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1.1 main picture tools use

The main picture will show "welcome to use". In the picture, there are six options on the right side: project de-compile, project upload/download, project simulation, help option, software setting, u-disk upgrade.

1. Project decompile: the ".hmt" file upload from HMI need to be decompiled. Then can open it.
 - (1).HMT project address: open HMT file. Decompile it. And then open ".hmp" file to open the project.
 - (2).Saving path: the path from where the decompiled project be saved.
 - (3).Project password: the designer password set in the security level option of the original project.
2. Project upload/download: upload/download project file, recipe file or mirroring file directly. No need to open them.
 - (1). PC port: choose the port through which the file be transferred from PC to HMI.
 - (2). Baud rate: acquiesce in 115200, don't need to modify.
 - (3). File type: choose the file to be downloaded, such as project file, recipe file and mirroring file. The suffix name for project file is ".hmt". And ".rcp" for recipe file, ".osf" for mirroring file.
 - (4). Password: needed when upload. It's the designer password in "security level and password option" in "project parameter".
 - (5). Detection update canceled: if it's not chosen, when download project, the system will check if there's new mirroring file in update folder under installing catalogue. If it does, the system will update the mirroring file first and then download project.
 - (6). HMI-->PC: upload project file toe PC.
 - (7). PC-->HMI: download project file, recipe file or mirroring file to HMI.
 - (8). update HMI time: update the HMI's system time as the PC time.
3. Project simulating: browse ".hmt" file. Simulate it online or offline.
4. Software setting: choose how the properties of the parts are shown. Properties bar or dialog box. You can even choose both of them. If so, when single click the part, its properties will be shown in the property bar in the left screen. When double click it, the dialog box will jump out.
5. U-disk update: copy the project file or mirroring file to U-disk. Then transfer them to HMI through COPY PROJECT or UPDATE.OSF in factory test picture.
 - (1). The way entering into factory test picture is to press the top right corner of HMI for three or four seconds. Then the screen will enter into black and white factory test pictures.
 - (2). U-disk update project file/mirroring file: choose the file to be copied to U-disk, HMI project file or osf mirror file.

2. Basic Concept

Before using, you need to know some simple basic concepts, many of which are commonly applied in HMI.

2.1 Principle of HMI

HMI is the abbreviation for Human Machine Interface, which provides a friendly interface between human and machine for PLC control, I/O modules or other control system. It exchanges data and signals with control system through protocol RS232, RS485, MODBUS and CAN BUS. Because of its real-time exchange, it makes the following key functions available.

- 1、 Monitor running of PLC and I/O module real-time and display it on HMI
- 2、 Operator can send control signal to equipment from HMI in order to make the equipment run according to operator's intent.

Typical application of HMI is shown in figure 2-1

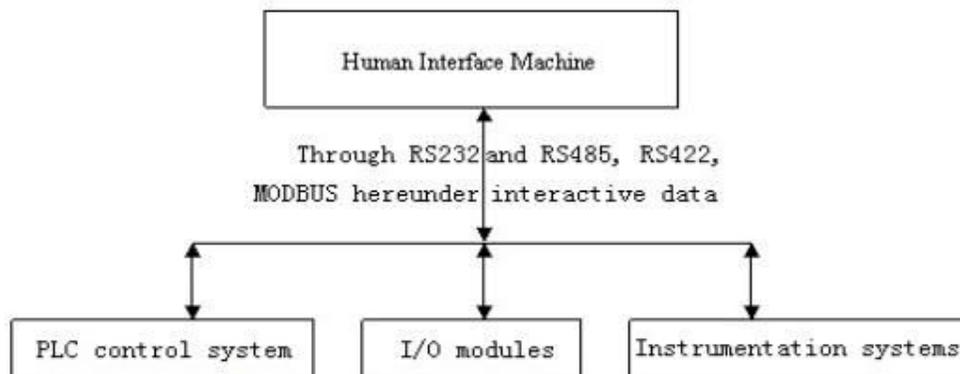


Figure 2-1 HMI typical application

The area where HMI applied asks for the following characteristics of HMI:

1. HMI must have the ability to exchange data with the equipment, which requires HMI to integrate various communication protocols for PLC, I/O module and other automatic control equipment.
2. HMI should offer software so that the users can develop relevant application based on specific control system.

3. HMI has to be industrial grade product and be able to adapt to industrial application environment with reliable quality and excellent performance

2.2 Project

The application created by user is called “project”, each of which contains necessary basic elements.

·Project configuration

Control system type of PLC (or instrument) in project application, HMI type, initial system parameter and initial screen number when the project is open.

·Screen page

User customizes the screen pages according to actual needs. It contains monitor component and so on. The screen page can display the control system action visualized and send control instructions to monitored system.

· Resource library

Resources used when making screen page.

Address mark library is to gather address resource of current project

Project bitmap library is to gather bitmap resource of current project

Text library is to gather text resource of current project

Font library is to support all windows vector font of the current project

·Data record

Including word alarm area, bit alarm area, history XY chart information, XY chart information, trend information, data record area and so on

User can compile project to “.hmt” file after editing, and then simulates offline or download it HMI to operate.

2.3 Component

Component is the basic element of forming screen page. The monitor and control of PLC depend on components. It contains 3 classes:

·Control component

These components not only display status of PLC but also write data to PLC. There are bit switch, word switch, super combination switch, numerical input / display switch, character input / display switch and recipe transfer switch.

· **Display component**

These components are used to display data or status of PLC, including various indicator lights, instruments, animation, alarm display, event display, trend figure, history XY chart.

· **Special component**

These components are for special functions. Including printing component, flower style preview figure component, round disk record component, history round disk record component and so on.

2.4 Vector map

Vector map is the primary appearance of component. It's concise and vivid geometric figure which imitate the situation of industrial spot. Especially its dynamic display has more appearances than bitmap.

There are many vector maps corresponding to every component of software. In every component property setting, user can select appropriate vector map in vector map list as shown in figure 2-2

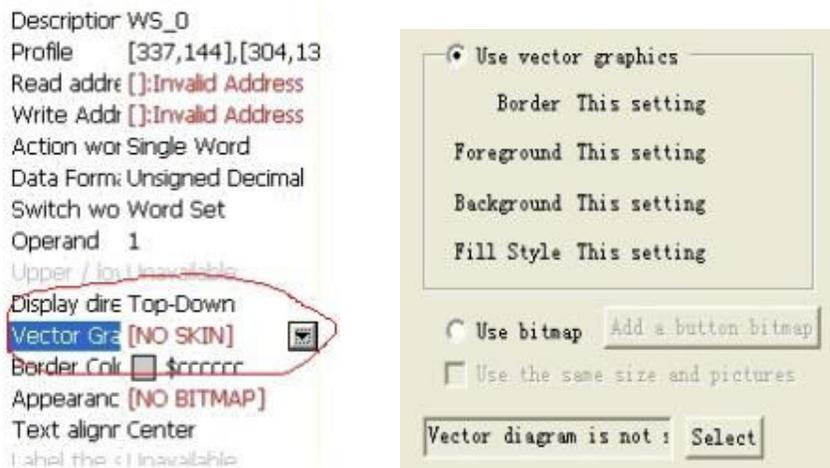


Figure 2-2 vector map property

Pressing the down button, a vector map list corresponding with component will popup as shown in figure 2-3

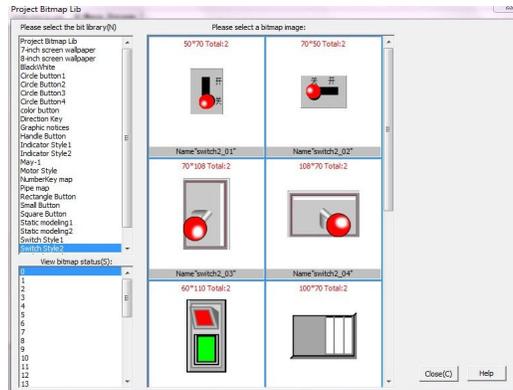


Figure 2-3 vector appearance selection

A vector map is divided into two parts. One part is static, which can not change its status and could not be set. Another part is transformable, which can change display effect based on changing of the value of PLC register

2.5 Graphic Drawing

User can draw the pictures based on requirement. It won't have any relate with data exchange to PLC. It is displayed in static state which can make the design more beautiful and vivid. It has components such as rectangle, arc, pie, circle/ellipse, plotlines, straight line, and text and so on.

2.6 Screen picture

Screen picture, a basic element of project, is also a basic concept of HMI. The concept of screen picture of software is the same to other products. Any display or operation in HMI must be done in screen picture. Screen picture is divided into basic screen picture and sub screen picture, whose differences are:

- If a screen picture is displayed independently then it is basic screen picture, else, if displayed depend on displaying component, it is sub screen picture. The components which can call up sub screen pictures are direct screen picture display component and alarm picture component.
- The most important distinguish is that basic screen picture size is the screen's size while sub screen picture's size can be specified.

2.7 Buffer

Buffer appointed by user do not depend on monitor area of specific screen picture. There are 3 kinds of buffers:

Bit alarm information buffer area: input and save bit alarm information

Word alarm information buffer area: input and save word alarm information

Data record area: input and save data record area

Real time record curve buffer area: input and save trend picture's information

History XY chart buffer area: input and save history XY chart

Web server data record area: input and save the data related with Web server

Multi-link data area: input and save Multi-link data

The operation of buffer is not dependent on screen picture. When the project is running on simulator or software, system begin to monitor data according to the buffer set and record the real time data to the reserved buffer area on simulator or software. When the data's more than the buffer's capacity, system will deal with it according to the FIFO principle

Monitored data saved in buffer can be displayed by display component. For example:

1. To display alarm information must choose alarm display component such as alarm bar, current alarm chart, history alarm chart.
2. To display XY chart must choose XY chart displaying component.
3. To display trend chart must choose trend chart displaying component or percentage trend displaying component.
4. To display data recorded can choose data record displaying component or history curve chart displaying component. You can even read them by superior computer through specified tools.

To know the operation of Web server data recorded area check the chapter of Web server please.

To know the operation of Multi-link data areas check the chapter of Multi-link instruction please.

2.8 Compile

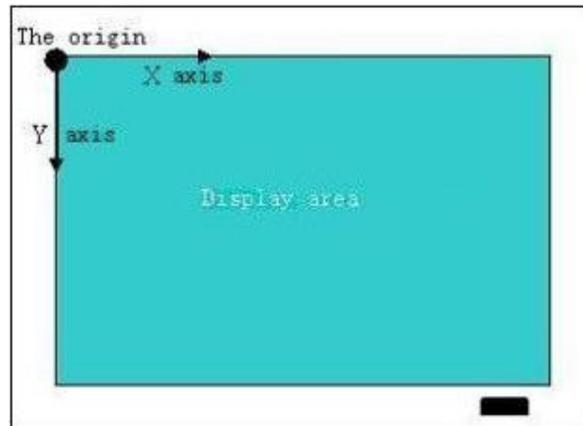
If you want to simulate the project in PLC or download the project to software screen, you should compile it into HMT files. Compiling is a global optimization process which can make the project run efficiently on software screen or simulator. Compiling can also discover the faults in the project and report them so that the user can modify them.

After compiling, software Studios will generate a HMT file of the project automatically.

2.9 software'S Coordinate system

software's coordinate origin is on the top left corner of touch screen. The unit of coordinates is pixel. The coordinate of software development system and software screen coordinate system are consistent. As shown in Figure 2-4:

Figure2-4software'S Coordinate system



3.1 Establishing new project

Opensoftware. We can create a new project through menu or shortcut in tool bar. The steps are:

Choosing “project/new project” in project management or click  (create new project) button in the tool column. It will pop up a “project attribute” dialog box. As shown in figure 3-1.

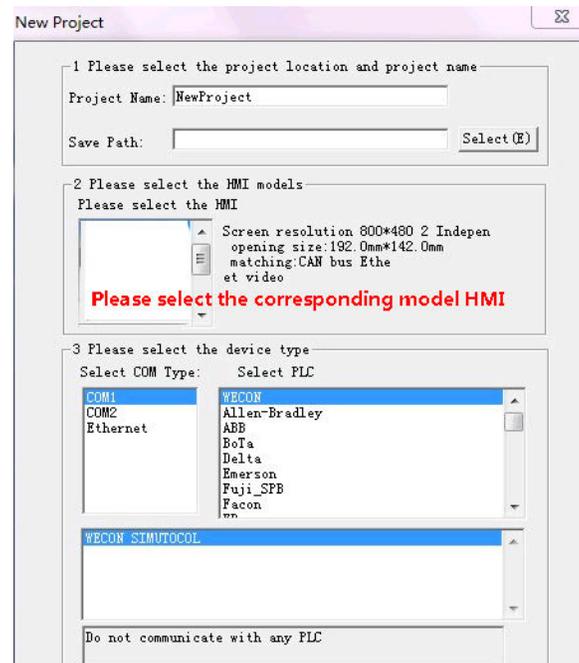


Figure 3-1 new project window

As shown in the figure, the default project name is “New Project”. Choosing a saving path and selecting PLC and HMI type, click “next” button to enter into template selecting dialog box. As shown in figure 3-2 shows:

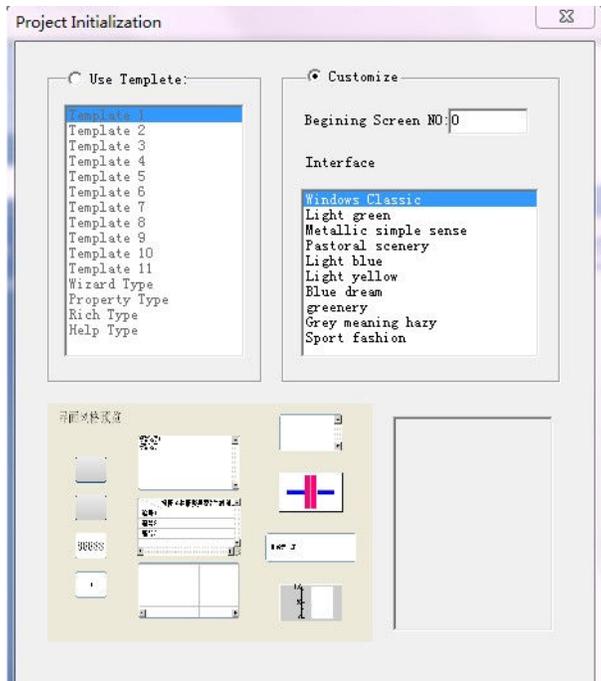


Figure 3-2 project initialization

You can choose the project initialization way here. If choose “use template”, software will create project on the template. In order to comprehensively and clearly show how to create a project, we select “customize” here. That is we need an initial screen picture and some build-in style only.

Click “finish” to close the dialog box. The basic project configuration will be shown in “project configuration” column. As shown in figure 3-3

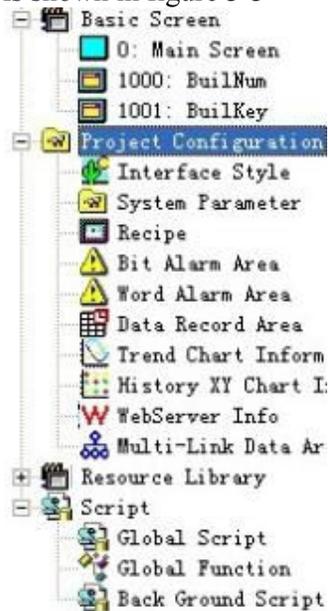


Figure 3-3 project configuration column

In project configuration column, we can see three branches in the tree form control column. They are “Basic screen”, “project configuration” and “resource library”. And we can see a main screen on the right. In “project configuration” we can set the parameters that is used in the whole project such as “system parameter”, “recipe”, “bit alarm area”, “trend chart information”, and “history XY chart information”. In the “resource library”, we can set “address ID library”, “project bit chart library” and “font library”. For more operate information, please consult related content in other chapters.

So far, the new project is established. Before continuing to make the project, we need to set the display form for component properties. Choose "tool"→"software Settings". You can select "dialog box" mode or “attributes column” mode. More than one should be selected.

establishing new project support return to choose model:

3.2 Design screen

software is a integrated project editor which has project management and screen design functions. After establishing the project, we can design new screen picture.

In this example we will use bit switch and digital input/display components.

3.2.1 Establish new screen picture

We can choose “new screen” in “view” option of menu column or click “new screen” button in tool bar to establish a new screen picture. Then a “new screen” dialog box will popup. As shown in figure 3-4.

The basic new screen picture information such as “screen NO.” and “screen name” should be input. The screen number can’t be reduplicated. When establishing a new screen picture, the screen NO. will be added automatically by project editor according to the last screen number. For example, we set the screen number 1 here. And keep the screen name blank.



Figure 3-4 new screen

We can set current security level as 1 in “current level” and set “background” “foreground” color and bitmap fill. Because the picture is basic picture, the sub-screen can’t be selected.

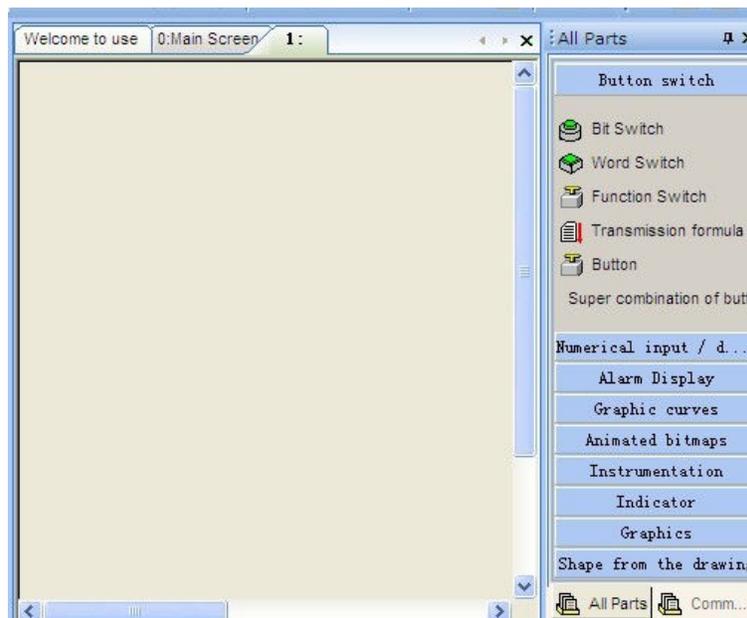


Figure 3-5 window layout

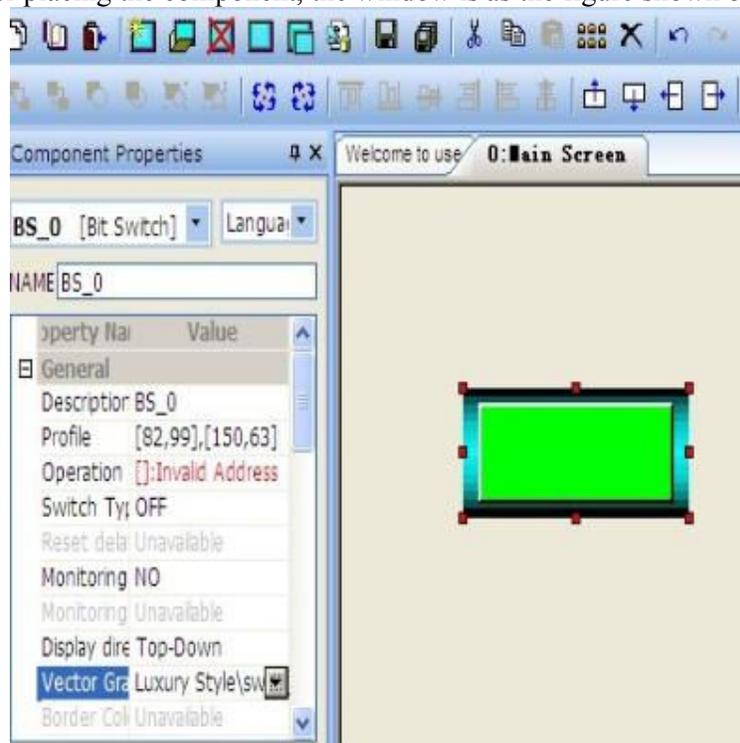
As shown in figure 3-5, there’s an edit area as big as the screen picture in the middle of the window. Above the screen there’s a tab volume for screen switching. It’s automatically

added into the basic picture in project management. The components and figure box in the left become available. So far, we have successfully created a new basic picture.

3.2.2 Add a bit switch component

After establishing a new screen, we can add the components we need to satisfy different application. There's an example on bit switch and word switch indicator lamp.

Click “bit switch” in the right components box. Move it into the edit area. Left click the point where the top left corners of the switch wanna be placed. Then a black zoomable rectangle frame will appear. Draw it to the size we need. Then click mouse left again. We get a bit switch component on the right place we need. We can add other components in the same way. After placing the component, the window is as the figure shown below.



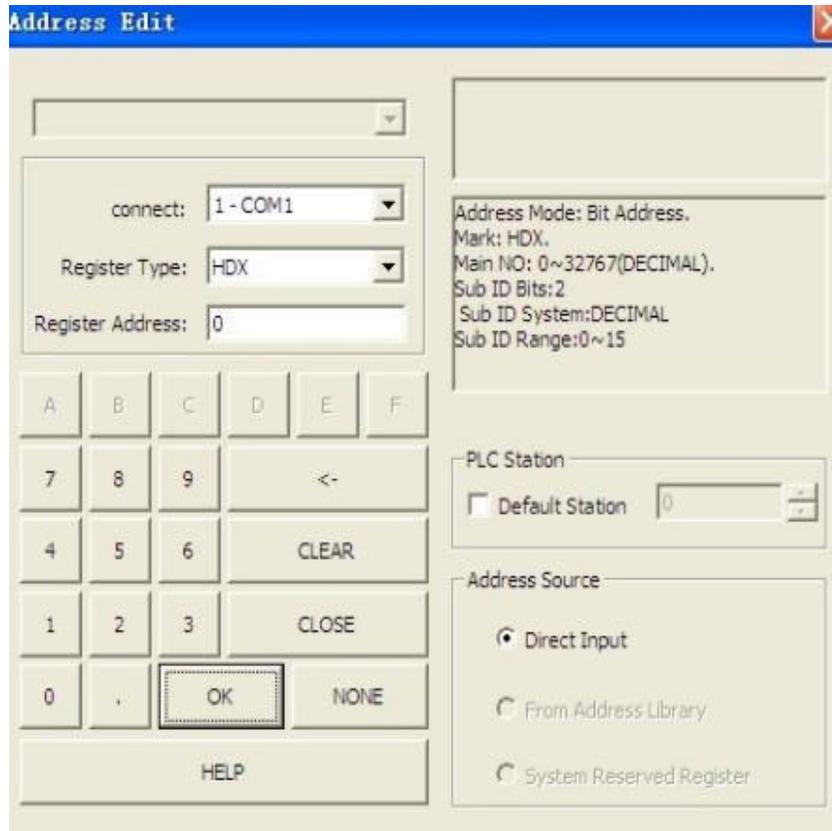


Figure 3-6 add a component in the screen picture

In figure 3-6, we can see a rectangular vector map of bit switch component. Left of the screen switch to the attribute of the component window automatically. We can set the properties of the component in this window.

