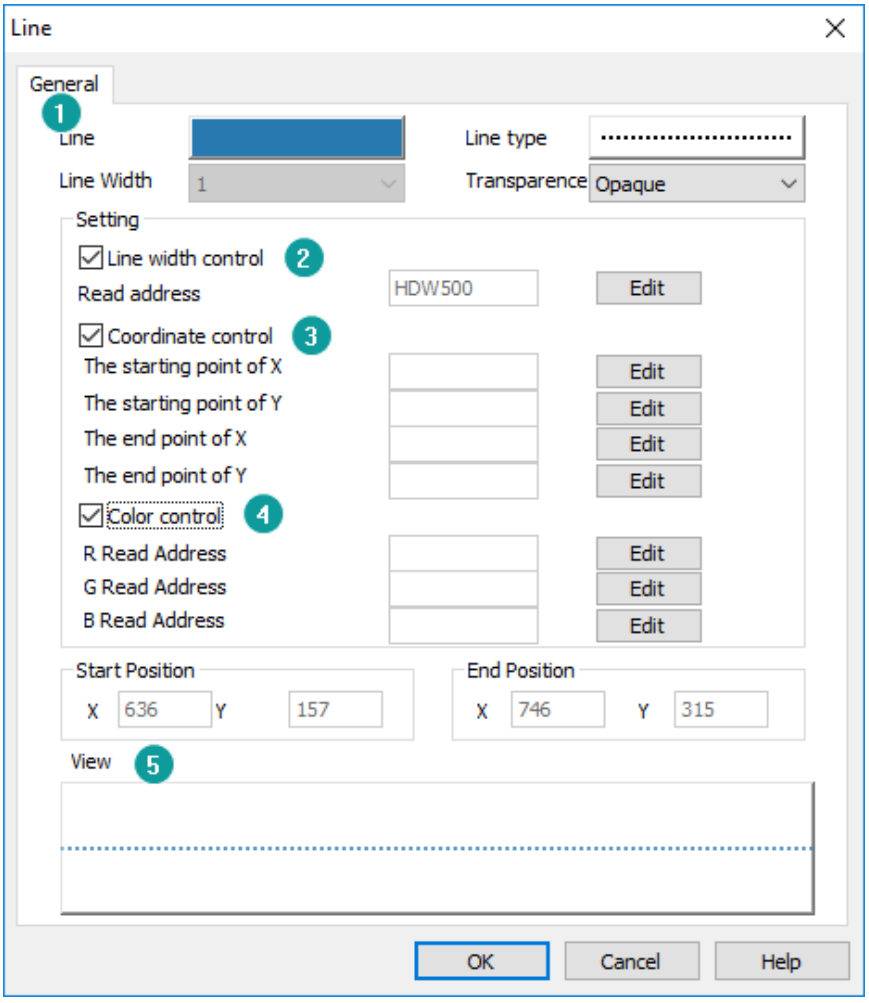
It is for preview object;

6.6.5 Line

Introduction

It is displayed in line format in the HMI screen to meet the display needs of user.

Description



1) Display settings

Line: It sets line color;

Line type: It sets line type; it provides 9 types for user;

Transparence: It sets the transparency of the object background;

2) Line width control

In basic display settings, the line width can't be changed, but user can change width by address.

Read the numerical value of address to control the width of line. Display range of numerical value: 1-10.

3) Coordinate control

Dynamically set the position coordinate between two points in line. Set four addresses respectively corresponding to the starting point and end point coordinate. If the numerical value of coordinate is over interface, the object will not be displayed.

4) Color control

Dynamically set the color of the line. The values of the color RGB are controlled by three addresses, and the value range from 0 to 255.

5) View

It is for preview object;

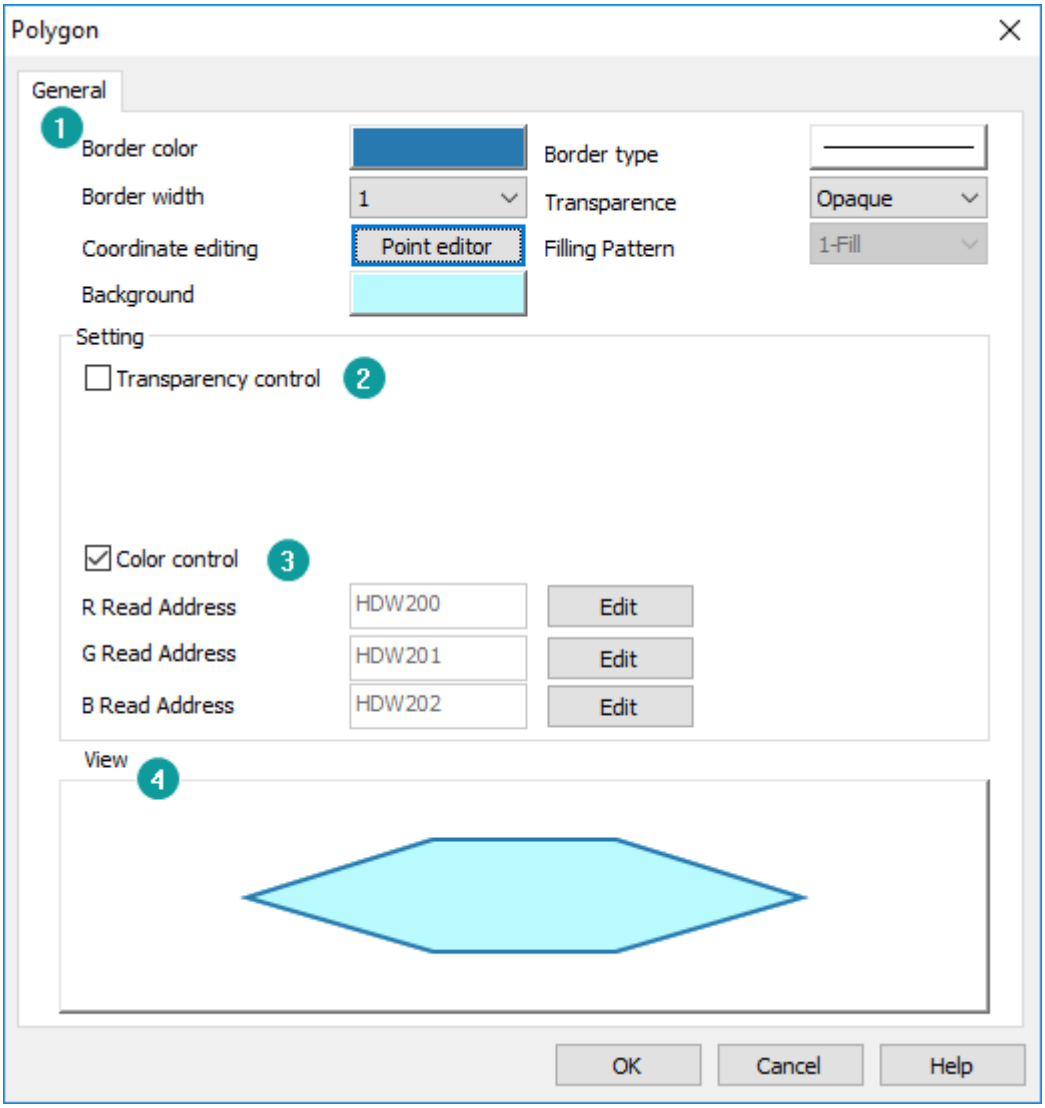
6.6.6 Polygon

Introduction

It is displayed in polygon format in the HMI screen to meet the display needs of user.

Right click to close polygon and then complete the creation procedure. Select the polygon, then click its point position to change its vertex coordinate after it is created.

Description



1) Display settings

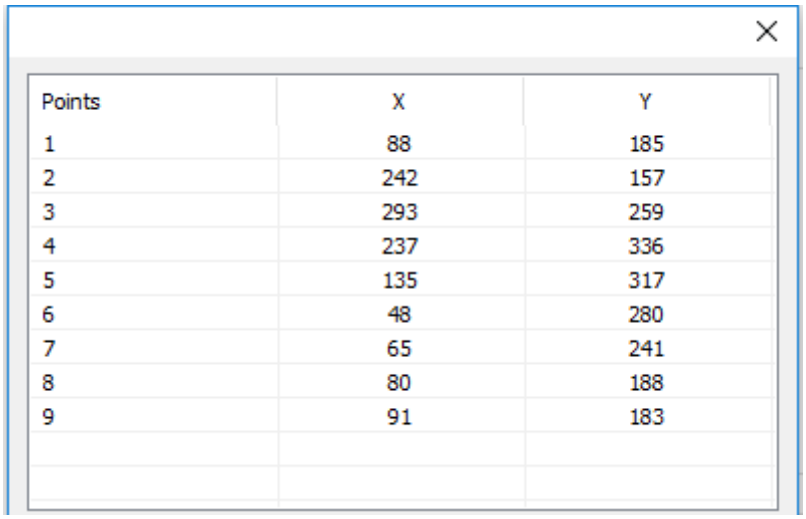
Border color: It sets border line color;

Border type: It sets border line type;

Border width: It sets border line width

Transparence: It sets the transparency of the object background;

Coordinate editing: It changes coordinate for all points in this object, as below shows;



Points	X	Y
1	88	185
2	242	157
3	293	259
4	237	336
5	135	317
6	48	280
7	65	241
8	80	188
9	91	183

Filling pattern: It can't be modified now;

Background: It sets background color of object;

2) Transparence control

Read the numerical value of address, control the transparency; value range: 0-100.

3) Color control

Dynamically set the color of background. The values of the color RGB are controlled by three addresses, and the value range from 0 to 255.

4) View

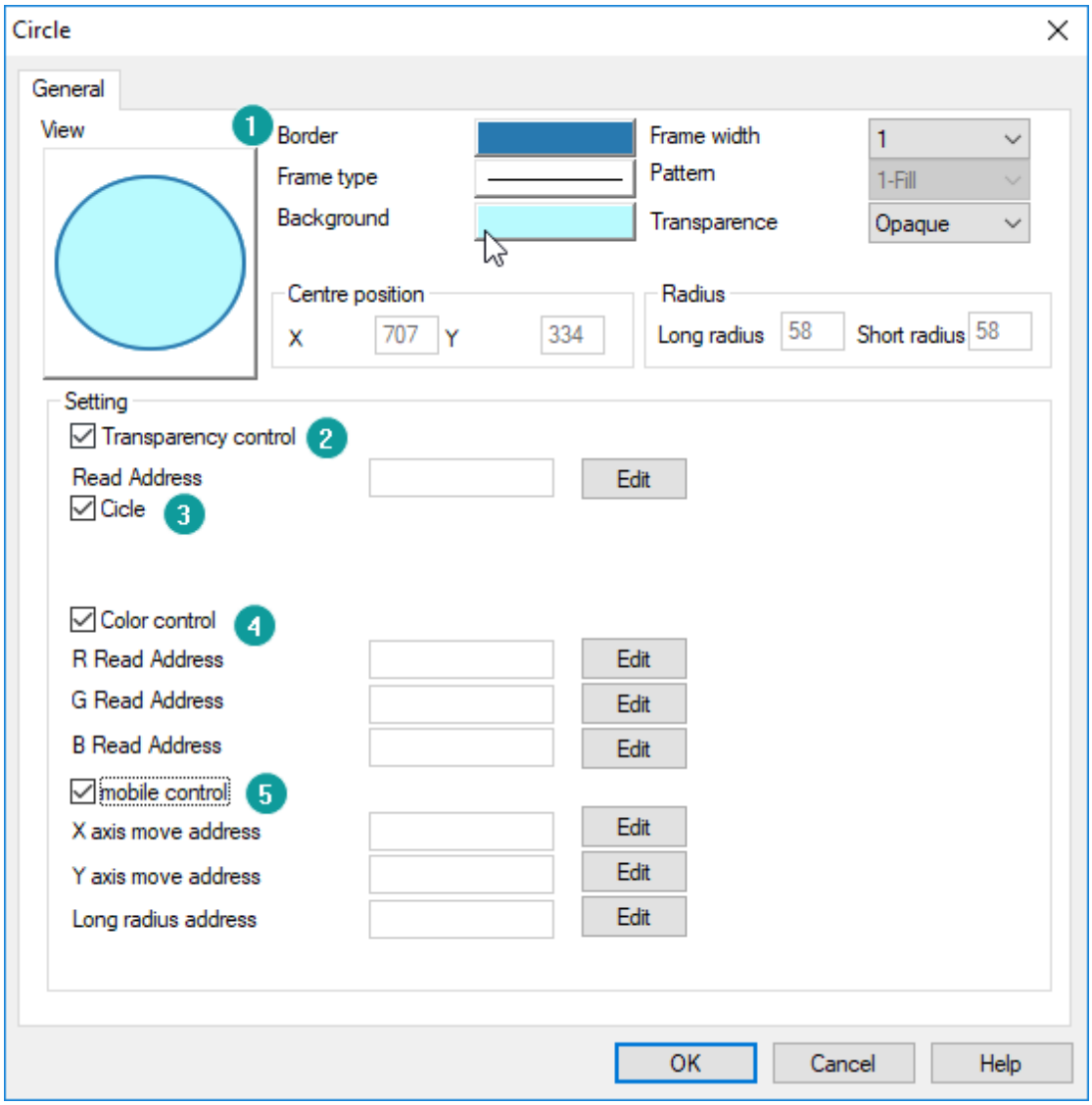
It is for preview object;

6.6.7 Cycle/ Ellipse

Introduction

It is displayed as cycle in HMI screen to meet the display needs of user.

Description



1) Display settings

Border: It sets border line color;

Frame width: It sets border line type;

Frame type: It sets border line width

Pattern: It sets background type, there are four types.

Background: It sets background color of object, invalid when select [No fill] in [Pattern]

Transparence: It sets the transparency of the object background;

2) Transparence control

Read the numerical value of address, control the transparency; value range: 0-100.

3) Cycle

Check if for circle; uncheck it for ellipse.

4) Color control

Dynamically set the color of background. The values of the color RGB are controlled by three addresses, and the value range from 0 to 255.

5) Move Control

Dynamically set the position coordinate and size of circle/ellipse when HMI is running.

X axis: The length value moved along the X axis comes from the set address;

Y axis: The length value moved along the Y axis comes from the set address;

Radius address: The radius length of the circle/ellipse from the set address;

6.6.8 Arc

Introduction

The software uses arc drawing to specify the starting point and ending point, using a counterclockwise drawing method. The contour, start and end points of the arc can be modified on the screen. If the user wants to change the start and end points of the arc on the screen, the arc should be selected firstly.

Description

1) View

It is for preview object;

2) Display settings

Border: It sets border line color;

Line type: It sets border line width;

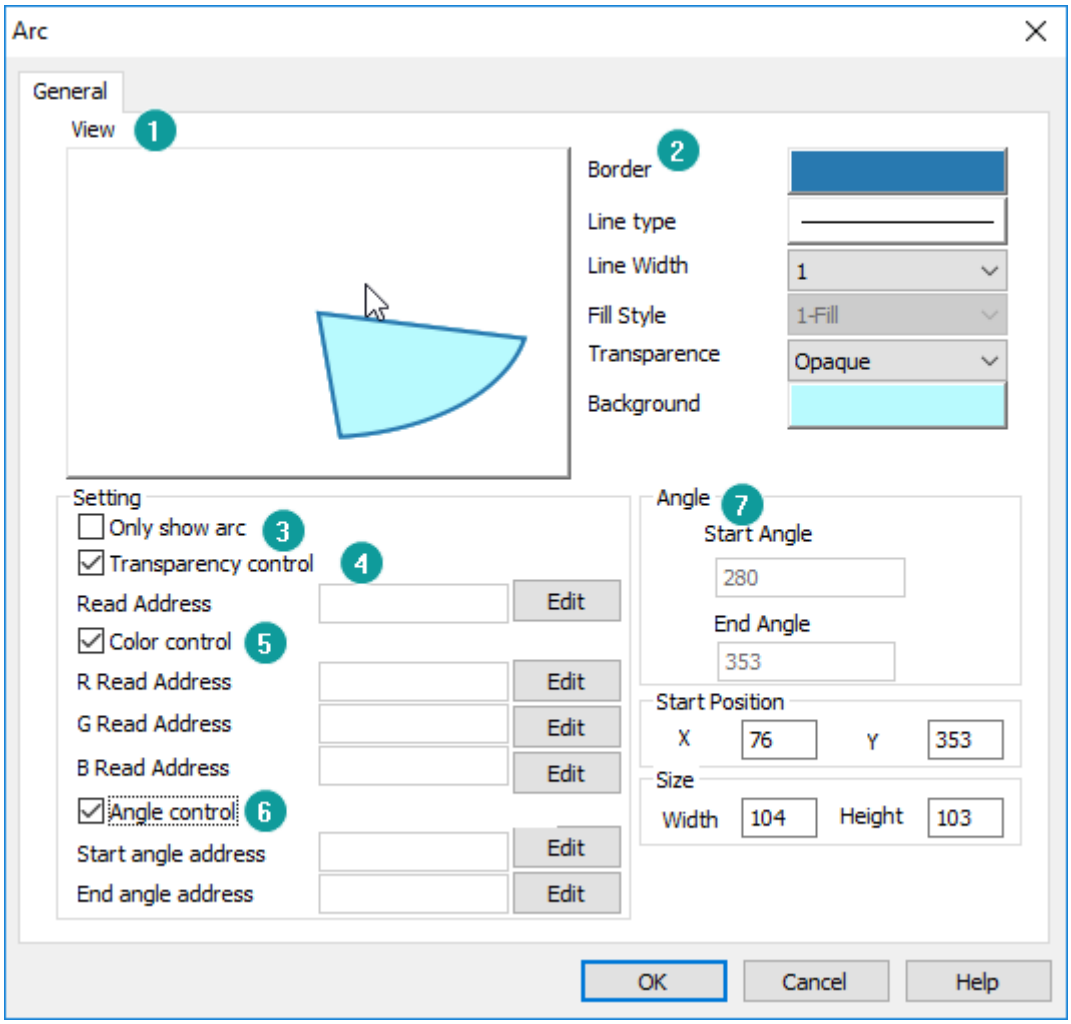
Line width: It sets border line type;

Fill style: It sets background type, there are four types.

Transparence: It sets the transparency of the object background;

Background: It sets background color of object, invalid when select [No fill] in

[Pattern];



3) Only show arc

Check it for displaying arc; Uncheck it for displaying sector;

4) Transparence control

Read the numerical value of address, control the transparency; value range: 0-100.

5) Color control

Dynamically set the color of background. The values of the color RGB are controlled by three addresses, and the value range from 0 to 255.

6) Angle control

Dynamically set the shape of the arc, start angle and end angle are controlled

separately by setting address.

7) Angle

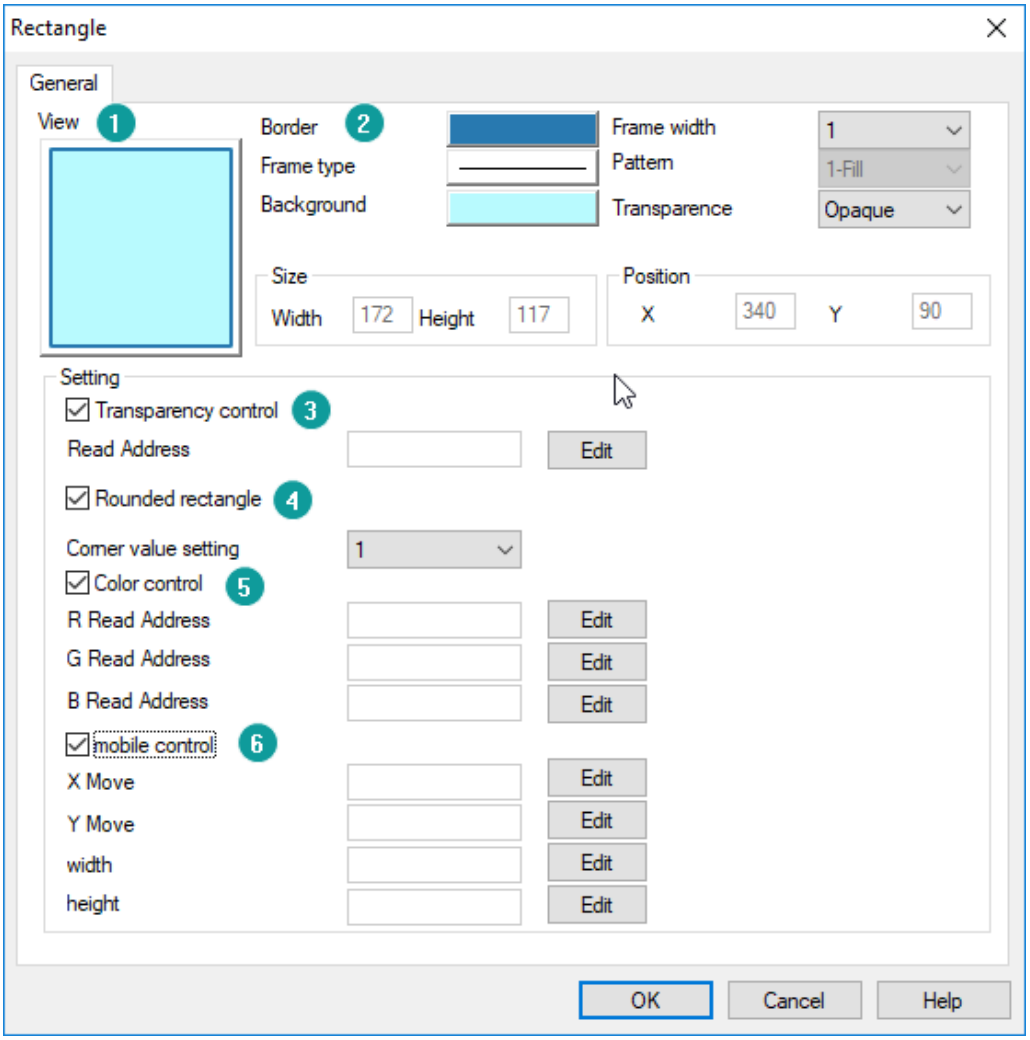
It displays and sets the starting and ending angles of the arc.

6.6.9 Rectangle

Introduction

It is displayed as rectangle in HMI screen to meet the display needs of user.

Description



1) View

It is for preview object;

2) Display settings

Border: It sets border line color;

Frame width: It sets border line type;

Frame type: It sets border line width

Pattern: It sets background type, there are four types.

Background: It sets background color of object, invalid when select [No fill] in [Pattern]

Transparence: It sets the transparency of the object background;

3) Transparence control

Read the numerical value of address, control the transparency; value range: 0-100.

4) Rounded rectangle

Display rounded rectangle, set the numerical value of fillet, range:1-100.

5) Color control

Dynamically set the color of background. The values of the color RGB are controlled by three addresses, and the value range from 0 to 255.

6) Move Control

Dynamically set the position coordinate and size of circle/ellipse when HMI is running.

X axis: The length value moved along the X axis comes from the set address;

Y axis: The length value moved along the Y axis comes from the set address;

Width: The width of rectangle comes from the set address;

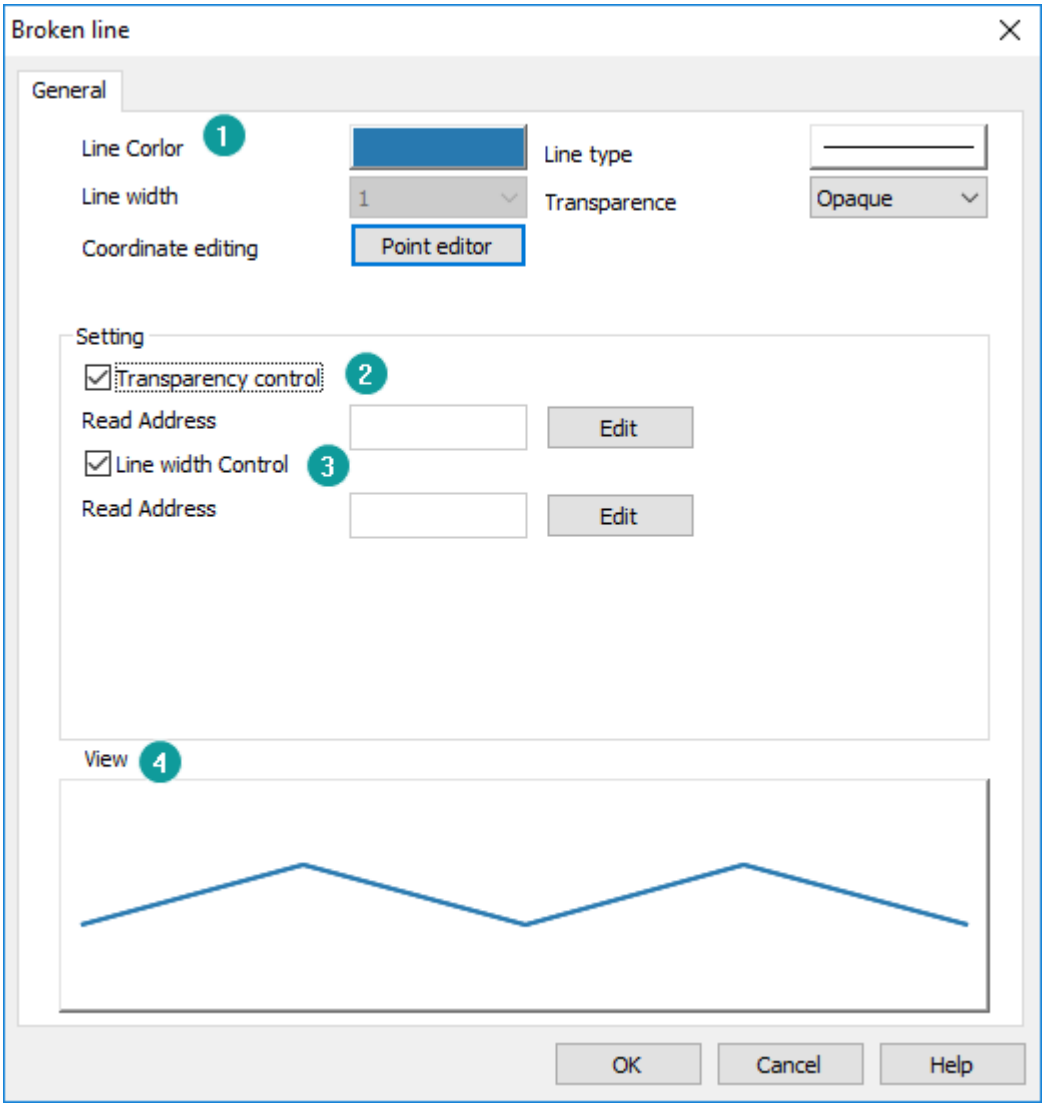
Height: The height of rectangle comes from the set address;

6.6.10 Broken line

Introduction

The line segments are linked end-to-end to form a broken line, whose vertex coordinate can be modified by drafting, just like polygon.

Description



1) Display settings

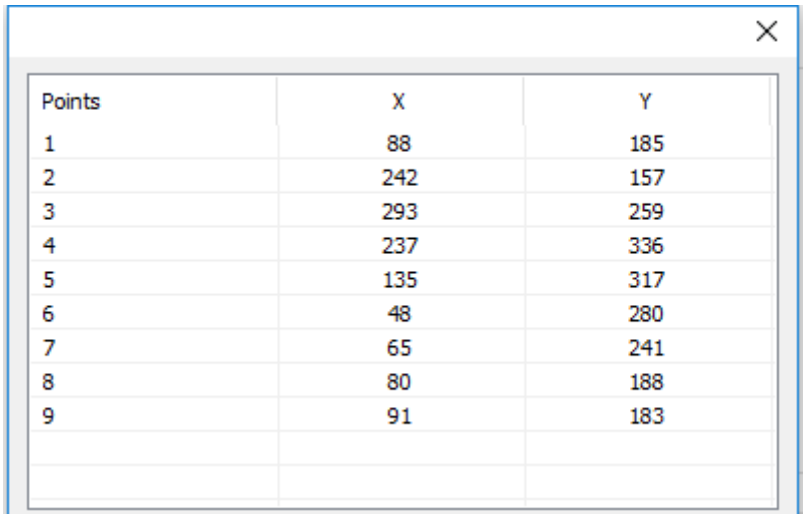
Line color: It sets line color;

Line type: It sets line type;

Line width: It sets line width

Transparence: It sets the transparency of the object line;

Coordinate editing: It changes coordinate for all points in this object, as below shows;



Points	X	Y
1	88	185
2	242	157
3	293	259
4	237	336
5	135	317
6	48	280
7	65	241
8	80	188
9	91	183

2) Transparence control

Read the numerical value of address, control the transparency; value range: 0-100.

3) Line width control

In basic display settings, the line width can't be changed, but user can change width by address.

Read the numerical value of address to control the width of line. Display range of numerical value: 1-10.

4) View

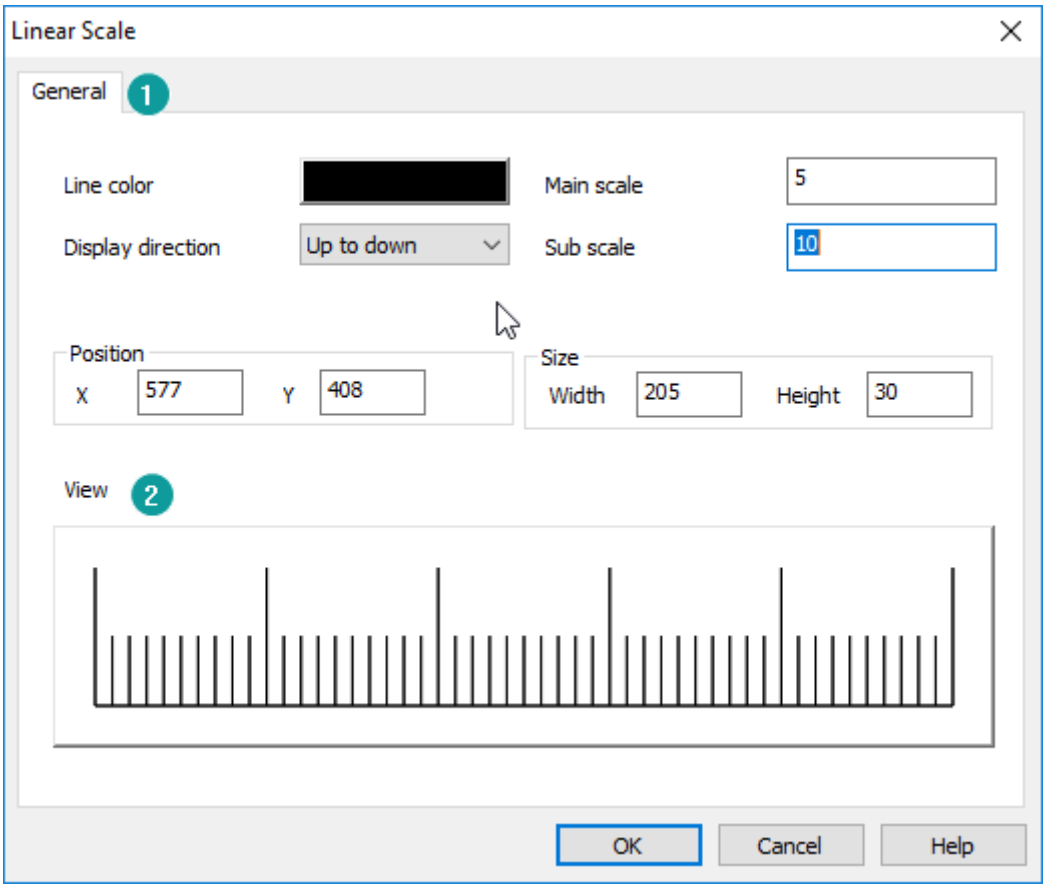
It is for preview object;

6.6.11 Linear scale

Introduction

The linear scale is a linear scale that draws the specified area with a bisector. The specific scale of the scale can be marked with static text.

Description



1) Display settings

Line color: It sets all line in object (including main and sub scale);

Display direction: It provides four modes for display;

Main scale: It sets the cell of the main scale;

Sub scale: It sets the cell of sub scale for every main scale;

2) View

It is for preview object;

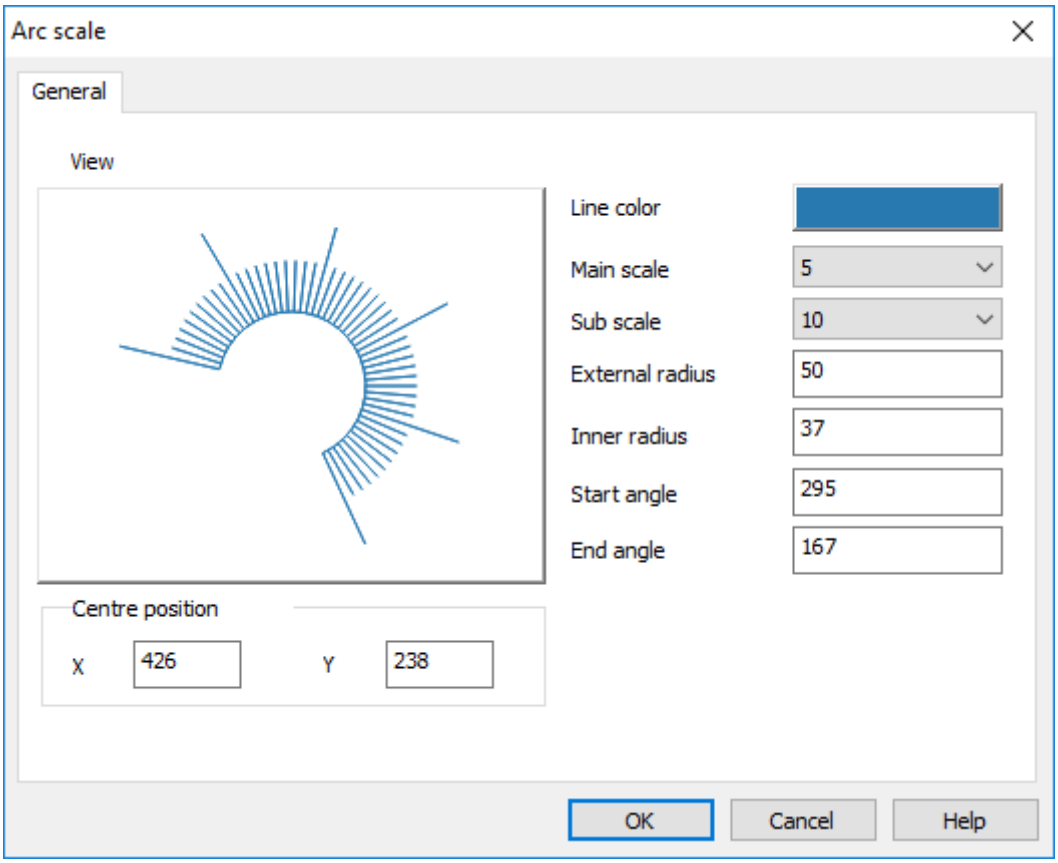
6.6.12 Arc scale

Introduction

It displays the scale within the specified arc area. The arc scale needs to specify a center coordinate. The inner and outer circles have two concentric circles that specify

the scale length and the display area. The scale is distributed counterclockwise between the start angle and the end angle.

Description



Line color: It sets all line in object (including main and sub scale);

Display direction: It provides four modes for display;

Main scale: It sets the cell of the main scale;

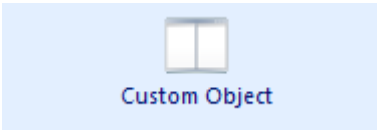
External radius: It sets the distance from the center of the circle to the outer circle of object;

Inner radius: It sets the distance from the center of the circle to the inner circle of object;

Start angle: It displays and sets the start angles of the arc;

End angle: It displays and sets the end angles of the arc;

6.7 Custom Object



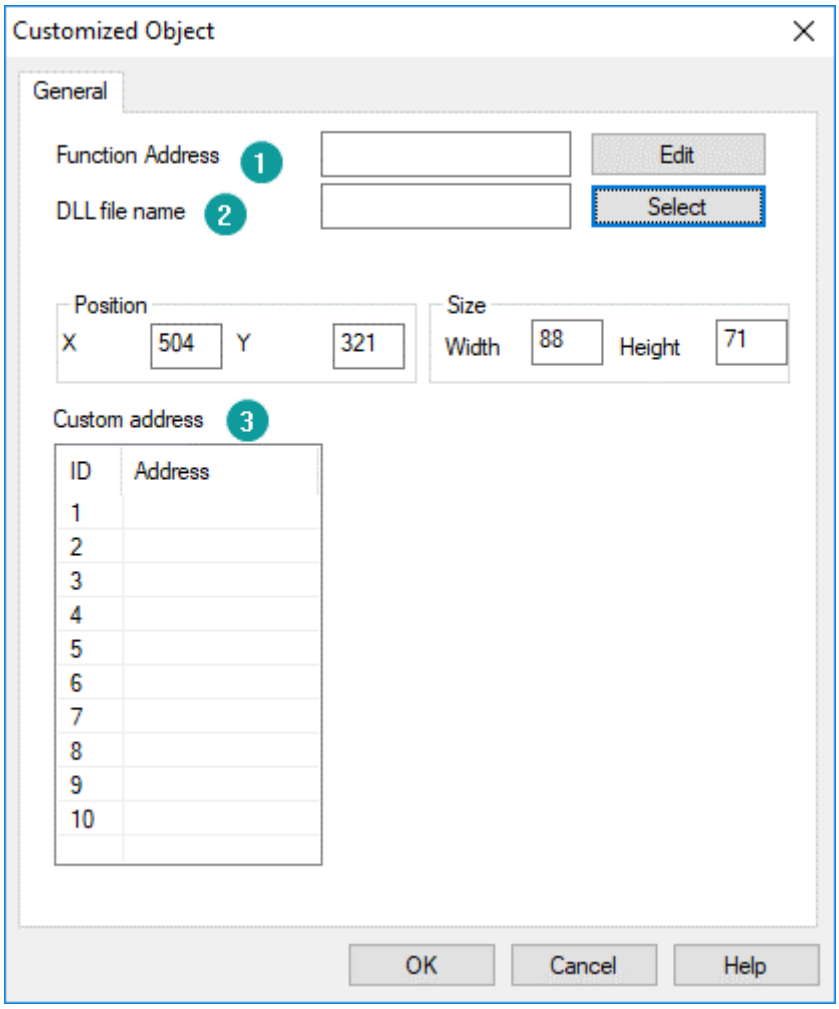
It provides customized object, user can add more functions or object according to requirements.

6.7.1 Customized object

Introduction

Customized object is provided for users to design the universal interface of object freely to meet customization requirements.

Description



1) **Function address:** the numerical value in this address is used as the function code of object to handle the corresponding operation.

2) **DLL file name:** Select needed dll file (i.e. dll files provided by users)

3) **Custom address:** users can add some function address to cooperate with dll file to complete other operations

✎Note:

This is a custom-made object that requires the cooperation of software engineers.

Required documents: two XXXXXX.dll files and an document.

1) One dll file is used in PC and should be put under the dll_pc folder in the software installation directory.

2) One dll file is used in HMI and should be put under the dll_hmi folder in the software installation directory.

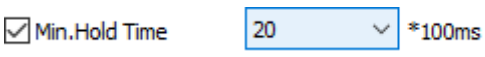
3) A document for illustrating the dll files.

6.8 Common Settings

This section mainly introduces the common settings of objects in the HMI.

6.8.1 General window

1) Min. Hold time



[Min. Hold Time] is for setting the minimum combo time for object, if pressing time is more than setting time, the object will do operation continuously.

Example:

The setting time is 2000 ms;

If users press object less than 2000 ms, the object only does one operation;

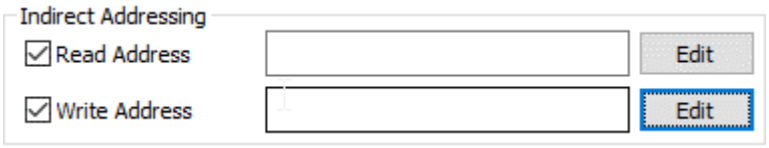
If users press object more than 2000 ms, the object will do operation continuously;

✎Note:

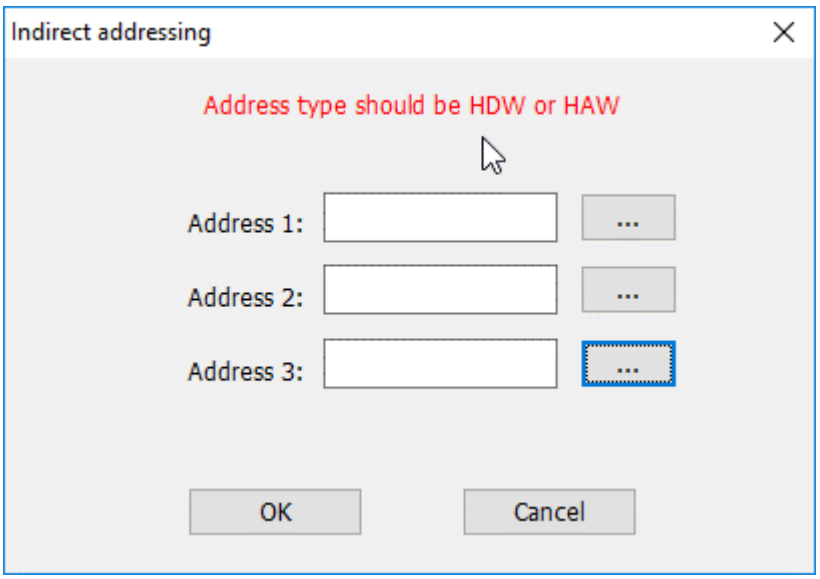
It will conflict with the time interval of the loop pop-up prompt box when the user permissions are insufficient. Therefore, when using this setting, please

don't select [Every time] mode in [Security]-[User permission] of object.

2) Indirect Address



Users could read data from dynamic address and write data to dynamic address by [Indirect Address]. The indirect addresses setting window as below picture shows.



Write Address: indirect write address decide to the final write address. And it can support three addresses.

For example:

There is only one address, No.1=HDW210, and the object's address is HDX200.0. In this situation, HMI will do the following operations:

- HMI reads value in HDW210, if the HDW210=1;
- The object's address change to HDX200.1;
- So the value will be written to HDX200.1;

Read Address: indirect read address decide to the final read address. Read address up to three.

For example:

There are three indirect addresses for reading, No. 1 is HDW0, No. 2 is HDW10,

and No. 3 is HDW20. And the object's address is HDW100.

In this situation, HMI will do the following operations:

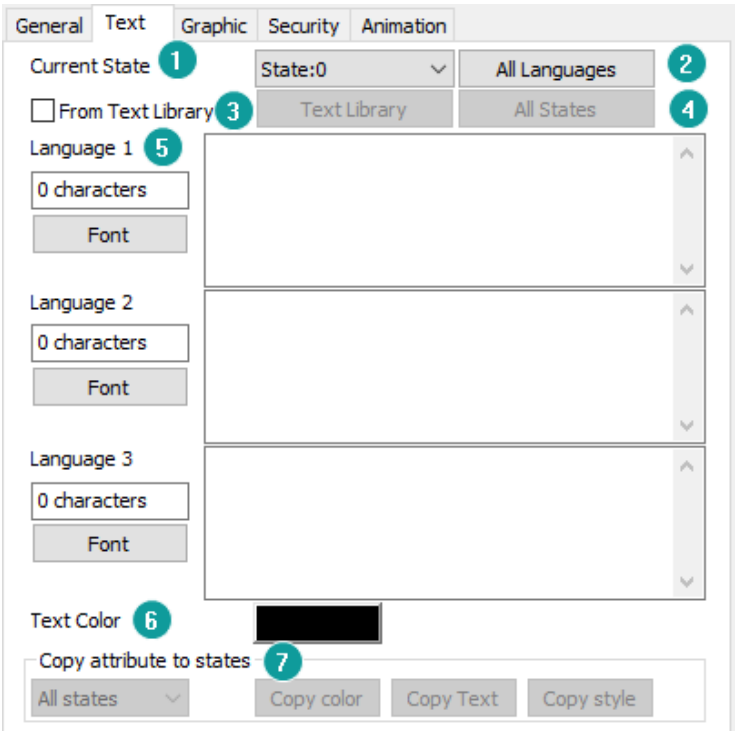
- HMI reads No. 3 address value firstly, if HDW20=3;
- The No. 2 address will change to HDW (10+3), and HMI will read the value in HDW13, if HDW13=7;
- The No.1 address will change to HDW (0+7), and the HMI will read the value in HDW7, if HDW7=6;
- The object's address will change to HDW (100+6), and then this object will display the HDW106's

6.8.2 Text

Introduction

It adds text to object, and it can be displayed in 8 languages (set in "All Languages") with a special address setting.

Description

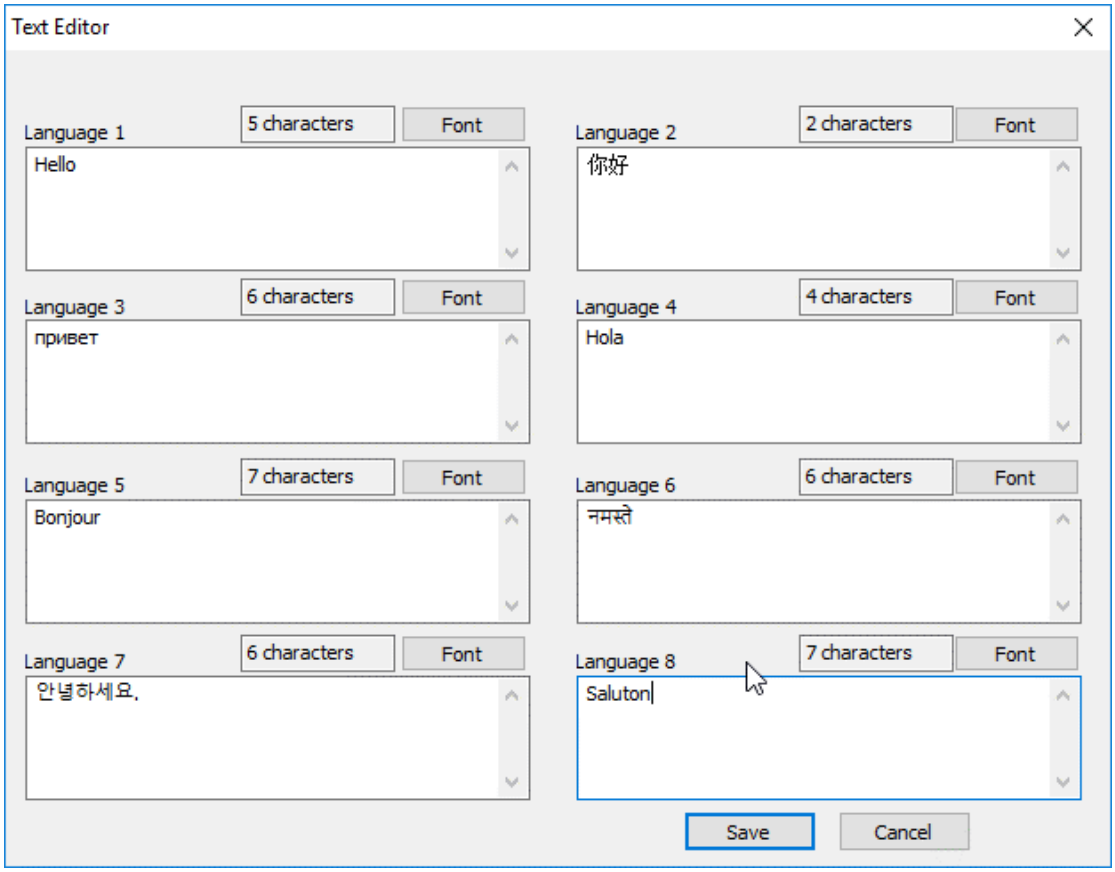


1) Current state

It used to switch the object states.

2) All language

Because in PI HMI can support text in 8 languages, so click it to open the 8 language edit window as below shows. And each language can set different font.

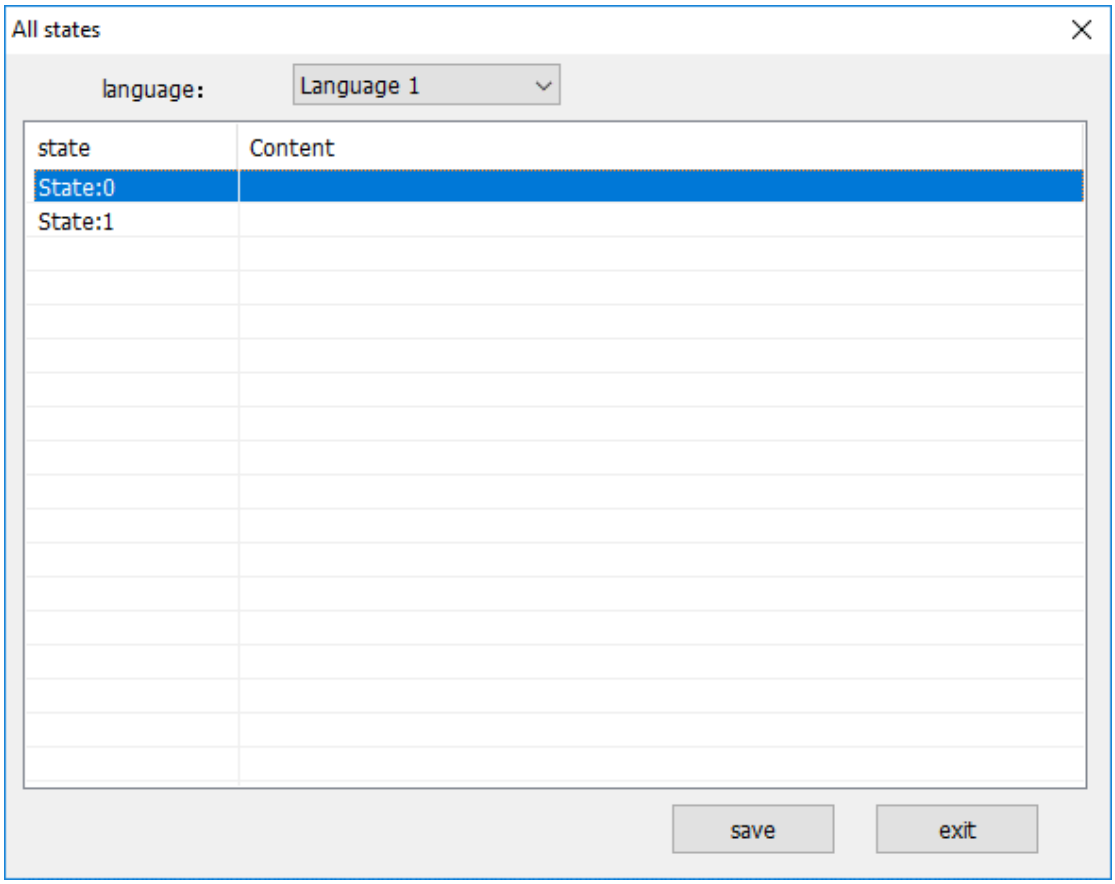


3) From text library

If user already setting text in [Text library], user can use text from [Text library] directly.

4) All states

Because different object has different states, so click it to open states text edit window as below shows.



5) Windows

It displays three languages content and provides text display setting access

6) Text color

It sets color for text in object;

7) Copy attribute to states

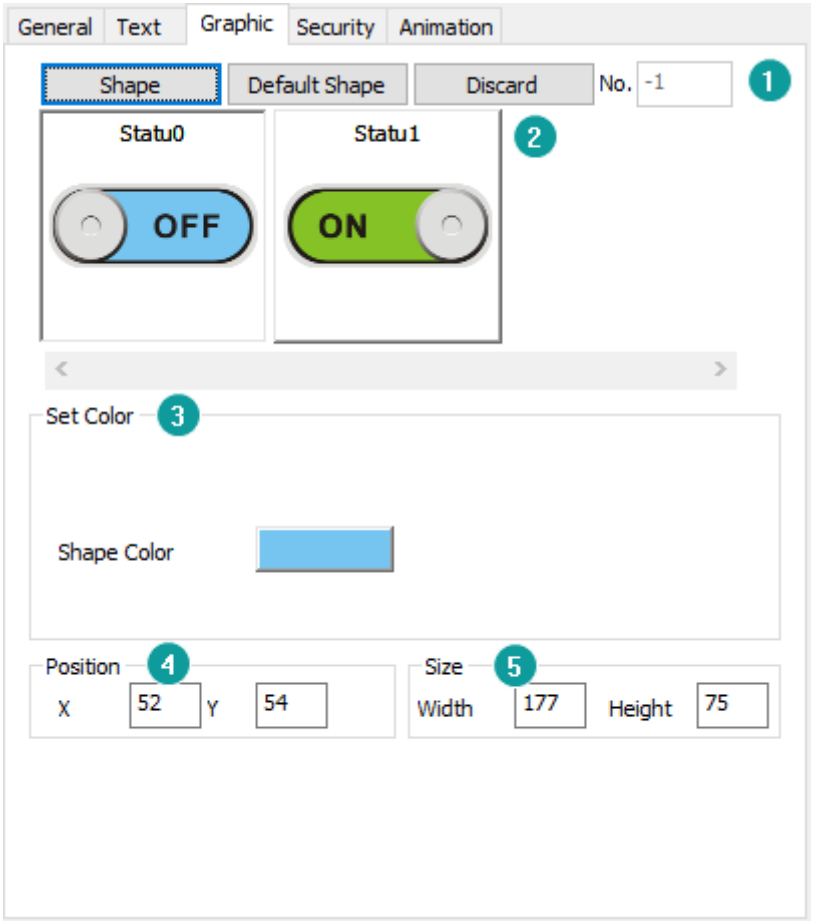
It is a quick setup that allows user to quickly copy the settings of state one to other states, including text content, font format and color.

6.8.3 Graphic

Introduction

[Graphic] is for displaying picture for object.

Description



1) Shape

Shape: Click shape to open the Shape Library for shape selection;

Default shape: Every object has its own default shape, click it will back to default;

Discard: Click it, object will display without shape;

2) View

It is for preview shape settings;

3) Set Color

This is for set object color basic on shape, not all shape supports change color;

4) Position

It is for setting the position of object, the value is for coordinates of the top left point of object;

5) Size

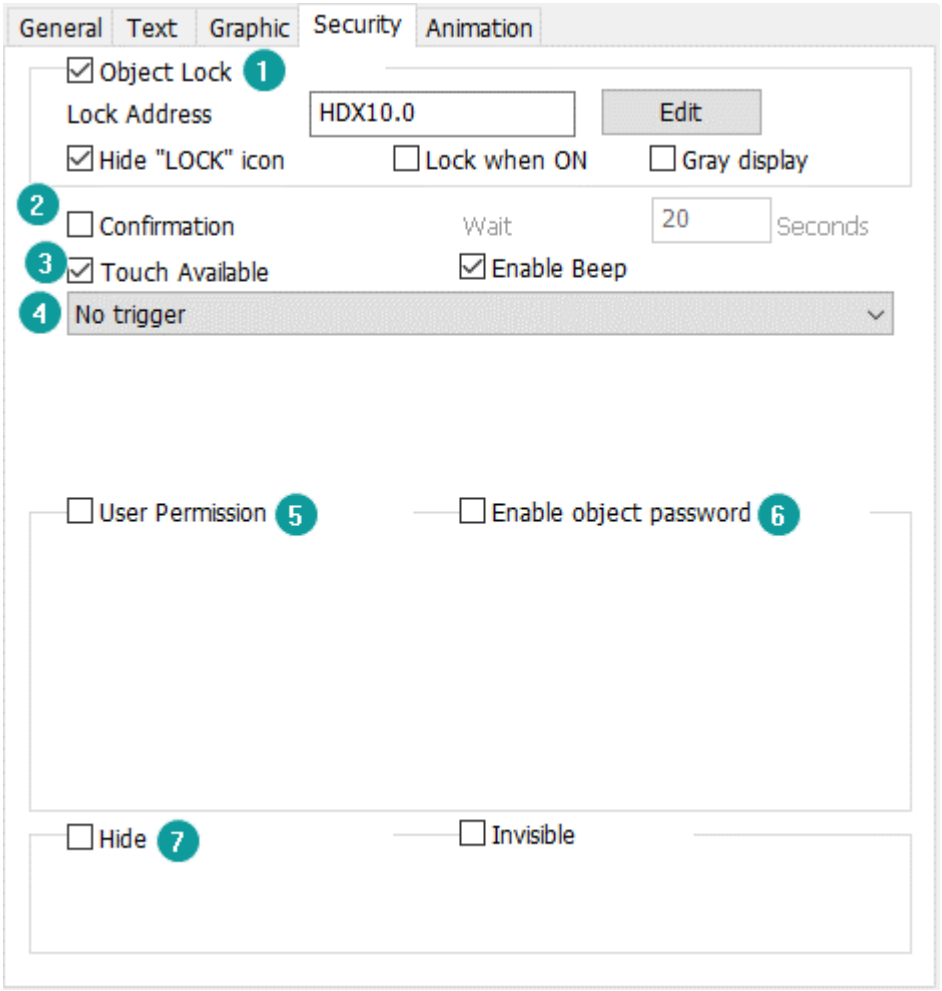
It is for setting the size of object;

6.8.4 Security

Introduction

This setup page provides some extensions to security settings.

Description



1) Object lock

Set a bit address to lock the object. When the object is locked, it could not be operated and an icon of the lock is displayed. If user doesn't want to display the lock icon, please check [Hide "Lock" icon]. In the default mode, when the control address is OFF, the object is locked, when it is ON, the object is unlocked. If the

opposite logic is required, please check [Lock when ON]

Gray display: If this object is locked, text would be grayed out

2) Confirmation

When object is operated, there is a prompt to confirm it. The waiting time is used for setting the time of the prompt, the unit is second, and the range is 0-65535 (integer). For example: Set the waiting time to 3 seconds. When the user clicks on object, a confirmation prompt will pop up. If no confirmation, the prompt will automatically disappear after 3 seconds, and operation is not executed.

3) Touch function

Touch available: the object is touchable when selected.

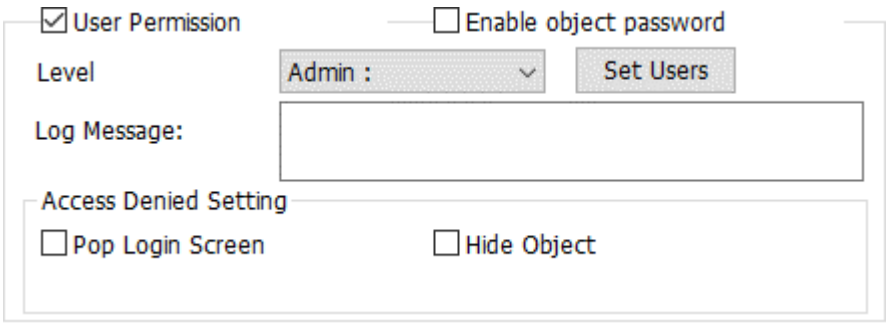
Beep: the object is beeping when selected. The object is beeping when selected.

4) Triggering

There are six modes for it

- No trigger: The object could not be triggered;
- Trigger before press: Set the read address after the first data input.
- Trigger after press: Set the read address after data input.
- Trigger and reset after press: Reset the read address after data input.
- Trigger and reset before press: Reset the read address after data input.
- Trigger before press, reset after: Set the read address ON while input the data, reset after pressing [ENTER]

5) User Permission



Enable User permission: Users can set user permission levels for operating objects, only operators with operational privileges are allowed to operate on certain

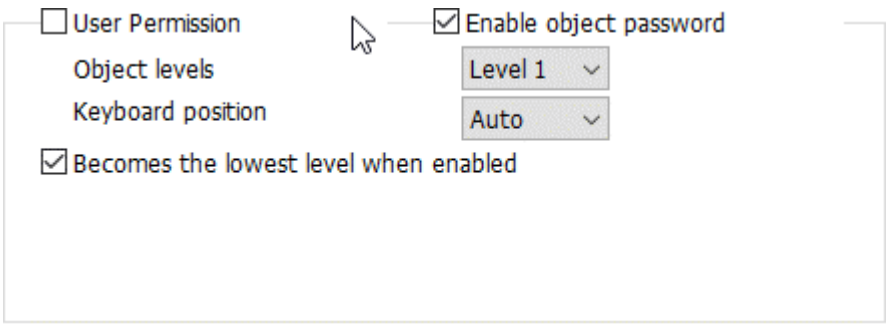
functions. The user log information is used for recording the operation of objects and those records are displayed in object. The user log information can be up to 64 bytes.

Access Denied Setting Users can set enable password for object. There are following operating setting when user permissions are insufficient. But [Pop login screen] and [Hide object] are mutually exclusive.

- Every time: Userlogin screen will pop-up when user permissions are insufficient;
- When change user: Userlogin screen will pop-up when user permissions, and if users logged in successfully, the previous users will log out.
- Pop once: userlogin screen will pop-up when user permissions are insufficient, but when user enter the right password, this object can be operated by anyone.

Hide object: When user permissions are insufficient, this object is hidden.

6) Enable object password



It could only be used if the object password is enabled in project settings and configured.

Object level: It is used for setting this object password level.

Becomes the lowest level when enabled: Users need to type password every time while operating this object .

7) Hide

Control bit: Display or hide the bit switch by designated address state.

Hide mode: There are two modes; Object could not be operated if it is hidden.

- Hide when OFF;
- Hide when ON;

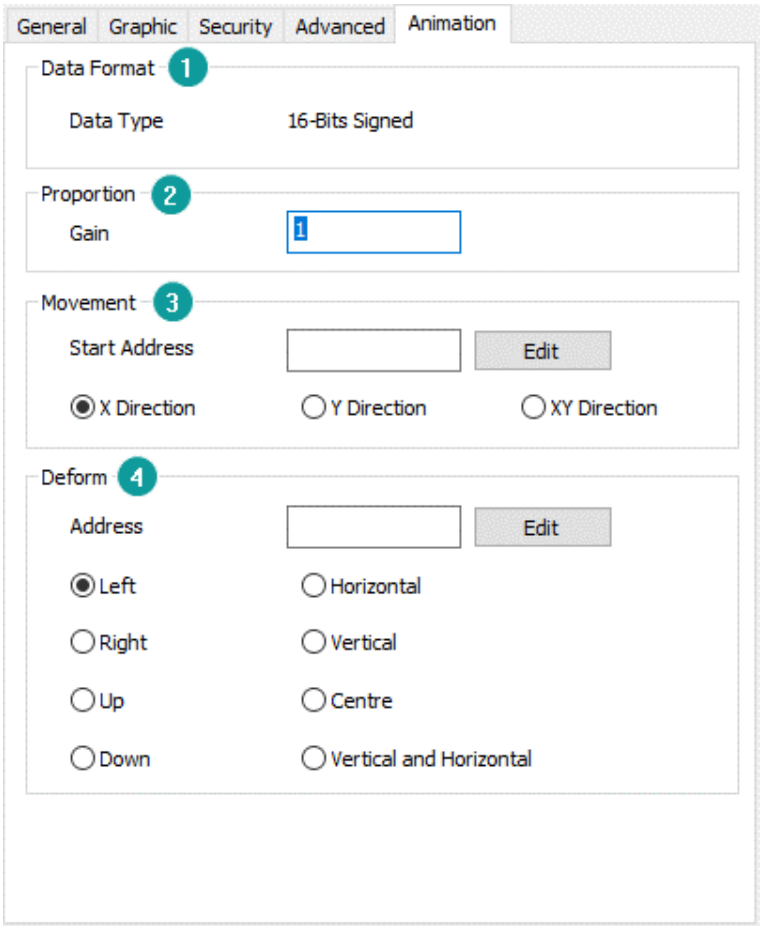
Invisible: object keeps hiding during project running.

6.8.5 Animation

Introduction

It moves and deforms the object by designated addresses.

Description



1) Data format

This format is for settings address, and it is fixed for all objects;

2) Proportion:

The proportional gain setting is a proportional change to the moving and scaling values.

For example:

If the proportional gain value is x and the moving or scaling value is y, then the actual moving or scaling value is (x*y).

3) Movement

The function of [Movement] is to move the position of object on the screen according to the value of address and movement type.

There are three movement type:

- X-axis movement;
- Y-axis movement;
- XY-axis movement;

For example

If the starting address of the movement is HDW10 and the movement type is [XY axis movement], HDW10 controls the X-axis movement, and HDW11 controls the Y-axis movement.

4) Deform

Deform object display size on screen, mainly depends on width and height.

Deform type: left, right, up, down, left and right, up and down, right/left and up/down, right/left or up/down.

7 Library

This chapter provides information about libraries and a description of how to configure them in HMIEditorP.

This chapter consists of the following section:

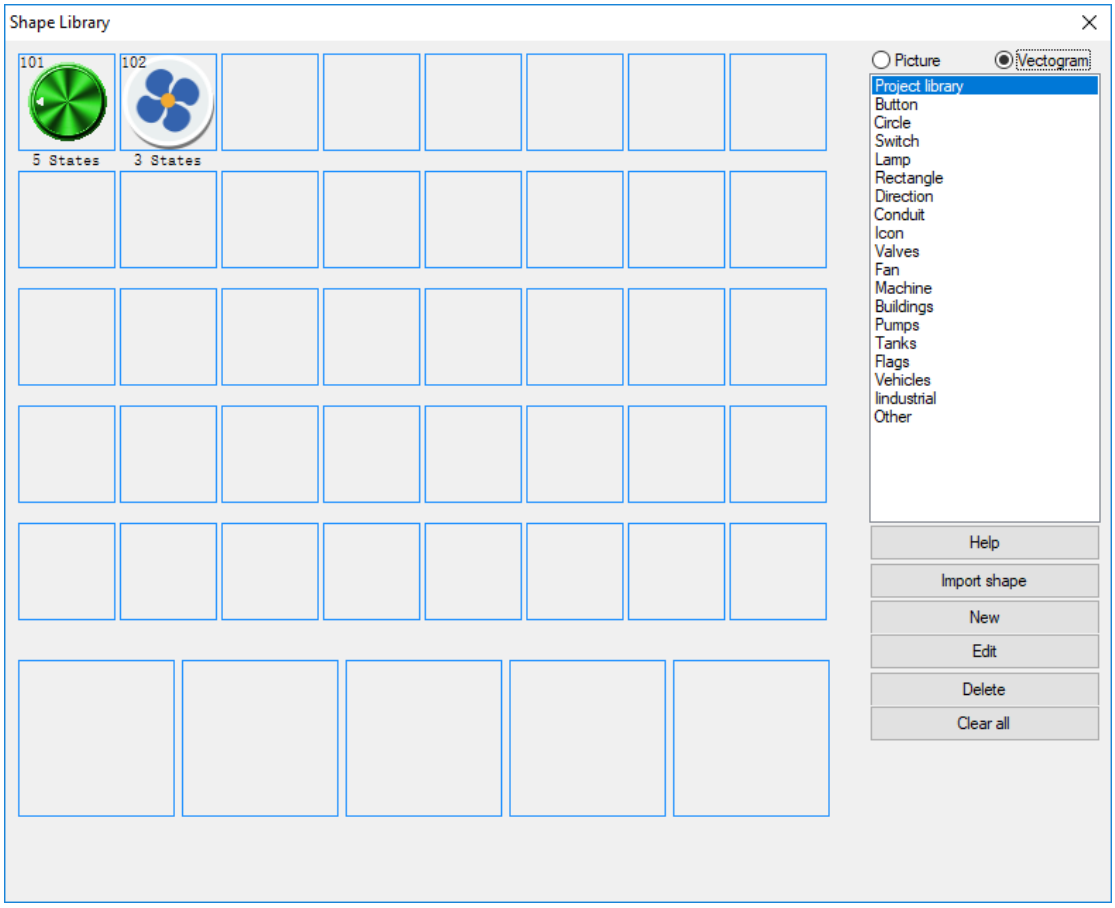
7.1 Shape

Introduction

Two types of pictures in Shape: User pictures and System pictures. This section introduces shape and how to import pictures into Shape, and how to create multi-state picture.

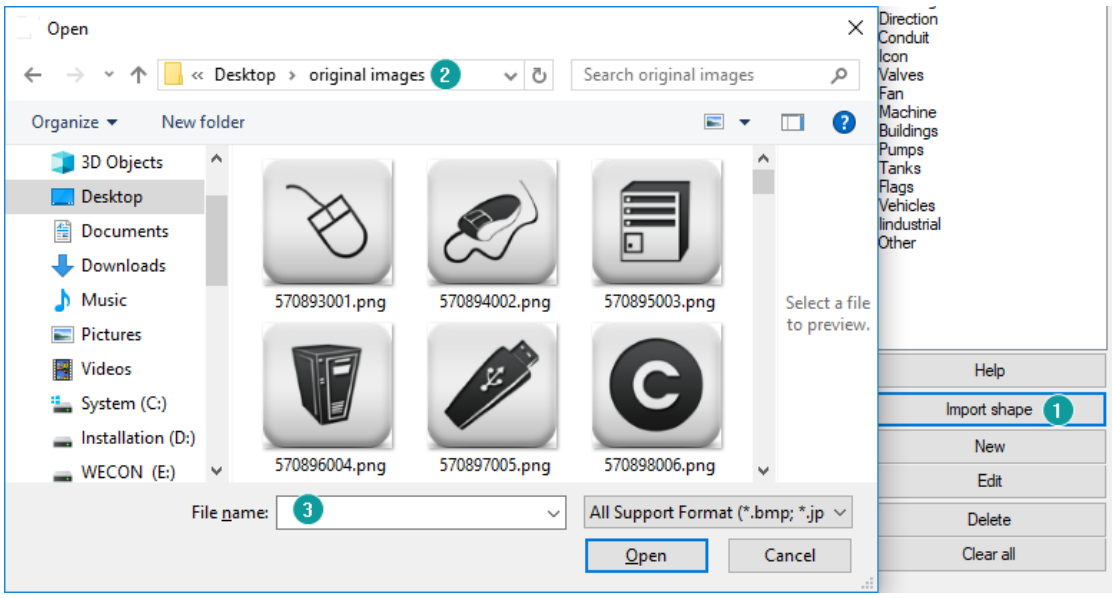
Click [Project menu]->[Library]->[Shape] open setting windows.

Description



Item	Description
Picture	BMP format pictures in system, the picture will be distorted as object is zoomed;
Vectogram	SVG format picture in system, the picture will not be distorted as object is zoomed;
Project library	Display all pictures which selected from current project;
Help	Click it to open Help document about [Shape]
Import shape	Import picture from PC;
New	Create new multi-state picture;
Edit	Edit picture in [Project library];
Delete	Delete selected picture;
Clear all	Delete all picture in [Project library];

Operating procedures of importing shape



1) Click [Import shape] to open windows;
2) Set picture path;
3) Select picture from PC;
4) Click [Open] to add picture into [Project library];

Operating procedures of import shape

1) Click [New] to open setting windows;
2) Select numbers of states;
3) Select picture for each state;
4) Click [Save] to complete operations;

Note:

The pictures for states can be selected from [Project library], and also can be from PC;

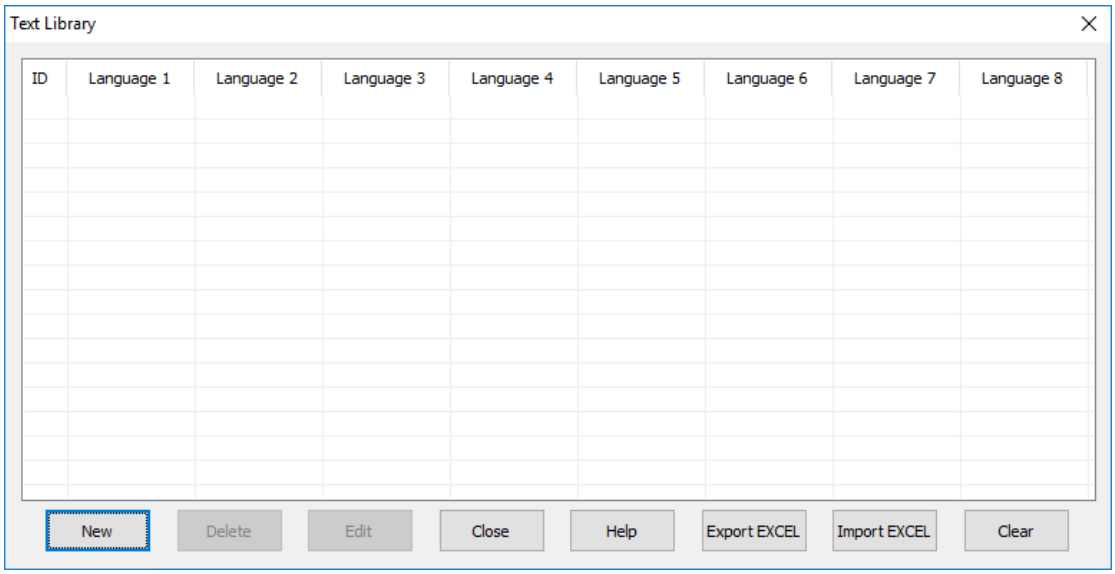
7.2 Text Library

Introduction

Text library contains commonly used text. It avoids setting the text repeatedly. HMI provides up to 8 languages in text library.

Click [Project]-[Library]-[Text Library] open setting window.

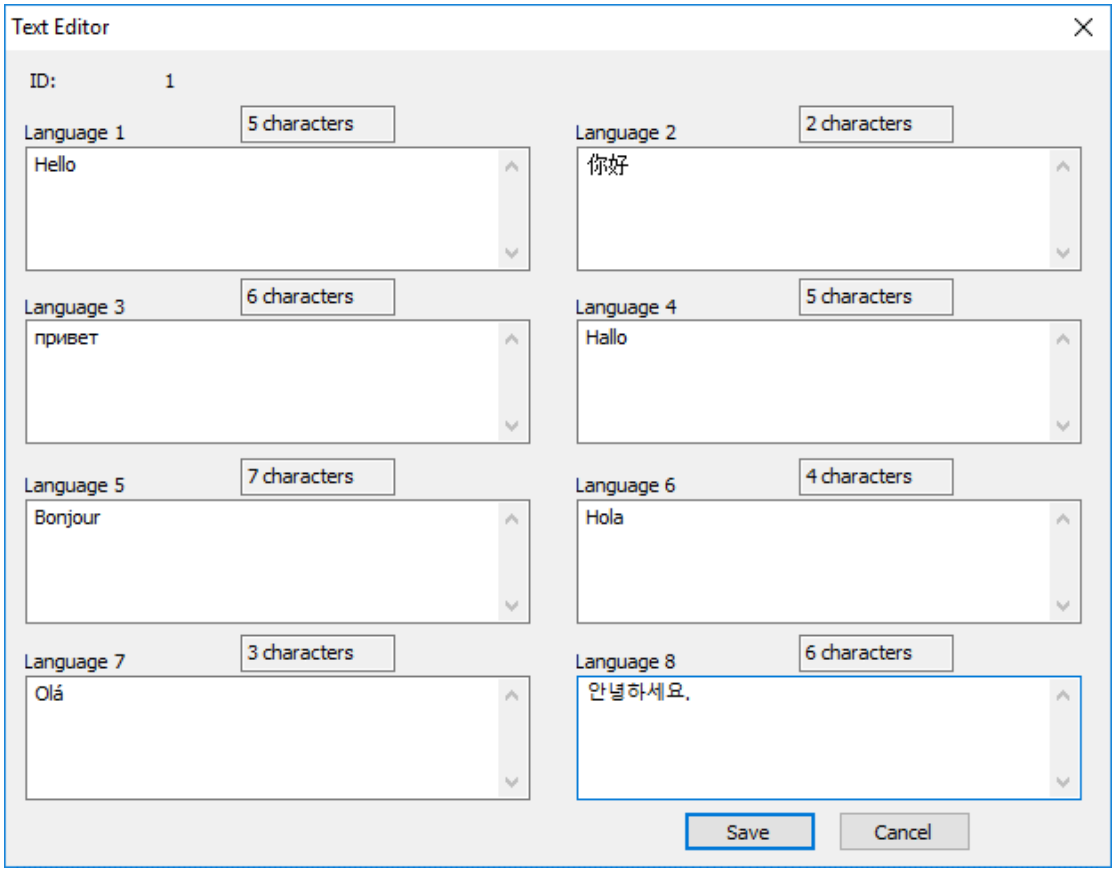
Description



Items	Description
ID	The identifier of the text in the list;
Languages	One text can be set in 8 languages;
New	Add an new text in list;
Delete	Delete selected text;
Edit	Edit select text;
Close	Close text library list;
Help	Open help document;
Export EXCEL	Export text library to PC as excel file;
Import EXCEL	Import text library from excel file;
Clear	Delete all texts in list;

Operating procedures of creating new text

1) Click [New] button to open setting windows as below;
2) Set at least one language and support up to 8 languages;
3) Click [Save] to complete operations;



✎Note:

Text library: Supports importing edited Excel files into projects for use. However, the following two points need to be noted:

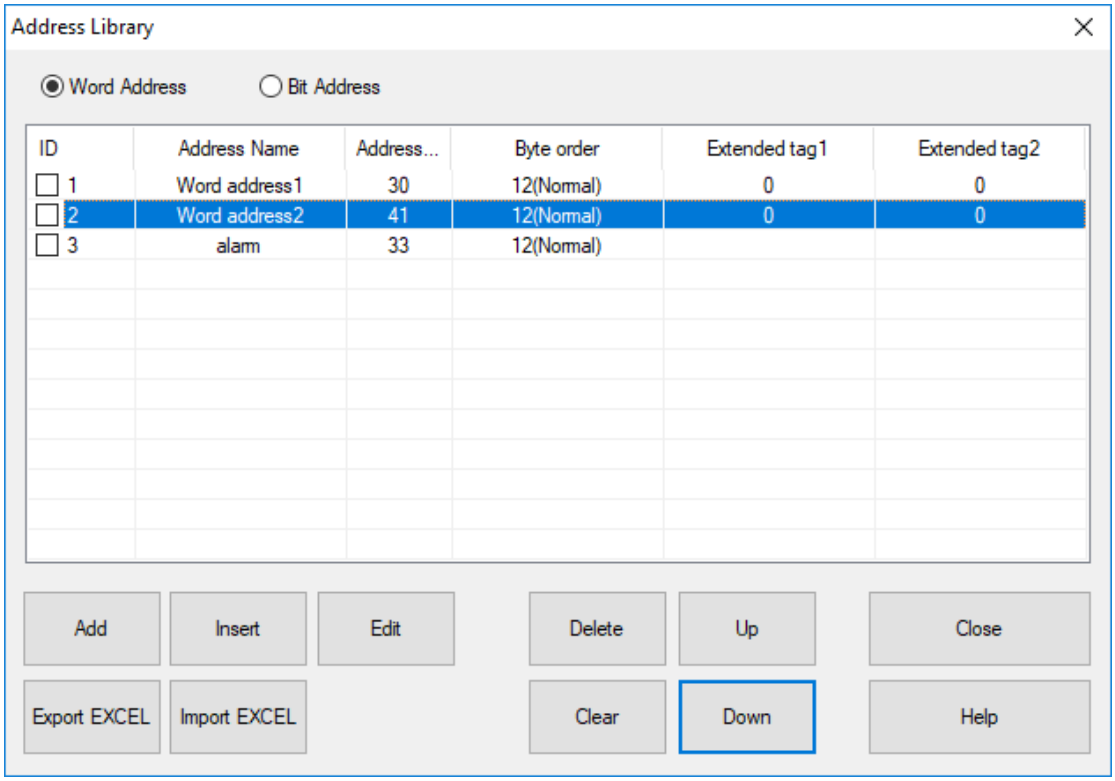
1) When importing an Excel file, if the contents of language one to language eight in ID (ID) information is all empty, the information of the subsequent ID will not be imported.
2) When importing Excel files, if there is pure digital content in the imported information, you need to set the format of the table box to "text" mode. Otherwise, the text import fails or an error occurs due to incorrect information format.

7.3 Address Library

Introduction

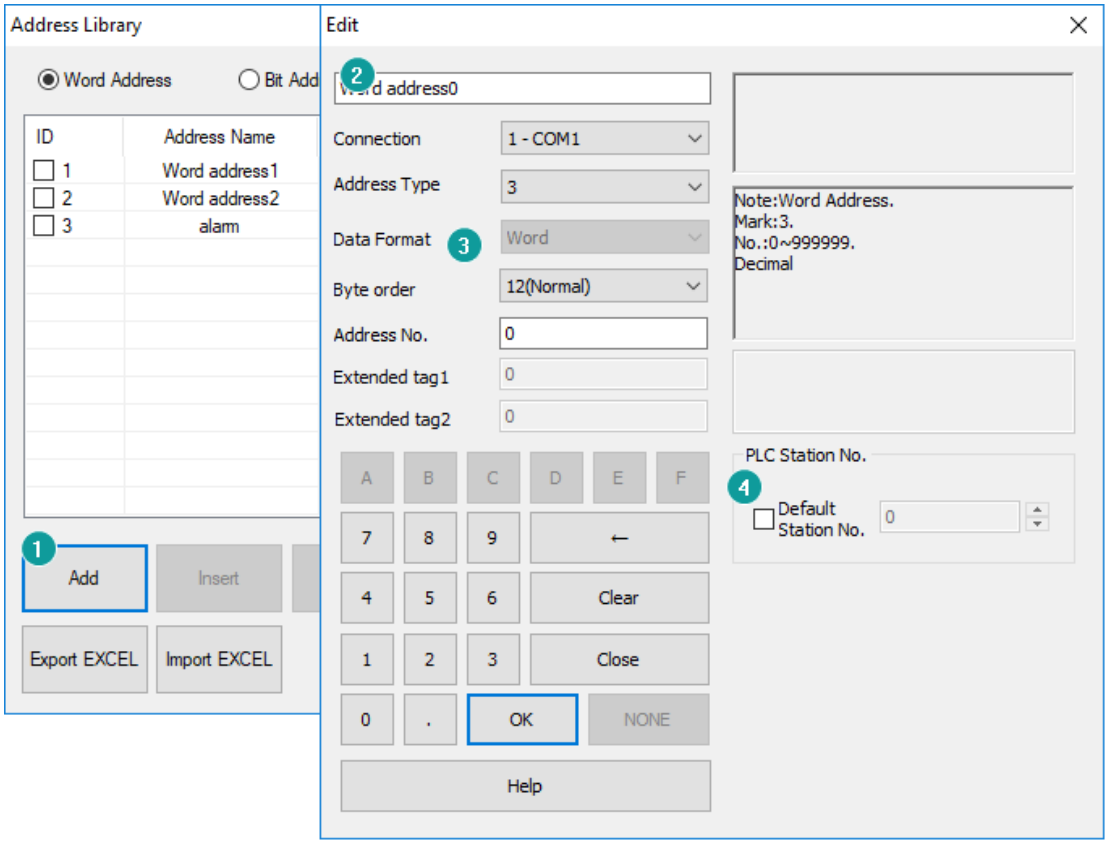
Address library contains commonly used addresses. It not only avoids setting the addresses repeatedly but also expresses the function of an address more clearly.

Description



Item	Description
Word Address	Select [Word Address] to display word addresses in list;
Bit Address	Select [Bit Address] to display bit addresses in list;
Add	Add an new address in list;
Insert	Insert (add) an new address before selected item in list;
Edit	Edit selected item;
Delete	Delete selected item in list;
Up	Move the selected item up one line;
Close	Close current setting window;
Export EXCEL	Export address library to PC as excel file;
Import EXCEL	Import address library from excel file;
Clear	Delete all items in list;
Down	Move the selected item down one line;
Help	Click it to open help document;

Operating procedures of creating new address



1) Click [Add] to open address edit window;
2) Set [Address name];
3) Set address;
4) Set PLC station number (It is not necessary setting, the user sets according to the actual situation);

✎Note:

Address Library: it supports importing addresses information from Excel files. However, the following two points need to be noted:

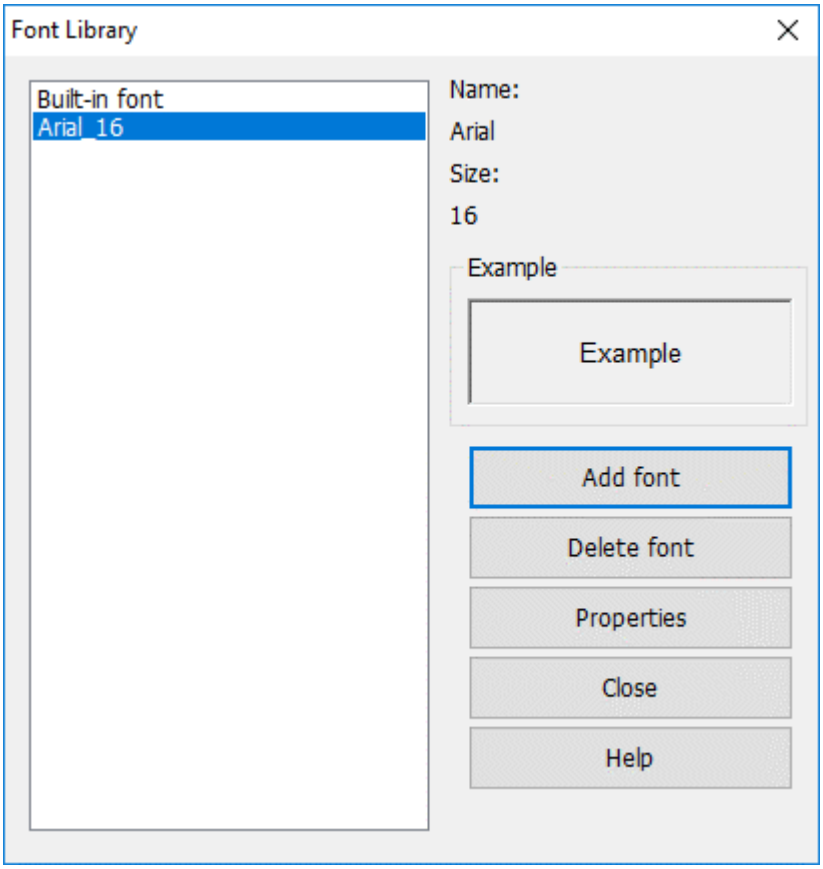
1) During importing an Excel file, if the contents of a certain Name, Type, and Address are all empty, the information of the subsequent ID will not be imported.
2) During importing Excel files, if there is pure digital content in the imported information, you need to set the format of the table box to [text] mode. Otherwise, the text import fails or an error occurs due to incorrect information format.

7.4 Font Library

Introduction

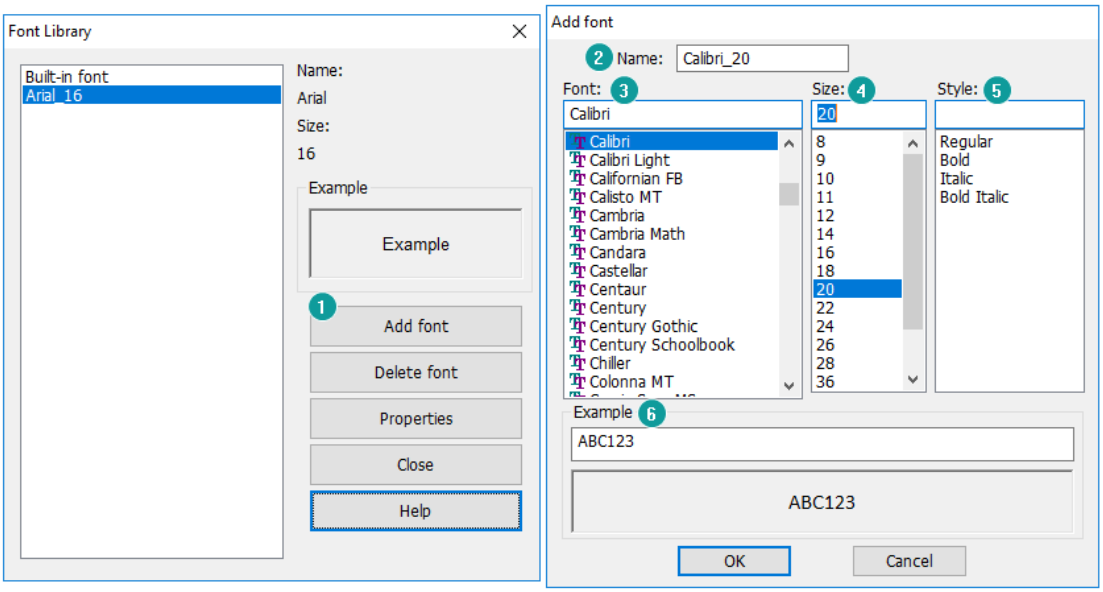
The user can pre-set the font and directly call the settings in the font library when editing the project.

Description



Items	Description
Add font	Add an new font in library;
Delete font	Delete selected font;
Properties	Edit selected font;
Close	Close current setting window;
Help	Click it to open help document;

Operating procedures of create font



1) Click [Add font] to open setting window;
2) Enter font name;
3) Select font;
4) Select font size;
5) Select font style;
6) Preview font;

7.5 Address Mapping

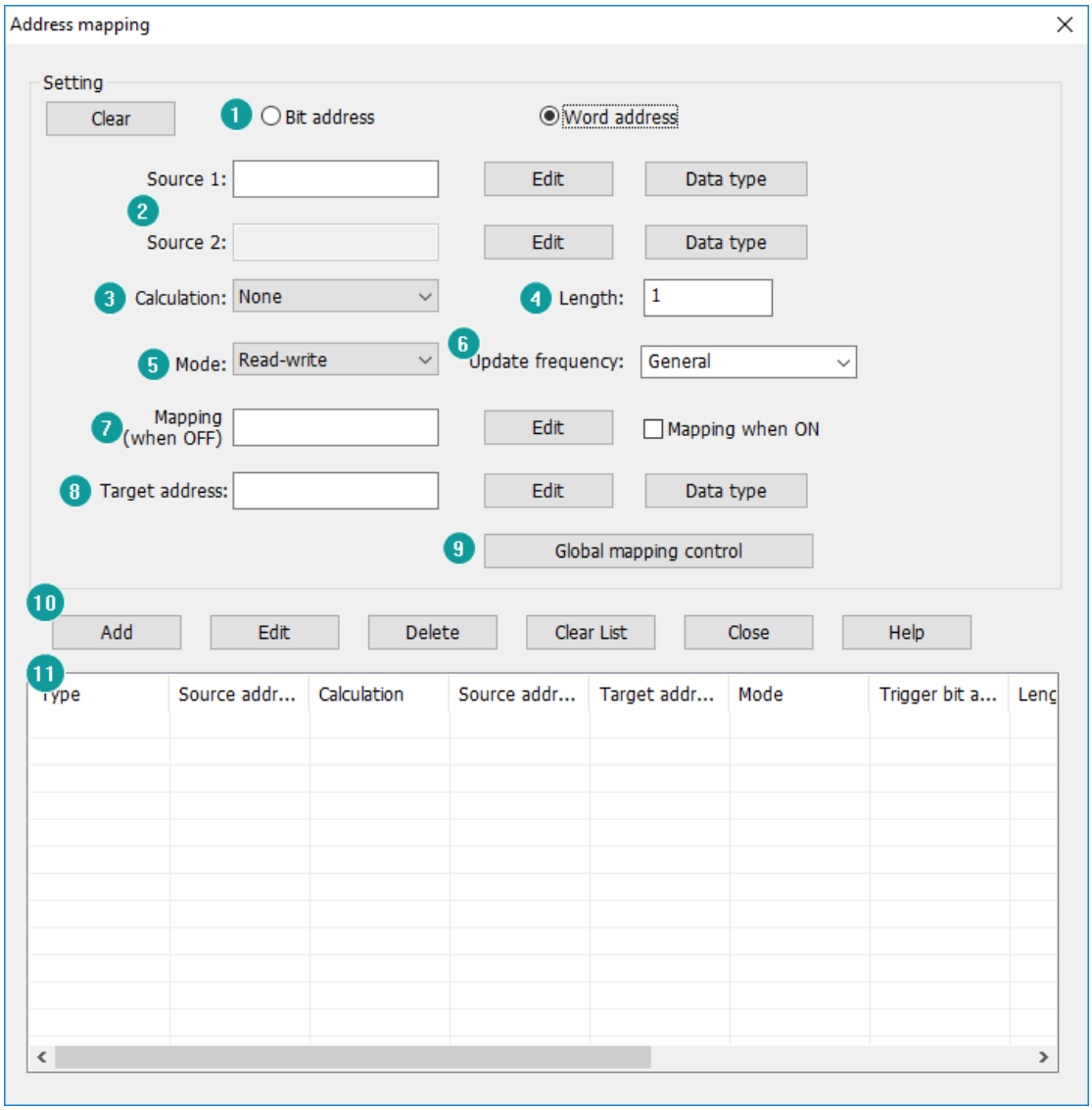
Introduction

Address mapping is the operation to build the relationship between two different addresses. Forwarding address from source address to target address, so the value in both addresses would be same according to the predefined mapping mode. Both addresses could be from different, in this way, to make HMI processing faster.

For example:

Forward "D0" to "HDW100" (length: 10), so the address D0, D1, ..., D9 would be related to HDW100, HDW101, .., HDW109.

Description



1) Address type

It is used for selecting address type in address mapping;

2) Source address

It is used for setting addresses, if there is operation, such as add, sub and so on, it requires 2 source addresses;

Data type: It is for setting data type for source address;

3) Calculation

Designated mathematical relationship between two source addresses, the result will be saved in target address.

4) Length

It is used to set the length of the operation address;

For example

Source address is D0, target address is 40, and length is 10.

Result

40=D0

41=D1

...

48=D8

49=D8

5) Mode

It provides two modes, Read-write and read only. The value of source address would not change if target value changed after read only selected.

6) Update frequency

It provides two modes, general and read-through.

General: Read data from HMI cache (Recommended)

Read-Through: Read data directly from the device without going through the HMI cache

7) Mapping

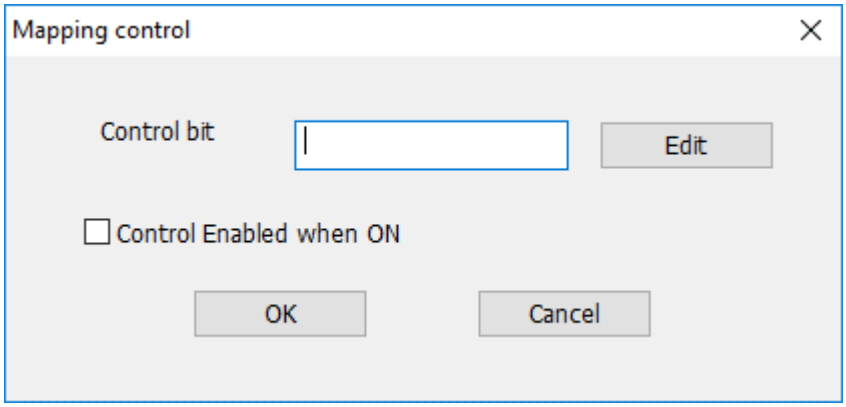
This is control bit for mapping one item, the default mode is mapping when OFF; If user want to change control condition, please check [Mapping when ON];

8) Target address:

It is address used to store source address data;

9) Global mapping control

The function and mode are similar to [Mapping], but it is used to control all mapping items. The setting screen as below show;



10) Buttons

Clear: Delete all settings in settings, such as [Source address], [Length] and so on;

Add: Create a new mapping item;

Edit: Change selected item;

Delete: Delete selected item;

Clear list: Delete all mapping items in list;

Close: Close address mapping window;

Help: Click it to open help document;

11) Item list

It lists all address mapping items.

✎Note:

1) Too many [Read-Through] items will cause HMI running slow;
2) If there are multiple consecutive addresses, please increase the length to reduce the mapping items

8 Basic Functions

This chapter provides information about basic functions in HMIEditorP.

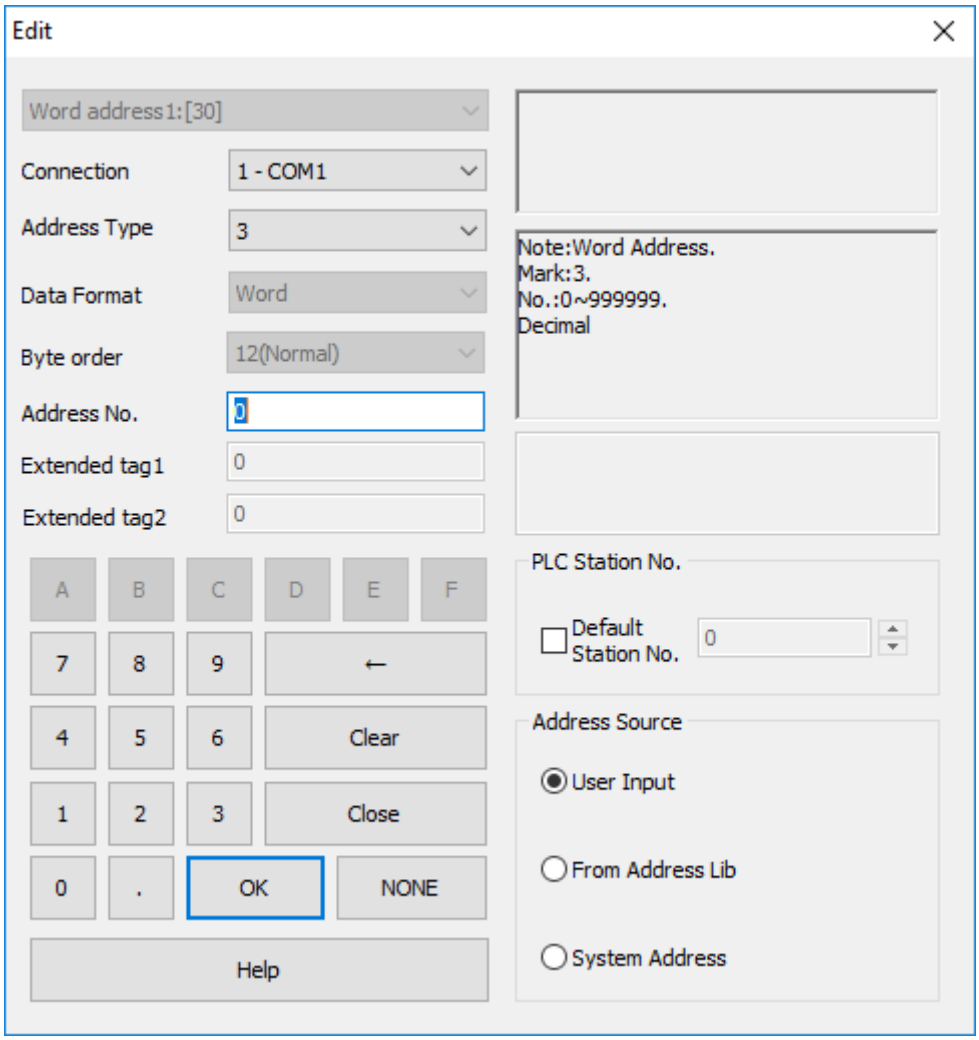
This chapter consists of the following section:

8.1 Address Editor

Introduction

The address editor is a tool for setting an address. The components of the object address mainly include: connection, device station number, device type of the address, and address value.

Description



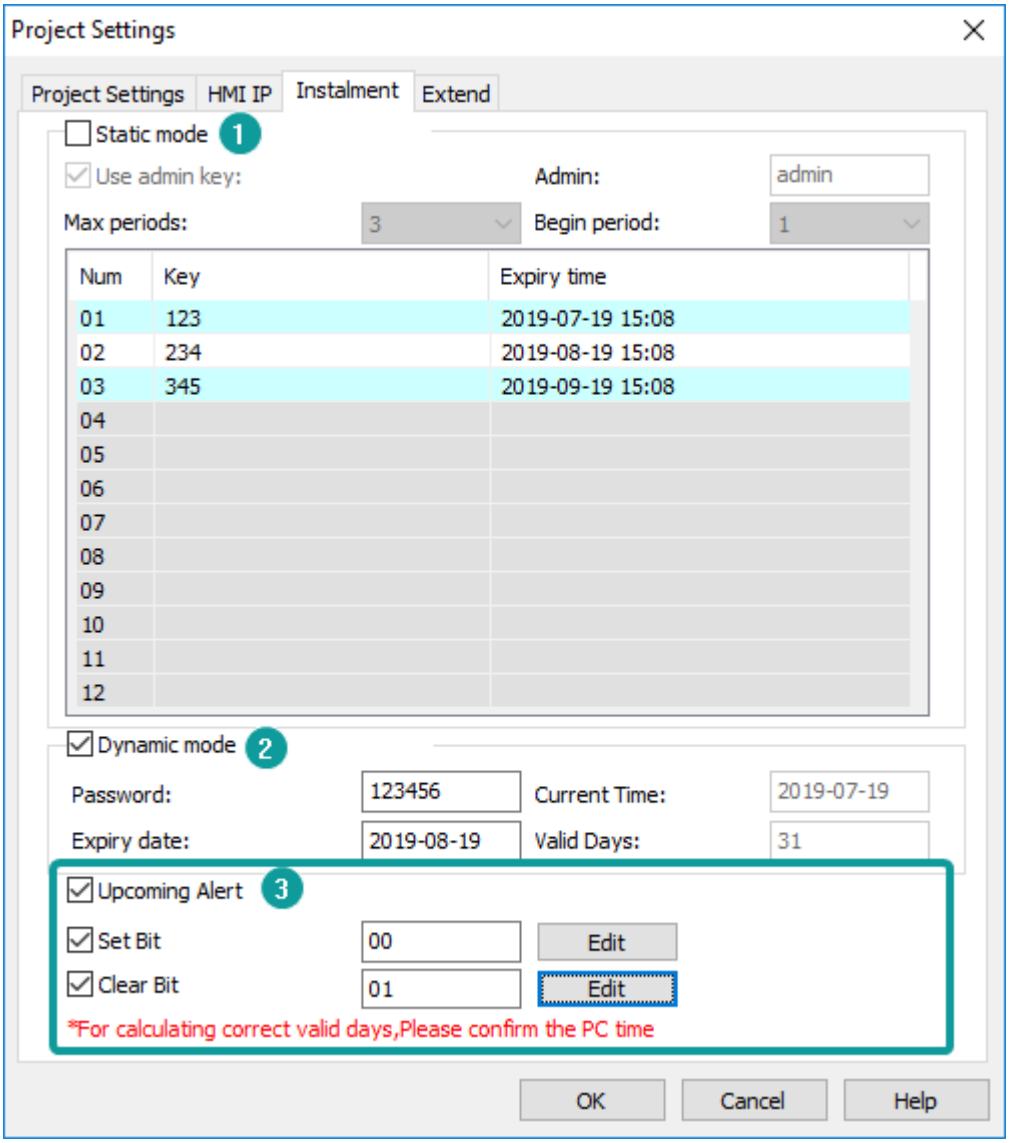
Items	Description
PLC station No.	Set device station number for address.
User input	The address is inputted by user.
From address library	Choose address from address library.
System address	Choose address from the system address.
Connection	COM port number (range 1-3).
Address type	Choose address type.
Data format	It set object data format;
Byte order	Some protocol requires this settings;
Address No.	Choose address number;
Extended tags	Some protocol requires this settings;

8.2 Installment

Introduction

In order to effectively protect the interests of users, HMI provides the function of installment payment; there are two types of installment payment mode, static and dynamic.

Description



1) Static mode

The expiry time and key of each period could not be empty, and they need to be

configured in advance. And the expiry time of the latter period need to be later than the expiry of the previous period.

Use admin key: It can be used for unlock all expirations, in addition to each period key. If users select [use admin key] function, once users enter the admin key when HMI expires, the installment payment function will be disabled.

Admin: Password (Key) for [use admin key];

Max periods: The period of static installment payment range is 0-12. When the maximum number of period is 0, it means that the instilment payment function is disabled;

Begin Period: Set the installment payment to start from the first period, the range is 1-13;

List: Configure a list based on [Maximum Periods] and [Begin Period], where user can configure the password and expiration time for each period.

2) Dynamic mode

Just configure the password and expiry date in advance. The user generates a [dynamic password] through enter password and expiry date in [Generate Password Tool]. Users can enter new dynamic password when HMI expires, and the screen can be re-used to the expiry of the next new setting. See [Password Tool] for details.

Password: The initial password for the installment credit;

Expire Date: Date setting for first payment;

Current Time: Display the current PC time;

Valid Days: counting the days before first payment;

3) Common settings

Set Bit: Set bit when HMI displays the installment screen.

Clear Bit: Clear bit when user enters the right installment password.

Upcoming Alert: HMI show the installment alert before expire date (before 1,3 or 5 days)

✎Note:

1) In static mode, when [Begin Period]>[Maximum Period], it means that the installment payment function is disabled, that is, the installment payment function is invalid.

2) The password could not exceed 8 bytes in length;

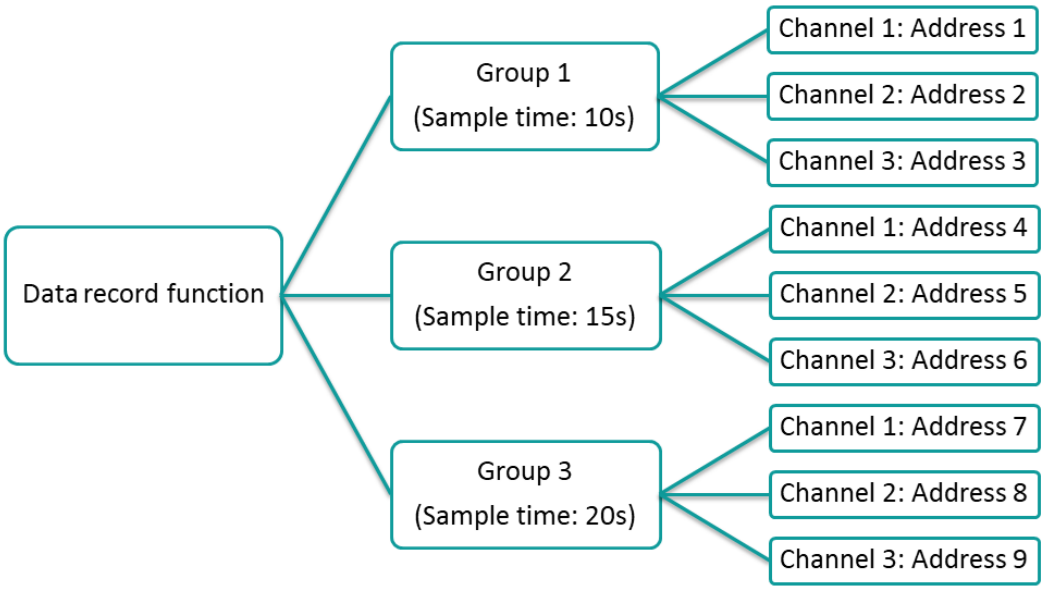
3) The legal characters of the password are "A-Z, a-z, 0-9";

4) Password is case sensitive.

8.3 Data Record

Introduction

The data record function is organized according to the structure below. In a project, there can be multiple record groups, each record group containing multiple channels. Different groups have different sampling times.



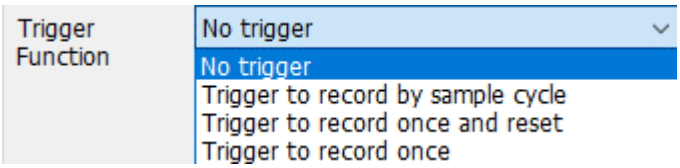
The recorded data can be display in HMI by [Data record display] object;

Description

1) General

Group name: It sets group name; the name should be unique;

Trigger function: It sets to trigger record, there are four modes



- **No trigger:** data will be recorded in every sample time;
- **Trigger to record by sample cycle:** Data will be recorded in every same time, when trigger control bit set ON;
- **Trigger to record once and reset:** Data will be recorded when trigger control bit set ON, and the bit will be reset automatically;
- **Trigger to record once:** Data will be recorded when trigger control bit set ON, and the bit need to be reset manually;

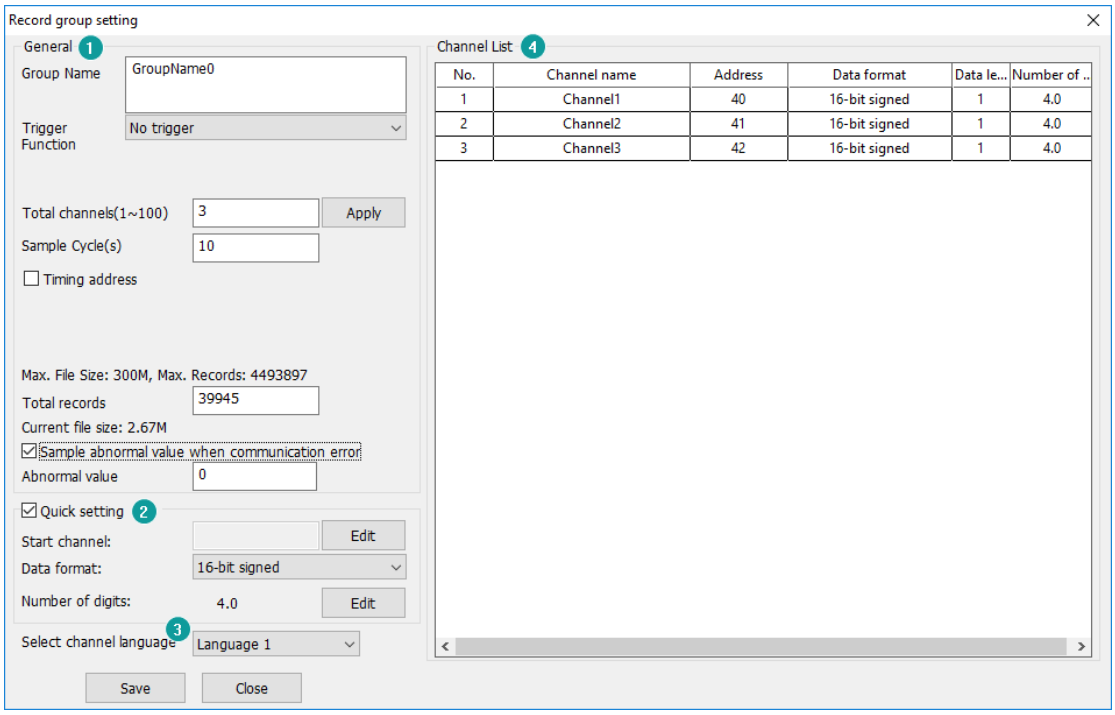
Total Channels: It sets number of channels in this group;

Sample: It sets data record sample time, Unit: second; For example, Sample cycle=15s. It means that records data one time every 15s.

Time address: It sets address to change sample time when HMI is running;

Total records: It sets data record number in one data record file. If the data file size is beyond the current file size. The old data will be deleted, and the new data will replace the old data. Please remember to back up the old data record file.

Abnormal value: It sets a value, when communication fails, data record will record this value;



2) Quick settings

Start channel: It sets the continuous addresses for channels;

Data format: It sets the same data format for channels;

Number of digits: It sets the digits' number for channels;

3) Language settings

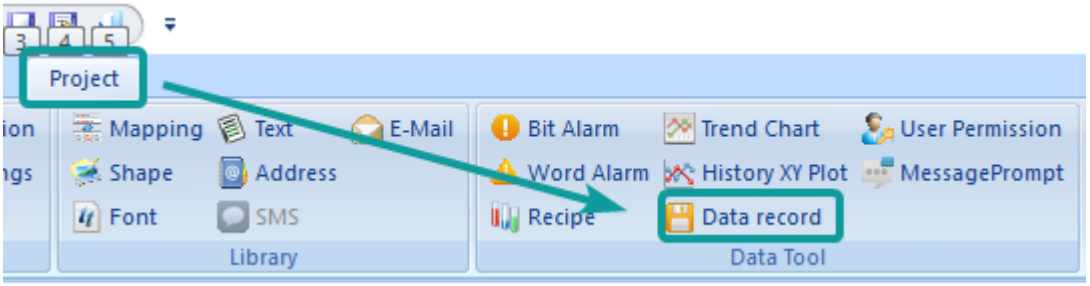
The text in HMI can be in 8 languages, user can set language in here;

4) Channel list

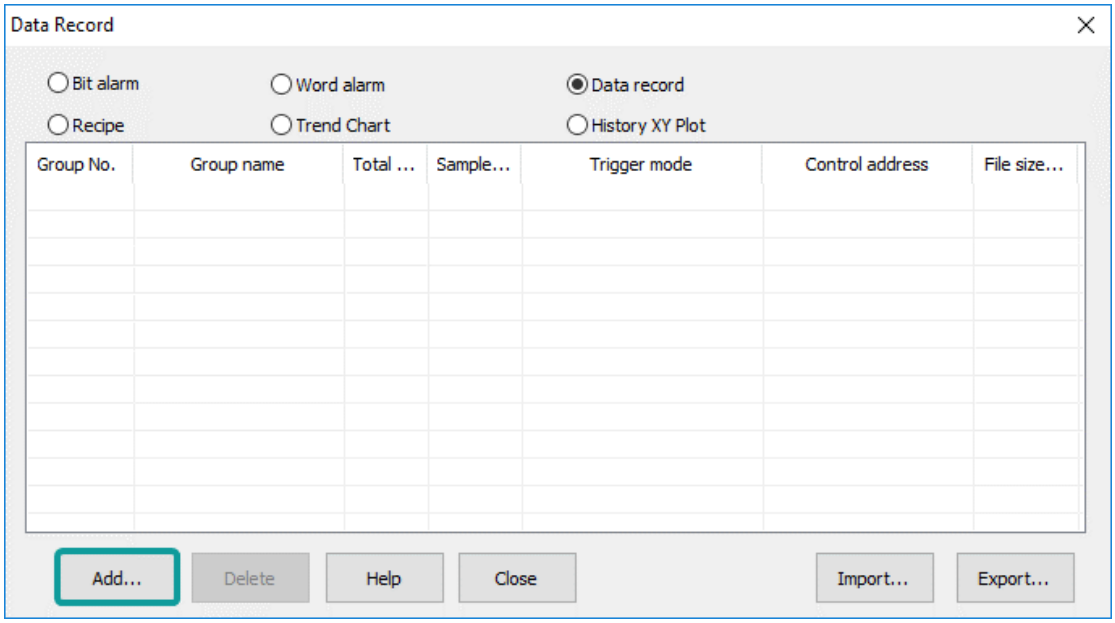
Besides quick settings, user can set channel name, address, data format, and so on one by one according to real situation.

Operating procedures of adding one group

1) Click [Project] -> [Data record] as below shows;



2) Click [Add] button to open [Data record] setting window;



3) Enter group name, the default is [GroupName0];

4) Select [Trigger function] mode, such as [No trigger];

5) Set [Total channels], such as 3;

6) Click [Apply] button;

7) Set Sample cycle, such as 15;

8) Set [Start channel] in [Quick settings], such as 4 0;

9) Check group information in [Channel list] as below;

Channel List

No.	Channel name	Address	Data format	Data le...	Number of ..
1	Channel1	40	16-bit signed	1	4.0
2	Channel2	41	16-bit signed	1	4.0
3	Channel3	42	16-bit signed	1	4.0

10) Click [Save] button to complete settings;

Data record storage settings

The default storage of data record is HMI internal flash, user can change the storage in [Project settings], as below

And user can export data record files, and check them on PC by [Data view tool].

PI data record demo download

https://drive.google.com/open?id=1h7VUsIJqH4LIRjjtphbv9Kmzd6jUMPtE

8.4 Alarm Record

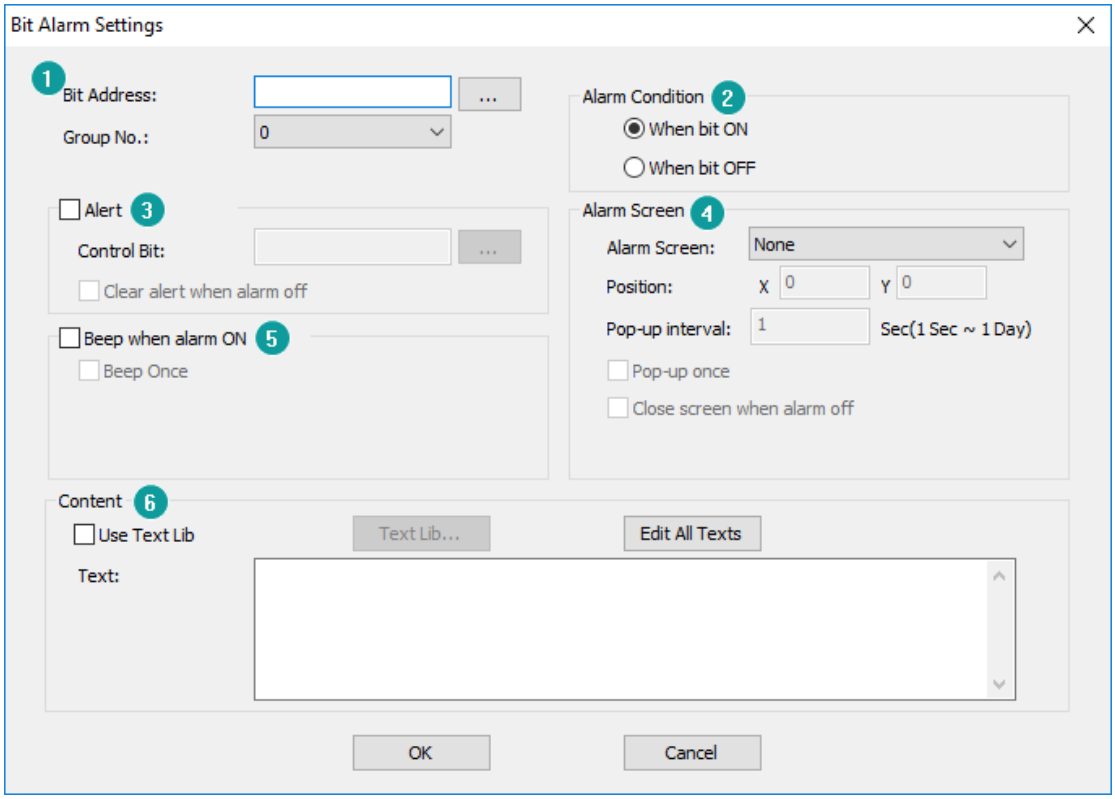
Introduction

PI software support bit alarm and word alarm, the alarm data and history can be saved in SD card, Udisk or HMI flash storage.

The alarm data can be display in HMI by [Alarm record display] object;

8.4.1 Bit alarm

Description



1) **Basic settings**

Bit address: Read address for bit alarm;

Group No.: Group number of bit alarm;

2) **Alarm condition:** It sets alarm trigger condition, there are two types, alarm when ON and alarm when OFF;

3) **Alert:** When the alarm occurs, the [Control Bit] will set ON;

4) **Alarm Screen:** Pop-up alarm screen (it need to be sub-screen);

Position: The location of the screen alarm display.

Pop-up Interval: The time of reopen the alarm screen when alarm screen closed.

Pop-up once: Pop up alarm screen once.

Close window when alarm off: Automatically close the alarm screen when alarm off.

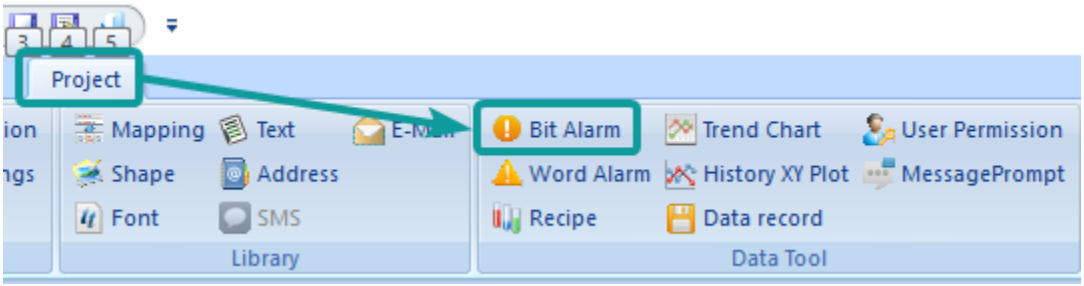
5) **Beep when alarm ON:** beep works when the alarm is triggered, in the default mode, the beep works until the alarm is released.

Beep once: Beep works once, when alarm is triggered;

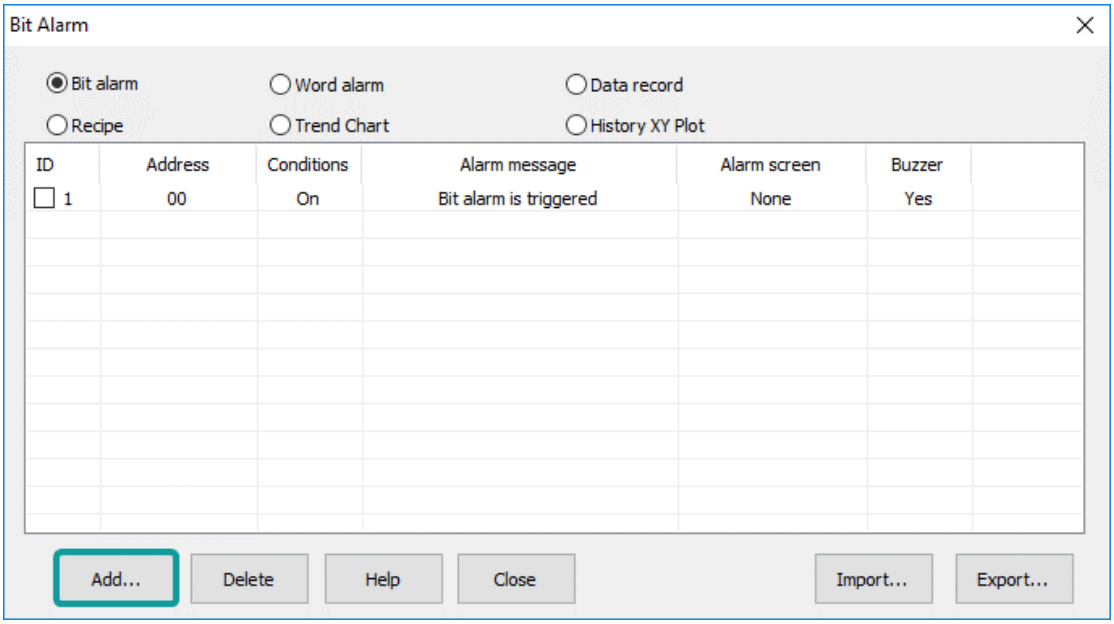
6) Content: It is used for setting alarm content (command);

Operating procedures of adding one alarm

1) Click [Project]->[Bit Alarm] as below shows;



2) Click [Add] button to open [Bit Alarm] setting window;



3) Set [Bit Address];

4) Set [Alarm Condition];

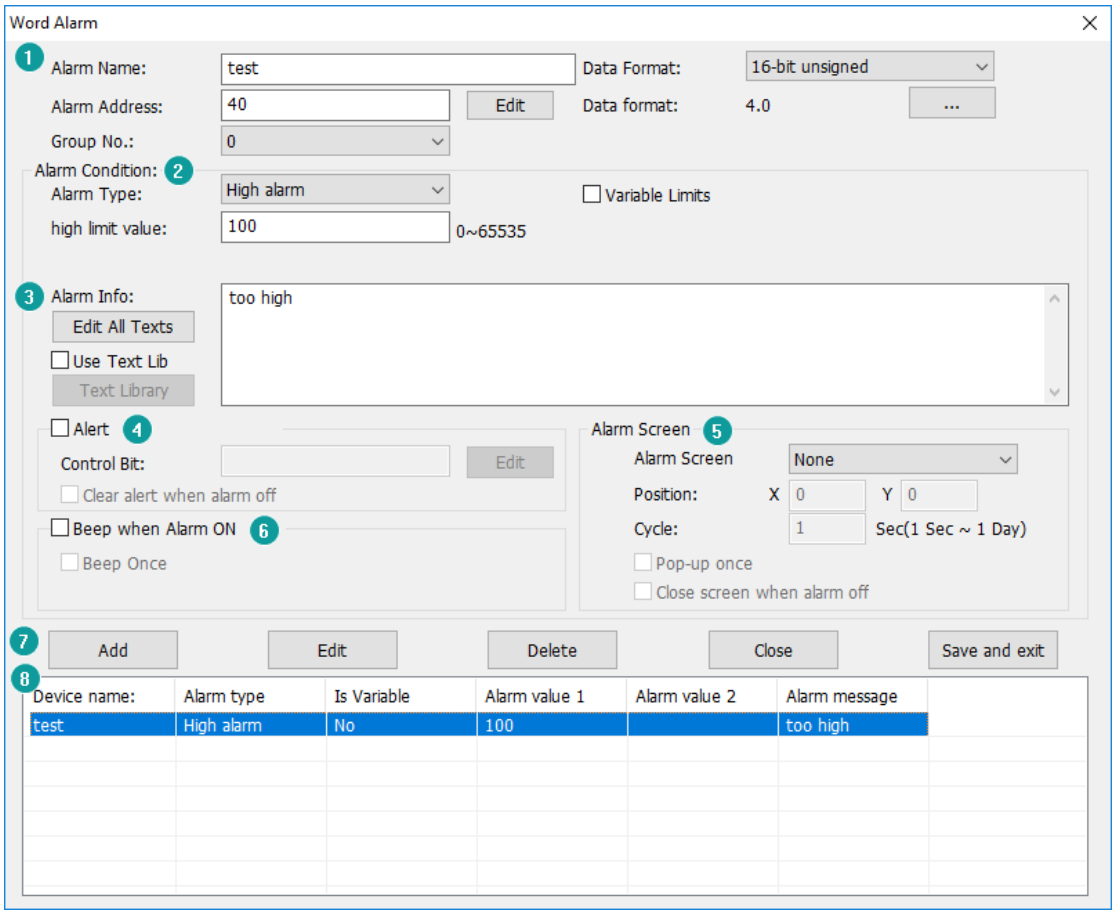
5) Set [Content];

6) Other settings can be set according to the actual situation;

7) Click [OK] button to complete settings;

8.4.2 Word alarm

Description of word alarm setting



1) Basic settings

Alarm name: User can set alarm name for it;

Alarm Address: It is used for setting read address for word alarm;

Data format: It is used for setting [Alarm Address] data format, and set integer and scale digits;

2) Alarm Condition

Alarm is triggered when designated address meets the alarm condition, it provides four conditions;

High alarm: Alarm is triggered when it reaches high limit.

Low alarm: Alarm is triggered when it reaches low limit.

Range alarm: Alarm is triggered when it reaches the range.

Equivalent alarm: Alarm is triggered when the value equals to the present value.

3) Alarm Info: It is used for setting alarm content (command);

4) **Alert:** When the alarm occurs, the [Control Bit] will set ON;

5) **Alarm Screen:** Pop-up alarm screen (it need to be sub-screen);

Position: The location of the screen alarm display.

Pop-up Interval: The time of reopen the alarm screen when alarm screen closed.

Pop-up once: Pop up alarm screen once.

Close window when alarm off: Automatically close the alarm screen when alarm off.

6) **Beep when alarm ON:** beep works when the alarm is triggered, in the default mode, the beep works until the alarm is released.

Beep once: Beep works once, when alarm is triggered;

7) **Operation buttons**

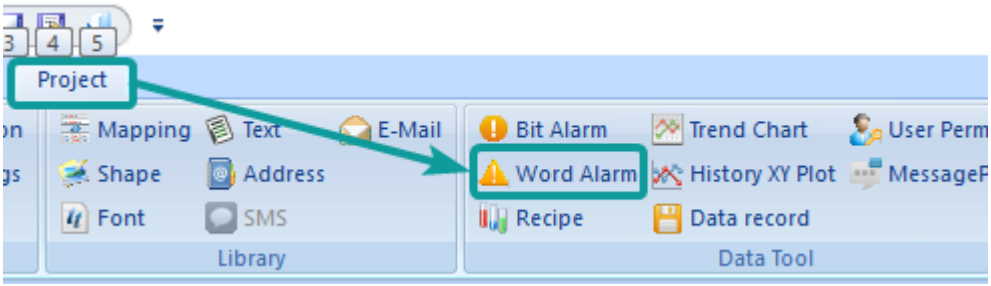
These buttons can perform corresponding editing operations on the [Alarm List].

8) **Alarm List**

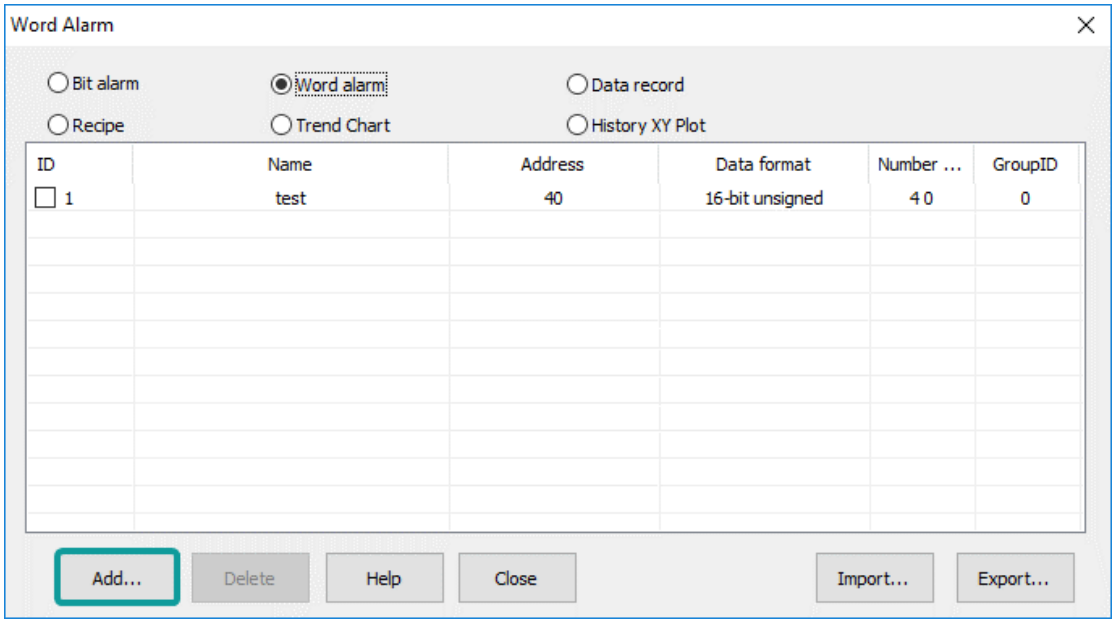
It displays all the word alarm lists; it will show the alarm information;

Operating procedures of adding one alarm

1) Click [Project]->[Word Alarm] as below shows;



2) Click [Add] button to open [Word Alarm] setting window;



3) Set Basic information of word alarm;

4) Set [Content];

5) Other settings can be set according to the actual situation;

6) Click [OK] button to complete settings;

PI alarm demo download link

https://drive.google.com/open?id=1Llq03CMISM_1mMIfU308hxFbs4rGdQGP

8.5 Recipe

Introduction

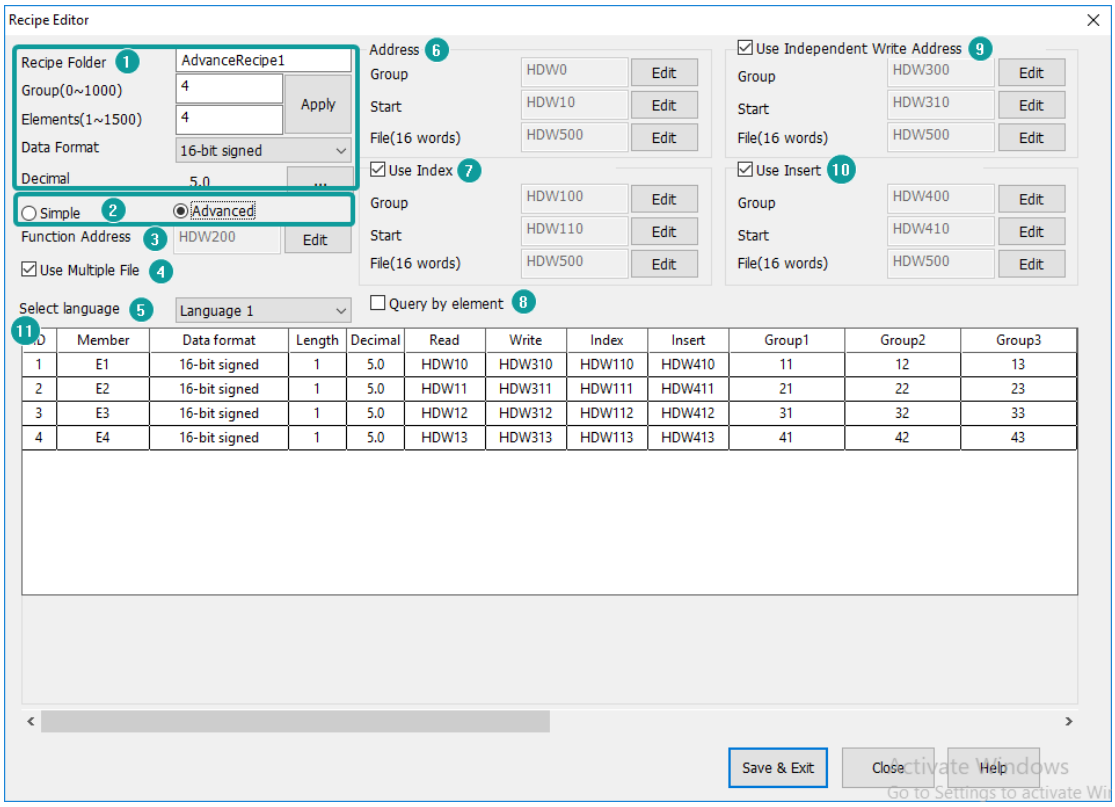
PI Series HMI has Recipe function, Recipe function keeps data in the HMI, used to download the data from HMI to designated device addresses, or upload the data from device addresses to HMI.

The maximum number of group in recipe is 1000, and the maximum number of member in each group is 1500.

Recipe function divides into simple mode and advanced mode. Advanced mode can support multiple recipe files, but simple model can only support one recipe file.

Recipe function settings will be display in [Recipe display] object.

Description



1) Basic

Recipe Folder: Give Recipe folder name (It can be used, when setting Recipe display object);

Group: It sets the groups' initial number of recipe;

Elements: It sets members' initial number of each group;

Data Format: There are some formats can be supported in Recipe, like 16-bit BCD, 16-bit signed, 16-bit unsigned, 32-bit BCD, 32-bit signed, 32-bit unsigned, 32-bit floating and string. If each member requires different formats, please set it one by one in form;

Decimal: It sets integer and scale digits;

2) Mode selection

Users could select Simple or Advanced mode;

3) Function address:

All the operations for recipe is by this address

=0 No operation;

=1 Read data from recipe;

=2 Insert a new group or write data to exist group;

=4 Inserted (only advanced mode);

=8 Delete;

=16 Delete and Sequence;

4) Use Multiple file

Check it to use more than one recipe file in HMI, but this option only valid in [Advanced mode];

5) Select language

The text in HMI can be in 8 languages, user can set language in here;

6) Address

Group: This address is for selecting group number;

Start: This is starting address is for reading and writing in recipe, HMIEditorP will automatically assigns addresses for each members;

7) Use Index

If Group address value change, recipe address will display the new group recipe data. If the new recipe address data change, the corresponding group of the recipe data will change.

8) Query by element

Check it for querying group by element;

9) Use independent Write address

To use different Recipe read address and write address.

10) Use insert

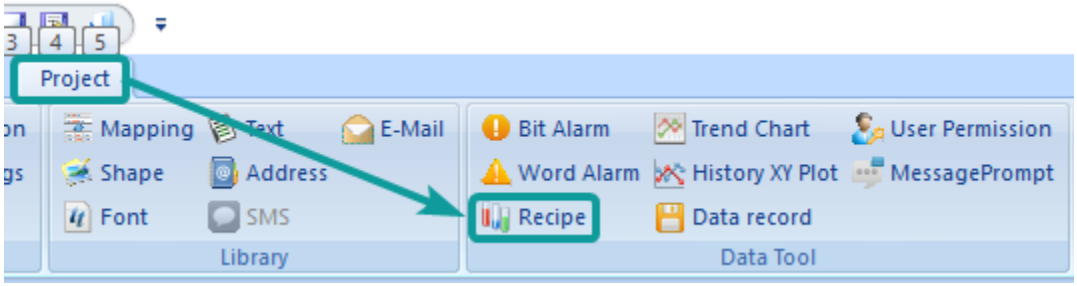
It inserts data into the specified group, if the specified group already exists, all groups after it are reordered.

11) Recipe list

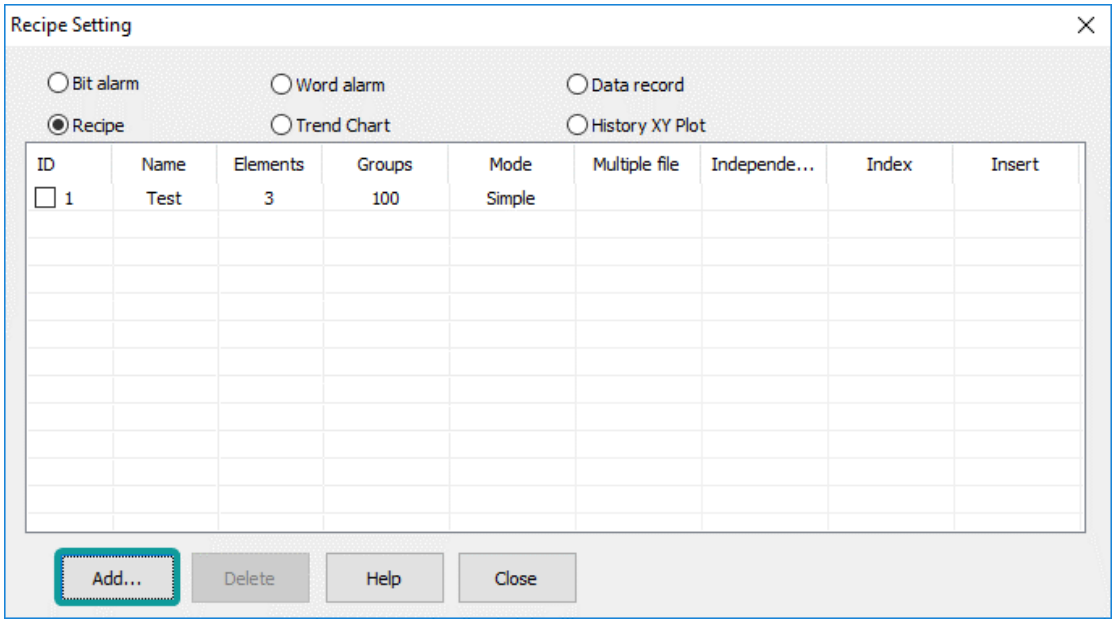
It shows detailed information about recipe; users could set each member in here.

Operating procedures

1) Click [Project]-> [Bit Alarm] as below shows;



2) Click [Add] button to open [Recipe] setting window;



3) Set basic settings for recipe;

4) Select mode according to actual condition;

5) Other settings can be set according to the actual situation;

6) Click [OK] button to complete settings;

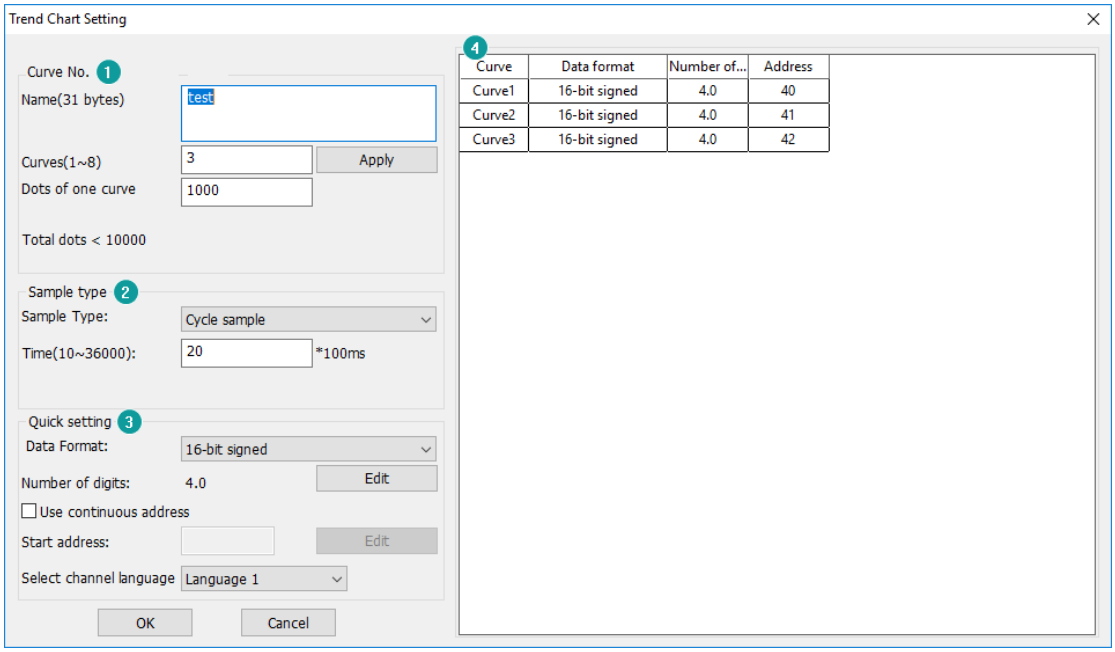
8.6 Trend Chart

Introduction

Trend chart function is used for displaying the real-time data in HMI as curve graph, which X axis represent as time, Y axis represent as data.

Recipe function settings will be display in [Trend Chart] object.

Description



1) Basic settings

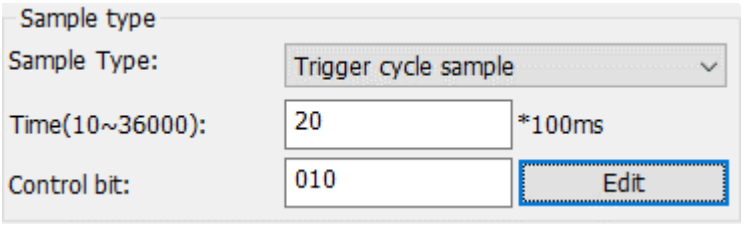
Curve Name: It is for setting curve name; Enter suitable text for the name, but the length limitation is 31 bytes;

Curve (1~8): It is for setting the number of curves, the default is 3;

Dots of one curve: It is for setting dots number of each curve, the default is 1000, but the maximum dots are 10,000 for all the curves;

2) Sampling type

It is for setting sampling type for curve chart, there are two types, one is Cycle sample, and the other is Trigger cycle sample. If users select Trigger cycle same mode, it requires a control bit for it, as following picture shows.



3) Quick setting

it is for setting all the curves, select the data format for all curves, and setting the reading addresses for curves.

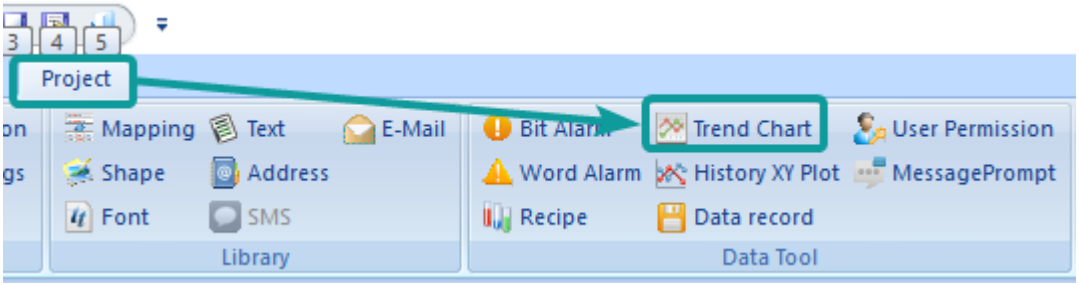
For example:

Users set HDW0 as start address, and the data format is 16-bit signed, then the HDW0 is for Curve 1, HDW1 is for Curve2, HDW2 is for Curve 3.

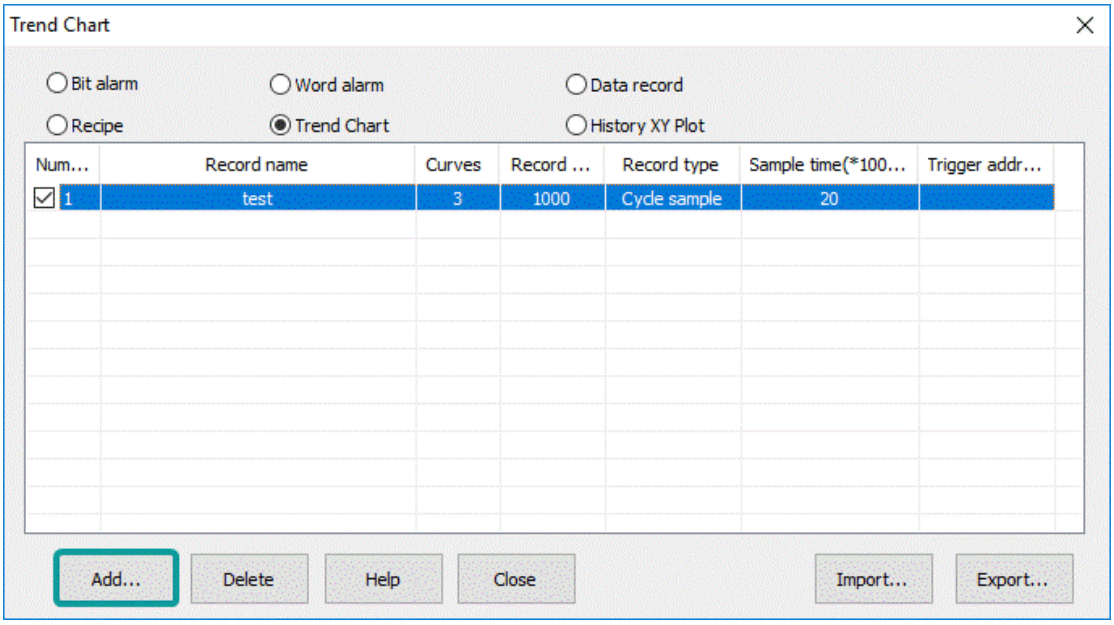
4) **Right side window:** It is for setting curves one by one;

Operating procedure

1) Click [Project] -> [Trend Chart] to open the function selecting windows;



2) Click [Add] button to open [Trend Chart] setting windows;



3) Setting the function of trend chart;

4) Click [OK] to save the setting;

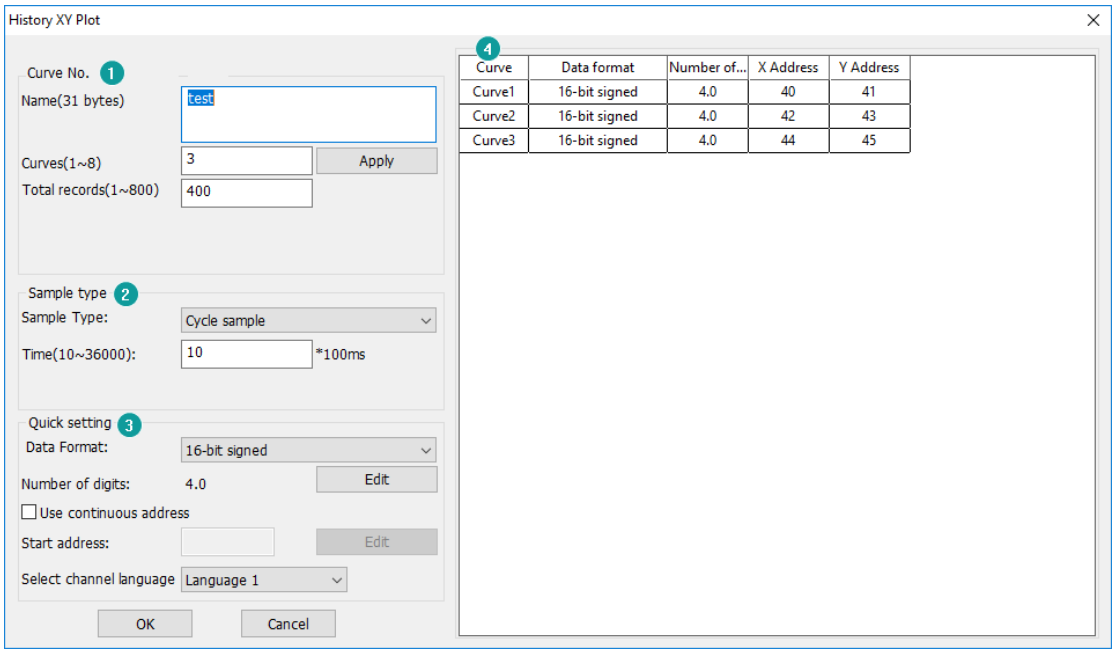
8.7 History XY Plot

Introduction

Different from Trend Chart, uses need to set history XY curve items in project. Please click [Project]-> [History XY Plot] to open the setting screen;

Recipe function settings will be display in [History XY Plot] object.

Description



1) Curve No.

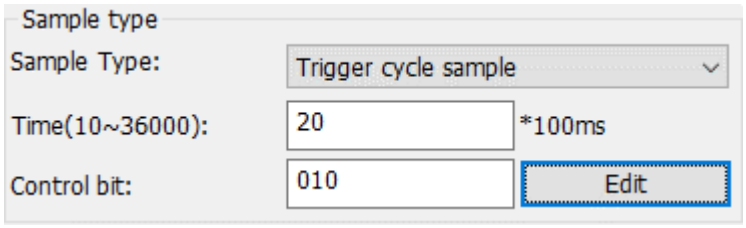
Name: users use it to name curve item;

Curves: it sets how many curves in one item;

Total records: it sets how many records in one curves;

2) Sampling type

It is for setting sampling type for curve chart, there are two types, one is Cycle sample, and the other is Trigger cycle sample. If users select Trigger cycle same mode, it requires a control bit for it, as following picture shows.



3) Quick settings:

It only used for all the curves are in the same data format;

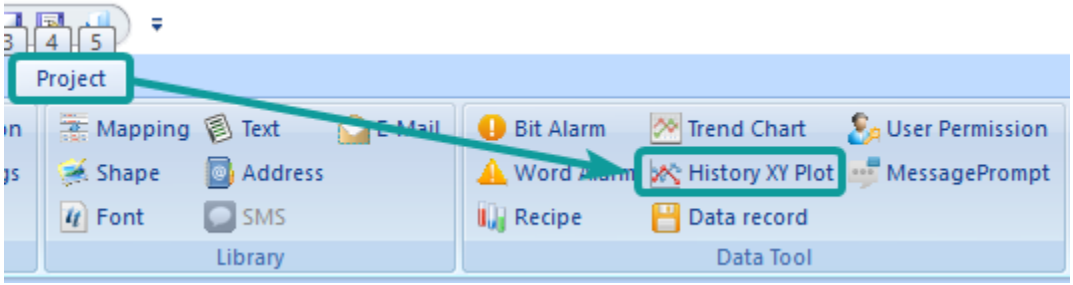
Use continuous address: it only used for all the curves are read data from continuous addresses;

4) Curve setting:

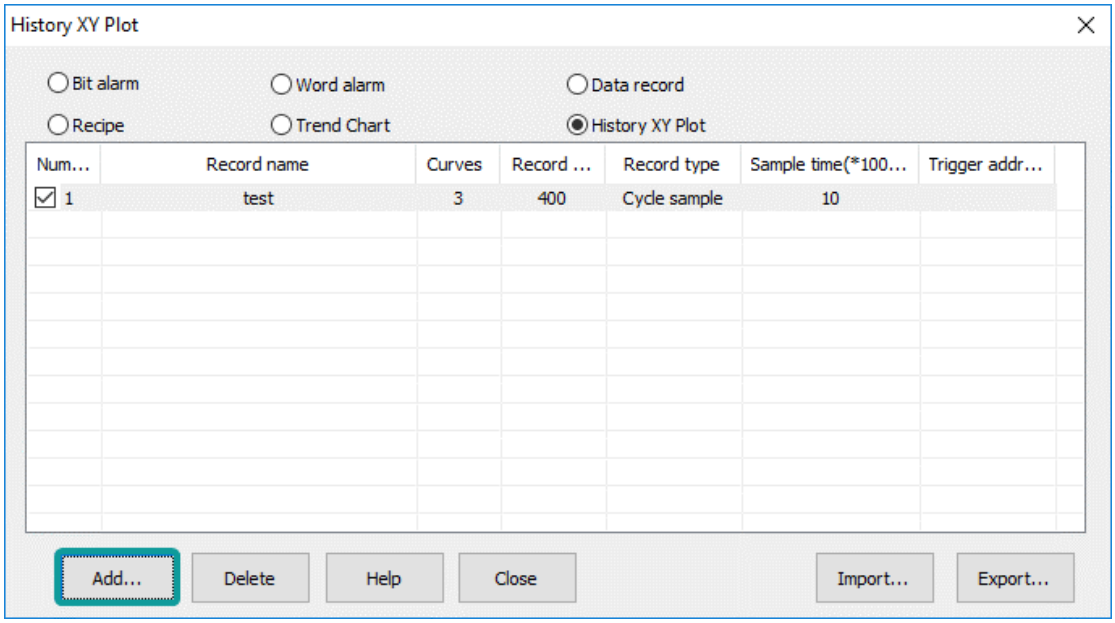
Users could set curve one by one with different data format and intermittent address.

Operating procedure

1) Click [Project] -> [History XY Plot] to open the function selecting windows;



2) Click [Add] button to open [History XY Plot] setting windows;



3) Setting the function of History XY Plot;

4) Click [OK] to save the setting;

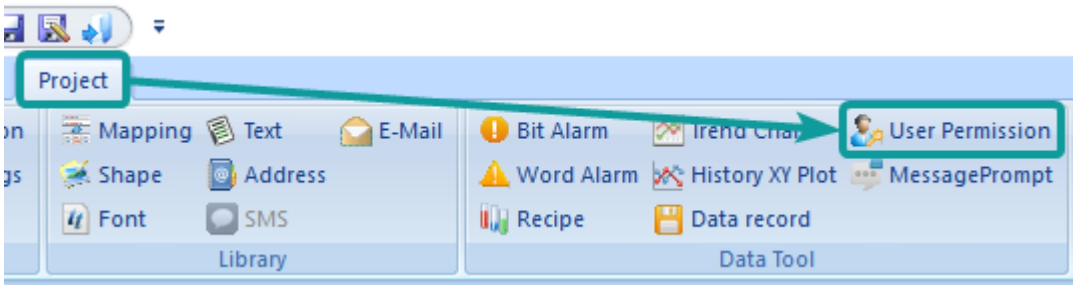
8.8 User Permission

Introduction

User permission is one of expansion function in PI Series HMI; it provides multi-level of permission for control HMI operations. User need to set the user and group during designing project. Different groups have different permission levels for accessing. Each user should be added into the specified group; it is possible to add the same user into different groups. Operating record: it records user operations information, the records files are saved in HMI flash; its path is [\\flash\\UserOperationLogs.db].

Operating procedure of settings

1) Click [User Permission] in [Data Tool] toolbar;

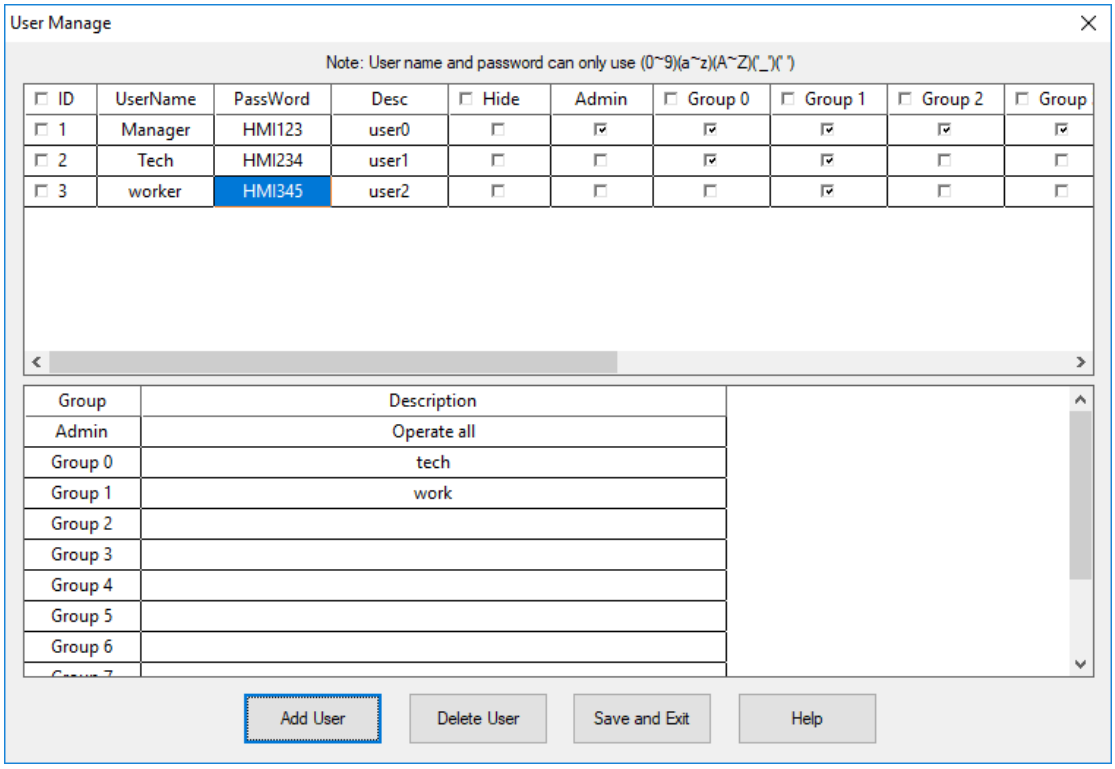


2) Edit user name, click [User0] cell under [UserName], and then enter the user name, one project allows maximum 20 users;

3) Edit password, click [User0] cell under [PassWord], and then enter the user name;

4) Edit description, click [User0] cell under [Desc], and then enter, description is not necessary;

5) Check the groups for each user, there are 11 groups beside admin;



6) Editing groups' description, but it is not necessary;

7) Click [Save and Exit] button to complete all settings;

Operation Procedure of object permission

1) Open the object setting windows;

2) Select [Security] windows;

3) Check the [User Permission];

4) Select [Level] to set permission level;

5) Enter [Log Message], it is for operation records, if it was empty, the operation for

this object would be not be recorded;

6) Select the [Access Denied Setting] mode;

Control list table

HMI allows managing user accounts on screen. Including adding, deleting and editing the user account. HMI provide built-in screen for [Sign in] and [change password] (screen No. 1006 and 1007).

Function	Address	Object type	Address function
Sign in	HUW1158~1335	Drop down list	User name
	HUW1002	Character input object	Password
	HUW1000	Word Switch (Input 1)	OK (sign in)
Change password	HUW1158~1335	Drop down list	User name
	HUW1002	Character input object	Old password
	HUW1006	Character input object	New password
	HUW1010	Character input object	Confirm password
	HUW1000	Word Switch (Input 2)	OK(change password)
Sign out	HUW1000	Word Switch (Input 3)	Sign out
New user	HUW1014	Character input object	User name
	HUW1006	Character input object	password
	HUW1010	Character input object	Confirm password
	HUW1000	Word Switch (Input 4)	OK(add new user)
	HUW1336~1345	Character input object	User description
	HUX1347.0	Bit switch	=1: User hidden =0: Visible (Defaults)
	HUW1000	Word Switch (Input 8)	Save(add Hide features)
Delete user	HUW1158~1335	Drop down list	User name
	HUW1000	Word Switch (Input 5)	OK (delete user)
Delete Profile	HUW1000	Word Switch (Input 9)	OK(delete)
Export Profile	HUW1000	Word Switch (Input 10)	OK(export)

Import profile	HUW1000	Word Switch (Input 11)	OK(import)
Export log file	HUW1000	Word Switch (Input 12)	OK(export)
Delete log file	HUW1000	Word Switch (Input 13)	OK (delete)
Current user name	HUW1349	Character object	32 Word
System state information	HUW1030	Character input object	System state information
Permission settings	HUW1014	Character input object	User name
	HUW1348	Bit switch	Set the user group: HUX1348.0 = 1 administrator; HUX1348.1 = 1 group 0 permission; HUX1348.2 = 1 group 1 permission; (Total group 0 - group 10)
	HUW1000	Word Switch (Input 6)	Add user rights (set according to HUW1348)

When the user performs a function operation, the operation result is displayed in the HUW1001.

Value (HUW1001)	Meaning
1	Insufficient permissions.
2	User name does not exist.
3	User name already exists.
4	Invalid password.
5	Signed in
6	Password you inputted do not match.