3.2.3 Set component's type and operation address

We can modify the component's attribute in the attribute column. The attributes setting are all in the attribute column in the left screen. But if you choose dialog box type for attribute displaying, when you double click the component, the attribute dialog box will pop up. There are differences between different components. In all the attributes, the most important are the ones related to operating address. This set decides if the component can achieve its function. And other can be adjusted according to our interest. The next will show you how to set operating address.

First we choose "ON" in switch type's drop-down window. That means to operate the switch is to write the address which it connects to as 1. We will use other switch type later on. Operating address can be input directly or edited through the address editor which can be open through pressing the button on the right. The popup address editor is shown as figure 3-7.

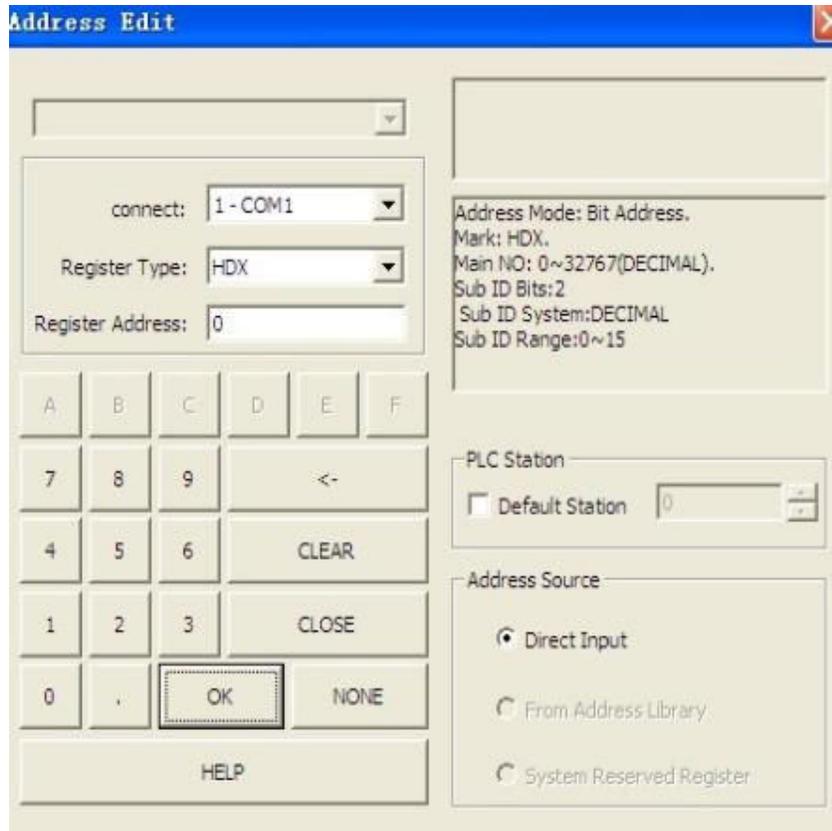


Figure 3-7 address editor

Choose HDX address type in the address editor. Address value is 0.0. The meaning of this address is the zero bit of the zero word.

Set “monitor” function as “YES” in attribute column and set the “monitor address” as “HDX0.0”. Then the status of the register whose address is HDX0.0 will be shown through different display of the switch

3.2.4 Change the appearances of the parts

We have set a bit switch’s type and address. But in the actual application, we may need different appearance. For this, we can choose different “display directions”, “vector graphics”, “frame colors”, “bitmaps” and “text alignments”.

“Display direction” determines the display direction of the appearance of the component, including vector graphics and text. Text alignment determines the place where the text displayed.

Left clicking vector graphic attribute drop-down button, the picture as shown in figure 3-8 will pop up. Choose an appropriate appearance.

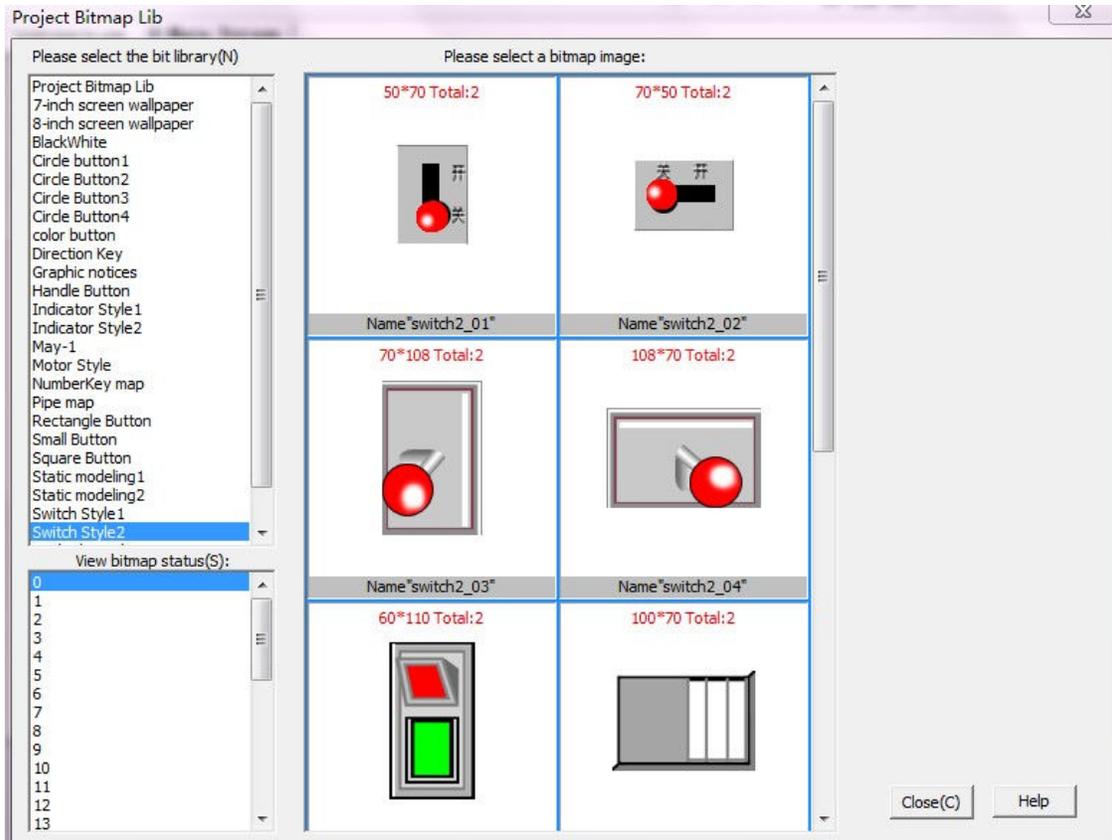


Figure 3-8 appearance selection

We choose a more suitable one who has ON/OFF indicator. Then we will see the screen one will appears as the picture shown in figure 3-9.



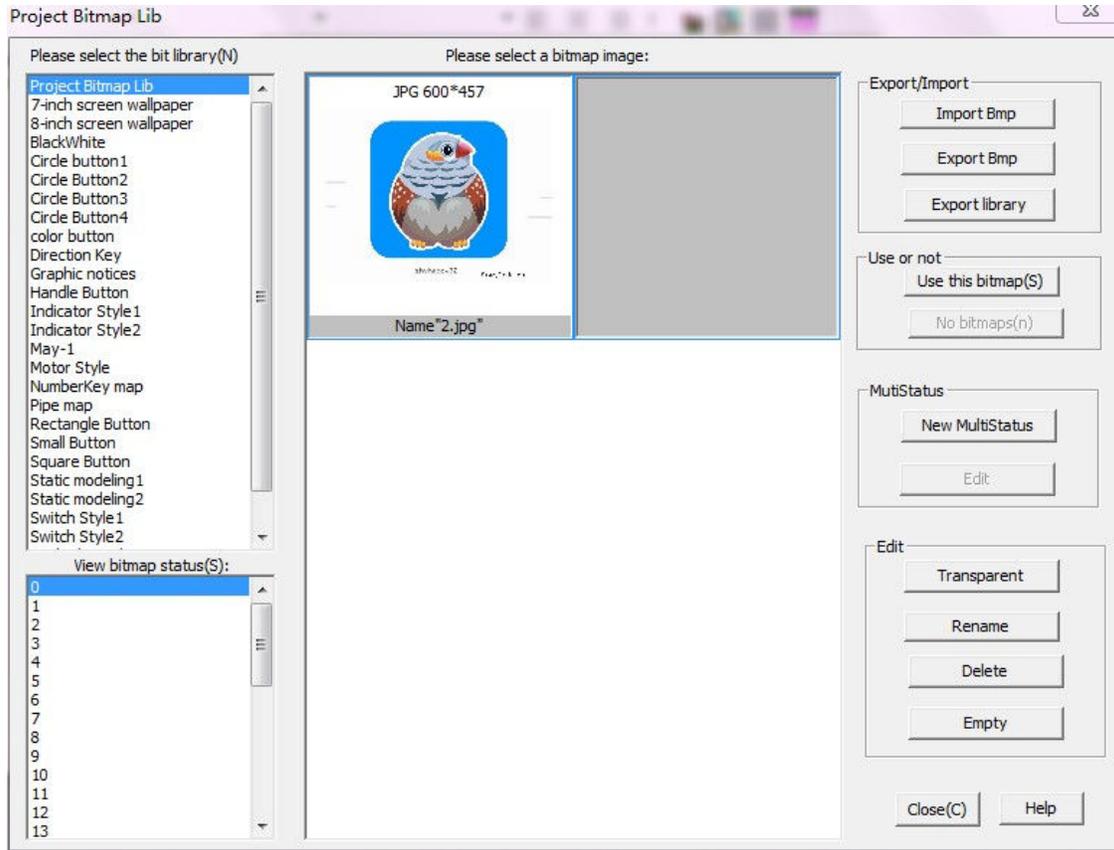


Figure 3-9 change the bit switch appearance

3.2.5 Select the bitmap

Left click "bitmap" attribute drop-down button. The picture shown in figure 3-10 will pop up. Choose one bitmap as its appearance. Click the status to check every bitmap related to the status. Click "ok" button to confirm the choice

Figure 3-10 bitmap appearance selection

After choosing the bitmap, the picture of screen 1 is shown as figure 3-11.



Figure 3-11 bit switch with bitmap appearance

3.2.6 Add a bit status indicator lamp

According to steps mentioned above, we can add a bit status indicator lamp beside the switch. Set its monitor address the same as the switch. Keep the vector graphic blank. Choose the bitmap “lamb” as its appearance. Then the screen is shown as figure 3-12.



Figure 3-12 status indicator lamp added

3.2.7 Add text

After completing the design above, in order to distinguish it with other bit switch, we can add an “ON switch test” text to note it.

The “text” component is in the “graphic drawing” column. Click “text” button and then click on appropriate point in edit area. It will show “no text”. Then input “ON switch test” into “text content” in the attribute column. The system acquiescent word color is black. Modify it. And the next time you use the “text” component, the acquiescent word type will be the one you set the last time. Refer to figure 3-13.



Figure 3-13 texts

3.2.8 Bits alarm's application

We have completed a design of bit switch. Then we need to add its alarm function.

Choose the "alarm area" in the "project configuration" column. As shown in figure 5-14. Click "add". Input bit address HDX0.0 into the popup dialog box. Set the trigger condition as "alarm when on". Fill the alarm "text". When "record" is selected, the alarm record will be record into CF card (we must choose "CF card" as record memory in project parameter set first). If an alarm picture's required, "alarm view" must be selected (the alarm picture must be sub screen picture).

Then put a "alarm bar" to the screen picture. Choose "transparent" as "yes" so that the alarm bar won't display background color. The finished picture's shown as figure 3-15.

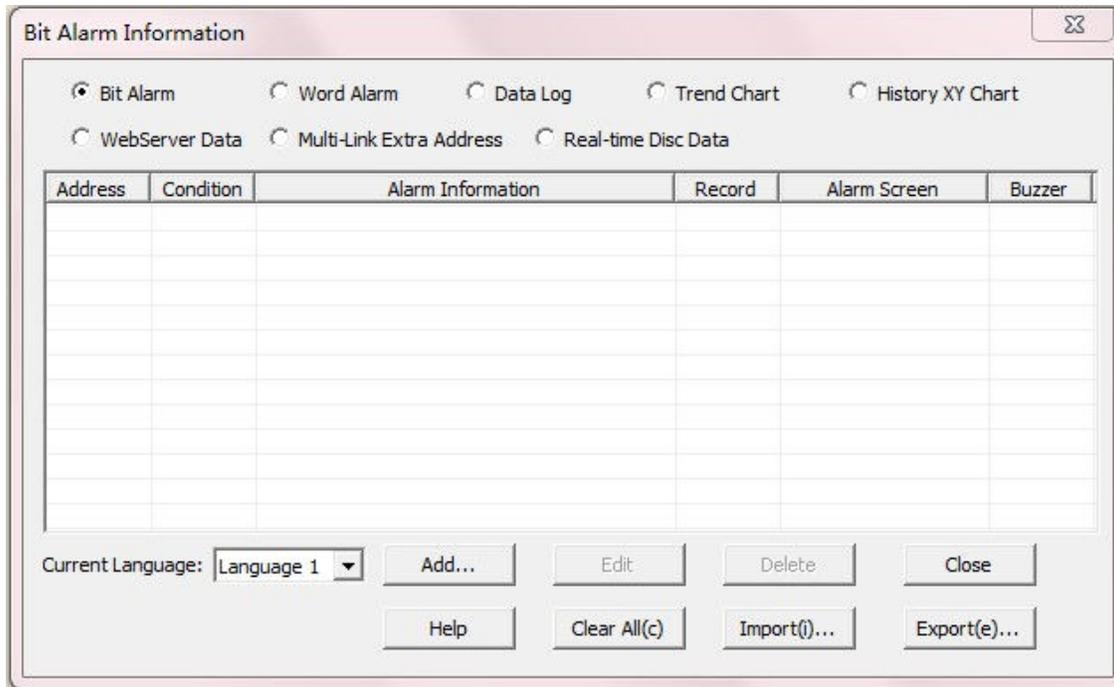


Figure 3-14



Figure 3-15

3.3 Compiling and debugging

After the screen picture designing, the project can be compiled. If there's no error occurred, we can simulate test it offline. Choose "tool/project compile" in menu or click the compiling shortcut key or press "F9" on keyboard to compile the project. The compiling window's shown as figure 3-16.

Each screen picture's compiling information's record in the compiling window. Double click the warning or error record. The correspondent component will be highlighted. Then we can modify it according to the error or warning message.

```
Output
Processing project files...
  Bit alarm address sorting
Processing ScreenMain Screen
Processing ScreenBuilNum
Processing ScreenBuilKey
Checking global function...
Packaging...
Processing bitmap library...
Compile Complete!

0---Warning(s), 0---Error(s)

Successfully compiled., it can download or simulation run!
```

Figure 3-16 compiling information

After successfully compiling the project, we can test it by offline simulator. The result's shown as figure 3-17.



Figure 3-17 off-line simulation

4.1 Built a new project

Choose “new project” in “file” menu. As shown in figure 4-1

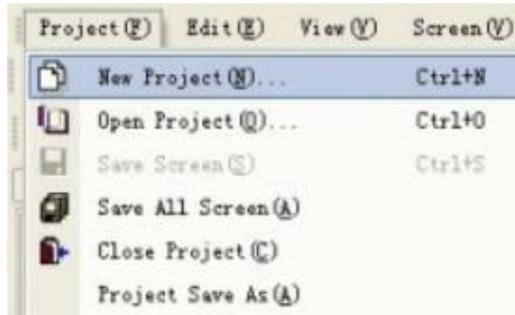


Figure 4-1 establish a new project from menu

Or click the shortcut key in tool bar as shown in figure 4-2

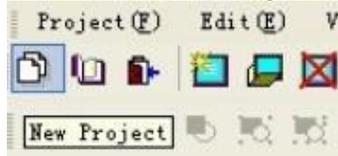


Figure 4-2 establish a new project from tool bar

Click “new project”, a dialog box will pop up as shown in figure 4-3. It contains all the initialization information for creating a new project.

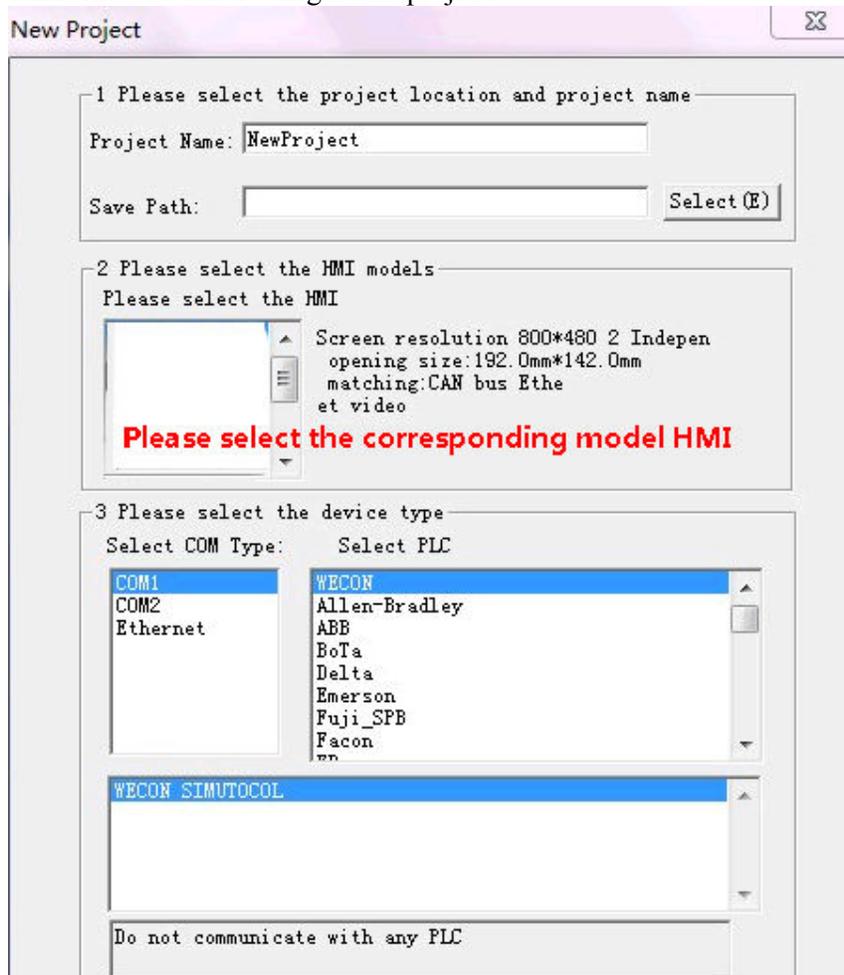


Figure 4-3 initialize a new project

The meaning of the elements In figure 4-3 are as follows:

Project name: the name of the project. It must be consisted of legitimate character or Chinese word.

Path: the direction where the project stored.

PLC type: the type of PLC which is connected to HMI.

HMI type: the human-machine interface type

Click next. Enter into project template dialog box. The user can initialize new project here. softwarestudio has some built-in project templates. The efficiency can be highly promoted if use them. And the customers will be familiar with them.

As shown in figure 4-4, the meanings of the options are:

Use template: use the template to initialize the project.

Templates list: the list of all built-in project templates in softwareStudio.

Preview window: the rendering picture of selected template.

The static text: the illustrating text of the selected template.

Customize: don't use built-in template to initialize the project.

Beginning screen number: designate the start number of the screen pictures.

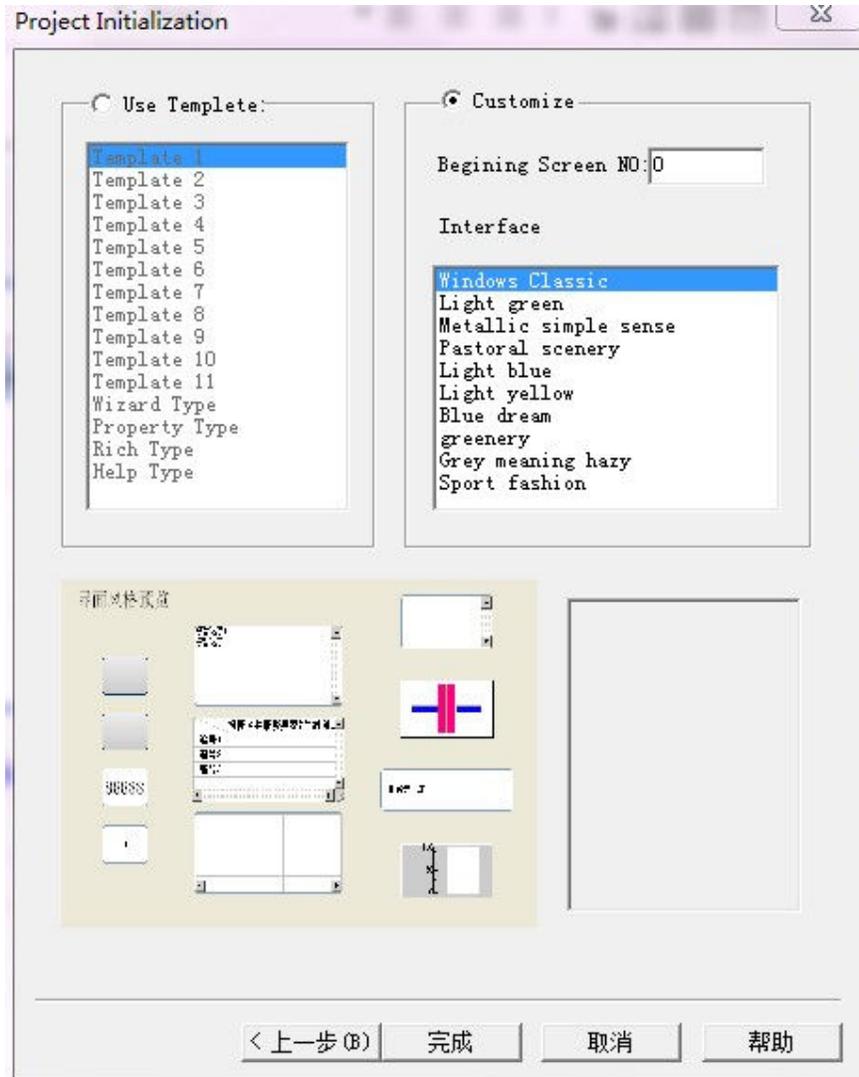


Figure 4-4 project initialization

Click finish. The project's built. All the new pictures can be check in project view.