7	Password changed.
8	User adding complete.
9	User deleting complete.
10	Maximum number of users exceeded.
11	An administrator user already exists.
12	Modified user rights
13	Imported file
14	Failed to import file
15	Exported file
16	Failed to export file
17	Signed out
18	Deleted profile
19	Deleted log file
20	Modified hide settings
21	Failed to modify hide settings

✎Note:

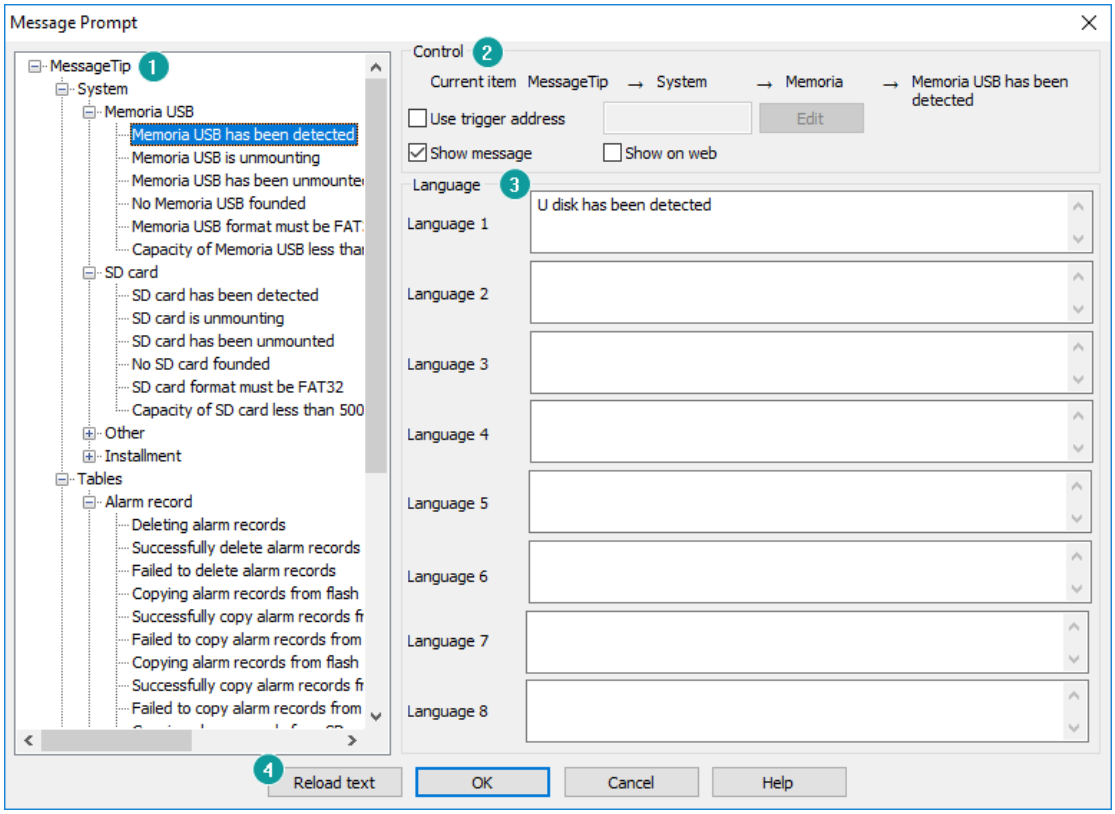
1) If there is an administrator account, the user can no longer add an administrator, that is, a project can only have one administrator account.
2) During adding a user function, the set password could not be duplicated with other users.
3) During deleting a user, it is forbidden to delete the administrator account, that is, the administrator account could not be deleted.

8.9 MessagePrompt

Introduction

A message box is a window used to show some prompts or warnings to users. For example, the application process a task in the process of pop-up message box, suggesting that "detected u disk", then the customer can carry out data dump function.

Description



1) Message

It includes system classes (u disk, SD card, and others), chart classes (alarm, data, recipe, file list), curve classes (Trend Chart, historical XY trend Plot).

2) Control

Current item: It shows selected message information;

Use trigger address: When the message is triggered, the trigger address would be set ON

For example:

Trigger address is 011, during inserting a USB flash disk into HMI, and 011 would be set ON, once HMI recognizes USB flash disk, and display message;

Show message: Check it to display message when HMI is running. It is checked by default.

Show on web: Check it to display message when remote access HMI screen, it is unchecked by default;

3) Message Content

Each message has default content, but the user can set different content according to the actual situation. And the same message could be displayed in 8 languages.

4) Reload text

It means discard changes

For example

User deletes default content or modifies default content, but he wants to give up modification back to original, just click [Reload text]

✎Note:

1) If the user does not want this prompt during the running of HMI, please uncheck [Show message];
2) [Reload text] function would be invalid after clicking save;
3) These 5 special characters are not supported in the header Multilanguage settings: [,], [|], [<], [>], [&].

9 Scripts

This chapter provides information about scripts in HMIEditorP.

This chapter consists of the following section:

9.1 Script type

Introduction

Script is applied to realize complex control functions. HMI compile software provide powerful function, simple operation, reliable script system, the features of script are list as follow:

1) Similar to BASIC grammatical structure;

   BASIC work as the first computer language for the general public, it is easy and efficient to use.

2) Support all of program logic control structures;

   Software script supports three logic control structures: order, condition, loops. It could realize complexity procedures.

3) Powerful function; Functions of script are divided into two types: system and custom function.

   - System function: the functions that system has been predefined for users.
   - Custom function: users could define a function and apply to all scripts.

4) Support variety of data format;

   Script supports integer, floating, BCD code, byte, string and etc.

Scripts have two types of running

1) Background script: Run independently during start project, screen updates have no influence and valid of all scripts.

2) Screen script: Only run under the designated screen. Screen script start running until screen is closed or switched.

And both screen and background have four modes for script

Property	Description
Initialize	The script would be executed once during loading project.
Close	The script would be run once during closing HMI project.
Timing	The script would run under certain conditions after the HMI is started, until the condition ends.
Bit trigger	Script would be repeat executed when meet the condition of bit trigger.

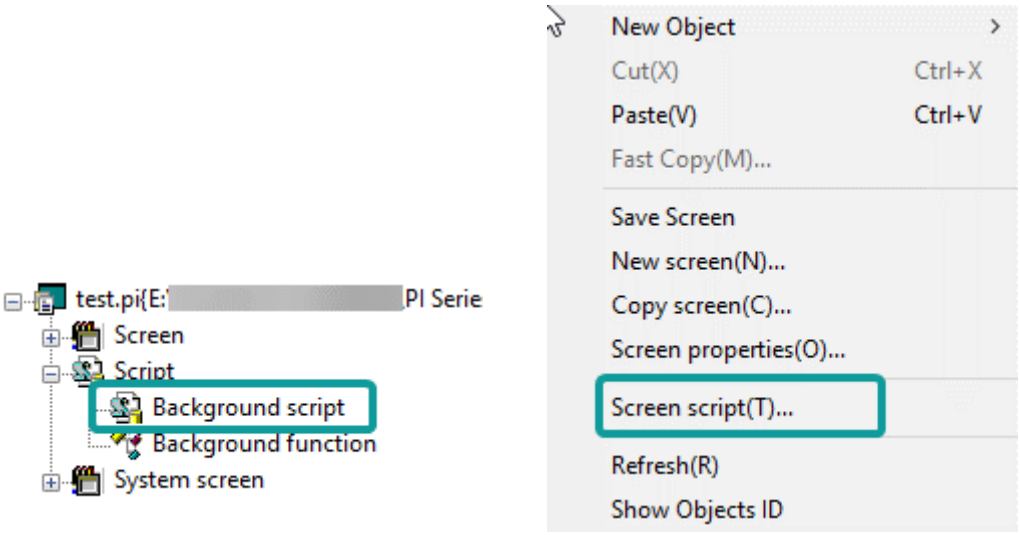
9.1.1 Initialize

Introduction

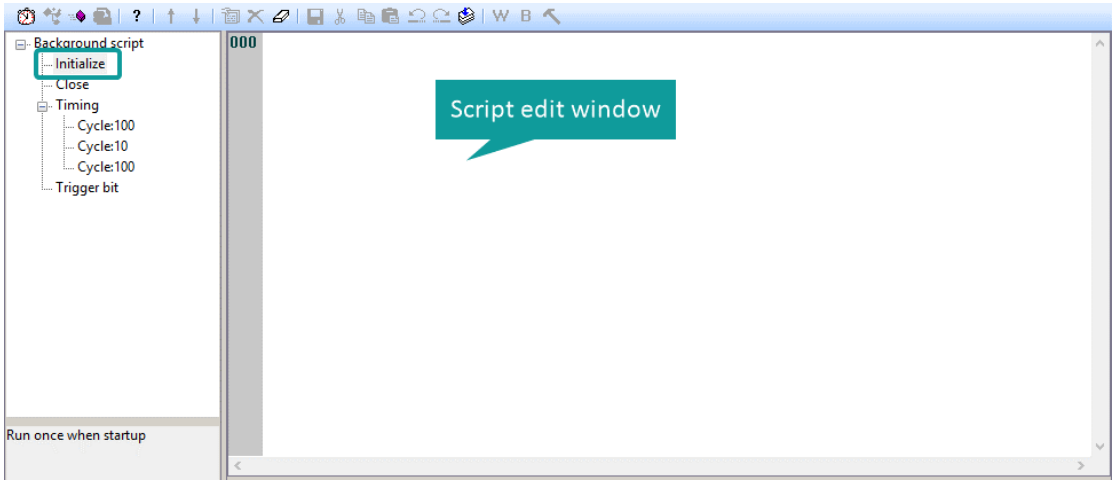
Initialize script divided into screen initialize script and background initialize script. Screen initialize script runs once during the initialization of screen; background initialize script runs during the loading of project.

Operating procedures

1) Click [Background script] in project manager to enter script editor screen, or click [Screen script] in right click menu of screen to enter script editor screen;



2) Double click [initialize] to open script edit window, as below shows;



3) Enter scripts in edit window;

9.1.2 Close

Introduction

Close script divided into screen close script and background close script. Screen close script runs once During the destroying of screen because of closing or switching; background close script runs during the closind of project (such as restart HMI, into HMI setup).

Operating procedures

1) Click [Background script] in project manager to enter script editor screen, or click [Screen script] in right click menu of screen to enter script editor screen;
2) Double click [Close] to open script edit window;
3) Enter scripts in edit window;

9.1.3 Timing

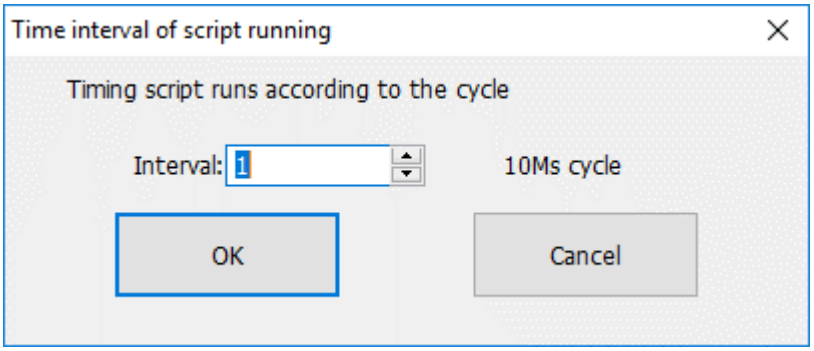
Introduction

The script would run for a designated time interval.

Operating procedures of creating one

1) Click [Background script] in project manager to enter script editor screen, or click [Screen script] in right click menu of screen to enter script editor screen;

2) Double click [Timing], it would pop-up below setting window;



Property	Description
Cycle	Script runs at designated time interval, unit is 10 ms.
Ok	Script created.
Cancel	Cancel the current script setting.

3) Enter scripts in edit window;

Operating procedures of editing

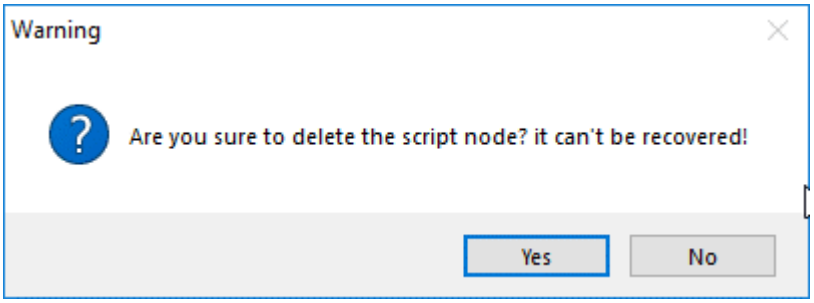
1) Click [Background script] in project manager to enter script editor screen, or click [Screen script] in right click menu of screen to enter script editor screen;

2) Select [Timing], and click [] to modify the script execution interval;

3) Double click selected [Timing] to open editing window;

Operating procedures of deleting

1) Click [Background script] in project manager to enter script editor screen, or click [Screen script] in right click menu of screen to enter script editor screen;



2) Select [Timing], and click [] to change interval of script, it pops-up above window

3) Select [Yes] to execute operation or select [No] to cancel operation;

✎Note:

The maximum number of timing script for each screen or background is 32.

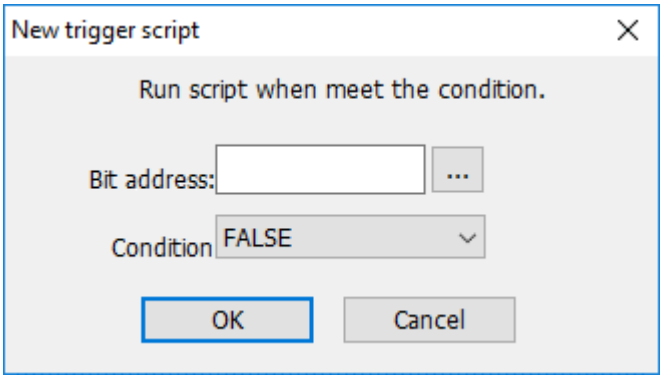
9.1.4 Trigger bit

Introduction

Trigger control script is that software will check whether the designated bit meet trigger condition every 20ms. Script execute once condition is met until project closed.

Operating procedures of creating one

1) Click [Background script] in project manager to enter script editor screen, or click [Screen script] in right click menu of screen to enter script editor screen;
2) Double click [Trigger bit], it pops-up below setting window;



Bit address: It sets trigger address for script;

Condition: detailed information as below shows;

Condition	Description
TRUE	Script execute once the bit value is TRUE, it checks trigger bit every 20 ms;
FALSE	Script execute once the bit value is FALSE, it checks trigger bit every 20 ms;
Bit changed	Execute once the trigger bit switches state;

Rising	Script execute once the bit value from FALSE to TRUE, it checks trigger bit every 20 ms;
Falling	Script execute once the bit value from TURE to FALSE, it checks trigger bit every 20 ms;

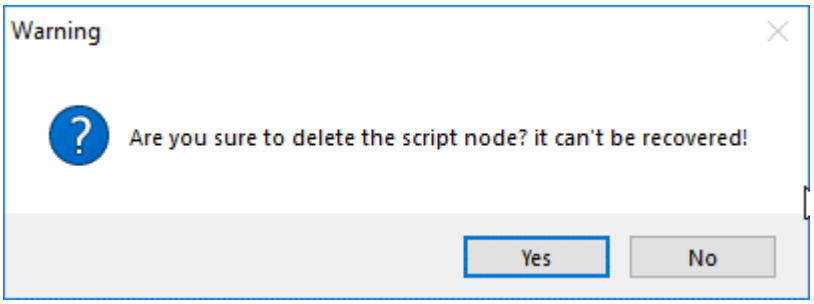
3) Set trigger bit and condition, click [OK] to open editing window;

Operating procedures of editing

1) Click [Background script] in project manager to enter script editor screen, or click [Screen script] in right click menu of screen to enter script editor screen;
2) Select [Trigger script], and click [] to change trigger bit and condition;
3) Double click selected [Trigger script] to open editing window;

Operating procedures of deleting

1) Click [Background script] in project manager to enter script editor screen, or click [Screen script] in right click menu of screen to enter script editor screen;
2) Select [Trigger script], and click [] to change interval of script, it pops-up below window



3) Select [Yes] to execute operation or select [No] to cancel operation;

✎Note:

The maximum number of trigger script for each screen or background is 32.

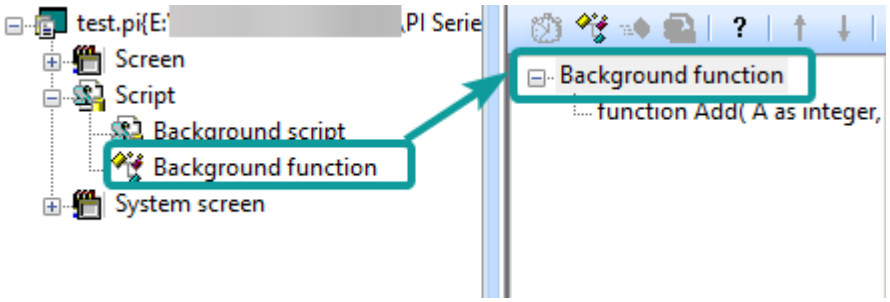
9.1.5 Background Function

Introduction

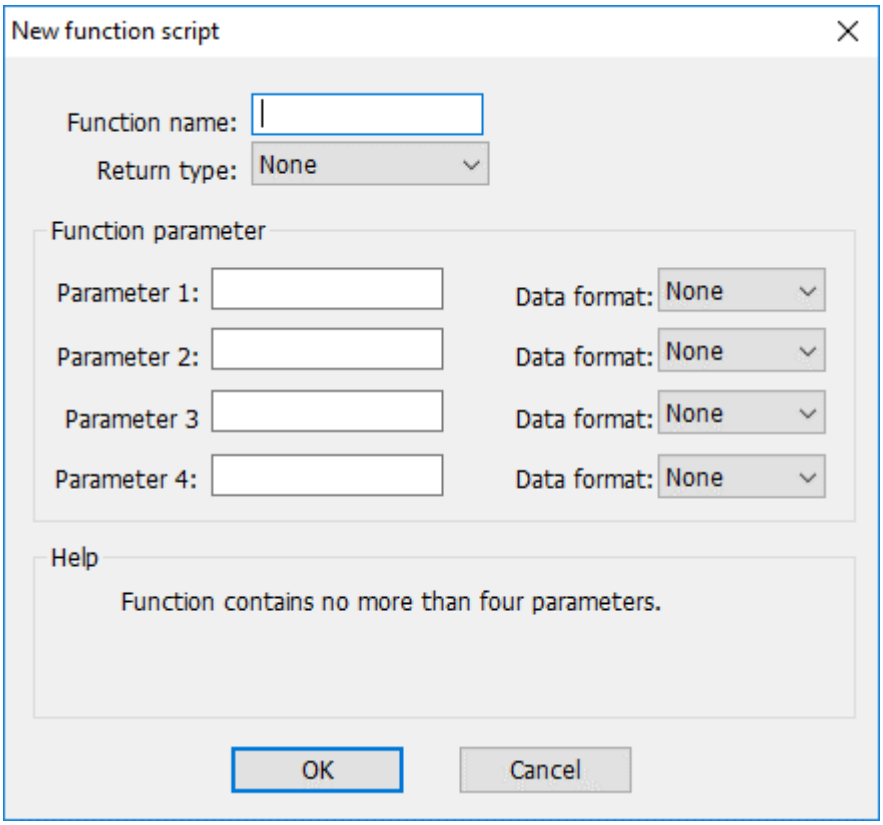
Global function is a collection of codes; it can be called in any script. The method reference system function;

Operating procedures

1) Double click [Background function] in project manager;



2) Set parameters;



Property	Description
Function name	Function name could not be the same as existing.
Return type	None, string, integer, float.
Parameter 1	The name of parameter 1.

Operating procedures of editing

1) Click [Background function] in project manager to enter script editor screen;

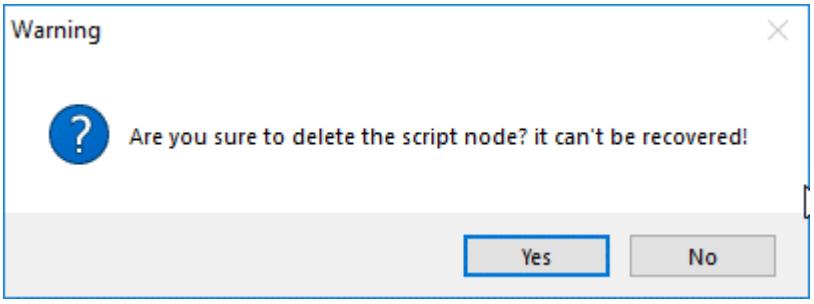
2) Select Function name, and click [] to change parameters;

3) Double click selected [Trigger script] to open editing window;

Operating procedures of deleting

1) Click [Background function] in project manager to enter script editor screen;

2) Select Function name, and click [] to change interval of script, it pops-up below window



3) Select [Yes] to execute operation or select [No] to cancel operation;

✎Note:

The maximum parameters for each function are 4, and parameter name can't be unique;

9.2 Script usage

Introduction

Script can make project more convenient and flexible. Script is useful in realizing complex HMI function. If the script is used improperly, it may affect the efficiency of entire project. So pay attention to the follow issues:

1) Do not use too much script loops, if the script loops that execute too many times; it might influence the efficiency of HMI.

2) In the cycle scripts, avoid using external register, due to the relatively slow serial communication, frequent access to external registers may cause the execution of scripts severely reduced, even influence the screen respond efficiently. There is fine to use internal register.

3) The maximum script length is 512 rows.

This section describes how to edit scripts and use some of the accompanying tools and features of the script editor.

9.2.1 Script Access to Device

Software script supports an efficiency way to access the device address by using symbol @.

Writing	Meaning	Examples
@B_;@b_;	Access designated bit address	@B_I0.0: access bit address I0.0 @b_HDX0.0: access bit address HDX0.0
@W_;@w_;	Access designated word address HMI connect more than automatic control devices, "#"stands for choosing number before the symbol,":" stands for accessing the station number before symbol. Access the first protocol without "#", access default station number1 without":".	@W_IW0: access word address IW0 @b_HDW0:access word address HDW0
@B_(the number of protocol connection)#(station number):address		@B_2#2:I0.0:access the bit address I0.0, with the connection number 2 and station number 2; @B_I0.0:access to bit address I0.0;

The script can access with the device though: write and read.

For example

```
If @B_HDX0.0 = 1 then          'read the value from address HDX0.0.
@B_HDX0.0 = 0                  'write 0 to address HDX0.0
Else
@B_HDX0.0 = 1                  'write 1 to address HDX0.0
Endif
@W_QW0 = @W_QW0 + 1            'read data from address QW0, add 1 to
this value then write to address QW0.
```

9.2.2 Grammar Checking

Operating procedures

1) Select  from script tool bar;
2) System does not prompt grammar error if grammar is correct, or system will list all errors;
3) Check error information, and modify errors;

Error information

1) Identifier *** contains invalid characters
2) Attempt to redeclare sub ***
3) Attempt to redeclare function ***
4) Attempt to use reserved word *** as identifier
5) Attempt to use type *** as identifier
6) Unexpected ')' while parsing arguments for function ***
7) Could not parse expression (one of the arguments of function ***)
8) Could not parse arguments of ***
9) Too many arguments for function ***
10) Not enough arguments for function ***
11) '(' expected after sub name ***
12) Unexpected '(' while parsing arguments for sub ***
13) Could not parse expression (one of the arguments of sub ***)
14) Could not parse arguments of ***
15) Too many arguments for sub/function ***
16) Not enough arguments for sub/function ***
17) Could not parse expression
18) '(' expected after function name ***
19) Unexpected use of sub *** as a part of expression
20) Illegal statements preceding subs/functions declaration
21) Unexpected end of file while looking for 'endsub'
22) End of line expected after 'else'.
23) End of line expected after 'endif'.

24) End of line expected after 'next'.
25) End of line expected after 'wend'.
26) 'while', 'until' or end of line expected afte r'do'.
27) Could not parse expression after 'while'
28) Could not parse expression after 'until'
29) 'do' without 'loop'
30) Sub *** contains invalid character'@'
31) Sub *** already declared
32) Function *** already declared
33) Sub name expected after 'sub'
34) Function name expected afte r'function'
35) Variable name expected
36) Argument *** contains invalid character '@'
37) 'integer', 'floating' or 'string' expected
38) '',' or ')' expected
39) 'endsub' without 'sub'
40) 'end function' without 'function'
41) End of line expected after 'beep'
42) 'dim' unexpected here
43) Variable name expected after 'dim'
44) 'as' expected after variable name
45) 'integer' 'floating' or 'string' expected after 'as'
46) ',' or end of line expected after type in dim statement
47) Could not parse expression after 'while'
48) End of line expected after' while' condition
49) 'while' without 'wend'
50) End of line expected after 'wend'
51) 'wend' without 'while'
52) Variable name expected after' for'
53) '=' expected after variable name
54) Could not parse expression after 'for'
55) 'to' expected

56) Could not parse expression after 'to'
57) Could not parse expression after 'step'
58) End of line expected
59) 'for' without 'next'
60) End of line expected after 'next'
61) 'Next' without 'for'
62) Could not parse expression after'if'
63) 'then' expected
64) Unexpected end of file while looking for 'endif'
65) Unexpected end of file while looking for 'else' or 'endif'
66) 'else' without ‘if'
67) 'end if' without 'if'
68) Label name expected after 'goto'
69) Unexpected end of line while looking for ')' in function call
70) ',' expected
71) Missing ')'
72) Unexpected end of line in expression
73) Unexpected end of file in expression

9.3 Script Functions List

9.3.1 Mathematical

Function	Introduction
Abs	Get absolute value
Acos	Compute the inverse cosine value
Asc	Return the first character of the string in ASCII value
Asin	Calculate the arcsine value
Atan	Return an arctangent value,the radian ranges -pi/2 to pi/2
Atan2	Return the arctangent value
Cos	Return a cosine value of an angle

Exp	Returns the power value of e (natural logarithm)
Hypot	Calculate the value of the hypotenuse of a right triangle
Tan	Implement tan calculation to computing the value
Sin	Implement sin calculation to computing the value
Sqr	Assign a square root value
SignedInt16	Assign the value to [val] from address A1 which is signed integer
SignedInt32	Assign the value to [val] from address A1 which is signed even integer

9.3.2 Data Mover

Function	Introduction
BMOV	Copy data with a designated length from source address
FILL	Write the same value to designated address constantly
SetKeyMap	The key values of the keyboard are mapped so that multiple keyboard buttons perform the same function

9.3.3 Process Control

Function	Introduction
GOTO	Go to the designated row unconditionally in a function body
FOR	Execute a command repeatedly for designated times
END	End the execution of script
while	If the condition is true, then all the commands before Wend in the statement will be executed and then recheck the condition, if the condition is false, the command after Wend will be executed

9.3.4 Data Transformation

Function	Introduction
A2H	Convert string A1 to hexadecimal number
Asfloating	Convert parameter to a float

AsInteger	Convert parameter to a integer
AsString	Convert parameter to a string
B2W	Convert an array
BCD	Convert binary to BCD, save the result as return value
BIN	Convert BCD to binary, save the result in return value
Chr	Convert integer parameter into correspond ASCII character, return the character string
D2F	Convert the 32 bit integer format data to float then output the result
D2Float	Convert the designated value to floating then assign to variable
D2Int	Output the 32-bit integer in the form of integer
DegToRad	Convert the angle into correspond radian, and display
F2D	Convert a 32 bit floating to integer format, and then output the result
F2S	Output a format of floating that in the type of string
Float2D	Copy floating value to the address
H2A	Convert a binary(16 bit) to hexadecimals(4 bit) of ASCII
Int2D	Write the 32-bit integer into the specified address
LCase	Convert all parameters to lowercase strings
MAX	Compare the value of A2 and A3, assign the greater number to A1
MIN	Compare the value of A2 and A3, assign the smaller number to A1
RadToDeg	Convert radiant value to degree
S2F	Convert string to floating in the specified format
SWAP	Exchange the high and low bytes of the parameter
W2B	Combine the high byte of the value of two consecutive addresses into a new value
W2D	Convert the unsigned Word to unsigned Dword and save the result
W2F	Convert a 16bit integer to a 32bit floating, and then save to the next word address
W2S	Convert integer word text as S1 format, and then save

9.3.5 Strings

Function	Introduction
A2I	A string of length is intercepted from A1 and converted to a single/double word integer, and then this integer is assigned to A2
InStr	Return the position of str1 in str2
LEFT	Return a string of the specified length from the left side of parameter
Len	Return the string length
LTrim	Remove the left empty part of the string and return
Mid	Returns a string contain a specified characters length from a string
Right	Return a string of the specified length from the right side of parameter
RTrim	Clear the empty part on the right side of string [str], then assign the empty part to val
Trim	Return a value of an address without empty string next to it
UCase	Capitalize the string data, and then assign the value to val

9.3.6 Variable

Function	Introduction
Pi	pi = 3.14159265358979321
True	TRUE = 1
False	FALSE = 0
Operator	Operator in scripts edit window
Variable	A variable is any factor, trait, or condition that can exist in differing amounts or types

9.3.7 Bit Control

Function	Introduction
ClrB	Set the bit of A1 as FALSE

InvB	The state of inverse bit
SetB	Set the bit A1 ON

9.3.8 File Operation

Function	Introduction
HmiRegOperator	Data of Upload/ Download address
CopyFile	Copy the A3 file from the A1 directory to the A2 directory according to the format of A4 and A5
DbToCsvFile	Convert db (database file) file to csv format and export it

9.3.9 Compare

Function		Introduction
IF... THEN GOTO...	IF=	Execute correspond instruction when fulfill condition. Condition will be tested during executing if. it will execute the next instruction block of then, if condition is true. Otherwise, execute the later of else. Complete the two instructions, next execute the later of End if.
	IF<>	
	IF>	
	IF>=	
	IF<	
	IF<=	
	IF AND=0	
	IF AND<>0	
IF	IF=	
	IF<>	
	IF>	
	IF>=	
	IF<	
	IF<=	
	IF AND=0	
	IF AND<>0	
ELSE		
ENDIF		

9.3.10 Applied Function

Function	Introduction
AddrStringCompare	Compare the designated length of two character strings
beep	Enable buzzer
IsFloating	whether a parameter is floating, return TRUE if it is floating, otherwise return FALSE
IsInteger	whether a parameter(A1) is integer, return TRUE if the parameter is integer, otherwise return FALSE
Log	Log function: return the natural logarithm of the value
Log10	Log function: return the natural logarithm of the value
MSeconds	Display the current microseconds of system
NewNoAddr	At the basic of source address A2, offset designated length, obtain a new address A1
NewStatAddr	At the basic of source address A2, offset the designated length, to obtain a new station A1.
NStringCompare	Compare whether the designated length of two strings is the same, return 1 to A1 if yes, otherwise return 0
Power	The value of [expr2] to the power of [expr1] will be assigned to Var
Rand	Generate a random number
ReadAddr	Assign the value in the specified address to [word]
SleepA	Wait time T(ms)
WriteAddr	Assign the value from A2 to address A1

9.3.11 Others

Function	Introduction
Dim...as...	Declare a variable
do	Condition determent instruction
Function	Differ from internal function, need to declare the name, parameter, code of the function
Sub	Declare the name, parameters and codes of the Sub (sub

	function)
PrintText	Output the contents to the printer for printing
PI_GetTickCount	Write the starting time in the set address as a 32-bit integer
StAndFtChange	Calculate the number of seconds from January 1, 1970 to the current time
GetServerDelayInfo	Convert string to hexadecimal number

9.4 Functions Description

A2H

Function

Val = A2H(A1)

Description

Convert string in the specified address to a hexadecimal number;

Parameters

A1: Source data, only convert the first four digits of string

Val: The value is hexadecimal number.

Example

@W_HDW20=A2H(@W_HDW10) ' convert the string of HDW10 to hex then save in HDW20.

Input: @W_HDW10=255

Result: @W_HDW20=255

✎Note:

A1 needs to be address (such as:@W_HDW000002).

Only [0~1], [a~f] can be converted, others will be converted to 0

A2I

Function

A2I (A1, A2, length, S)

Description

Intercept a string of the specified length from A1, convert it to a single/double word integer and assign this integer to A2.

Parameters

A1: String to be intercepted

A2: The final integer value

Length: intercepts the length of the string

S: Control single or double words.

S=0, indicating an integer single word; S=1, indicating an integer double word.

Return value: none

Example

```
A2I("@W_HDW200","@W_HDW100",4,0)    'converts a string into a 16-bit (single word) decimal integer
A2I("@W_HDW600","@W_HDW500",4,1)  ' converts a string to a 32-bit (double word) decimal integer
```

Input: @W_HDW200="12345", **Result:** @W_HDW100=1234

Input: @W_HDW600="12345", **Result:** @W_HDW500=1234

✎Note:

A1 and A2 need to be address (such as:@W_HDW000002).

Abs

Function

val = Abs(A1)

Description

The absolute value of A1.

Parameters

A1: the data of absolute value, need to be variable.

Val: it is absolute value that is address or variable.

Example

```
Dim a as integer                    'a is defined as integer
a = SignedInt16("@W_HDW0")          'convert the data of @W_HDW0 into signed data.
@W_HDW1 = Abs(a)                    'assign the returned absolute value to @W_HDW1
```

Input: @W_HDW0=-6

Result: @W_HDW1=6

✎Note:

SignedInt16 function is designed to convert unsigned to signed.

ACOS

Function

val = ACos(A1)

Description

To compute the inverse cosine value of A1.

Parameters

A1: floating value, can be an address or variable.

Val: return value is floating, can be an address or variable.

Example

```
Dim a ,b as floating    'define two float variable a,b
a = 0.5                 'assign the designated value to a
b = ACos(a)             'the inverse cosine value of "a" is a radian which assign to
                        variable b.
'to add the following sentence if needed to view the return value:
float2d("@W_HDW200", b)     'float b written into HDW200.
```

Result: @W_HDW200=1.047

✎Note:

Please call **RadToDeg** function to convert radian into angle.

AddrStringCompare

Function

val = AddrStringCompare(A1, A2, length)

Description

It is designed to compare the designated length of two character strings. The string value is 1 when the two strings are the same.

Parameters

A1, A2: character string, need to be an address (such as:"@W_HDW000002")

Length: The length of character string.

Val: Return value, 0 or 1.

Example

```
if AddrStringCompare("@W_HDW10","@W_HDW0",2)=1 then
'compare the character string of HDW10 and @W_HDW0 whether value are 1.
@W_HDW20=1 '@W_HDW20 display 1
else
@W_HDW20=0 '@W_HDW20 display 0
Endif
```

Input: @W_HDW10="1a2 ", @W_HDW0="1a2 ",

Result: @W_HDW20=1

Input: @W_HDW10="ab2 ", @W_HDW0="12a ",

Result: @W_HDW20=0

Asc

Function

val = Asc(A1)

Description

Return the first character of the string in ASCII value.

Parameters

A1: character string, it can be an address (such as: @W_HDW000002)

val: return value, ASCII value, it could be an address or variable.

Example

```
@W_HDW10 = Asc("A")        'return the ASCII value of A to HDW10
@W_HDW11 = Asc("a")        'return the ASCII value of a to HDW11
@W_HDW12 = Asc("Apple")    'return the first character A of string Apple to HDW12
@W_HDW13 = Asc("123")      'return the first character ASCII value 1 of string 123 to
                            HDW13.
```

Result: @W_HDW10 = 65

@W_HDW11 = 97

@W_HDW12 = 65

@W_HDW13 = 49

AsFloating

Function

val = AsFloating(A1)

Description

Convert parameter A1 to a float.

Parameters

A1: integer variable.

val: return float value, can be a variable or address.

Example

```
Dim a as integer            'define a integer variable {a}.
a = @W_HDW10                'assign @W_HDW10 to a
b = AsFloating(a)           'convert integer a to float then assign to b.
b = b/1.2                   'add as following sentence when need to view the return
                             value:
Float 2D("@W_HDW11",b)      'float variable b written into HDW11.
```

Input: @W_HDW10=24,

Result: @W_HDW11=20.00(set two decimals)

ASin

Function

val = ASin(A1)

Description

Calculate the arcsine value of A1.

Parameters

A1: Float can be an address or variable.

Val: Return float value, can be an address or variable.

Example

```
Dim a, b as floating 'define two float variable a,b
a = 0.5              'assign the designated value to a
b=ASin(a)            'calculate the arcsine value of a ,assign the radian to b.
'Add the following command if need to view the return value:
float2d ("@W_HDW200", b) 'float variable b written into HDW200
```

Result: @W_HDW200=0.524

✎Note:

Please call **RadToDeg** function to convert radian into angle.

AsInteger

Function

val = AsInteger(A1)

Description

Convert parameter A1 to integer value.

Parameters

A1: floating need to be a variable.

Val: the value returned could can be a variable or address.

Example

```
Dim a as floating                    'define floating variable a
a = D2Float("@W_HDW0",a)             'use D2Float function to save the float date of HDW0 in a
b= AsInteger(a)                      'convert the float a into integer, the return value assigned to b
@W_HDW10=b                           'save b to HDW10
```

Input: @W_HDW0=20.12,

Result: @W_HDW10=20

AsString

Function

val = AsString(A1)

Description

Convert parameter A1 to a character string.

Parameters

A1: not string parameter, it can be a variable.

Val: return string value, variable or address.

Example

Script 1:

```
a=123                    'assign a value to a
b=234                    'assign a value to b
c=AsString(a)+AsString(b)   'convert a and b to string then add up the two strings ,assign the result to c.
@W_HDW0=c                'assign c to HDW0
d=a+b                    'plus a with b
@W_HDW100=d              'assign d to (HDW100)
```

Result: @W_HDW0=123234

@W_HDW100=357

Script 2:

```
W2S("@W_HDW200","@W_HDW300","02d")
W2S("@W_HDW210","@W_HDW400","02d")
W2S("@W_HDW220","@W_HDW500","02d")
@W_HDW0=AsString(@W_HDW300)+AsString(@W_HDW400)+AsString(@W_HDW500)
```

Input: @W_HDW200=12,@W_HDW210=34,@W_HDW220=56

Result :@W_HDW300=12,@W_HDW400=34,@W_HDW500=56,@W_HDW0=123456

✎Note:

Ensure the data always is two words; otherwise occur error. reference the other chapter of W2S function

ATan

Function

var = ATan(A1)

Description

Return an arctangent value, the radian ranges -pi/2 to pi/2.

Parameters

A1: Can be float, address or variable.

Val: radian of return value.

Example

@W_HDW20= Atan (@W_HDW10) 'save the arctangent value of (HDW10) to (HDW20)

Input: @W_HDW10=1.000,@W_HDW20=0.785

✎Note:

Please call RadToDeg function convert radian to angle.

ATan2

Function

val = ATan2(A1,A2)

Description

Return the arctangent value of A1/A2, radian range

Parameters

A1, A2: Address or variable.

Val: returned value is a radian, range -pi to pi.

Notice: ATan2 use sign of two parameters to define the quadrant of return value.

Example

```
@W_HDW20= ATan2 (@W_HDW10,@W_HDW12)    'save the arctangent value of
                                        (HDW10/HDW12) to (HDW20).
```

Input: @W_HDW10=1.0,@W_HDW12=1.0,

Result: @W_HDW20=0.785

✎Note:

Please call **RadToDeg** function convert radian to angle.

B2W

Function

B2W(A1, A2, length)

Description

Convert an array (begins with A2, unit: byte, to another array (begins with A1, unit: word).

Parameters

A1: Saving address after converting

A2: Address of the value be converted

Length: The length of conversion

Return value: None

Example

B2W(@W_HDW100,@W_HDW10,2) 'convert (@W_HDW10) to the length of 2,save as the result that begins with @W_HDW100.

Input: @W_HDW10=1A2B

Result: @W_HDW100=2B

@W_HDW101=1A

✎Note:

A1 and A2 need to be address(e.g.: @W_HDW000002);

Length could be address or variable;

This is a subprogram; it has no returned value.

BCD

Function

val = BCD(A1)

Description

Convert A1(binary) to BCD, save the result as return value.

Parameters

A1: The binary be converted; it can be an address or variable.

Val: Return value, BCD code; it can be an address or variable.

Example

```
@W_HDW20=BCD(@W_HDW10)      'convert HDW10 (binary) to BCD code, then save
                             in (HDW20)
```

Input: @W_HDW10=11111111(binary)

Result: @W_HDW20=255

✎Note:

Return value is a word; it hexadecimal corresponds to BCD code.

Beep

Function

(Beep)

Description

Enable buzzer

Parameters

None

Example

```
if @B_HDX100.0=1 then    'beep when the bit switch HDX100.0 set ON
(beep)
endif
```

Result: HMI beep when bit switch HDX100.0 set ON.

BIN

Function

Val = BIN(A1)

Description

Convert A1 (BCD) into binary, save the result in return value.

Parameters

A1: The BCD code is converted; it can be address or variable.

Val: Return binary value,it can be address or variable.

Example

```
@W_HDW20=BIN(@W_HDW10)    'convert HDW10(BCD) to binary, save the result in (HDW20)
```

Input: @W_HDW10=255

Result: @W_HDW20=11111111 (binary)

BMOV

Function

BMOV(A1, A2,length)

Description

Copy data with a designated length from source address A2 to A1.

Parameter

A1: saving address;

A2: source address;

length: operating length;

Example

```
@W_HDW20 = 20                    'assign value to HDW20
@W_HDW21 = 21                    'assign value to HDW21
@W_HDW22 = 22                    'assign value to HDW22
BMOV(@W_HDW10,@W_HDW20,3)        'assign the word address of HDW20, HDW21, HDW22 to HDW10, HDW11, HDW12
```

Result:

@W_HDW10 = 20

@W_HDW11 = 21

@W_HDW12 = 22

✎Note:

A1 and A2 need to be address

Length can be an integer variable or an address. When destAddr and srcAddr are PLC (external device) addresses, the length range is 1-2048, and the 2049th address would not be operated when the range is exceeded.

When destAddr and srcAddr are HMI addresses, the length range is 1-4096, and This function is invalid when out of range.

Chr

Function

val = Chr(A1, A2, ...)

Description

Convert integer parameter into correspond ASCII character, return the character string.

Parameters

A1, A2....: converted integer; it can be an address or variable.

Val: returned value, can be an address or variable.

Example

@W_HDW100=Chr(@W_HDW20, @W_HDW21, @W_HDW22, @W_HDW23, @W_HDW24)

'convert the value of(HDW20, HDW21 ,HDW22, HDW23, HDW24) to ASCII character, assign the value to (HDW100)

Input 72,69,76,76,79 step by step according to HDW20, HDW21, HDW22, HDW23, HDW24,

Result returns HELLO to (@W_HDW100).

Clrb

Function

ClrB(A1)

Description

Set the bit of A1 as FALSE (0).

Parameters

A1: System address(bit)

✎Note:

subprogram has no return value.

Example

```
ClrB(@B_HDX100.0)        'assign 0 to (@B_HDX100.0)
```

Constant

Description

Script supported constant, users can use on script:

pi = 3.14159265358979321

TRUE = 1

FALSE = 0

Example

```
Dim a as integer        'define integer a
a = RadToDeg(pi)        'convert radian pi to angle then assign to a,RadToDeg function is
                        used to convert radian to angle.
@W_HDW11 = a            'assign a to (HDW11)
```

Result: @W_HDW11=180

CopyFile

Function

A6=CopyFile(A1,A2,A3,A4,A5)

Description

Copy the A3 file from the A1 directory to the A2 directory according to the format of A4 and A5, and write returned value status to A6.

Parameters

A1: the source path of the file to be copied.

A2: target path.

A3: the name of the file to be copied.

A4: copy type (0: copy file, 1: copy directory).

A5: Whether to overwrite the file with the same name when copying (0: Yes, 1: No).

A6: returned value.

0: copy failed

1: copy succeeded

2: Parameter error

3: U disk does not exist

4: SD card does not exist

5: Path error

Example

(1) Copy a single file:

```
@W_HDW100 = " test.csv"
CopyFile("UDisk/Test","Flash/Test","test.csv",0,0)      'Copy the Test.csv file in the
                                                         UDisk/Test directory to the
                                                         Flash/Test directory.
```

Can also be written as *CopyFile("UDisk/Test","Flash/Test",@W_HDW100,0,0)*

(2) Copy the entire directory file:

```
CopyFile("UDisk/Test","Flash/Test","",1,0)    ' Copy the files in the UDisk/Test
                                               directory to the Flash/Test directory.
```

✎Note:

1) Both source and destination paths need to begin with UDisk or Flash or SDCard;
2) A1 and A2 could be string (requires double quotes) or variable, maximum character length 127 allowed in path;
3) A3 could be a string, such as: [FileName] (requires double quotes); or address, such as: @W_HDW100 (no need to add double quotes);
4) A4 and A5 could be values, addresses or variable;
5) A6 could be address or variable.

Cos

Function

Val = Cos(A1)

Description

Return a cosine value of an angle.

Parameters

A1: a float radian of angle, it can be an address or variable.

Val: return float value, it can be an address or variable.

Example

```
Dim a, b as floating      'define float a, b
b = pi/3                  'convert the value of HDW11 to float and assign to 'b'.
a=Cos(b)                  'return the cosine value of'b' and assign the result to 'a'.
'to add the following sentence if need to view the return value:
Float2D("@W_HDW20",a)     'the float value of a written into HDW13.
```

Result: @W_HDW20=0.5

✎Note:

Please call **RadToDeg** function convert radian to angle.

D2F

Function

D2F (A1, A2) or A1= D2F (A1, A2)

Description

Convert the 32-bit integer format data to float then output the result.

Parameters

A1: required data, begin with"@";

A2: source data, begin with"@";

Example

```
D2F(@W_HDW2,@W_HDW0)                    'convert the double word (HDW0) to
                                         float, save the result to (HDW2).
@W_HDW2=D2F(@W_HDW2,@W_HDW0)            'convert the double word (HDW0) to
                                         float, save the result to (HDW2).
```

Result: HDW0=100, HDW2=100

D2Float

Function

F= D2Float("A1",F)

Description

Convert the designated value to floating then assign to variable.

Parameters

A1: Source data;

F: User-defined floating variable

Example

```
dim F as floating                 'define F as floating
F=D2Float("@W_HDW10",F)           'assign the value of (HDW10) to F in floating
Float2D("@W_HDW12",F)             'copy the floating value of F to HDW12 register,use
                                   to display result.
```

Result: HDW10=200,
HDW12=200.

✎Note:

A1 needs to be address;

D2Int

Function

A2= D2Float("A1",A2)

Description

Output the 32-bit integer in the form of integer.

Parameters

A1: Source data can only be the HMI internal or external register starting with "@".

A2: Target data can only use the integer variable defined by script.

Example

```
dim   var1 as integer                    'define var1 as integer
var1=D2Int("@W_HDW0",var1)      'Read out the 32-bit integer in HDW0 and save the result in var1.
HDW0=9999999,
```

Result: Var1=9999999

DbToCSVFile

Function

A8=DbToCSVFile(A1,A2,A3,A4,A5,A6,A7)

Description

Convert db (database file) file to csv format and export it.

Parameters

A1: db file save path (value is integer);

=0: Alarm record file in HMI flash;

=1: Alarm record file in UDisk (USB flash disk);

=2: Alarm record file in SD card;

=3: Data record file in HMI flash;

=4: Data record file in UDisk (USB flash disk);

=5: Data record file in SD card;

A2: group numer of db file (value is integer);

Used during exporting data record file, the group number could be seen in the data record setting interface;

A3: csv file save path (value is integer);

=0: Save in UDisk (USB flash disk);

=1: Save in SD card;

A4: csv name;

A5: start time of data record in db file(string), consecutive 6 word addresses (the values in the address are year, month, day, hour, minute, second);

A6: end time of data record in db file(string), consecutive 6 word addresses (the values in the address are year, month, day, hour, minute, second);

A7: csv encoding format;

=0 UTF8 format;

=1 GBK format;

A8: returned value;

=0: Failed to export;

=1: Exported;

=2: db file path error;

=3: U disk or SD card does not exist;

=4: csv name error;

=5: db file does not exist;

=6: csv file already exists;

Example

@W_HDW100 = 2018

@W_HDW101 = 12

@W_HDW102 = 25

@W_HDW103 = 19

@W_HDW104 = 10

@W_HDW105 = 30

@W_HDW200 = 2018

@W_HDW201 = 12

@W_HDW202 = 25

@W_HDW203 = 20

@W_HDW204 = 10

@W_HDW205 = 30

Export data record file

DbToCsvFile(3,2,0,"123.csv","@W_HDW100","@W_HDW200",0) 'In the HMI flash, the group number is 2, and the data records collected in the time of 2010.12.25 19:10:30-2018.12.25 20:10:30 are exported to the 123.csv file in the Udisk in UTF8 format.

Export alarm record file

DbToCsvFile(0,0,0,"456.csv","@W_HDW100","@W_HDW200",1) 'The alarm records generated in HMI Flash at 2018.12.25 19:10:30-2018.12.25 20:10:30 are exported to the 456.csv file in the Udisk in GBK format.

✎Note:

A1 can be an address or a variable or a value, and the path need to start with UDisk or Flash or SDCard;

A2 can be an address or a variable or a value;

A3 can be an address or a variable or a value, and the path need to start with UDisk or Flash or SDCard;

A4 can be an address or variables or string, and the length of the file name (sum of values, English, Chinese) could not exceed 127;

A5 need to be an address;

A6 need to be an address;

A7 can be an address or a variable or a value;

DegToRad

Function

A2 = DegToRad(A1)

Description

Convert the angle into correspond radian, and display.

Parameters

A1: inputting angle supports address, other variable or floating.

A2: outputting radian supports address, other variable or floating.

Example

Script 1

```
@W_HDW12=DegToRad(@W_HDW10)     'input angle on (HDW10),convert to correspond redian and copy to (HDW12)
```

Result: HDW10=180; HDW12=3.14159

Script 2

```
dim a as floating                 'set variable
dim b as floating                 'set variable
b=30                              'input angle
a=DegToRad(b)                     'convert the length of radian and copy to variable {a}
float2d("@W_HDW0", a)             'display the value of floating on(HDW0)
```

Result: HDW0=0.52360

DIM ... AS ...

Function

Dim "variable" as "date type"

Description

Declare a variable, stable the type of data.

Parameters

Variable: begin with letter, other character can be letter, numbers, underscores ('_'), need to begin with '@' if it is address;

Data type: string, floating, integer;

Example

```
dim a as integer                 'define a as integer
dim @W_HDW0 as floating          'define @W_HDW0 as floating
dim hi as string                 'define "hi" as string
```

Result:

a is integer

@W_HDW0 is floating

hi is string

✎Note:

Use the variable of Dim during running, could not change the type, Dim will be missed if the type of variable is no difined. Variable could be declared in once.

DO ... LOOP

Function

Do [While | Until condition]

[statements]

Loop

or

Do

[statements]

Loop [While | Until condition]

Description

Condition determent instruction.

Do while. loop executes an instruction of block repeatedly when condition is true.

Do until. loop executes an instruction of block repeatedly until condition is false.

Parameters

Condition: determine condition; obtain the expression of True or False.

Statements: execute one or more instructions repeatedly when condition is True or until condition is True.

If condition is true, all statements are executed until the Wend statement is encountered. Control then returns to the While statement and condition is again checked. If condition is still True, the process is repeated. If it is not true, execution resumes with the statement following the Wend statement.

Example

```
dim i as integer        'end DO loop when i=100
do while i<100
i=i+1
@W_HDW0=i
loop
```

Result: HDW0=100

End

Function

Terminates the script immediately.

Description

End the execution of script.

Parameters

Statement: Judging condition, use with IF together. end script when meet condition.

Example

```
If a = 10 Then End      'end script when a=10.
```

Result: End the script program.

Exp

Function

A1=Exp(A2)

Description

Returns the power value of e (natural logarithm), save the outputting result to A1, e=2.71828182846.

Parameters

A1: the goal date: the power floating value of returning, need to begin with '@'(e.g.@W_HDW10);

A2: Source data, natural exponential function, need to be integer or variable. Could not not begin with the address of "@"(e.g.@W_HDW10)

Example

```
dim a as integer          'define a as integer
a = @W_HDW2               ' assign the value of (HDW2) to variable a
@W_HDW0= Exp(a)           'exponential is the value of (HDW2),save result to(HDW0)
```

Result: HDW2=2,

HDW0=7.38905600

F2D

Function

F2D (A1, A2)

Description

Convert a 32 bit floating to integer format, then output the result.

Parameters

A1: Destination, the value can be an address(e.g.@W_HDW12).

A2: source date, it can be an address or other variable.

Example

```
F2D(@W_HDW12,@W_HDW10)    'convert the floating of (HDW10) to integer, save in (HDW12).
```

Result:

HDW10=200,

HDW12=200

F2S

Function

F2S (A1,A2,s1)

Description

Output a format of floating that in the type of string.

Parameters

A1: Source address, used to store floating, the value is an address(e.g.@W_HDW200);

A2: Destination address, used to store string after converted, value is an address(e.g.@W_HDW100).

S1: the format of displaying goal data. such as the format of 03.03f,f, used for outputting a single-precision in the form of decimal.m.nf:means m column and n decimals when outputting.

Example

F2S("@W_HDW200", "@W_HDW100", "03.03f") '(HDW200) is floating input,(HDW100) is text output;

Result: HDW200=1.22365,
HDW100=1.224

FILL

Function

FILL (A1, A2, A3)

Description

Write the same value to designated address constantly.

Parameters

A1: The beginning address, it can be an address (e.g.@ W_ HDW25);

A2: Source data, it needs to be written in continuous value, the value can be an address, variable or constant;

A3: The number of operation, writing address number, it can be an address, variable or constant;

When the PLC (external device) address is used in this function, the length range is 1-2048, and only the 2048th address can be operated when the range is exceeded.

When the HMI internal address is used in this function, the length range is 1-4096. If the function is out of range, then the function is invalid.

Example

FILL (@W_HDW25, 10, 3) 'At the beginning three address of @W_ HDW25 is 10.

Result: At the beginning three address of @W_ HDW25 is 10, @W_ HDW25=10, @W_ HDW26=10, @W_ HDW27=10.

Float2D

Function

Float2D (A1,A2);

Description

Copy floating value to the address.

Parameters

A1: Goal address, the value need to be address (e.g.@W_HDW102);

A2: Source data, it can be floating;

Example

```
dim f as floating                 'define f as floating
f=1.1                             'assign a designated value to f
Float2D ("@W_HDW102",f)           'assign the value f to HDW102
```

Result: HDW102=1.1

For. to. step. next

Function

For counter = start to end Step

[Statements]

Next

Description

Execute a command repeatedly for designated times.

Parameters

counter: Work as a variable for loop counter;

start: The start value of counter, it could be any variable type or expression;

end: The end value of counter, it could be any variable type or expression;

step: Every loop, the changed value of counter is step value, step default if it is not designation.

step default as below

if start>end, step default is 1;

if start< end. It could be any variable type or expression;

statements: Between For with Next, execute instruction set of designated times;

Set a loop of for...Next in another loop, it can nest call the loop of for...Next. Different from a while, for only search once value from end. Empty for loop will be ignored, and could not delay time.

Example

```
'Use HDX2.0 to trigger the loop
for i=100 to 0 step -5                    ' set the start is 100,end is 0,subtract 5 every time, execute 20 times totally.
@W_HDW100=@W_HDW100+1        ' execute (HDW100+1) 21 times totally, the final result is 21.
Next
@B_HDX2.0=0
```

Result: HDW100=21

Function

Function

Function name (arglist)

statements

name = expression

statements

End Function

Description

Unlike internal function, it needs to declare the name, parameter, code of the function.

Parameters

Name: function name.

arglist: stands for the variable list of parameter, this parameter will be entered during calling function. use comma to separate.

statements: a set of code in running function body.

Notice: it could not define a function program at any other program body. Write name first and then follow with parameter list, when calling function. Declare function need to before be calling. in the internal function body, it could be assigned to a function name from returned value at any place. Return value is 0 if not assign function name. Functions can recursive, but it may lead to stack overflow.

Example

Function sincos (angle as floating)

sincos = sin(angle) + cos(angle)

End Function<

.....

@W_0002 = sincos(pi/2)

.....

GetServerDelayInfo

Function

A3=GetSerVerDelayInfo(A1,A2)

Description

Convert string A1 to hexadecimal number.

Parameters

A1: The starting address, save the delay data of each server (10 consecutive addresses, the last 7 addresses are reserved), when the server testing fails, the value in the corresponding address is -1. The unit is ms (signed decimal number).

Address	Description
A1	Delay data of the server configured in [Project Settings]
A1+1	Delay data of Server 1
A1+2	Delay data of Server 2

A2: Server test result address

Address	Description
0 bit	Set ON, Server configured in [Project Settings] fails
1st bit	Set ON, Server 1 fails
2nd bit	Set ON, Server 2 fails
3rd ~ 10th bits	Reserved
11th bit	Set ON, network error, network port interface failure

A3: Returns the preferred server number or network status (automatically selects the server with the best connection network status).

=0: Server configured in [Project Settings];

=1: Server 1;

=2: Server 2;

=3~10: Reserved;

=100: Try again later (two test intervals need to wait 30 seconds);

=101: Failed to test Server;

Example

@W_HDW200 = GetServerDelayInfo("@W_HDW100", "@W_HDW50")

Result:

HDW100: Delay data of the server configured in [Project Settings]

HDW101: Delay data of Server 1

HDW102: Delay data of Server 2

HDX50.0=1: Server configured in [Project Settings] fails

HDX50.1=1: Server 1 fails

HDX50.2=1: Server 2 fails;

HDX50.11= 1: network error, network port interface failure;

When the server signal is stable, the optimal server is automatically connected according to the network status @W_HDW200. When the server connection is abnormal, @W_HDW200=101, the server test fails or the test is abnormal.

✎Note:

The time interval between executions of this function could not be less than 30 seconds, otherwise an error will occur.

Goto

Function

Goto label

Description

Go to the designated row without any condition in a function body.

Parameters

Label: target character, start with letter in row label, end with(:)of any string.row label has no sensitive to the format of letter.

Example

```
Goto sd      'go to the row which start with "sd";
```

Result: Go to sd row.

✎Note:

Goto only can jump into the internal function that visible row.

H2A

Function

A1 = H2A (A2)

Description

Convert a binary (16-bit) to hexadecimals (4-bit) of ASCII.

Parameters

A1: Returned value, string, it could be an address or variable.

A2: Binary is needed to be converted, the value could be a address or variable.

Example

```
@W_HDW100= H2A (@W_HDW0)      ' convert the binary of (HDW0) to character and
                                save in (HDW100).
```

Result: HDW0=200,
HDW=100

HmiRegoperator

Function

HmiRegoperator (A1,A2,A3,A4,A5,A6)

Description

Data of Upload/ Download address

Parameters

A1: The start address of target

A2: Length, address length, unit: word, range: 1~1000

A3: storage

A3=0, select USB flash disk as storage, and save files in Root directory;

A3=1, select SD card as storage, and save files in Root directory;

A4: File name address, it need to be address such as "@ W_HDW2"

A5: Upload / download data

A5=0, save the data in the specified address as a file and store the file in the root directory;

A5=1, Read data from file and it woule be written into specified address;

A6: State display, it needs to be address, such as "@ W_HDW2";

A6=1, Normal

A6=2, USB flash disk/ SD card does not exist

A6=3, File doesn’t exist;

A6=4, File name error;

A6=5, Check error

A6=6, Abnormal communication;

A6=7, HUW register is not allowed;

A6=8, Address length range error (address length range: 1-1000);

Example

Script 1

HmiRegoperator("@W_HDW0",10,0,"@W_HDW2000",0,"@W_HDW3000") ’The

data in HDW0-HDW10 is saved as a file, the file name is set by HDW2000 and stored in a USB flash disk.

Script 2

HmiRegoperator("@W_HDW0",10,1,"@W_HDW2000",1,"@W_HDW3000")

Read the values from files which stored in the SD card (files named by the HDW2000), and write these values to the HDW0-HDW10.

✎Note:

1) The length of the file name is less than 32 characters, and the file name consists of numbers and letters (the file name does not meet this standard; does not guarantee the accuracy of the data).
2) The interval of download function operation should be 5s or more.
3) A1 need to be address such as “@W_HDW2”.
4) Please use “Character Input/Display” object for it, and the file name consists of numbers and letters, could not be punctuated characters, maximum character length 32 allowed.

Hypot

Function

Var = Hypot (expr1, expr2)

Description

Calculate the value of the hypotenuse of a right triangle.

Parameters

expr1, expr2: Source data, the two sides of right triangle. it need to be address;

Var: Destination data, it need to be address;

Example

@W_HDW200=Hypot (@W_HDW105,@W_HDW108) ' input the value of right-angle side at (HDW105) and (HDW108),and assign the result of the hypotenuse to (HDW200).

Result: HDW105=3,

HDW108=4,

HDW200=5

✎Note:

hypot function could support integer and floating when the format of source data and target data are the same.

IF ... THEN ... ELSE ... END IF

Function

If condition Then

Statements

[Else

else statements]

End If

Description

Conditional judgments instruction. When the [Condition] defined by [IF] is TURN, the operation following [THEN] is performed. When [Condition] is FALSE, the operation after [ELSE] is executed.

Parameters

condition: any expression, the value could be true or false.

statement: execute the instruction block when condition is true.

else statement: execute the instruction block when condition is false.

Example

```
if @W_HDW105=200 then      ' judging condition: whether the value of (HDW105) is 200
@W_HDW108=1                'the value of (HDW108) is 1 if fulfil condition
else
@W_HDW200=1                ' the value of (HDW200) is 1 if not fulfil condition.
Endif
```

Result:

HDW105=199;

HDW108=0;

HDW200=1

InStr

Function

var = InStr ("str1", "str2")

Description

Returned the position of str1 in str2(start with 0), set -1 if no result.

Parameters

str1: source string, it could only be string, not address;

str2: target string, it could only be string, not address;

var: Returned value, the format of data needs to be string;

Example

```
dim a as floating
a = InStr ("Hello", "o")              ' calculate the position of"o"in"hello".
float2d ("@W_HDW0",a)                 ' Returned value is 4.(start with 0)
```

Result: HDW0=4

Int2D

Function

Int2D("A1",A2)

Description

Write the 32-bit integer into the target address

Parameters

A1: Source data could only be the HMI internal or external register starting with "@".

A2: Target data could only use the integer variable defined by script.

Example

```
dim var1 as integer                 'define var1 as integer
Int2D("@W_HDW0", var1)      'Read out the 32-bit integer in var1 and save the result in HDW0 .
 var1=9999999,
```

Result: HDW0=9999999.

InvB

Function

InvB (A1)

Description

The state of inverse bit, it is a sub function, no returned value. Achieve the state of switching address constantly.

Parameters

A1: it is an address.

Example

InvB (@B_HDX0.1) 'switch the state if (HDX0.1).

Result: Switch the state of (HDX0.1) constantly.

IsFloating

Function

A2=IsFloating (A1)

Description

Decide whether a parameter is floating, return true if it is floating, otherwise return FALSE.

Parameter

A1: source data, variable;

A2: target data, variable;

Example

```
dim a as integer
dim b as floating
b= D2float ("@W_HDW200",b)        'assign the value of (HDW200) to b
a = IsFloating (b)                 'judge whether b is floating or not
@W_HDW300=a                       'save the result to (HDW300)
```

Result: HDW300=1

IsInteger

Function

A2= IsInteger (A1)

Description

Determine whether a parameter(A1) is integer, return TRUE if the parameter is integer, otherwise return FALSE.

Parameter

A1: Source date, it is variable or number;

A2: Target date, need to be variable, it could not be system address ;

Example

```
dim a as integer
a = IsInteger (20)          'determine whether 20 is integer
@W_HDW300=a          ' display the result on (HDW300)
```

Result: HDW300=1

IsString

Function

val = IsString(expr)

Description

Determine whether a parameter is string, return TRUE if it is string, otherwise return FALSE.

Parameters

Expr: source string, it could be a variable or string, not address;

Val: target date, the result need to be variable, could not be address;

Example

```
dim a as integer          'define variable, display the result;
a= isstring ("hello")     'determine whether"hello"is string;
@W_HDW0=a                 'assign the result to (HDW0)
```

Result: HDW=1

Lcase

Function

A2 = LCase(A1)

Description

Convert all parameters to lowercase strings.

Parameters

A1: source string, it could be an address or variable;

A2: outputting string, it could be an address or variable;

Example

```
@W_HDW33 = LCase (@W_HDW25)    'input source sting on (HDW25), convert it to destination string and display the result on (HDW33);
```

Result: HDW25=HELLO

HDW33=hello

Left

Function

Val =Left (String, Length)

Description

Return a string of the specified length from the left side of parameter.

Parameters

String: source string; it could be an address or string.

Length: return the number of character. It could be an address, integer or variable. Return empty string if length<1. return the whole string if length not less than the character number of string.

Val: destination string, outputting string, it could be an address or variable.

Example

@W_HDW30=Left (@W_HDW36, @W_HDW40) '(HDW36) used to input source string,(HDW30) used to display the string result;

Result: HDW36=hello,

HDW40=2,

HDW30=he

Len

Function

Length=Len(String)

Description

Return the string length.

Parameters

String: source string, it could be a address or string;

Length: target data, return value, it could be a address, variable, integer or floating;

Example

@W_HDW30=Len (@W_HDW36) 'count the character number of (HDW36), save the result to (HDW30);

Result: HDW36=hello

HDW30=5

Log

Function

a= Logn (x)=Log(x)/Log(n)

Description

Log function:return the natural logarithm of the value.

Parameters

a: source date,it could be a variable, but it could not be address;

x, n: source date, it could be a variable, but it could not be address;

Example

```
Dim a as integer      'define a as integer;
Dim b as integer      'define b as integer;
Dim c as integer      'define c as integer;
b=@W_HDW10      'assigns a value to b
c=@W_HDW20      'assigns a value to c
a=Log (b)/Log(c)      'calculate logarithm
@W_HDW0
=a      'assign the result to (HDW0)
```

Result: HDW10=27,

HDW20=3,

HDW0=3

Log10

Function

a=Log10(x)= Log(x)/Log(10)

Description

Log function: return the natural logarithm.

Parameters

A: target data, result could be variable, could not be address;

x: source data, it could be variable that needs to be the multiples of 10, can't be address

Example

```
dim a as integer        'define a as integer
dim b as integer        'define b as integer
b=@W_HDW10              'assign a value to b
a= Log (b)/Log(10)      'result
@W_HDW0=a               'assign the result to (HDW0)
```

Result: HDW10=100,

HDW0=2

LTrim

Function

val=LTrim("string")

Description

Remove the left empty part of the string and return.

Parameters

Val: Destination string, it could be either a variable or address;

string: Source string, it could be either a variable or address;

Example

dim a as string

a=Ltrim("hello")

@W_HDW103=a

Result: HDW103=hello

MAX

Function

A1=MAX(A2,A3)

Description

Compare the value of A2 and A3, assign the greater value to A1.

Parameters

A1: Return value (used to store the greater value between A2 with A3).

A2: The first comparison value.

A3: The second comparison value.

✎Note:

A1,A2,A3 should be only used in unsigned integer or unsigned address.

Example

```
DIM A1 as integer
@W_HDW106=10 'assign the value to (@W_HDW106), unsigned decimal word.
@W_HDW107=5    'assign the value to (?@W_HDW107),unsigned decimal word.
A1 = Max(@W_HDW106,@W_HDW107)
@W_HDW105 = A1
```

Result: @W_HDW105 = 10

Mid

Function

A1=mid(A2, start, length)

Description

Returns a string contain a specified characters length from a string.

Parameters

A1: string contains the selected characters, it needs to be a string

A2: string to be selected, it needs to be a variable or address

Start: the start position of string, it needs to be a variable or address, it means that count begin with 0.

Length: the designated length of string, maximum character length 127 allowed

Example

```
DIM A1 as string
A1 = Mid("hellokitty",1,2) 'select the string of in "
@W_HDW106=A1
```

Result: @W_HDW106 'display "el" on text input and output window

MIN

Function

A1=MIN(A2,A3)

Description

Compare the value of A2 and A3, assign the smaller value to A1.

Parameters

A1: Return value (used to store the snaker value between A2 with A3).

A2: The first comparison value.

A3: The second comparison value.

Example

```
DIM A1 as integer
@W_HDW106=10      'assign the value to (@W_HDW106), unsigned decimal word.
@W_HDW107=5       'assign the value to (@W_HDW107), unsigned decimal word.
A1 = Min(@W_HDW106,@W_HDW107)
@W_HDW105 = A1
```

Result: @W_HDW105 = 5

✎Note:

A1, A2,A3 only used in unsigned integer or unsigned address.

MSeconds

Function

A1=MSeconds( )

Description

A1 is used to display the current milliseconds of system.

Parameters

A1: used to store the current milliseconds of system.

Example

```
DIM A1 as integer
@W_HDW0= 10          'assign a value to (@W_HDW0), unsigned decimal word
A1=MSeconds()        'return the current milliseconds of system to A1
@W_HDW0=A1
@W_HDW1=A1>>16       'display milliseconds on screen, (HDW0) is an 32-bit unsigned
                      decimal integer address
```

Result: @W_HDW0 will generate the time value of changing milliseconds unit.

✎Note:

A1 is 32-bit unsigned integer variable or unsigned integer address;

MSeconds() function rolls back over to zero once the maximum value has been reached (4294967295->0, 1,2,....4294967295->0, 1, 2,....4294967295->0, 1, 2);

NewNoAddr

Function

A1= NewNoAddr (A2, length)

Description

At the basic of source address A2, offset designated length, obtain a new address A1.

Parameters

A1: address after offsetting, it needs to be variable.

A2: source address, it needs to be address(e.g.:"@W_HDW000002")

Length: offset length

Example

```
DIM A1 as string
A1=NewNoAddr("@W_HDW0",50)  '(HDW0) offsets 50 words address (16 bit), and
                            save the result to A1
@W_HDW1=A1                  '(HDW50) save in A1
```

Result: (@W_HDW1) character input/display will show @W_HDW50

NewStatAddr

Function

A1= NewStatAddr (A2, length)

Description

At the basic of source address A2, offset the designated length, to obtain a new station A1.

Parameters

A1: The address after offsetting, it needs to be variable.

A2: Source station address, it needs to be address (e.g.:"@W_1:10").

Length: offset length

Example

```
DIM A1 as string
A1=NewStatAddr("@W_1:10",2) 'address 10 of station address 1 that offset 2 station addresses, then save the result to A1
@W_HDW1=A1                  'address 3:10 is saved in A1
```

Result: @W_HDW1 character input/display will show @W_3:10

NStringCompare

Function

A1= NStringCompare (A2, A3, length)

Description

Compare whether the designated length of two strings is the same, return 1 to A1 if yes, otherwise return 0.

Parameters

A1: Returned value (compare the designated length of two strings, display 1 when equal, else 0). It could be an address or variable.

A2: the address of string to be compared, it needs to be address.

A3: source string, it needs to be variable or constant string.

Length: string length to be compared

Example

```
@W_HDW1= NStringCompare("@W_HDW0","87654",5)
if @W_HDW1=1 then
@B_HDX10.0=1 'result: HDX10.0 set ON 'when the two strings are the same.
endif
if @W_HDW1=0 then
@B_HDX10.0=0 'result:HDX10.0 set OFF 'when not equal.
Endif
```

Operator

Operation	Symbol	Example	Return type
Addition	+	A1=A2+A3	Return type depending on the type of variable or address of the addition
Subtraction	-	A1=A2-A3	Return type depending on the type of variable or address of the subtraction
Multiplication	*	A1=A2*A3	Return type depending on the type of variable or address of the multiplication
Division	/	A1=A2/A3	Return type depending on the type of variable or address of the division
Remainder	Mod (%)	A1=A2 mod A3 A1=A2%A3	Returns the remainder of the division of two numbers. The type of the return value is an integer
Logical OR	Or(|)	A1=A2 or A3 A1=A2|A3	Returns the result of a logical OR. The type of the return value is an integer.
Logic AND	And (&)	A1=A2 and A3 A1=A2&A3	Returns the result of a logical AND. The type of the return value is an integer.
Logical XOR	Xor (^)	A1=A2 xor A3 A1=A2^A3	Returns the result of a logical XOR. The type of the return value is an integer.
Logical reversal	Not (!)	A1=not A1 A1=A2!A3	Returns the result of a logical reversal. The type of the return value is an integer.
Left shift	<<	A1=A2<<A3	Shift the value of A2 to the left by A3 digits and return the displacement result. The type of the return value is an integer.
Right shift	>>	A1=A2>>A3	Shift the value of A2 to the right by A3 digits and return the

			displacement result. The type of the return value is an integer.
Bit reversal	~	A1=~A1	Perform a bit reversal on a value. The type of the return value is an integer.

PI_GetTickCount

Function

PI_GetTickCount (A1, A2)

Description

Write the starting time to the set address as a 32-bit integer.

Parameters

A1: Source data could only be the HMI internal or external register starting with "@".

A2: =0: Unit of time for returning 0ms;(the value will become 0 after 49.7 days and so on)

=1: Unit of time for returning 10 ms;(the value will become 0 after 497 days and so on)

=2: Unit of time for returning 100 ms;(the value will become 0 after 4970 days and so on)

=3: Unit of time for returning 1000ms;(the value will become 0 after 49700 days and so on)

✎**Note:** If user restarts the hmi,all value will be 0.

Example

PI_GetTickCount("@W_HDW100",0) 'save the starting time in HDW100 address as a 32-bit integer.

Result: HDW100=123456(different returned data for each moment)

Power

Function

var = power (expr1, expr2)

Description

The value of [expr2] to the power of [expr1] will be assigned to Var.

Parameters

var: returned value.

expr 1: base number.

expr 2: power number.

Example

```
Dim a as floating
a=power (2, 3)                'the value of 3 to the power of 2 is assigned to a.
Float2D("@W_HDW10",a)    'assign the float value of a to @W_HDW10
```

Result: @W_HDW10=8

PrintText

Function

PrintText(A)

Description

Print the content of A or locates in A.

Parameters

A: source data. A could be a variable or a string (text information),not a register address.

Example

1) A is text information

   PrintText("HMI 8070")

   Result: Printer will print out "HMI 8070"

2) A is variable

   Dim a as string

   a= "HMI 8070"

   PrintText(a)

   Result: Printer will print out "HMI 8070"

✎Note:

source data length range:1-128 characters.

RadToDeg

Function

Var= RadToDeg(expr)

Description

Convert radiant value to degree, then assigned to Var.

Parameters

Var: return degree value.

expr: input radiant value.

Example

```
Dim a as floating
a = RadToDeg(pi)              'assignt the degree value of ? to a.
Float2D("@W_HDW4",a)  'assign the degree value to address "@W_HDW4".
```

Result: @W_HDW4=180

RAND

Function

Var = rand(expr1)

Description

Generate a random number.

Parameter

Var: generated random number.

Expr1: the base number.

Example

@W_HDW0=rand(@W_HDW0) 'Set the value of address@W_HDW0 as the base number to generate random number.

Result: @W_HDW0 random number.

ReadAddr

Function

Word = ReadAddr(A1)

Description

Assigned the red value from A1 to word.

Parameter

Word: return value

Example

```
Dim word as integer
@W_HDW100=10
word = ReadAddr("@W_HDW100") 'Read the value of address @W_HDW100 and assign to word.
@W_HDW200=word
```

Result: @W_HDW200=10

Right

Function

val = Right (string, length)

Description

Return a string of the specified length from the right side of parameter.

Parameter

string: the operated string.

length: the designated number of byte required to return, count from the right side.

Example

@W_HDW103= Right("Hello", 3) 'return "llo"

Result: @W_HDW103="llo"

RTrim

Function

val = RTrim(str)

Description

Clear the empty part on the right side of string [str], then assign the empty part to val

Parameter

val: returned value.

str: the string needs to be operated.

Example

@W_HDW0 = RTrim(" -Hell o- ") 'retrun" -Hell o-"

Result: @W_HDW0 display " -Hell o-"

S2F

Function

S2F (A1,A2,s1)

Description

S2F is used to translate the string stored in A1 to floating and store the floating number in A2 according to the data format shown in A2.

Parameters

A1: initial data address, used to store the string data, it should be the internal address of HMI or external address that started with “@”,like @W_HDW0

A2: destination address, used to store the floating number data. It should be the internal address of HMI or external address that started with “@”,like @W_HDW0

S1: display format of target data, for example m.nf, m means the length of string is m, n means the decimal places, f is the format used to output single precision number. (Since the floating point number is up to 7 digits, the decimal point in the string is also a bit, so it is recommended that the length should not exceed 8 bits)

Return value: none

Example

The lengTh of string is 8

```
@W_HDW0="12345.67"                    'Assign the string “12345.67" to HDW1
S2F("@W_HDW0","@W_HDW100",8.2f)       'read string "12345.67 " from HDW0 and
                                      convert it into a floating point with 2
                                      decimal places, store in the HDW100 .
```

Result: @W_HDW100 address displays “12345.67”.

The length of string is less than 8

```
@W_HDW0="1234.5 67"                   ‘assign the string  “1234.567”  to HDW1
S2F("@W_HDW0","@W_HDW100",6.2f)       ' read string "1234 .5" from HDW0 and
                                       convert it into a floating point with 2
                                       decimal places, store in the HDW100 .
```

Result: the floating value of @W_HDW100 is 1234.50

The length of string is more than 8

```
@W_HDW0="12345.6789"                    'assign the string "12345.6789" to HDW1
S2F("@W_HDW0","@W_HDW100",8.2f)         ' read string "12345 .67" from HDW0 and convert it into a floating point with 2 decimal places, store in the HDW100 .
```

Result: the floating value of @W_HDW100 is 12345.67

SetB sub

Function

SetB(A1)

Description

Set the bit A1 ON.

Parameters

A1: Bit address

Example

SetB(@B_HDX100.0) 'Set the address {@B_HDX100.0} ON

Result: @B_HDX100.0=1

SetKeyMap

Function

SetKeyMap(A1,A2,A3)

Description

The key values of the keyboard are mapped so that multiple keyboard buttons perform the same function.

Parameters

A1: The starting address of the source key; It needs to be an address format;

A2: The starting address of the mapped value; It needs to be an address format;

A3: Mapping length (continuous length of mapped address); It needs to be a value, the maximum mapping range: 108 key values;

Example

```
@W_HDW3000 = 3          ' The starting address of the source key
@W_HDW3001 = 5
@W_HDW3002 = 7
@W_HDW3003 = 9
@W_HDW3004 = 61
@W_HDW4100 = 103        'The starting address of the mapped value
@W_HDW4101 = 105
@W_HDW4102 = 106
@W_HDW4103 = 108
@W_HDW4104 = 28
SetKeyMap("@W_HDW3000","@W_HDW4100",5)          ' Map the values of the HDW4000~HDW4004 addresses to the HDW3000~HDW3004 addresses.
```

Result

Map the value of the HDW4000~HDW4004 address (mapped to 103 105 106 108 28) to the value of the HDW3000~HDW3004 address (source key value 3 5 7 9 61)

Button 2 (key value 3) is mapped to the direction key (key value is 103), button 4 (key value 5) is mapped to the left arrow key (key value is 105), and so on. When using the

keyboard, the function of input 2 could be performed on both the button 2 and the direction button.

SignedInt16

Function

val = SignedInt16(A1)

Description

Assign the value to {val} from address A1 which is signed integer.

Parameters

A1: contain signed integer as "@W_HDW000002"

Val: returned value

Example

```
Dim a as integer                    'Integer variable a
a = SignedInt16("@W_HDW0") 'read signed integer from HDW0 addresses and
                                    assign the value to a
@W_HDW2=a                           'assign the value a to HDW2
```

Input: @W_HDW0=-2:

Result: @W_HDW2=-2.

SignedInt32

Function

val = SignedInt32 (A1)

Description

Assign the value to {val} from address A1 which is signed even integer.

Parameters

A1: the address contains signed even integer

Val: Returned value

Example

```
Dim a as integer                    'define {a} as a integer
a = SignedInt32("@W_HDW0") 'read signed even integer from HDW0, then assign
                                    this value to a.
@W_HDW2=a                           'assign the value of a to HDW2
@W_HDW13=a>>16
```

Input: @W_HDW0=-2

Result: @W_HDW2=-2

@W_HDW13=-1

Sin

Function

val = Sin(A1)

Description

Get the sine value of A1, and copy result to val.

Parameters

A1: A1 needs to be an angle.

Val: Returned value.

Example

```
Dim a as floating                 'floating variable a,b
a=sin(pi/6)                       'return sinb to a
Float2D("@W_HDW13",a) 'assign the value of the floating variable a to address
                                  HDW13.
```

Result: @W_HDW13=0.5

SleepA

Function

SleepA(T)

Description

Wait time T(ms).

Parameters

T: wait time, the unit is [ms]

Returned value: none.

Example

```
SleepA(10) 'wait 10ms
```

Result: When the script runs to SleepA(10), it means the scripts would go running after waiting 10ms

Sqr

Function

val = Sqr(A1)

Description

Assign a square root value of A1 to val.

Parameters

A1: the data need to be operated

Val: Returned value

Example

```
@W_HDW0 = Sqr(4)    'calculate the square root of HDW0
```

Result: @W_HDW0=2

StAndFtChange

Function

StAndFtChange(A1,A2,A3)

Description

Calculate the number of seconds from January 1, 1970 to the current time, and also be invertible.

Parameters

A1: The start address of curren t time (Enter or output year, month, day, minute, and second); It needs to begin with address"@", and occupies 6 addresses;

A2: The number of seconds; It needs to begin with address “@", data format 32-bit unsigned.

A3: conversion method;

A3=0, convert time to seconds;

A3=1, convert seconds to time;

Returned value: none;

Example

Script 1

```
StAndFtChange("@W_HDW10","@W_HDW20",0)  'use HDW10 as start address, and enter year, month, day, hour, minute, second. The script calculates the number of seconds from January 1, 1970 to the time of the entry, and stores the result in HDW20
```

Input: HDW10 = 2017,HDW11 = 12, HDW12 = 9 , HDW13 = 15, HDW14 = 15, HDW15 = 0

Output: 1512832500

Script 2

```
StAndFtChange("@W_HDW30","@W_HDW20",1) 'read number of seconds from HDW20, and the script calculates the date time, and stores the result start from HDW30
```

Input: 1512833760

Output: HDW30 = 2017, HDW31 = 12, HDW32 = 9, HDW33 = 15, HDW34 = 36, HDW35 = 0

Sub

Function

Sub name (arglist)

statements

End Sub

Description

Declare the name, parameters and codes of the Sub (sub function)

Parameters

Name: naming rules refer to variable.

Arglist: variable list.

Statements: the code set of the sub function.

Example

```
sub samesub(a,b as integer) ' samesub and integer variable a,b
    c=a+b
    @W_HDW0=c
endsub
samesub(1,12)                'call function samesub
```

Result: @W_HDW0=13

SWAP

Function

SWAP(A1,length)

Description

Swap the big-endian with the little-endian from address A1, swap length is adjustable.

Parameters

A1: the swapped high endian, need to be an address as HDW_000002.

Length: swap length.

Returned value: None.

Example

```
@W_HDW103=0x1234      'assign value to HDW103
@W_HDW104=0x2345      'assign value to HDW104
@W_HDW105=0x2565      'assign value to HDW105
@W_HDW106=0x2675      'assign value to HDW106
SWAP(@W_HDW103,4)     'swap the high and low endian for the 4 adjacent addresses
                       start with HDW103.
```

Result:

@W_HDW103=0x3412

@W_HDW104=0x4523

@W_HDW105=0x6525

@W_HDW106=0x7526

Tan

Function

val = Tan(A1)

Description

Get the returned tagent value of A1, and then assign to val.

Parameters

A1: A1 needs to be an angle.

Val: Returned value.

Example

```
Dim a as floating              'define a floating variable a
a=TAN(pi/3)                    'calculate the tangent value of pi/3 and assign to a
Float2D("@W_HDW16",a)   'assign the value of a to HDW16
```

Result: @W_HDW13=1.732

Trim

Function

val = Trim(A1)

Description

Return A string in A1 without empty string next to it.

Parameters

A1: The operated string

val: Returned value

Example

@W_HDW1=Trim(" ab ")

Result: @W_HDW1="ab"

UCase

Function

val = UCase(A1)

Description

Capitalize the string data, and then assign the value to val.

Parameters

A1: Operated string, address or variable.

Val: Returned value

Example

```
@W_HDW1=ucase("abcd")    'Capitalize abcd then assign the value to HDW1
```

Result: @W_HDW1="ABCD"

Variable

Description

A variable is any factor, trait, or condition that could exist in differing amounts or types.

Define variable

Use Dim to define variable in script. The variable could be string, floating, integer.

Example:

```
Dim a as floating        'define variable {a} as a floating.
Dim b,c,d as integer     'define variable {b,c,d} as integer
```

Naming rules

The first letter needs to be English letter.

No symbols.

Maximum character length 15 allowed.

W2B

Function

W2B(A1, A2, A3)

Description

Replace the high endian of [A2]+1 with the high endian of A2.

Parameters

A1: operated address.

A2: source address.

A3: the conversion length.

Returned value: none.

Example

```
@W_HDW0 = 4660      'assign 16bit value 1234 to HDW0.
@W_HDW1=0x5678    'assign 16bit value 5678 to HDW1.
@W_HDW2 = 0x2425    'assign 16bit value 2425 to HDW1.
@W_HDW3 = 0x3536    'assign 16bit value 3536 to HDW0.
@W_HDW4 = 0x1415    'assign 16bit value 1415 to HDW0.
W2B(@W_HDW20,@W_HDW0, @W_HDW10)
@W_HDW10=1            'save the high endian {34} of HDW0 to HDW20.
```

Result: @W_HDW20=0x34, @W_HDW21=0, @W_HDW22=0

W2D

Function

W2D(A1, A2)

Description

Convert the unsigned Word to unsigned Dword and save the result in A1.

Parameters

A1: operated address.

A2: source address.

Returned value.

Example

Unsigned decimal word

```
@W_HDW0 = 1234                  'assign 1234 to HDW0.
W2D(@W_HDW2, @W_HDW0)    'convert unsigned word {1234} from HDW0 to Dword and save in HDW2
```

Result: @W_HDW0=12345, @W_HDW2=12345, @W_HDW3=0

Signed decimal word

```
@W_HDW0 = -12345          'assign value to HDW0: convert {-12344} to unsigned decimal word is {53191}.
W2D(@W_HDW2, @W_HDW0)     'save unsigned Dword to HDW0
```

Result: @W_HDW0=-12345,@W_HDW2=53191,@W_HDW3=0

W2F

Function

A1 = W2F (A2)

Description

Convert a 16bit integer to a 32bit floating, and then save to the next word of A1.

Parameters

A1: operated address.

A2: source address.

Returned value: none.

Example

A1, A2 are addresses

```
@W_HDW0 = 1234 ' assign unsigned word {1234} HDW0 @W_HDW1=W2F(@W_HDW0)  ‘ Convert {1234} to a 32bit floating and then save to HDW1, HDW2.
```

Result: @W_HDW1=1234'32bit floating

A1 is an address,A2 is variable

```
dim a as integer
a=134                    'define a integer 134 to a,
@W_HDW2=W2F (a) 'convert to 32bit floating save to HDW1, HDW2.
```

Result: @W_HDW1=134' 32bit floating

W2S

Function

W2S(A1,A2,S1)

Description

Convert integer word in address A1 text as S1 format, and then save to A2.

Parameters

A1: operated address.

A2: source address.

S1: saving format.

1) d format: Decimal format. d: Real data length. Md: Designated data length. 0md: Designated data length if the length is shorter than m adds 0 at the left.
2) format: Unsigned octal format. Mo and 0mo is also applied.
3) x format: unsigned Hex integer format ?Mx and 0mx is also applied.
4) c format: ASCII format.

Example

Decimal format

```
@W_HDW1=1456                          'assign value {1456} to HDW1.
W2S("@W_HDW1", "@W_HDW10", "6d") ' convert{1456} to decimal text and save
                                      to HDW10.
```

Result: @W_HDW10 shown "1456"

0md

```
@W_HDW1=1456                          ' assign value {1456} to HDW1
W2S("@W_HDW1", "@W_HDW10", "06d")   ' convert{1456} to integer decimal text
                                      and add 2 {0} on the left of the data
                                      then save to HDW10.
```

Result: @W_HDW10 show text "001456"

WaitEthernetStart

Function

WaitEthernetStart (A1)

Description

Waiting for Ethernet to start, it will extend the HMI start up time (only added in PI i series, Ethernet start up is earlier than HMI in other PI series)

Parameters

A1: Waiting timeout (1~20s)

If A1=0, the wait timeout is 10s;

If A1>20, the wait timeout is 20s;

Returned value: None

Example

WaitEthernetStart (15)

'The maximum waiting time is 15 seconds. If Ethernet is not started within 15 seconds, HMI will start the system and no longer wait for ethernet.

WHILE ... WEND

Function

While condition

[statements]

Wend

Description

If the condition is true, then all the commands before Wend in the statement will be executed then recheck the condition, if the condition is false, the command after Wend will be executed.

Parameters

Condition: Number or string, the result represents as True or False.

Returned value: None.

Example

```
while @W_HDW1>50 'the condition is the value of HDW1 bigger than 50.
@W_HDW1=@W_HDW1-1 'when the condition is true, execute subtract 1 from 1HDW.
wend
@W_HDW2=@W_HDW2+1 ' when the condition is false, execute add 1 from 1HDW.
```

Result: If HDW1=60, after executed; HDW1=50, if the condition is true.

WriteAddr

Function

WriteAddr(A1,A2)

Description

Assign the value from A2 to address A1.

Parameters

A1: operated address

A2: source address

Returned value: None.

Example

```
dim f as integer     ' integer f
f=13 ' assign the value 13 to f
WriteAddr("@W_HDW1",f) ' write the value to HDW1.
WriteAddr("@W_HDW10",@W_HDW2) ' write the value from HDW2 to HDW10.
```

Result:

HDW1=13

HDW10= HDW2'IF HDW2=1456,Then HDW10=1456;IF HDW2=-123,Then HDW10=-123

10 Advanced Functions

This chapter provides information about advanced functions in HMIEditorP. **These advanced functions work only on special HMI models.**

This chapter consists of the following section:

10.1 Remote access

Introduction

In the traditional concept, it is rather Difficult and complicated to remotely connect HMI via Ethernet. Users not only need to consider the security issue, but also need to set up complex network parameters. In addition, subject to the stage of the network environment, users have to do everything possible to think of ways through all levels of routers and switches. And an independent IP could only correspond to one HMI in tradition sense of the remote control. The remote access system will solve all of those problems.

The solution of HMI remote access is “Everything is possible with one network, one HMI, one cable,” No matter where the HMI is, users could easily remote access HMI through the network, to achieve exclude exceptions and resolve them in the first time. In local area network or remote Internet, users could make HMI connect to Ethernet by one cable without setting any parameters. All network settings could be set by remote access system.

System Features

1) No need to set any proxy servers, routers, or switches, simply connect one cable for Ethernet
2) Grading management of multiple HMIs, easy maintenance and operation;
3) A variety of access mode, easy to use;
4) Multiple users could access one HMI in the same time;
5) A secure connection;

System components

1) 8000 and advanced HMI with [-R], such as 8070-R;
2) Smart APP or Cloud platform

FAQ

1) What is the difference between the-R model and the normal model?

   A: The-R model can be accessed directly and unrestricted. Normal models need to buy cloud monitoring products before access. The number of monitoring normal model is limited according to the customer's purchase of cloud monitor packages.

2) How many customers could remote access HMI at the same time?

   A: It supports max. 4 customers access HMI in the same time.

10.2 Camera

Introduction

1) Firstly, user needs to activate camera according to the manufacturer’s handbook. The ONVIF protocol should be activated, otherwise, it could not be used in HMI;
2) Set camera username and password, it is recommended when user sets same username and password for more than one camera;
3) It is essential to make sure camera and HMI are in same LAN IP section;

   When HMI and camera are connected directly, please use static IP for both HMI and IP camera. For example, HMI IP is 192.168.1.1, gateway is 192.168.1.1. Camera IP is 192.168.1.2, gateway is 192.168.1.1;

Type	Static IP	Static IP
IP	192.168.1.1	192.168.1.2
Gateway	192.168.1.1	192.168.1.1

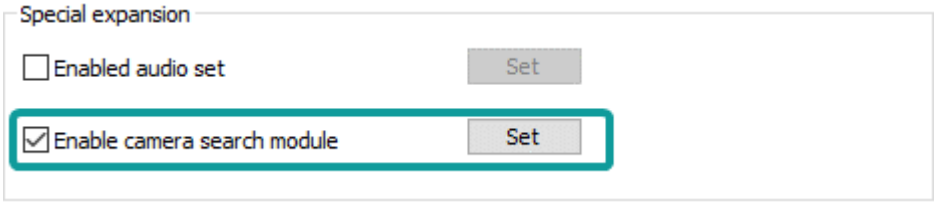
4) Username and password should be confirmed before using Do not try the incorrect username and password to search or connect the camera. After more than a certain number of tries, the camera will be locked. During this period, the camera will reject any connection. Generally, it takes half an hour to unlock. User needs to wait;

5) It is not suggested to connect the same camera with 8000 and 9000 series HMIs at the same time, otherwise IP camera will show blurred screen;

6) When the camera is disconnected due to network, it will try to reconnect for each 20 seconds interval. (frequent retry action may be considered as virus behavior);

Instructions for camera settings

1) Enable the camera function in Project settings as below;



2) Function address

For example, if the function address is HDW200, the functional address is divided as shown in Table 1, and result addresses are shown in Table 2.

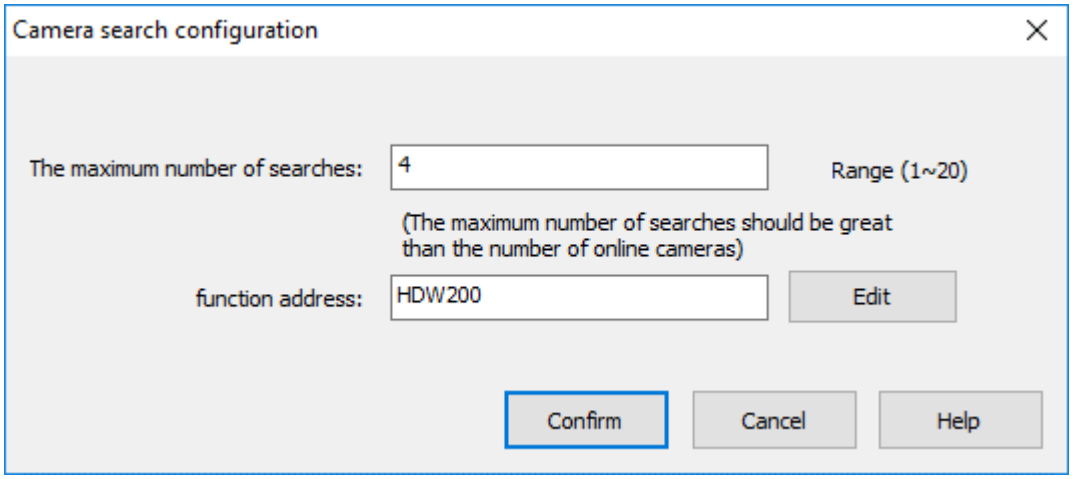


Table 1

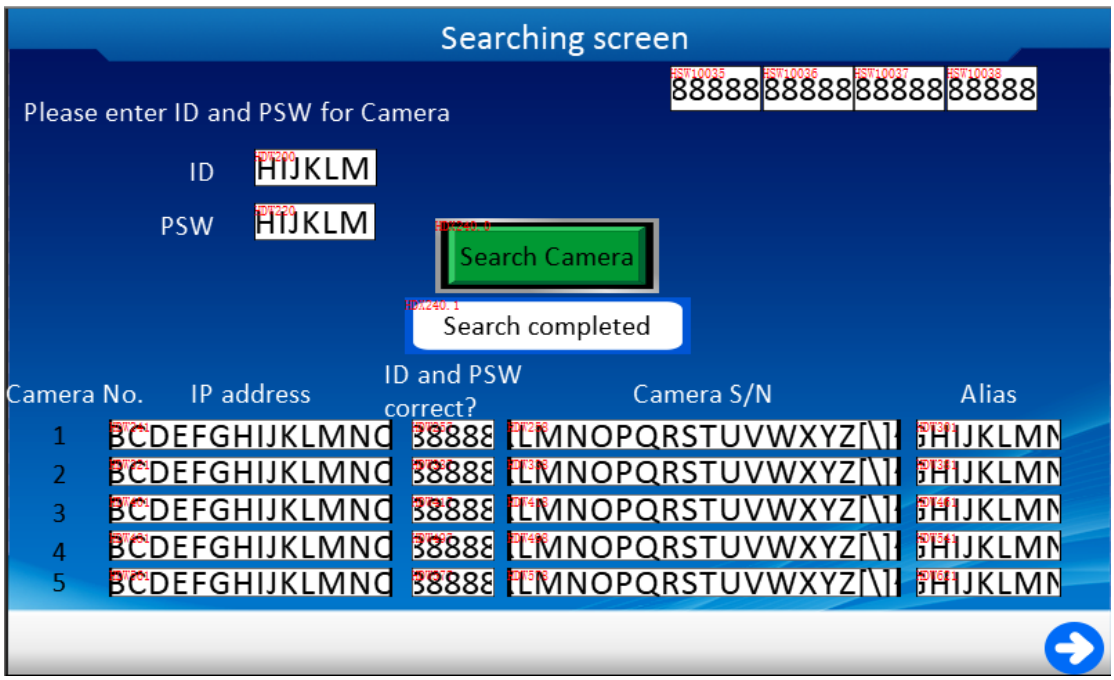
Address	Description	Length
HDW200	Username	20 words
HDW220	Password	20 words
HDX240.0	Falling edge trigger search	1 bit
HDX240.1	Search status 0 means the search is complete; 1 means searching;	1 bit
HDW241	First search result	80 words
HDW321	Second search result	80 words
...	...	...

Table 2

Address	Description	Length
HDW241	IP address	16 words
HDW257	Password is correct	1 word
HDW258	Device SN code	43 words
HDW301	IP camera alias	20 words

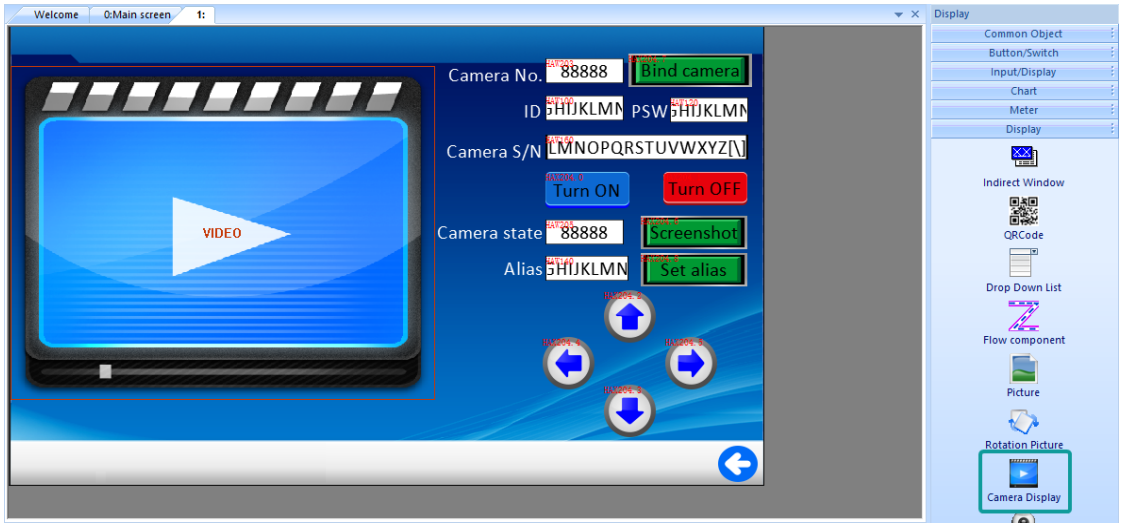
The username and password here need to be entered manually. During searching camera, it will try to use this username and password to log in IP camera and store the result of login. If the password is correct, the [password correct] address will be displayed as 1 and the device serial number will be displayed. If the [password correct] address is 0, the device serial number would not be displayed.

3) Compile and download project, please click [Search Camera] button to get camera information in LAN

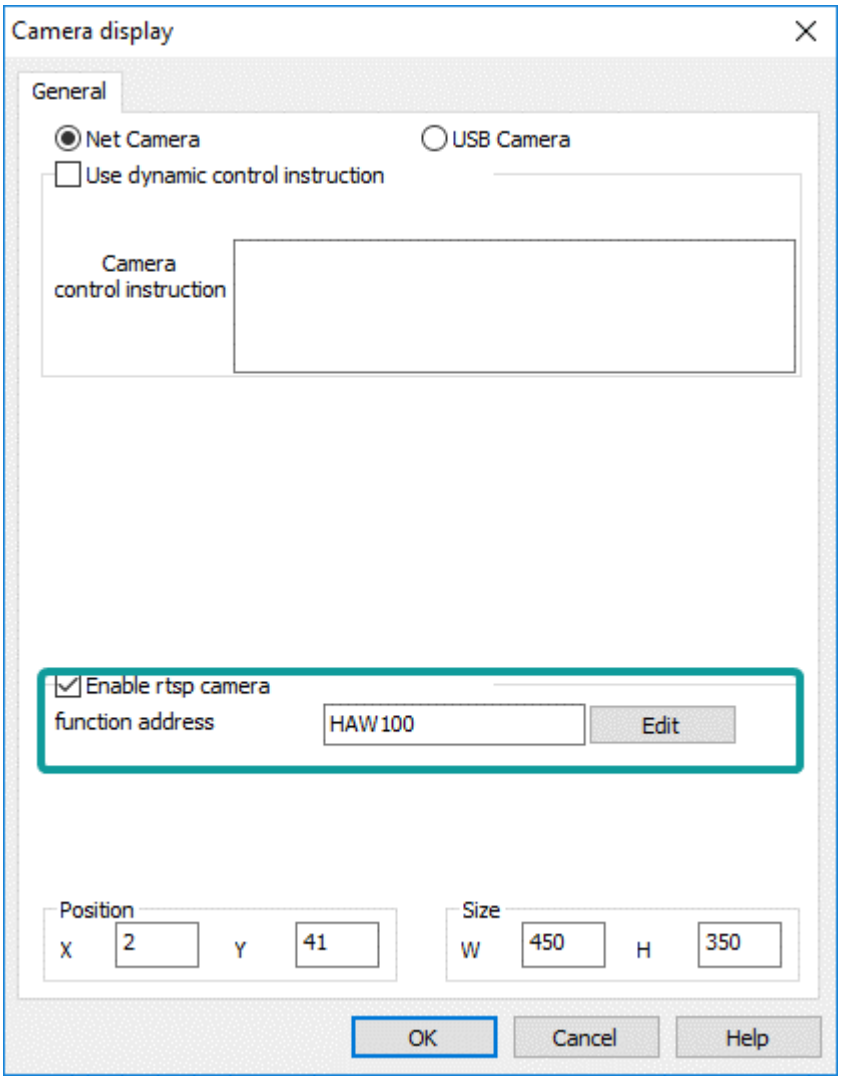


Camera object settings

1) Select camera display object, as below shows;



2) Select the Net Camera and check the RTSP option as below shows;



3) Function address

If the function address is set to HAW100, the function address is divided as shown in Table 3, and each bit of control address is assigned with a function, as shown in Table 4. Different values of camera status address indicate different meanings. As shown in Table 5, the screenshot address values mean different save path (Table 6). For example, the value is 1 means save path is Flash/IPCameraScreenShot.

Table 3

Address	Description	Length
HAW100	Username	20 words
HAW120	password	20 words
HAW140	Alias	20 words
HAW160	Device serial number	43 words

HAW203	Camera ID	1 word
HAW204	Camera Control	1 word
HAW205	Camera status	1 word
HAW206	Screenshot save location	1 word

Table 4

Control address (bit)	Description
HAX204.0	Open camera
HAX204.1	Close camera
HAX204.2	Camera up
HAX204.3	Camera down
HAX204.4	Camera left
HAX204.5	Camera right
HAX204.6	screenshot
HAX204.7	Binding camera
HAX204.8	Set Alias

Table 5

Address	Description
0	Disconnected
1	Connected
2	Connecting

Table 6

Address	Description
0	Screenshot is saved into flash
1	Screenshot is saved into U disk
2	Screenshot is saved into SD card

Operating procedures

1) Fill the camera ID address with the camera serial number searched by the camera search module, and trigger the binding address to fill username and password.

If the camera searching is disabled, then users need to manually enter the information of this camera, including username, password, and device serial number. Device serial number could be obtained by checking the label of camera.

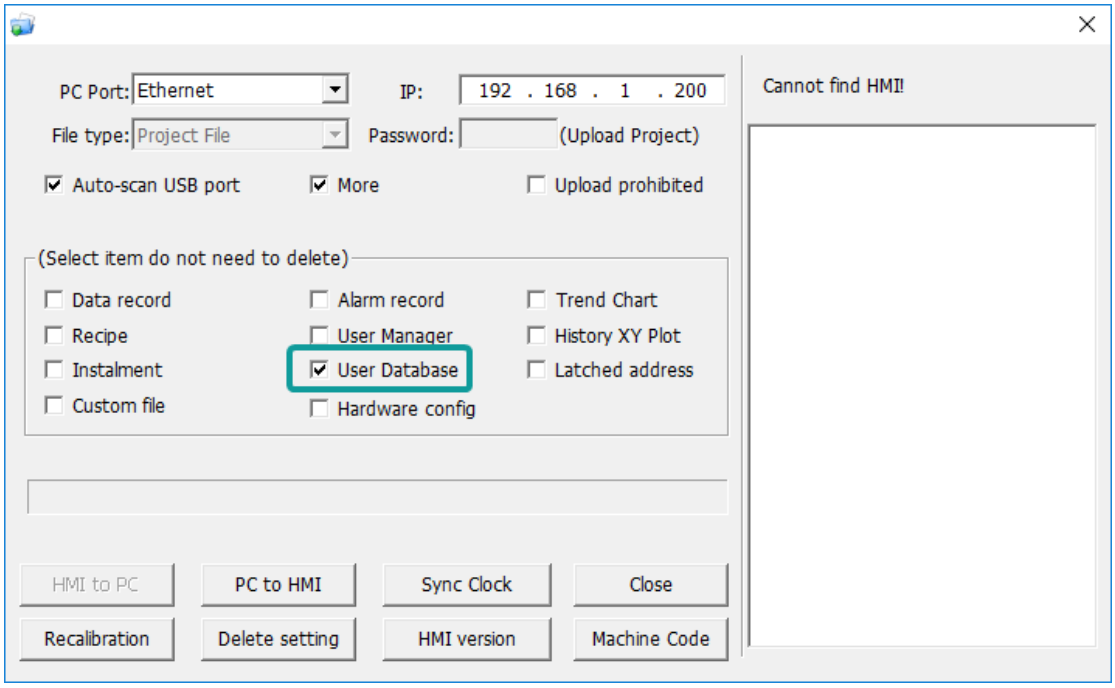
2) If the IP CAMERA was triggered successfully, we could see the monitor screen and we could also set a alias for the camera and control the movement of the camera(up, down, left and right, some IP camera could not support the movement) or the screenshot. These operations could not be performed if camera off.

Supported model

1) Hikvision
   - DS-2CD1321D-I
   - DS-2CD3T20FD-I3W
   - DS-2CD1221D-I3
   - DS-2CV3Q21FD-IW
2) Dahua
   - DH-IPC-HFW1025D
   - DH-IPC-HFW1235M-I1

✎Note:

1) The alias of the camera is saved in the user database. The alias in old project is retained when downloading new project, if [user database] is selected. Otherwise the it will be deleted;



2) The IP camera screen could not be viewed by the remote access of HMI.;

3) 8000 series HMI only supports only one IP camera, 9000 series HMI could support four IP cameras in the same time;

4) This function requirs special HMI model, please consult the salesman before purchasing.

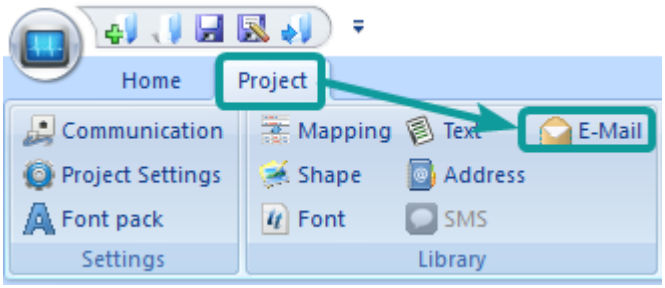
10.3 Email

Introduction

HMI can send email with information from fields to the specified email address as soon as the conditions is triggered, but email sending is basis of the network.

Email function settings

In the toolbar of the programming software, click [Library] -> [Mail] open email function setting screen.



Setting screen description as below

1) SMTP settings

Sender name: Fill the sender's name, case sensitive, the user could enter letters, numbers, maximum character length 32 allowed in it. Such as Support;

Email address: Fill in the sender's email address, case sensitive, maximum character length 32 allowed in it. Such as support@gamil.com.cn;

Password: Fill in the password or authorization code of the mailbox. If the server needs to set the authorization code, the authorization code needs to be used. If the authorization code is not used, the password is used. Please refer to the SMTP service in the mailbox for the authorization code information. It cases sensitive, maximum character length 32 allowed in password;

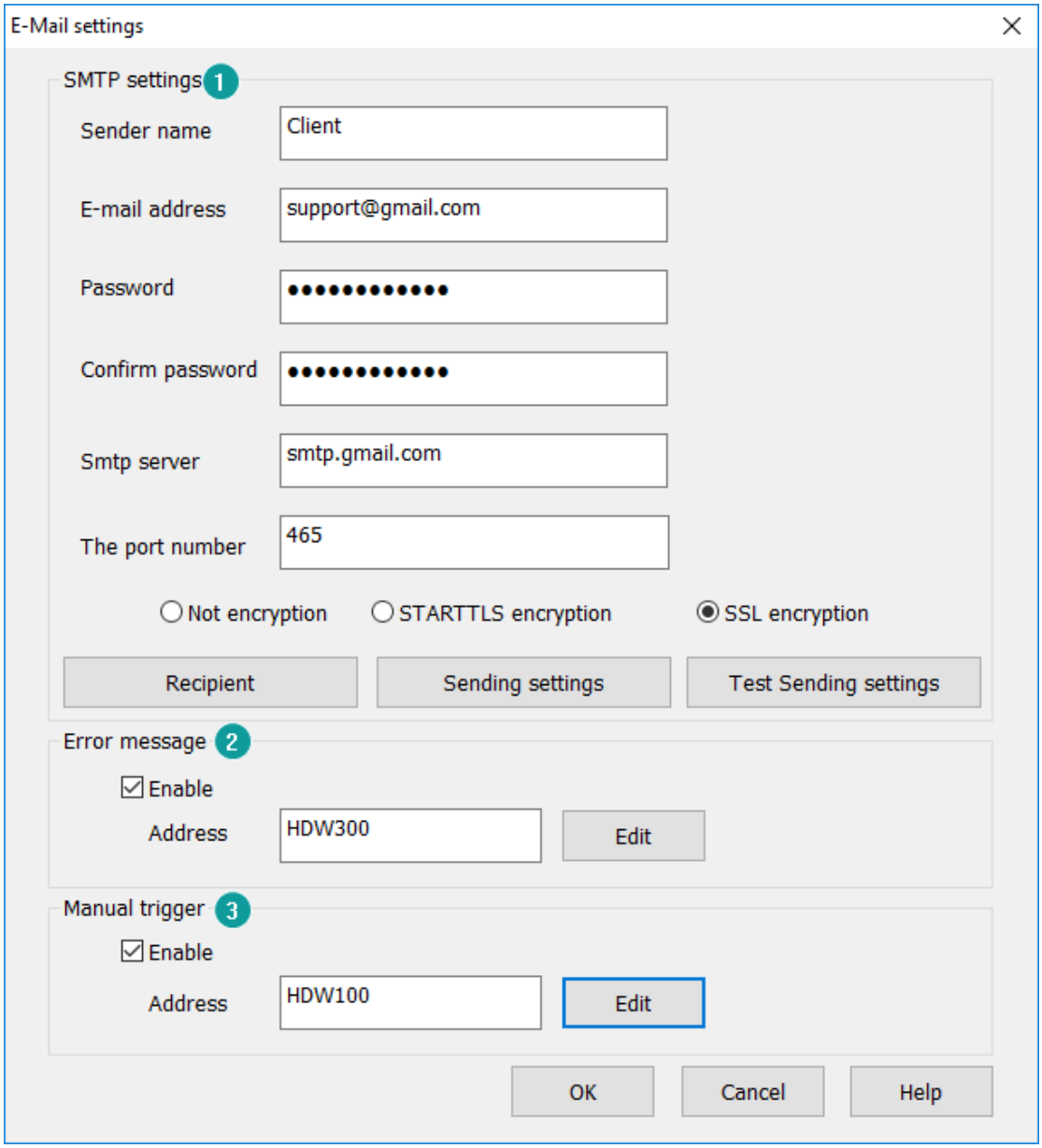
Confirm Password: Confirm the password or authorization code of the mailbox;

SMTP server: Please refer to the mailbox account settings, such as smtp.exmail.qq.com;

The port number: Please refer to the mailbox account settings, such as 465;

Note: gmail also needs to enable the [allow unsafe apps] option in the account, otherwise the mail will not be sent normally.

Encryption type: SSL is a security protocol that provides security and data integrity for network communications. It encrypts network connections at the transport layer; TLS (STARTTLS) upgrades connections to SSL instead of using a separate encrypted communication port;



2) Error message

Set the error message receiving address, the user could use the information to get the reasons of errors.

The error types in the mail function are divided into two types: custom rule error and server's error.

Table 1 Custom rule error

Message
Email settings are incorrect
Email account is incorrect

Email password could not include blank
the settings of SMTP server are incorrect
The range of SMTP server ports number should be integer, which is between 1 and 65535.
The type of encryption for SMTP is incorrect
The name of sender or email address setting is incorrect.
The names of Recipients or email address setting are incorrect.
The names of CC recipients or email address setting are incorrect.
The names of Secret delivery recipients or email address setting are incorrect.
Email topic could not be blank
Email content could not be blank
Total size of attachments should be below 25M
Attachment “xxxx” is nonexistent

Table 2 Server’s error

Message
smtp-server: 554 DT: SPM
smtp-server: 550 RP: TRC
smtp-server: 550 Limitation of connecting counts
smtp-server: 535
smtp-server: 550 Error: content rejected
smtp-server: 451 Internal server error
smtp-server: 535 Invalid login user or password
smtp-server: 550 too many sending requests today
smtp-server: 452 Too many recipients received this hour.
smtp-server: 535 Error: authentication failed, system busy
could not connect: Connection timed out
Unexpected EOF on SMTP connection
could not initiate SSL/TLS connection
smtp-server: 530 Need to issue a STARTTLS command first.
could not resolve host
could not connect: Connection timed out

could not connect: Connection refused
smtp-server: 550 User not found: aaa.163.com

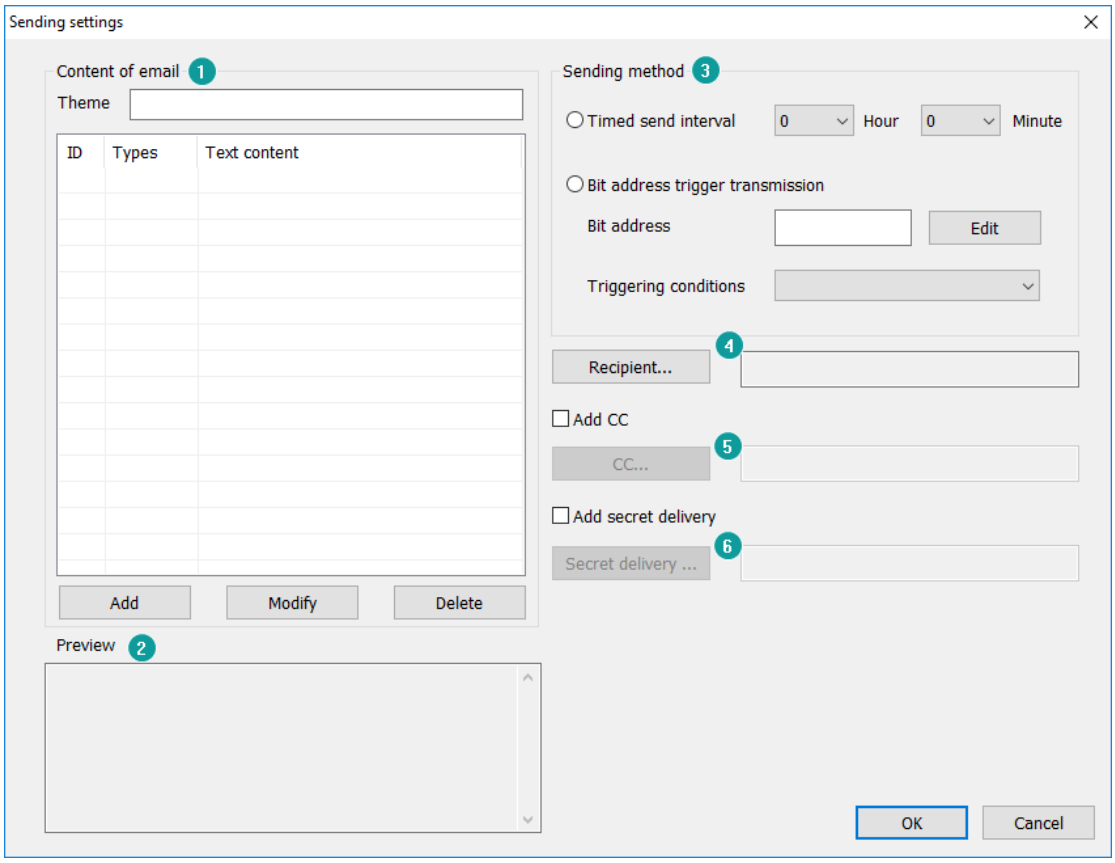
3) Manual trigger

It is for modifying the email sending settings when HMI is running; According to the set manual trigger address, the address is offset backward to get the address of the corresponding function (a total of 201 words). Take HDW100 as an example

Table 3

Address	Description
HDX100.0	Sending trigger
HDX101.0~HDX101.15	It is used for triggering recipient groups, for example, HDW101.0 set ON, and the address in group 1 will be in recipient list.
HDX103.0-HDX103.15	It is used for triggering recipient groups, for example, HDW103.0 set ON, and the address in group 1 will be in CC list.
HDX105.0-HDX105.15	It is used for triggering recipient groups, for example, HDW105.0 set ON, and the address in group 1 will be in BCC list (Secret delivery).
HDW107-HDW171	The subject length is limited to 64 words. (If it exceeds, it will intercept 64 words of content)
HDW172-HDW300	The content length is limited to 128 words. (If it exceeds, it will intercept 128 words of content)
HDX301.0	Whether to send an alarm record attachment (a file named AlarmDataFile.db)

Sending settings screen description



Note:

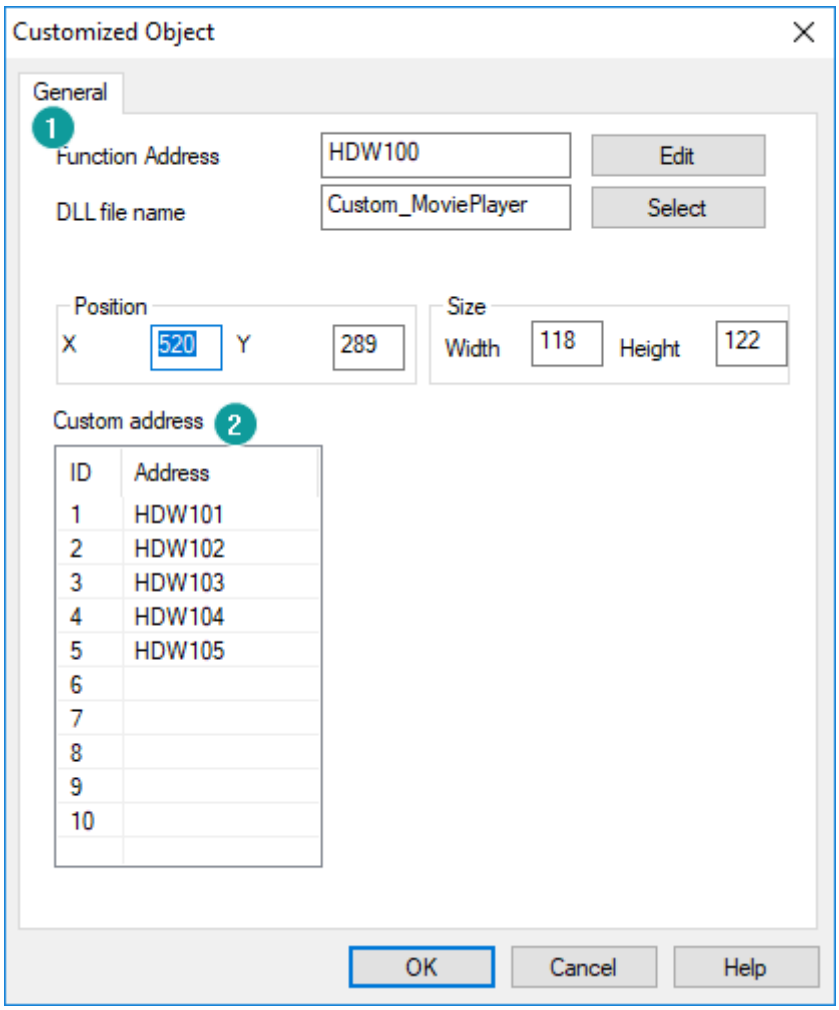
1) Email function is available in special HMI model, when you purchase HMI, please tell salesman or distributors whether you need email function.
2) The email sent manually is sent without priority (bit change, rising edge, falling edge, and the email triggered by the timing condition needs to be queued in the order of triggering. The maximum value is 100. If it is added, it will be discarded.)
3) In the rising edge trigger mode, if the HMI is sending an email, the trigger signal is invalid. Only after the email has been sent, a new email is generated and sent. Whether the mail is sent successfully or not, the bit address will be reset;
4) In manual mode, the email will only be sent once, whether the transmission was successful or failed.

10.4 Video Playing

Introduction

Video playing could play video on HMI project screen, it requires [customized object] and [file list] objects. Currently, the video format support by HMI are including ASF, AVI, MKV, MP4, RM, and FLV.

Configuration



1) Basic

The function address doesn't have to be configured. DLL file name needs to be Custom_MoviePlayer.

2) Custom address

- ID1 is the address for storing the video file name (including the suffix), it could not be empty and the length is 32 words.
- ID2 is the address for video control. The occupying length is 1 word, also could not be empty. Please refer to below table for more information about controlling addresses.

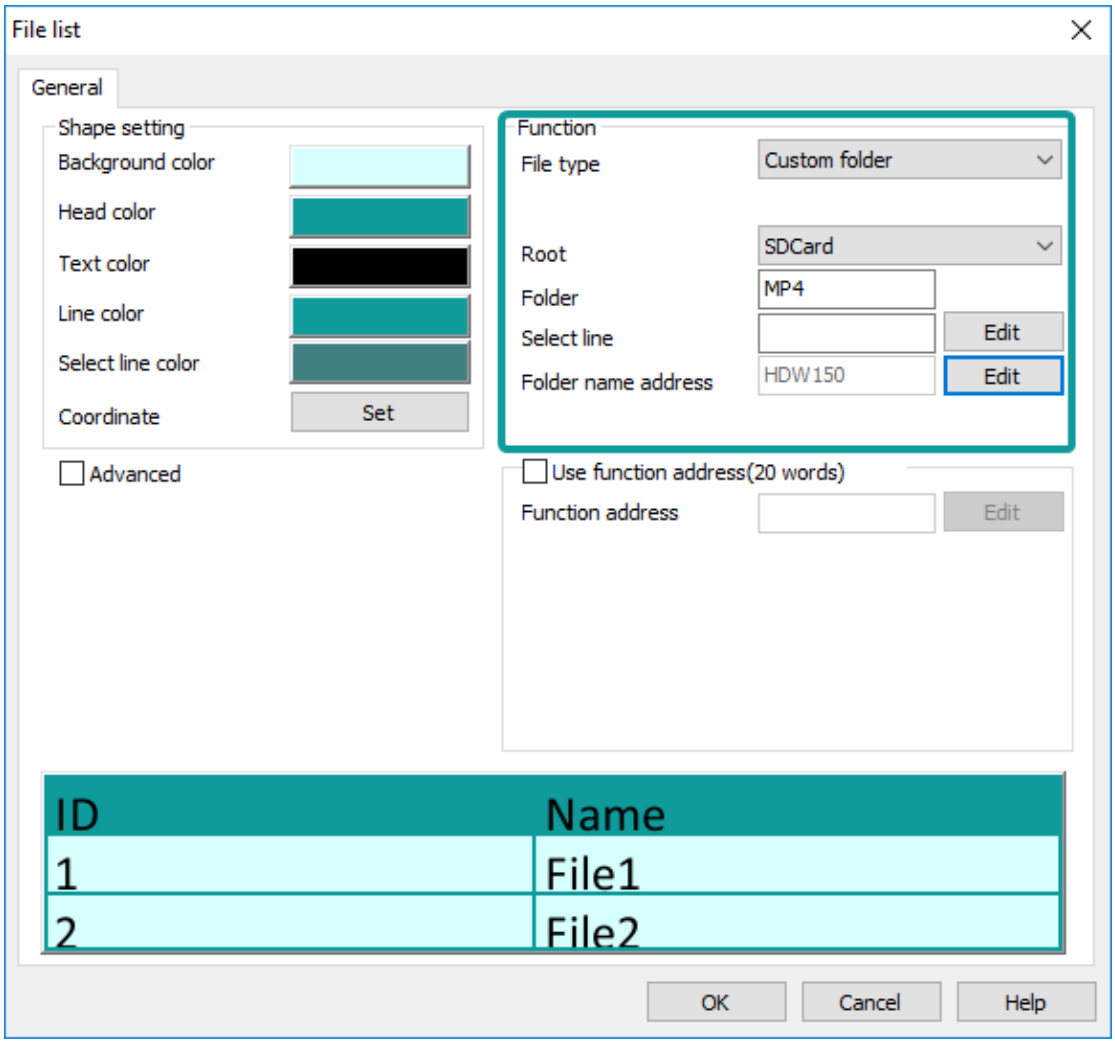
Function	Address		Description
Play control	0th bit	HDX102.0	Bit for playing control: play the video file when this bit address is triggered
	1st bit	HDX102.1	Bit for pause control: pause playing when this bit address is triggered, or resume playing after pause
	2nd bit	HDX102.2	Bit for full screen control: maximize the video when this bit address is triggered
	3rd bit	HDX102.3	Last video: play the last video when this bit address is triggered.
	4th bit	HDX102.4	Next video: play the next video when this bit address is triggered.
	5th bit	HDX102.5	Volume increase: increased by 10
	6th bit	HDX102.6	Volume decrease: decreased by 10
Mode selection	7th bit	HDX102.7	Once: only play current video file once
	8th bit	HDX102.8	Single cycle: repeat to play current video file
	9th bit	HDX102.9	Order: play video file of the list and stop after done
	10th bit	HDX102.10	Repeat in order: repeat to play the video file of the list

- ID3 is the address for the play state of the video. The occupying length is 1 word, also could not be empty. 0 means the play statue is stop, 1 means it is playing.
- ID4 is the address for the video volume. The occupying length is 1 word, also could not be empty
- ID5 is the address for the video file path. The occupying length is 1 word, also could not be empty. Please Refer to below table for more information.

Value	Video file path	Description
0	USB flash disk	Please create a folder named mp4 in the U disk directory to store the video files to be played.

1	SD card	Please create a folder named mp4 in the SD card directory to store the video files to be played.
2	HMI flash	Copy the video files to the mp4 folder in the directory of flash

Operating procedures of File list object settings



Configure the customized object as the above picture

Configure the file list object as below:

1) Select the directory as the MP4 folder in USB flash disk. Set the file name address as HDW150
2) Create a folder named MP4 in the SD card directory to store the video files to be played.
3) Add the video controlling address, refer to the above video controlling address table

4) Compile the project and download it to HMI, trigger the bit address to play the video from the list.

✎Note:

1) Only 9000 series HMI with video module could support this function, and video playing is not active during offline simulation.
2) When using a USB flash drive or SD card to store video files, it is forbidden to remove the USB flash drive or SD card during video playing. Otherwise, the HMI display would be abnormal.

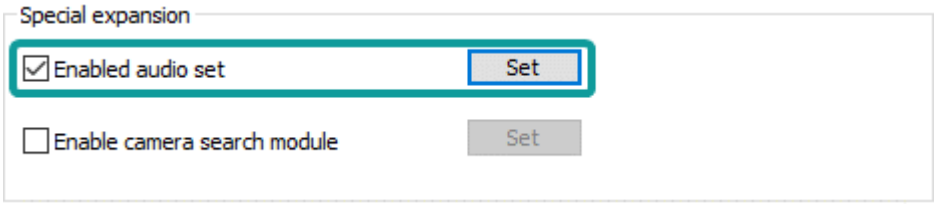
10.5 Audio Playing

Introduction

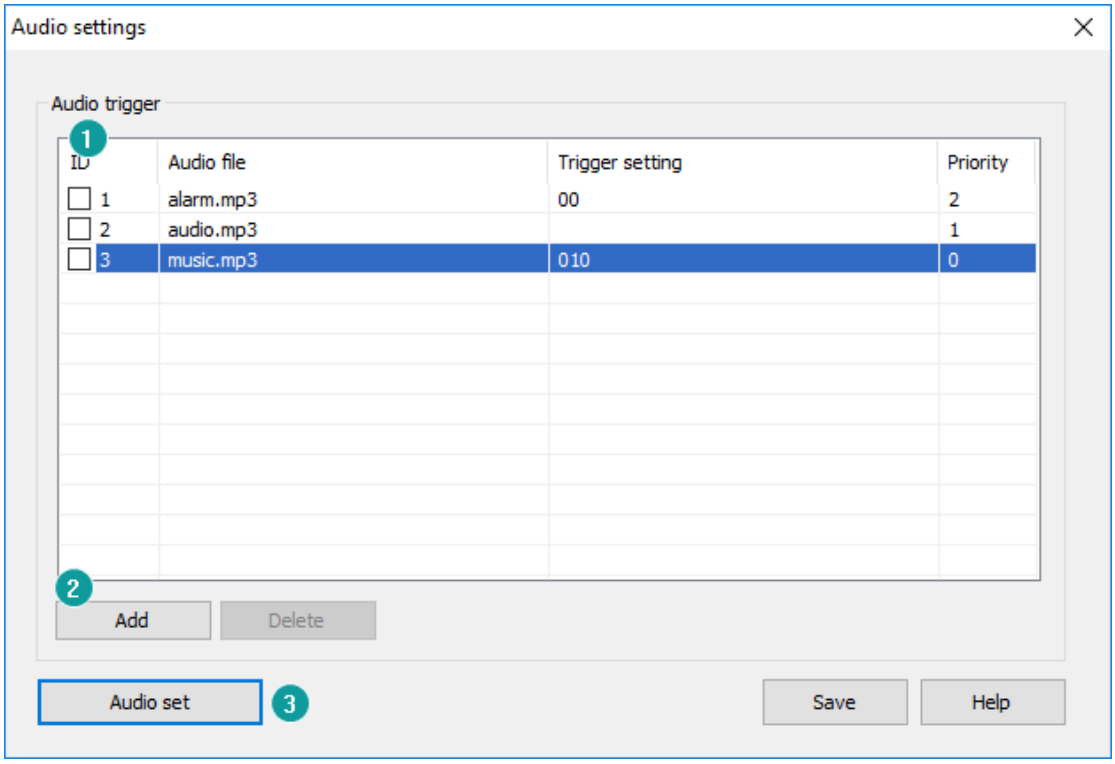
Audio playing could play audio on HMI, it could support MP3 file in 9000 series HMI. User needs to configure the relevant address, and triggers the address to play the MP3 audio file. The audio file need to be stored in the flash of 9000 HMI.

Operating procedures of configuration

1) Enabled audio set in [Project setting] -> [Extend]-> [Special expansion];



2) Click [Set] button to open [Audio settings] window, as below shows;
   ① File list: It shows the audio files added
   ② Operating buttons
      - Add: Add a new audio file;
      - Delete: Delete selected audio file;
   ③ Audio set: Click it to set all the audio files trigger mode;



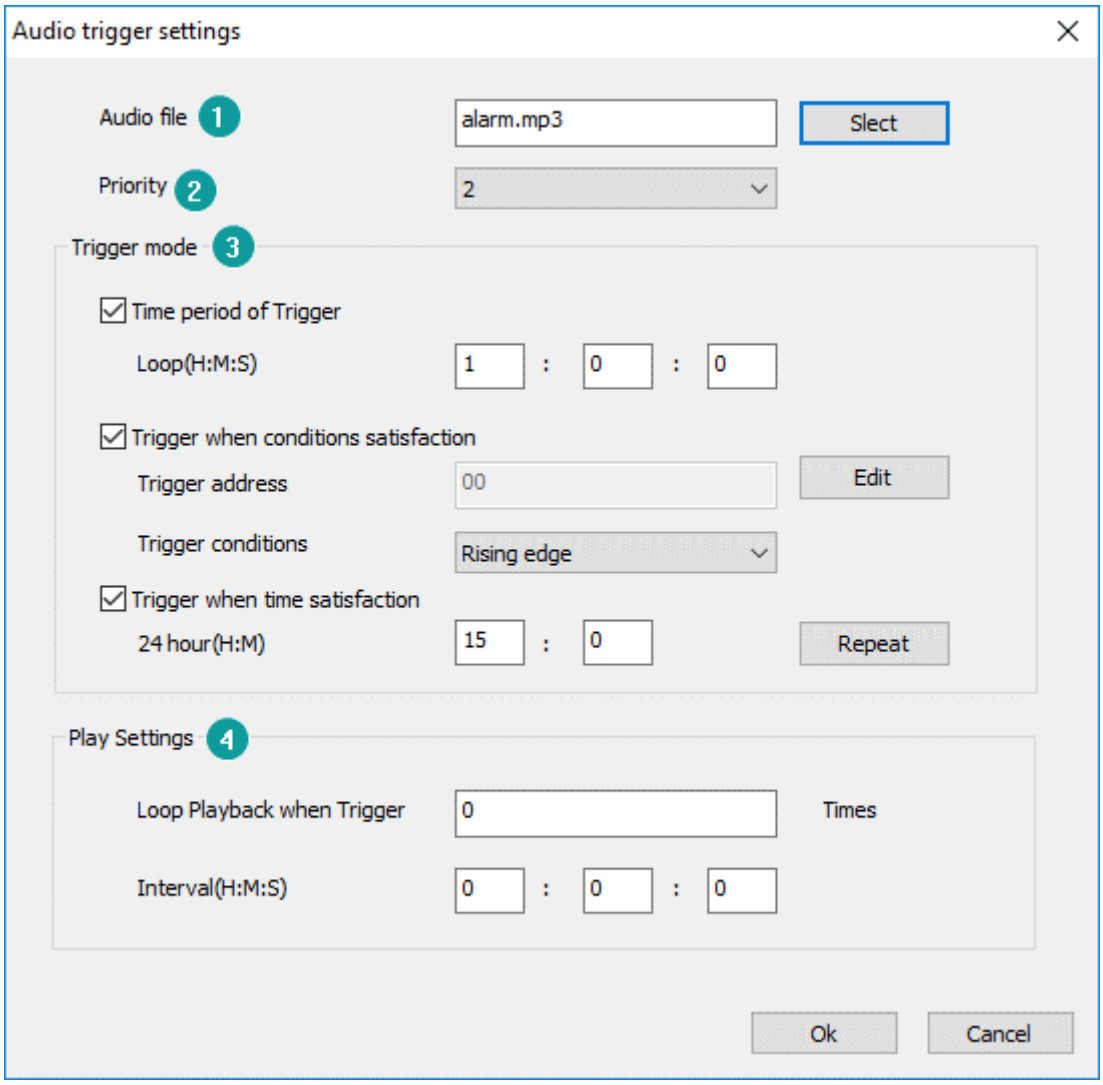
3) Add new audio file as below picture shows;

① Audio file: Add the audio file into playlist

- MP3 file supported only
- The audio filesize should be less than 30MB
- The suffix .mp3 is necessary. The length of name should be less than 20(including .mp3)
- Audio file needs to be saved into the folder named mp3 in HMI flash, if not, it would not play. User could use the [CopyFile] script function to import audio files into the HMI flash.

② Priority

Configure the play priority of the audio file. When several audio files are triggered to play, it will be played according to the play priority. The smailler number has higher priority. When there is a audio with higher priority to be triggered, it will stop the current audio and play the audio has higher priority. After that, the lower priority file would be played.



③ Trigger mode: There are 3 kinds trigger mode to choose.

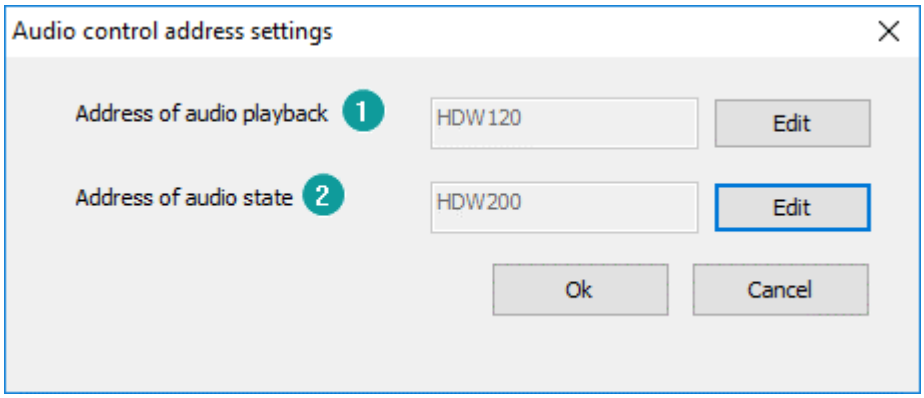
- Play according to time interval: set the interval time, for example 3 minutes, then it will play for each 3 minutes' interval.
- Trigger to play: use a bit address (rising or falling signal) to play the audio file
- Play according to time: play the audio when the time is up.

④ Play settings: Set the play times and the cycle interval when it is triggered

4) Set control address for play audio;

① Address of audio playback

Below table describes each bit address function (including play, pause, etc). If the audio control address is HDW120, then specific function details are as shown in the table below.



Function	Address	Description
Play control	HDX120.0 (0th bit)	Play control bit: Play the audio file when this bit address is triggered
	HDX120.1 (1st bit)	Pause control bit: Pause play when this bit address is triggered, or resume playback after pause
	HDX120.2 (2nd bit)	Stop control bit: Stop the play when this bit address is triggered
	HDX120.3 (3rd bit)	Last audio: Play last audio when this bit address is triggered.
	HDX120.4 (4th bit)	Next audio: Play next audio when this bit address is triggered.
	HDX120.5 (5th bit)	Volume increase(not supported yet), increase by 10
	HDX120.6 (6th bit)	Volume decrease(not supported yet), decrease by 10
Mode selection	HDX120.7 (7th bit)	once: Only play current audio file only one time
	HDX120.8 (8th bit)	Single cycle: Repeat playing current audio file
	HDX120.9 (9th bit)	Order: Play audio file orderly and stop as soon as the tas finished
	HDX120.10 (10th bit)	Repeat in order: Repeat to play the audio file of the list

② Address of audio states

The audio play status address occupies a continuous 35 word addresses. If audio play status address is set as HDW200, the specific function allocation

details are shown as below table

Address	Function	Description
HDW200	Play status	=0 : stop play =1 : playing =2 : pause play
HDW201	Volume value	Range from 0 to 100(default value is 100, and it is not adjustable so fars
HDW202~HDW234	Audio file name	32 word addresses

✎Note:

1) The audio file needs to be stored in the flash of 9000 series HMI.
2) Only 9000 series HMI with audio module could support this function, and an external 3.5mm headphone is required.

10.6 LAN monitoring

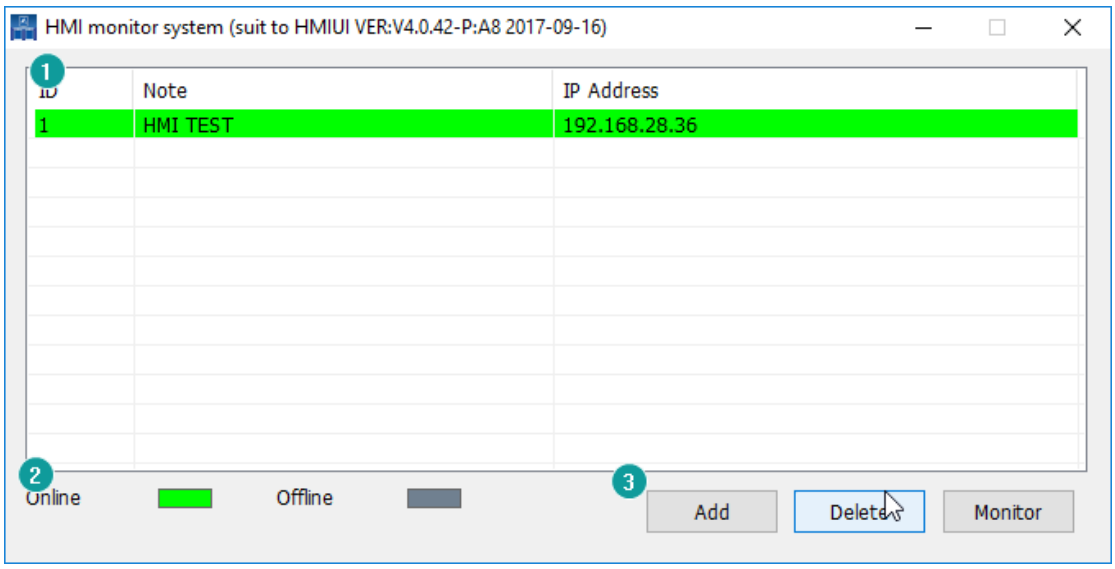
Introduction

It provides [HMI Monitor System] software for user to monitor 3000 series HMI in Local area network (LAN).

This function is only for 3070N-O and 3102N-O.

Description of [HMI Monitor System] software

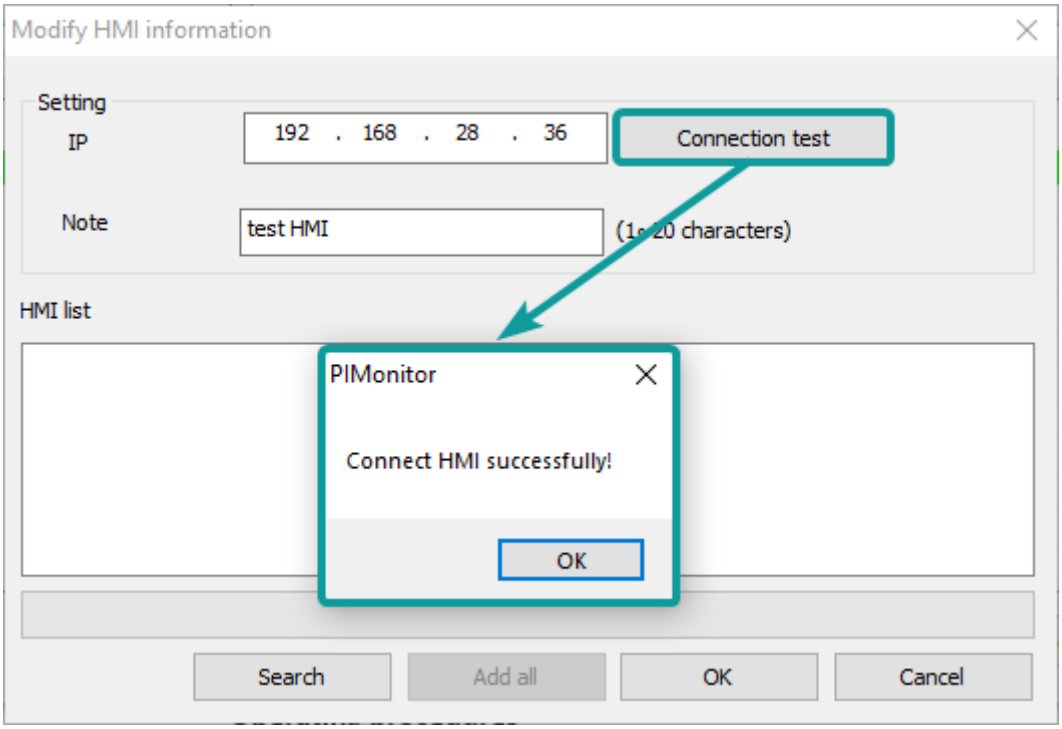
1) Device list: It displays HMIs, that connected into this monitor software;
2) State indicator: It shows state of HMI, green means online, gray means offline;
3) Operation buttons: It provides three operations for HMI device;
   - Add: Click it to open add setting window;
   - Delete: Click it to delete selected HMI device;
   - Monitor: Click it to open monitor window for selected HMI device;



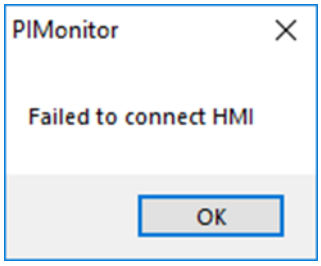
Operating procedures

1) Click [Add] button to open setting window;
2) Enter HMI IP and Note;
3) Click [Connection test] button;

- If IP is correct, it will display tip as below;



- If IP is incorrect, it will display tip as below;

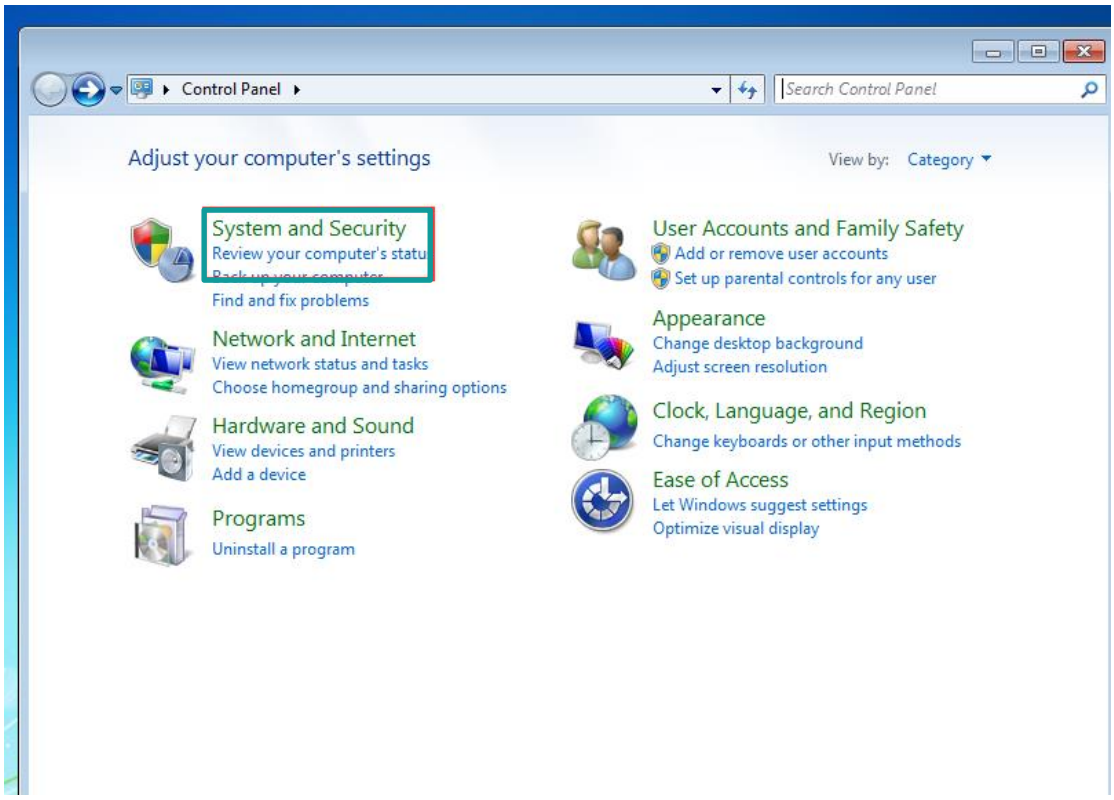


✎Note:

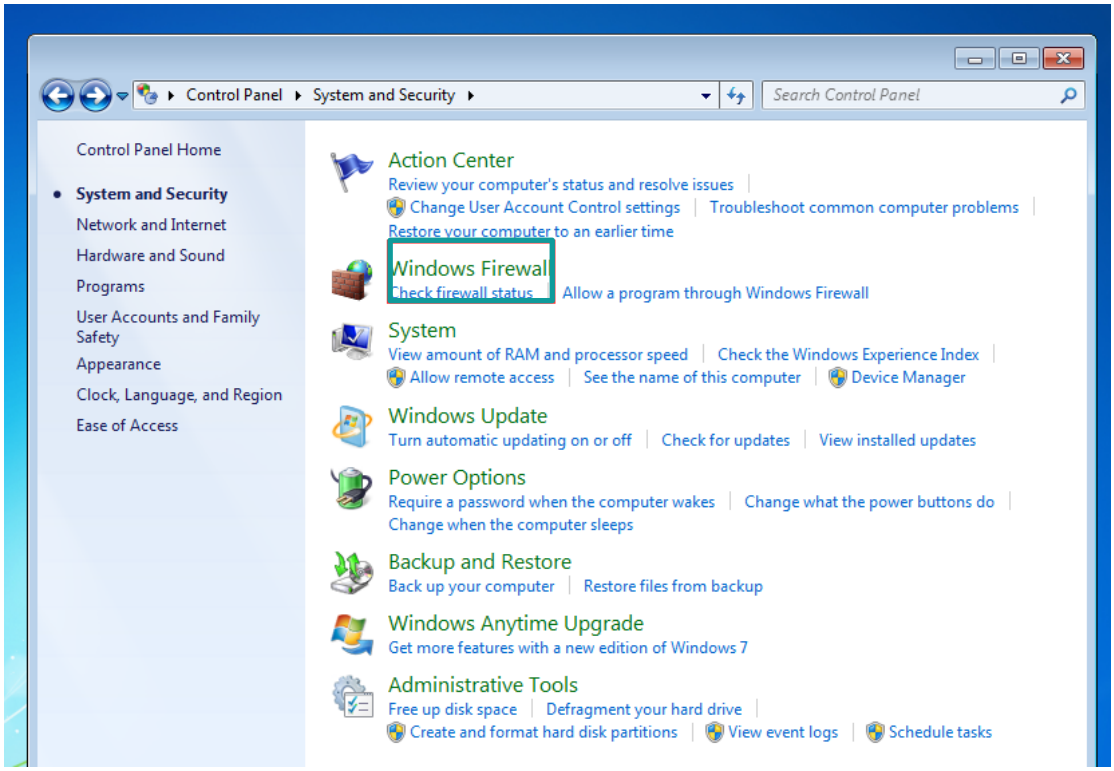
For using this function in PC, it requires the setup of LAN Monitoring Firewall, using Windows 7 system as example. **If this function works well in your PC, please ignore below content.**

Solution 1: Disable firmware completely

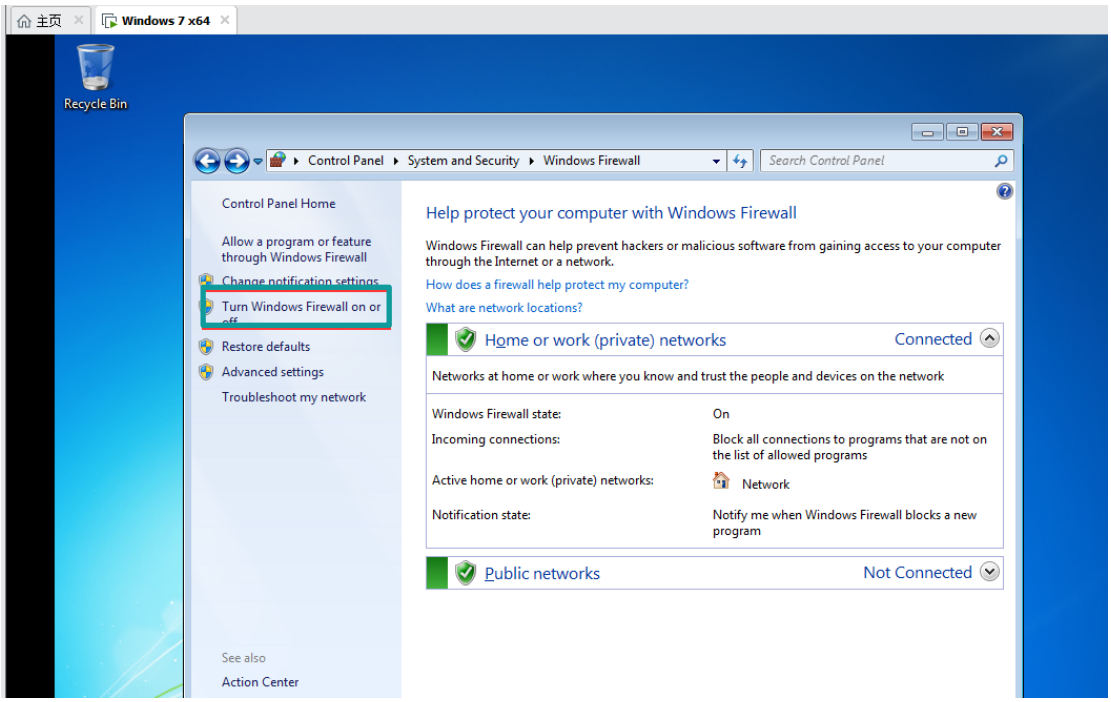
1) Open [Control Panel] and select [System Security];



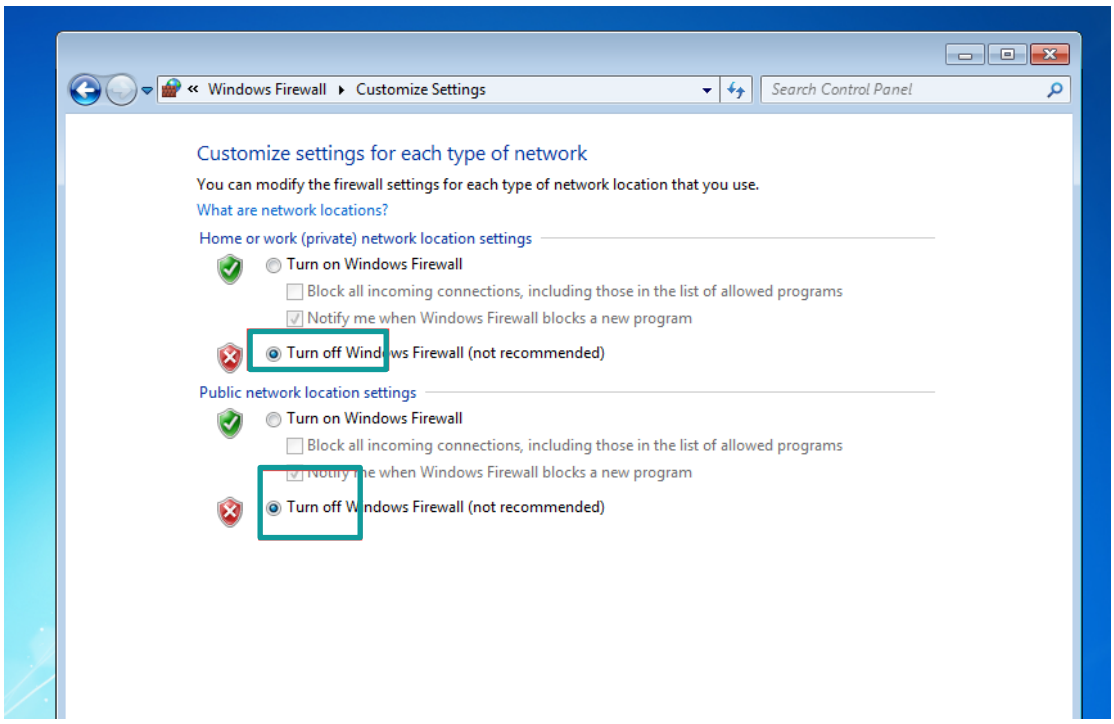
2) Select [Windows Firewall];



3) Select [turn Windows Firewall on or off]

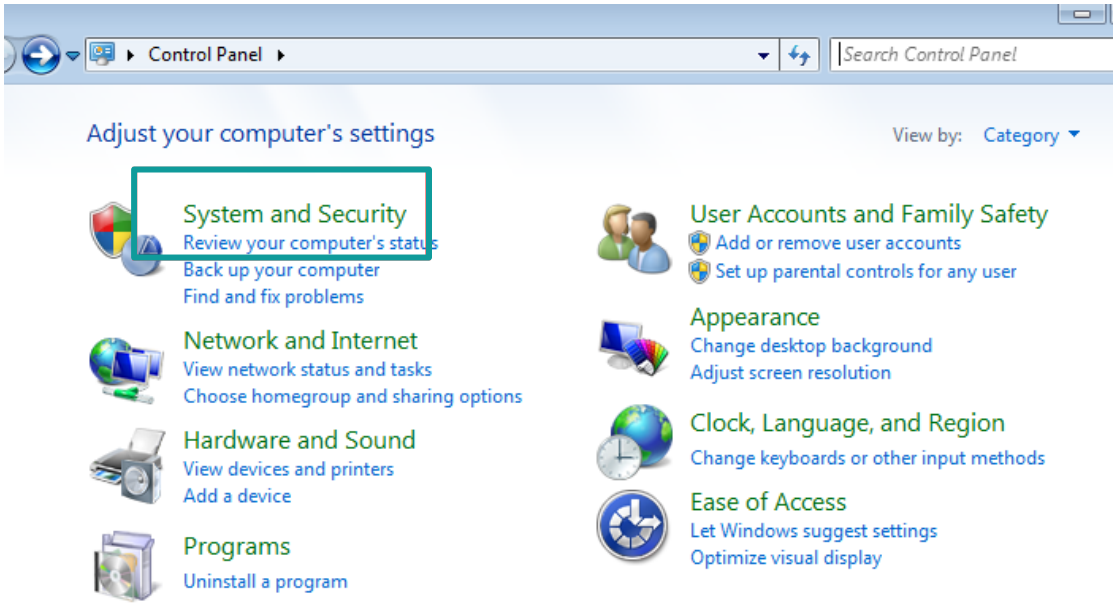


4) Select [Turn off Windows Firewall]

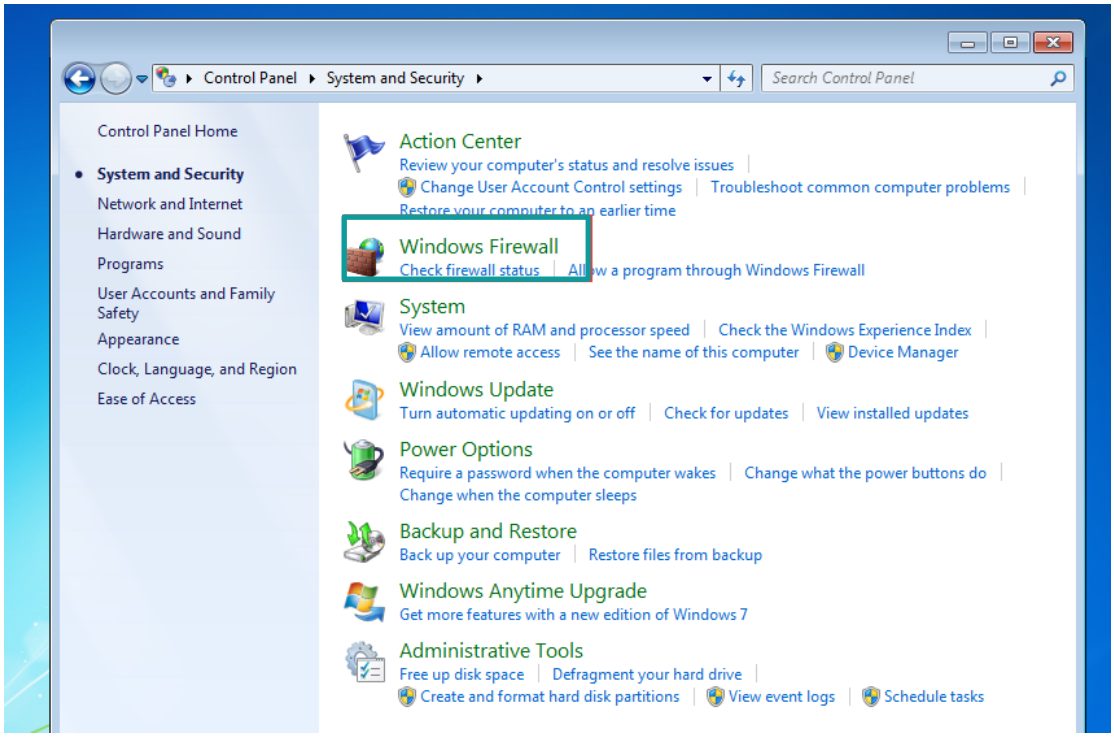


Solution 2: Do not close the firewall, but allow HMIUI to pass through the firewall

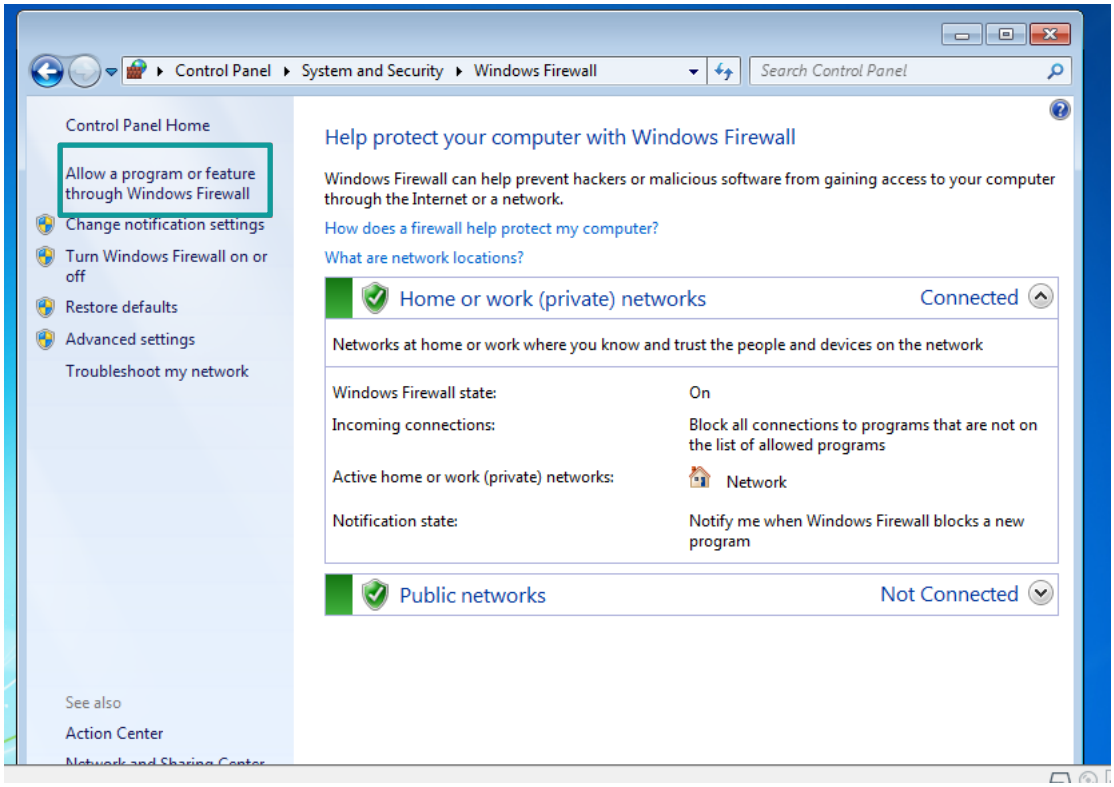
1) Open Control Panel selection [system Security]



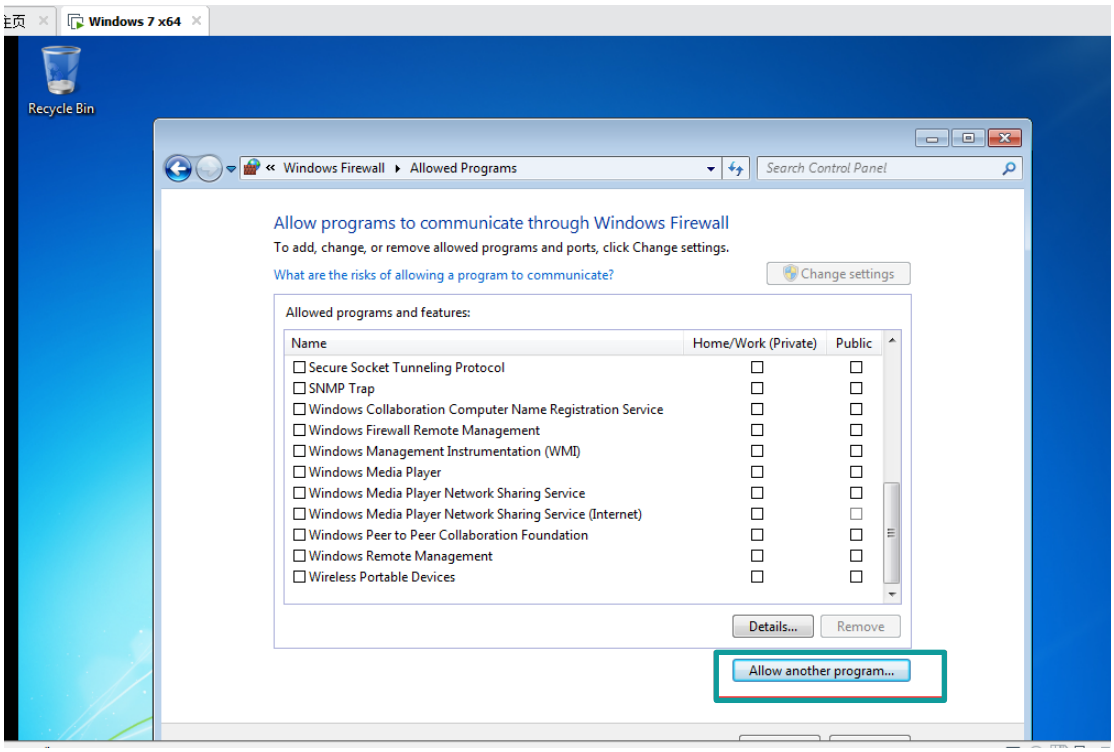
2) Select [Windows Firewall]



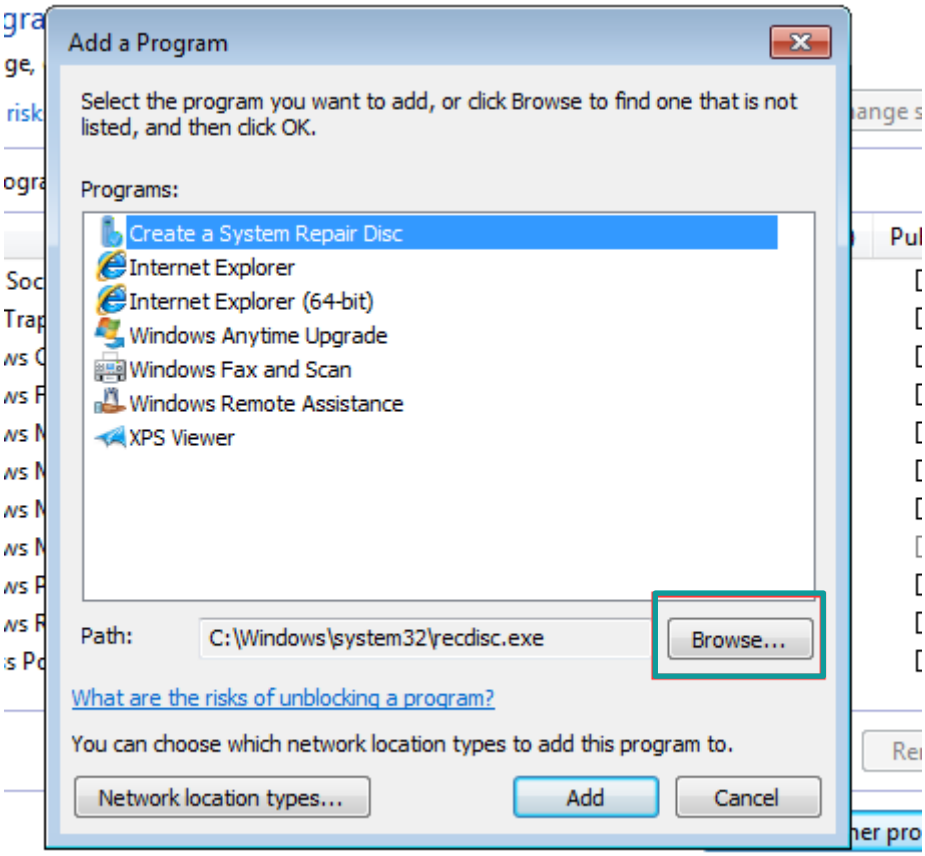
3) Select [run a program or function through Windows Firewall]



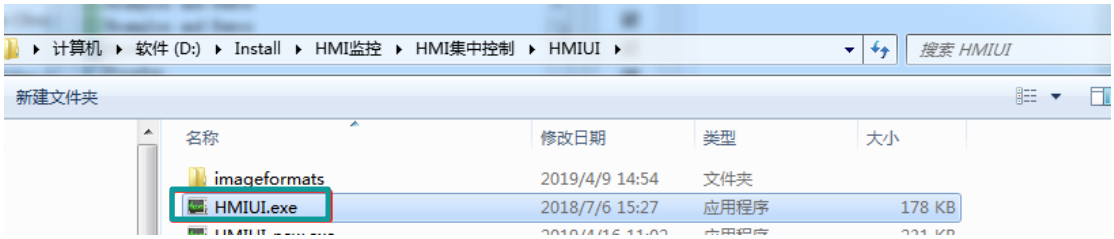
4) Select [Allow to run another program].