4.2 New Screen

software offers several methods for creating new pictures. At the menu “view”→”new screen” as shown in figure 4-5.



Figure 4-5 create new screen picture from menu

Or select from a toolbar, as shown in figure 4-6 below.



Figure 4-5 create new screen picture from toolbar

We can even click the shortcut button in project configuration column to create a new screen picture as shown in figure 4-7.

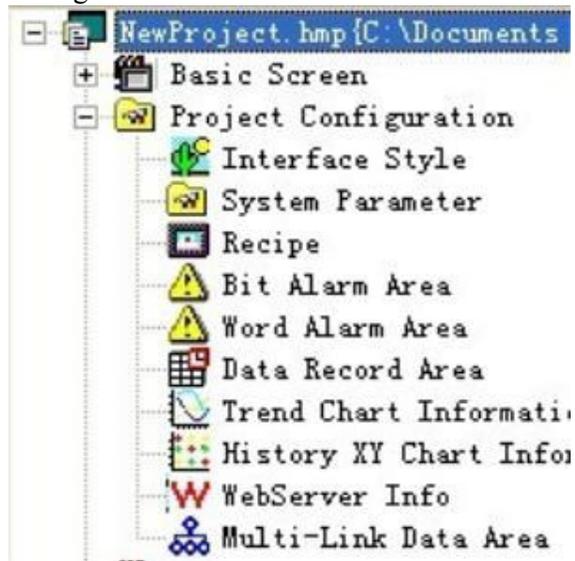


Figure 4-7 create a new screen picture from project configuration

New screen picture dialog box as shown in figure 4-8.

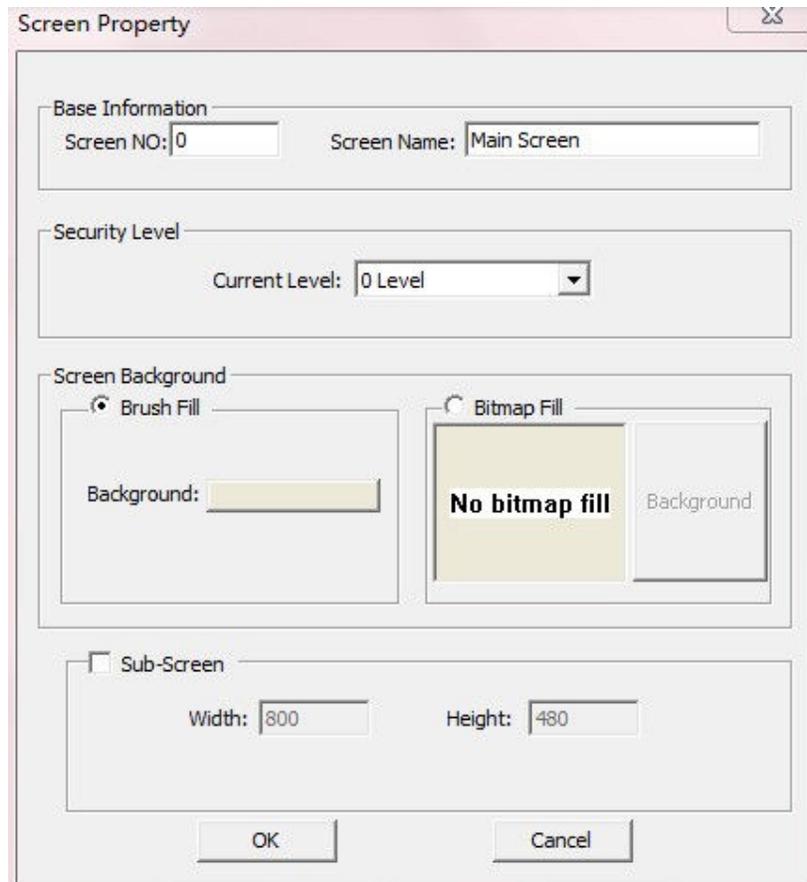


Figure 4-8 new creating screen window

The meanings of the elements in the windows are as follows:

Screen NO.: picture ID number. It is an unsigned integer. The number is unique and different picture have different ID number.

Screen name: the introduction of the screen.

Security level: designate the security level of the screen. Only when the customer input the same or higher level password, the screen picture can be visited.

Screen background: fill the picture's foreground, back ground, filling picture or bitmap fill.

Sub-screen: the width and height of the sub-screen can be specified.

4.3 Screen and sub-screen

The screen picture can be independently displayed on HMI while the sub-screen has to rely on direct/indirect picture display components or popup dialog box in function switch. The basic screen pictures can be switched by function switch. And the screens pictures that function switch can switch are basic screen pictures only.

A basic screen picture can display several sub-screen pictures at the same time. That depends on how many screen picture display components are placed in the basic picture. The

use of sub-screen brings great flexibility to software project.

Sub-screen can nest another sub-screen.

The operation of clicking screen is effective to the most topside screen picture. It can't be effective to the second or third layer screen picture.

The differences between screen picture and sub-screen picture are shown in table 4-1.

Table 4-1 screen picture and sub-screen picture comparison

Comparison category	Basic screen picture	Sub-screen picture
display	Can show independently, switched by function switch. Can be designated as the starting frame	Rely on direct/indirect pictures display components to display
size	Touch screen's actual size	The size can be specified. Related to the actual size of the picture display component
messages	This picture processing user's operation	The topmost sub-screen picture processing user's operation
Display sequence	The basic frame can directly display in software	The display sequence of sub-screen pictures depends on the sequence of picture display components.
parts	Can use all parts	Can use all parts

4.4 Delete screen

Delete the picture in edit area. And it's not recoverable. As shown in figure 4-11.

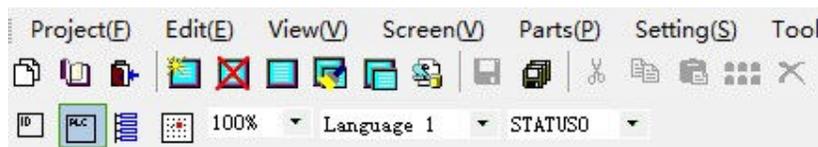


Figure 4-11 delete picture

4.5 Screen attribute

Open the picture attribute dialog box in workplace area and adjust it. As shown in figure 4-12.

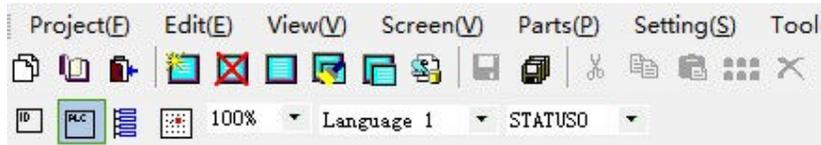


Figure 4-12 picture attribute

Screen number, screen name, filling style and is/or not sub-screen picture are all adjustable. But the screen number can't be repeated. The picture attribute dialog box is consistent with the new create picture dialog box.

4.6 Copy screen

Copying screen is to copy a picture from system, other project or current project to current project. This function avoids repetitive labor and improves the efficiency of project making. Only if the pictures are similar, it can be copied. The copy screen dialog box can be opened from the tool bar shown below.

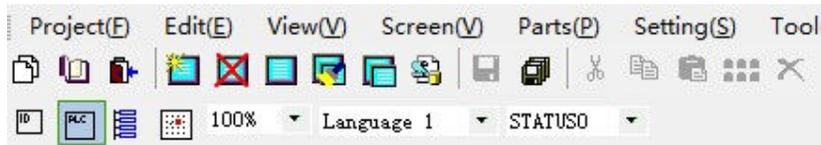


Figure 4-13 picture copy toolbar

Copying pictures dialog box shown in figure 4-14.

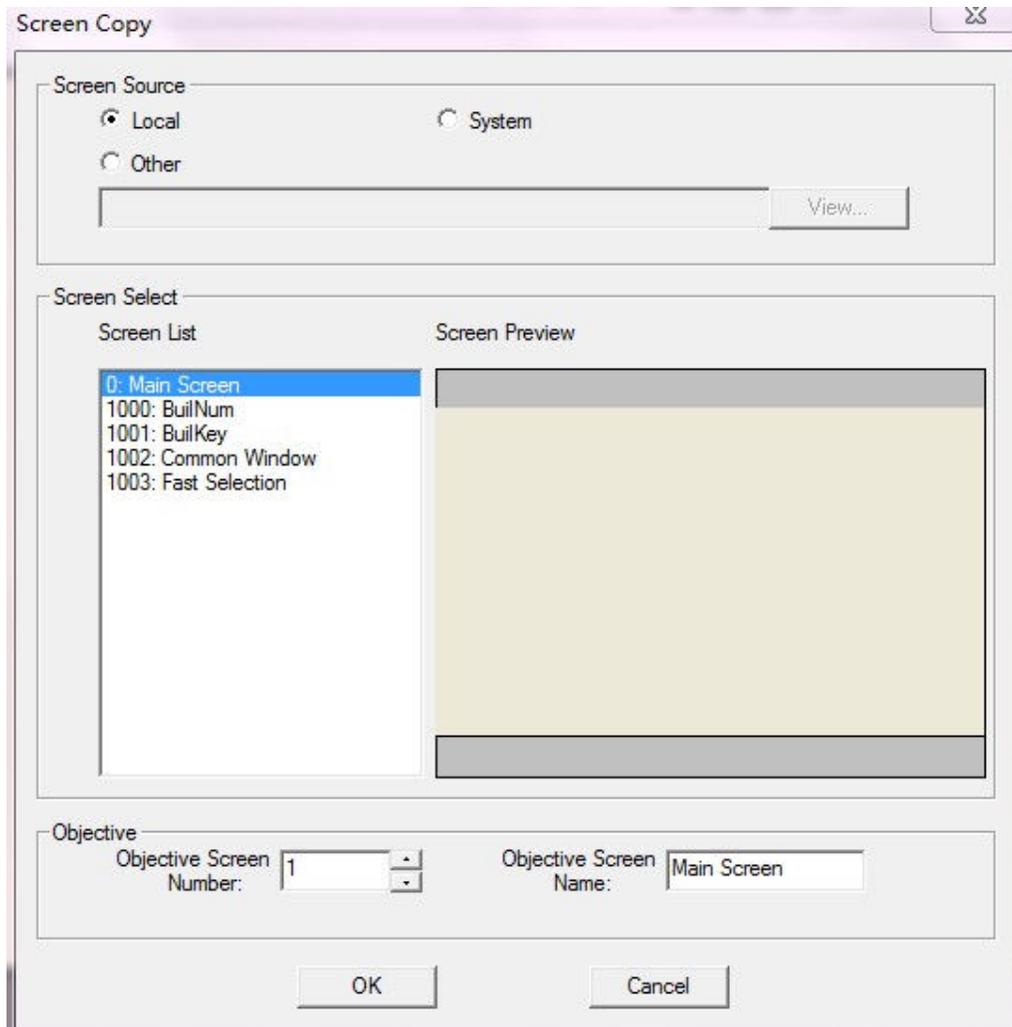


Figure 4-14 picture copy

The meanings of the elements in the windows are shown as below.

Table 6-3 picture copying Windows interface element instructions

element	explain
local	The copied picture is from local project
system	The copied picture is from system. software has some built-in basic screen pictures such as keyboard picture, guide picture and so on. Users can quote these pictures to save time.
other	Copied pictures come from other projects which can be found by browsing other projects.
Screen list	All the pictures that can be copied in the original project. Its format is: [screen number]:[screen name]
Screen preview	Display the selected picture's brief map

Objective screen number	The screen number of the picture which is copied to the project. It can't be consistent with other picture numbers in the project. Or the copying will be fail.
Objective screen name	The screen picture name of copied picture
ok	Confirm to copy the picture and close the dialog box
cancel	Cancel this copy.

5.1 General characteristics

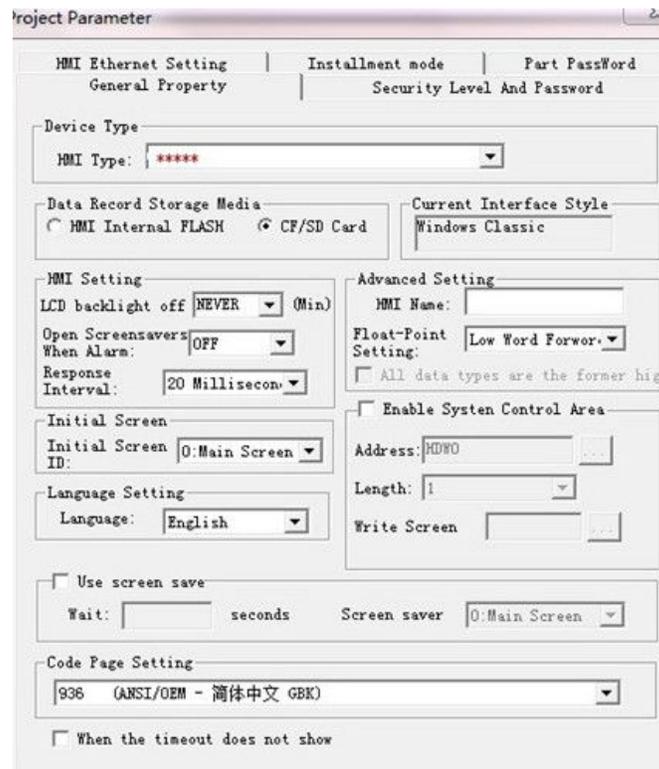


Figure 5-1 general attributes

Table 5-1 general attributes description

elements	explain
HMI type	HMI's type
Data record storage media	Choose the memory in which the data recorded.
LCD backlight off	HMI will turn off the backlight if there's no operation in a designated time. When there's a click or alarm, the backlight turn on automatically.
Open	When "LCD backlight off" is available, if choose this option "off", then

screensavers when alarm	even alarm occurring, the LCD backlight won't turn on.
Response interval	The most short time that the screen can distinguish two clicks and operate.
Compiler language	The language in which the project be compiled.
float-point Settings	When dealing with float-point data, choose low bit or high bit in the front.
Initial screen ID	The first screen picture shown when project running. It must be basic screen picture.
Enable system control area	Enable PLC program to control HMI program. Address: internal or external address. Used to switch screen picture. Length: set as 1. Screen number input: internal or external address. Used to display current screen picture number.

5.2 Communication parameters

Start from “Setting”—“Communication port settings” to enter into communication port setting dialog.

Communication parameter is the necessary parameters that HMI communicate with PLC. It includes hardware parameter set and communicates overtime set. As shown in figure 5-2.

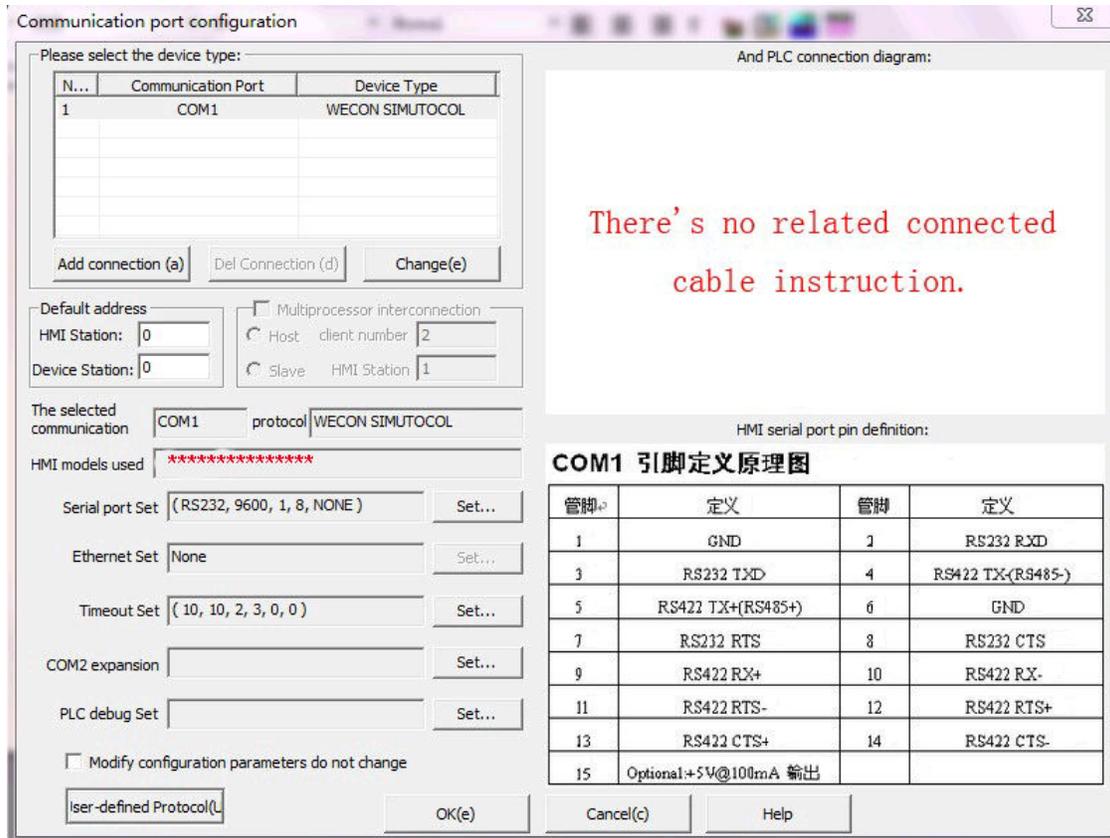


Figure 5-2 communication parameter Settings

The meaning of each input value is shown as below.

Table 5-2 the instruction of communication parameter set

elements	explain
HMI station	The station number of HMI when communicate with device or equipment. Default value is 0
PLC station	PLC's address Numbers. If the address of part is not filled, the part won't visit this PLC.
Serial port set	This setting should be the same with the communication parameter of PLC. Connection mode: RS232, RS485, RS422 (com2 do not support RS422) Parity: EVEN, ODD, SPACE, NONE;
Ethernet set	Setting Ethernet communication parameters Network type: TCP_Client_2N: TCP protocol can connect several PLC. UDP_Client_2N: UDP protocol can connect several PLC. TCP_Server: TCP protocol, choose HMI as server.
Timeout Set	Wait timeout (ms) : HMI waiting for PLC response time. Receive timeout (ms) : the longest time that HMI wait to receive

	<p>the next character.</p> <p>Retries: the times that HMI try to communicate with PLC when there's no response.</p> <p>Retry timeout: when the communication's no response between PLC and HMI, HMI won't visit PLC during this time.</p> <p>Communication delay time: the speed that HMI communicate with device.</p> <p>Tonal length(0 default): if the address interval between two addresses is smaller then the setting value, HMI will read or write them continual, otherwise, separately.</p>
Com2 expansion	<p>Connect with printer or keyboard.</p> <p>The parameter setting should be the same with Printer parameter setting.</p>
PLC debug set	<p>Set pass-through communication parameters. Refer to chapter 23 the application of pass-through.</p>
Modify configuration Unchanged parameter	<p>When you choose this , parameter will unchanged if modify the configuration</p>
User-defined agreement	<p>Though this option edit information when project use user-defined agreement</p>

5.3 Security level

If the project available the “security level” function, the user have to input password to visit the protected screen picture or key. This function can protect the device from misoperation or unauthorized operation.

software provides two safety protection ways: the picture password protection and key password protection.

Picture password protection

Each picture has its own security level. Only entering the right password can visit the picture and the same security level picture. For example, if you entering the level 1 password, you can only visit level 1 pictures. You can't visit level 2 or above level pictures.

Key password protection

The screen will lock up if there's no operation on it in a set time. If you want to operate the screen again, press the function switch to enter the password into the popup dialog to activate the screen.

If you don't use security level function, when the project running on HMI anyone can operate on it. That's not security for the devices.

Part level password

After use part level password,use that part only when you input the right password.

(Level to be automatic reduce in part password means:

If choose “yes”:for example: if the level of present part is level 2,after input the password, operate other part whose level is more than 1,need input the password again.

If choose “no”:for example: if the level of present part is level 2,after input the password, operate other part whose level is more than 3,need input the password again,if less than 2 do not need input password. If click this part again,need the level 2 password.)

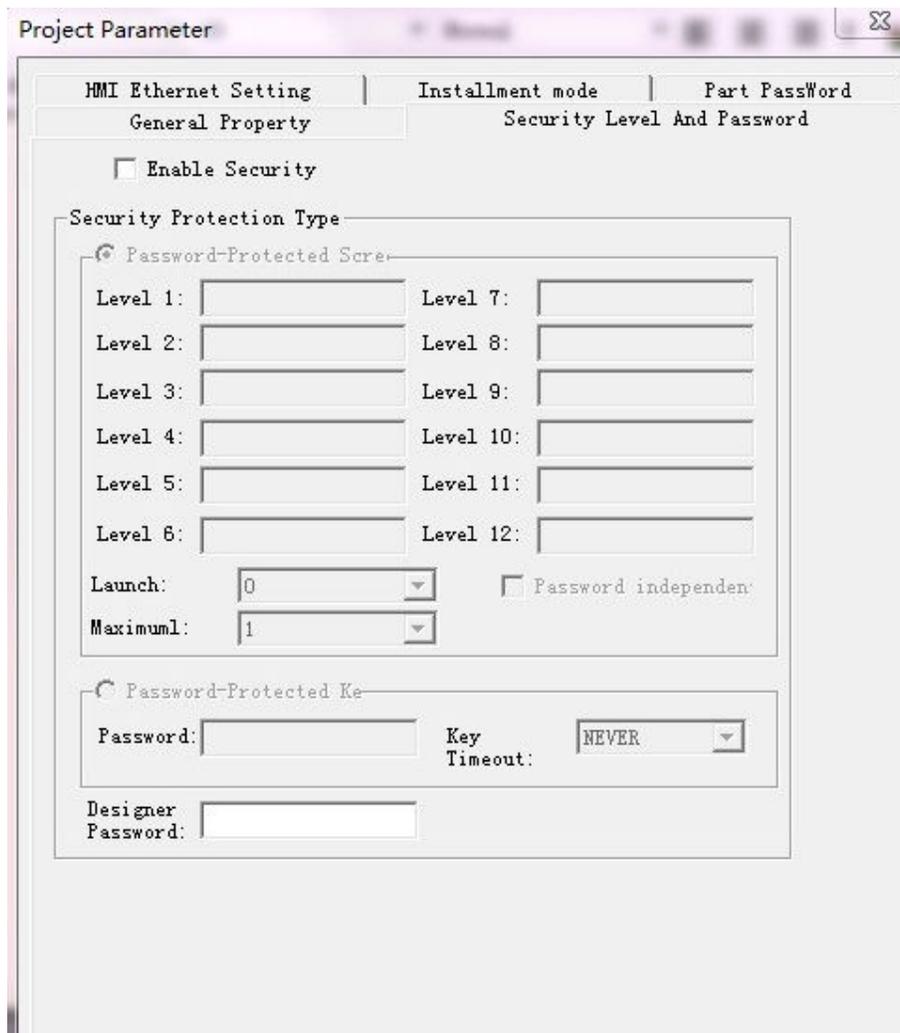


Figure 5-3 security level setting

Table 5-3 security level introduction table

elements	Explain
----------	---------

Enable security	Enable security level function in the project. The default's not chosen.
Password-protected screen	Choose screen security level function to protect the project.
Level 1	Security level 1 password, stored in the system address HSW404 ~ HSW407, altogether 8 words.
Level 2	Security level 2 password, stored in the system address HSW408 ~ HSW411, altogether 8 words.
Level 3	Security level 3 password, stored in the system address HSW412 ~ HSW415, altogether 8 words. (the address of other security password is by parity of reasoning.)
launch	The default security level when the project's running.
Password independent	Choose it: the security levels are independent. Have to input password when enter different level screen. Don't choose it: after inputting the higher level security password, you can visit the same and lower level security screen.
Password-protected key	Set the protecting password of HMI.
password	Key protection password.
Key timeout	Beyond the setting time, then HMI will lock up.
Designer password	When upload the project from HMI, the designer passwords needed.