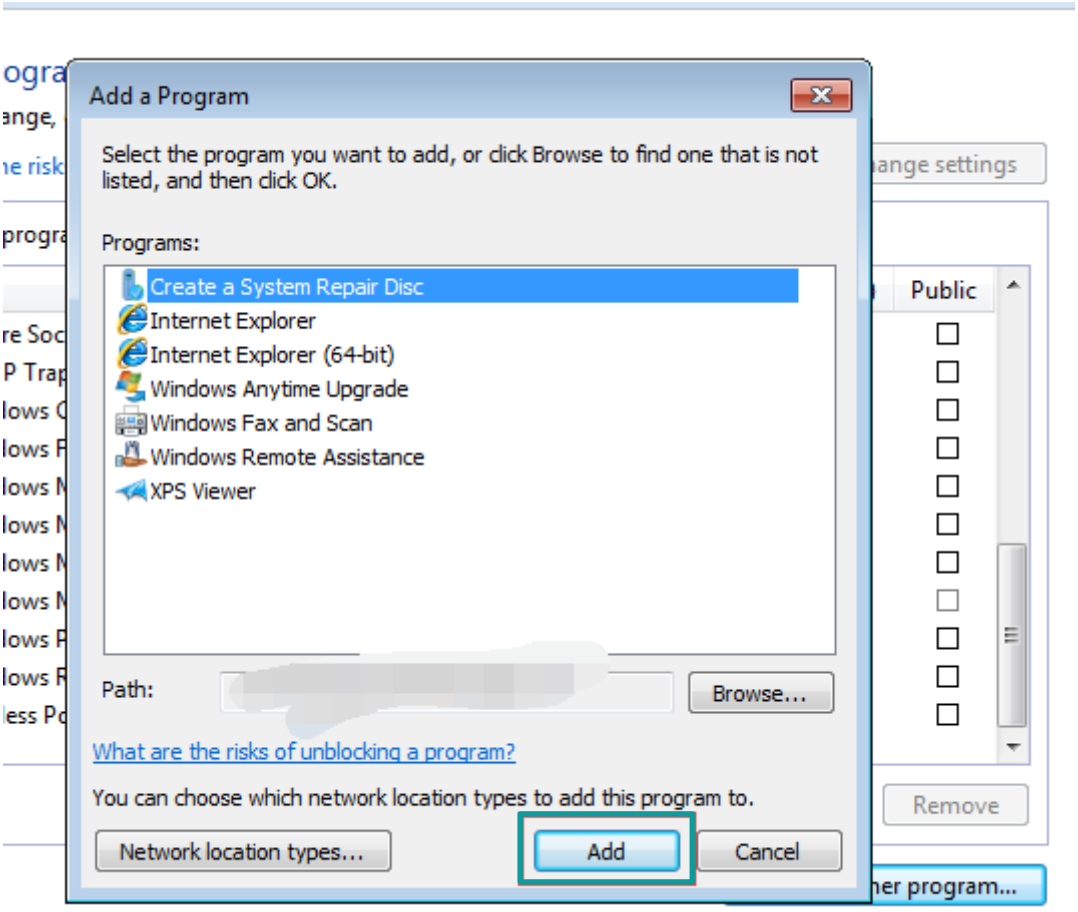
5) Select [browse] in the pop-up dialog box



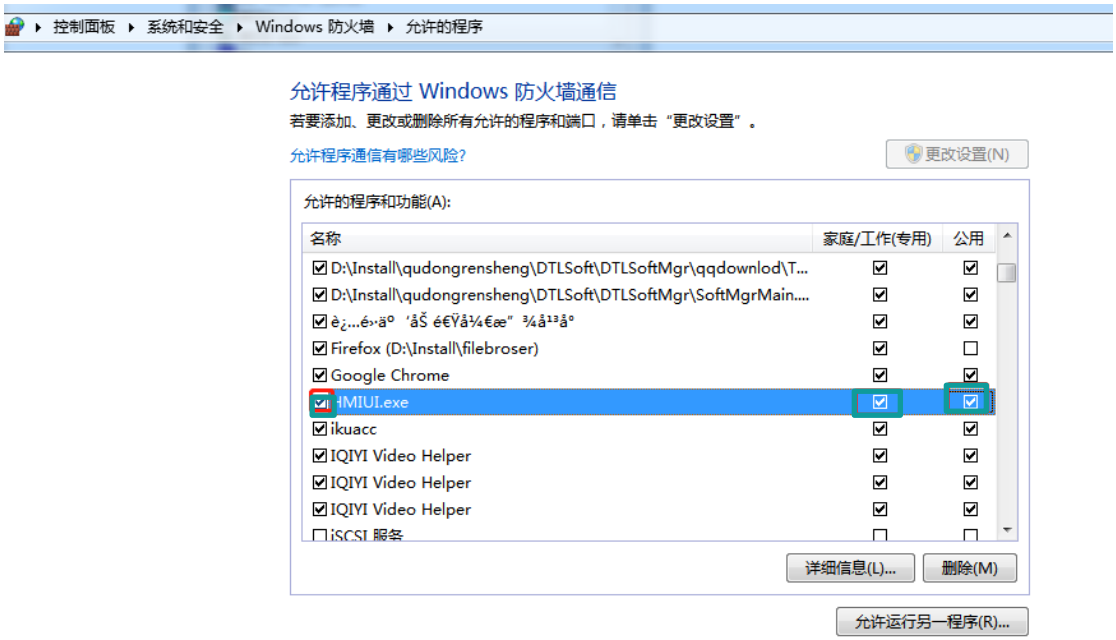
6) Locate the HMIUI.exe file in the HMIUI directory under the installation path of the monitoring software, and double-click HMIUI.exe



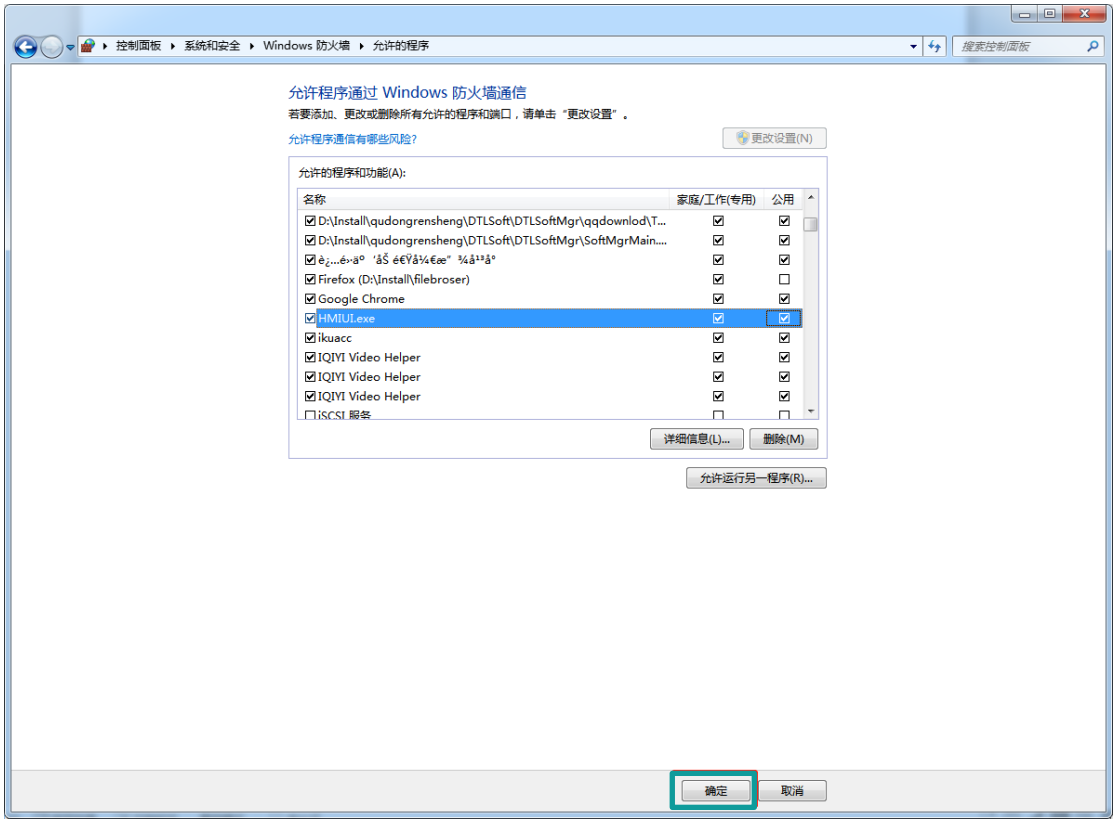
7) Select add



8) Check the corresponding options



9) select OK



10.7 USB keyboard

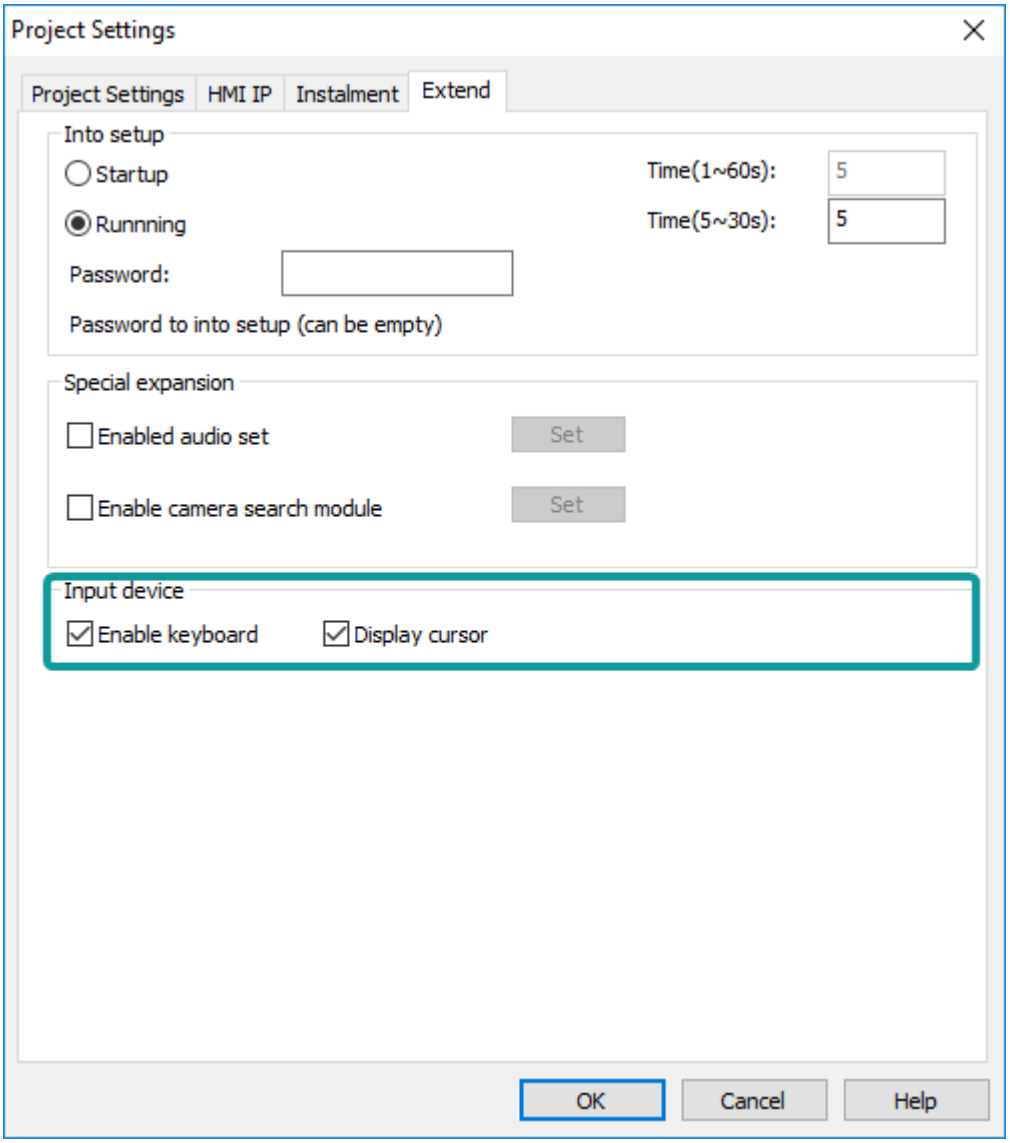
Introduction

1) HMI support keyboard via USB port of HMI.
2) When the keyboard function is enabled, the “Cursor Display” function is enabled by default. The user could move the cursor through the “up, down, left and right buttons” of the keyboard, and then press the Enter key to select the object.
3) Multiple devices could be connected with HMI via USB HUB (up to 4 external devices), such as: mouse, keyboard, scanner, magnetic stripe reader, etc.

Configuration

1) Enable function

   In the software [Settings menu], Click [Project settings]-> [Extend], and check [Enable keyboard] in [Input device] settings area as below shows.



2) Configuration decryption

- When the keyboard function is enabled, the “Cursor Display” function is enabled by default. The user could move the cursor through the “up, down, left and right buttons” of the keyboard, and then press the Enter key to select the object;
- NumLock: When NumLock key is not lit, the keypad number is not allowed to be input (offline simulation does not allow all numeric keys to be input, including the numeric keys on the left side of the keyboard);
- Key combination: (1) "Shift" + the left side of the keyboard and the special symbol button, to achieve special character input, such as: ~ ! @ # $ % ^ & * ( ) _ + { } : " < > ? ;
- Use the system special addresses "HSW1073 and HSW1074" to write custom key combinations in the script (currently only two key combinations are supported);
- Caps Lock: In lowercase mode, shift+ letters, to enter uppercase; in uppercase mode, shift+ letters enter lowercase;

3) System special address

In practical application, the [Enable Keyboard] function could be combined with the related "system special address" to achieve multi-key combination operation.

Address	Description	Function
HSW1073	Keyboard key value	The currently pressed key value is displayed. The key value is shown in Table 1 (The Numeric/Character display object is not updated when it is being entered)
HSW1074	Keyboard key status	Display current key states =0: key release =1: key press =2: Press and hold long (The Numeric/Character display object is not updated when it is being entered)
HSW1075	Cursor speed	Control the movement speed of the cursor, the range is 0~100, the default is 20
HSW1076	X coordinate value of cursor	The X value of the current position of the cursor, range: 0~screen width-1

HSW1077	Y coordinate value of cursor	The Y value of the current position of the cursor, range: 0~screen height-1
HSW1078	The ASCII code of keyboard key	Only the ASCII values of letters, numbers, and symbols are displayed. The ASCII value of the function keys is not displayed, as shown in Table 2 (The Numeric/Character display object is not updated when it is being entered)
HSW1079	Enable cursor position and Enter key mode	HSX1079.0 = 1: Set the cursor position according to HSW1076 and HSW1077 value; HSX1079.1 = 0: When Numeric/Character display object is entered, enter key is for end input instruction. When no Numeric/Character display object is entered, enter key is for normal click; HSX1079.1 = 1: Enter key only for normal click, not for keyboard end input instruction;

Key-value appendix table (decimal) (104 keys)

Key	Value	Key	Value	Key	Value
ESC	1	i I	23	Alt (Right)	100(offline: 56)
F1	59	o O	24	windows(Right)	126(offline: 125)
F2	60	p P	25	Menu	127
F3	61	[{	26	Right_ctrl	97(offline: 29)
F4	62	] }	27	Print Screen	99
F5	63	Enter	28	ScrollLock	70
F6	64	CapsLock	58	PauseBreak	119
F7	65	a A	30	Insert	110
F8	66	s S	31	Home	102
F9	67	d D	32	PageUp	104
F10	68	f F	33	Delete	111

F11	87	g G	34	End	107
F12	88	h H	35	PageDown	109
` ~	41	j J	36	↑	103
1 !	2	k K	37	↓	108
2 @	3	l L	38	←	105
3 #	4	; :	39	→	106
4 $	5	' "	40	NumLock (Keypad)	69
5%	6	\ |	43	/ (Keypad)	98 (offline 53)
6 ^	7	Shift (Left)	42	* (Keypad)	55 (offline: 9)
7 &	8	z Z	44	- (Keypad)	74 (offline: 12)
8 *	9	x X	45	+ (Keypad)	78 (offline: 13)
9 (	10	c C	46	Enter (Keypad)	96
0)	11	v V	47	. (Keypad)	83 (offline: 9)
- _	12	b B	48	0 (Keypad)	82 (offline: 11)
+ =	13	n N	49	1 (Keypad)	79 (offline: 2)
Backspace	14	m M	50	2 (Keypad)	80 (offline: 3)
Tab	15	, <	51	3 (Keypad)	81 (offline: 4)
q Q	16	. >	52	4 (Keypad)	75 (offline: 5)
w W	17	/ ?	53	5 (Keypad)	76 (offline: 6)
e E	18	Shift (Right)	54 (offline : 42)	6 (Keypad)	77 (offline: 7)

r R	19	Ctrl (Left)	29	7 (Keypad)	71 (offline: 8)
t T	20	Windows(Left)	125	8 (Keypad)	72 (offline: 9)
Y y	21	Alt (Left)	56	9 (Keypad)	73 (offline: 10)
u U	22	space	57		

ASCII code

Code	Value	Code	Value	Code	Value	Code	Value
32	space	56	8	80	P	104	h
33	!	57	9	81	Q	105	i
34	"	58	:	82	R	106	j
35	#	59	;	83	S	107	k
36	$	60	<	84	T	108	l
37	%	61	=	85	U	109	m
38	&	62	>	86	V	110	n
39	'	63	?	87	W	111	o
40	(	64	@	88	X	112	p
41	)	65	A	89	Y	113	q
42	*	66	B	90	Z	114	r
43	+	67	C	91	[	115	s
44	,	68	D	92	\	116	t
45	-	69	E	93	]	117	u
46	.	70	F	94	^	118	v
47	/	71	G	95	_	119	w
48	0	72	H	96	`	120	x
49	1	73	I	97	a	121	y
50	2	74	J	98	b	122	z
51	3	75	K	99	c	123	{
52	4	76	L	100	d	124	|
53	5	77	M	101	e	125	}

54	6	78	N	102	f	126	~
55	7	79	O	103	g		

Scripts example

'HSW1073 key value

'HSW1074 key states 0: released; 1: pressed; 2: Holding pressed

'HSW1078 ASCII value of key

1) Example 1

```
if @W_HSW1073 = 29 then                              'Ctrl key value is 29
    if @W_HSW1074 = 1 or @W_HSW1074 = 2 then         'Press Ctrl key
        @W_HDW1000 = 1
    else                                             'Release Ctrl key
        @W_HDW1000 = 0
     endif
endif
```

2) Example 2

```
if @W_HSW1073 = 59 and (@W_HSW1074 = 1 or @W_HSW1074 = 2) then
'F1 key value is 59
    if @W_HDW1000 = 1 then                           'Combination Ctrl + F1
      @W_HDW2000 = @W_HDW2000 + 1    'Function of combination key is
HDW2000 + 1
    endif
endif
```

3) Example 3

```
if @W_HSW1073 = 60 and (@W_HSW1074 = 1 or @W_HSW1074 = 2) then
'the value of F2 is 60
     if @W_HDW1000 = 1 then                          'Combination Ctrl + F2
      @W_HDW2000 = @W_HDW2000 - 1    'Function of combination key is
HDW2000 - 1
     endif
```

```
endif
```

4) Example 4

```
if AsString(@W_HSW1078) = "a" and (@W_HSW1074 = 1 or @W_HSW1074 = 2)
then            ' Page up
    if @W_HSW13 > 0 then
        @W_HSW13 = @W_HSW13 - 1
    endif
endif
```

5) Example 5

```
if AsString(@W_HSW1078) = "b" and (@W_HSW1074 = 1 or @W_HSW1074 = 2)
then            'Page down
@W_HSW13 = @W_HSW13 + 1
    if @W_HSW13 > 3 then
        @W_HSW13 = 3
        endif
endif
```

11 PLC protocols

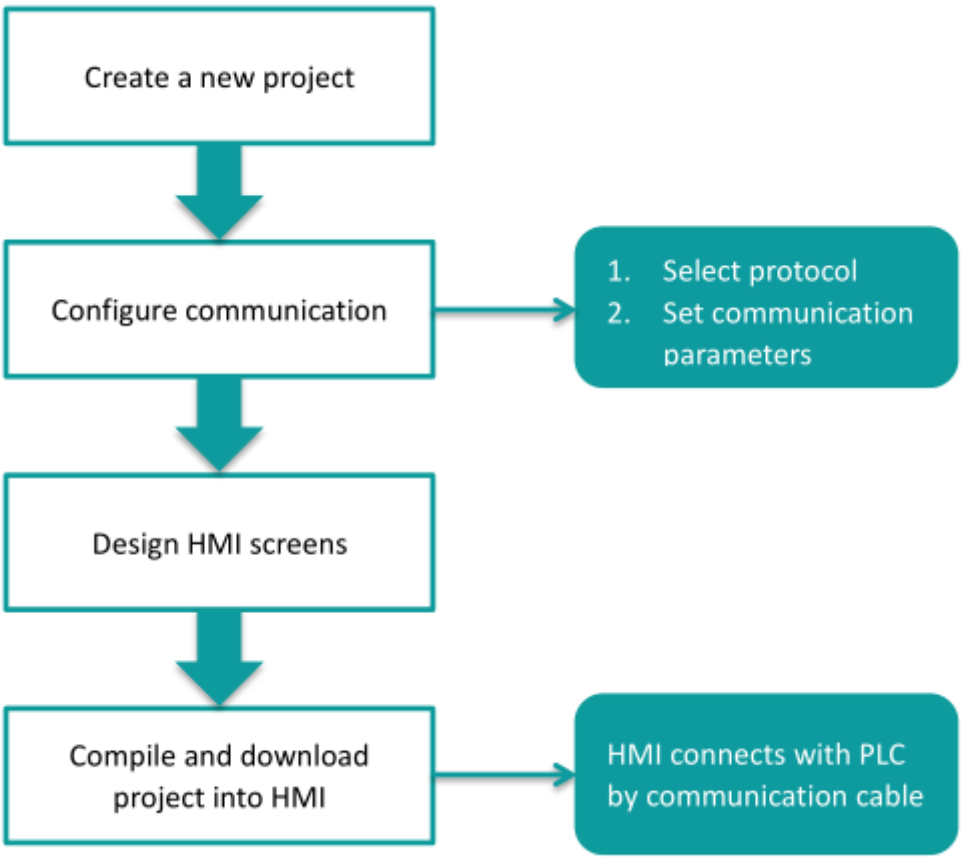
Introduction

This chapter contains information on configuring the communication between device and HMI.

General procedure

During configuring communication in HMIEditorP. The following components and conditions is indeed at least.

- One PI HMI
- One connected controller (for example PLC)
- One communication cable



User need to select controller protocol and set communication parameters in HMI project. Please note to set same communication parameter between controller and HMI project. After finishing project, user could download HMI project into HMI and connect HMI with controller by communication cable. Then a simple automation

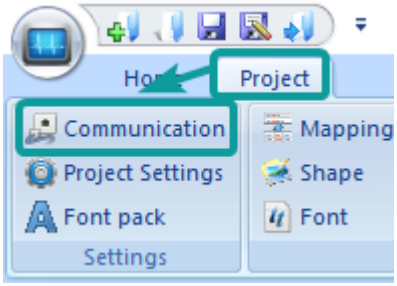
system would be established.

Selecting protocol and communication parameters

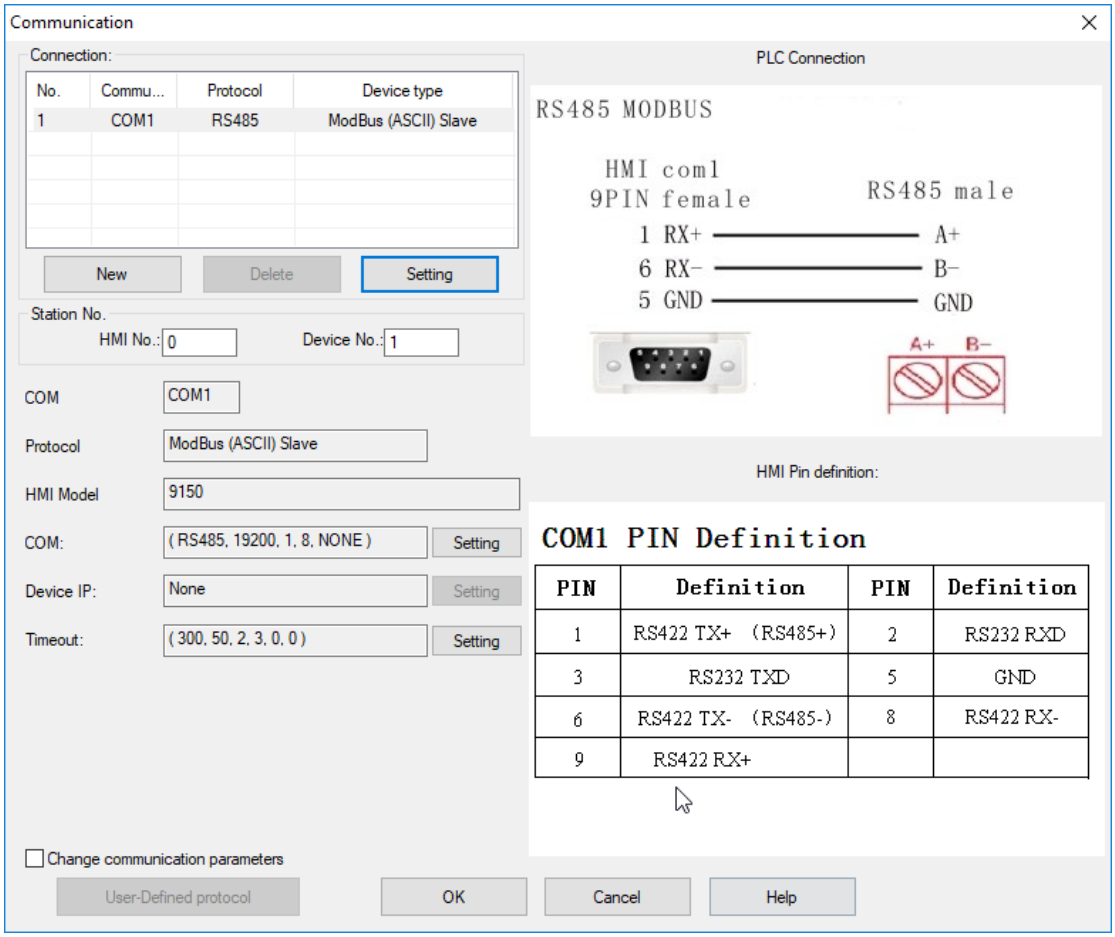
For example, controller is LX3V series PLC and HMI is 8070. Please set communications protocol, and set communication parameters in the [Communication].

Operating procedure

1) After creating the [Quick_Start] project, select the [Project] -> [Communication].

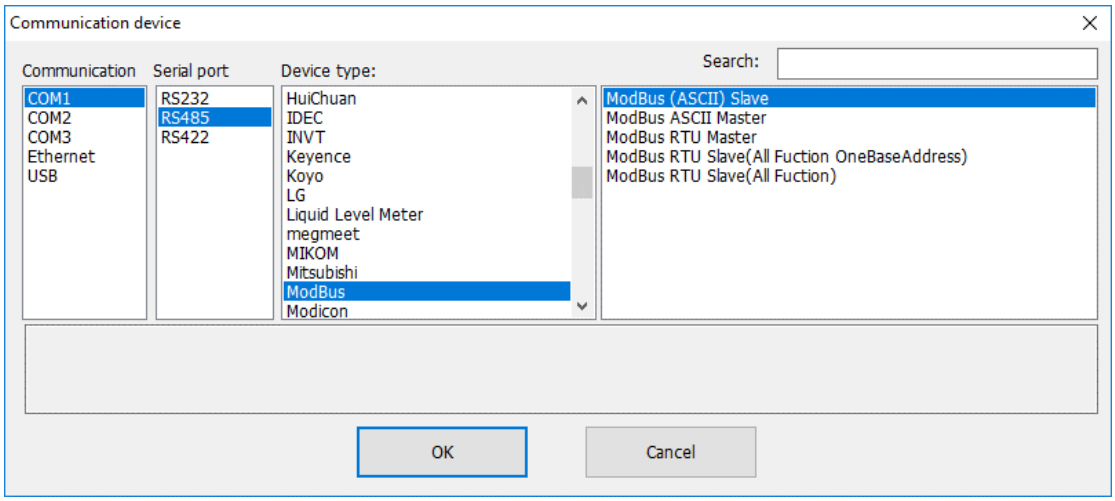


2) Click [Setting] to open protocol setting windows.

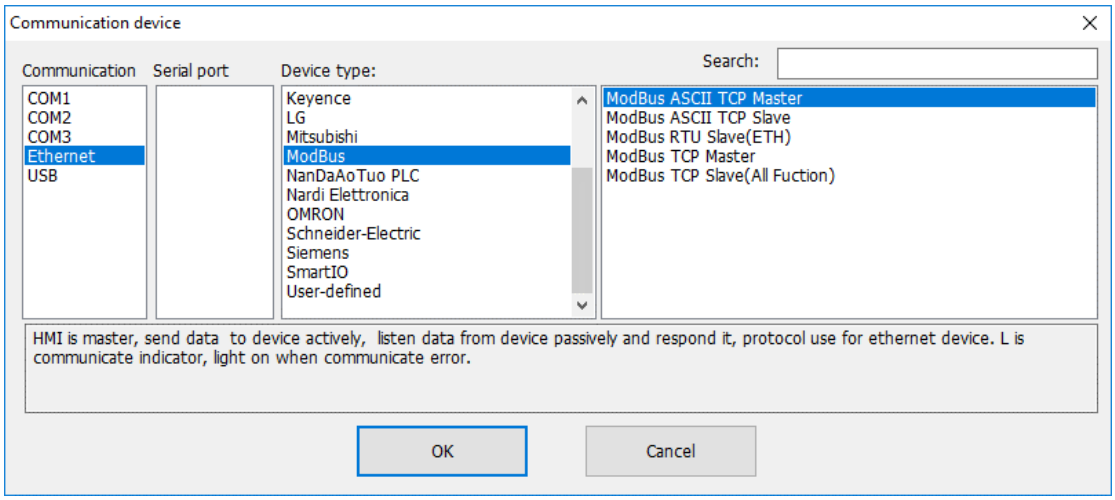


3) Select communication protocol, users could select serial port, Ethernet port, CAN port or USB.

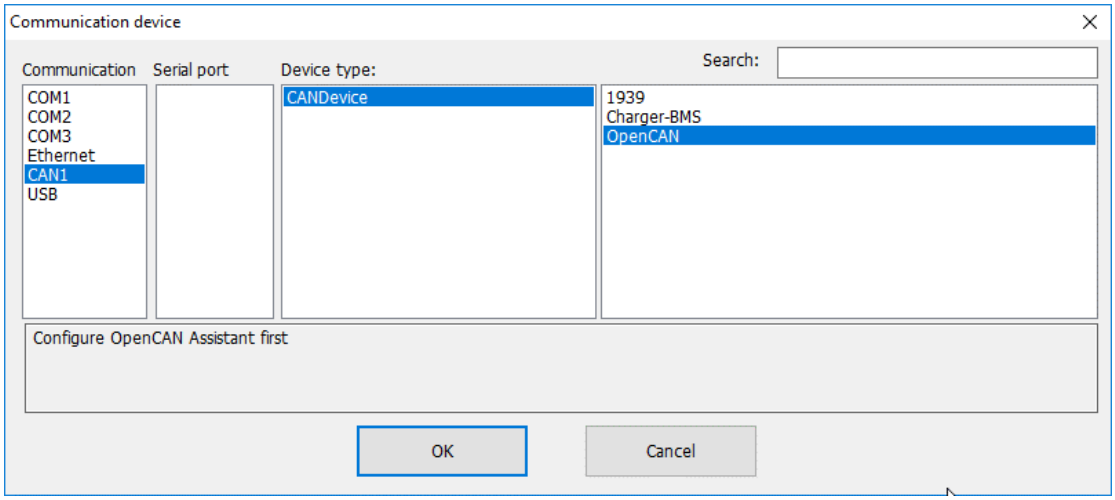
- Serial port:



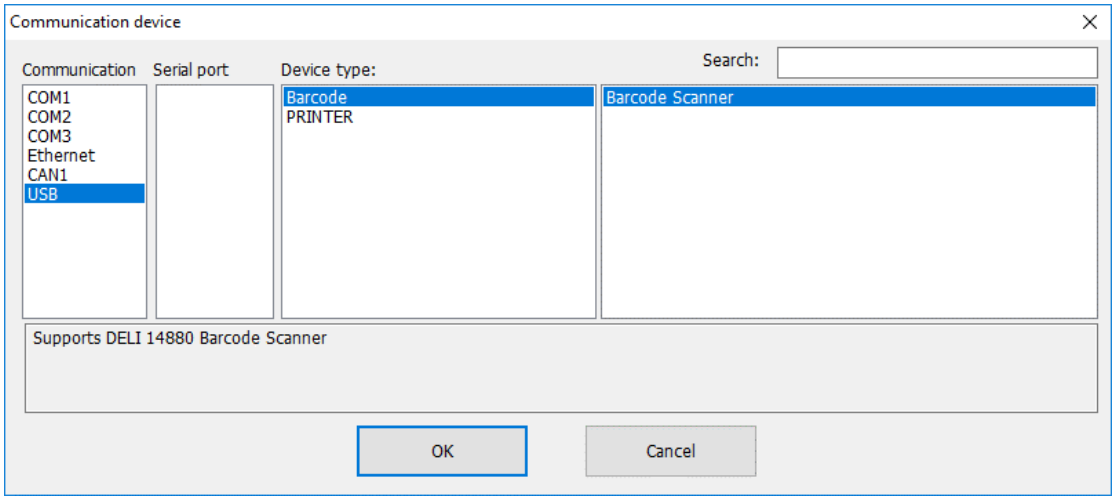
- Ethernet port:



- CAN port (In COM1):

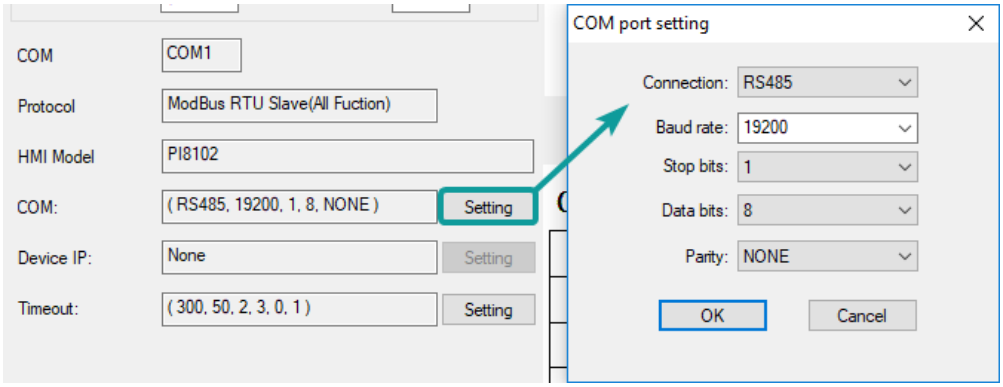


- USB port:



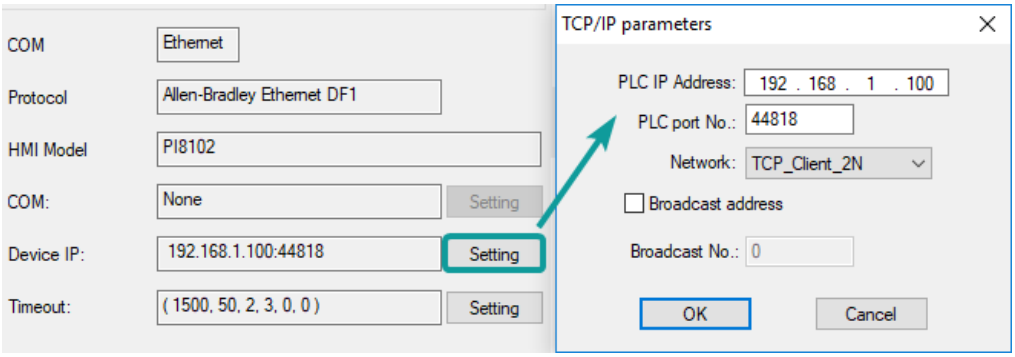
4) About parameters for communication, PLC default communication parameters have been written to HMIEditorP, the user can adjust them according to the actual situation.

- Serial port:



- Ethernet port

  Please note, during using Ethernet port, please set HMI IP in [Project Setting], the detailed, please refer to [Project Setting] chapter.



5) Click [OK] button to save settings and close the dialog;

11.1 Allen-Bradley TreeTag Ethernet/IP (CompactLogix)

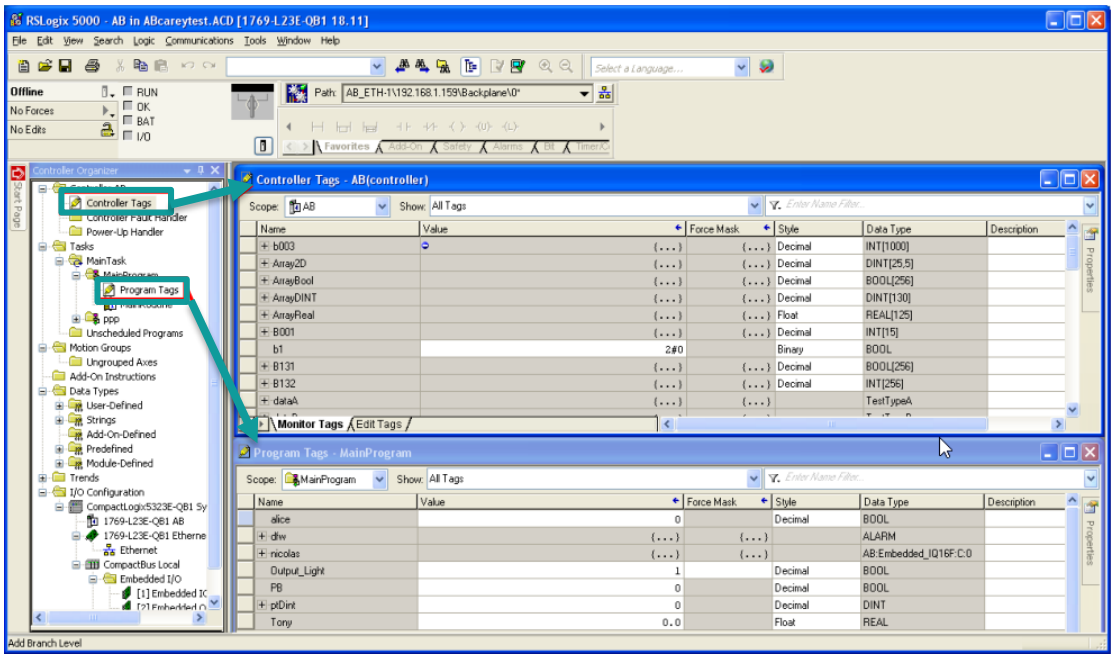
Allen-Brandly CompactLogix

HMI settings

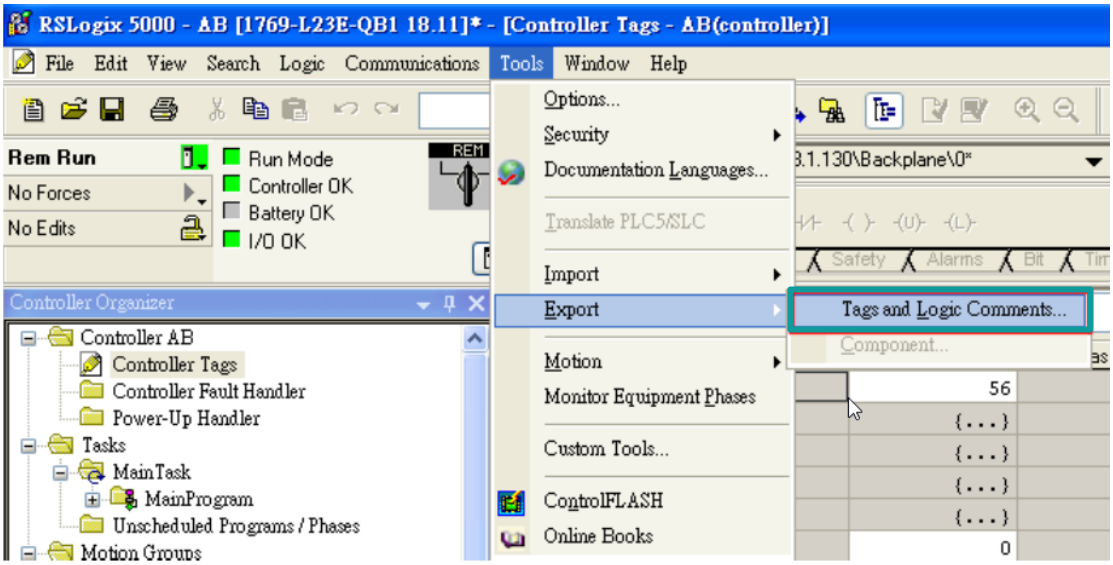
Items	Settings	Note
Protocol	Allen-Brandley FreeTag Ethernet/IP (CompactLogix)	
Connection	Ethernet	
Port No.	44818	

PLC Setting

1) Create new tags

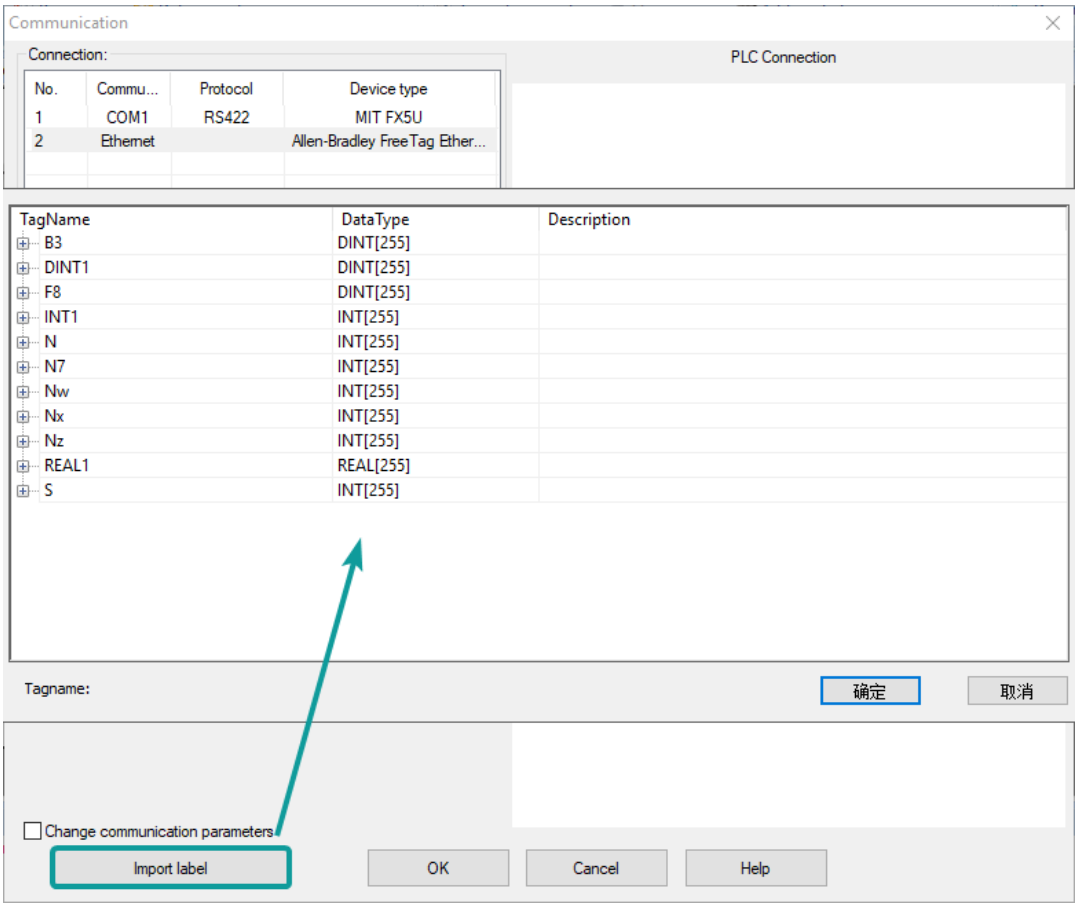


2) Export Tag data to CSV file. ([Tools] » [Export] » [Tags and Logic Comments])



3) Import labels, please open [Communication] window and click [Import label];

4) Select csv file, all tags will be displayed as belows;



Note:

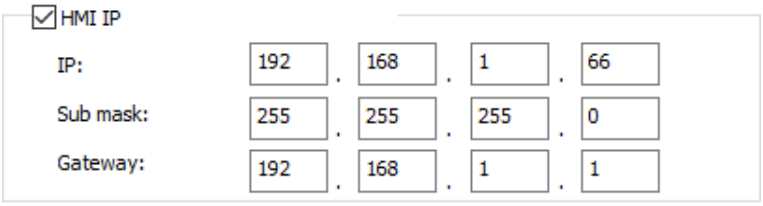
The separator character in CSV file needs to be a comma [,] otherwise the file would be invalid.

A	B	C	D	E	F	G	H	I	J	K	L	M	N
TYPE	SCOPE	NAME	DESCRIPTI	DATATYPE	SPECIFIER	ATTRIBUTES							
TAG		Local:1:C		AB:Embedded_Discre		(ExternalAccess := Read/Write)							
TAG		Local:1:I		AB:Embedded_Discre		(ExternalAccess := Read/Write)							
TAG		Local:1:O		AB:Embedded_Discre		(ExternalAccess := Read/Write)							
TAG		B3		DINT[255]		(RADIX := Decimal, Constant := false, ExternalAccess := Read/Write)							
TAG		DINT1		DINT[255]		(RADIX := Decimal, Constant := false, ExternalAccess := Read/Write)							
TAG		F8		DINT[255]		(RADIX := Decimal, Constant := false, ExternalAccess := Read/Write)							
TAG		INT1		INT[255]		(RADIX := Decimal, Constant := false, ExternalAccess := Read/Write)							
TAG		N		INT[255]		(RADIX := Decimal, Constant := false, ExternalAccess := Read/Write)							
TAG		N7		INT[255]		(RADIX := Decimal, Constant := false, ExternalAccess := Read/Write)							
TAG		Nw		INT[255]		(RADIX := Decimal, Constant := false, ExternalAccess := Read/Write)							
TAG		Nx		INT[255]		(RADIX := Decimal, Constant := false, ExternalAccess := Read/Write)							
TAG		Nz		INT[255]		(RADIX := Decimal, Constant := false, ExternalAccess := Read/Write)							
TAG		REAL1		REAL[255]		(RADIX := Float, Constant := false, ExternalAccess := Read/Write)							
TAG		S		INT[255]		(RADIX := Decimal, Constant := false, ExternalAccess := Read/Write)							

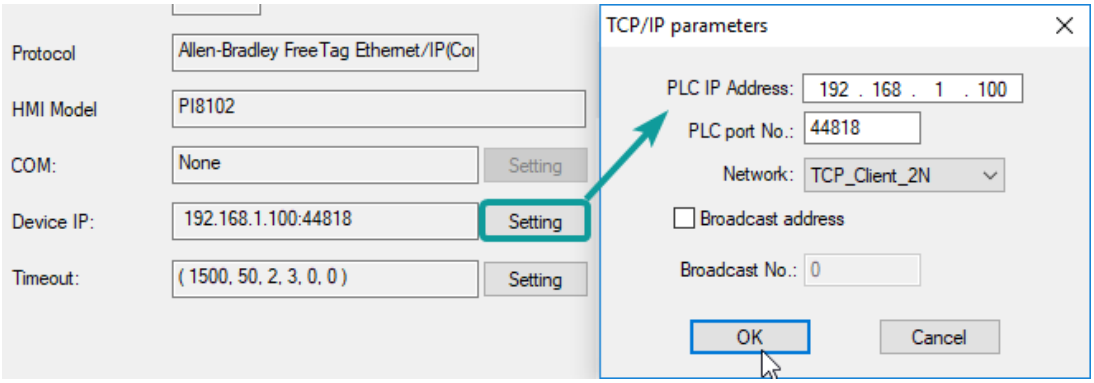
The directory of changing system settings: [Control Panel] -> [Date, Time, Language, and Regional Options] -> [Change the format of numbers, dates, and times]-> [Customize]-> [List separator]. Please select [,] and export CSV file after setting.

Communication settings in HMI

1) Enable HMI Ethernet in [Project Settings];



2) Set PLC IP in [Device IP] settings;



Cable wiring

11.2 Allen-Bradley MicroLogix

MicroLogix 1000/1200/1400/1500; SLC 5/03 5/04 5/05 PLC-5

HMI settings

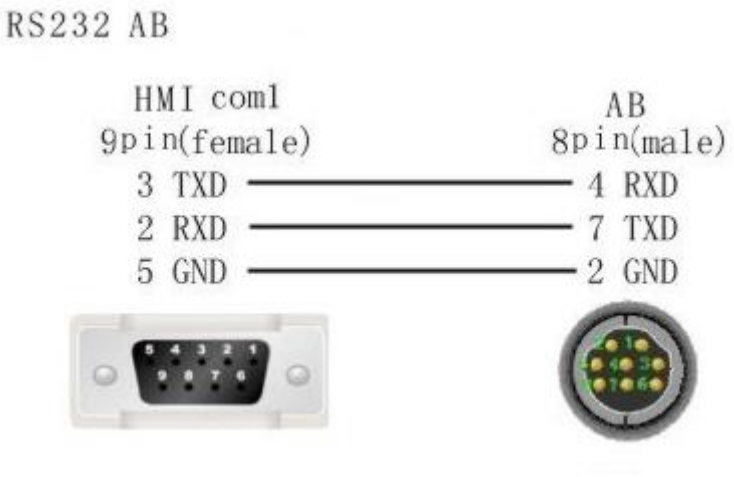
Item	Settings	Note
Protocol	Allen-Bradlley MicroLogix	
Connection	RS232	
Baud rate	19200	
Data bit	8	
Parity	None	
Stop bit	1	
PLC station No.	1	

Address list

Type	Device registers	Format	Range	Note
Bit	I	I d.d	0.0~255.15	
	O	O d.d	0.0~255.15	
	B	B nnhh.dd	0.0~ffff.15	nn: block number (hex)
	S	S d.d	0.0~255.15	
	N	N nnhh.dd	0.0~ffff.15	nn: block number (hex)
Word	S	S d	0~255	
	TS	TS nnhh	0~ffff	nn: block number (hex)
	TP	TP nnhh	0~ffff	
	CS	CS nnhh	0~ffff	
	CP	CP nnhh	0~ffff	
	N	N nnhh	0~ffff	
	C	C nnhh	0~ffff	
	T	T nnhh	0~ffff	

	R	R nnhh	0~ffff	

Cable wiring



11.3 Barcode Scanner

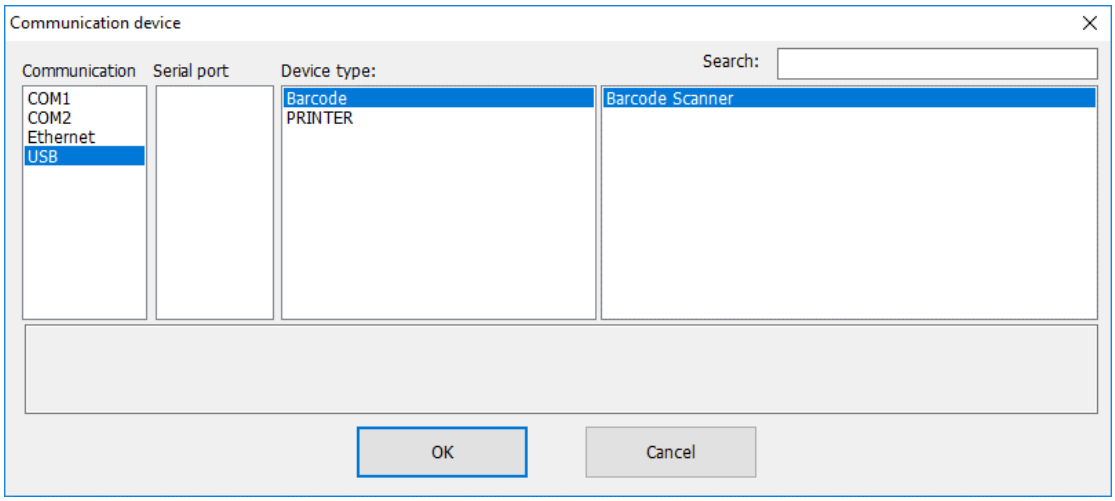
Supported: DELI 14880 barcode scanner

HMI Setting

Items	Settings	Note
Protocol	Barcode Scanner	
Connection	USB	

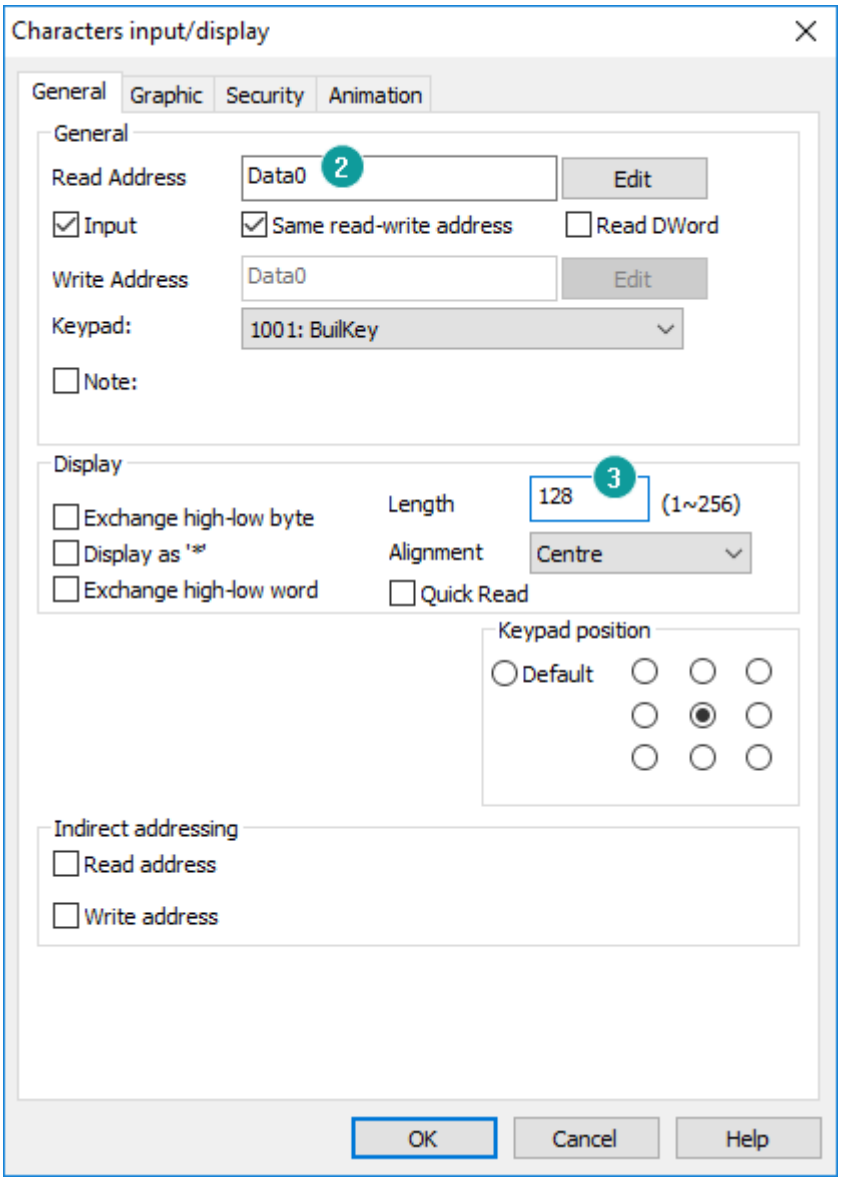
Operating procedures

1) Select [Barcode Scanner];



2) Set address for receiving;

3) Set correct length;



✎Note:

1) The protocol uploads the information acquired by the USB scanner to the HMI;
2) The acquired information is displayed in string mode, so it is necessary to use [characters input/display] object;
3) Recommended model: DELI 14880 barcode scanner;

11.4 EPSON-TM-T82II/TM-XXX

EpsonTM series printer

HMI settings

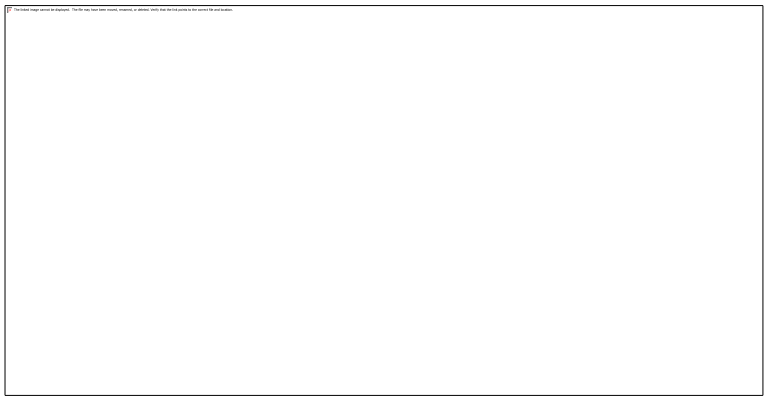
Item	Settings	Note
Protocol	EPSON-TM-T82II/TM-XXX	
Connection	RS232	
Baud rate	9600~115200	
Data bit	8	
Parity	None	
Stop bit	1	
PLC station No.	1	

Each printer protocol has default parameter. These parameters could be configured by addresses. Error parameters may cause print failure.

Printer settings

Address	Description	Value
HSW10603	Print direction (only valid for print function)	1
HSW10604	Dot Matrix Type	1
HSW10605	Print width (depending on printer and paper)	384
HSW10606	Printer instruction type	1
HSW10607	Paper cut	2
HSW10608	Alignment (only valid for print function)	1

Communication cable wiring



✎Note:

COM3 is available in 8000 series and advanced series

11.5 Hitachi EHV Series (Ethernet)

Supported series: Hitachi EHV series

HMI settings

Items	Settings	Note
Protocol	Hitachi EHV series	
Connection	Ethernet	
Port No.	3004~3007	

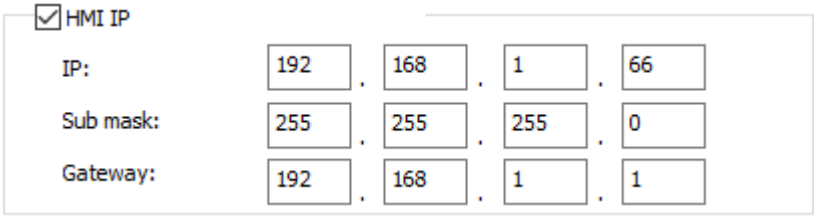
Address list

Type	Register	Range	Format	Note
Bit	T	0 - 2545	T DDDD	
	M	0 - 7FFF.f (Hex)	M HHHH.h	
	X	0 – FFFF.f (Hex)	X H1H2H3 H4.h	H1H2H3H4 Module main number H1: Remote number H2: Unit number H3: Slot number H4: Word number of Module H Sub number of Module For example: X21.3 Slot number 2 Word number of module is 1 Bit number of module is 3 Remote number and unit number are 0
	Y	0 – FFFF.f (Hex)	Y H1H2H3 H4.h	
	R	0 – FF.f (Hex)	R HH.h	
	L	0 - 73FF.f (Hex)	L HHHH.h	

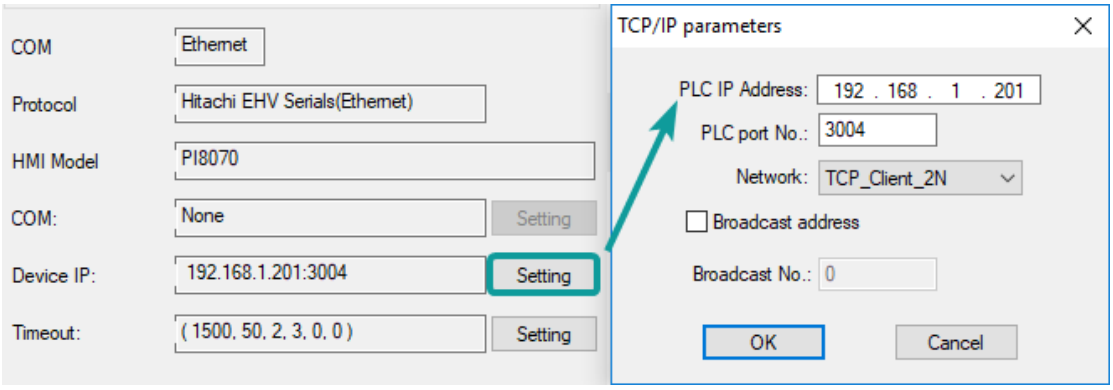
Word	WM	0 - 7FFF (Hex)	WM HHHH	
	WX	0 – FFFF (Hex)	WX H1H2H3 H4	H1H2H3H4 Module main number H1: Remote number H2: Unit number H3: Slot number H4: Word number of module For example: WX21 Word number of module is 1 Slot number is 2 Remote number and unit number are 0
	WY	0 – FFFF (Hex)	WY H1H2H3 H4	
	WR	0 – FFFF (Hex)	WR HHHH	
	WL	0 - 73FF (Hex)	WL HHHH	
	TC	0 - 2559	TC DDDD	

Communication settings in HMI

3) Enable HMI Ethernet in [Project Settings];

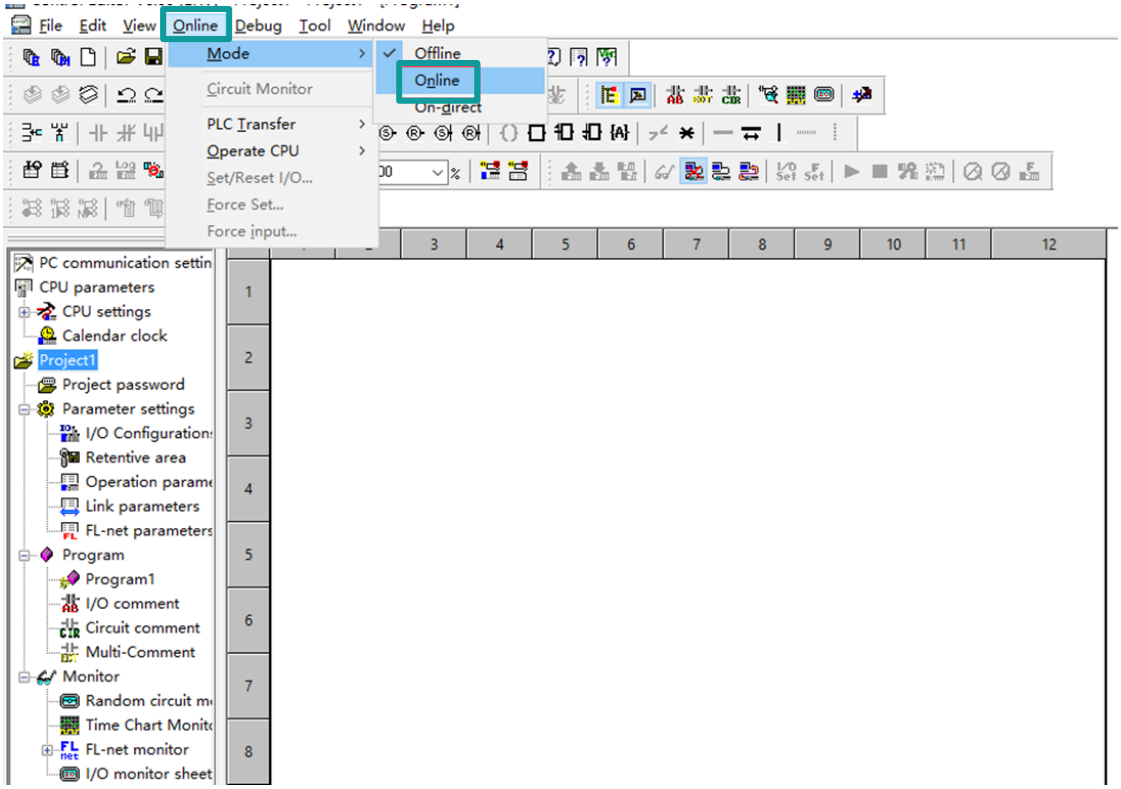


4) Set PLC IP in [Device IP] settings;

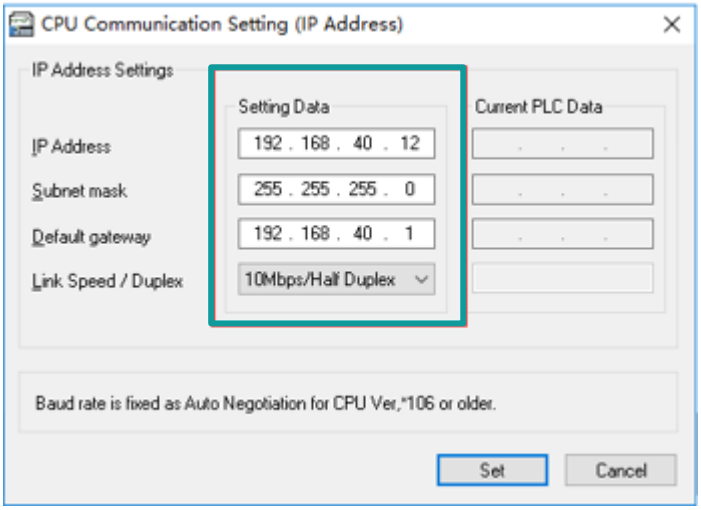


PLC configuration

1) Connect with PLC, select [Online mode];



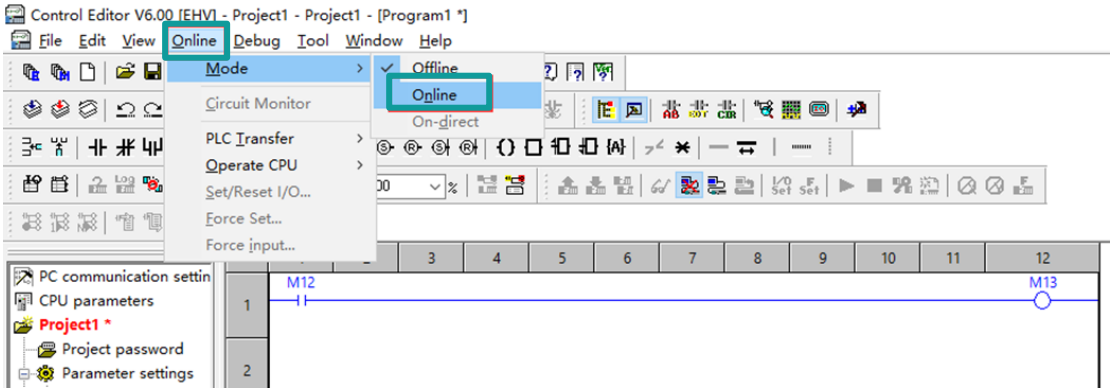
2) Set IP address, it is the same LAN parameters with HMI;



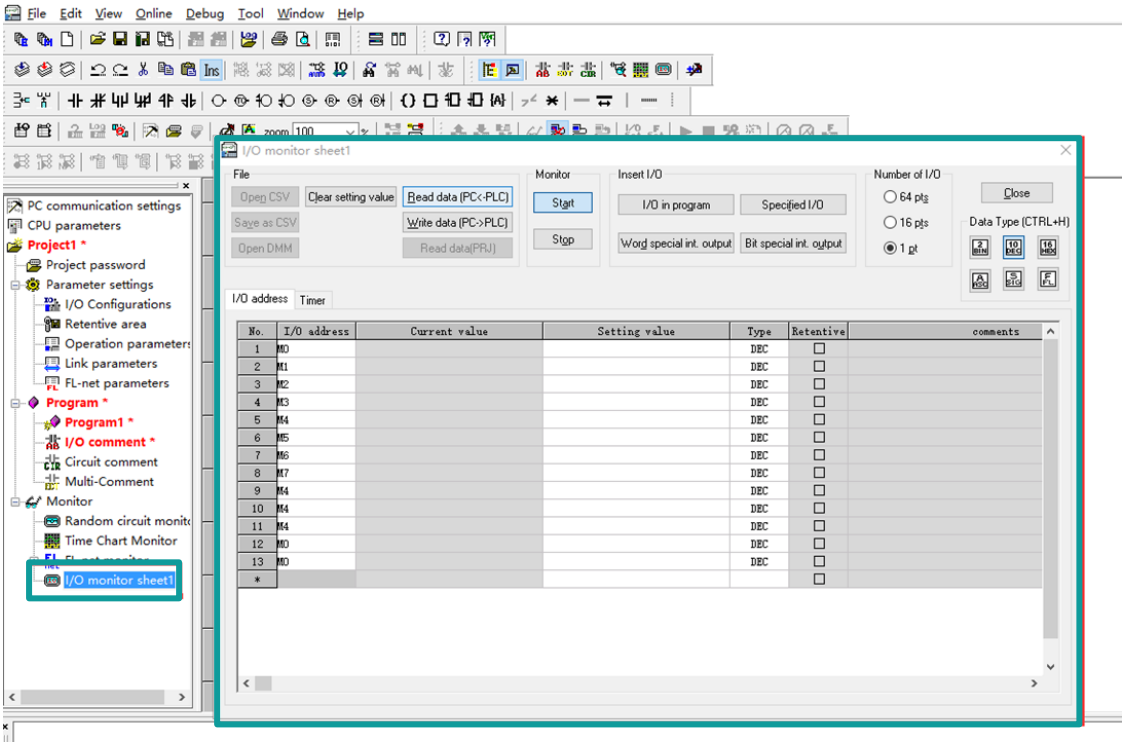
3) Save PLC communication parameter, and restart PLC

PLC monitor mode

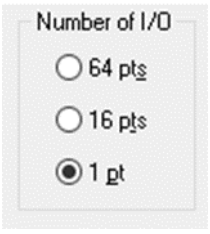
1) Connect with PLC and choose to “online” mode



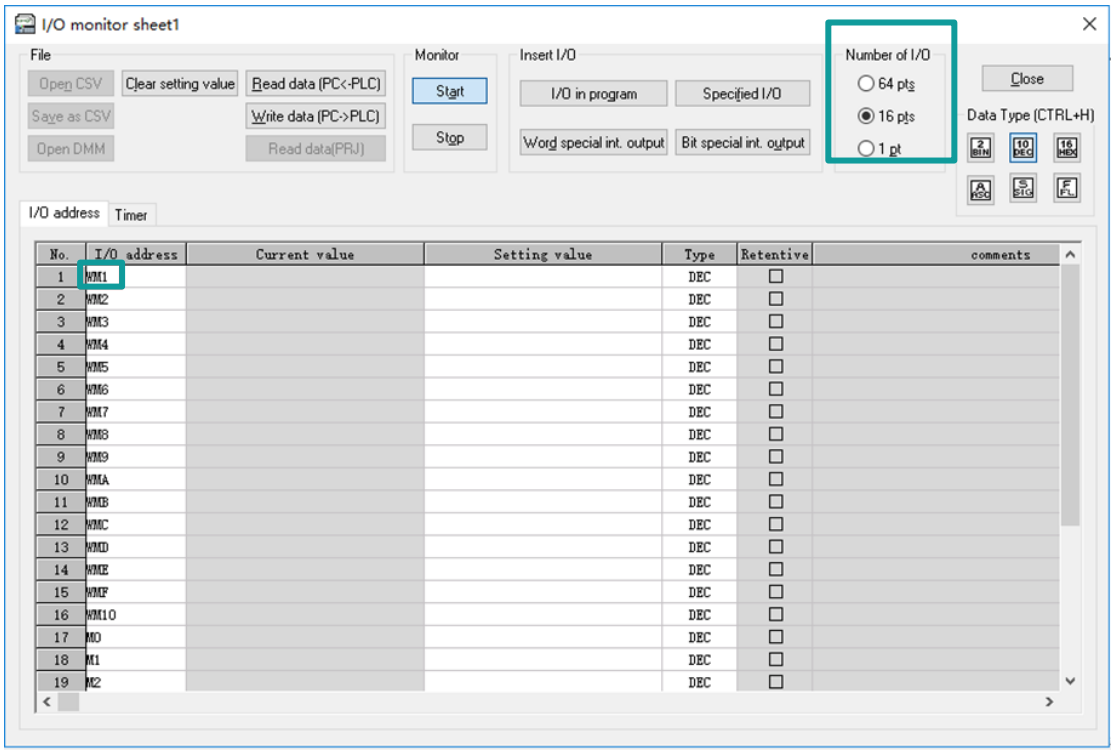
2) Open I/O monitor sheet 1

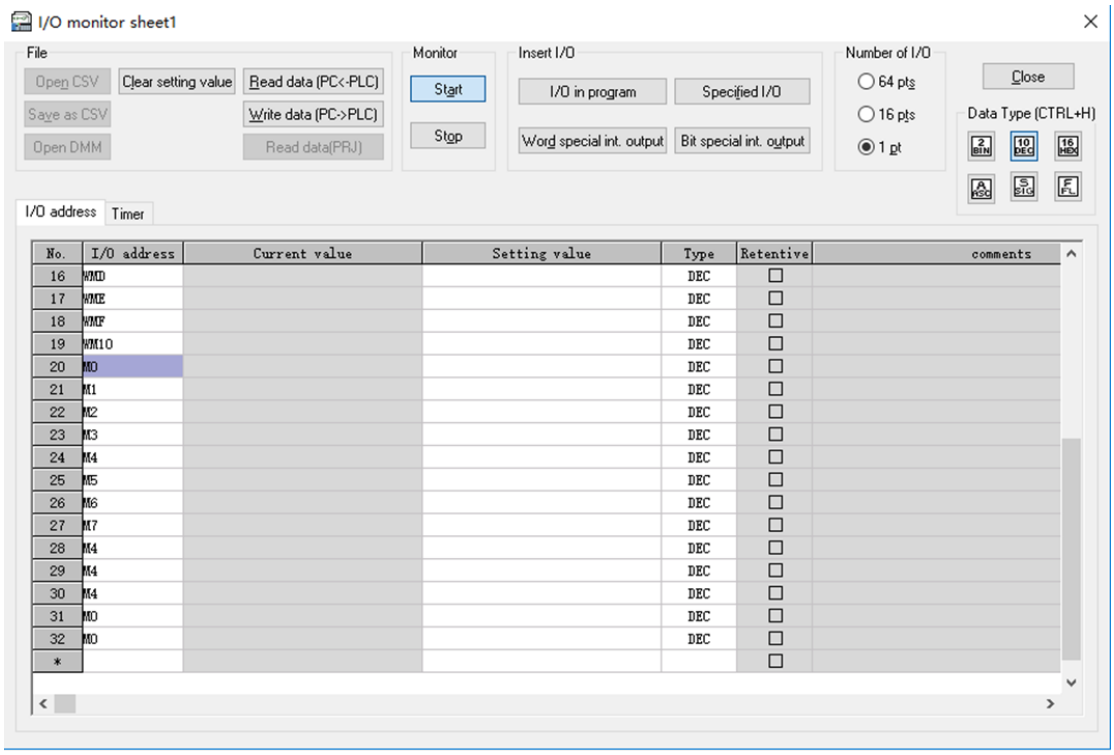


3) During monitoring bit address, 1 pts should be selected; during monitoring word address, 16 pts should be selected



4) Enter the register address, click OK to view the value of the register.





✎Note:

1) Both word registers and bit registers support even continuous read/write functions;
2) The range of registers is based on the specific PLC type;

Communication cable

11.6 IEC60870-5 104 Client

HMI Setting

Items	Settings	Note
Protocol	IEC60870-5 104 Client	
Connection	Ethernet	
Port No.	2404	

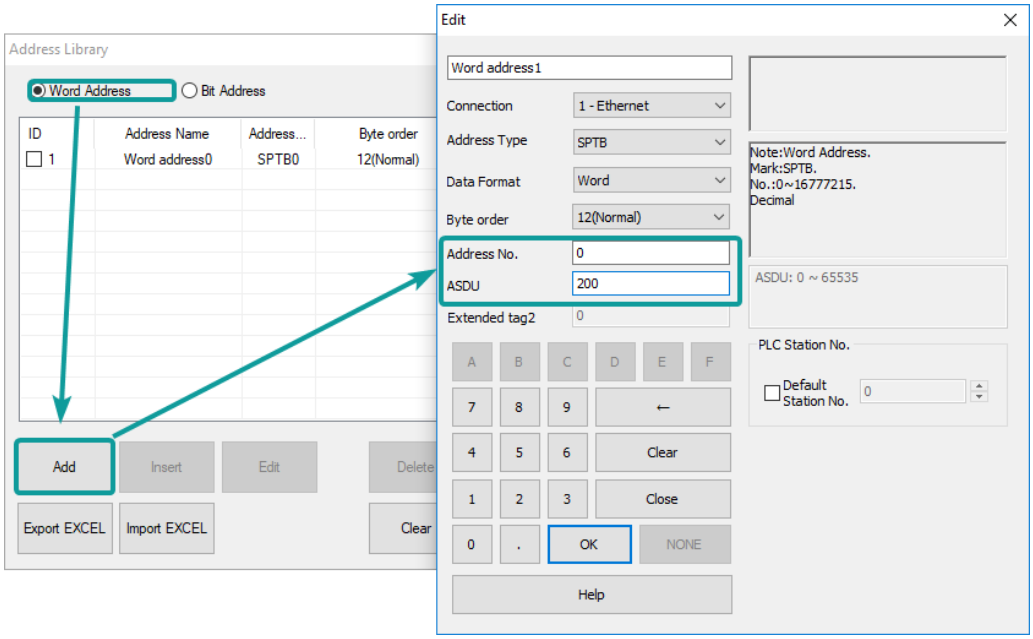
Address list

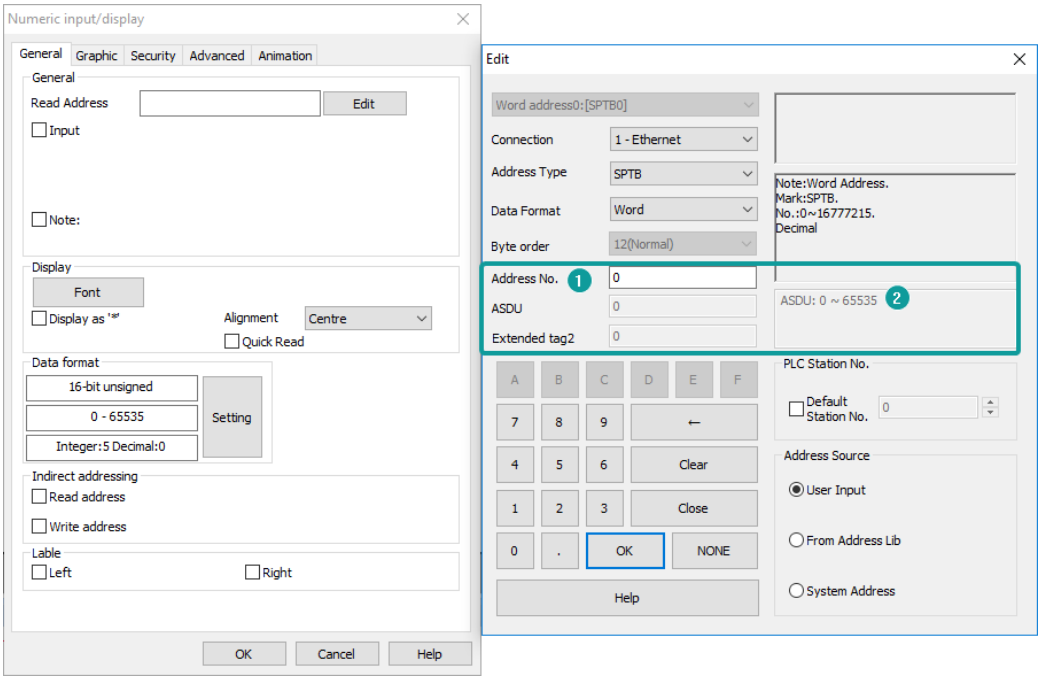
Type	Register	Range
Bit	SPTB	0~16777215.7
	SCNA	0~16777215.7
	DPTB	0~16777215.7
	DCNA	0~16777215.7
	METF	0~16777215.7
	SENC	0~16777215.7
	SENA	0~16777215.7
	MENA	0~16777215.7
	METD	0~16777215.7
Word	SPTB	0~16777215
	SCNA	0~16777215
	DPTB	0~16777215
	DCNA	0~16777215
	SENA	0~16777215
	MENA	0~16777215
	METD	0~16777215
	INRO	0~16777215
	TIMESYN	0~16777215
	TIMEZ	0~16777215
	NTP	0~16777215
Double word	METF	0~16777215

	SENC	0~16777215

Address configuration

The address registers of the IEC60870-5-104 protocol are SPTB, SCNA, DPTB, DCNA, METF, and SENC. The protocol needs to be added with an extension tag "ASDU", which could only be added in the [Address Identification Library], other places are not editable, that is, the read address in the object or script is not editable.



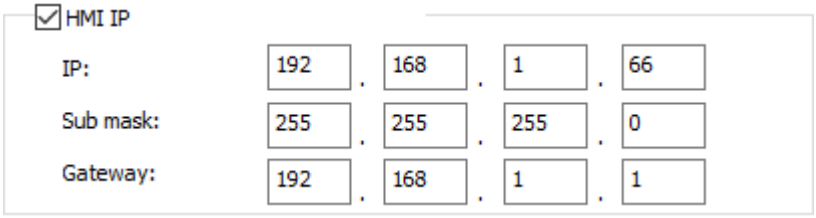


1) Extended tag name

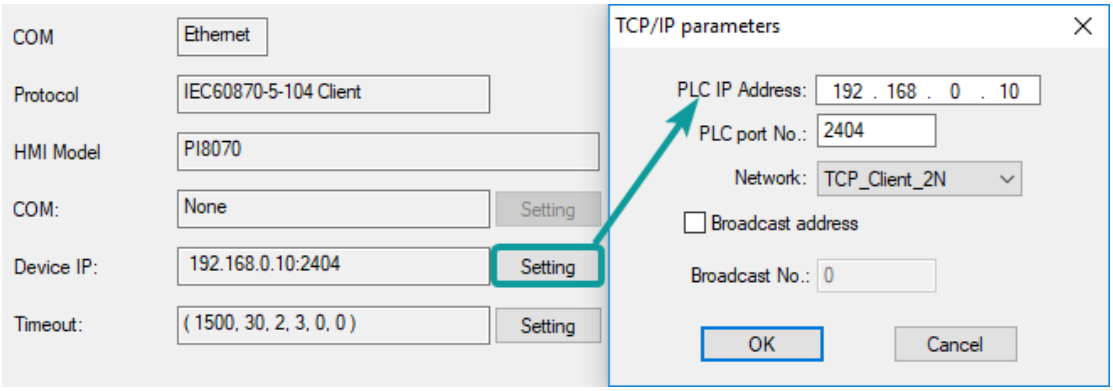
2) Address range for the extended tag.

Communication settings

5) Enable HMI Ethernet in [Project Settings];



6) Set PLC IP in [Device IP] settings;



Communication cable

11.7 LG XGK FEnet Ethernet

Supported Series: LS XGT series XGK CPU with XGL-EFMT Ethernet module

HMI settings

Items	Settings	Note
Protocol	LG XGK FEnet(Ethernet)	
Connection	Ethernet	
Port No.	2004	

Address list

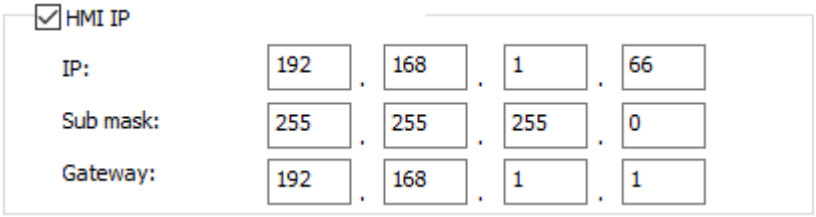
Type	Register	Range	Format	Note
Word	P	0~2047	P d	
	M	0~2047	M d	
	K	0~2047	K d	
	F	0~2047	F d	
	T	0~2047	T d	
	C	0~2047	C d	
	Z	0~127	Z d	
	S	0~127	S d	
	L	0~11263	L d	
	N	0~21503	N d	
	D	0~32767	D d	
	R	0~32767	R d	
	ZR	0~65535	ZR d	
	UxDD	0~6331	UxDD nndd	nn: 0~63, dd: 0~31

✎ **Note:**

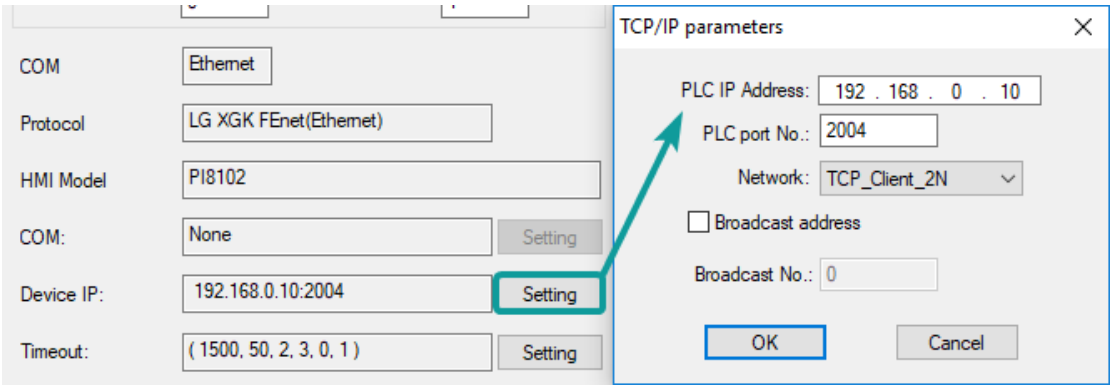
1) In addition to the "UxDD" register, the others correspond to the PLC register one by one. UxDD corresponds to U in the PLC;
2) The [UxDD] register, defined in the PLC is Ux.dd, x represents the block, and dd represents 0-31 of each block. There are 64 blocks in the PLC;
3) All bit registers are in the form of bits in word, and the range is the same as the word register;

Communication settings in HMI

1) Enable HMI Ethernet in [Project Settings];



2) Set PLC IP in [Device IP] settings;



Communication cable

11.8 Mitsubishi FX1S, 1N, 2N series

Supported series: Mitsubishi FX1S, FX1N, FX2N series

HMI settings

Item	Settings	Note
Protocol	Mitsubishi FX1S/FX1N/FX2N	
Connection	RS422/RS485/RS232	
Baud rate	9600~115200	
Data bit	7/8	
Parity	EVEN/Odd/None	
Stop bit	1/2	
PLC station No.	1~255	

Address list

Type	Device registers	HMI registers	Format	Range	Note
Bit	X	X	X o	0~303237	
	Y	Y	Y o	0~303237	
	M	M	M d	0~99999	
	T	T	T d	0~99999	
	C	C	C d	0~99999	
	S	S	S d	0~99999	
	SM	SM	SM d	8000~9999	
Word	X	X	X o	0~303237	
	Y	Y	Y o	0~303237	
	M	M	M d	0~99999	
	T	T	T d	0~99999	
	C	C	C d	0~199	

	D	D	D d	0~7999	
	S	S	S d	0~99999	
	SD	SD	SD d	8000~9999	

Cable wiring

1) RS485

HMI serial port				Device port
COM1	COM2	COM3		RS485
1 RX+	1 RX+	7 RX+	→	A+
6 RX-	6 RX-	8 RX-	→	B-
5 GND	5 GND	5 GND	→	GND

2) RS422

HMI serial port		Device port
COM1		RS485
1 TX+	→	2 RX+
6 TX-	→	1RX-
9 RX+	→	7 TX+
8 RX-	→	4 TX-
5 GND	→	3 SG

✎Note:

COM3 is available in 8000 series and advanced series

11.9 Mitsubishi FX5U Ethernet

Mitsubishi FX5U series PLC

HMI settings

Items	Settings	Note
Protocol	Mitsubishi FX5U	
Connection	Ethernet	Necssary
Port No.	5002	
PLC station No.	0	

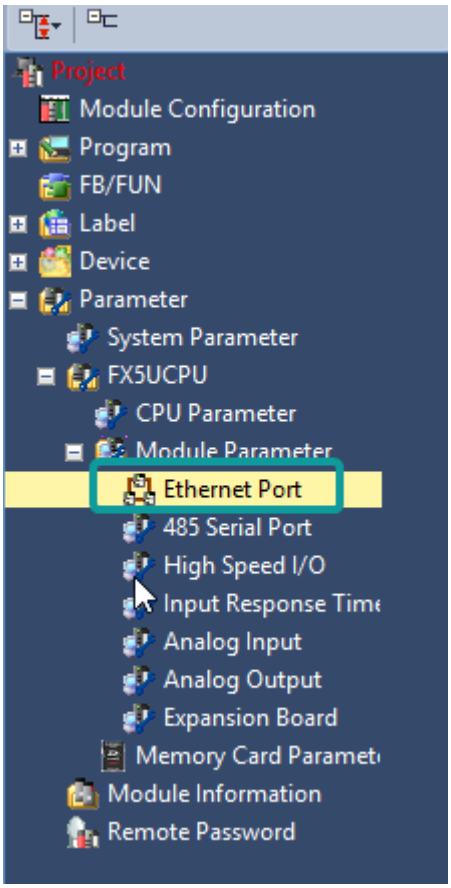
Address list

Type	Device registers	HMI registers	Format	Range	Note
Bit	X	X	X o	0~303237	
	Y	Y	Y o	0~303237	
	M	M	M d	0~99999	
	B	B	B h	0~7FFF	
	F	F	F d	0~32767	
	SB	SB	SB h	0~7FFF	
	TS	TS	TS d	0~1023	
	TC	TC	TC d	0~1023	
	STS	STS	STS d	0~1023	
	STC	STC	STS d	0~1023	
	CS	CS	CS d	0~1023	
	CC	CC	CC d	0~1023	
	SM	SM	SM d	0~9999	
	L	L	L d	0~32767	
	S	S	S d	0~4095	

Word	W	W	W h	0~3FF	
	TN	TN	TN d	0~1023	
	STN	STN	STN d	0~1023	
	CN	CN	CN d	0~1023	
	R	R	R d	0~32767	
	SW	SW	SW h	0~7FFF	
	Z	Z	Z d	0~23	
	D	D	D d	0~7999	
	SD	SD	SD d	0~11999	

PLC settings (GX Works 3)

1) Find the [Ethernet port] in the navigation area.

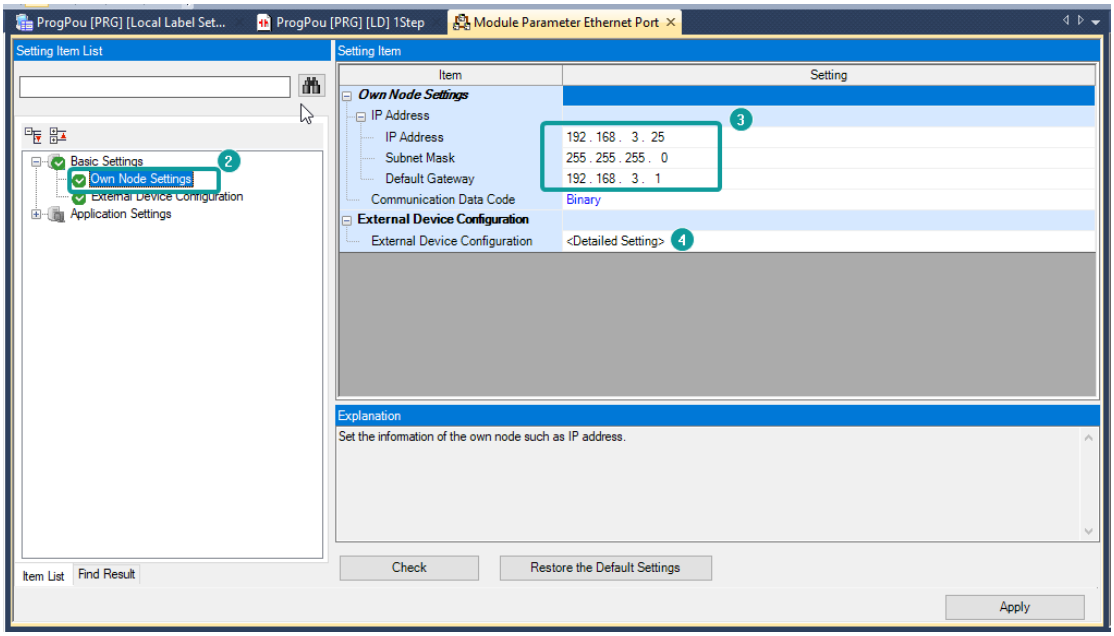


2) Select [Own Node Settings] in the [Setting Item List];

3) Set [IP Address], [Subnet Mask], [Default Gateway];

4) Click [Detailed Settings] into [Ethernet Configuration (Built-in Ethernet Port)]

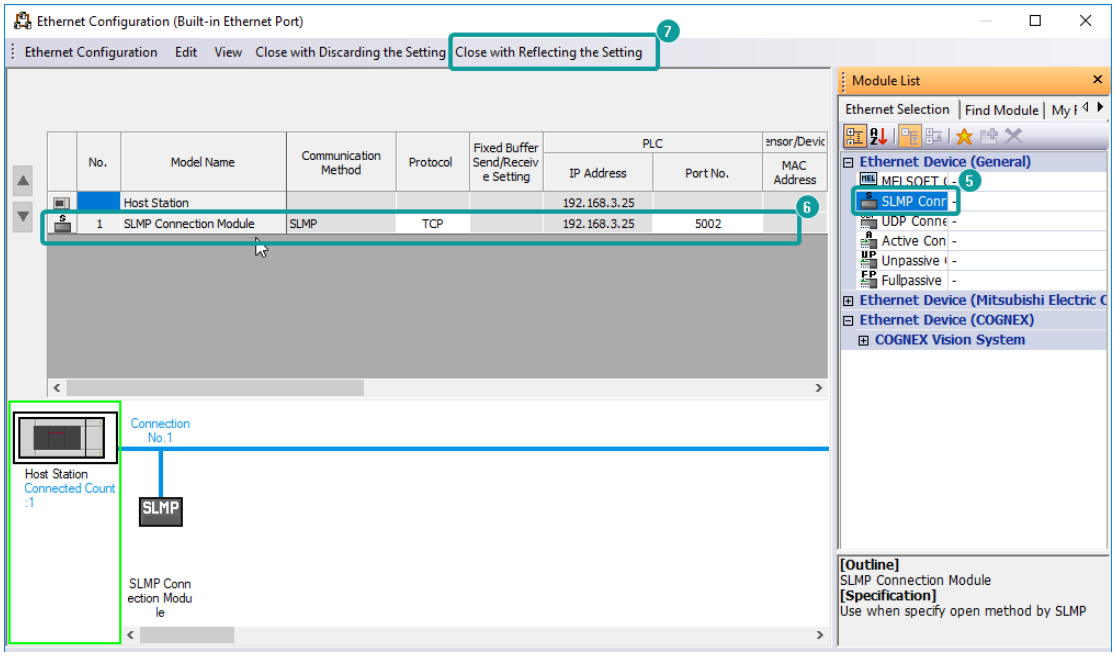
windows;



5) Select [SLMP Connection Module] and add into host station as below picture shows;

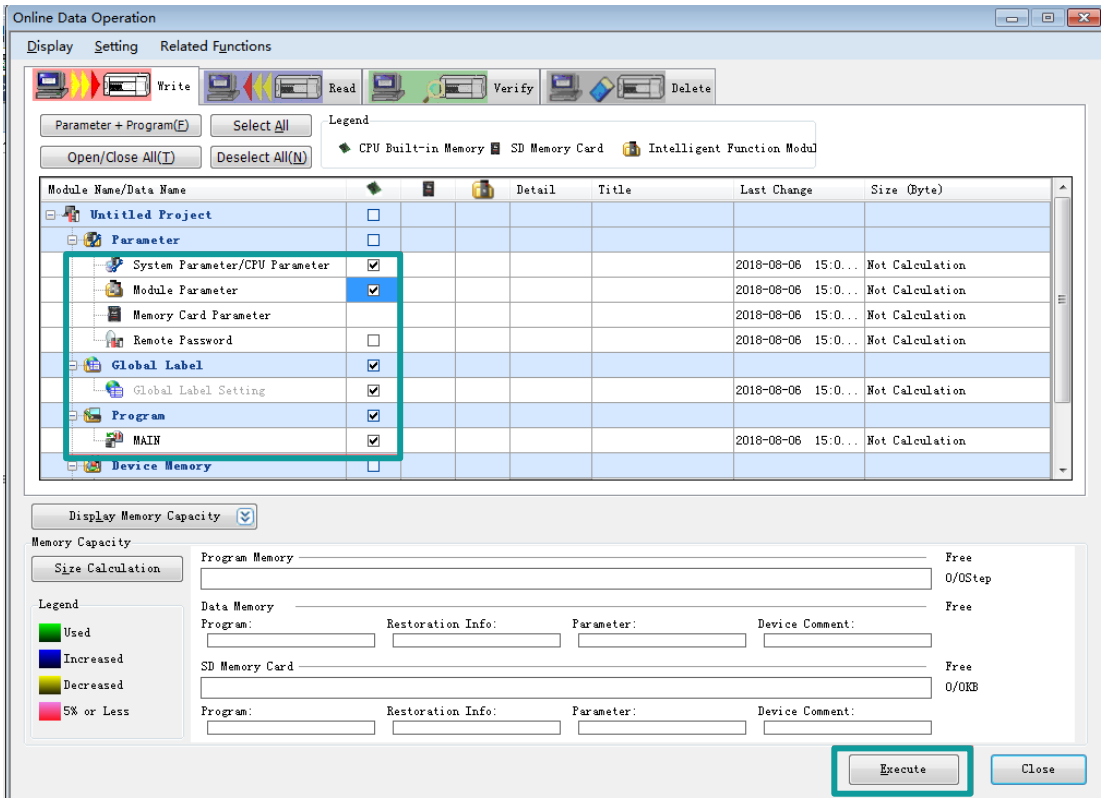
6) Set Port number as 5002 (this is necessary settings);

7) Click [Close with Reflecting the Setting] to save and close window;



8) Click [Apply] to completed Etherenet settings;

9) Switch to the [On line data operation] interface as below, check the item and click [Execute] to download.



Communication cable

11.10 Mitsubishi FX5U serial port

Mitsubishi FX5U series PLC

HMI settings

Item	Settings	Note
Protocol	Mitsubishi FX5U	
Connection	RS422/RS485	
Baud rate	9600	
Data bit	7	
Parity	Odd	
Stop bit	1	
PLC station No.	1~255	Need to be the same as PLC settings

Address list

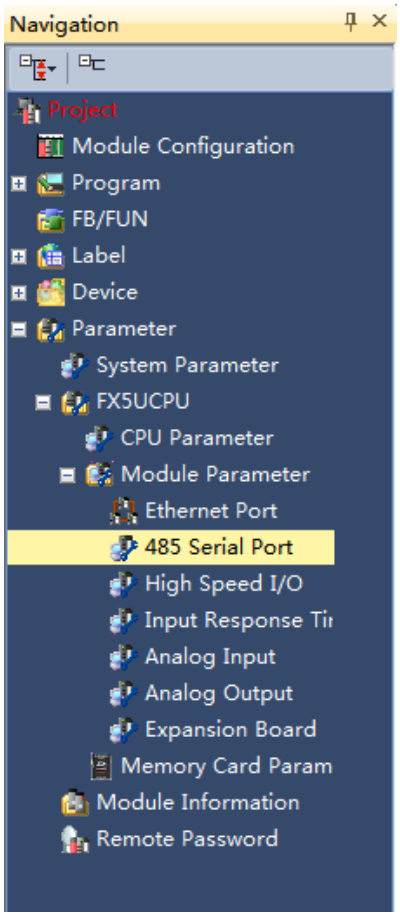
Type	Device registers	HMI registers	Format	Range	Note
Bit	X	X	X o	0~303237	
	Y	Y	Y o	0~303237	
	M	M	M d	0~99999	
	B	B	B h	0~7FFF	
	F	F	F d	0~32767	
	SB	SB	SB h	0~7FFF	
	TS	TS	TS d	0~1023	
	TC	TC	TC d	0~1023	
	STS	STS	STS d	0~1023	
	STC	STC	STS d	0~1023	
	CS	CS	CS d	0~1023	
	CC	CC	CC d	0~1023	
	SM	SM	SM d	0~9999	

	L	L	L d	0~32767	
	S	S	S d	0~4095	
Word	W	W	W h	0~3FF	
	TN	TN	TN d	0~1023	
	STN	STN	STN d	0~1023	
	CN	CN	CN d	0~1023	
	R	R	R d	0~32767	
	SW	SW	SW h	0~7FFF	
	Z	Z	Z d	0~23	
	D	D	D d	0~7999	
	SD	SD	SD d	0~11999	

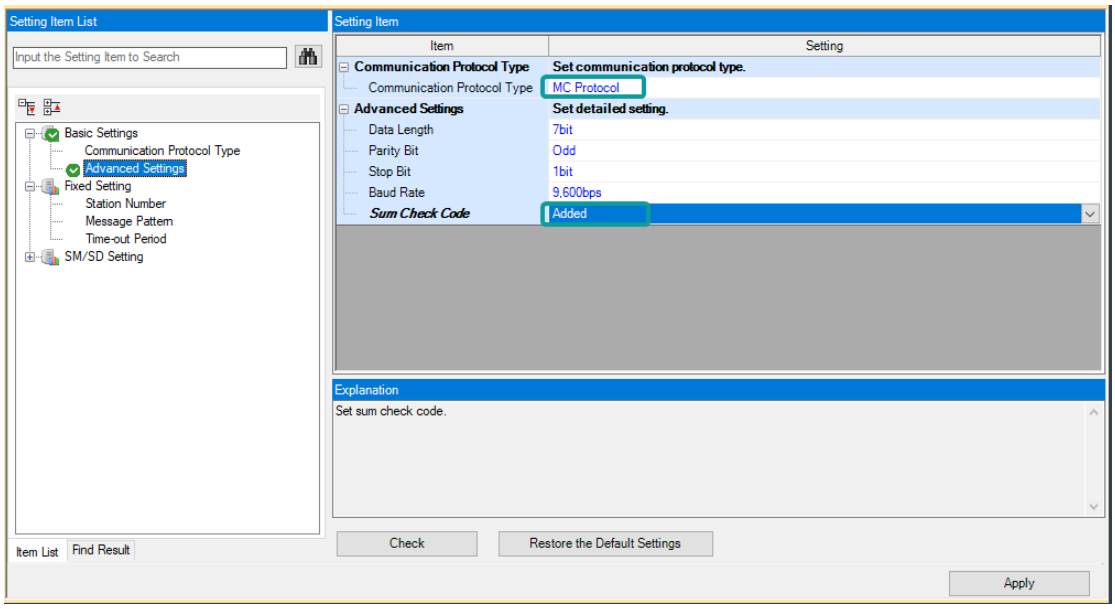
PLC settings (GX Works 3)

1) Create a blank FX5U project

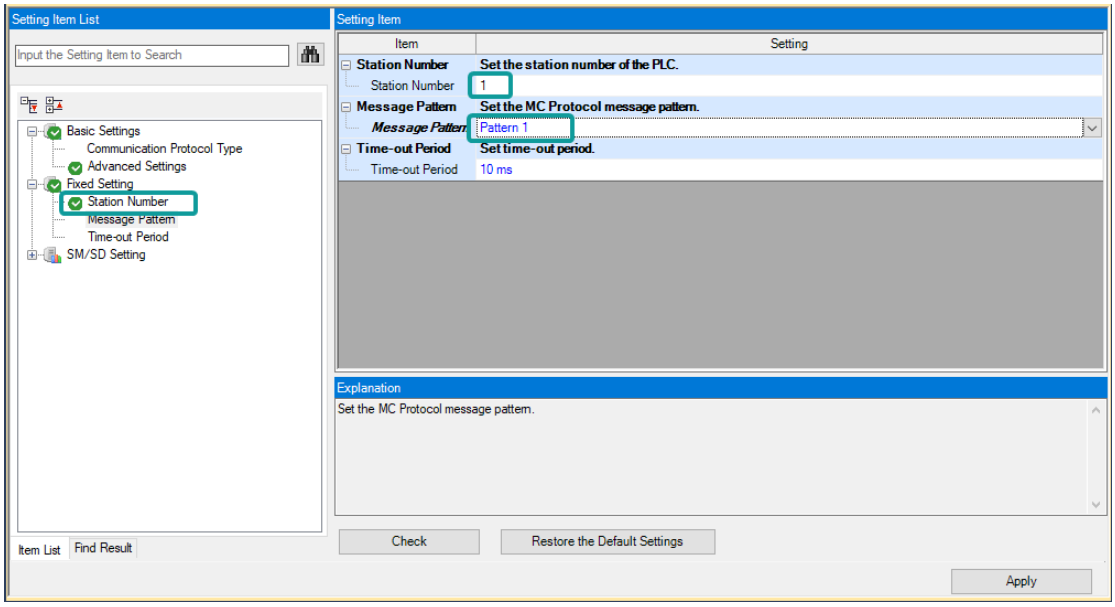
2) Find the 485 serial port module in the system navigation bar and double click to enter the settings.



3) Select protocol in the setting item, and set parameters.

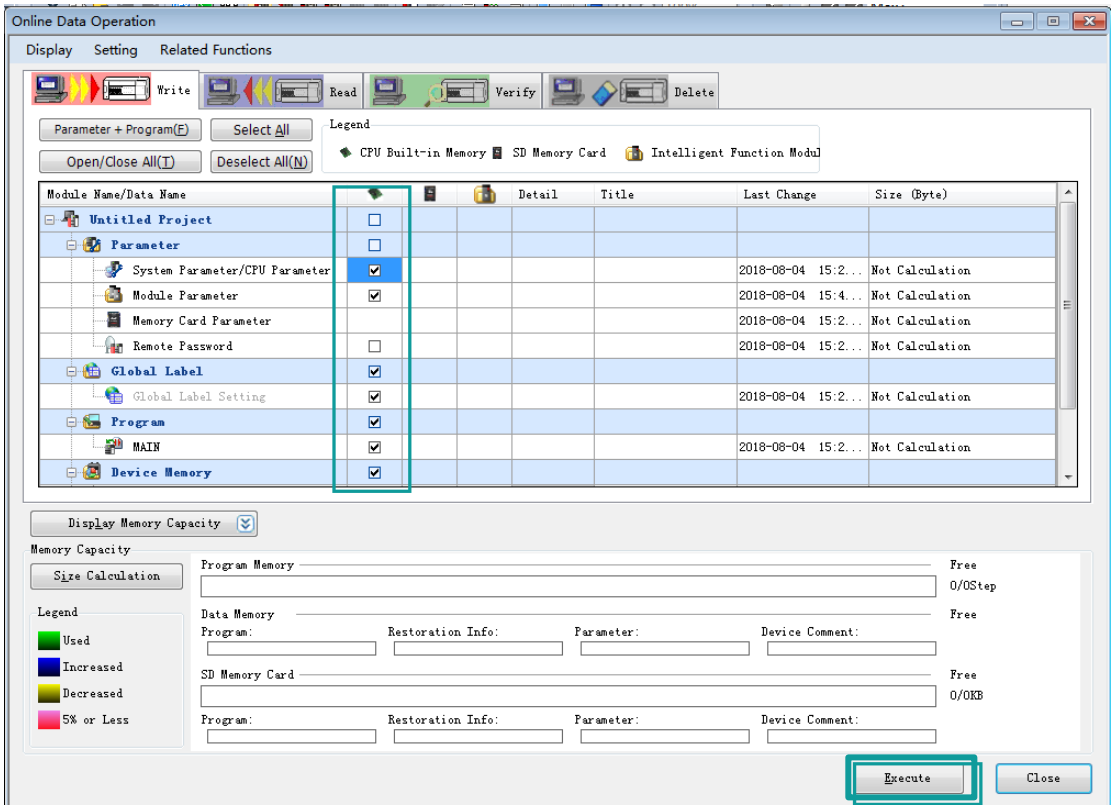


4) Set station number, and [Message Pattern] (Pattern 1 or Pattern 4)



5) Click the [Apply] button to finish the setting;

6) Click download and select the items as below, then click [execute] to download the configuration to PLC;



7) As soon as download is completed, connect PLC with serial port, then configure it in the [Specify Connection Destination Connection].

8) Done.

Cable wiring

3) RS485

HMI serial port			Device port
COM1	COM2	COM3	RS485
1 RX+	1 RX+	7 RX+	A+
6 RX-	6 RX-	8 RX-	B-
5 GND	5 GND	5 GND	GND

4) RS422

HMI serial port	Device port
COM1	RS485
1 TX+	2 RX+
6 TX-	1RX-
9 RX+	7 TX+

✎Note:

COM3 is available in 8000 series and advanced series

11.11 MODBUS RTU Master

Supported Series: MODBUS RTU CONTROLLER

HMI works as MODBUS SLAVE connecting with MASTER

HMI settings

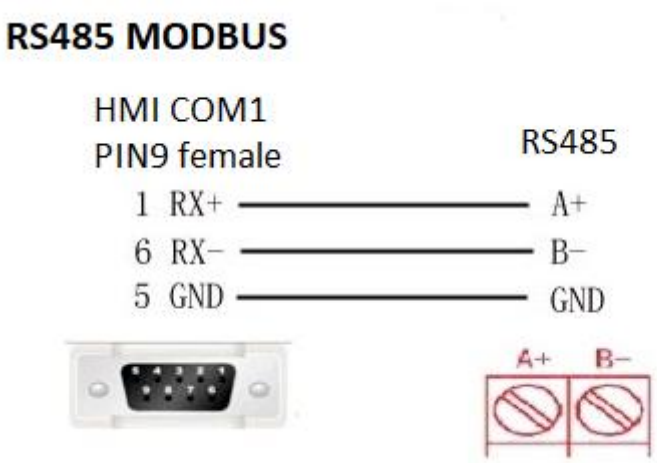
Items	Settings	Note
Protocol	MODBUS RTU Master	
Connection	RS485/RS232	
Baud rate	2400~187500	
Data bit	8	
Parity	Even/ Odd/ None	
Stop bit	1/2	
Station No.	0~255	

Address list

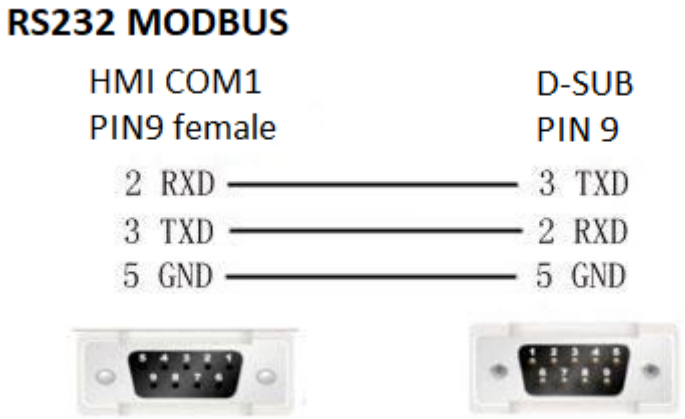
Type	HMI address	MODBUS code	Range
Bit	HDX3000.0~HDX3499.15	0	0~7999
Word	HDW3500~HDW7999	4	0~4499

Cable wiring

1) RS485



2) **RS232**



✎Note:

COM3 is available in 8000 series and advanced series.

11.12 MODBUS RTU Slave (All function)/(All function OneBaseAddress)

Supported Series: MODBUS RTU CONTROLLER

HMI works as MODBUS MASTER coontecting with SLAVE.

The address in [All function] start from 0, the address in [All function OneBaseAddress] start from 1 (offset 1).

HMI settings

Items	Settings	Note
Protocol	MODBUS RTU Slave (All function)/(All function OneBaseAddress)	
Connection	RS485/RS232	
Baud rate	2400~187500	
Data bit	8	
Parity	Even/ Odd/ None	
Stop bit	1/2	
PLC station No.	0~255	

Address list

Type	Register	Function code & Description
Word	3	04 (read input register: read current binary value in one or more input registers)
		06 (write single register: write a binary value to a holding register)
		10 (write values to multiple addresses)
	4	03 (read holding register: read current binary value in one or more holding registers)
		06 (write single register: write a binary value to a holding register)
		10 (write values to multiple addresses)

	W6	03 (read holding register: read current binary value in one or more holding registers)
		06 (write single register: write a binary value to a holding register)
		10 (write values to multiple addresses)
	W16	03 (read holding register: read current binary value in one or more holding registers)
		10 (write values to multiple addresses)
Bit	0	01 (Read coil state)
		05 (Force a single coil to force the on/off state of a logic coil)
		0F (Write multiple bits, ie write continuously)
	1	02 (Read the input state)
		05 (Force a single coil to force the on/off state of a logic coil)
		0F (Write multiple bits)
	W5	01 (Read coil state to obtain the current state of a set of logic coils)
		05 (Force a single coil to force the on/off state of a logic coil)
		0F (Write multiple bits)
	W15	01 (Read coil state to obtain the current state of a set of logic coils)
		0F (Write multiple bits)

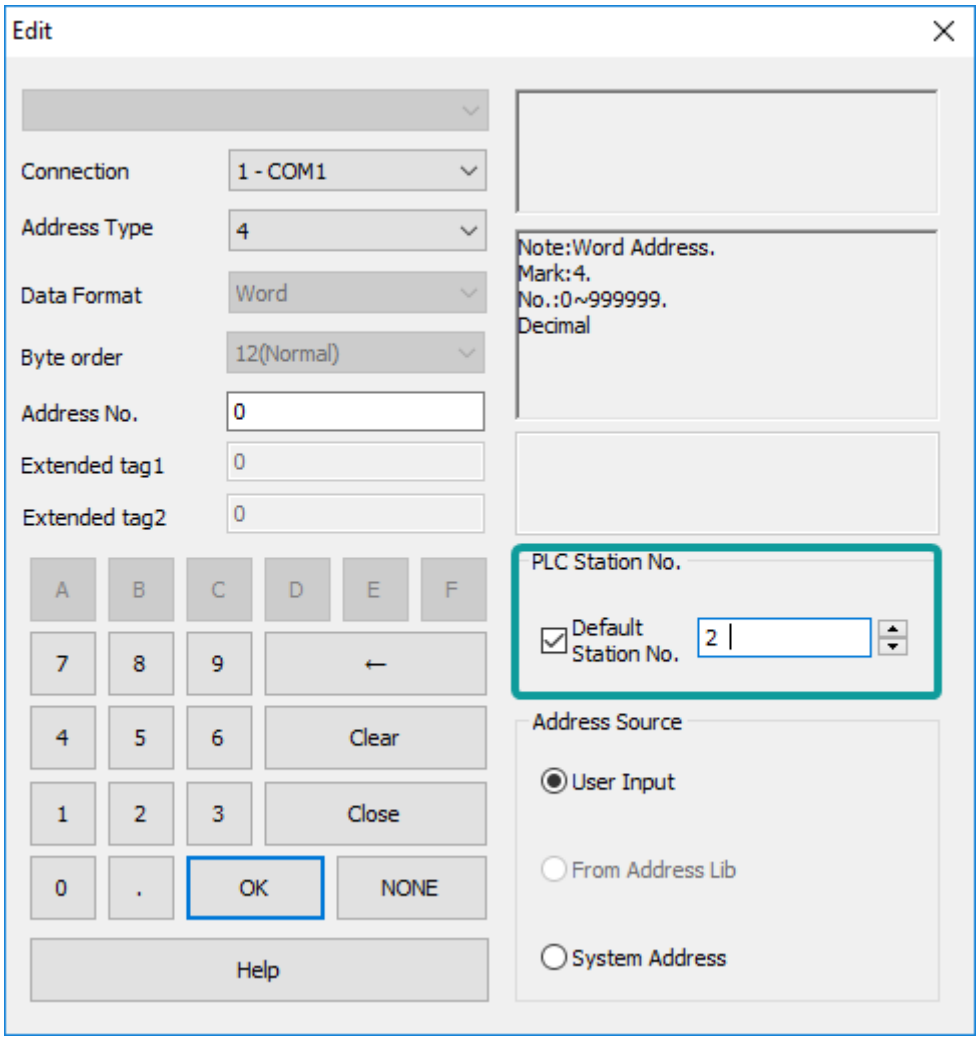
✎Note:

Modbus can also support getting bit from the word, which could access the address such as 100.1 and other formats.

The function codes sent out are the same as those that read and write words.

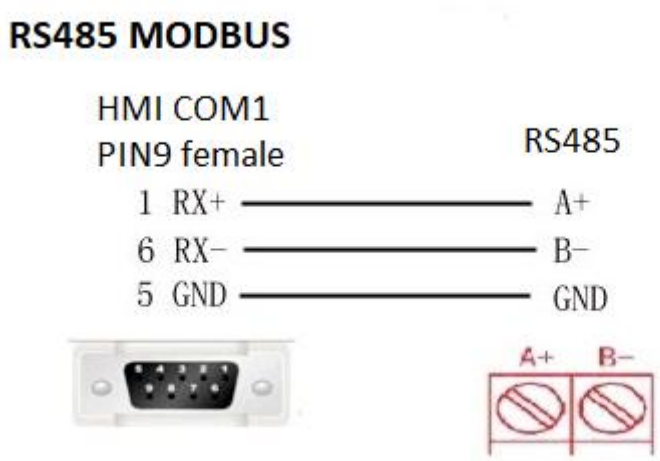
Station number for more than one slaves

If there are more than one slaves connected to HMI, please set slave station number during editing address, as below shows.

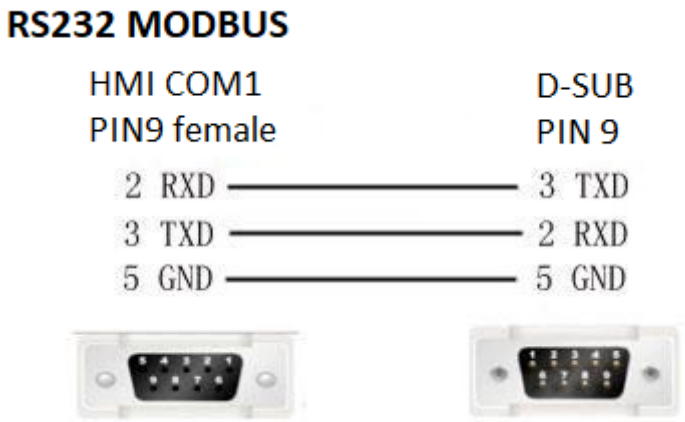


Cable wiring

1) RS485



2) RS232



✎Note:

COM3 is available in 8000 series and advanced series;

11.13 MODBUS TCP Slave (All function)

Supported series: MODBUS TCP controller

HMI works as MODBUS TCP MASTER coonecting with TCP SLAVE

HMI Setting

Items	Settings	Note
Protocol	MODBUS TCP Slave (All function)	
Connection	Ethernet	
Port No.	502	
PLC station No.	1	

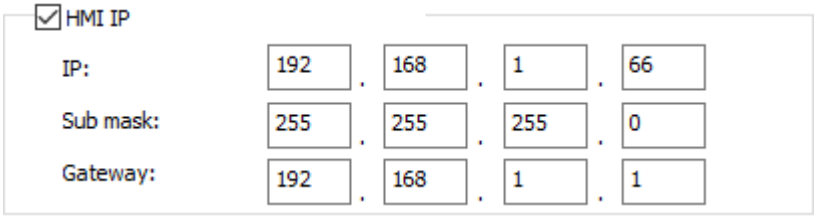
Address list

Type	Register	Function code & Description
Word	3	04 (read input register: read current binary value in one or more input registers)
		06 (write single register: write a binary value to a holding register)
		10 (write values to multiple addresses)
	4	03 (read holding register: read current binary value in one or more holding registers)
		06 (write single register: write a binary value to a holding register)
		10 (write values to multiple addresses)
	W6	03 (read holding register: read current binary value in one or more holding registers)
		06 (write single register: write a binary value to a holding register)
		10 (write values to multiple addresses)
	W16	03 (read holding register: read current binary value in one or more holding registers)
		10 (write values to multiple addresses)
Bit	0	01 (Read coil state)

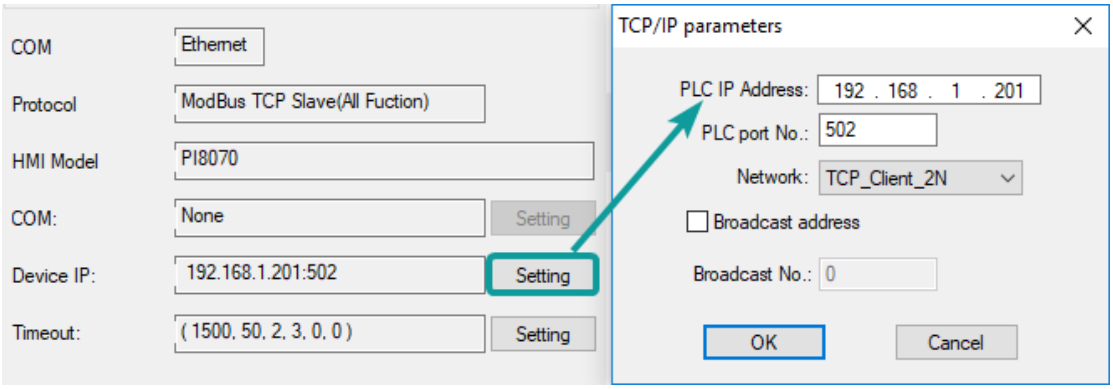
		05 (Force a single coil to force the on/off state of a logic coil)
		0F (Write multiple bits, ie write continuously)
	1	02 (Read the input state)
		05 (Force a single coil to force the on/off state of a logic coil)
		0F (Write multiple bits)
	W5	01 (Read coil state to obtain the current state of a set of logic coils)
		05 (Force a single coil to force the on/off state of a logic coil)
		0F (Write multiple bits)
	W15	01 (Read coil state to obtain the current state of a set of logic coils)
		0F (Write multiple bits)

Communication settings

3) Enable HMI Ethernet in [Project Settings];



4) Set PLC IP in [Device IP] settings;



Communication cable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11.14 Omron EC55

Supported device: E5CC temperature instrument

HMI settings

Items	Settings	Note
Protocol	Omron EC55	
Connection	RS485 (9600, 2, 7, EVEN)	
Port No.	None	
PLC station No.	0	

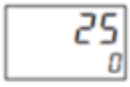
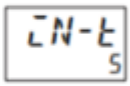
Address list

Type	Register	Device range	HMI range	Function
Double word	C0	0-13 (Hex)	0-19	Set read only parameter for area 0
	C1	0-4D(Hex)	0-77	Set Read/Write parameter for area 0
	C3	0-CD(Hex)	0-205	Set Read/Write parameter for area 1
Word	80	0-13(Hex)	0-19	Set read only parameter in area 0
	81	0-4D(Hex)	0-77	Set Read/Write parameter in area 0
	83	0-CD(Hex)	0-205	Set Read/Write parameter in area 1
	CP	-	0-6	Read controller intrinsic property
	CS	-	0-2	Read controller states
	CA	-	0-17	Action command

Device settings

1) Omron E5CC PLC configuration

After entering the Communication Settings menu, please set the parameters to the default values for the following table. Press the cycle key of the instrument to enter the next setting.

1	**Press the Key for at least 3 seconds in the Operation Level.** The No. 1 display will flash when the keys are pressed for 1 s or longer. The display will change from the Operation Level to the Initial Setting Level.	Operation Level 
2	**Press the Key for less than 1 second in the Initial Setting Level.** The display will change from the Initial Setting Level to the Communications Setting Level.	Initial Setting Level  Input Type Communications Setting Level  Protocol Setting

2) According to PLC configuration and communication port configuration information of the HMI, provide the corresponding steps and configuration screenshots. This configuration needs to communicate properly with the above PLC configuration. The project settings are as follows

Item	Display	Set values	Settings	Default
Protocol setting	PSEL	CWF Mod	CompoWay/F/Modbus	CWF
Communications Unit No.	U-No	0 to 99	0 to 99	1
Communications baud rate	bPS	9.6/19.2/38.4/57.6 (Kbps)	9.6/19.2/38. 4/57.6 (kbps)	9.6
Communications data length	LEN	7 or 8 bits	7 or 8 bits	7
Stop bits	Sbit	1 or 2 bits	1 or 2 bits	2
Communications parity	PRTY	NONE EVEN odd	None, Even, Odd	EVEN
Send data wait time	SdWt	0 to 99	0 to 99 (ms)	20

✎Note:

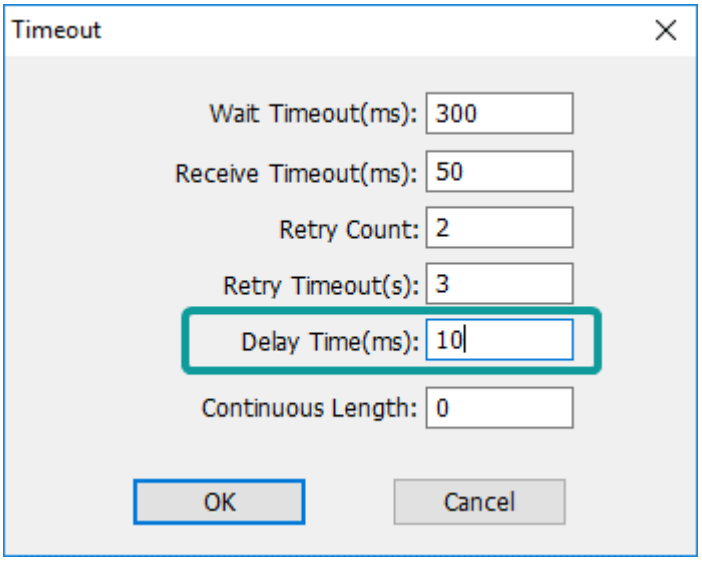
The communication settings for HMI should be consistent with this setting.

Cable wiring

HMI serial port				Device port
COM1	COM2	COM3		RS485
1 RX+	1 RX+	7 RX+	→	A+
6 RX-	6 RX-	8 RX-	→	B-
5 GND	5 GND	5 GND	→	GND

✎Note:

1) COM3 is available in 8000 series and advanced series
2) CA address could not support continuous writing function；
3) Because of CP address intrinsic property: read control intrinsic property, so please place the character input part in use. Set address with CP0 and character length 10, used to display controller type. And place a number input part, set address with CP5 (cache size). Do not place other CP type address without CP0 in screen, otherwise CP type address is invalid
4) When set value into read & write address, it is necessary to switch the temperature instrument meter to the corresponding interface according to the menu of the instrument where the address locates, so that the value could be written, otherwise, the value could not be written; When the communication write setting of the instrument is turned off, the writing function is invalid. Writing function could be opened by using the 00 address of the CA register, which write 01 value.
5) When continuous writing of a value to a read-write address, please make sure all continuous writing address could be written. Otherwise, if one of these addresses could not be written, then all continuous writing commands will fail.
6) Because of the mechanism problem, this protocol could not support CompoWay/F function that is read-write function of variables in protocol document.
7) When using double-word address, set the data format to 32 bits, otherwise the read/write function is unable.
8) Please set the communication delay time of 10ms in setting, to avoid that the instrument may not be able to communicate in a short time due to too fast data access and too much connection requests.



9) Because of the particularity of the instrument, it is necessary to write the value of the address in the menu interface corresponding to the address, and to enter the menu where the address locates, so that the value could be written.

11.15 Omron NX Ethernet/IP

Supported series: Omron NX series

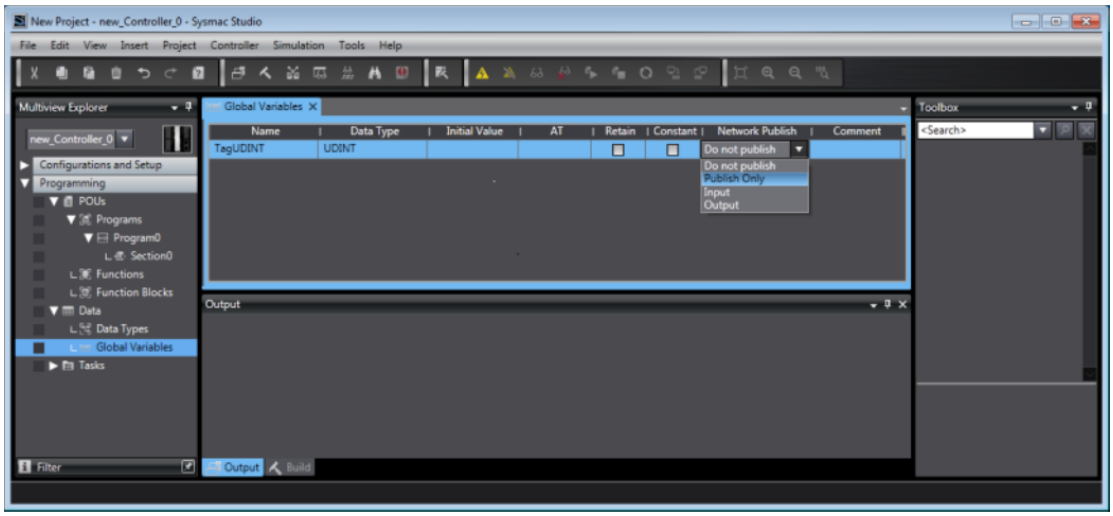
HMI Setting

Items	Settings	Note
Protocol	Omron NX Ethernet/IP	
Connection	Ethernet	
Port No.	44818	
PLC station No.	1	

Instruction

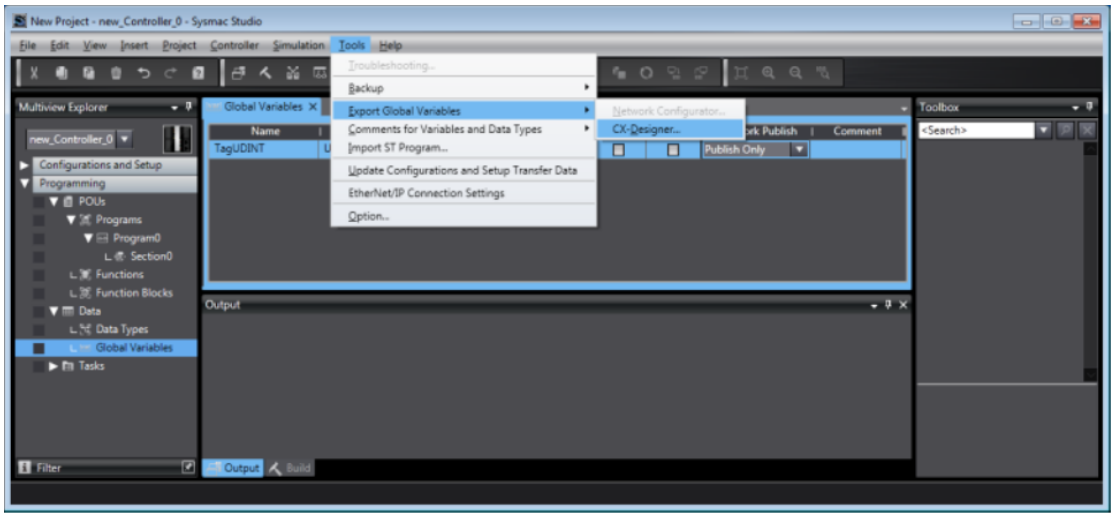
1) In Sysmac Studio, please select [Publish Only] for [Network Publish] when setting address tag.

2) When [Do not publish] is selected for a tag, different import methods may lead to different results. When import tags by [Get Tags from Device], the tag will be eliminated. If [Import tags] is selected, the tags will be imported, but the communication will not succeed.



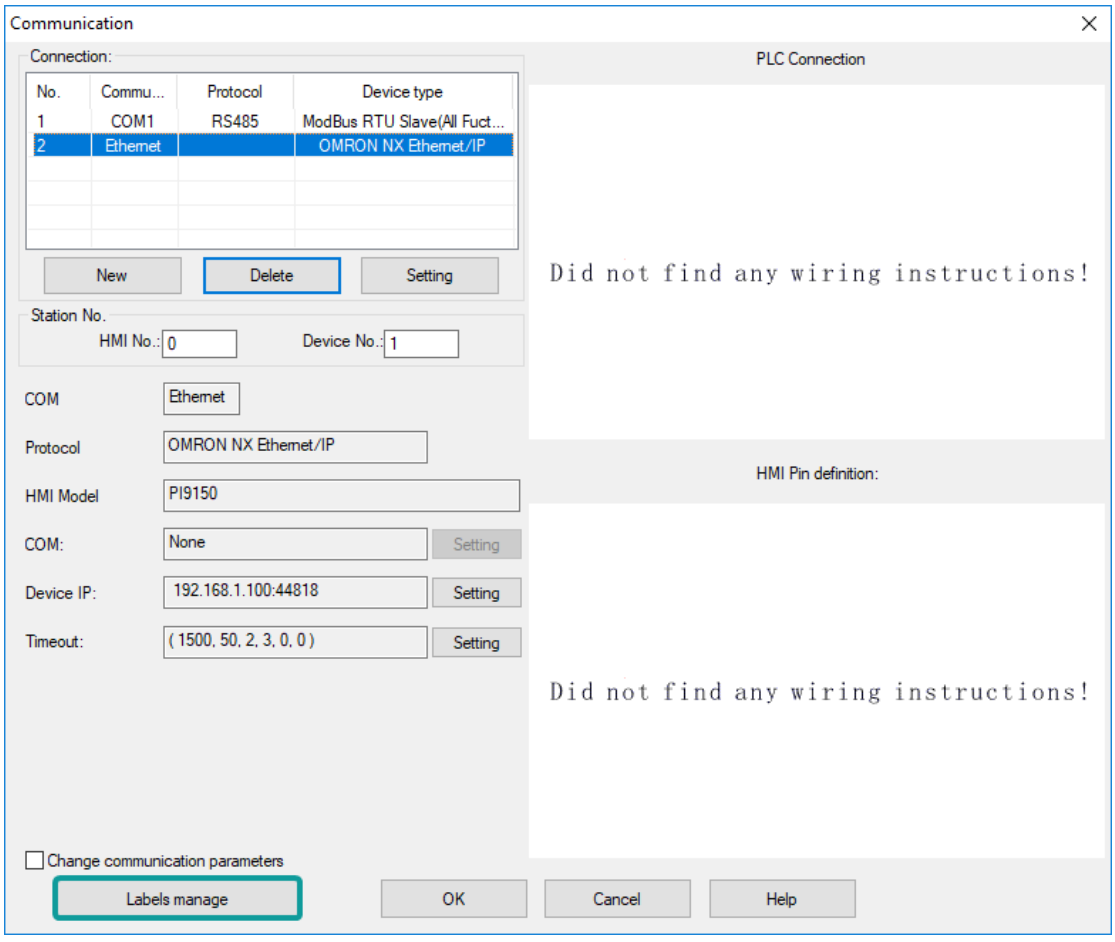
Export labels from Sysmac Studio

1) Launch Sysmac Studio, under Global Variables create the address labels, and then select [Tools] -> [Export Global Variables];

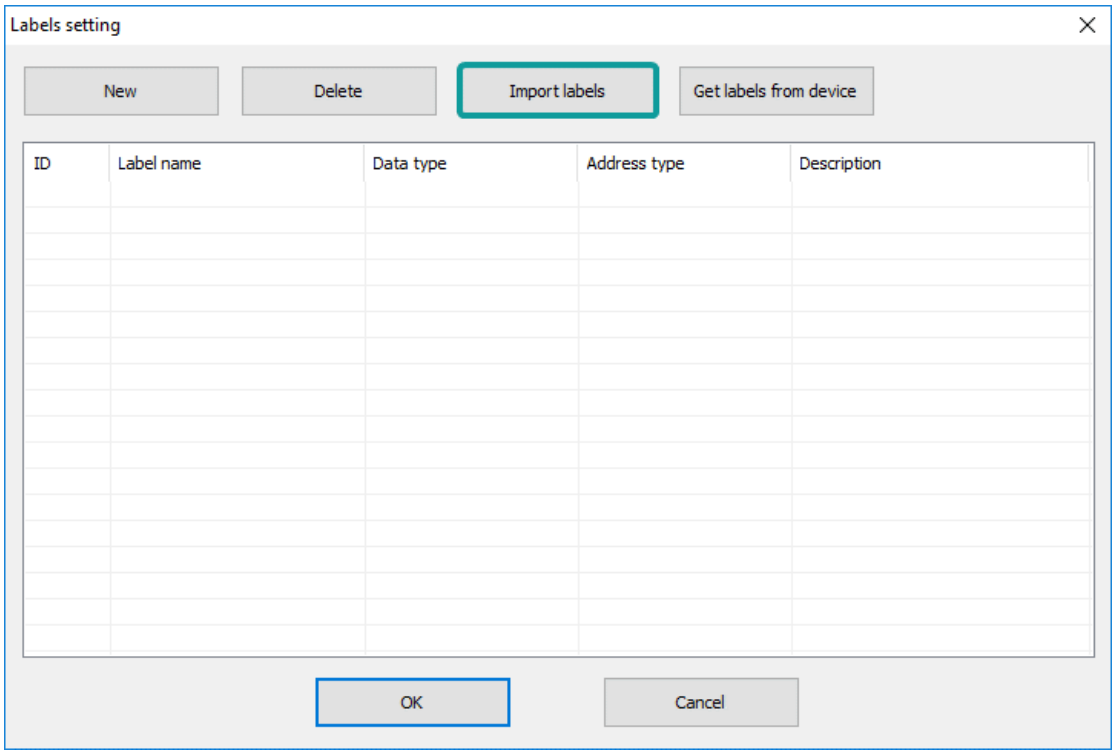


2) Launch HMIEditorP, in [Communication] Settings add Omron NX Ethernet/IP;

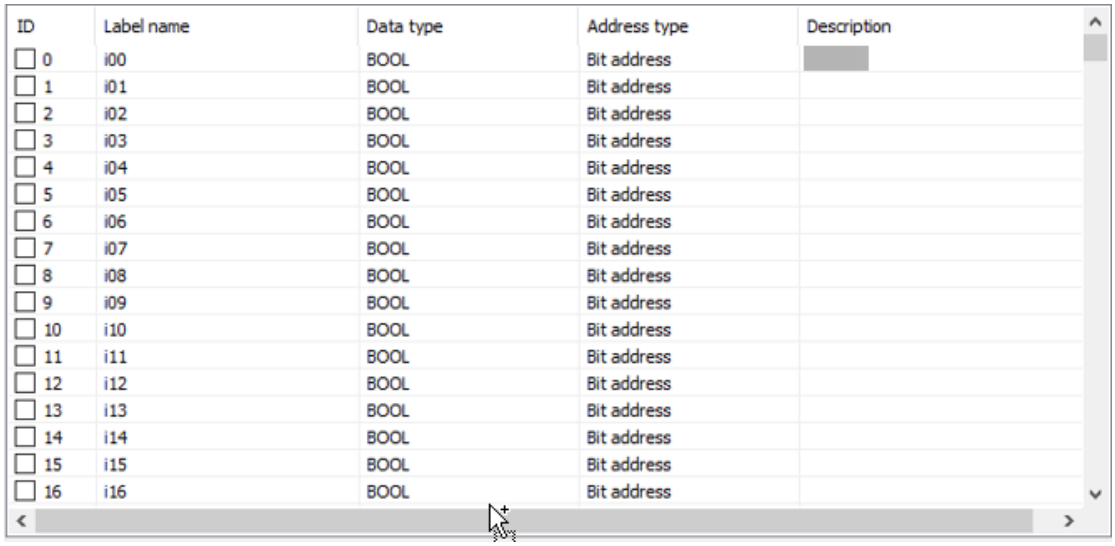
3) Click [Label manage];



4) Click [Import labels] and then select the file exported in step 1;

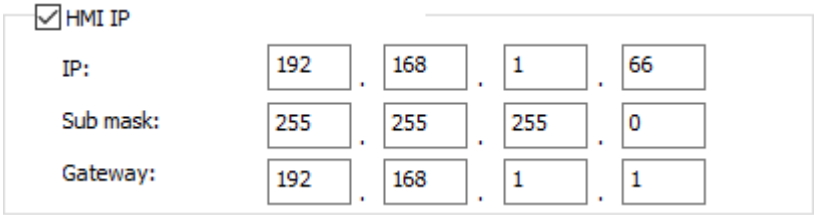


5) The Import Status field shows the result, click [OK] to finish importing address labels;

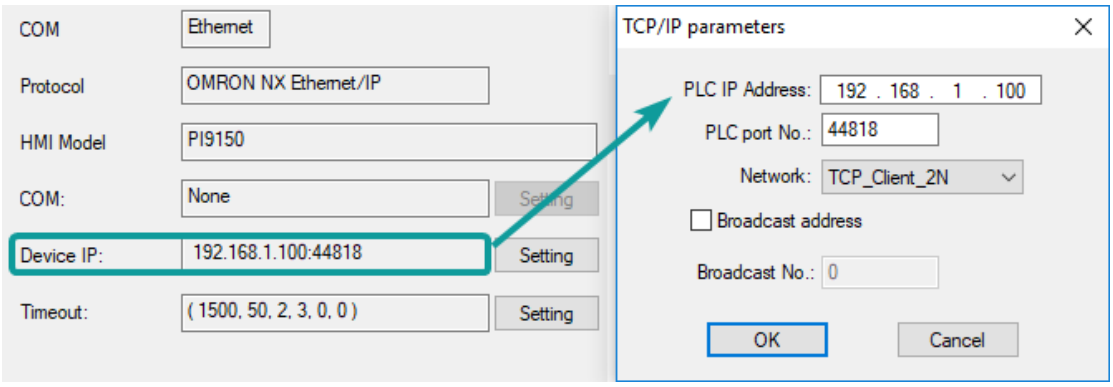


Communication settings

5) Enable HMI Ethernet in [Project Settings];



6) Set PLC IP in [Device IP] settings;



Communication cable

11.16 OpenCAN

OpenCan is based on CAN2.0 standard; OpenCAN protocols that could be configured autonomously to accept and send frames.

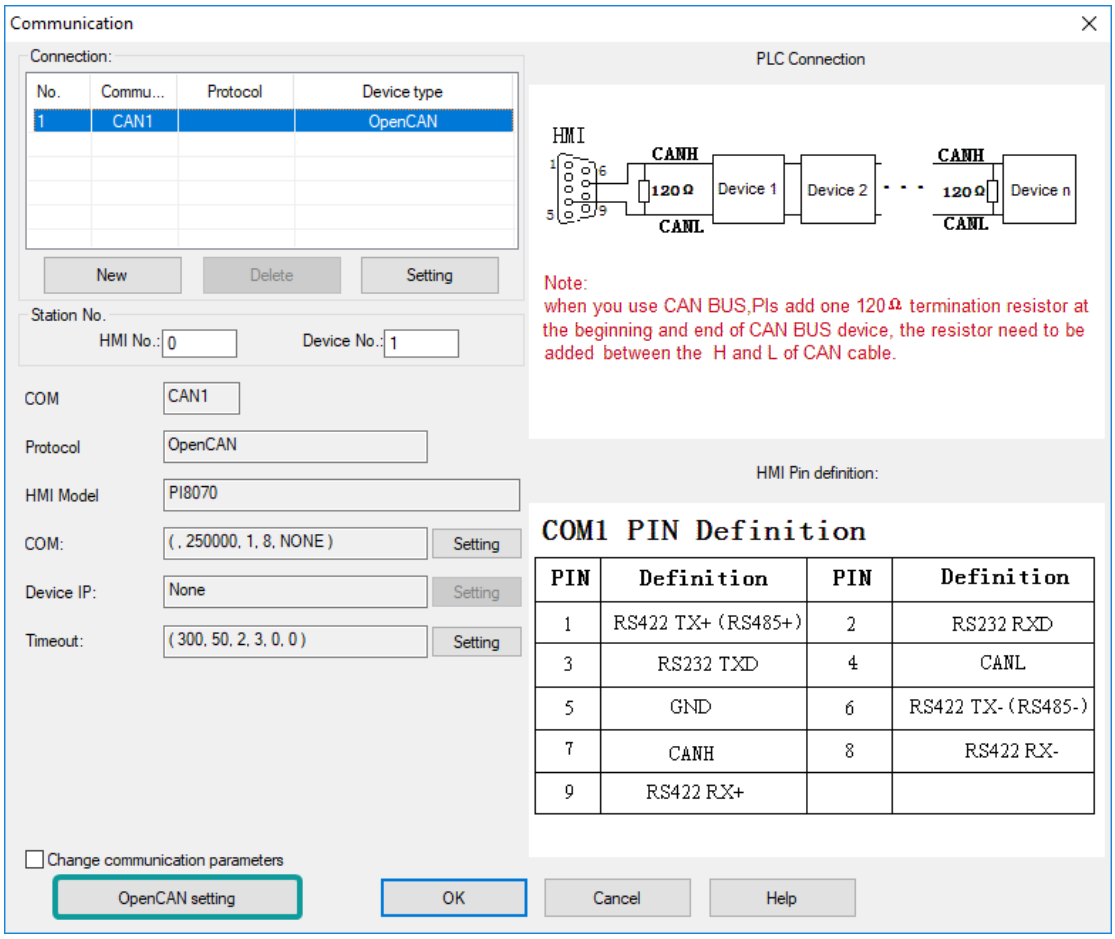
This protocol is only available in 8000 series HMI.