5.4 HMI Ethernet Settings

Click “settings”—“project parameters” to enter into Ethernet parameter setting. As shown in figure 5-5.

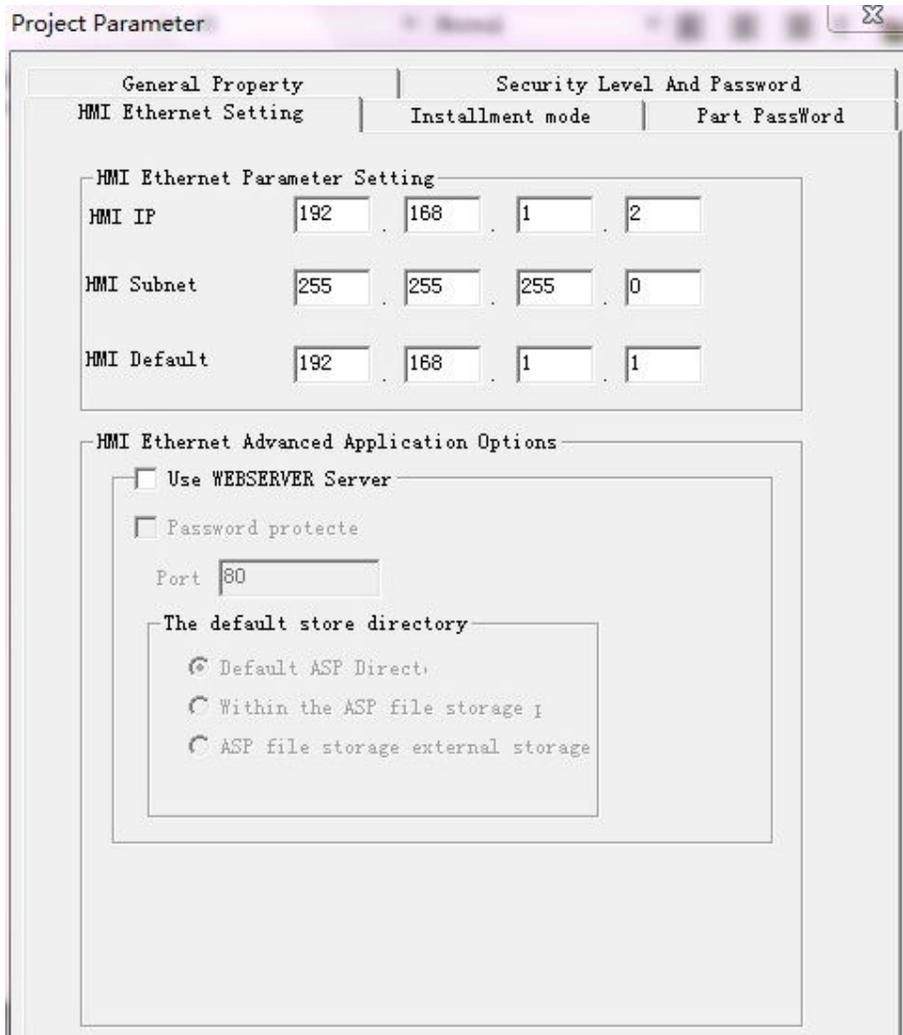


Figure 5-5 HMI Ethernet Settings

Table 5-4 HMI Ethernet Settings instructions

Interface element	explain
Use Web server	Choose it to use web server function.
Use Web server password protector	Choose this option to add password to web server. If someone want to visit this HMI through internet explore, he will have to enter the password.
The default store directory	Choose where to store the pages.

5.5 Installment function

When HMI system time surpasses the installment setting time, installment password input

dialog will pop up. Only after entering the right password, the HMI can work again. Or it will stay at the password required page. The setting of installment function is in the “project parameter” as shown in figure 5-5. We can also set the function in HMI. The path is “function switch”—“function option”—“installment”.

The expired time is judged by the HMI’s system time. Installment setting page and password input page are built-in and can’t be modified by the user.

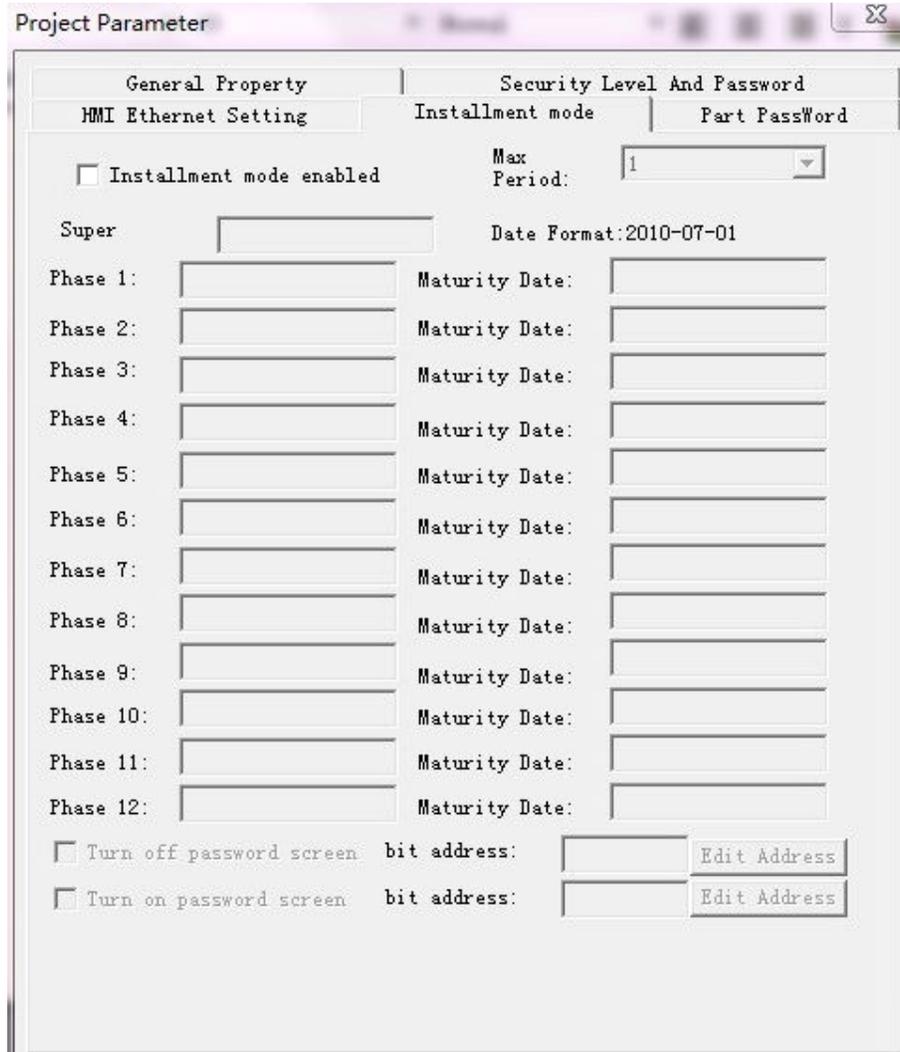


Figure 5-5 installment payment setting dialog

Table 5-5 installment setting instruction

elements	explain
Max period	How many times the fund be separated to pay.
Super	Super password is applicable to every installment.
Turn off password screen	After closing the installment page, set the trigger bit as 1. The specific function can be achieved by script instruction.

bit address	
Turn on password screen bit address	After opening the installment page, set the trigger bit as 1. The specific function can be achieved by script instruction.

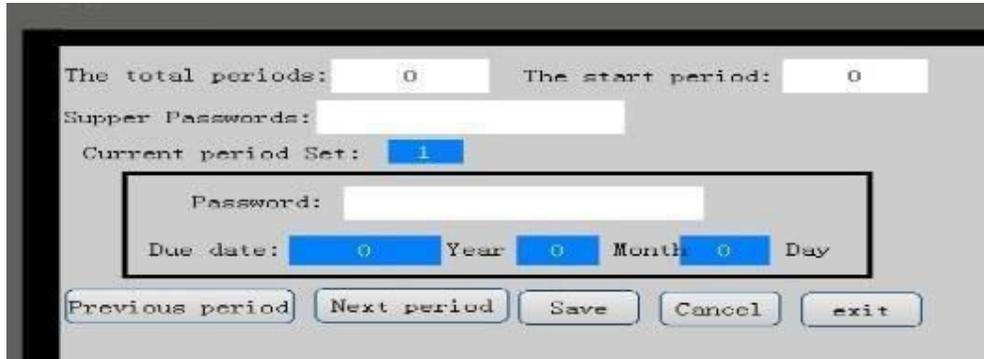


Figure 5-7 installment setting page in HMI

6.1 Bitmap

More fancy pictures can be designed according to bitmap. software not only supports static bitmap , but also bitmap having status which used to multi status of component , such as bit switch , word switch , bit status indicator light , word status indicator light

All bitmap used in project is quoted from project bitmap storage.

6.2 HMI bitmap

Bitmap of software is not the same with general bitmap. Their difference is that HMI bitmap is composed of more than one. It can have many statuses in a HMI bitmap which can be as much as 32 statuses, each of which relates to a general bitmap.

6.3 Bitmap Library

Bitmap is divided into local library and system library. When a new project is created, local library default is empty and bitmap appended by user will display here. System library with fancy library can be imported to local library or used directly. System library is classified and each library is a kind of library that shape and characteristic is similar.

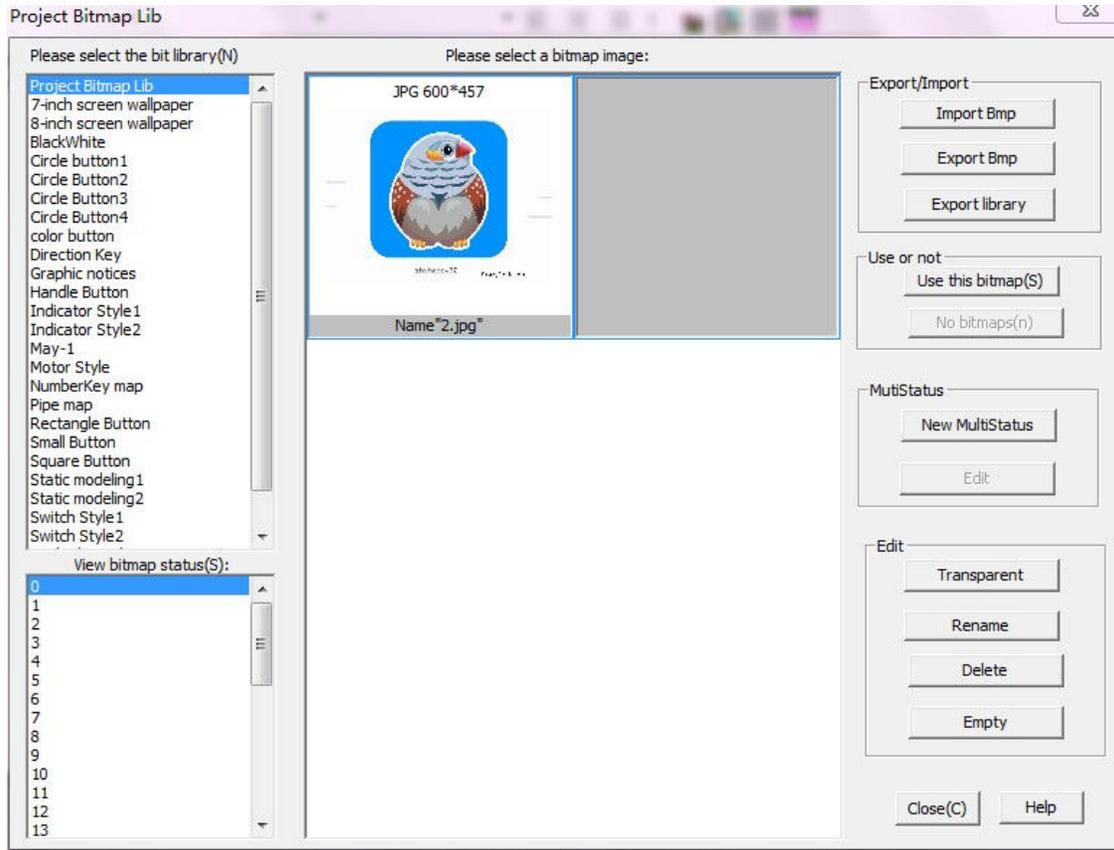


Figure 6-1 bitmap library editor window

As shown in figure 6-1 , bitmap library can be operated through the window ,specific description of every element is shown in list 6-1

List 6-1 bitmap library window description

elements	Description
Input bitmap	Input one or more HMI bitmap
Output bitmap	Save the bitmap to another project file
Export library	Save the bitmaps in current project to another bitmap library file.
Multimode bitmap	Edit multimode bitmap:make the bitmap that have need status number
Use/Unuse	Use or unuse an bitmap
Transparency	Edit bitmap,clean the color you want
Rename bitmap	Rename the selected HMI bitmap, whose name is unique and not repeated
Delete bitmap	Delete selected bitmap
Empty	delete all images in local library
Close	Save operation done to bitmap and close library dialog

6.4 New HMI bitmap

HMI bitmap is made up of many superposition general bitmaps, each of which relate to a status. software provides a guide to lead to create new bitmap. Click “setting”—“bitmap lib”—“New Bitmap”. A dialog box appeared as shown in figure 6-2.

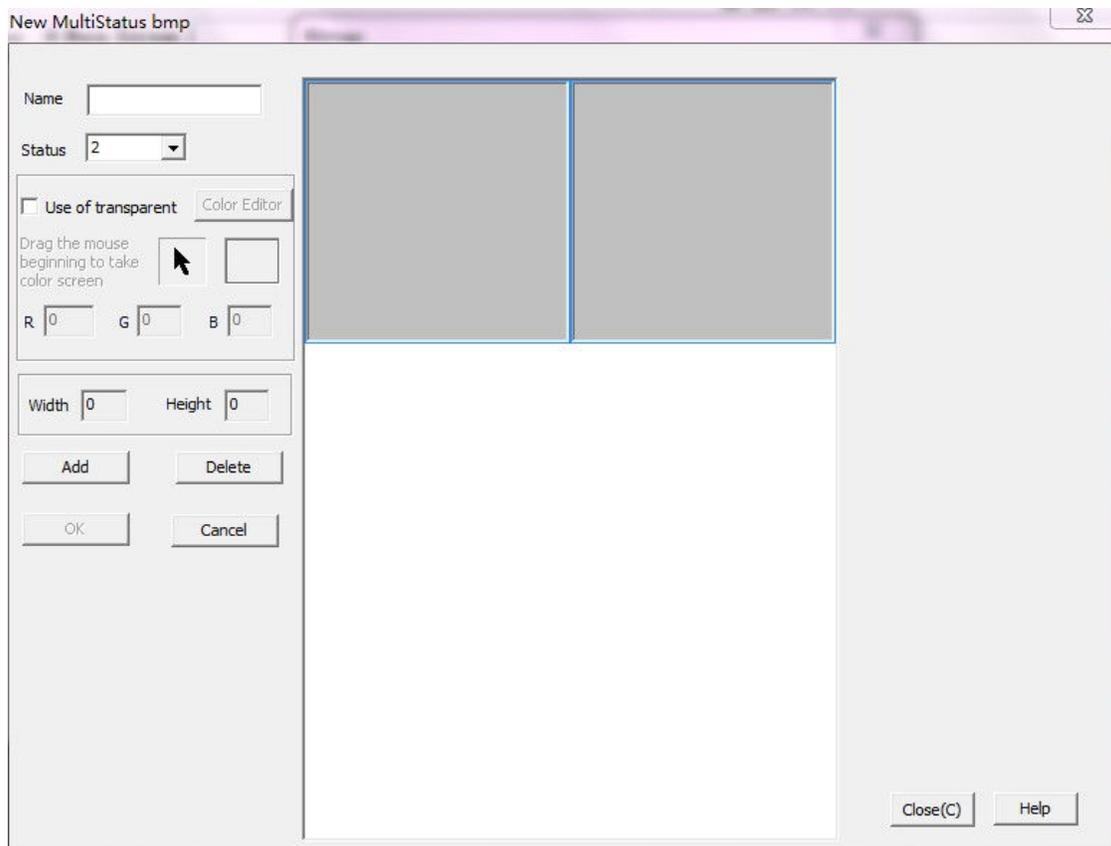


Figure 6-2 create a new bitmap

Specific description of each element in the window of figure 6-2 is shown in list 6-2

List 6-2 create new bitmap window description

elements	Description
Name	Name of new bitmap
Number of states	Sum of status of new bitmap. Can have as much as 32 statuses.
Import bitmap type of HMI	BMP, JPG, PNG these pictures are static images GIF picture are dynamic images
Use of	Bitmap display transparently

transparent	
RGB	Value of transparent color
Width/Height	Set the width and height you need
Replace	Replace undesired bitmap into other bitmap you need
Delete bitmap	Delete the undesired bitmap
Add bitmap	Add the desired bitmap into bitmap library

6.5 Bitmap edit

Through bitmap editor we can change the bitmap of appointed status or modify its transparent parameter. Click “setting”—“bitmap lib”—“bitmap editor” to open the bitmap editor dialog box. As shown in figure 6-4.

Note: GIF images can't use transparent color. Only BMP images can set transparent color.

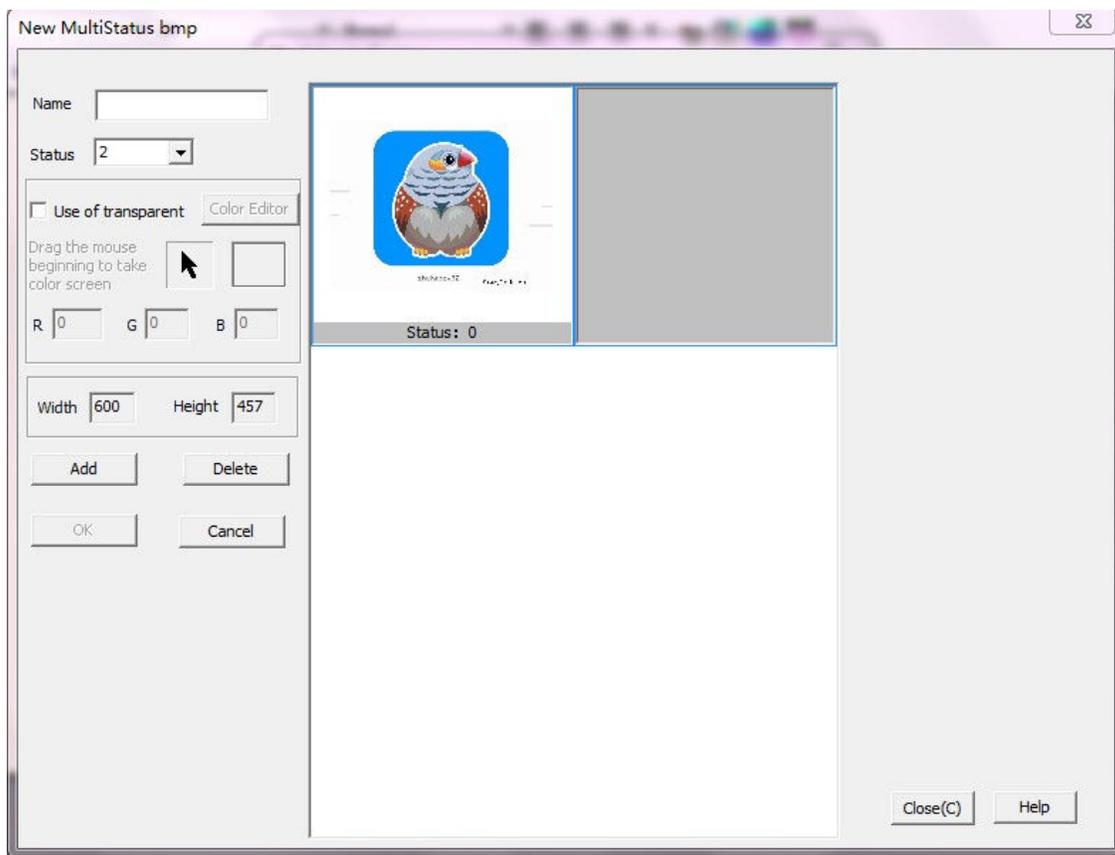


Figure6-4 bitmap editor

Bitmap editor window in figure 6-4 is explained in detail by table 6-4

List 6-4 new bitmap window descriptions

elements	Description
----------	-------------

Use transparent	Choose to use transparent color
Bitmap replace	Select appropriate transparent color
Drag the mouse beginning to take color screen	Click and drag the black cursor to the color you need on the computer screen to set it as transparent color
Status	Current browsing status
Add image	Replace current status bitmap
Delete image	Delete current status bitmap
OK	Close dialog box and save the modification
cancel	Close dialog box and cancel the modification

6.6 Import bitmap library

To import a new bitmap library to current project can also import some bitmap of other library to the project. Click “setting”—“bitmap lib”—“import library/bitmap” to enter into the bitmap importing dialog. As shown in figure 6-4.