HMI settings

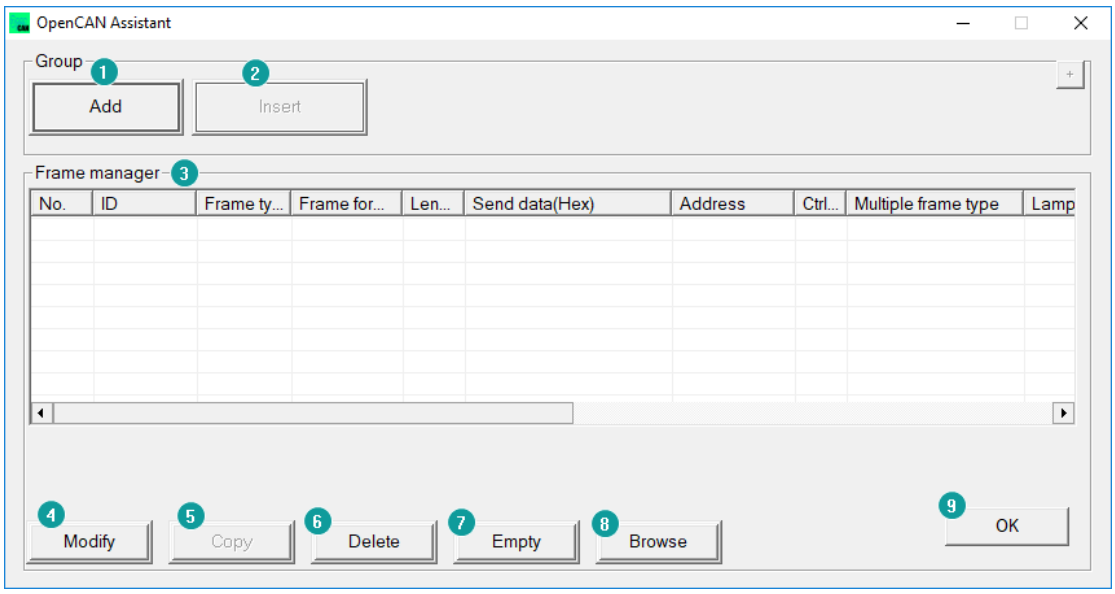
Items	Settings	Note
Protocol	OPENCAN	
Connection	CAN port	
Baud rate	250000	

CAN frame setting in HMI

1) Click [OpenCAN setting] button in communication setting window;

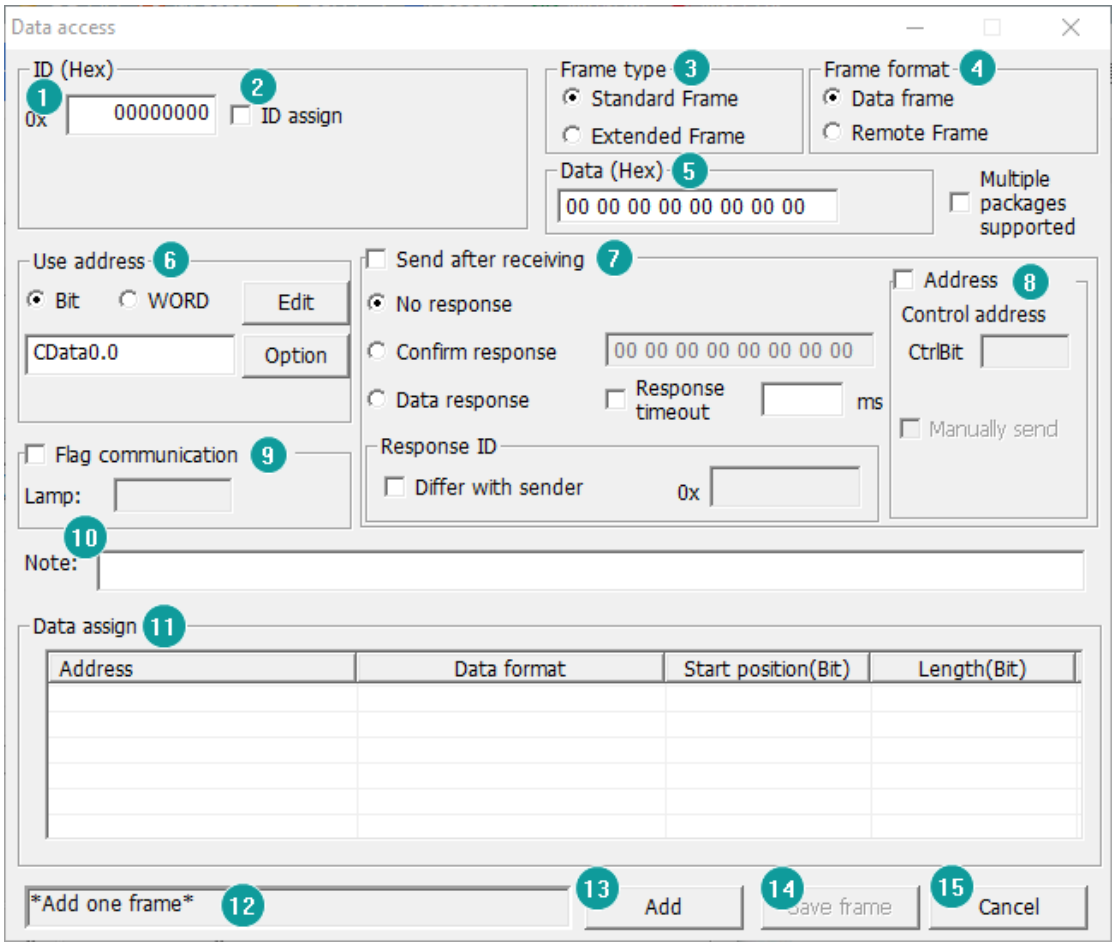


2) Click [Add] to create a new frame;



No	Items	Description
1	Add	add a frame related to register address
2	Insert	Select the position where you want to insert a frame, and click [Insert frame] to add a new frame in front of the current frame position
3	Frame manager	This list shows some of the main parameters for each frame that the user adds
4	Modify	Modify the frames in frame management
5	Copy	Copy one frame to another
6	Delete	Remove the selected frames from the list by modifying the frames in frame management. If no frames are selected in the list, the first frame is deleted.
7	Empty	All frames in the list are cleared
8	Browse	Displays configuration files in XML format in IE
9	OK	Complete the configuration of the frame and exit

3) Set CANBUS frame in setting windows

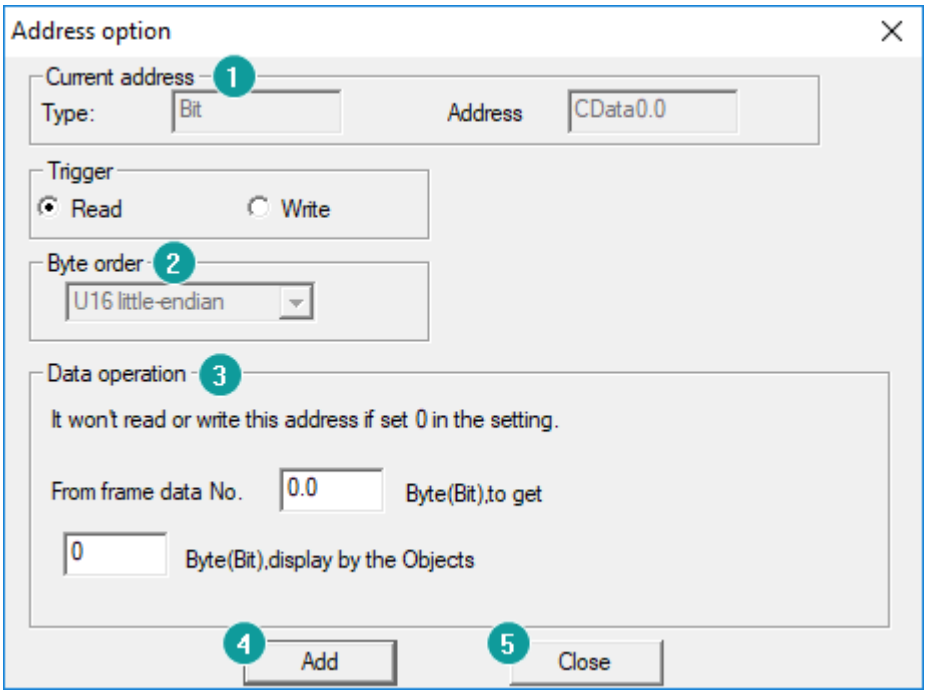


No	Items	Description
1	ID	Set the ID of a can frame in hexadecimal format;
2	ID assign	split the ID by PF, PS, and SA;
3	Frame type	Select Standard frame or Extended Frame;
4	Frame format	Select between data frame and remote Frame;
5	Data	Set the data part of CAN frame, with two Numbers representing a hexadecimal number and Spaces spaced; Maximum support of 8 bytes is defined according to CAN message;
6	Use address	Set the register address related to the CAN frame, which corresponds to the register address set on the main state one by one. The data obtained from the address is assigned continuously; **Edit:** Set a bit or word address by its format; **Option:** Set address options related to frame, enter

		“register address option” interface, specifically browse the following “register address option” interface;
7	Data interactive configuration	There are two interactive modes of the touch screen. One is that the touch screen actively sends frames, and the device receives and processes and feeds back. The other, on the contrary, passively receives frames from the device for processing and feedback;
		Send after receiving: if this item is selected, the interaction of the touch screen will act as a passive party, and the touch screen will receive the CAN frame first and send feedback. Unchecked items interact in the opposite way;
		Feedback mode: feedback mode includes no response, confirm response and data response;
		No response: the device or touch screen will not receive feedback;
		Confirm response: the device or the touch screen will receive feedback with confirmation, which could be used to compare the data parts. If this function is used, the 20 addresses before and after this address should not be used. All addresses of cata10-cata30 could not be used with the reply confirmation function of cata20;
		Data response: the device or touch screen will receive feedback with data, and the data to be separated from the feedback frame should be set to store in the register address;
		response ID: if the address wants to receive data on a frame with a different ID, set this, check "different from sender", and enter a different ID in the following input box. Without this setting, the screen will receive and process a frame with the same ID as the sender;
		Response timeout: sets whether the response frame timeout;
8	Control address	If ticked, enable sending when the value of the corresponding control bit number (address) is non-0.
		Control bit: CtrlBit register range 0~255, if the control bit

		is ON, can instruction will run normally. Otherwise, it doesn't run;
		Manually send: a manually send tick indicates only one send;
9	Flag configuration	Communication control for each frame. Display OFF when communication is normal, and ON when communication is abnormal;
10	Note	Fill the text to explain the meaning of the frame;
11	Data assign	Preview the display in this table based on the address and the corresponding number of digits;
12	Current operation display	Display the description of current operation;
13	Add	Add a new frame;
14	Save frame	Save the configured frame format;
15	Cancel	Cancel the frame configuration;

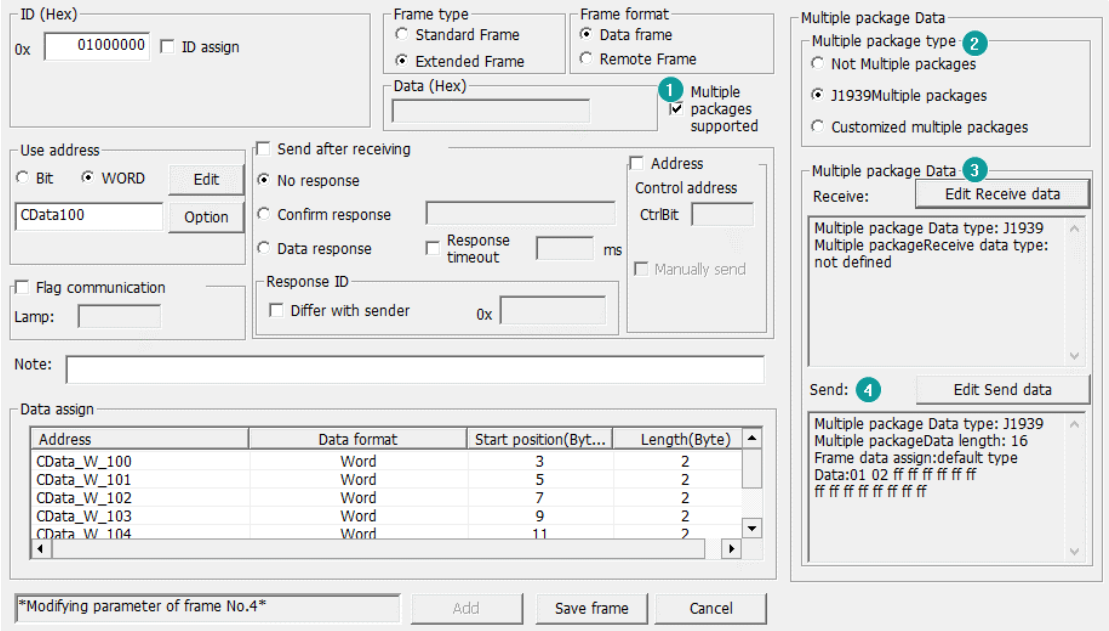
4) Set CAN address (Read or write operation);



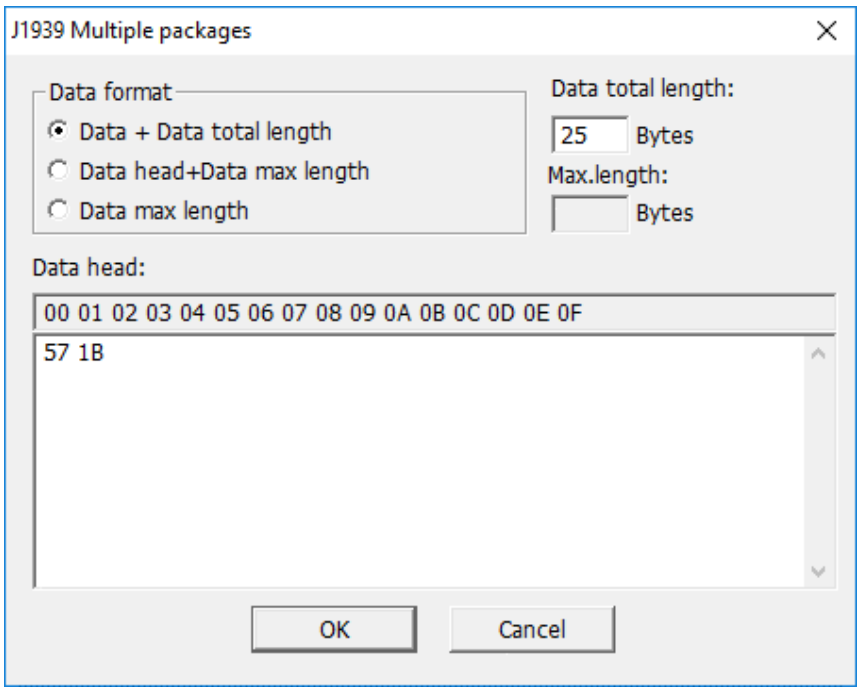
No.	Item	Description
1	Current	Displays the register type and register address set by the

	address	user in the data access interface
2	Trigger	Two operations, "read" and "write," are based on on-screen registers
		If "read" is selected, the register address is reading device data in a manner of sending frames set by the user in a loop.
		If "write" is selected, the screen data of the register address will be written into the device. The writing mode is that the user makes a write operation on the screen, which will trigger the sending of a frame set by the user.
3	Data operation	The read and write operations in the trigger conditions are set accordingly.
		If the trigger condition is a read operation, this section needs to set the position and length of the data to be obtained at the current address in the frame.
		If the trigger condition is a writing operation, there are two situations: ● If the "add writing data to the frame" option is not selected, the frame set by the user will be sent directly when the user writes on the screen. ● Select the "add the written data to the frame" option, and when the user writes on the screen, the program will insert the data in the frame set by the user and send the written data to the frame set by the user according to the data insertion position and length set by the user.
	Position and length input format	If the register type is a bit address, the decimal point is required to represent the bits in the byte. For example, 1.1 represents the first bit of the first byte of 8 bytes in the data frame, and the length is in bits, and so on.
		If the register type is word address, the integer only needs to represent the byte, such as 1, which represents the first byte of 8-byte data in the data frame, and the unit of length is byte, and so on.
4	Add	Add current configuration
5	Close	Close the configuration window to exit

Multiple packages settings

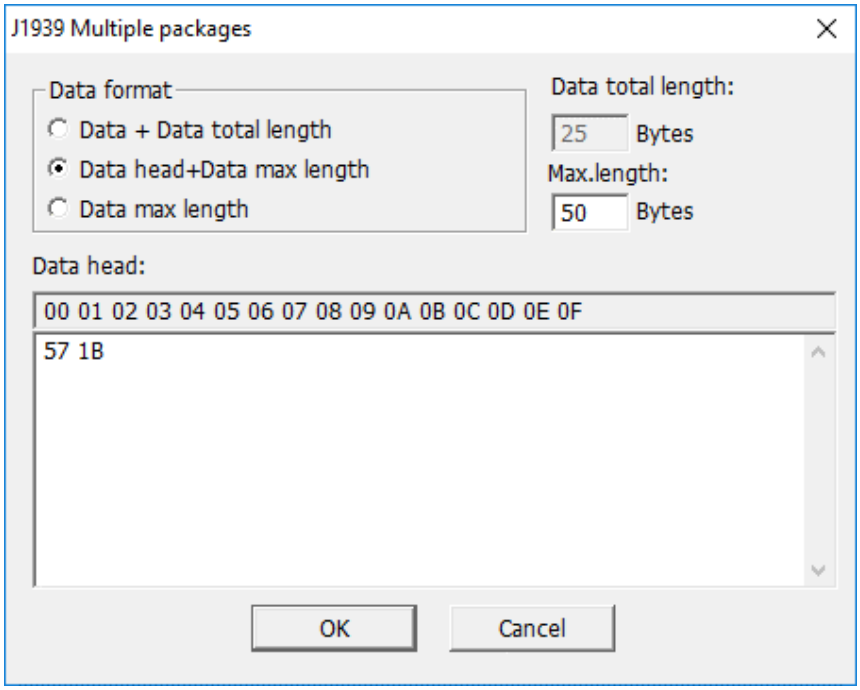


1) Check [Multiple packages supported] to open [Multiple package data] window, as below show.
2) Select Multiple package type
   - Not Multiple packages
   - J1939 Multiple packages
   - Customized Multiple packages
3) Click [Edit Receive data] for [Receive] settings
   - Start code+ Total length (J1939)



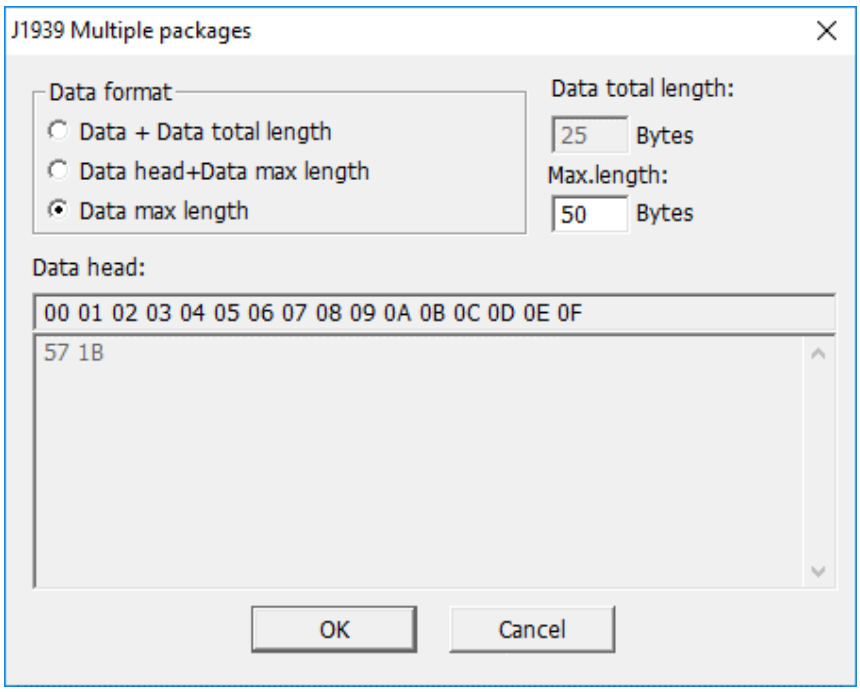
As set above set, J1939 command is received by the HMI, only when its length is 25 bytes, and the start code is 0x57, 0x1B;

- Start code + Data max length (J1939)



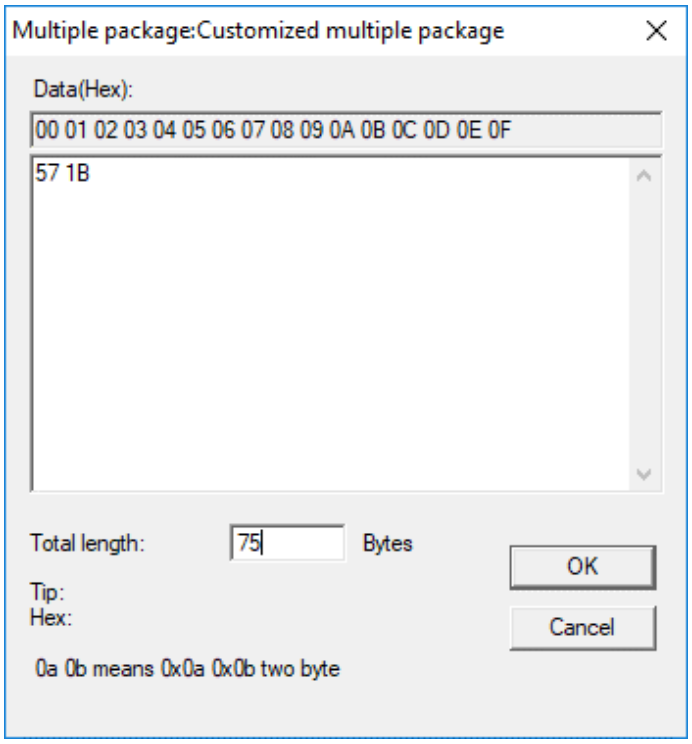
As set above set, J1939 command is received by the HMI, only when its length less than 50 bytes, and the start code is 0x57, 0x1B;

- Data max length (J1939)



As set above set, J1939 command is received by the HMI, only when its length less than 50 bytes.

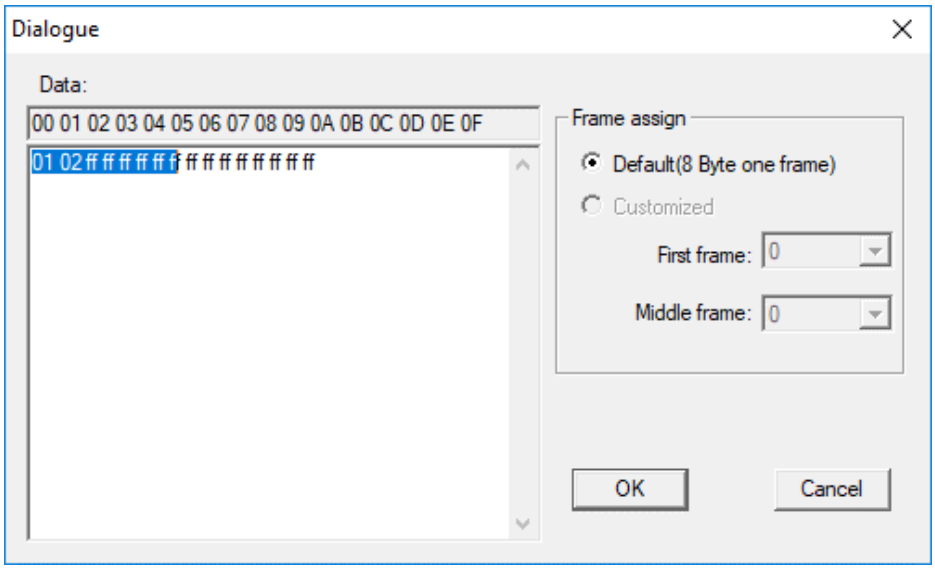
- Customized multiple package



As set above, It is received by the HMI, when the first frame starts with 0X57 0X1B, and the sum of the data lengths of multiple frames is equal to 79 bytes.

4) Click [Edit Send data] for [Send] setting

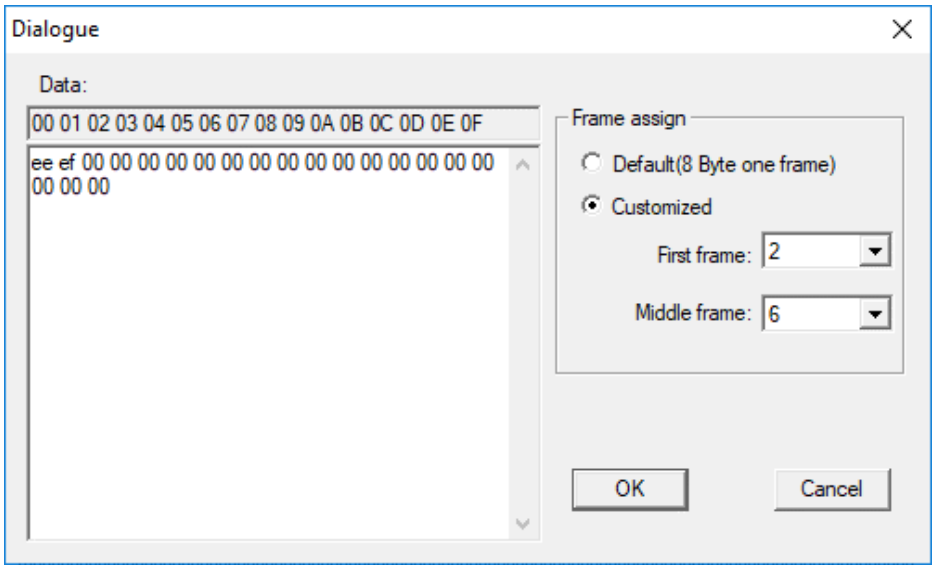
- J1939



[Data] is all data to be sent.

Since the frame of the J1939 frame contains the number of the data packet, so the data sent is: the first byte (number) + 7 bytes of data. If it is less than 7 bytes, it is sent in the actual number of bytes.

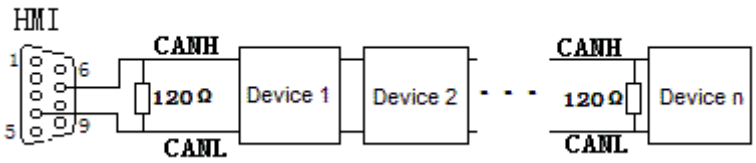
- Customized multiple package



[Data] is all data to be sent.

As set above, fist frame length is 2 bytes, and others are sent with 6 bytes for every frame, if the last frame is less than 6 bytes, send according to the actual length.

Communication cable



✎Note:

The address interval between each frame need to be more than a word address;

11.17 SHIMADEN FP23 protocol

Supported series: SHIMADEN FP23 series

HMI setting

Items	Settings	Note
Protocol	SHIMADEN FP23 series	
Connection	RS485 (9600, 1, 7, EVEN)	
Port No.	None	
PLC station No.	0	

Address list

Device address	HMI register	Address range	Type
0040-0043(HEX)	FP040	100064-200067	Read only
0100-010B(HEX)	FP100	100256-200267	Read only
0110-0142(HEX)	FP110	100272-200322	Read only
0182-0252(HEX)	FP182	100386-200594	Write only
0280-0281(HEX)	FP280	100640-200641	Read only
0300-030B(HEX)	FP300	100768-200779	Read and write
0380-039F(HEX)	FP380	100896-200927	Read and write
0400-04D7(HEX)	FP400	101024-201239	Read and write
0500-05B0(HEX)	FP500	101280-201456	Read and write
0600-0670(HEX)	FP600	101536-201814	Read and write
0720-0738(HEX)	FP720	101824-201848	Read and write
0800-083F(HEX)	FP800	102048-202111	Read and write
0900-0952(HEX)	FP900	102304-202386	Read and write
	Ctrl	0-2	

✎Note:

1) The upper 2 bits of the address of the HMI register are taken as the sub address, and the real address is the last four bits (for example, if the address is 100256,

then 10 is the sub address as 1, and 0256 is the real address);

2) The address range in the table is only divided by the start and end addresses, and some of the addresses in the range have no corresponding address in FP23;

3) The Ctrl register is used to store the control group number and BCC check mode.

Ctrl register description

1) The Ctrl register is a special register that does not communicate with the temperature controller. User needs to assign value in the screen according to the settings as in the temperature controller.

2) Ctrl0 indicates the setting of the control character, the valid values are 1, 2, 3 respectively, and the corresponding control group is: STX_ETX_CR , STX_ETX_CR LF and @_:_CR .

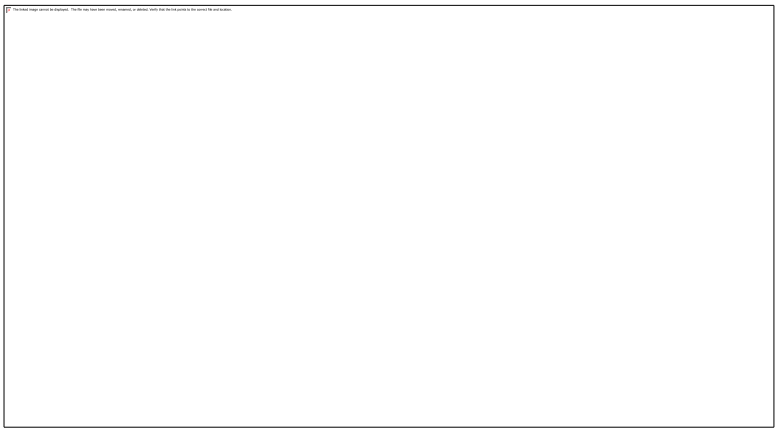
3) Ctrl1 indicates the BCC block check mode. The valid value range is 1-4. The corresponding check mode is: 1.ADD, 2.ADD_two's cmp, 3.XOR, 4.None;

4) Ctrl3 reserved

✎Note:

After reloading the HMI project or restarting the HMI, HMI will reset the value of ctrl0 and ctrl1 as 1, so user need to set these two values to make it the same as it in the temperature controller, then communication will be normal.

Cable wiring



✎Note:

COM3 is available in 8000 series and advanced series

11.18 SHIMADEN SR90 protocol

Supported series: SHIMADEN SR90 series

HMI setting

Items	Settings	Note
Protocol	SHIMADEN SR90 protocol	
Connection	RS485 (1200, 1, 7, EVEN)	
Port No.	None	
PLC station No.	0	

Address list

Device address	HMI register	Address range	Type
0040-0043 (HEX)	SR040	100064-100067	Read only
0100-010A(HEX)	SR0100	100256-100266	Read only
0182-018C(HEX)	SR0182	100386-100396	Write only
0300-04FE(HEX)	SR0300	100768-101278	Write/read
0500-050B(HEX)	SR0500	101280-101291	Write/read
0590-0611(HEX)	SR0590	101424-101553	Write/read
0701-0709(HEX)	SR0701	101793-101801	Write/read
	Ctrl	0-2	--

✎Note:

4) The upper 2 bits of the address of HMIs are taken as the sub address, and the real address is the last four bits (for example, if the address is 100256, then 10 is the sub address as 1, and 0256 is the real address);
5) The address range in the table is only divided by the start and end addresses, and some of the addresses in the range have no corresponding address in SR90;
6) The Ctrl register is used to store the control group number and BCC check mode. See how to use it below;

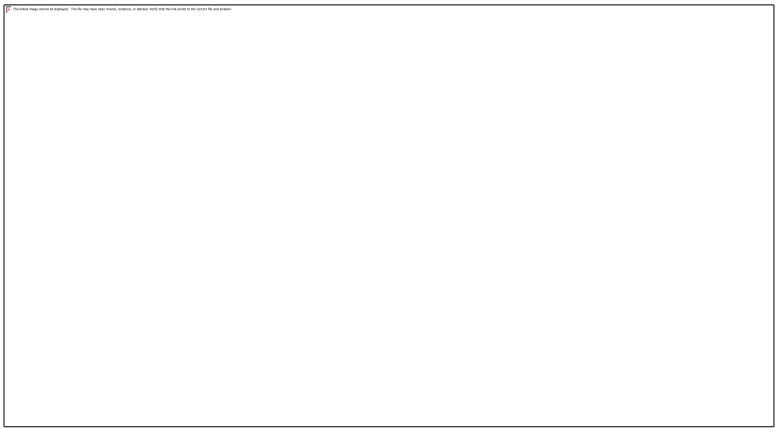
Ctrl register description

5) The Ctrl register is a special register that does not communicate with the temperature controller. User needs to assign value in the screen according to the settings as in the temperature controller.
6) Ctrl0 indicates the setting of the control character, the valid values are 1, 2, 3 respectively, and the corresponding control group is: STX_ETX_CR , STX_ETX_CR LF and @_:_CR .
7) Ctrl1 indicates the BCC block check mode. The valid value range is 1-4. The corresponding check mode is: 1.ADD, 2.ADD_two's cmp, 3.XOR, 4.None;
8) Ctrl3 reserved

✎Note:

After reloading the HMI project or restarting the HMI, HMI will reset the value of ctrl0 and ctrl1 as 1, so user need to set these two values to make it the same as it in the temperature controller, then communication will be normal.

Cable wiring



✎Note:

COM3 is available in 8000 series and advanced series

11.19 SHIMADEN Standard protocol

Supported series: SHIMADEN MR13 series

HMI setting

Items	Settings	Note
Protocol	SHIMADEN standard protocol	
Connection	RS485 (1200, 1, 7, EVEN)	
Port No.	None	
PLC station No.	0	

Address list

Device address	HMI register	Address range	Type
0100-010B(HEX)	MR100	100256-300267	Read only
0111-0126(HEX)	MR111	100273-300294	Read only
0184-0192(HEX)	MR184	100388-300402	Write only
0280-0282(HEX)	MR280	100640-300642	Read only
0300-030B(HEX)	MR300	100768-300779	Read/write
0314-0317(HEX)	MR314	100788-300791	Read/write
031A(HEX)	MR31A	100794-300794	Read/write
0320-0321(HEX)	MR320	100800-300801	Read/write
0400-0504(HEX)	MR400	101024-301284	Read/write
0506(HEX)	MR506	101286-301286	Read/write
0510-0514(HEX)	MR510	101296-301300	Read/write
0516-0524(HEX)	MR516	101302-301316	Read/write
0526(HEX)	MR526	101318-301318	Read/write
0580-08C3(HEX)	MR580	101408-302243	Read/write
--	Ctrl	0-2	--

✎Note:

7) The upper 2 bits of the address of the HMI register are taken as the sub address,

and the real address is the last four bits (for example, if the address is 100256, then 10 is the sub address as 1, and 0256 is the real address);

8) The address range in the table is only divided by the start and end addresses, and some of the addresses in the range have no corresponding address in MR13;

9) The Ctrl register is used to store the control group number and BCC check mode.

Ctrl register description

9) The Ctrl register is a special register that does not communicate with the temperature controller. User needs to assign value in the screen according to the settings as in the temperature controller.

10) Ctrl0 indicates the setting of the control character, the valid values are 1, 2, 3 respectively, and the corresponding control group is: STX_ETX_CR, STX_ETX_CR LF and @_:_CR .

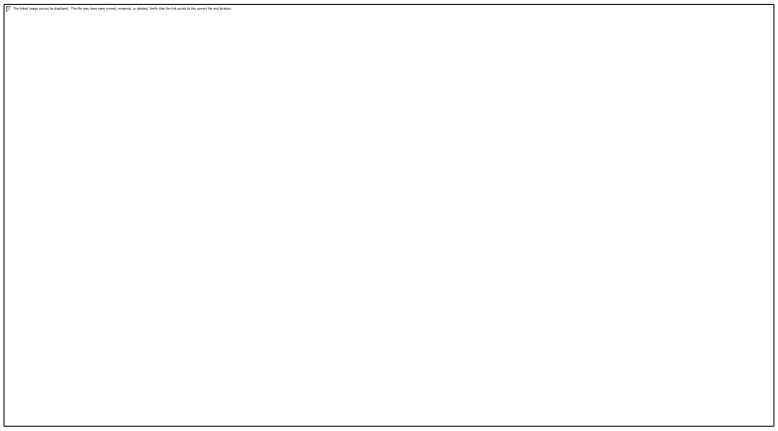
11) Ctrl1 indicates the BCC block check mode. The valid value range is 1-4. The corresponding check mode is: 1.ADD, 2.ADD_two's cmp, 3.XOR, 4.None;

12) Ctrl3 reserved

✎Note:

After reloading project or restarting the HMI, HMI will reset the value of ctrl0 and ctrl1 as 1, so user need to set these two values to make it the same as it in the temperature controller, then communication will be normal.

Cable wiring



✎Note:

COM3 is available in 8000 series and advanced series

11.20 Siemens S7-200 Smart (Ethernet)

Supported Series: Siemens S7-200 SMART Series Ethernet Module.

Website: http://www.siemens.com/entry/cc/en/

HMI Setting

Items	Settings	Note
Protocol	Simens S7-200 Smart Ethernet	
Connection	Ethernet	
Port No.	102	
PLC station No.	2	

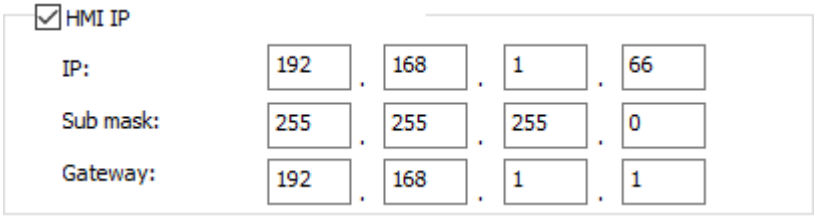
Address list

Type	Device register	HMI register	Format	Range	Note
Bit	I	I	I ddddd.o	0.0~99999.7	
	Q	Q	Q ddddd.o	0.0~99999.7	
	V	VWbit	VWbit ddddd.o	0.0~99999.7	
	V	V	V ddddd.o	0.0~99999.7	
	M	M	M ddddd.o	0.0~99999.7	
	SM	SM	ddddd.o	0.0~99999.7	
	S	S	ddddd.o	0.0~99999.7	Read only
	T	T	ddddd	0~99999	Timer state, read only
	C	C	ddddd	0~99999	Counter state, read only
Word	I	IW	IW ddddd	0~99999	
	Q	QW	QW ddddd	0~99999	
	AI	AIW	AIW ddddd	0~99999	
	AQ	VB	VB ddddd	0~99999	
	V	VW	VW ddddd	0~99998	VW0=VB (0~1) VW2=VB (2~3)

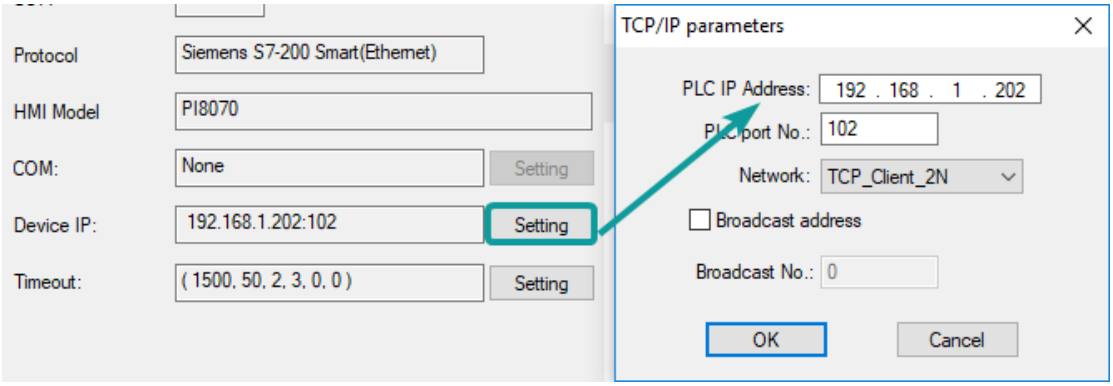
					Address value is a multiple of 2
	V	VD	VD ddddd	0~99998	VD0=VB (0~3) VD2=VB (4~7) Address value is a multiple of 4
	M	MB	MB ddddd	0~99999	
	M	MW	MW ddddd	0~99999	MW0=MB(0~1) MW2=MB(2~3) Address value is a multiple of 2
	M	MD	MD ddddd	0~99999	MD0=MB(0~3) MD4=MB(4~7) Address value is a multiple of 4
	T	TW	TW ddddd	0~99999	Value of timer
	C	CW	CW ddddd	0~99999	Value of counter
	W	SW	SW ddddd	0~99999	

Communication settings

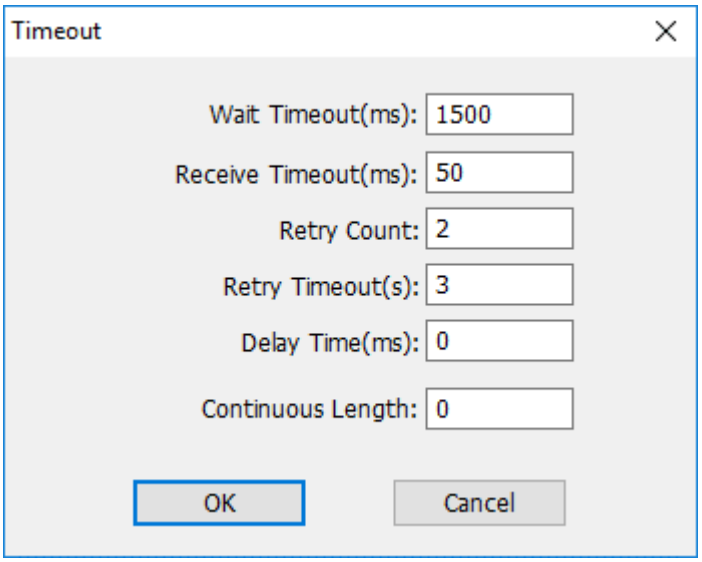
7) Enable HMI Ethernet in [Project Settings];



8) Set PLC IP in [Device IP] settings;



- PLC IP Address: PLC IP
- PLC pot No.: 102(fixed)
- Network: TCP_Client_2N (fixed)



- Wait timeout: depend on actual network situation (more than 1500 ms)

Communication cable

11.21 Siemens S7-300

Supported Series: Siemens S7-300 series PLC

HMI Setting

Items	Settings	Note
Protocol	Simens S7-300 Ethernet	
Connection	Ethernet	
Port No.	102	
PLC station No.	2	Need to be same as the PLC setting

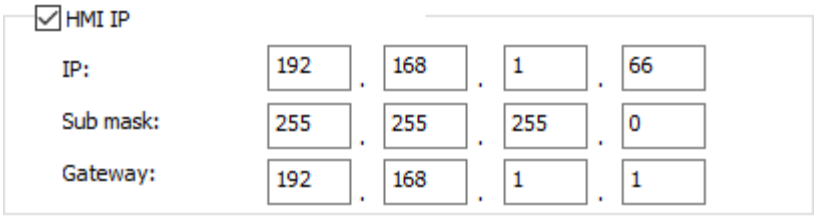
Address list

Type	Device register	HMI register	Format	Range	Note
Bit	I	I	I ddddd.o	0.0~99999.7	
	Q	Q	Q ddddd.o	0.0~99999.7	
	M	M	M ddddd.o	0.0~99999.7	
	DB0.DB~DB99.DB	DBxDBD	DBxDB nndddd.o	0.0~99999999.7	nn: block number; dddd: address;
Word	I	IW	IW ddddd	0~99999	
	Q	QW	QW ddddd	0~99999	
	M	MB	MB ddddd	0~99999	
		MW	MW ddddd	0~99999	MW0=MB(0~1) MW2=MB(2~3) Address value is a multiple of 2
		MD	MD ddddd	0~99999	MD0=MB(0~3) MD4=MB(4~7) Address value is a multiple of 4

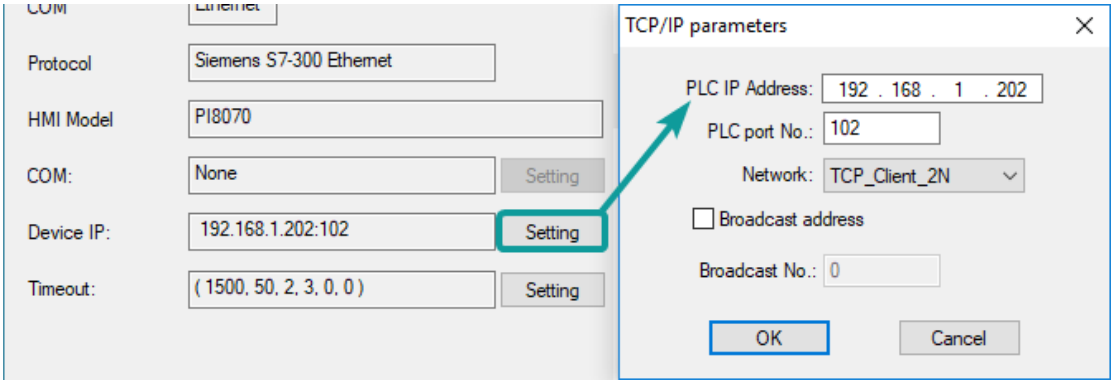
	DB0.DB~DB99.DB	DBxDBB	DBxDBB nnddd	0~99999999	nn: block number; dddd: address
		DBxDBW	DBxDBW nnddd	0~99999999	
		DBxDBD	DBxDBD nnddd	0~99999999	

Communication settings

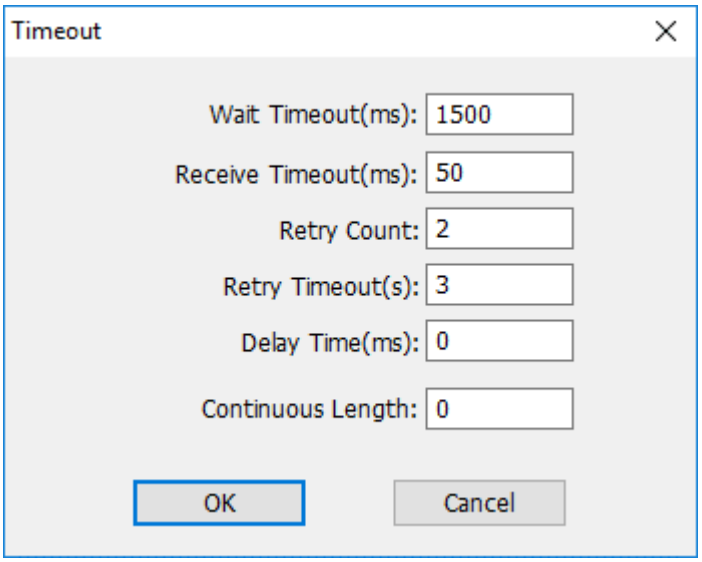
9) Enable HMI Ethernet in [Project Settings];



10) Set PLC IP in [Device IP] settings;



- PLC IP Address: PLC IP
- PLC pot No.: 102(fixed)
- Network: TCP_Client_2N (fixed)



- Wait timeout: depend on actual network situation (more than 1500 ms)

Communication cable

11.22 Siemens S7-1200 Ethernet

Supported Series: Siemens S7-1200

HMI Setting

Items	Settings	Note
Protocol	Siemens S7-1200	
Connection	Ethernet	
Port No.	102	
PLC station No.	2	

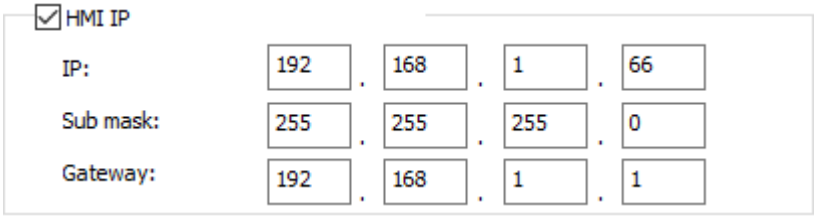
Address list

Type	Device register	HMI register	Format	Range	Note
Bit	I	I	M d.o	d:0--9999 o:0-7	
	Q	Q	Q d.o	d:0--9999 o:0-7	
	M	M	M d.o	d:0--9999 o:0-7	
	DB0.DB-DB99.DB	DBxDB	DBxDB nndddd.o	nn:0-9999, dddd:0-9999, o:0-7	nn: DB No. dddd: address value o: digit address
Word	M	MB	MB d	d:0-99999	
	M	MW	MW d	d:0-99999	MW0=MB(0~1) MW2=MB(2~3) Address value is a multiple of 2
	M	MD	MD d	d:0-99999	MD0=MB(0~3) MD4=MB(4~7) Address value is a multiple of 4
	I	IW	IW d	d:0-99999	

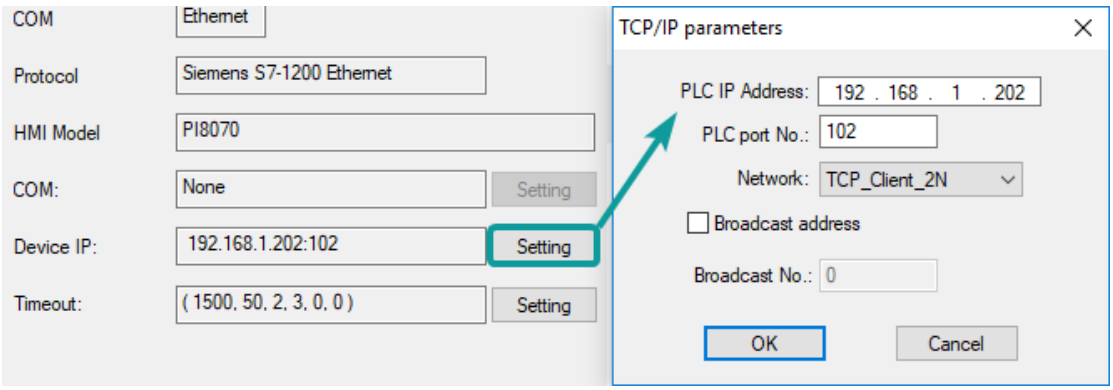
	Q	QW	QW d	d:0-99999	
	DB0.DB-DB99.DB	DBxDBB	DBxDBB nndddd	nn: 0-9999 dddd:0-9999	nn: DB No. dddd: address value
	DB0.DB-DB99.DB	DBxDBW	DBxDBW nndddd	nn:0-9999 dddd:0-9999	nn: DB No. dddd: address value Address value is a multiple of 2
	DB0.DB-DB99.DB	DBxDBD	DBxDBD nndddd	nn:0-9999 dddd:0-9999	nn: DB No. dddd: address value Address value is a multiple of 4

Communication settings

11) Enable HMI Ethernet in [Project Settings];



12) Set PLC IP in [Device IP] settings;



✎Note:

1) The S7-1200 supports simultaneous connection of three devices, so the driver supports simultaneous access to PLC by three touch screens.
2) HMI access PLC, use S7 protocol, access PLC TSAP 02.01 (s7-1200 PROFINET interface only supports three connections, the default support), detailed reference to the system manual of S7-1200.

PLC settings

1) Add BD

Please uncheck [Symbolic access only] option;

2) Address settings, using BD2 as example.

DB×DBB2xxxx, DB×DBW2xxxx, DB×DBD2xxxx for accessing data of DB2 in B1.

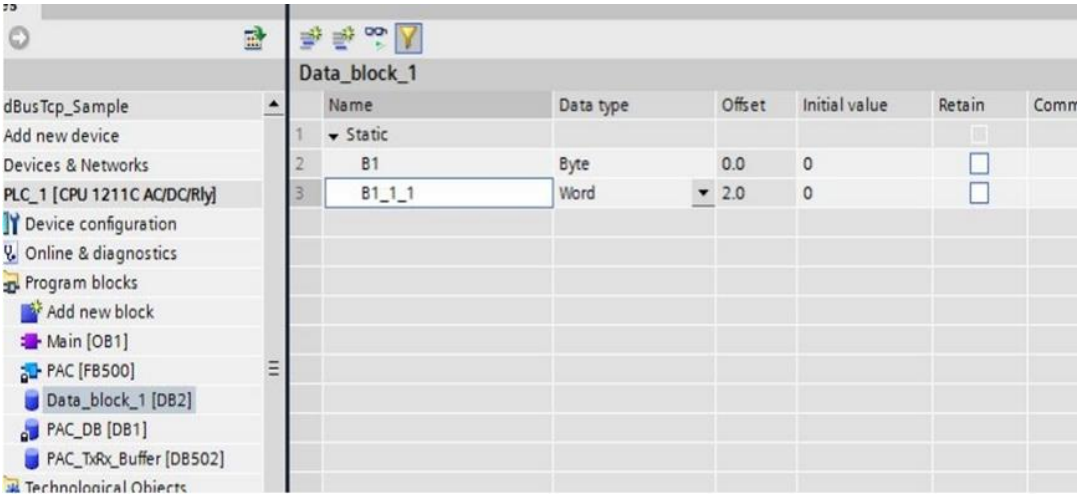
2 represent DB block number

xxxx represent address

Such as:

DBxDBB20000 = DB2.DBB0

DBxDBW20004 = DB2.DBW4

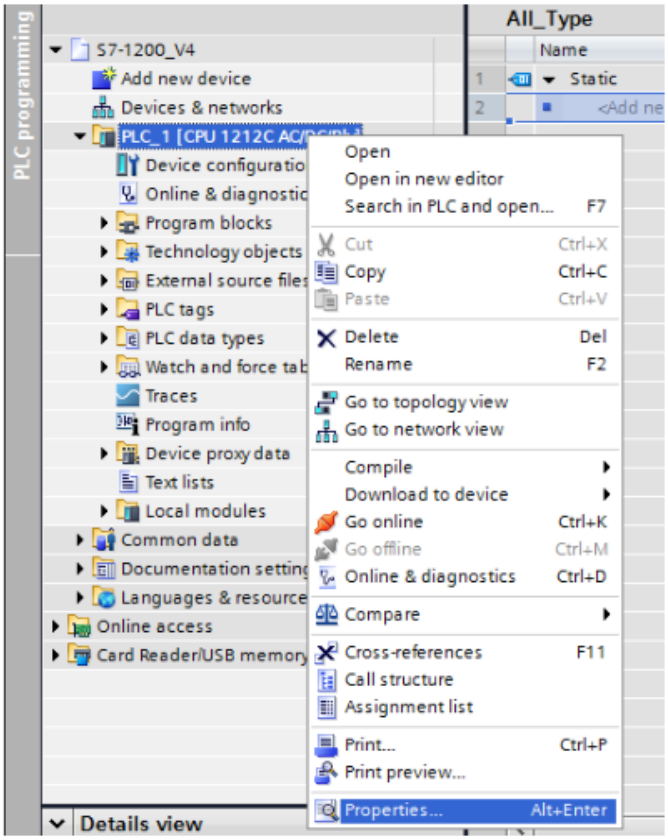


How to connect with S7-1200 Firmware V4.0

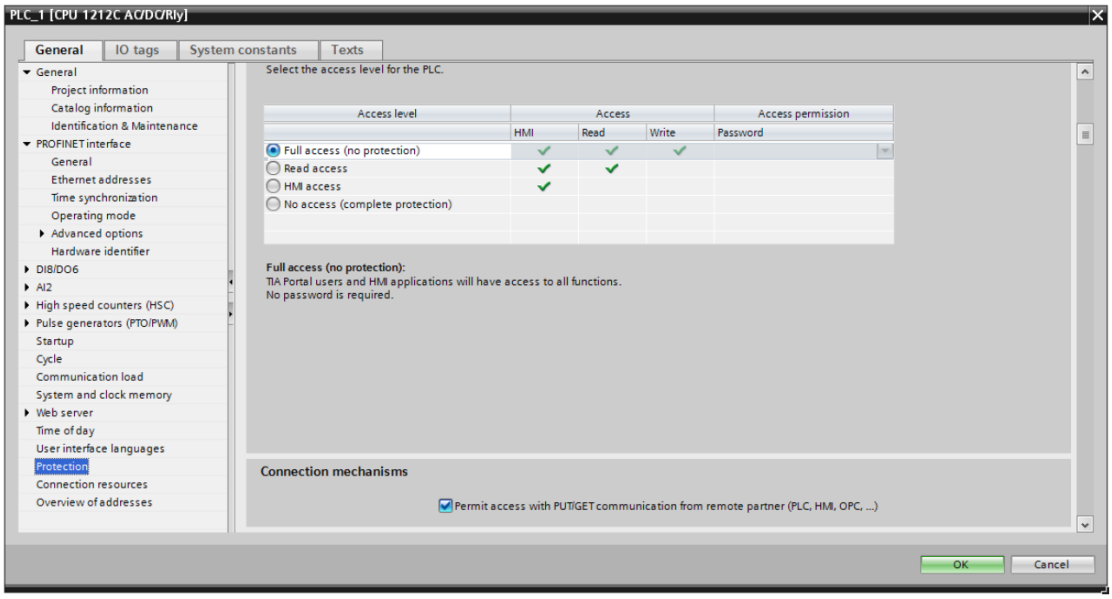
1) PLC configuration

a) Double click [device configuration] in Siemens via software

b) Double click [protection] to enter protection configuration screen



c) Check [Permit access with PUT / GET communication from remote partner (PLC, HMI, OPC, ...)]



2) DB settings

Right click [DB], select [properties]

Uncheck [optimized block access]

Communication cable

11.23 Siemens S7-XXX Ethernet

Supported Series: Siemens S7-1200 and S7-1500

HMI Setting

Items	Settings	Note
Protocol	Simens S7-XXX	
Connection	Ethernet	
Port No.	102	
PLC station No.	1 (for S7-1500)/ 2 (for S7-1200)	

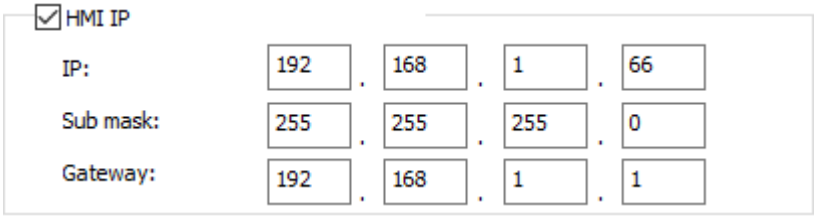
Address list

Type	Device register	HMI register	Format	Range	Note
Bit	I	I	M d.o	d:0--9999 o:0-7	
	Q	Q	Q d.o	d:0--9999 o:0-7	
	M	M	M d.o	d:0--9999 o:0-7	
	DB0.DB-DB99.DB	DBxDB	DBxDB nndddd.o	nn:0-9999, dddd:0-9999, o:0-7	nn: DB No. dddd: address value o: digit address
Word	M	MB	MB d	d:0-99999	
	M	MW	MW d	d:0-99999	MW0=MB(0~1) MW2=MB(2~3) Address value is a multiple of 2
	M	MD	MD d	d:0-99999	MD0=MB(0~3) MD4=MB(4~7) Address value is a multiple of 4
	I	IW	IW d	d:0-99999	

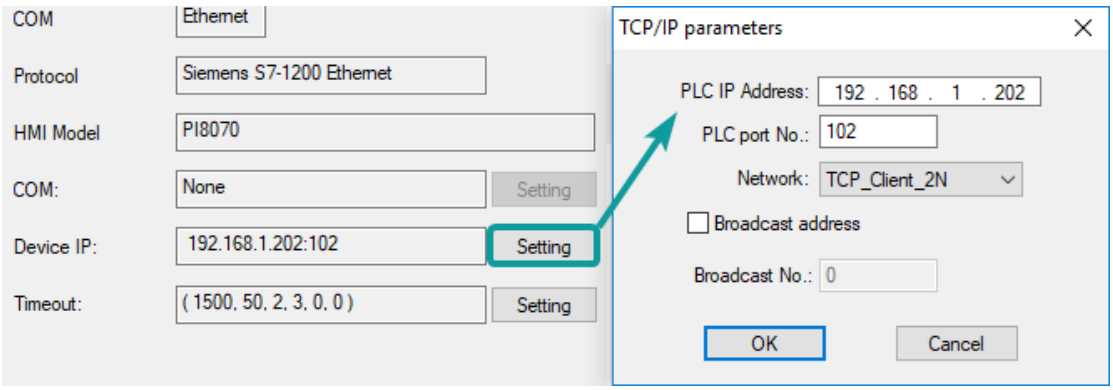
	Q	QW	QW d	d:0-99999	
	DB0.DB-DB99.DB	DBxDBB	DBxDBB nndddd	nn: 0-9999 dddd:0-9999	nn: DB No. dddd: address value
	DB0.DB-DB99.DB	DBxDBW	DBxDBW nndddd	nn:0-9999 dddd:0-9999	nn: DB No. dddd: address value Address value is a multiple of 2
	DB0.DB-DB99.DB	DBxDBD	DBxDBD nndddd	nn:0-9999 dddd:0-9999	nn: DB No. dddd: address value Address value is a multiple of 4

Communication settings

13) Enable HMI Ethernet in [Project Settings];



14) Set PLC IP in [Device IP] settings;



✎Note:

3) The S7-1200 supports simultaneous connection of three devices, so the driver supports simultaneous access to PLC by three touch screens.

4) HMI access PLC, use S7 protocol, access PLC TSAP 02.01 (s7-1200 PROFINET interface only supports three connections, the default support), detailed reference to the system manual of S7-1200.

Communication cable

11.24 User defined protocol

If the device does not support MODBUS standard, and the protocol is not list in HMIEditorP, then user can define the protocol by following instruction to realize simply communication functions like sending and receiving commands.

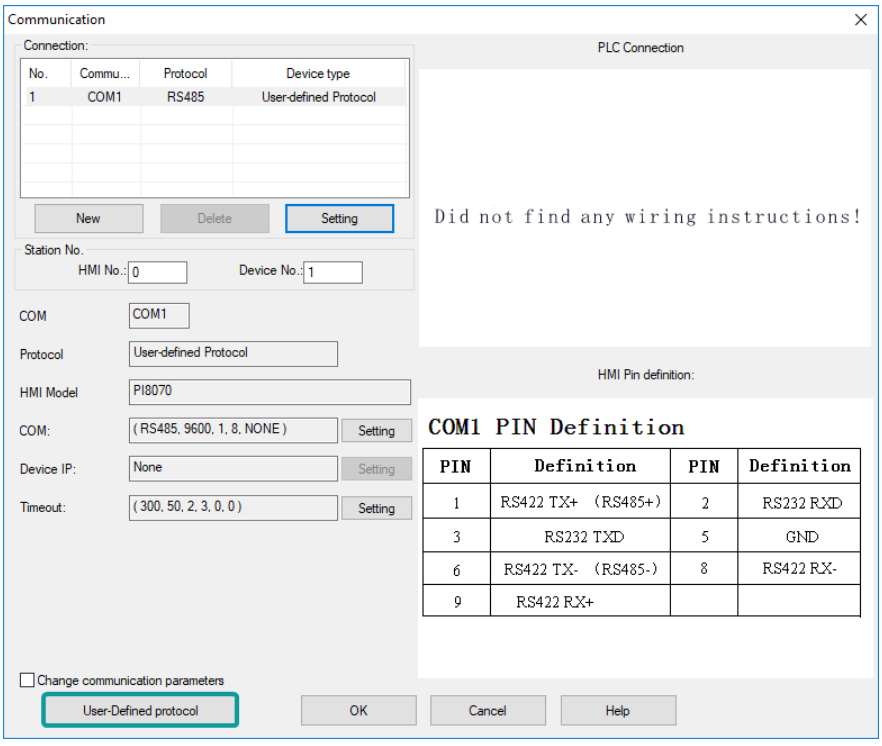
HMI settings

Items	Settings	Note
Protocol	User defined protocol	
Connection	RS485/RS232	
Baud rate	2400~187500	
Stop bits	1/ 2	
Data bits	7/ 8	
Parity	None/ Even/ ODD	

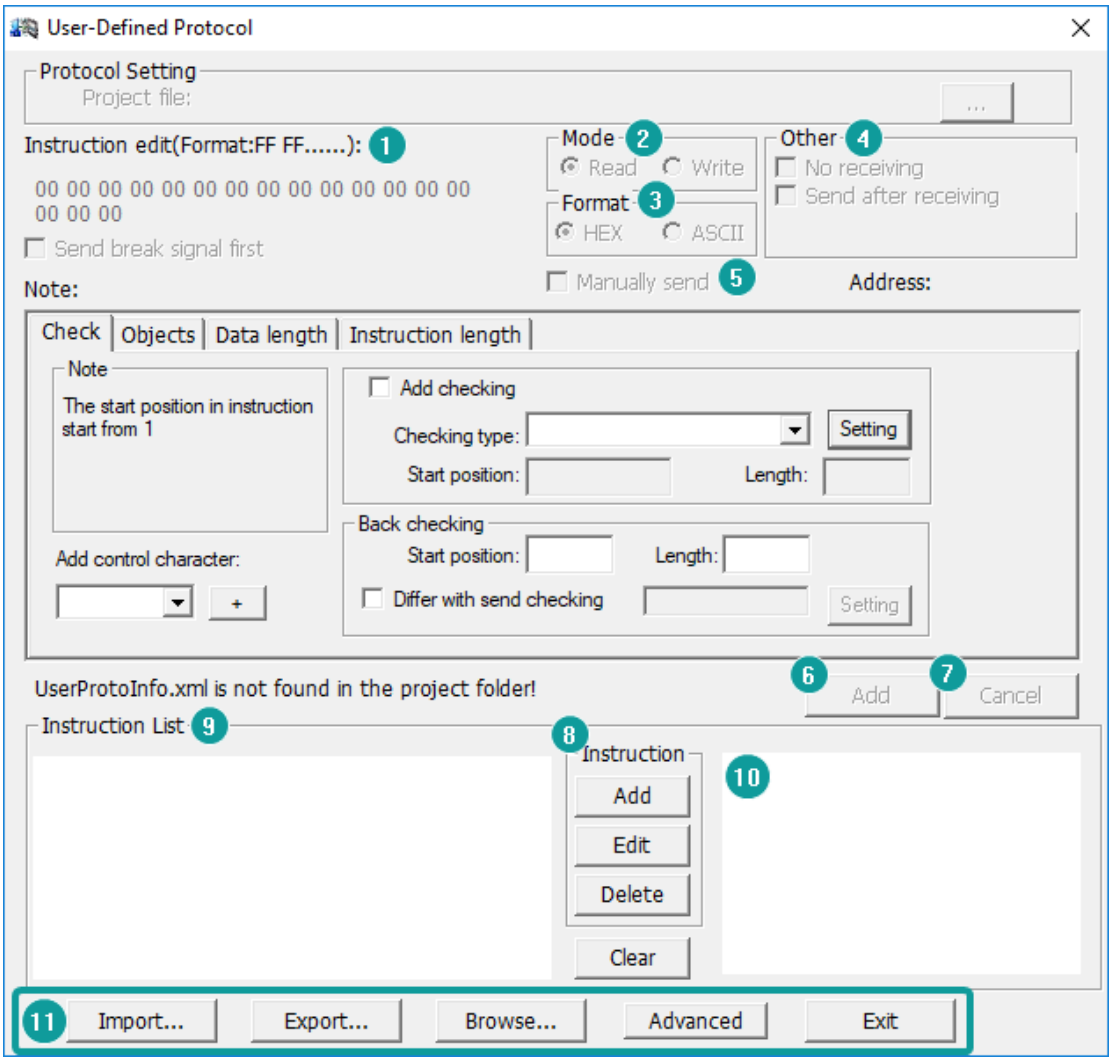
Operating procedures

1) Select [User defined protocol];

2) Click [User defined protocol] button to open setting window as below;



3) Configure user defined command;

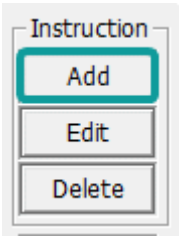


No	Item	Description
1	Instruction edit	The required command.
2	Mode	Write to address or read from the address.
3	Format	Encode format: HEX or ASCII.
4	Other	**No receiving:** HMI does not respond to the receiving command. **Send after receiving:** HMI responds to the receiving command.
5	Manually send	Respond once after trigger the address. Address: set the trigger address.
6	Add	Save this setting.
7	Cancel	Cancel current settings.

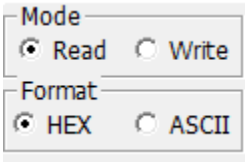
8	Add	Add a new command.
	Edit	Edit the selected command.
	Delete	Delete the selected command.
	Clear	Clear all the commands.
9	Instruction list	Display all current commands.
10	Address list	Display all the addresses added.
11	Import	Import the command files to the instruction list.
	Export	Export current command settings to local storage.
	Browse	Browse local command files.
	Advanced	Combine two commands.
	Exit	Complete editing and exit setting.

Operating procedures

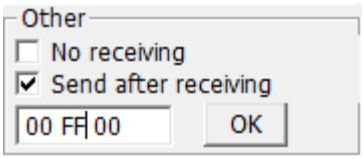
1) Click [Add] to create a new command, as below shows;



2) Select mode, [Read] or [Write], and then select Format, there are two options [Hex] and [ASCII]. As below shows;



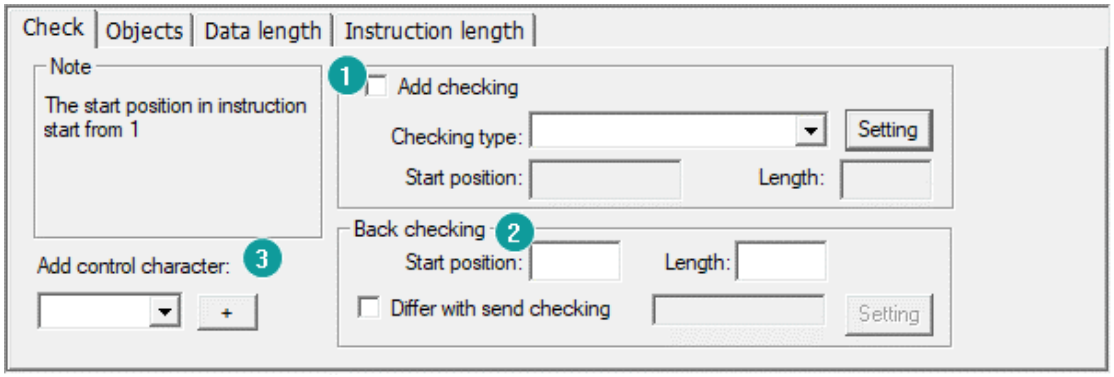
3) Other settings: [No receiving] means HMI only sends command, and it would not process the reply command which from device. [Send after receiving] means HMI will be receiving the command which from device firstly, and then sending the command to device. From example, when HMI receiving [00 FF 00] firstly and then send command, as below shows



4) Check [Manually send], and then please set the address for trigging, the setting range is 1~10, and please put Bit switch in project screen for it, and [OneCtrlBit] register is for [Manually send].

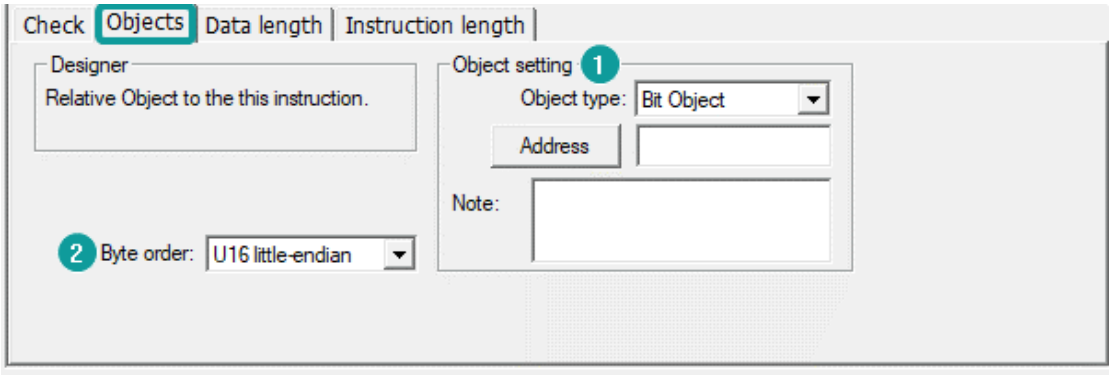
5) Instruction edit, when the data format is HEX, please use two numbers to represent one 16-bit number. ASCII format using characters to input;

6) Check settings;



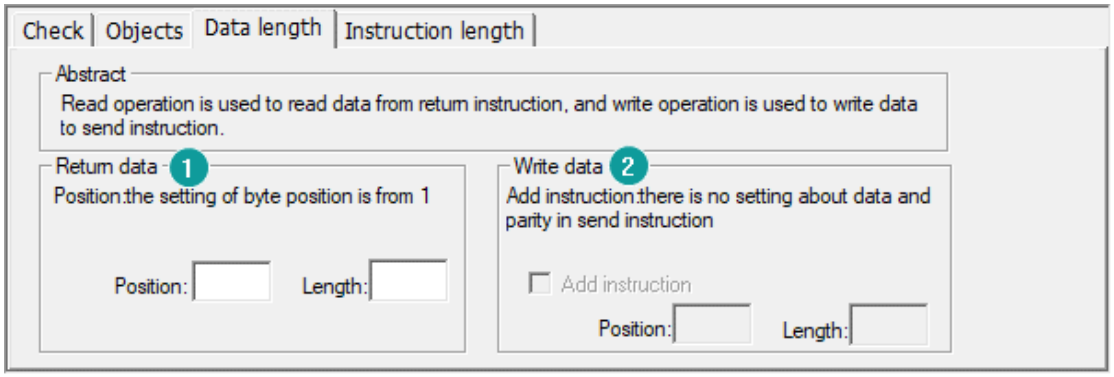
No	Items	Description
1	Add checking	Add checking command when receiving the data.
2	Back checking	Add control character in ASCII format.
	Differ with send check	Set return checking.
3	Add control character	Start position: select the start position of the data which need to check.
		Length: The data length need to be checked.

7) Object settings;



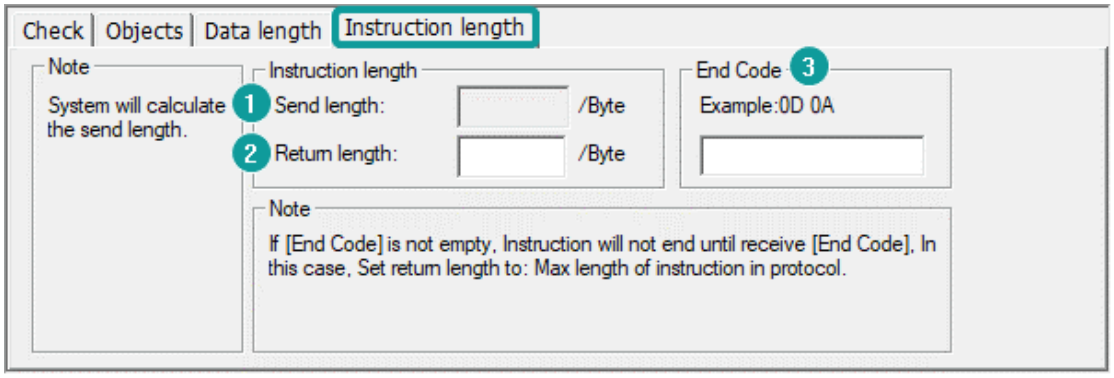
No	Items	Description
1	Object settings	Object type: bit or word address;
		Address: the triggering address;
		Note: description to object;
2	Byte order	The numerical display order;

8) Data length settings;



No	Item	Description
1	Return data	Position: the start position of the return data.
		Length: the return data length.
2	Write data	Position: the start position of the write data.
		Length: the write data length.

9) Instruction length settings



No	Item	Description
1	Send length	The instruction data will only send designated data length.
2	Return length	The responds data length.
3	End code	Instruction will not be terminated until receiving [End code];

Cable wiring

1) RS485

HMI serial port			Device port
COM1	COM2	COM3	RS485

1 RX+	1 RX+	7 RX+	A+
6 RX-	6 RX-	8 RX-	B-
5 GND	5 GND	5 GND	GND

2) RS232

HMI serial port		Device port
COM1	COM2	RS232
2 RXD	2 RXD	TXD
3 TXD	3 TXD	RTD
5 GND	5 GND	GND

✎Note:

COM3 is available in 8000 series and advanced series.

11.25 WECON PLC LX2V/ LX2E/ LX3V/LX3VP/LX3VE/LX3VM

Supported series: LX2V/ LX2E/ LX3V/LX3VP/LX3VE/LX3VM

HMI settings

Item	Settings	Note
Protocol	WECON LX2V/ LX2E/ LX3V/LX3VP/LX3VE/LX3VM	
Connection	RS422/RS485	
Baud rate	9600	
Data bit	7	
Parity	EVEN	
Stop bit	1	
PLC station No.	1	

Address list

Type	Device registers	HMI registers	Format	Range	Note
Bit	X	X	X o	0~303237	
	Y	Y	Y o	0~303237	
	M	M	M d	0~99999	
	T	T	T d	0~99999	
	C	C	C d	0~99999	
	S	S	S d	0~99999	
Word	X	X	X o	0~303237	
	Y	Y	Y o	0~303237	
	M	M	M d	0~99999	
	T	T	T d	0~99999	
	C	C	C d	0~199	

	D	D	D d	0~7999	
	S	S	S d	0~99999	
	SD	SD	SD d	8000~9999	

Cable wiring

3) RS485

HMI serial port				Device port
COM1	COM2	COM3		RS485
1 RX+	1 RX+	7 RX+	→	A+
6 RX-	6 RX-	8 RX-	→	B-
5 GND	5 GND	5 GND	→	GND

4) RS422

HMI serial port		Device port
COM1		RS485
1 TX+	→	2 RX+
6 TX-	→	1RX-
9 RX+	→	7 TX+
8 RX-	→	4 TX-
5 GND	→	3 SG

✎Note:

COM3 is available in 8000 series and advanced series.

12 HMI internal registers

HMI provide four types of HMI address for user.

*HSW, HDW, HPW, RPW are word address, HSX, HDX, HPX are bit address;

1) System Parameters (HSW/HSX)

The address starting with "HSW" are reserved by HMI system, define those address to save the state or parameter of current system. Like system properties, communication parameters etc.

2) User Data (HDW/HDX)

The address starting with "HDW" are provided for user, saving data to this type of address;

3) Special Data (HUW/HUX)

Special address reserved by HMI.

4) System Data (HAW/HAX)

Addresses in this area are latched, using for storing system data.

✎Note:

- HSW / HSX are a system special register, so please check the system special register list during use. Please use the address specified in the table and do not use the address which is not mentioned in the table;
- HUW/HUX is a system special register, so please check the system special register list during use. Please use the address specified in the table and do not use the address which is not mentioned in the table.
- HSW/ HDW/ HUW/ HAW is related to HSX/ HDX/ HUX/ HAX, (e.g. one-word address HSW0 contains 16 bits from HSX0.0 to HSX0.15);

12.1 System special address (HUW/HUX)

HUW register is used for system special:

1) The range of word address is: HUW0 - HUW50000.

2) The range of bit address is: HUX0.0-HUX50000.15.

Note: HUW/HUX belongs to the system special register (Operation for single terminal), so in the process of use, please refer to the system special register table. Do not use the address not listed in the table.

Address	Description	Function
HUW0	Screen switch	A single terminal controls the screen switching, and all terminals do not affect each other.
HUW110~129	Addresses of the built-in keyboard	Reserved
HUW135		Input method: first input
HUW136~199		Reserved
HUW200~699		Input method cache length
HUW700~749		Minimum value of the input method
HUW750~799		Maximum value of the input method
HUW800		Input method: case switching
HUW801~900		Input method format cache length
HUW1000	Addresses of user permission	OK (Sign in)
HUW1001		Result of operation
HUW1002~1005		Old password
HUW1006~1009		New password
HUW1010~1013		Confirm password
HUW1014~1029		New user name
HUW1030~1157		States information of user permission
HUW1158~1335		User name (For drop-down list object)
HUW1336~1345		User name description or note
HUW1347		Hidden
HUW1348		Permission settings
HUW1349		Current user name

HUW1382	User sign in way	0: In the drop-down list, select the user name from drop-down list object for signing in; 1: Enter the user name in Character Input/Display object for signing in (HUW1014)
HUW1400	Time interval from last operation	Shows how long the touch screen has not been clicked, in seconds. 32-bit unsigned integer Note: Clicking by different users will only clear the corresponding register of the currently operating terminal, and the registers on other terminals (such as mobile phones, computers) will not be cleared.
HUW1402	Keyboard note	It saves the text information of the keyboard notes when clicking object (HUW1402-HUW1433)
HUW1436	Current Level	Indicate current object security level

12.2 System special address (HSW/HSX)

12.2.1 System data addresses

Address	Function	Description
HSW0	Language switch	Multiple language could be set in the project, HMI support maximum 8 languages.
HSW1	Beep frequency	Frequency range (0-4999)
HSW2	Beep volume	Volume range (0-80)
HSW3	Beep time	Unit: ms
HSW4	Beep switch	=0: Turn ON; =1: Turn OFF;
HSW5	Alarm lamp	=0: No alarm; =1: Alarm;

HSW6~7	The number of alarms	The number of alarm (it including released and not released)
HSW8	Number of not released alarms	The number of not released alarms
HSW9	Time out tip message	=0: Visible =1: Invisible
HSW10	System language	=0: Chinses; =1: English;
HSW12	Screen swicth	= 0: Only HSW control the screen switch = 1: Only HUW control the screen switch
HSW13	Designated screen switch	The screen will switch to designated screen
HSW24	Reboot HMI	=1: Reboot
HSW28	Local time: year	Range: 0~9999
HSW29	Local time: month	Range: 1~12
HSW30	Local time: day	Range: 1~31
HSW31	Local time: hour	Range: 0~23
HSW32	Local time: minute	Range: 0~59
HSW33	Local time: second	Range: 0~59
HSW34	Local time: week	**On simulator:** =0: Sunday; =1: Monday; =2: Tuesday; =3: Wednesday; =4: Thursday; =5: Friday; =6: Saturday; **On HMI:** =0: Sunday; =1: Saturday; =2: Monday;

		=3: Tuesday; =4: Wednesday; =5: Thursday; =6: Friday,
HSW134	Script reading	=0: Read from HMI cache =1: Read from PLC
HSW135	Confirm installment password	Confirm button for installment password
HSW151	Installment due	Number of days to installment due
HSW185~200	Installment password	Enter installment password
HSW242	Prompt result of recipe operation	=1: Download, start =2: Download, SQL statement error =3: Download, files don’t exist =4: Download, members don’t exist =5: Download, groups don’t exist =6: Download, success =7: Upload, start =8: Upload, execute error =9: Upload, files don’t exist =10: Upload, members don’t exist =11: Upload, groups don’t exist =12: Upload, success =13: Insert, start =14: Insert, execute error =15: Insert, files don’t exist =16: Insert, members don’t exist =17: Insert, groups don’t exist =18: Insert, success =19: Delete, start =20: Delete, execute error =21: Delete, files don’t exist =22: Delete, members don’t exist

		=23: Delete, groups don’t exist =24: Delete, success =25: Delete and sort, start =26: Delete and sort, execute error =27: Delete and sort, files don't exist =28: Delete and sort, members don't exist =29: Delete and sort, groups don't exist =30: Delete and sort, success
HSW243	Prompt result of recipe index	=31: Recipe index, start =32: Recipe index, execute error =33: Recipe index, files don’t exist =34: Recipe index, members don’t exist =35: Recipe index, groups don’t exist =36: Recipe index, success
HSW521	Delete graph and alarm record	=0: No operation =1: HSX521.0 = 1, delete all records; =2: HSX521.1 = 1, delete all trend graph; =4: HSX521.2 = 1, delete all alarms; =16: HSX521.4 = 1, delete history XY plot; =32: HSX521.5 = 1, delete data records in SD card or flash dish;(Please make a setting which is saved to flash disk or SD card in project setting); =64: HSX521.6 = 1, delete alarms records in SD card or flash dish; (Please make a setting which is saved to flash disk or SD card in project setting).