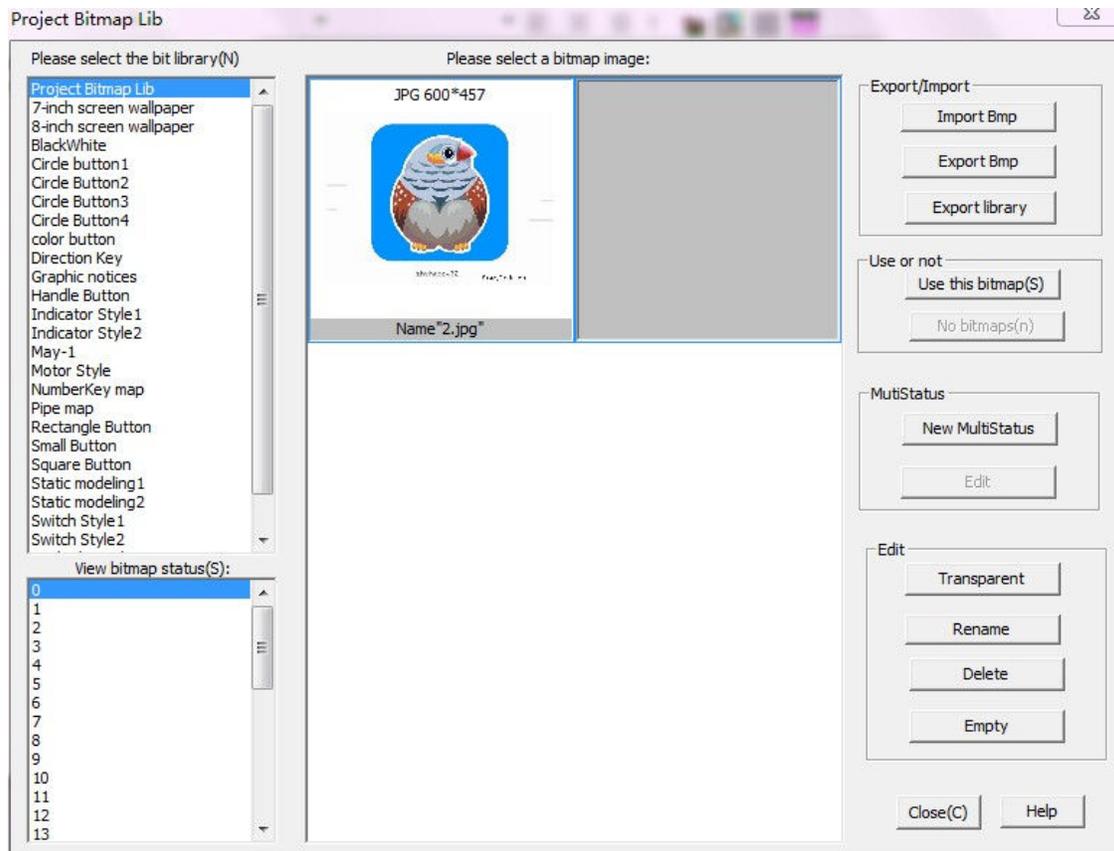


Figure 6-5 import library software can import various color depth of bitmap or gray image.

6.7 Use HMI bitmap

Only if the component has the attribute of “the appearance of the bitmap”, it can use bitmap. It’s quoted from the bitmap library.

In software, vector diagram and bitmap can coexist. When components adopt bitmap and vector diagram, the system will first depict the component’s vector diagram and then display its bitmap.

In software, vector diagram can be stretched freely without distortion.

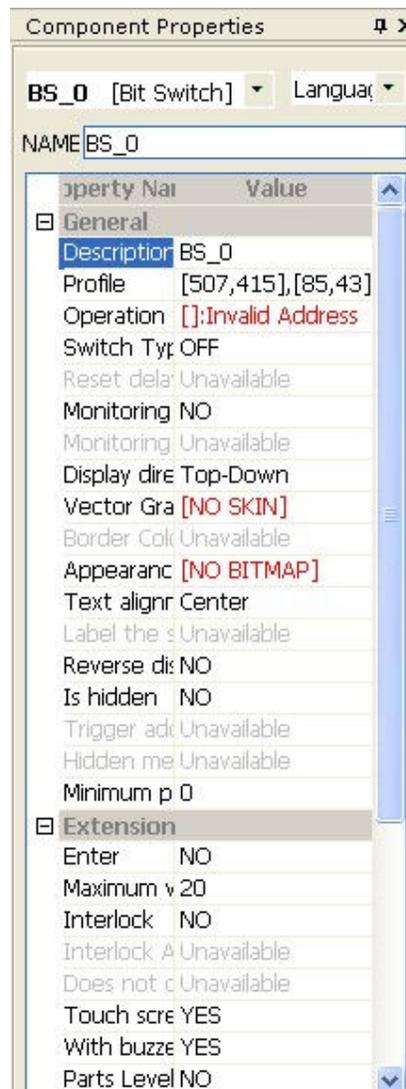


Figure 6-6 appearance bitmap choose

Take bit switch component as an example. The value of “appearance of the bitmap” is the bitmap’s name. Click it. There will be a pull-down button. And click the button. The dialog will show as below.

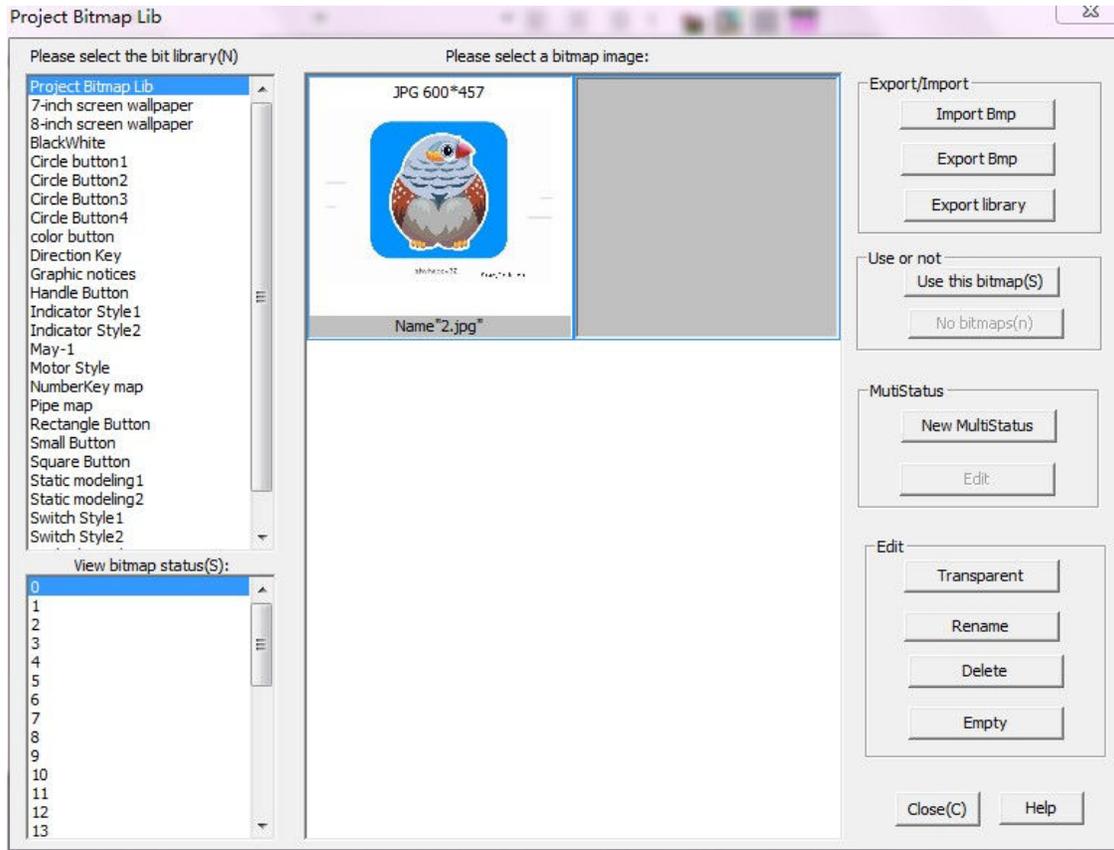


Figure 6-7 bitmap select dialog

Table 6-6 is the instruction of figure 6-7.

Table 6-6 import bitmap window instructions

elements	explain
Input/Output	Input bitmap:input the bitmap into bitmap library Output bitmap:output the desired bitmap to assigned address Output the library:output all bitmap in the library,the output file is blb format
Use/Nonuse	Use this bitmap:Use the selected bitmap as the appearance of the component. Nonuse this bitmap:Use the selected bitmap as the appearance of the component.
Edit	Transparent processing: transparent the bitmap engaged,process the background color of pictures Rename: rename the bitmap Delete bitmap: delete the undesired bitmap Empty the library:empty the bitmap library

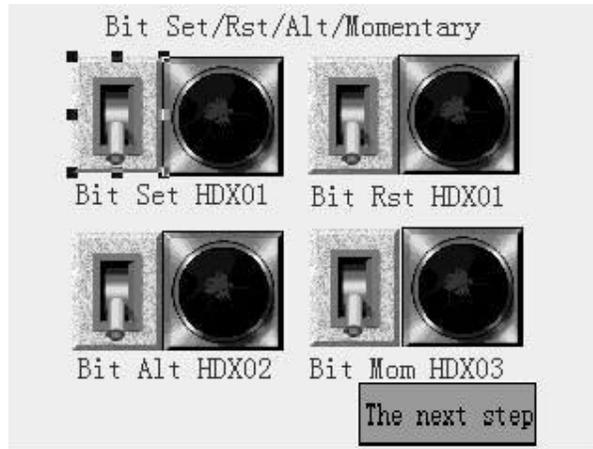
When the HMI bitmap's chosen, software will convert its color depth to the system acceptable one.

If the selected bitmap is not in local bitmap library, software will import the bitmap into local bitmap library and then convert it to the matching color depth.

Figure 6-8 shows a 16 classes gray level picture which is applied in HMI bitmap.

Figure 6-8 bitmap sample

If you want to check different status' bitmap, select different statuses in component properties.



7.1 Address

All components in software communicate with device through addresses. The addresses and control type are different according to different machines. Address is the basic element for component to read/write data to PLC.

In PLC application, the ladder diagram program should be programmed according to the addresses that are related to the HMI. Most addresses of PLC have the structures shown as below.

Device type (For example I, IW)	Device address(For example 0, 1)	If it's a bit address, there may be a bit number.
---	---	--

software provides two accesses to PLC register data: bit address and word address. All components in software are communicating with PLC no more than through bit address or word address.

In addition, for easily programming, software reserves a set of register. Its address types are consistent with general structures of PLC which has four classes: HS, HP, HD and RP. The marks HSX, HPX and HDX stands for bit address while HSW, HPW, HDW and RPW stands for word address. The instruction of their use please refers to chapter 19.

These software reserved registers are overlapped, such as HSW000001 is a word, and its 16 bits can be expressed as HSX0.0, HSX0.2, ... until HSX0.15. Other reserve registers are the same.

The coding of bit address has double ways: directly code and indirectly code. Indirectly code means to index the bit address by word address. For example, HSX0.0 stands for the zero bit of the zero word. In this situation, they must be separated by decimal point. And directly code is to index the bit directly. For example, I18 means the 18th bit of I register.

The style of bit addresses coding need to refer to the related PLC instruction. software supports the same coding style with PLC.

As a character string, beside HSX and so on marks, address can have as much as 32 characters. But usually, PLC has 6 characters. Its specific number relate to the specific device and model.

Different manufacturers of PLC have different coding styles and address regulations. software integrated all the address regulations. And according to these regulations, the device can identify the input of customers.

7.2 Multiple connections and multiple stations

The new version software support multiple communication ports connect to multiple PLCs at the same time. Even one port can connect with multiple same type devices. At this situation, the address string rules are as follow:

Connection # station number: address.

Connection: to choose which communication port to communicate. Value: 1 or 2. (If there's no connection and mark symbol "#", it will acquiesce in NO.1 connection to communicate).

Station number: Equipments' station numbers, ranging from 0 to 255. (If there's no connection and mark symbol ":", it will acquiesce in communicating as per pre-set station number in "default address" of "communication port configuration" dialog box.

address: Address string

Connection and station number can be omitted. For example, "A#B" means connection A visit the data in address B whose station number's omitted. And "A:B" means connection 1 visit the data in address B whose station number's A.

7.3 Address editor

Address editor is used for generating address string. The address of component is making up from the following elements: Connection, device station number, device type and address value.

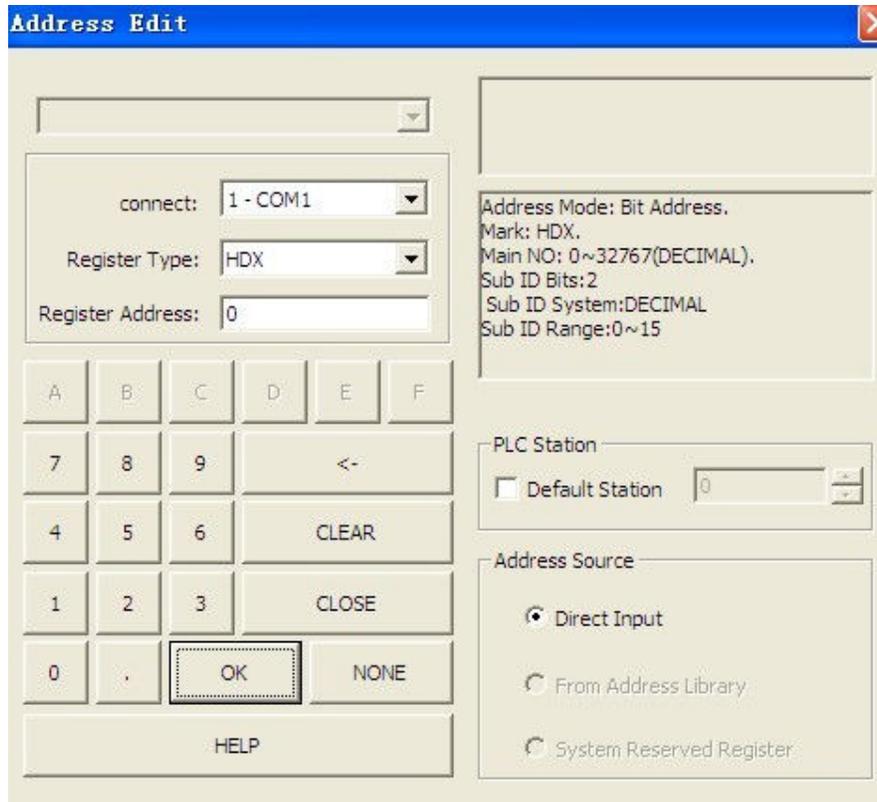


Figure 7-1 address editor

Table 7-1 is the instruction of figure 7-1.

Table 7-1 address editor window instructions

elements	explain
Direct input	The address is not from address library. It is an address string.
From address library	The address comes from address library. If there's no data in address library, this option will not be available.
name	Show the list of the library. The selected clause is the component's address.
Connect	The PLC type chosen in the project.
PLC station	Set the device station number. If choose default station, it would be the preset station number in "communication port settings".
Device type	The register's type of the PLC.
Address edit box	For address inputting.
A-F, 0-9	soft keyboard, mouse click to input address value.
clear	clear address editing box.
delete	Delete the last character in address edit box.
close	Closed address editor, don't save the modification.

sure	<p>Closed address editor, and save edit results; If choose from address library, then modify results will save to the related address library clause.</p> <p>If choose customize, the modified results will saved into the address attribute of the component.</p>
------	--

The content in the static box is the introduction of the selected value. To different device type, the introductions are different. Table7-2 shows its explanation.

Table 7-2 address editor introduction

elements	explain
Address mode	That represents the current address is word address or bit address;
mark	The selected equipment type;
Main Number	Some PLC address is coded by indirect coding. That needs main coding number and sub coding number. The range and numerical system of the main coding number are indicated here.
Sub-number digit	If the sub coding numbers digit's zero, it means the address is directly code.
Sub-number numerical system	The numerical system of sub coding number (the data behind decimal point, owned only by indirect code)
Sub-number range	The range of sub coding number (the data behind decimal point, owned only by indirect code)

7.4 Address database

Address database is a set of preset address. Click “settings”—“address lib” to open address database. As shown in figure 7-2.

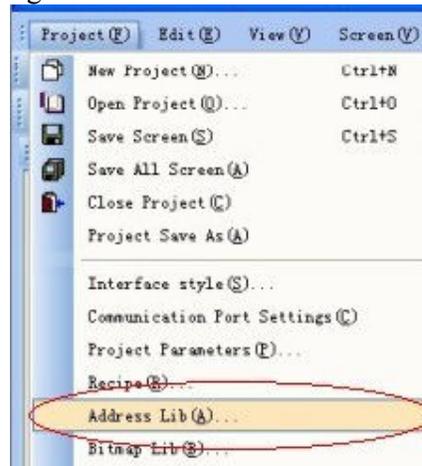


Figure 7-2 the path of address library

Double-click the clause to open the edit dialog box as shown in figure 7-3.

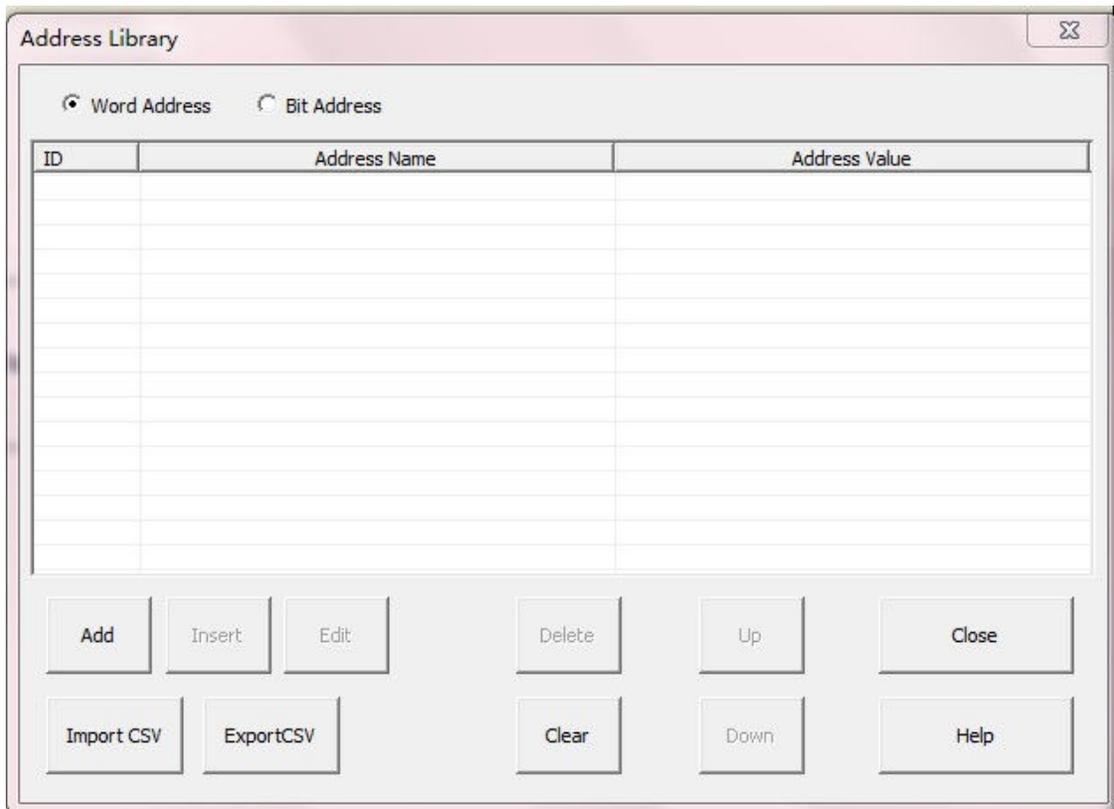


Figure 7-3 address library

Table 7-3 is the instruction to the elements in Figure 7-3.

Table 7-3 address library dialog elements introduction

Elements	Help
Word address	If the word address's selected, all the word addresses in the address library will be listed.
Bit address	If the bit address's selected, all the bit addresses in the address library will be listed.
List box	There are three columns in the list box. ID is the index number generated by the system. Address name is designed by customer for easy remembering the address. Address value is the real value of the address.
Add	Add address to library
Insert	Insert an address before the selected one.
Edit	Edit the selected clause.
Delete	Delete the selected address (if there is component used this address, the component will unavailable).

Clear	Clear all the address.
Up	Move up the selected address.
Down	Move down the selected address.
Close	Close the dialog box.

7.5 Usage of addresses

In software, the address are usually used in bit address, word address, monitor address and operate address. Assume that we set a word switch in the screen picture, the component attributes will show as figure 7-4.

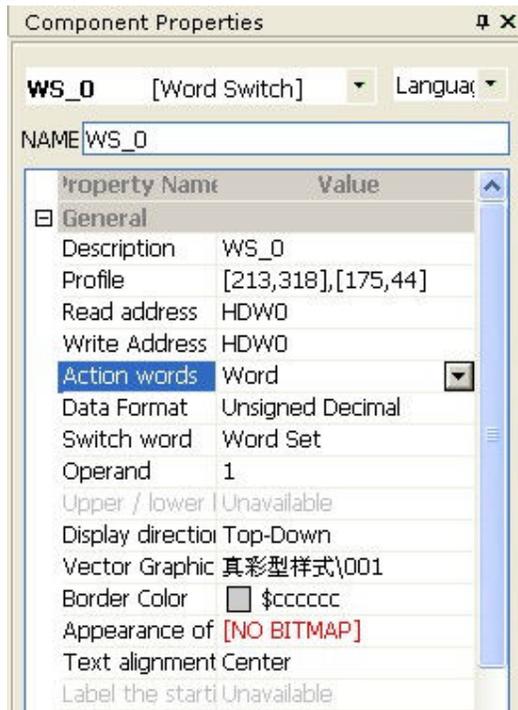


Figure 7-4 attributes of word switch

If the attribute “word address” is in editing state, there would be a pull-down button and editing column. In editing column the word address can be input directly such as IW000000. Or enter the word address name in the library.

The user can also click the pull-down button to edit the address in address editor. There would be some hint for address inputting. We can also quote the clause in address library.

If the input's incorrect, the attribute column will point out “invalid address”.

The edit of other addresses are the same with word switch.

7.6 Address preview

Studio provides a convenient tool to view the addresses of current project or the components related to one address. Choose the icon on view toolbar as shown in figure 7-5.



Figure 7-5 address preview toolbar

Then the address list will pop up in the editing area shown as figure 7-6.

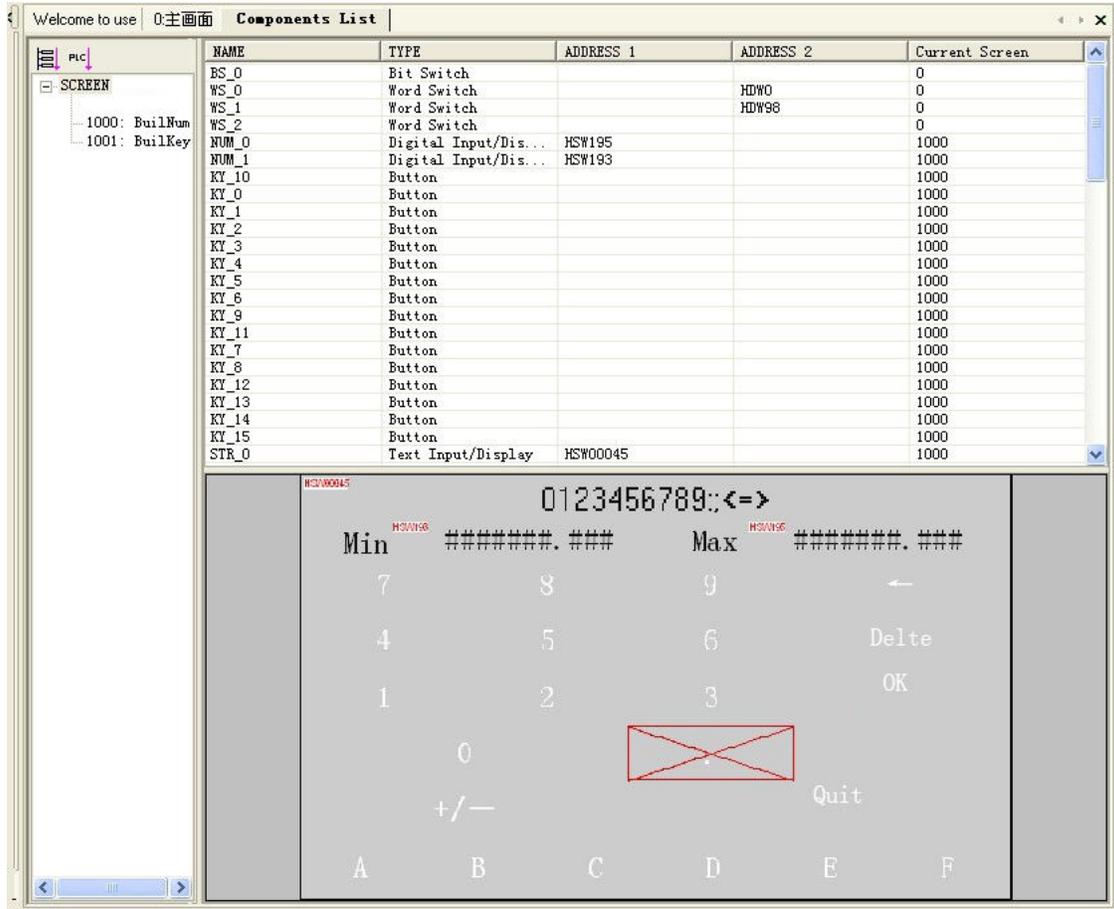


Figure 7-6 components list

This tool can show you clearly all the address resources in current project and know one address is shared by which components.

8.Graph Drawing

Graphic drawing can greatly enhance the expression effect of picture screen. software can support the components such as point, direct line, arc, pie chart, rectangle, fold line, polygon, circle, static text, arc scale, straight line scale, bitmap and so on. The edit and modify of these components in software is convenient.

8.1 Graph Drawing Box

Click “parts”—“drawing part” to choose the right component you need as shown in figure 8-1.

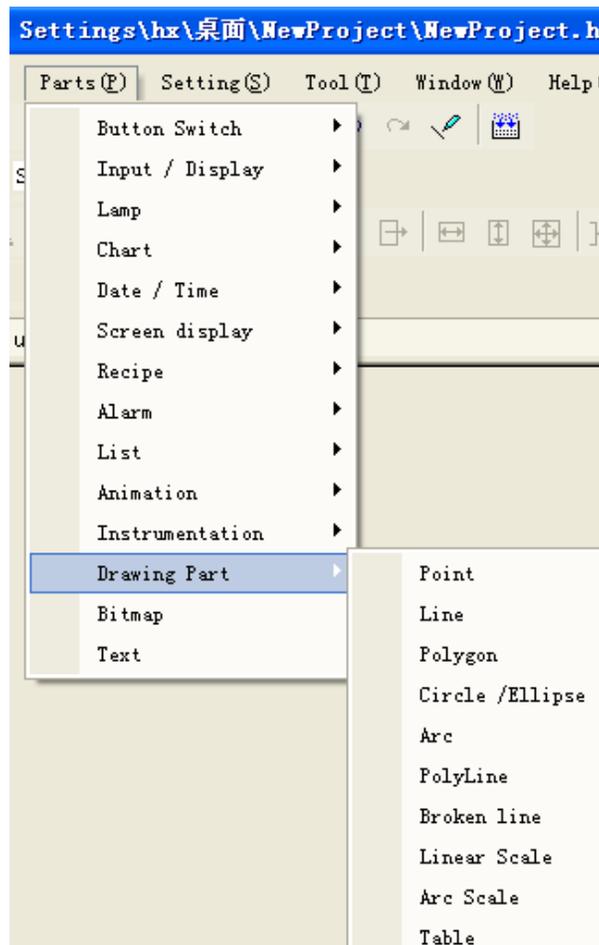


figure 8-1 Graphic drawing box

8.2 Line

Table 8-1 Line attributes list

Attribute names	meaning	Can edit or not
Boarder color	Line's color	yes
Line type	Line's type	yes
Starting point	Line's start point	yes
end	The end of line	yes
Automatic vertical	Unit: pixel	yes

The start and end points of line can be drawn to the spot you need.

8.3 Point

Table 8-2 point attribute list

Attribute names	meaning	Can edit or not
foreground	Color of the point	yes
Point type	The size of the point, can choose 1, 2, 3, 4 and 5	yes
Point coordinates	Said o'clock position	yes

Point can be drawn to the spot you need.

8.4 Polygon

Table 8-3 Polygon attributes list

Attributes name	meaning	Can edit or not
Vertex set	The quantity of vertex point in Polygon. software Support 50 point's polygon.	Can edit the coordinate value of each vertex point
Line type	Polygon's line type, software provides twelve types	yes
Border color	The color of polygons	yes
Filling pattern	Polygon's filling pattern. If choose blank, then the polygon is transparent.	yes
Foreground color	Filling pattern used on the foreground	yes
background color	Filling pattern used on the foreground	yes

In polygon creating, we right click the mouse to set the last point. And then if you want to change the coordinate of any point, we can left click the polygon to make it selected like figure 8-2.

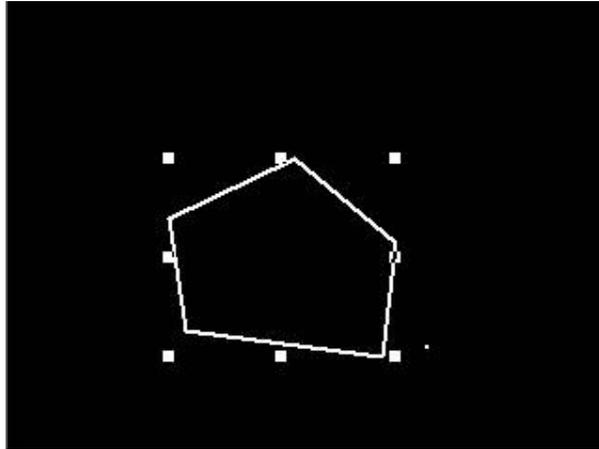


Figure 8-2 selected polygon

Then left click any point of the polygon to make it editable as shown in figure 8-3.

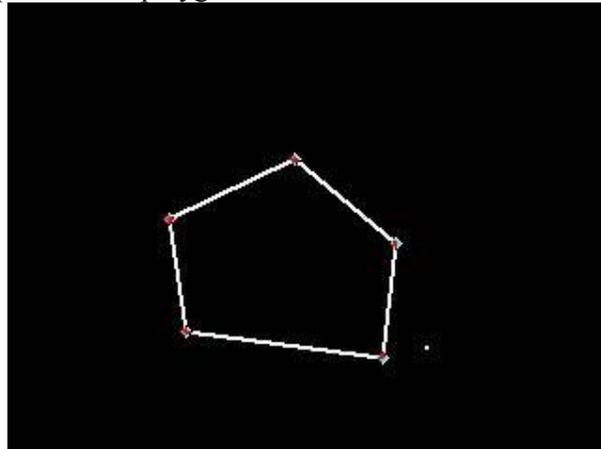


Figure 8-3 editable polygon

Every point of the polygon can be dragged to the need spot by mouse.

8.5 Circle / ellipse

Table8-4 circle/ellipse attributes list

Attribute names	meaning	Can edit or not
Line type	Polygon's line type, software provides twelve types	yes

Border color	The color of polygon	yes
Filling pattern	Polygon's filling pattern, if choose "blank", polygon is transparent.	yes
Foreground color	Filling pattern used on the foreground	yes
background color	Filling pattern by use on the background	yes
X Axle	The length of X axle. If X axle length equals to Y axle length, it's a circle.	yes
Y Axle	The length of Y axle. If X axle length equals to Y axle length, it's a circle.	yes
center	The ellipse center point coordinates	yes

Ellipse center point coordinates can be dragged by mouse to modify.

8.6 Arc

Table 8-5 is Arc attributes instruction list

Attribute names	meaning	Can edit or not
Profile	The rectangular area of the arc.	YES
Border color	Arc border's color	YES
Pie	If the arc's sealed up, it becomes pie chart.	YES
Filling pattern	Only when the arc becomes pie chart, this option's available. The padding style.	YES
foreground color	Only when the arc becomes pie chart, this option's available. Foreground color of padding style.	YES
background color	Only when the arc becomes pie chart, this option's available. Background color of padding style.	YES
Starting point	Arc's starting point coordinates	YES
end	Arc's end point coordinates	YES

Choose the "arc" component button and left click in editing area to set the center of the arc.

Then left click again to determine the shape and semi diameter of the ellipse in which the arc will be. Move mouse to the start point you need and left click to set it. And then move to the end point and left click again. The arc will be anticlockwise from start point to end point. And the two points can be modified by dragging them. If you want to drag the point, choose it first. As shown in figure 9-5.

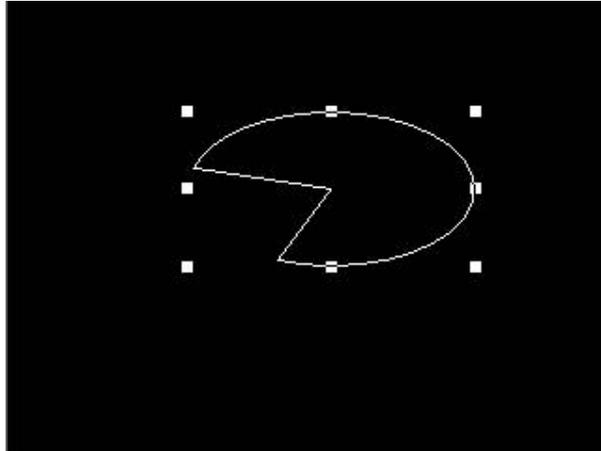


Figure 8-4 select the arc

Then left click again on the arc to make it internal selected. As shown in figure 8-6.

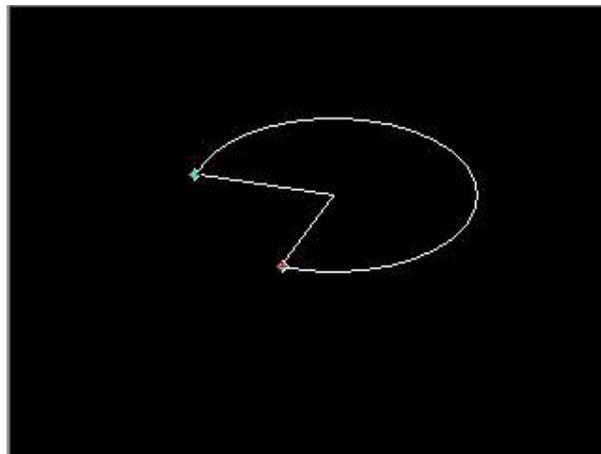


Figure 8-5 the start and end point of the arc

At this time, the start and end point can be dragged.

8.7 Rectangle

Table 8-6 Rectangular attributes list

Attribute names	meaning	Can edit or not
-----------------	---------	-----------------

Profile	The rectangle size	YES
Line type	The line type of rectangle edge	YES
Border color	The color of rectangle edge	YES
Fill pattern	The fill pattern of rectangle. If choose "no filling", then rectangle is transparent	YES
foreground color	Foreground color used by fill pattern	YES
background color	Background color used by fill pattern	YES

8.8 Text

Table 8-7 Static text attributes list

Attribute names	meaning	Can edit or not
text	Text content software static text can support 128 characters or 64 Chinese characters	YES
text color	The color of text	YES
display direction	The display direction of the text. have up down left and right four directions	YES
font	the font of the text	YES
Starting point	Start point of the text If the direction id from top to bottom,starting point in top left corner of text; If the direction id from left to right,starting point in bottom right corner of text; If the direction id from bottom to top,starting point in bottom left corner of text; If the direction id from right to left,starting point in top right corner of text.	Though drag to edit

8.9 Polygonal line

Table 8-8 Polygonal line attributes list

Attribute names	meaning	Can edit or not
Vertex set	Polygonal line number which most is 50 and set the coordinate of each point	YES
Line type	Polygonal line type. software provides twelve kind of line	YES
Border color	Polygonal line's color	YES

Polygonal line consists of connected direct lines. The operation on it is the same with polygon which can drag every point to change its coordinate.

8.10 Linear scale

Table 8-9 linear scale attributes list

Attribute names	meaning	Can edit or not
profile	The rectangle around the polygonal line	YES
display direction	The scale's direction. There are four choices: top-down left to right bottom-up right to left	YES
Line type	The line type of linear scale	YES
Border color	Linear scale's color	YES
Main scale	The number of main scale in the linear scale area	YES
Number of sub-scale	The number of sub-scale between two main scales. The sub-scale line's half as long as main scale	YES

Linear scale is direct line scale. It's divided equally into appoint parts. And the instruction of the scale can be shown by static text.

8.11 Arc scale

Scale shows in the designated arc area. It needs a circle center. The internal and external circles determine the scale's displaying area and scale length. The starting angle and ending angle specific the scale area in which the scale's in anti-clockwise.

Table 8-10 Arc scale attributes list

Attribute names	meaning	Can edit or not
Line type	Scale line type	YES
Border color	Scale line color	YES
center	Center point coordinates of the arc scale	YES
outside diameter	Determine the external circle of the scale	YES
Bore	Determine the inner circle of the scale	YES
Starting point	start angle of the scale related to the X axis	YES
Termination point	Ending angle of the scale related to the X axis	YES
Main scale	Number of the main scale. The default value is six	YES
Number of sub-scale	Number of sub-scale between two main scales. Its length is half as long as main scales.	YES

If you want to change the internal diameter, external diameter, start angle and termination point, make the scale under selected state as shown in figure 8-7.

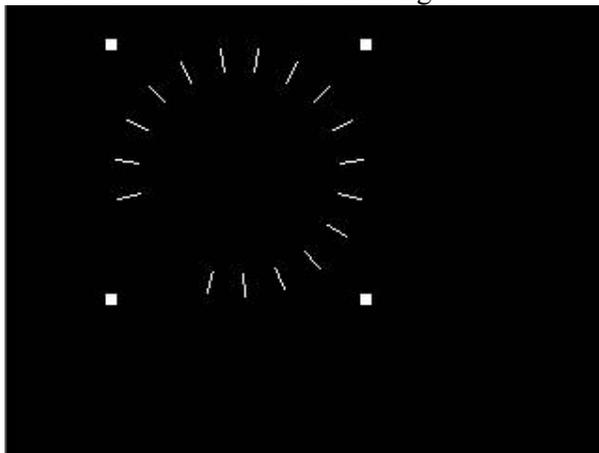


Figure 8-6 selected arc scale

And left click again in the scale to enter into the editing state as shown in figure 8-8.

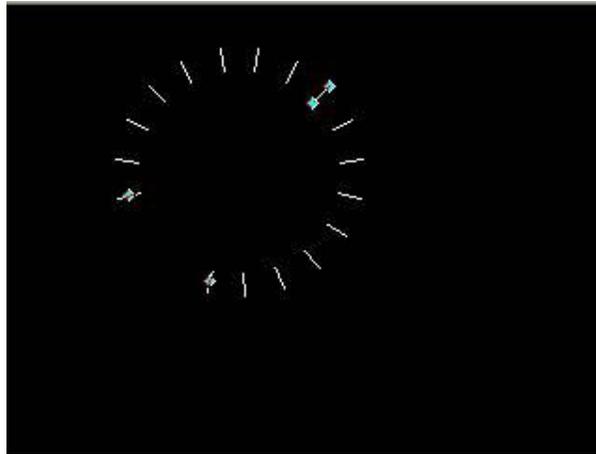


Figure 8-7 selected arc scale in editing state

There would be four points in the editing state. They are used for changing internal diameter, external diameter, and start angle and termination point.

8.12 Bitmap

Table 8-11 Bitmap attributes list

Attribute names	meaning	Can edit or not
description	The bitmap description	YES
Starting point	Starting point coordinates of the bitmap	YES
Appearance	Bitmap name	YES
appearance of the bitmap	support bmp. gif	
GIF trigger	1.unavailable, 2.trigger once the bit address is 0 3 trigger once the bit address is 1	
trigger bit address	the address that control the GIF picture	

To use bitmap in a project you should download the picture into the bitmap library first. Or you can use the build-in bitmap of the system directly.

After downloading the picture, software STUDIO will change its color depth into the one which match HMI system. For example, in software 908T series HMI, the picture will be changed into 16bits true color bitmap.

software STUDIO support any size of bitmap zooming. (bitmap support static bitmap as well as gif picture.)

8.13 Table

8-12 instruction of table attributes

Attributes name	Meaning	Can edit or not
Transparent	Set the table transparent or not	YES
Header interleaving	Set the table head interleaving or not	YES
Form mixed	Set the table column or row interleaving or not	YES
Mixed color	Set the interleaving spot color	YES

The number of column and row can be set in the attribute column. The background color, line type and so on can be set here too. The space of row and column must be the same.

9.1 Text lib

Choose “setting”—“text lib” to enter into the current project’s text library as shown in figure 9-1.

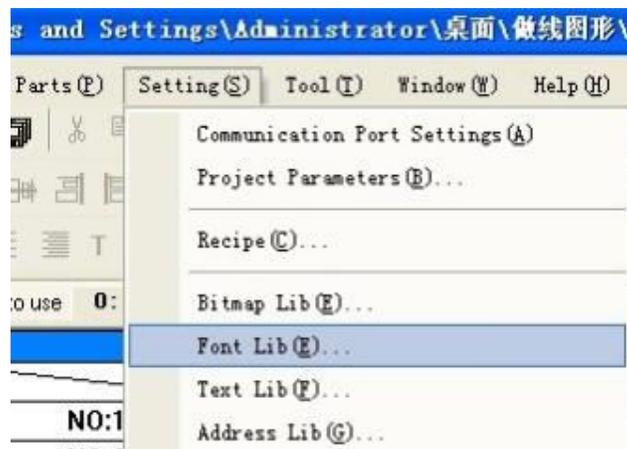


Figure 9-1 text library in

Click “**text lib**” to enter into text library editor as shown in figure 9-2.

Figure 9-2 text lib editor

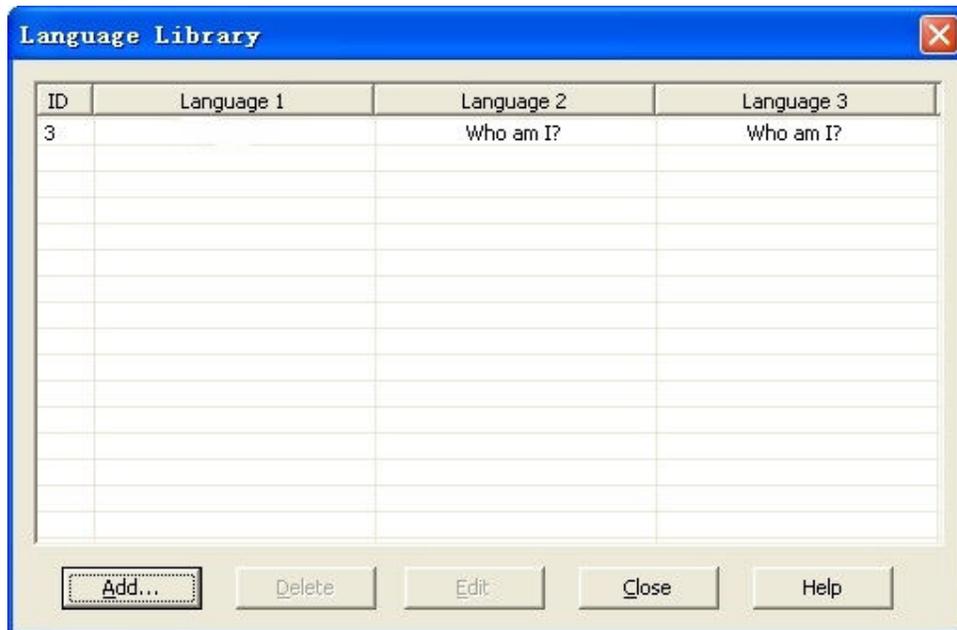


Chart 9-1 explanation for elements in text library

elements	explanation
ID	Index number generated by system for each text
Language 1	The first language content for the text
Language 2	The second language content for the text
Language 3	The third language content for the text
add	Add new text into text library
delete	Delete the selected text
edit	Edit the selected text
close	Close the dialog

Click “add” or “edit” to enter into text editor as shown in figure 9-3.