HSW522	Copy and paste the alarm/data files in flash to the USB flash disk	=0: No operation =1: HSX522.0 = 1, copy all record =2: HSX522.2 = 1, copy history XY trend graph =8: HSX522.3 = 1, copy alarm record =32: HSX522.5 = 1, copy recipe
HSW523	Copy and paste the alarm/data files in flash to the SD card	=0: No operation =1: HSX523.0 = 1, copy all record =4: HSX523.2 = 1, copy history XY trend graph =8: HSX523.3 = 1, copy alarm record
HSW524	Copy and paste the alarm/data files in SD card to the USB flash disk	=0: no operation =4: HSX524.2 = 1, copy history XY trend graph =8: HSX524.3 = 1, copy alarm record =16: HSX524.4 = 1, copy history alarm record =32: HSX524.5 = 1, copy data record
HSW525	Copy and paste the alarm/data files in USB flash disk to SD card	=0: no operation =4: HSX525.2=1, copy history XY trend graph =8: HSX525.3 = 1, copy alarm record =16: HSX525.4=1, copy history alarm record =32: HSX525.5= 1, copy data record
HSW526	Delete file list	=0: no operation =1: HSX526.0 = 1, delete designated file =2: HSX526.1 = 1, delete all files
HSW527	Eject USB flash disk/SD card	=0: No operation =1: Eject USB flash disk =2: Eject SD card
HSW528	The state of USB flash	=1: USB flash disk is detected

	disk	=2: Ejecting USB flash disk, please waiting… =3: USB flash disk ejected
HSW529	The state of SD card	=1:SD card is detected =2: Ejecting SD card, please waiting… =3: SD card ejected
HSW550~849	Communication control	For communication control and communication lamp (please refer to communication control sector for detailed)
HSW850	Network state	Display network state =0: Disconnected; =1: only connected LAN, so APP can't access HMI; =2: Connected Cloud, APP and web could access HMI;
HSW855	Backlight Control	HSX855.0 = 1: turn on the backlight and reset automatically after being triggered; HSX855.1= 1: turn off the backlight and reset automatically after being triggered;
HSW856	Close the sub-screen or indirect screen when switching screen control (when the former screen is switched to the current screen)	=0: close the sub-screen, including the indirect screen; =1: not to close.
HSW857	Permission in remote access (web page, mobile APP, cloud platform, etc.)	=0: users could switch the screen, control the switch and update data in remote access; =1: users could only control function switch, i.e., could only switch the screen, view data and switch state,

		but could not operate or update them.
HSW881	Storage of Record files	It is used for controlling saving alarm/data record files to U disk / SD card. = 0: Save to storage; = 1: Don't save to storage;
HSW882	Storage device status	HDX882.0=0 USB flash doesn't execute storage or storage finished; HDX882.0=1 USB flash is reading data, don't remove USB flash; HDX882.1=0 SD card doesn't execute storage or storage finished; HDX882.1=1 SD card is reading data, don't remove SD card;
HSW884	Into setup screen	= 0: Do not into setup screen = 1: Into setup screen
HSW885	When the control object hides the address read failure (communication failure), set the display mode of the object	= 0: displayed by object setting. =1: control address read failure, the address control of all objects is hidden, not displayed. =2: control address read failure, the address control of all objects is displayed, not hidden.
HSW893	User Restriction Control Address like the special address HUW1000 feature, refer to "User Rights "	=1: User Log in =2: Change User password =3: User Log out =4: New user =5: Delete user =6: Add user rights =8: Add Hide features =9: Delete Profile =10: Export Profile =11: Import profile

		=12: Export log file =13: Delete log file
HSW900	Quick update frequency settings for objects	Valid when the object is enabled for [quick update]. Default: 5. Range: 1 (fastest) ~ 50 (slowest)
HSW920	Maximum periods (Static mode)	Numeric Input/ Display (range: 0-12)
HSW921 ~ 924	Admin key (Static mode)	Character Input/ Display (length: 8)
HSW925 ~ 928	1st period key (Static mode)	Character Input/ Display (length: 8)
HSW929 ~ 933	1st expiry time (Static mode)	Numeric Input/ Display (YYYYMMDDHHMM)
HSW935 ~ 938	2nd period key (Static mode)	Character Input/ Display (length: 8)
HSW939 ~ 943	2nd expiry time (Static mode)	Numeric Input/ Display (YYYYMMDDHHMM)
HSW945 ~ 948	3rd period key (Static mode)	Character Input/ Display (length: 8)
HSW949 ~ 953	3rd expiry time (Static mode)	Numeric Input/ Display (YYYYMMDDHHMM)
HSW955 ~ 958	4th period key (Static mode)	Character Input/ Display (length: 8)
HSW959 ~ 963	4th expiry time (Static mode)	Numeric Input/ Display (YYYYMMDDHHMM)
HSW965 ~ 968	5th period key (Static mode)	Character Input/ Display (length: 8)
HSW969 ~ 973	5th expiry time (Static mode)	Numeric Input/ Display (YYYYMMDDHHMM)
HSW975 ~ 978	6th period key (Static mode)	Character Input/ Display (length: 8)
HSW979 ~ 983	6th expiry time (Static mode)	Numeric Input/ Display (YYYYMMDDHHMM)
HSW985 ~ 988	7th period key (Static	Character Input/ Display (length: 8)

	mode)	
HSW989 ~ 993	7th expiry time (Static mode)	Numeric Input/ Display (YYYYMMDDHHMM)
HSW995 ~ 998	8th period key (Static mode)	Character Input/ Display (length: 8)
HSW999 ~ 1003	8th expiry time (Static mode)	Numeric Input/ Display (YYYYMMDDHHMM)
HSW1005 ~1008	9th period key (Static mode)	Character Input/ Display (length: 8)
HSW1009 ~ 1013	9th expiry time (Static mode)	Numeric Input/ Display (YYYYMMDDHHMM)
HSW1015 ~1018	10th period key (Static mode)	Character Input/ Display (length: 8)
HSW1019 ~ 1023	10th expiry time (Static mode)	Numeric Input/ Display (YYYYMMDDHHMM)
HSW1025 ~1028	11th period key (Static mode)	Character Input/ Display (length: 8)
HSW1029 ~ 1033	11th expiry time (Static mode)	Numeric Input/ Display (YYYYMMDDHHMM)
HSW1035 ~1038	12th period key (Static mode)	Character Input/ Display (length: 8)
HSW1039 ~ 1043	12th expiry time (Static mode)	Numeric Input/ Display (YYYYMMDDHHMM)
HSW1046	Current period (Static mode)	Current period (Range 1-13)
HSW1047	Save settings (Static mode)	HSX1047.0=1: Save static installment information HSX1047.1=1: Write installment information to registers
HSW1070	The time interval (seconds) since the last time the screen was clicked	Shows how long the current screen has not been clicked, using a decimal unsigned double word (Numeric Input/ Display). Note: This register is cleared to zero regardless of which user clicks on the

		screen.
HSW1086	Address mapping polling cycle, unit: ms	Address mapping polling cycle, effective range: 40~1000ms, default: 300ms.
HSW1087	Write interval in address mapping	Address length setting, triggers a write operation when N addresses change. The effective range: 0-5, and default is 2. When N more than 5, it becomes 5.
HSW1088	Write interval in scripts	Address length setting, triggers a write operation when N addresses change. The effective range: 0-5, and default is 2. When N more than 5, it becomes 5.
HSW1089	Interval in read through	Address length setting, triggers a write operation when N addresses change. The effective range: 0-5, and default is 2. When N more than 5, it becomes 5.
HSW1140	Trigger objects security function	=0, Disable =1, Enable
HSW1141	Each level independent	=0, No, high-level passwords can unlock low-level = 1, Yes, high-level passwords cannot unlock low-level
HSW1142	Initialization level	Initialization level while HMI running
HSW1144	Password for Level 1	Maximum character length 8 allowed in password (numbers, letters (case sensitive)).
HSW1148	Password for Level 2	Maximum character length 8 allowed in password (numbers, letters (case sensitive)).
HSW1152	Password for Level 3	Maximum character length 8 allowed in password (numbers, letters (case sensitive)).
HSW1156	Password for Level 4	Maximum character length 8 allowed

		in password (numbers, letters (case sensitive)).
HSW1160	Password for Level 5	Maximum character length 8 allowed in password (numbers, letters (case sensitive)).
HSW1164	Password for Level 6	Maximum character length 8 allowed in password (numbers, letters (case sensitive)).
HSW1168	Password for Level 7	Maximum character length 8 allowed in password (numbers, letters (case sensitive)).
HSW1172	Password for Level 8	Maximum character length 8 allowed in password (numbers, letters (case sensitive)).
HSW1176	Password for Level 9	Maximum character length 8 allowed in password (numbers, letters (case sensitive)).
HSW1180	Password for Level 10	Maximum character length 8 allowed in password (numbers, letters (case sensitive)).
HSW1184	Password for Level 11	Maximum character length 8 allowed in password (numbers, letters (case sensitive)).
HSW1188	Password for Level 12	Maximum character length 8 allowed in password (numbers, letters (case sensitive)).
HSW1192	Save and undo settings	= 1, Save, save the data of HSW1140, HSW1141, HSW1142, HSW1144-HSW1188 to a file, the data will not change after restart (note: the file will be deleted if download a new project) =2,Undo, undo modification of HSW1140、HSW1141、HSW1142、HSW1144-HSW1188 (note: If click save, the operation is invalid)

HSW10000~19999	Power OFF protection	
HSW10035	The Ethernet parameter is only editable, when the settings are programmed in HMI software.	Local IP address high endian 1
HSW10036		Local IP address high endian 2
HSW10037		Local IP address high endian 3
HSW10038		Local IP address high endian 4
HSW10039		Local mask IP address high endian 1
HSW10040		Local mask IP address high endian 2
HSW10041		Local mask IP address high endian 3
HSW10042		Local mask IP address high endian 4
HSW10043		Local gateway high endian 1
HSW10044		Local gateway high endian 2
HSW10045		Local gateway high endian 3
HSW10046		Local gateway high endian 4
HSW10047		Local port address
HSW10048	Displays the MAC code of the current network card (Hexadecimal display)	Local MAC code high word 1
HSW10049		Local MAC code high word 2
HSW10050		Local MAC code high word 3
HSW10051		Local MAC code high word 4
HSW10052		Local MAC code high word 5
HSW10053		Local MAC code high word 6
HSW10461~10493	Remote access password	8-character remote access password
HSW10494~10558	Machine ID (Read only)	Machine ID for remote access (read only 64-bit)
HSW10576	Save dynamic installment settings	HSX10576.0=1: save settings
HSW10577	Control address for installment	HSX10577.0=0: disable dynamic installment HSX10577.0=1: enable dynamic installment HSX10577.1=0: disable static installment HSX10577.1=1: enable static

		installment
HSW10578-10583	Character Input/ Display (length: 6)	Password
HSW10584-10586	Numeric Input/ Display (YYYYMMDD)	Expiry time
HSW10587-10589	Numeric Input/ Display (YYYYMMDD)	Expiry time (set in program)
HSW10590	Background light time	Set the light time for background =0: lit all the time; Others: light time (unit: S)
HSW10591	Backlight brightness adjustment	Backlight brightness range: 1 (darkest) ~ 100 (brightest)
HSW10603	Set the printer to print orientation	Set the print direction: =1: Forward printing =2: Reverse print Other: Forward print
HSW10604	Print dot type	=1: 8 dot matrix type; =2: 24 dot matrix type; Other: 8 dot matrix type
HSW10605	Printer print width	Set the width of the printer to print (in pixels), such as HSW10605 = 394: The printer supports images with a print width of 394 pixels
HSW10606	Printer instruction type	=1: Graphic print type =2: Dot density printing type
HSW10607	Cut function	=1: Enable the cut function =2: Disable cutting function
HSW10608	Print the alignment of the text	=1: Left justified =2: Center alignment =3: Right justified

12.2.2 Serial port communication configuration

Port	Address	Function	Description
COM1	HSW010061	Communication	=0: RS232 =1: RS485 =2: RS422
	HSW010062	Baud rate	=0: 1200 =1: 2400 =2: 4800 =3: 9600 =4: 19200 =5: 38400 =6: 57600 =7: 115200 =8: 230400
	HSW010063	Data bit	=7: 7 bit =8: 8 bit
	HSW010064	Stop bit	=1: 1 bit =2: 2 bit
	HSW010065	Check bit	=0: None =1: ODD =2: EVEN
	HSW010066	Wait timeout	
	HSW010067	Read timeout	
	HSW010068	Retry time	
	HSW010069	Retry timeout	
	HSW010070	HMI station number	
	HSW010071	PLC station number	
COM2	HSW010072	Communication	=0: RS232 =1: RS485
	HSW010073	Baud rate	=0: 1200

			=1: 2400 =2: 4800 =3: 9600 =4: 19200 =5: 38400 =6: 57600 =7: 115200 =8: 230400
	HSW010074	Data bit	=7: 7 bit =8: 8 bit
	HSW010075	Stop bit	=1: 1 bit =2: 2 bit
	HSW010076	Check bit	=0: None =1: ODD =2: EVEN
	HSW010077	Wait timeout	
	HSW010078	Read timeout	
	HSW010079	Retry time	
	HSW010080	Retry timeout	
	HSW010081	HMI station number	
	HSW010082	PLC station number	
COM3	HSW010083	Communication	=0: RS232 =1: RS485 =2: RS422
	HSW010084	Baud rate	=0: 1200 =1: 2400 =2: 4800 =3: 9600 =4: 19200 =5: 38400 =6: 57600 =7: 115200

			=8: 230400
	HSW010085	Data bit	=7: 7 bit =8: 8 bit
	HSW010086	Stop bit	=1: 1 bit =2: 2 bit
	HSW010087	Check bit	=0: None =1: ODD =2: EVEN
	HSW010088	Wait timeout	
	HSW010089	Read timeout	
	HSW010090	Retry time	
	HSW010091	Retry timeout	
	HSW010092	HMI station number	
	HSW010093	PLC station number	
COM1-2	HSW010094	Communication	=0: RS232 =1: RS485 =2: RS422
	HSW010095	Baud rate	=0: 1200 =1: 2400 =2: 4800 =3: 9600 =4: 19200 =5: 38400 =6: 57600 =7: 115200 =8: 230400
	HSW010096	Data bit	=7: 7 bit =8: 8 bit
	HSW010097	Stop bit	=1: 1 bit =2: 2 bit
	HSW010098	Check bit	=0: None =1: ODD

			=2: EVEN
	HSW010099	Wait timeout	
	HSW010100	Read timeout	
	HSW010101	Retry time	
	HSW010102	Retry timeout	
	HSW010103	HMI station number	
	HSW010104	PLC station number	
COM2-2	HSW010105	Communication	=0: RS232 =1: RS485 =2: RS422
	HSW010106	Baud rate	=0: 1200 =1: 2400 =2: 4800 =3: 9600 =4: 19200 =5: 38400 =6: 57600 =7: 115200 =8: 230400
	HSW010107	Data bit	=7: 7 bit =8: 8 bit
	HSW010108	Stop bit	=1: 1 bit =2: 2 bit
	HSW010109	Check bit	=0: None =1: ODD =2: EVEN
	HSW010110	Wait timeout	
	HSW010111	Read timeout	
	HSW010112	Retry time	
	HSW010113	Retry timeout	
	HSW010114	HMI station number	
	HSW010115	PLC station number	

12.2.3 Ethernet communication configuration

No.	Address	Function	Description
1	HSW11004	Ethernet parameter configuration for communication number 1 in list. Configure those addresses according to connected device. After configuration, wait for 5 seconds and restart the HMI.	IP address high endian 1
	HSW11005		IP address high endian 2
	HSW11006		IP address high endian 3
	HSW11007		IP address high endian 4
	HSW11008		Port number
	HSW11009		=2 TCP; =3 UDP
	HSW11010		Reserved
2	HSW11011	Ethernet parameter configuration for communication number 2 in list. Configure those addresses according to connected device. After configuration, wait for 5 seconds and restart the HMI.	IP address high endian 1
	HSW11012		IP address high endian 2
	HSW11013		IP address high endian 3
	HSW11014		IP address high endian 4
	HSW11015		Port number
	HSW11016		=2 TCP; =3 UDP
	HSW11017		Reserved
…	…	…	…
32	HSW11221	Ethernet parameter configuration for communication number 32 in list. Configure those addresses according to connected device. After configuration, wait for 5 seconds and restart the HMI.	IP address high endian 1
	HSW11222		IP address high endian 2
	HSW11223		IP address high endian 3
	HSW11224		IP address high endian 4
	HSW11225		Port number
	HSW11226		=2 TCP; =3 UDP
	HSW11227		Reserved

12.2.4 Communication control

Communication	Station	Control bit	Communication	Description

No.	No.	lamp		
1	0~15	HSX550.0~550.15	HSX558.0~558.15	Default setting, ON=0; OFF=1. normal=0; error=1
	16~31	HSX551.0~551.15	HSX559.0~559.15	
	32~47	HSX552.0~552.15	HSX560.0~560.15	
	48~63	HSX553.0~553.15	HSX561.0~561.15	
2	0~15	HSX566.0~566.15	HSX574.0~574.15	
	16~31	HSX567.0~567.15	HSX575.0~575.15	
	32~47	HSX568.0~568.15	HSX576.0~576.15	
	48~63	HSX569.0~569.15	HSX577.0~577.15	
3	0~15	HSX582.0~582.15	HSX590.0~590.15	
	16~31	HSX583.0~583.15	HSX591.0~591.15	
	32~47	HSX584.0~584.15	HSX592.0~592.15	
	48~63	HSX585.0~585.15	HSX593.0~593.15	
4	0~15	HSX598.0~598.15	HSX606.0~606.15	
	16~31	HSX599.0~599.15	HSX607.0~607.15	
	32~47	HSX600.0~600.15	HSX608.0~608.15	
	48~63	HSX601.0~601.15	HSX609.0~609.15	
5	0~15	HSX614.0~614.15	HSX622.0~622.15	
	16~31	HSX615.0~615.15	HSX623.0~623.15	
	32~47	HSX616.0~616.15	HSX624.0~624.15	
	48~63	HSX617.0~617.15	HSX625.0~625.15	
6	0~15	HSX630.0~630.15	HSX638.0~638.15	
	16~31	HSX631.0~631.15	HSX639.0~639.15	
	32~47	HSX632.0~632.15	HSX640.0~640.15	
	48~63	HSX633.0~633.15	HSX641.0~641.15	
7	0~15	HSX646.0~646.15	HSX654.0~654.15	
	16~31	HSX647.0~647.15	HSX655.0~655.15	
	32~47	HSX648.0~648.15	HSX656.0~656.15	
	48~63	HSX649.0~649.15	HSX657.0~657.15	
8	0~15	HSX662.0~662.15	HSX670.0~670.15	
	16~31	HSX663.0~663.15	HSX671.0~671.15	
	32~47	HSX664.0~664.15	HSX672.0~672.15	

	48~63	HSX665.0~665.15	HSX673.0~673.15	
9	0~15	HSX678.0~678.15	HSX686.0~686.15	
	16~31	HSX679.0~679.15	HSX687.0~687.15	
	32~47	HSX680.0~680.15	HSX688.0~688.15	
	48~63	HSX681.0~681.15	HSX689.0~689.15	
10	0~15	HSX694.0~694.15	HSX702.0~702.15	
	16~31	HSX695.0~695.15	HSX703.0~703.15	
	32~47	HSX696.0~696.15	HSX704.0~704.15	
	48~63	HSX697.0~697.15	HSX705.0~705.15	
11	0~15	HSX710.0~710.15	HSX718.0~718.15	
	16~31	HSX711.0~711.15	HSX719.0~719.15	
	32~47	HSX712.0~712.15	HSX720.0~720.15	
	48~63	HSX713.0~713.15	HSX721.0~721.15	
12	0~15	HSX726.0~726.15	HSX734.0~734.15	
	16~31	HSX727.0~727.15	HSX735.0~735.15	
	32~47	HSX728.0~728.15	HSX736.0~736.15	
	48~63	HSX729.0~729.15	HSX737.0~737.15	
13	0~15	HSX742.0~742.15	HSX750.0~750.15	
	16~31	HSX743.0~743.15	HSX751.0~751.15	
	32~47	HSX744.0~744.15	HSX752.0~752.15	
	48~63	HSX745.0~745.15	HSX753.0~753.15	
14	0~15	HSX758.0~758.15	HSX766.0~766.15	
	16~31	HSX759.0~759.15	HSX767.0~767.15	
	32~47	HSX760.0~760.15	HSX768.0~768.15	
	48~63	HSX761.0~761.15	HSX769.0~769.15	
15	0~15	HSX774.0~774.15	HSX782.0~782.15	
	16~31	HSX775.0~775.15	HSX783.0~783.15	
	32~47	HSX776.0~776.15	HSX784.0~784.15	
	48~63	HSX777.0~777.15	HSX785.0~785.15	
16	0~15	HSX790.0~790.15	HSX798.0~798.15	
	16~31	HSX791.0~791.15	HSX799.0~799.15	
	32~47	HSX792.0~792.15	HSX800.0~800.15	

	48~63	HSX793.0~793.15	HSX801.0~801.15	

13 Tools

This chapter will introduce attached tools in HMIEditorP.

13.1 Off-line

Introduction

[Off-line] provides function to users for checking the HMI project display on PC.

Requirement

Project is compiled and .wmt file exists

Operating procedure

1) Click [Off-line] button;
2) Check HMI project display and some functions in Off-line simulator;

13.2 On-line

Introduction

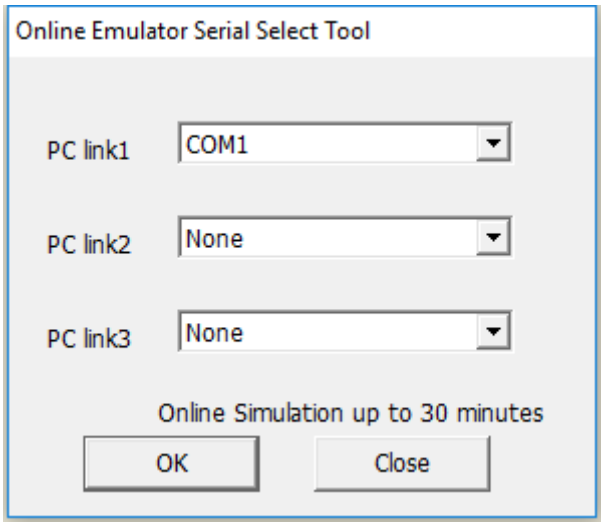
[On-line] provides function to users for checking the HMI project and communication.

Requirement

1) Project is compiled and .wmt file exists
2) PC is connecting with PLC device

Operating procedure

1) Click [On-line] icon to open the online simulator
2) The [Online Emulator serial select tool] pop-up automatically, as following picture shows, the detailed description showed in following content.



- PC link1/ PC link2/ PC link 3 correspond to HMI protocol list number;
- COM ports in the drop-list correspond to PC port.

Result

1) On-line simulator runs HMI project;
2) HMI project is communicating with PLC device;

✎Note:

1) Most Desktop only has RS232 port, if users need to use RS485 and RS422, please use converter for them.
2) Only simulation only work for 30 minutes.

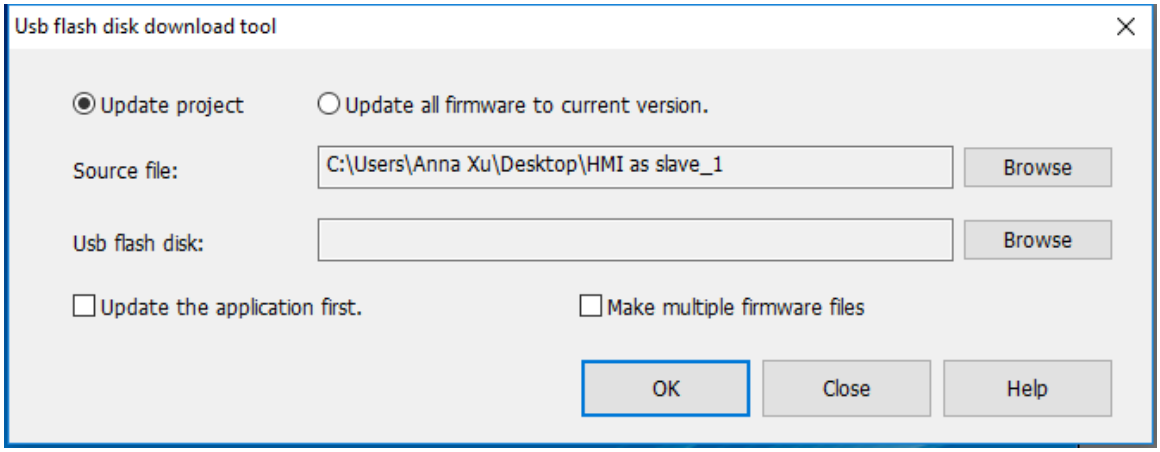
13.3 Udisk Download

Introduction

[USB flash disk download tool] could create project and firmware updating file. This section introduces how to use this tool.

Operating procedure creating project updating file

1) Click [Udisk download] to open tool window;
2) Select [Update project] option;



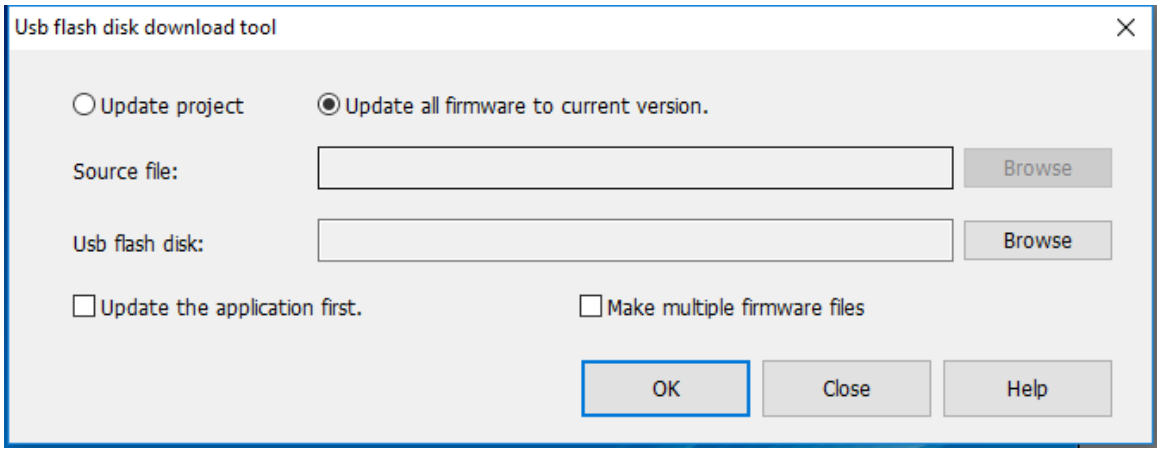
3) Set project in [Source file];
4) Set USB flash disk path;
5) Select [Update the application first] according to requirements, this option means if USB flash disk contains project and firmware updating files at the same time, it will update project firstly;
6) Click [OK] to execute the operation;

Result

Create a [Project.fos] file

Operating procedure creating firmware updating file

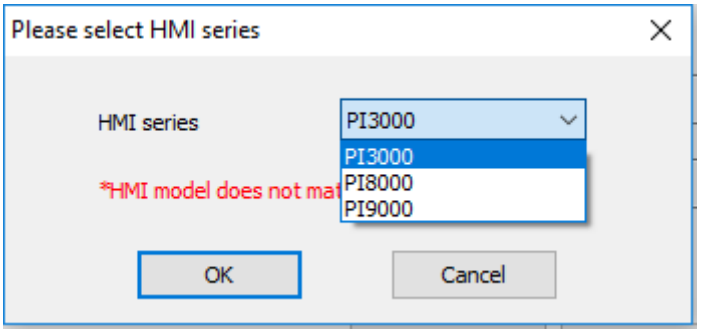
1) Click [Udisk download] to open tool window;
2) Select [Update all firmware to current version] option;



3) Set USB flash disk path;

4) Check [Make multiple firmware files] according to requirements, if check this option, the firmware name in [USB flash disk] could be modified;

5) Click [OK] to execute operation, it pops-up below window;



6) Select HMI series according to real situation

Result

1) Create a [update.fos] file

2) Create a [XXX.wos] file for [Make multiple firmware files]

✎Note:

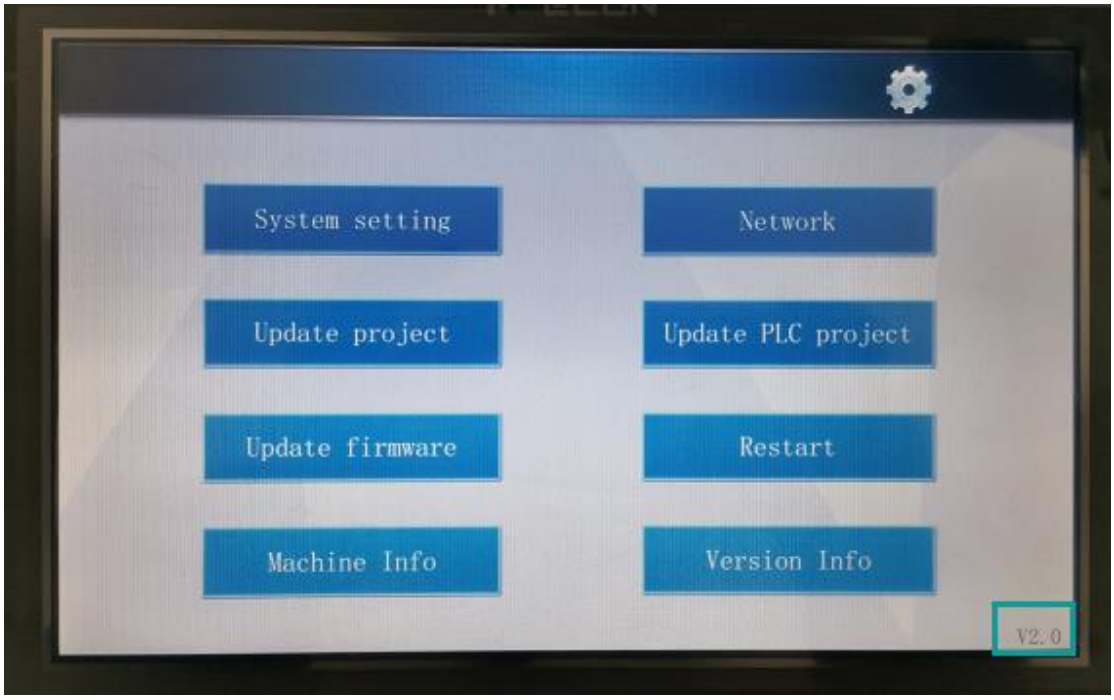
1) The recommended USB flash drive format is FAT 32;

2) The updating file need to be stored in the root directory of the USB flash drive;

3) Only one project file or firmware file is allowed in the root directory of u disk by default. User needs to check [make multiple firmware files] option to make it possilbe to save several files in USB flash drive. For multiple files mode, it is necessary to rename the file, otherwise it will overwritge the file with the same name in USB flash drive.

4) [XXX.wos] is supported in V2.0 or later version of setup; The setup menu interface

of V2.0 (in the bottom right corner) version is shown in the figure below.



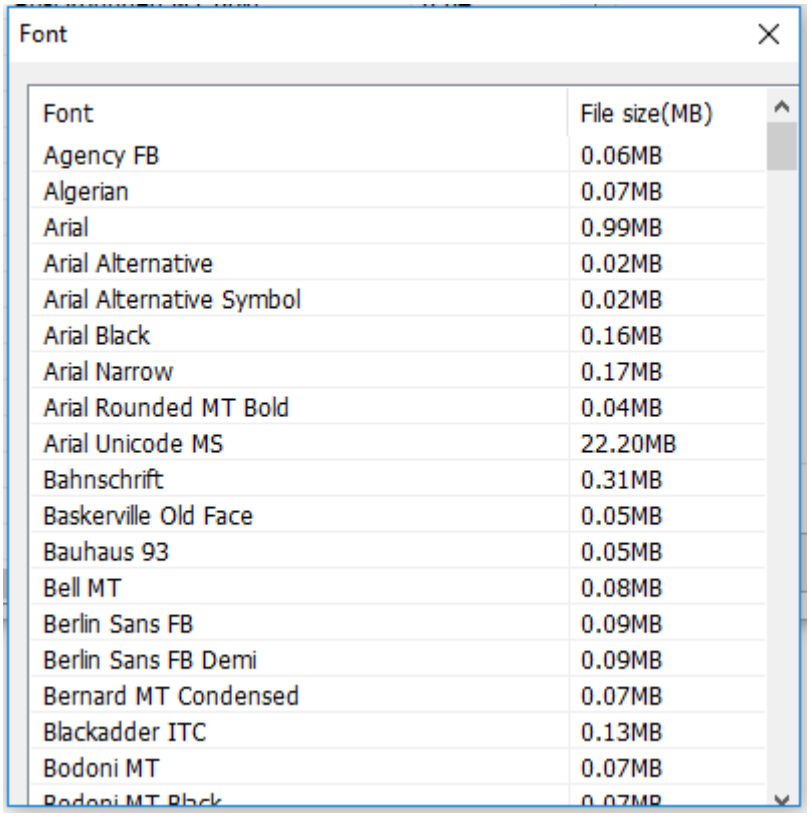
13.4 Font Pack

Introduce

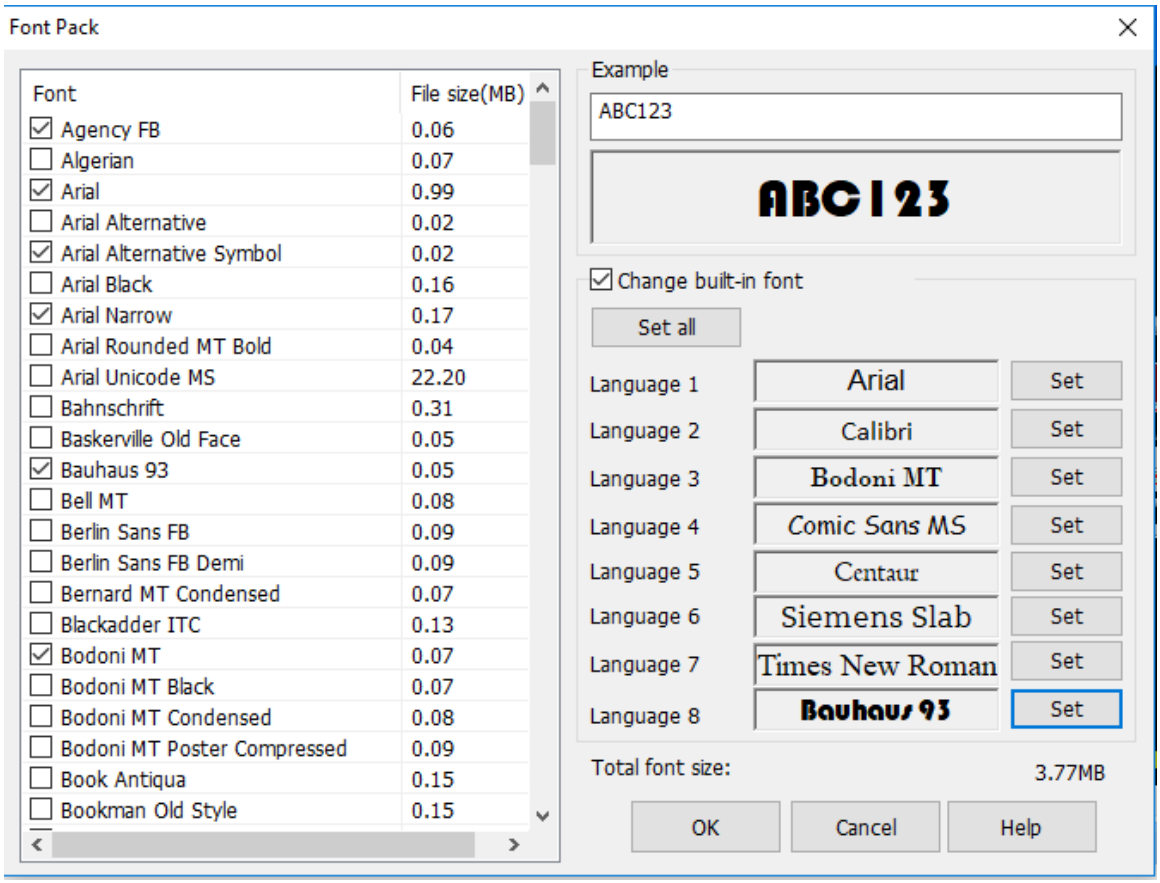
[Font pack] is for setting built-in font for HMI project, in this way, the text in some objects of the HMI could be displayed in the desired font.

Operating procedure

1) Click [Font pack] button to open setting window;
2) Check [Change Built-in font];
3) If 8 languages use the same font, please click [Set all] to open setting window as below show;



4) Select font as picture shows;



5) Click [OK] to save settings;

Result

The built-in font of language 1 will be Arial;

The built-in font of language 2 will be Calibri;

The built-in font of language 3 will be Bodoni MT;

The built-in font of language 4 will be Comic sans MS;

The built-in font of language 5 will be Centaur;

The built-in font of language 6 will be Siemens slab;

The built-in font of language 7 will be Times New Roman;

The built-in font of language 8 will be Bauhaus 93;

13.5 Address List

Introduction

[Address list] could display all addresses which are used in project, this section will introduce this tool in detailed.

Description

Connection: Select HMI connection, such as COM2 Modbus RTU;

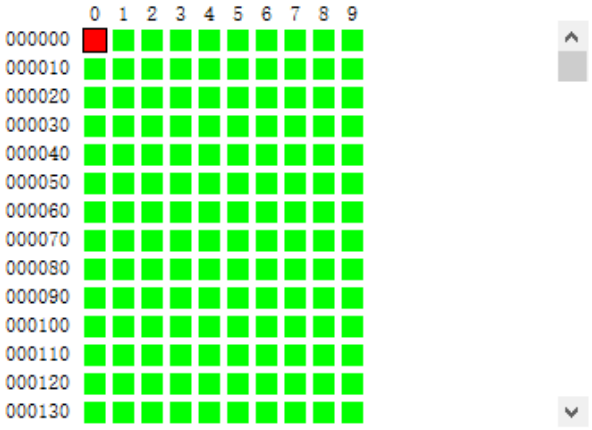
Address mode: Select word address or bit address;

Address type: Select register, or function code, such as 4;

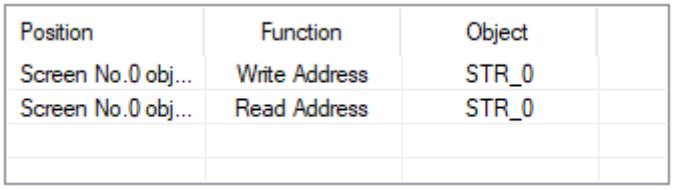
Station: Select connected device station;

Start address: Set start address in window;

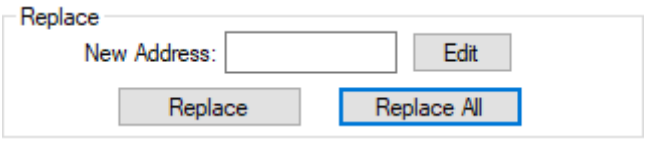
Window: Display all addresses start from [Start address], red means occupied, green means unoccupied, as below figure shows;



Information: It is display the selected address information in project, as below figure shows;



Replace: Enter new address to replace the selected address in project;

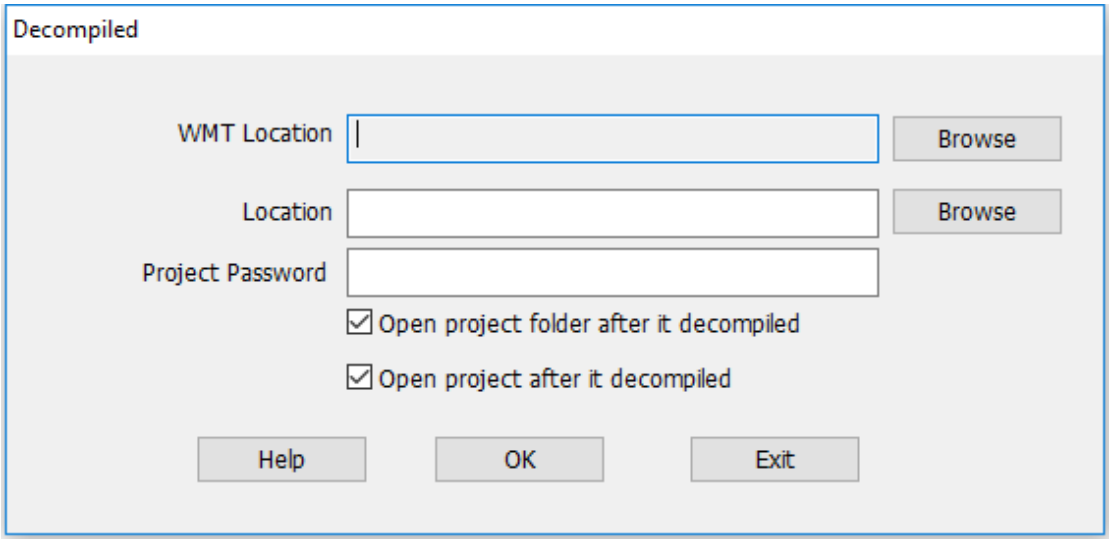


13.6 Decompile

Introduction

When uploading a project from the HMI to the PC, the **.wmt file is obtained, which needs to be decompiled before it could be opened with the HMIEditorP software.

This section introduces this tool in detailed.



Operating procedure

1) Open [Decompiled] tool;
2) Select WMT file by clicking [Browse] in [WMT location];
3) Set save path in [Location];

4) Enter password in [Project Password] (Enter as needed);

5) Click [OK] to perform the operation;

Result

A project folder is created.

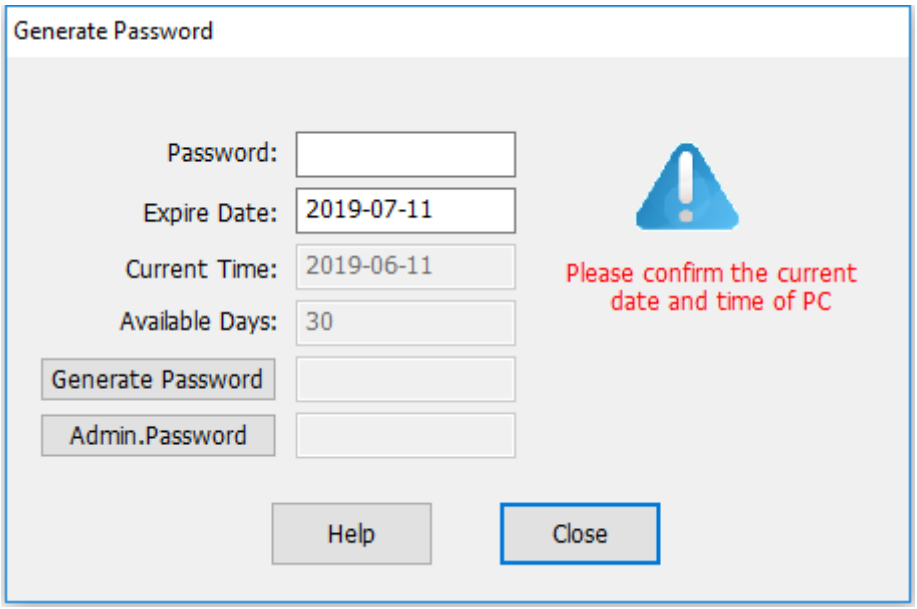
13.7 Password Tool

Introduction

The password tool is used for setting the password for dynamic installment payments.

Dynamic installment function creates a [dynamic password" by the "key" and "expiration". In the same project, the dynamic installment and static installment are mutually exclusive.

This section will introduce how to use this tool.



Description

- **Password:** It is for entering password, which set in [Project Settings];
- **Expire Date:** It is for setting expire date for installment;
- **Current Time:** Just display current date, read only;
- **Available Days:** It is used for displaying the time of the next staging;

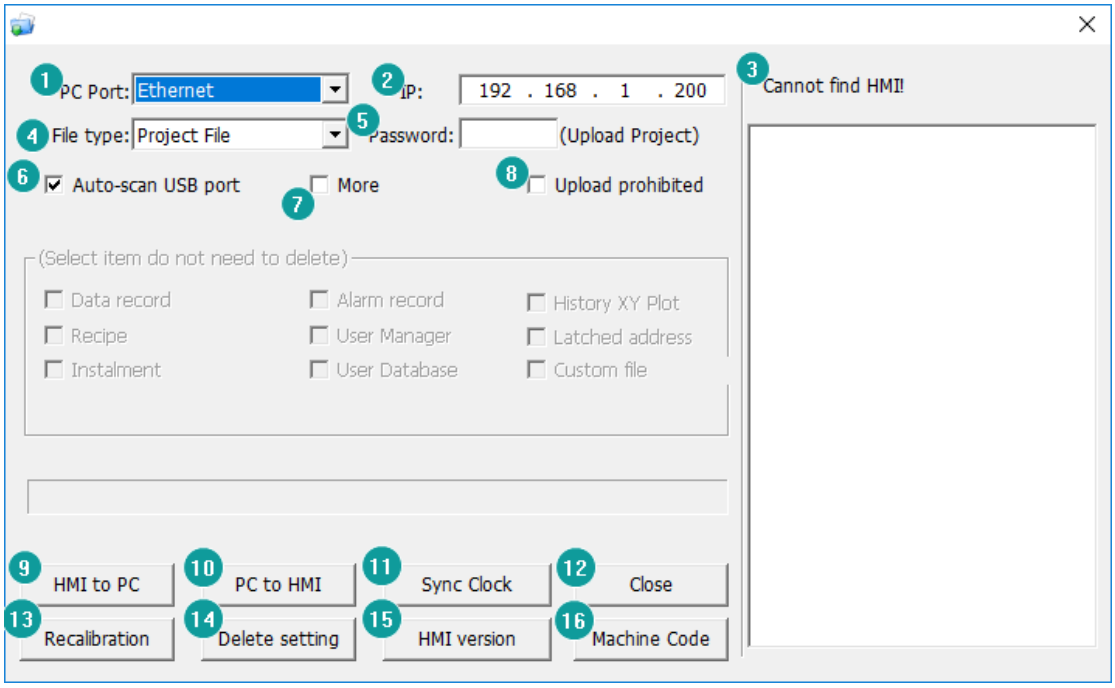
- **Generate Password:** Click it to generate the password automatically, this password is for payment;
- **Admin Password:** It is available for every payment; this password will end all payments;

13.8 Download Tool

Introduction

The download tool is mainly used for project transfer, and also comes with other functions, such as synchronization time, checking firmware version, and so on.

Description

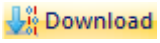


1) **PC port:** It sets connection way between PC and HMI, there are three ways, USB port, Ethernet port and serial port;
2) **IP:** It sets HMI IP address for download (Only valid when Ethernet download);
3) **Cannot find HMI:** When Ethernet download is selected, the download tool automatically searches for the HMI on the same LAN as the computer and is listed in this window;
4) **File type:** This tool could not only support download projects, but also download image file (HMI firmware), so it provides two file types;

5) **Password:** It is only used for upload project from HMI to PC. When the project is encrypted, the upload operation could be performed only by entering the correct password;
6) **Auto-scan USB port:** Check it, USB download is set to default;
7) **More:** When it is checked, the following options will be activated. When downloading the project, the selected option settings in the project are invalid;

   For example: [Data record] is selected, when download the new project, data record setting in this new project is invalid;
8) **Upload prohibited:** Check it to indicate that the project will not be uploaded to the computer;
9) **HMI to PC:** Upload button, when click it means upload project file from HMI to PC;
10) **PC to HMI:** Download button, when click it means download project from PC to HMI;
11) **Sync clock:** When click on it, the computer's time will be synchronized to the connected HMI;
12) **Close:** click it to close download tool;
13) **Recalibration:** Click it to recalibrate connect HMI's touch screen;
14) **Delete settings:** Delete existing configuration files in the HMI, such as parameter configuration files, protocol configuration files, and so on;
15) **HMI version:** Click it to check connected HMI firmware version;
16) **Machine code:** Click it to check connected HMI machine ID;

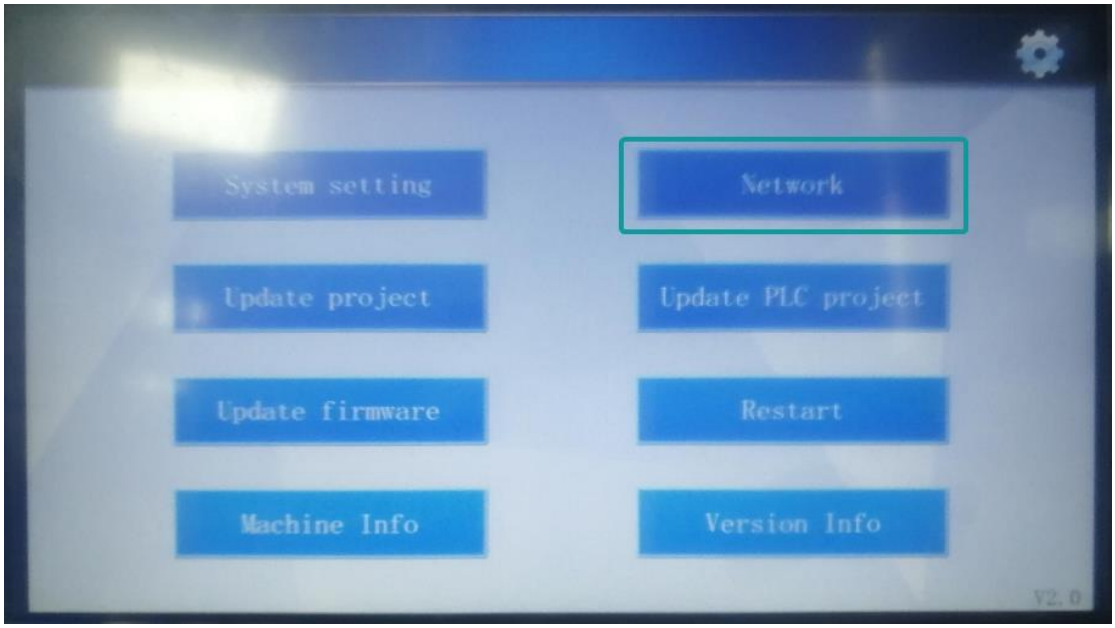
Operation procedure of download by USB or serial port

1) Complete project programming and compile the project;
2) Connect HMI via USB programming cable;
3) Click the 

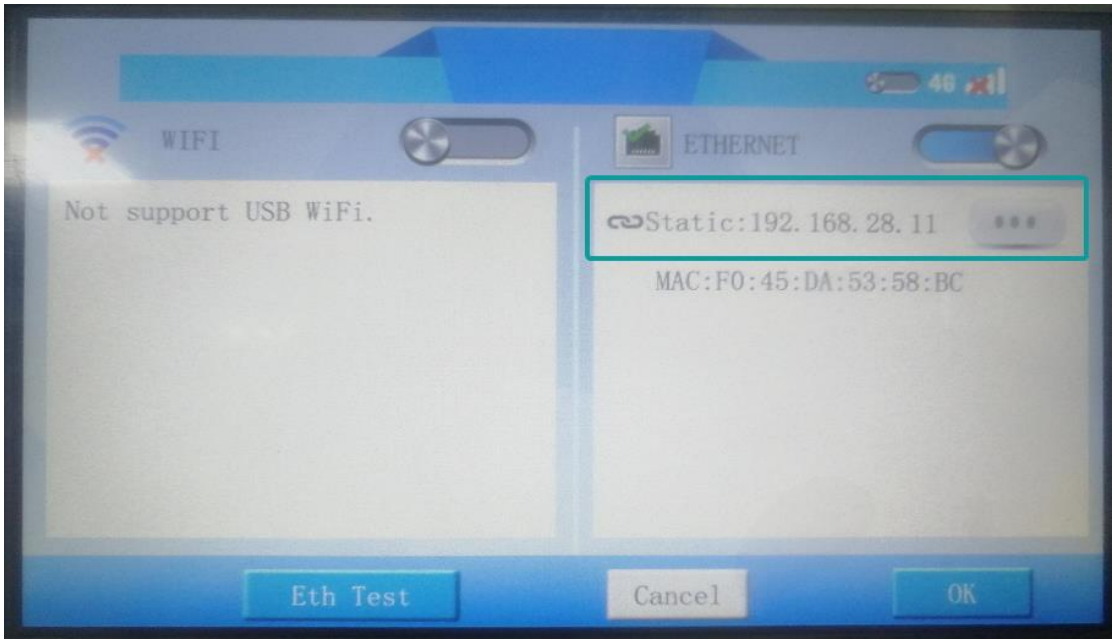
in toolbar;
4) Check the [PC Port] drop-list menu, if it shows [USB: Download], it means HMI is accessed by PC via USB download cable. Or select serial port;
5) Click [PC to HMI] button to execute project download;

Operation procedure of download by Ethernet

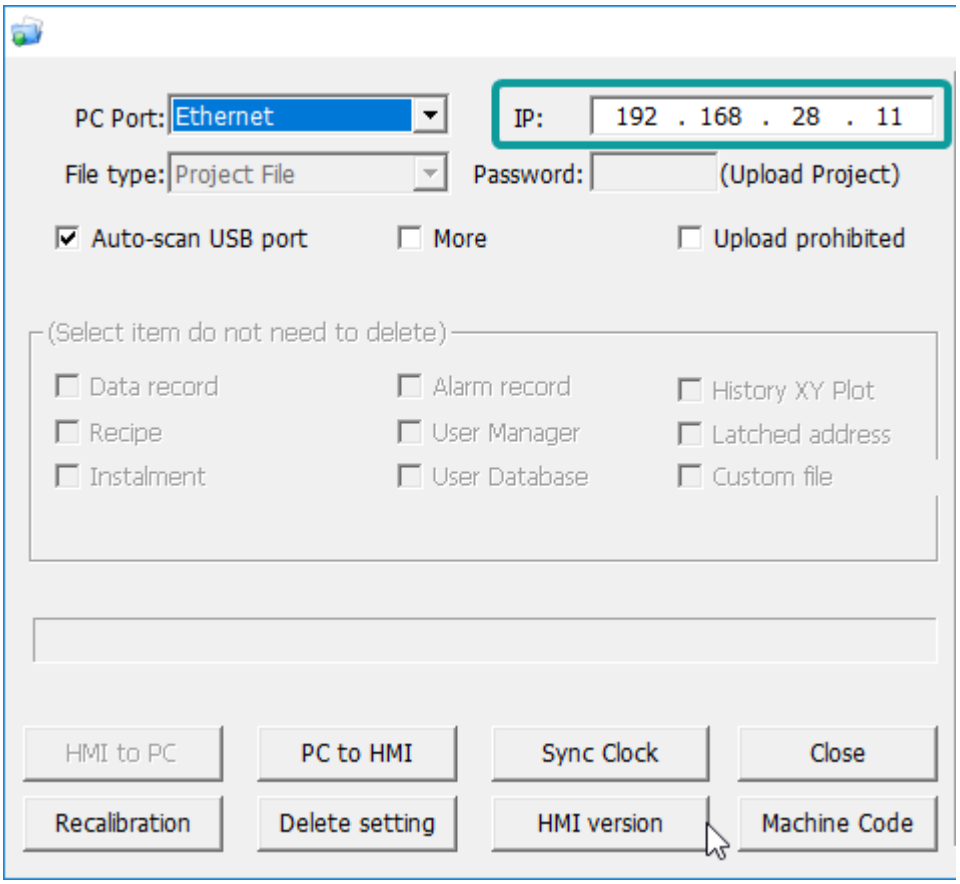
1) Complete project programming and compile the project;
2) Set HMI IP
   - Holding press top right corner of screen into setup screen as below shows;



- Click [Network] into setting screen as below shows;



1) Connect HMI via Ethernet cable;
2) Click the Download in toolbar;
3) Check the [PC Port] drop-list menu, please select [Ethernet], and enter HMI IP address, as below shows;

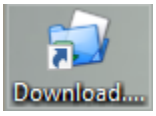


4) Click [PC to HMI] button to execute project download;

Operation procedure of upload by USB or serial port

Many users need to upload the project from HMI to PC.

1) Open the Download.exe directly, as below shows;



2) Connect the HMI to PC via USB programming cable;

3) If HMI is accessed, it will show [USB: Download] in [Download] menu;

4) Click [HMI to PC] button to execute project upload;

5) The .wmt file will be upload to PC;

Operation procedure of upload by Ethernet

1) Open the Download.exe directly;

2) Connect the HMI to PC via Ethernet cable;

3) Check the [PC Port] drop-list menu, please select [Ethernet], and enter HMI IP

address;

4) Click [HMI to PC] button to execute project upload;
5) The .wmt file will be upload to PC;

✎Note:

1) If user doesn't want this project be uploaded from HMI, please check [Upload prohibited] option;
2) There are some items for saving HMI device setting, if user check the option, the corresponding setting in HMI will be reserved;
3) If the project is set design password, nobody could upload it without password;
4) If the project is set [Upload prohibited], nobody could upload it from HMI;
5) If HMI isn't accessed by PC via USB programming cable, please install the USB driver firstly. The USB driver file is contained in HMIEditorP software installation folder.

14 Others

This chapter will introduce some of the other things of the PI series HMI.

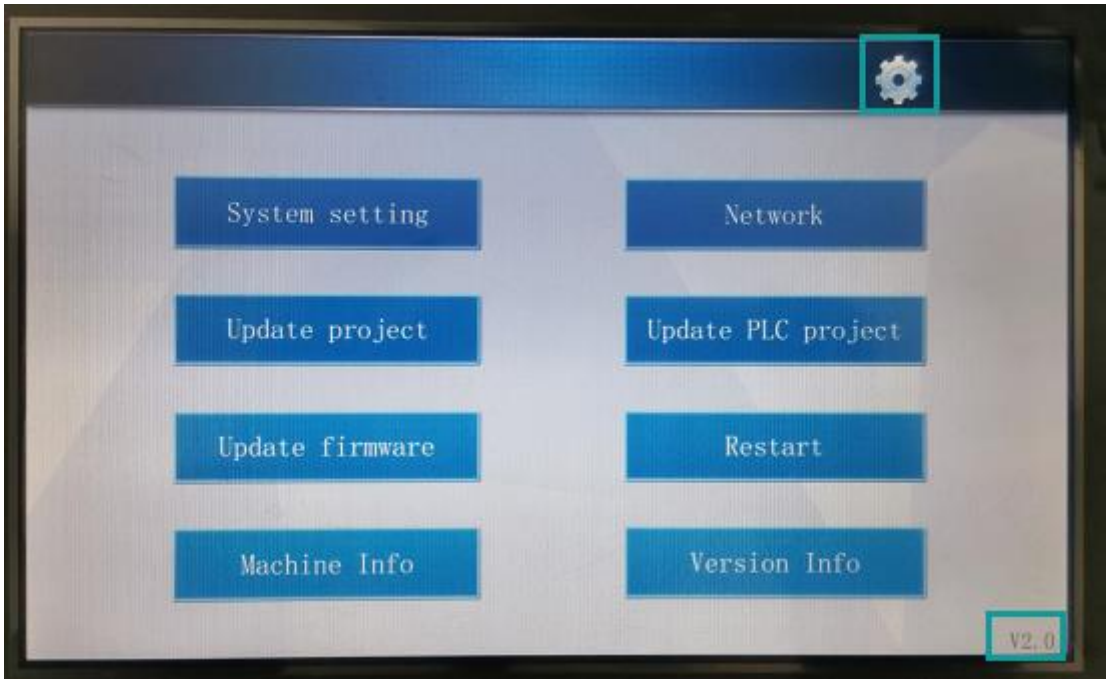
Setup Menu

14.1 Setup Menu

Introduction

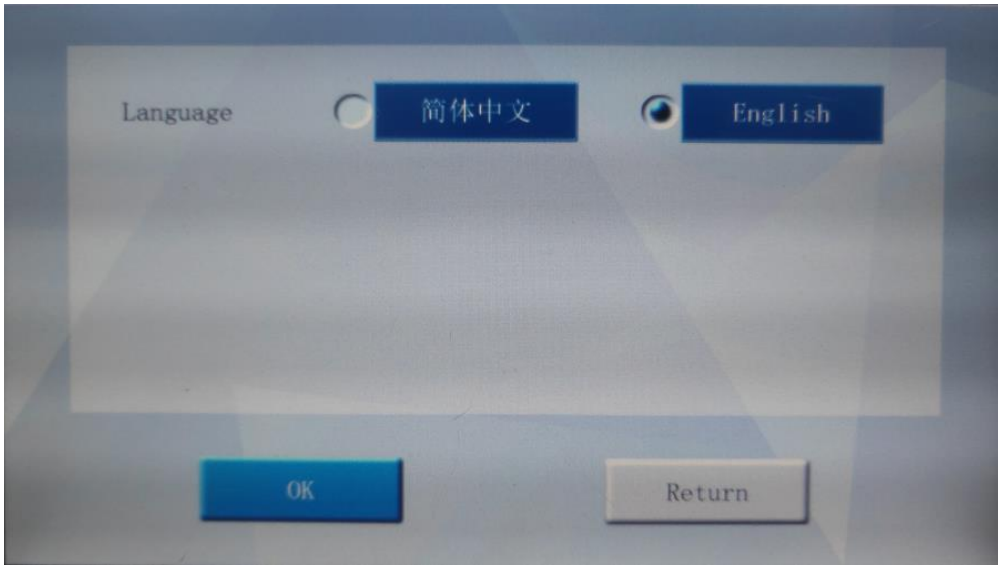
Setup menu is used for settings HMI system when HMI is running. Such as communication parameters, real time clock, and other functions.

The setup menu interface of V2.0 (in the bottom right corner) version is shown in the below.



14.1.1 Language switch

Click the button in the top right corner as above to set language (simplified Chinese and English)

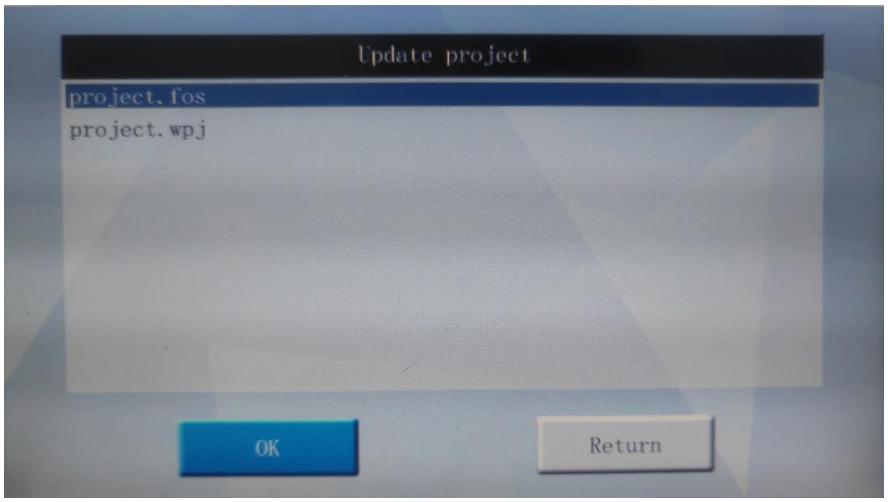


14.1.2 Update project/firmware

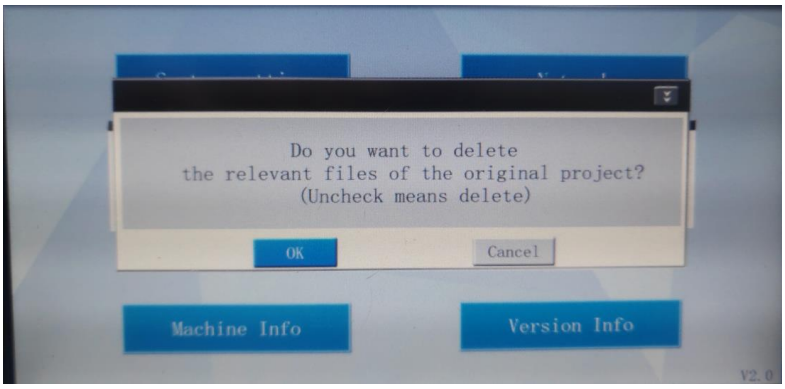
Those functions are used for update HMI project or firmware via USB flash disk.

Operating procedures

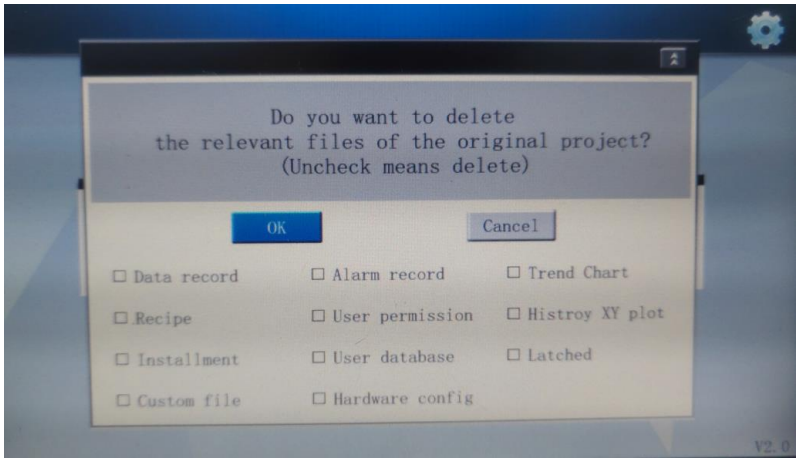
1) Generate the project file (image file) in the u disk at first.
2) Plug the u disk and click [update project] or [update firmware] to update project or firmware. If user click the [update project], we will see a pop window as below. The file with the fos suffix is the file created by the old PIStduio, and the wpj file is the project file supported by the V2.0 version (supporting the custom file name).



3) After selecting a project file, the following interface will pop up: Select whether to retain the parameters of the original project in the HMI when downloading the new project (by default, all will be deleted).

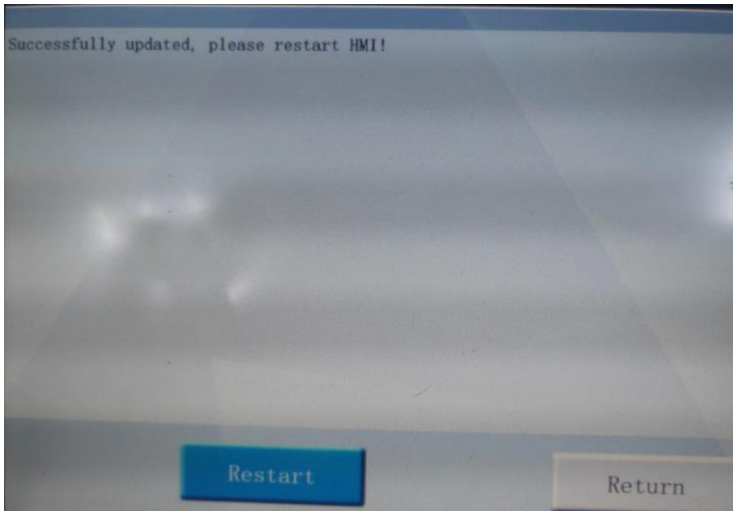


4) User could select according to the “Extensions” in the upper right corner of the option box (as shown in the figure below), and retain some configuration files of the original project (please choose carefully as needed to avoid error in application).



5) Click [OK] to delete unchecked item. Click Cancel to retain all data.

6) after downloading project successfully, the following prompt will appear.

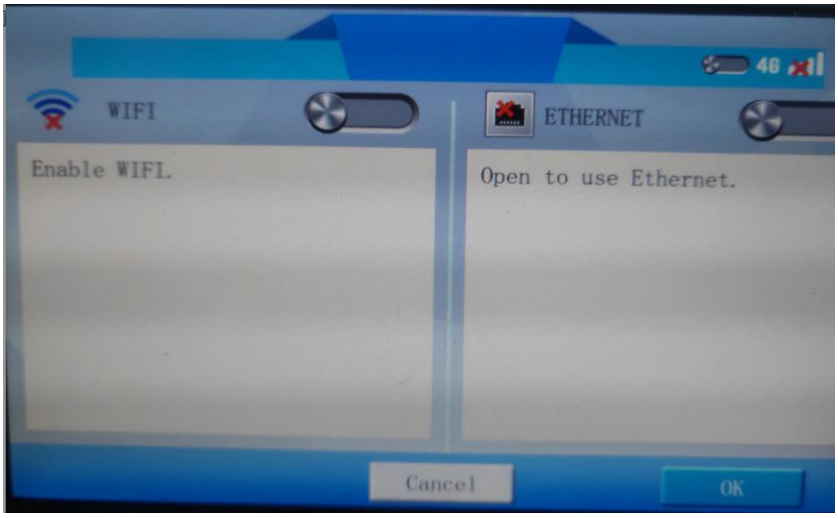


14.1.3 Network

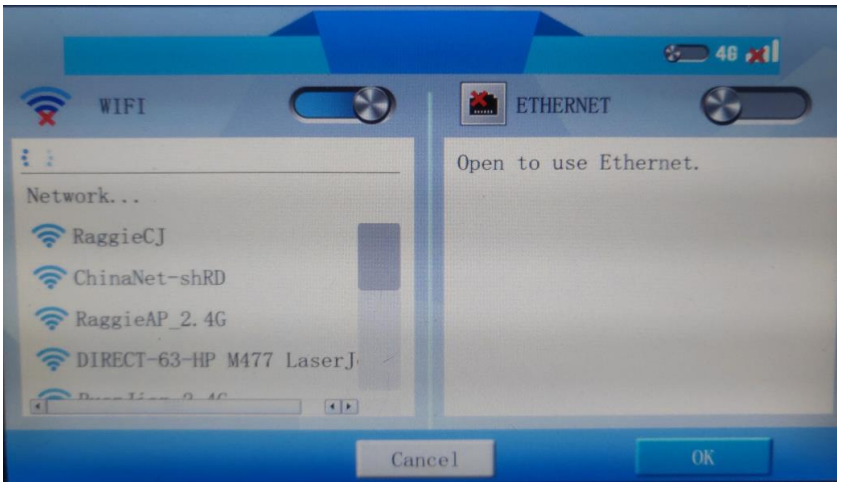
The network is used for setting and checking the network state of the HMI. All PI series HMI support Ethernet and WIFI (WIFI requires specified USB WIFI device).

Operating procedures of WIFI

1) Click [network] in menu screen to access network configuration interface.



2) Enable the [WIFI] function, the HMI will search for WIFI signals as shown below;

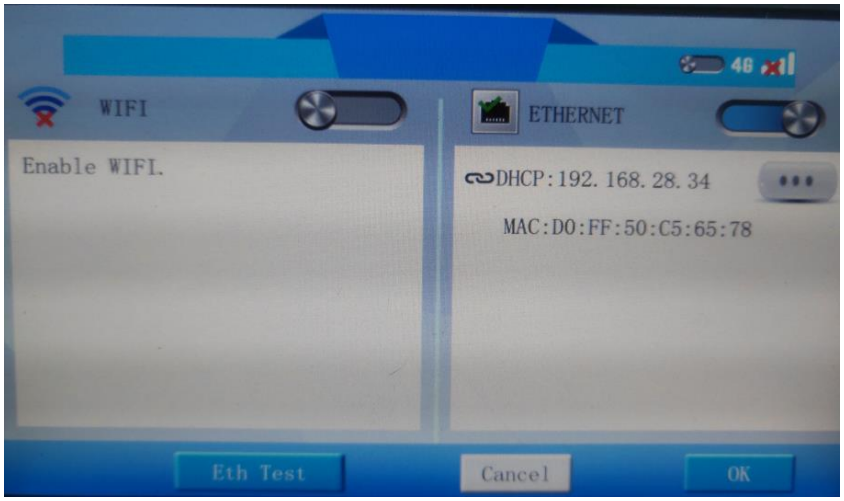


3) Select a WIFI, it will pop up a keyboard to input password.

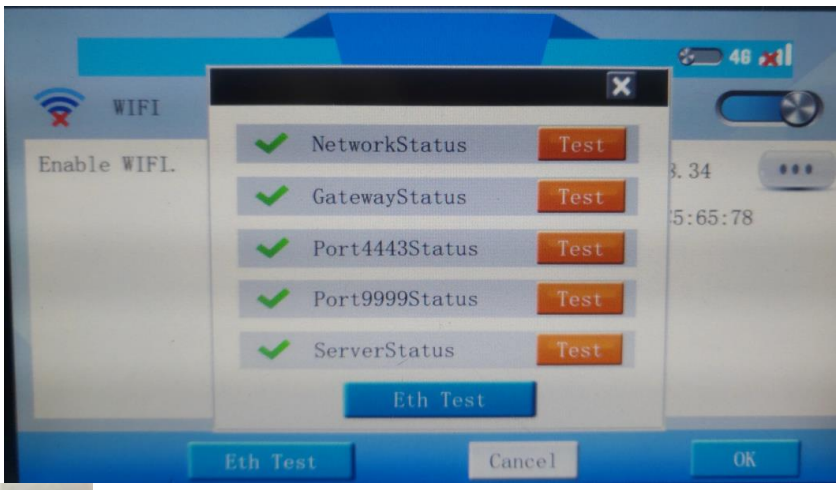
4) After inputting correct password, HMI will get a dynamic IP.

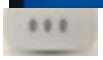
Operating procedures of Ethernet

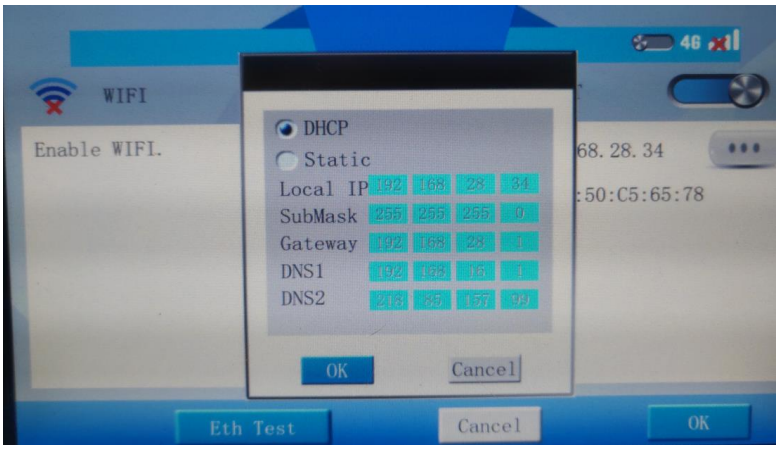
1) Enable the [Ethernet] function. If the network connection is normal, the IP address and MAC address of the HMI will be displayed, as shown in the following figure:



2) Click [Eth Test] to pop up test window as shown below.



3) Click  to select DHCP or Static IP as below.



14.1.4 Update PLC project

This function is for update PLC project via USB flash disk when HMI is communicating

with PLC;

Operating procedures

Place update file (update.bin) into root directory of USB flash disk;

switch DIP (PLC) to stop state;

Insert USB Flash disk into HMI;

Into HMI setup menu;

Select update PLC project;

✎Note:

This function is available in PI series HMI;

If project contains sub-program, the update time will be longer;

Please format SD card, if users use SD card for update;

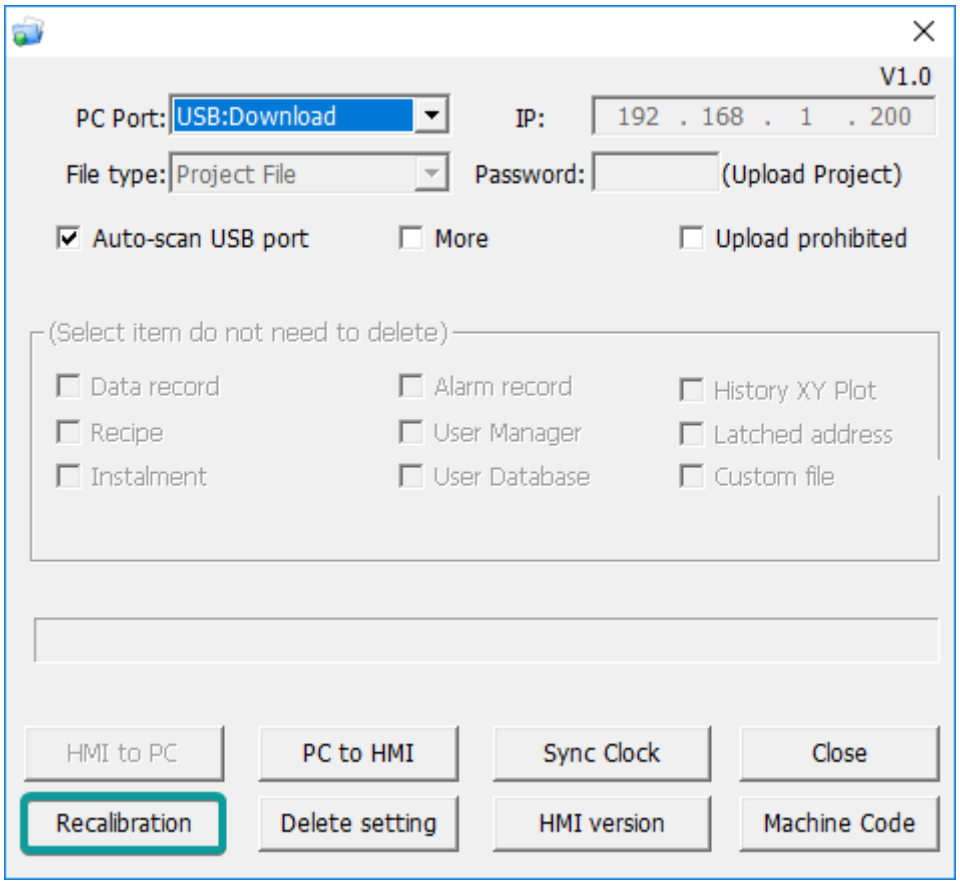
14.2 Touch screen calibration

When the contact of the screen drifts or the coordinates of the HMI interface are shifted, the operation of the HMI will be inaccurate. In order to recalibrate the contact coordinates of the HMI interface, the calibration file in the HMI needs to be deleted and recalibrated.

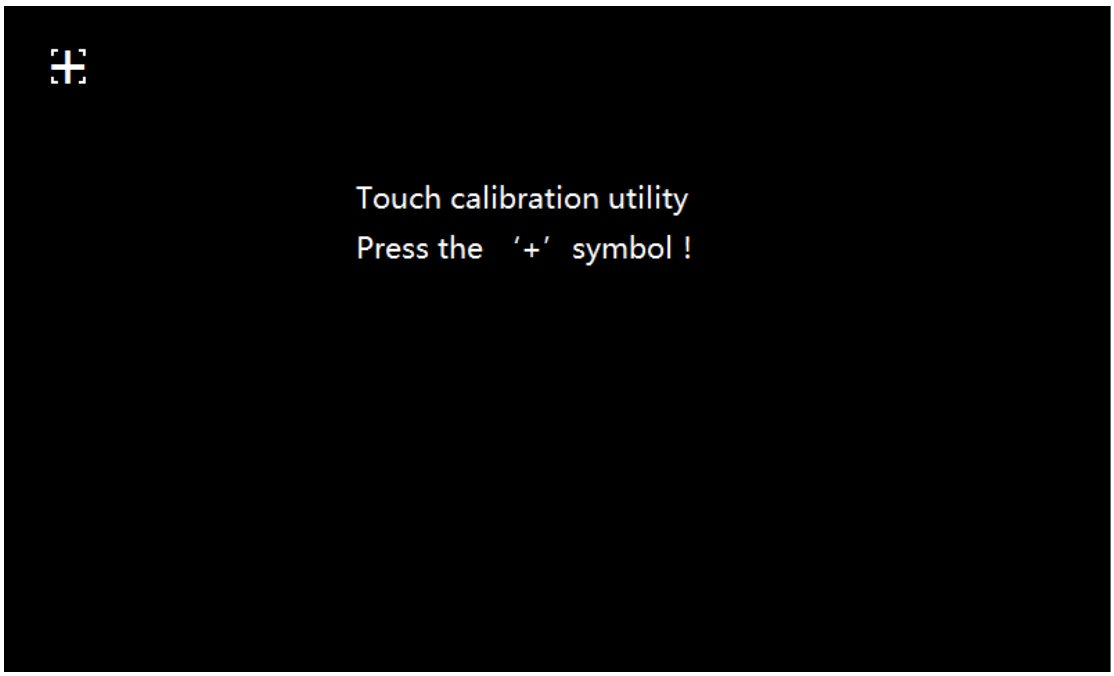
There are two methods for recalibration.

Method 1

1) Connect HMI to PC via programming port (USB-B)
2) Power ON HMI, and open download tool as below;



3) Please make sure HMI is detected by software;
4) Click [Recalibration], and restart HMI;
5) After HMI rebooting, it displays picture as below;



6) Long press the center of '+', after success, it will automatically jump to the next '+', after calibrating the '+' point on the interface (a total of 5 '+' points), the HMI will

prompt success, and re-load the project screen . (It is recommended to use a professional calibration pen);

Method 2

When there is no computer (PC) in the field,user could use the USB flash disk, and store a special file (DelTouch.dat) in the root directory of the U disk to perform the calibration operation.

Operating procedure

1) Create a TXT file on the PC side, write a integer value in the file, any integer from 1 to 180. This value is the countdown time of recalibration interface, unit:seconds;
2) Save the file and rename the TXT file to DelTouch.dat;
3) Save the file in the root directory of USB flash disk, and insert it to HMI device (USB-A)
4) Rebooting HMI;
5) After the system is loaded, there will be a prompt to "Calibrate after ** seconds" at the top of the screen;
6) After completing the countdown, the HMI will run the command to delete the calibration, and the screen will automatically reboot after the calibration is deleted;
7) Remove the USB flash drive. The HMI will enter the calibration interface. According to step 6 of method 1, long press the center of '+' to recalibrate touch screen.

✎Note:

1) Content requirements for special documents (DelTouch.dat)
   - The file content must be any integer from 1 to 180, and the unit defaults to seconds;
   - If the value in the file content is greater than 180, it is calculated according to 180 seconds;
   - If the content of the file is "less than 1, illegal characters, illegal characters + numbers", etc., it will be calculated in 30 seconds;
   - If the content of the file is a number + illegal characters, the previous number will be used as the countdown time, such as 20s: the countdown time is 20 seconds

2) About calibration

   The USB flash drive file must be recognized within 3 minutes after the HMI loads

the system. Therefore, it is generally recommended to insert USB flash disk before HMI start to avoid unrecognized problems due to time errors.