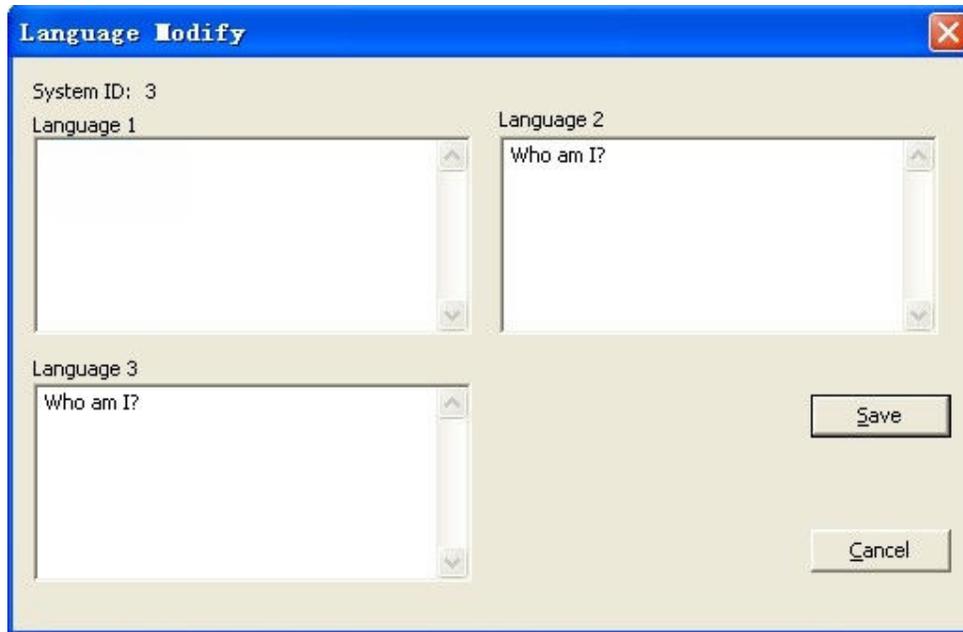


Figure 9-3 text editor

Chart 9-2 is the instruction to the elements in figure 9-3.

Chart 9-2 text editor elements instructions

Elements	explanation
systemic	Index number automatic generated by system
Language 1	To input the first language content. Support line-change and 256 characters or 128 double bytes characters
Language 2	To input the second language content. Support line-change and 256 characters or 128 double bytes characters
Language 3	To input the third language content. Support line-change and 256 characters or 128 double bytes characters
save	To save the modification
cancel	Cancel the modification and return to the text library

9.2 Use text library

In software, the text content of “bitmap”, component’s state text, alarm component can quote text library directly.

Take press key for example as shown in figure 9-4.

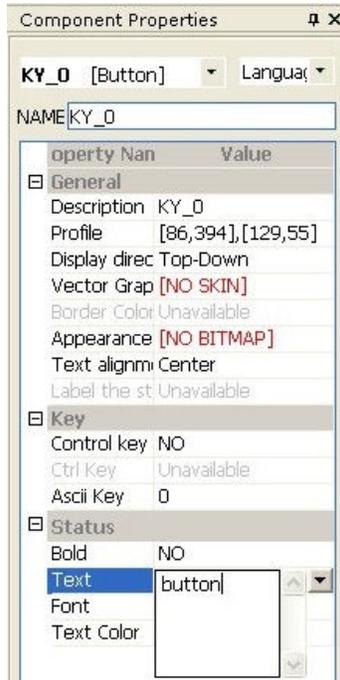


Figure 9-4 press key component attributes

When the text content edit bar selected, there will be an editing column and pull-down button. Multiple lines can be input directly. The column support line feed operation.

If the column has cited text library, then the clause in the library of current language is under editing. If there's other component cite this clause too, it will be changed also.

Click the drop-down button to choose the text from the library as shown in figure 9-5.

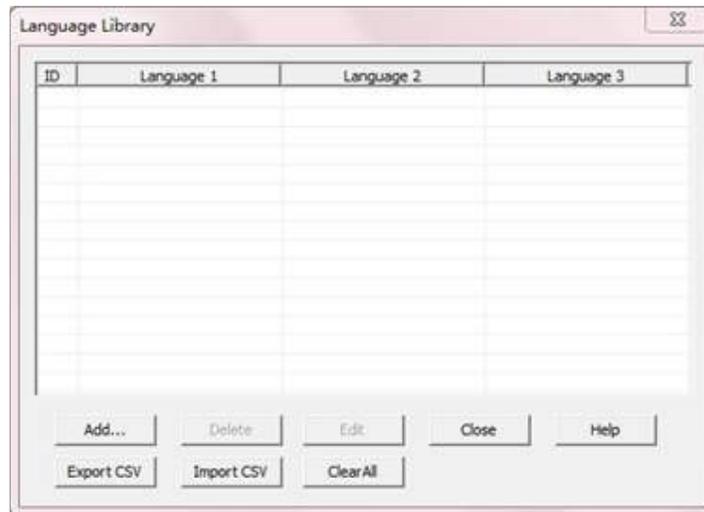


Figure 9-5 text selection

Chart 9-3 is the instruction of the elements in figure 9-5.

Chart 9-3 text choose window elements instructions

Elements	explain
ID	The ID number of the clause
Current language	The language the project used currently
Select	Set the selected clause as the text content of the component
Clear	If the text content is from text library, click this to cancel the select. And we can input the content to the bar directly
cancel	Cancel modification and close the dialog box
language libraries	Open text library and edit it

9.3 The current language

The current language is the screen picture display language. When the current language changed, the text content will change accordingly (if the content quotes the library). And if it doesn't quote the library, it will have no effect.

Check figure 9-6 to see how to change current language.

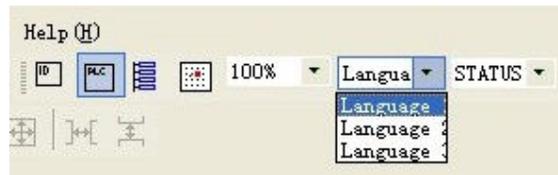


Figure 9-6 current language selection

10.1 software alarm system

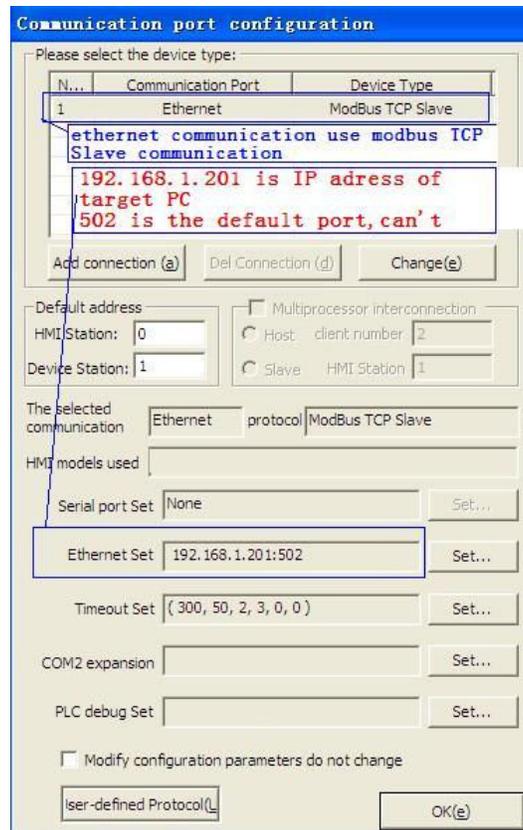
When download project to HMI, the preset alarm information will be downloaded too. Then system will keep monitoring the data. If it matches the alarm condition, the alarm information will be recorded into the buffer. If the buffer's full, system will deal the information according to FIFO principles.

New version software supports word alarm and bit alarm. The alarm record can be saved in CF card, SD card or U disk for permanent preservation.

Modbus TCP supports upload alarm information though enternet network to PC. When alarm,HMI will send the alarm information though enternet network to PC.

一、 Project setting

1. choose the modbus TCP Slave [agreement](#) as the [agreement](#) to upload data

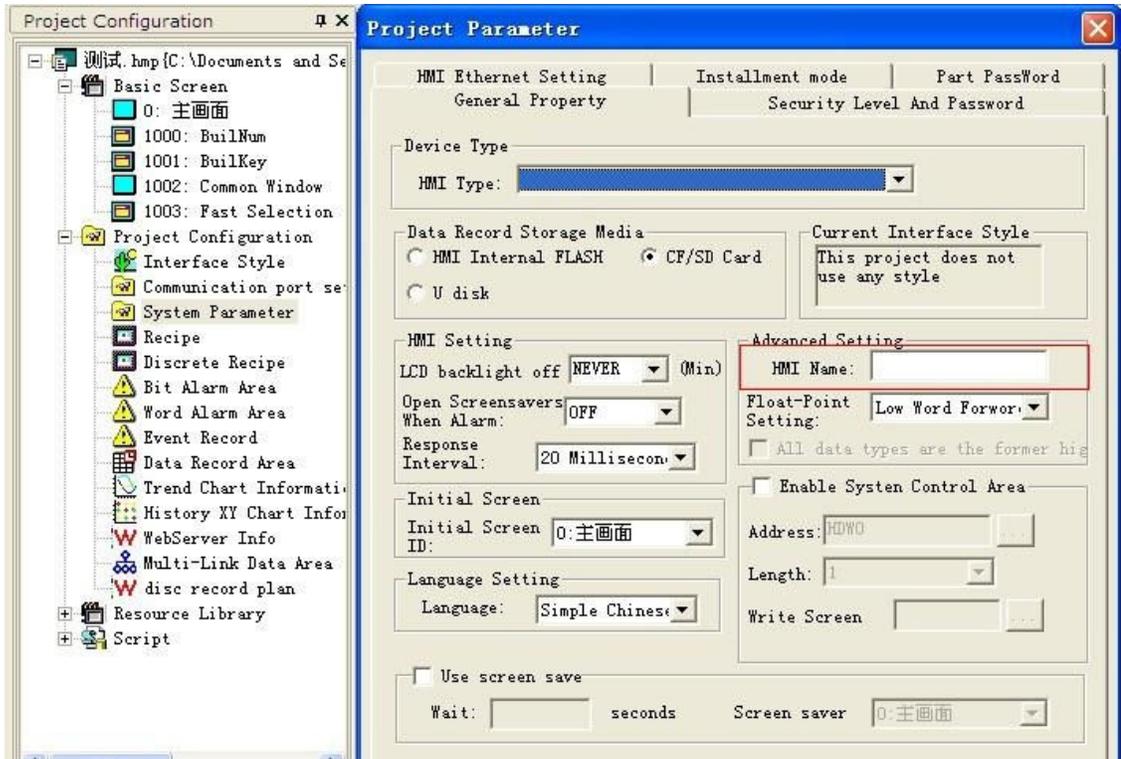


2. set the name of HMI

【Setting】 / 【Project Options】 / 【General properties】 / 【Advanced Settings】 / 【name of HMI】 Attention:the name must unique in the all uploading alarm record,the length can not more than 30 bites.

When alarming,there has alarm data upload.when the data uploading,' name of HMI' will show on the upload address which is designated.

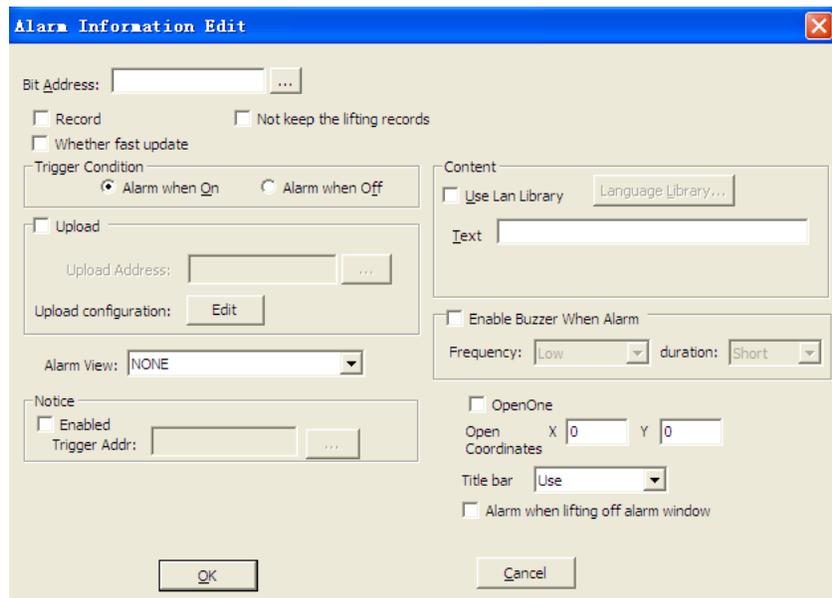
Name of HMI: name of HMI & time &alarm information send to the designated address



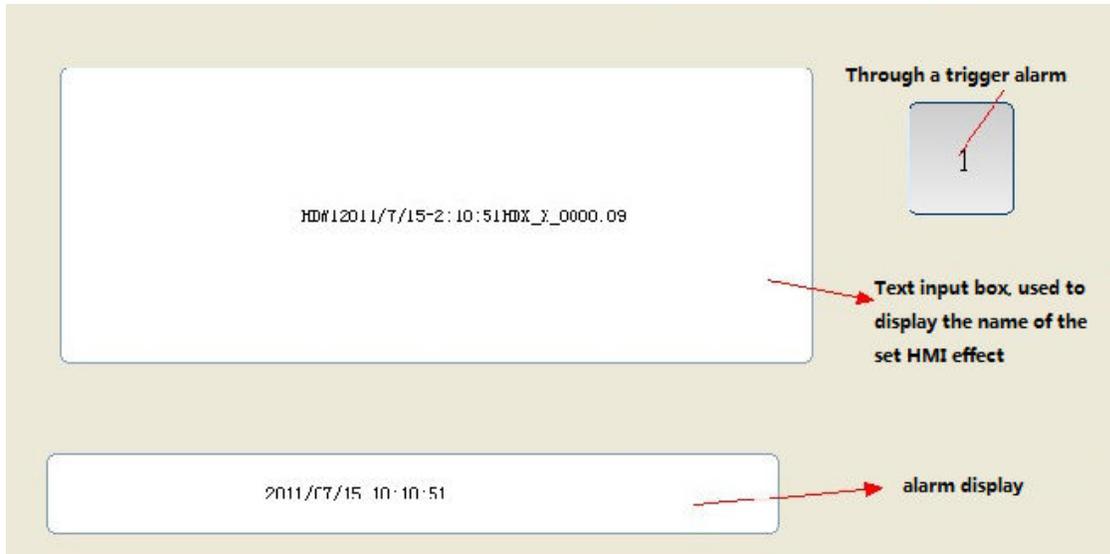
3. Set a need to alarm

【Project Configuration】 / 【Bit/Word Alarm Recipe】

In the dialog box of new or modify at Bit/Word Alarm Recipe, choose the upload, input the upload address (this address must word address of modbus TCP).



The demo about set the name of HMI



二、 explain of PC port alarm check
(the alarm data of SD card and CF card)

When you want check the alarm data of SD card and CF card, double click the  .
(attention: the alarm data can not upload to PC port when you close the [software](#))

The alarm data put on the log folder of folder, advice you back-up the data at short intervals, then delete this folder. .dat doc in the folder of Log can check with excel.

Check the alarm data uploaded:



Use the  check the alarm data, the communication parameter setting only can use Ethernet and ModBus Tcp agreement; if you use ModBus Tcp Slave agreement to communicate, show “NC” in the monitor is normal.

HMI列表	报警数据	时间	报警地址	报警值	描述
HMI_1		2011/7/15-3:45:46	HDX_X_0002.03	1	
HMI_2		2011/7/15-3:45:35	HDX_X_0002.03	1	
HMI_3		2011/7/15-3:45:14	HDX_X_0002.03	1	
		2011/7/15-3:45:1	HDX_X_0002.03	1	
		2011/7/15-3:43:45	HDX_X_0002.03	1	

Click the name of HMI can check the alarm data.

三、When use alarm record, please check the Firewall of PC whearther support visit buy PC port. Check the 502 port whearther be taken by other program.

10.2 Bit Alarm

The 'Alarm Information Edit' dialog box contains the following fields and options:

- Bit Address: [Text Field] ...
- Record Not keep the lifting records
- Whether fast update
- Trigger Condition: Alarm when On Alarm when Off
- Upload
 - Upload Address: [Text Field] ...
 - Upload configuration: [Edit]
- Content
 - Use Lan Library [Language Library ...]
 - Text: [Text Field]
- Enable Buzzer When Alarm
 - Frequency: [Low] duration: [Short]
- Alarm View: [NONE]
- Notice
 - Enabled
 - Trigger Addr: [Text Field] ...
- OpenOne
 - Open Coordinates: X [0] Y [0]
 - Title bar: [Use]
 - Alarm when lifting off alarm window
- [OK] [Cancel]

The 'Alarm View' dropdown menu is open, showing the following options:

- NONE
- 1000:BuilNum
- 100 1:BuilKey
- 18:Alarm screen

The 'Alarm View' dropdown is set to 'NONE'. Below it, the alarm window is displayed with the following text:

2011/01/27 HDX0. 0=ON

Bit address	be monitored of bit addressof
Wheather record	If you chooe yes,then the alarm record will be save in CF card、SD card and U-disk
Wheather upload	Upload to the assigned address
Trigger condition	The condition of alarm
Text	What showed when the alarm happen
Inform	Use to mark wheather the alarm happen;if happen the inform address will change to 1,no alarm will become to 0
Alarm screen	click the drop-down list on the right can choose wheather jump screen of alarm,as follows(the alarm view must sub-screen)
Spacing interval	If the alarm not be release,you close the screen of alarm,in the next time of automatic jump the alarm screen.if you choose jump once,then the spacing interval will not work. After you close the alarm screen,will not jump out.

The step of make bit alarm:

1. enter into alarm editor
2. set the information like bit address、 trigger conditions、 Content 、 Alarm view
3. put the alarm parts you want:like:alarm record、alarm bar、alarm chart;then put the trigger button to trigger alarm.

If “alarm view” is chosen and the project’s running, when the trigger condition’s satisfied, there will be a sub-screen jump out as shown in figure below.

10.3 Word alarm area

The new version software supports word alarm. That is to monitor a word address of the device. If the alarm condition’s satisfied, the alarm occurs. The types of word alarm are:

Upper limit alarm: if the data’s larger than the set constant or the data in a register, the alarm occurs

Lower limit alarm: if the data’s smaller than the set constant or the data in a register, the alarm occurs

Range alarm: if the data’s out of the range than the set constant or the data in a register, the alarm occurs

As shown in figure 10-4 shows:

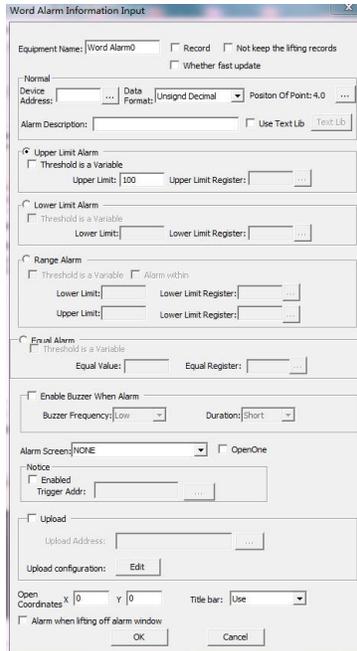


Figure 10-4 words alarm information input

Equipment name: alarm item name

Record: whether record to CF card, if choose "yes", then HMI must be equipped with CF card is valid

Device address: alarm on equipment word address, can use the address library

Data format: can be unsigned, symbols, BCD, if threshold is variable, then it is according to the consistent data format to compare.

Position of point: the data shows the decimal point position.

Alarm description: alarm text description

Upper limit alarm: need to input limit threshold or threshold in registers.

Lower limit alarm: need to input lower limit threshold or threshold in registers.

Range alarm: alarm condition is range alarm, and requires input relevant alarm conditions.

Alarem scren: the function can consult '10.2 bits of inputting and editors' alarm.

Inform: use to sign wheather the alarm happened. if happened, the address of inform wrote 1; Instead it is 1

11.1 Bit Switch

1. "Bit Switch" is in "buttons switch" of "all parts"

2. Functions of Bit Switch:

To operate, monitor and display the special bit-address of PLC or HMI. The value will be changed as the type of switch when the button pressed.

The state of the Bit Switch displayed is the state of bit which the Operation Address pointed when the monitor is available. For example, if the value is '1' the Bit Switch will display the states in ON of label, bitmap and vector graphics or will display the states in OFF of label, bitmap and vector graphics.

3. Types of Bit Switch:

OFF: to set the value of the Operation Address pointed as 0;

ON: to set the value of the Operation Address pointed as 0;
 Reset: to set the value of the Operation Address pointed as 1 when pressed and be 0 when pop up;
 Switching: the value of the Operation Address will be reset when pressed each time (switching between 0 and 1).

4. Properties of Bit Switch:

Property Name	Property Classify	Instructions
Operation Address	Internal registers' address of PLC or HMI	Internal registers' address of PLC or HMI operated by Bit Switch
Switch Type	OFF type ON type Reset type Switching type	OF: to set the value of the Operation Address pointed be 0; ON: to set the value of the Operation Address pointed be 1; Reset: to set the value of the Operation Address pointed be 1 when pressed and be 0 when pop up; Switching: the value of the Operation Address will be reset when pressed each time (switching between 0 and 1).
Reset Delay (ms)	It's available when the Bit Switch is Reset type	To reset after waiting for the time of the 'Reset Delay' set if the 'Reset Delay' is available. (for instance: It will reset after 5ms if the value of 'Reset Delay' is 5ms)
Trigger Types	No Trigger Trigger After Write Trigger Before Write Trigger After Write And Reset Trigger Before Write And Reset Trigger Before Write And Rest After Write	There are six types of trigger: No Trigger: No trigger. Trigger After Write: to set the trigger be 1 after input value is input Trigger Before Write: to set the trigger be 1 when the first value is input Trigger After Write And Reset: to set the trigger be 1 after inputted and then reset the trigger to 0 Trigger Before Write And Reset: to set the trigger be 1 when the first value is inputted and then reset the trigger to 0 Trigger Before Write And Rest After Write: to set the trigger be 1 when input and then reset it to 0 after user input 'enter'.
Monitoring	yes no	yes: Bit Switch has the function of monitor (Bit Switch will monitor the bit pointed by Monitor Address); the shows of Bit Switch will reflect the status of Monitor Address pointed no: no monitored function;

Monitor location	It's available when 'Monitor' is 'yes'	The status of Bit Switch will depend on bit pointed by Monitor Address (the address can be the same with Operation Address or not)
Text Alignment	It's available when the 'Text's not null	The alignment of label text Center: display tag in the center of component Left: display tag in the left of component Right: display tag in the right of component Customized: display tag by dragging The set is valid to tags of all status
Starting Point Of Tags	null	It's available only when 'Text Alignment' is 'Customized', Tags can determine the display position by dragging
Show Reverse Or Not	no yes	no: it will display normally cause “no” is defaulted yes: display the state-diagram and text of components reversely
Hide Or Not	no yes	no: the “no” is default value yes: hide the component
Trigger Address	It's available when the 'Hide Or Not' is 'yes'	fill the Bit Address to trigger hiding
Hiding Types	It's available when the 'Hide Or Not' is 'yes';	no: It's hidden when the 'Hide Or Not' is 0 yes: It's hidden when the 'Hide Or Not' is 1
Confirm Or Not	no yes	yes: HMI will pop the confirm-window when the Confirm Or Not is clicked and HMI will change the value of Bit Switch pointed after user’s confirmation no: No confirmation, change directly
Longest Waiting Time	It's available when the ‘Confirm Or Not ' is 'yes';	It's available when the Confirm Or Not ' is 'yes' unit: second, the window will disappear without user's confirmation after the waiting time
Inter Lock	no yes	yes: use the Inter Lock Address yes: don't use the Inter Lock Address
Inter Lock Address	It's available when 'Inter Lock' is 'yes'	If the Inter Lock Address is used the Bit Switch will be available when the value of the Inter Lock Address pointed is '1'
Touch Screen available	yes no	yes: It's available when touching no: It's unavailable when touching
Use Buzzer	yes no	yes: It will beep when touching no: It will not beep when touching
Text	the content displayed	To enter the text of current language and state. For multi-language ,multi-state displaying needs to changing the language and the state ,and then to set the text

11.2 Word Switch

1. Word Switch is in “buttons switch” of “all part”.

2. Functions of Word Switch:

The value of Word Address pointed will change based on the type of Word Switch when the user operates the Word Switch.

3. Classifies of Word Switch:

Word set: to set value of word pointed by Word Address to constant;

Ascending: value of word pointed by Word Address will be ascended when the button pressed and the amplitude is the value of Operated Number

Descending: Value of word pointed by Word Address will be descended when the button pressed and the amplitude is the value of Operated Number

4. Properties of Word Switch:

Part properties of Word Switch is on the follow table

Property Name	Property Classify	Instructions
(Read/Write) Word Address	null	Internal registers' address of PLC or HMI monitored by Word Switch
Word Num	word double word	Word: to operate one word only double word: to operate double words
Data Format	unsigned decimal decimal BCD	unsigned decimal: to display or write data in unsigned BIN code; decimal: to display or write data in BIN code; BCD: to display or write data in BCD code;
Word Switch Type	Descending Ascending Set Word	Types of Word Switch: Set Word: to set value of word pointed by Word Address to constant; Ascending: value of word pointed by Word Address will be ascended when the button pressed and the amplitude is the value of Operated Number; Descending: value of word pointed by Word Address will be descended when the button pressed and the amplitude is the value of Operated Number;
Trigger Types	No Trigger Trigger After Write Trigger Before Write Trigger After Write And Reset Trigger Before Write And	There are six types of trigger: No Trigger: No trigger. Trigger After Write: to set the trigger be 1 after input value is input Trigger Before Write: to set the trigger be 1 when the first value is input

	Reset Trigger Before Write And Rest After Write	Trigger After Write And Reset: to set the trigger be 1 after inputted and then reset the trigger to 0 Trigger Before Write And Reset: to set the trigger be 1 when the first value is inputted and then reset the trigger to 0 Trigger Before Write And Rest After Write: to set the trigger be 1 when input and then reset it to 0 after user input 'enter'.
Operated Number	A constant which has different signification for different types of Word Switch	a constant which has different signification for different types of Word Switch: Set Word: the constant will be wrote to Word Address Ascending: the amplitude of ascending; Descending: the amplitude of descending;
Upper/Lower Limit	It's available only when the "Word Switch Type" is "Descending" or 'Ascending'. It's used to set the max and min.	A constant which has different signification for different types of Word Switch It's available only when the 'Word Switch Type' is Descending or 'Ascending'; The constant is Upper Limit if the type of switch is Ascending; the constant is Lower Limit if the type of switch is Descending.
Display Direction	The reality direction of vector diagram and label.	There are four direction: Top-down、From left to Right、Bottom-up, From right to left
Extend	null	to set the extended functions
Confirm Or Not	no yes	yes: HMI will pop up the confirm-window when user operates the Word Switch and HMI will change the value and write it to PLC. no: no confirmation and write it to PLC directly.
Longest Waiting Time	It's available when the Confirm Or Not ' is 'yes'	It's available when the 'Confirm Or Not ' is 'yes' unit: seconds, the window will disappear without user's confirmation at the time.
Inter Lock	no yes	yes: use the Inter Lock Address; no: don't use the Inter Lock Address
Inter Lock Address	It's available when 'Inter Lock' is 'yes'	It's available when 'Inter Lock' is 'yes'; If the Inter Lock Address is used the Bit Switch will be available when the value of the Inter Lock Address pointed is '1'
Touch Screen Do Or Not	yes no	yes: It's allowed to use the function of setting of Bit Switch no: It's unavailable

11.3 Bit Status Indicator Light

1.Bit Status Indicator Light is in “indicators” of “all parts”

2.Functions of Bit Status Indicator :

Bit Status Indicator monitors the state of special bit. If the value is '1' the Bit Switch will display the status in ON bitmap, vector graphic and content of status. If it's 0, it will display the state in OFF bitmap, vector graphic and content of status.

3.Properties of Bit Status indicator light :

the detail instructions of Bit Status indicator light's properties :

Property Name	Property Classifies	Instructions
Monitor Address	Internal registers' address of PLC or HMI	Bit Address which is monitored by Bit Status Indicator
Display Direction	The reality direction of vector diagram and label.	There are four direction : Top-down、From left to Right、Bottom-up , From right to left
Show Reverse Or Not	no yes	no : It will display normally and “no” is default value. yes : display the state-diagram and text of components reversely
Flashing Or Not	no yes	no: don't flashing yes :flashing
Flashing Types	It's available when “Flash Or Not” is “yes”: No Flashing Flashing-ON Flashing-OFF Flashing By Turn-ON Flashing By Turn-OFF	No Flashing: It don't flashing Flashing-ON: Flashing when the Trigger Address is ‘ON’ (It's available when 'Show Reverse Or Not is 'yes', because the defaulted value is '0') Flashing-OFF: Flashing when the Trigger Address is 'OFF' Flashing By Turn-ON: Flashing by turns when the Trigger Address is 'ON' (It's available when 'Show Reverse Or Not is 'yes', because the defaulted value is '0') Flashing By Turn-OFF: Flashing by turns when the Trigger Address is 'OFF'.

Flash Frequency (100ms)	no	Set the flashing rate, if it's 5 the rate will be 500ms.
States	State OFF State ON	Bit Status Indicator has two states : State OFF , State ON

11.4 Word Status indicator light

1. Word Status Indicator Light is in “indicators” of “all parts”

2. Function of Word Status indicator light:

Word States Display switch to the different states based on different values

If the value is 0,the Word States Display of vector graphics, bitmap and the status text will be switched to state 0;

If the value is 1,the Word States Display of vector graphics, bitmap and the status text will be switched to state 1;

If the value is 2,the Word States Display of vector graphics, bitmap and the status text will be switched to state 2

.....

3.Properties of Word States Display:

The details of Properties:

Property Name	Property Classifies	Instructions
Word Address	Internal register’s address of PLC or HMI	to set the monitored Word Address
Data Format	unsigned decimal BCD decimal	unsigned decimal: to read the data in unsigned decimal; BCD: to read the data in BCD; decimal: to read the data in decimal;
Transform Automatic	Yes/no	yes: transform automatic no: don't transform automatic
Transform Frequency (100ms)	It's available only when the "Transform Automatic" is “yes”	Transform Frequency: The above state of the different word that changes the frequency settings automatically.
Back to End	(It's available only when the "Transform Automatic" is “yes”) yes/no	yes: return to end no: not return to end
Trigger	yes/no	yes: trigger no: don't trigger
Trigger Address	Internal register’s address of PLC or HMI	It's available only when the Trigger Address is“1”
States	64 states	Word Status Display supports up to 64 states

11.5 Digital Input/Display

1. Digital Input/Display is in “numerical input/display” of “all parts”.

2. Function of Digital Input/Display:

To input or display data in specified by "Digital Input/Display", display the devices data or input the data to devices and the input or output data can be scaled.

3. Instructions of the data format:

Binary: To display the data in binary (0~1) .The decimal point options are ignored, but the number of bits to display can be set.

For instance:

If the binary (110011), which shows a median of three, then the final will be shown as (011), which displays the last few bits.

Shows the median of the data input has no effect

Octal: To display the data in octal (0~7). The decimal point options are ignored, but the number of bits to display can be set.

For instance:

If the octal (1234567), which shows a median of five, then the final will be shown as (34567), which displays the last few.

Shows the median has no effect to the data input.

Decimal: To display the data in decimal (0~9) and the number of bits to display can be set

Decimal point option is valid in two different situations according to different roles played:

If '**Scaling Or Not**' is '**no**', the displayed data will be original, for instance, the input data is 123456 and the decimal point position 2.1, then the data will eventually show 45.6

If '**Scaling Or Not**' is '**yes**', the displayed data will be the gain and offset. Recipe for computing is:

$value = original * gain + offset$, It is valid only when the data is a decimal or floating-point.

Convert the data for the final show based on decimal point position:

For instance, the data after convert is 1234.56 and the decimal point position is 4.1, then the data will eventually show 1234.5

For input data the decimal point will be ignored. Recipe for computing is:

$value = (input - offset) / gain$

Hex: To display the data in octal (0~F). The decimal point options are ignored, but the number of bits to display can be set.

For instance,

If the **hex**(ABCDEF), which shows a median of five, then the final will be shown as (BCDEF), which displays the last few.

Shows the median has no effect to the data input.

BCD code: It's consistent with the decimal except in accordance with the format to input or read of BCD.

32-bit float (float): Convert the data in Controller from the 32-bit IEEE float to decimal and displayed **32-bit float (float)** as follow figure 13-42.

单精度浮点数格式(32 位)

S	e[30:23]	f[22:0]
3	30	22
1	23	0

单精度位模式	值
0 < e < 255	$(-1)^S \times 2^{e-127} \times 1.f$
e=0 ; f != 0	$(-1)^S \times 2^{-126} \times 0.f$
e=0; f=0	$(-1)^S \times 0.0$
s=0, e=255, f=0	正无穷大
s=1; e=255; f=0	负无穷大
s=0 or 1; e=255; f!=0	无效数

Figure13-42: **32-bit float** instructions

Indirect read addressing: means its final address is decided by indirect read address. indirect read address can have three at most.

For example: Numerical input display components reading address is F11. Set indirect read address: D0、 E1、 HDW2. the project first read the address of HDW2(if 22), then the second indirect read address E1 update to E23; the project will read the address of E23(if 33), then the first indirect read address D0 update to D33, then read the E33's address(44); the component's address from F11 update to F55, finally read-address is F55.

Indirect read address have two address, similar, the address of second Addressing address combine with first Addressing address become a new address. the project will read new address and combine with the register of reading address, then show the new address.

If the Indirect read address have one address, the project will read new address and combine with the register of reading address, then show the new address.

Indirect write addressing: the [mechanism](#) is same with the indirect read addressing, here don't make an introduction.

4. Properties of Data Input/Display:

Property Name	Property Classifies	Instructions
Read Address	Internal registers' address of PLC or HMI	to read data for display in here

Word Number	word double word	Word: display or input one word only double word: two word headed by the property address
Update Quickly	yes/no	A higher frequency of updating the data display device (about twice)
Input Allowed	yes/no	Yes: When the component receives the input focus pop-up keyboard screen, complete the data entry, provided that the existence of the keyboard screen. no: The unit is only used to display data in the specified address
Write Address	It's available only when the "Input Allowed " is "yes" Internal registers' address of PLC or HMI	It's available only when the "Input Allowed" is "yes" Input data will be written to this address if ' Operation Address ' is null and the components are allowed to input then Operation Address is same with Read Address.
Keyboard Screen Num	It's available only when the "Input Allowed " is "yes"	It's available only when the ' Input Allowed ' is ' yes '; Several conditions of the keyboard screen: 1、 screen is presence; 2、 the screen is sub-screen; 3、 with key components Built-in numeric keypad : Built-in numeric keypad is the standard numeric keypad of HMI and the keyboard can only enter the decimal or float data.
Pop-up keyboard Location	Middle; top center; intelligent; down center; up left; up right; center left; center right; down left; down right	It's valid when the keyboard is used. It's the Position of keyboard
Default	yes/not	To use the default value need to modify the keyboard, in a new keyboard input "default" button, key ID:99
Don't Display component	no yes	no: display widget yes: don't display widget
High Zero-padding	no yes	No :no zero-padding in high bit yes: zero-padding in high bit
Display * Or Not	no yes	no: display input values directly yes: display '*' to cover input values
Flashing Or Not	no yes	no: don't flashing yes: flashing when the value meet the conditions
Flashing Trigger Address		trigger the flashed bit-address
Flashing Types	It's availability when "Flash or Not" is "yes" No Flashing	No Flashing: It doesn't flashing Flashing-ON: Flashing when the Trigger Address is 'ON'. Flashing-OFF: Flashing when the Trigger Address is

	Flashing-ON Flashing-OFF Flashing By Turn-ON Flashing By Turn-OFF	'OFF'. Flashing By Turn-ON: Flashing by turns when the Trigger Address is 'ON'. Flashing By Turn-OFF: Flashing by turns when the Trigger Address is 'OFF'.
Flash Frequency (100ms)	null	Set the flashing rate, if it's 5 the rate will be 500ms
Flash Color	color	null
No Display Zero	yes on	no: display zero yes: don't display zero
Data Format	Binary Octal Unsigned decimal Hex BCD code 32-bit float Decimal	There is six format in the integrated software Binary: read or write in binary Octal: read or write in octal Unsigned decimal: read or write in unsigned decimal Hex: read or write in hex BCD code: read or write in BCD code 32-bit float: read or write in 32-bit float and the operation is double word Decimal: read or write in decimal
Decimal Point Position	null	The decimal point is availability only when the data format is float or decimal
Data Range	null	The range to display, the data out of it can't be displayed.
Scaling Or Not	no yes	no: he displayed data will be the gain and offset no: the displayed data will be original
Gain	It's availability when 'Scaling or Not' is 'yes'	It's availability when 'Scaling Or Not' is 'yes' value=PLC*gain + offset, It is valid only when the data is a decimal or float.
Offset	It's availability when 'Scaling or Not' is 'yes'	It's availability when 'Scaling Or Not' is 'yes' value=PLC*gain + offset, It is valid only when the data is a decimal or float.
Inter Lock	It's availability when 'Input Allowed' is 'yes'	It's availability when 'Input Allowed' is 'yes'. yes: It can input only when the Inter Lock Address is 'ON'. no: Inter Lock is unavailability.
Inter Lock Address	It's availability when 'Input Allowed' is 'yes'	It's availability only when 'Input Allowed' and 'Inter Lock' are 'yes'. If 'Inter Lock Address' is ON then the user can input or the input is forbidden.
Trigger Types	No Trigger Trigger After Write Trigger Before Write	There are six types of trigger: No Trigger: No trigger. Trigger After Write: to set the trigger be 1 after input

	Trigger After Write And Reset Trigger Before Write And Reset Trigger Before Write And Rest After Write	value is input Trigger Before Write: to set the trigger be 1 when the first value is input Trigger After Write And Reset: to set the trigger be 1 after inputted and then reset the trigger to 0 Trigger Before Write And Reset: to set the trigger be 1 when the first value is inputted and then reset the trigger to 0 Trigger Before Write And Rest After Write: to set the trigger be 1 when input and then reset it to 0 after user input 'enter'.
Trigger Address	Internal registers' address of PLC or HMI	Trigger Bit Address
Keyboard Trigger	Keyboard Without Trigger Trigger Before Open Keyboard Trigger Before Close Keyboard Trigger Before Open Keyboard And Reset Trigger After Open Key board And Reset Trigger Before Open Keyboard And Reset Before Close	There are six types of trigger: Keyboard Without Trigger: No trigger. Trigger Before Open Keyboard: to set the trigger be 1 before opening the keyboard. Trigger Before Close Keyboard: to set the trigger be 1 before closing the keyboard. Trigger Before Open Keyboard And Reset: to set the trigger be 1 before opening the keyboard and then reset it to 0. Trigger After Open Keyboard And Reset: to set the trigger be 1 before closing the keyboard and then reset it to 0. Trigger Before Open Keyboard And Reset Before Close: to set the trigger be 1 when opening the keyboard and then reset it to 0 before closing.
Trigger Address	Internal registers' address of PLC or HMI	Internal registers' address of PLC or HMI

11.6 4 Indicator Light

1. 4 Indicator Light is in “indicator” of “all part”

2. Functions of 4 indicator light:

It's used to monitor the two states of bit-address.

To switch the states of vector graphics, HMI bitmap and label of Four States Indicator by combining the states of bit-address which are detected as “ON” or “OFF”

3. Properties of 4 indicator light:

Property Name	Property Classifies	Instructions
Detected	Internal registers'	to set the detected bit-address

Address1	address of PLC or HMI	
Detected Address2	Internal registers' address of PLC or HMI	to set the detected bit-address
States	Four states	Four states of Four Status Indicator: 1-ON 2-ON, 1-ON 2-OFF, 1-OFF 2-ON, 1-OFF 2-OFF, to display the contents of four states. (OFF-0,ON-1,the defaulted state is 0)

11.7 List Box

1. List Box is in the “graphic” of “all part”.

2. Functions of List Box:

List Box can write to word address, the values range from 0 to 31 and they are displayed in text.

3. Properties of List Box:

The detail of properties:

Property Name	Property Classifies	Instructions
Background Color	null	to choice the background color of List Box
Read Address	null	to read address of the List box
Write Address	null	to write address of the List box
Data Format	unsigned decimal BCD decimal	unsigned decimal: to write unsigned decimal value BCD: to write BCD value decimal: to write decimal value
Font	null	to set the font of the text of each status
Bold	yes/no	to set the font to bold or not
Status	null	a total of 32 status to support
Content	null	to set the content of the corresponding status

11.8 Combo Box

1. Combo Box is in “graphic” of “all part”.

2. Functions of combo Box:

Combo Box can write the value in word and the range is 0 to 31 and the value is displayed in text. The difference with List Box is clicking the Drop down Box in the right part will display all the status and it will automatically recover after setting.

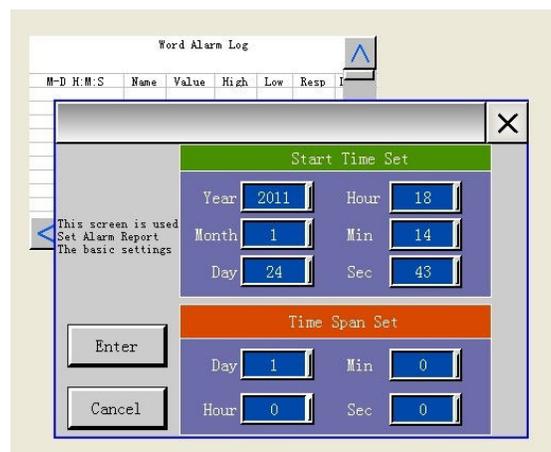
3.Properties of combo Box:

the detail instruction of combo Box's properties:

Property Name	Property Classifies	Instructions
Background Color	null	to choice the background color of Drop Down Box
Read Address	null	to read address of the Drop Down Box
Write Address	null	to write address of the Drop Down Box
Data Format	unsigned decimal BCD decimal	unsigned decimal: to write unsigned decimal value BCD: to write BCD value decimal: to write decimal value
Font	null	to set the font of the text of each status
Bold	yes no	to set the font to bold or not
Status	null	a total of 32 status to support
Content	null	to set the content of the corresponding state

11.9 Alarm Record Display

1. The Alarm Record Display is in “alarm display” of “all parts”.
2. The Record Display shows that the functional: for the needs of the client, for a period of all the alarm records, and then follow the order shown in tabular form. in the dynamic queries HMI set time period, and we can carry the preservation, the following figure shows:



Properties

Attribute name	Property classification	explain
Alarm type	bit alarm word alarm	Bit alarm: display the bit alarm record; Word alarm: display the word alarm record
Start Time	NONE	Shows from this time began collecting data record, the time format is: year / month / day / hour / minute / second. This time, the effective run-time components for the first time, then, HMI save user settings can dynamically query time
Span	NONE	That part will show how much data. The longest span of 31 days, that is, drag the vertical scroll bar parts range, the format is: day / hour / minute / second. This time, the effective run-time components for the first time, then, HMI save user settings can dynamically query the span of time.
Query time	NONE	The last set time Current time 1 hour before the current time One day before the current time

3. Real Time Alerts,not show sure-button when alarm

Event record	Instant
Confirm way	click

The result about setting as follows:



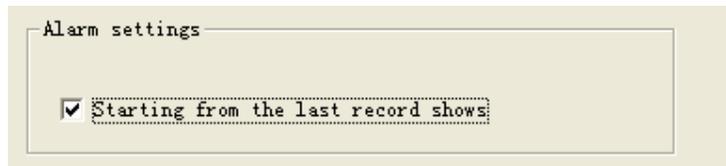
(the first picture is showed 'yes',last is 'no')

11.10 Alarm history Chart

1. The Alarm History Chart is in “Alarm display” of “all charts”.
2. The Alarm History Chart functions:
To list all the way the display HMI the police had happened, but there was an alarm message.
3. The properties of the alarm history chart:

Attributes name	Property classification	explain
Display date	Yes/No	Yes: the alarm history list whether to display the date of alarm occurred or released No: Not display date
Date format	Available when “display date” is “yes”.	Available when “display date” is “yes”. The display format, with the following options: yy/mm/dd : Year / Month / Day mm/dd/yy : Month / Day /Year dd/mm/yy : Day / Month /Year
Display time	Yes/No	Yes : the alarm history list whether to display the time of alarm occurred or released No : Not display Time
Font	No	The content of the font

4. optional function:
Can set the new-happened on the first-line(as follows)



11.11 Alarm Bar

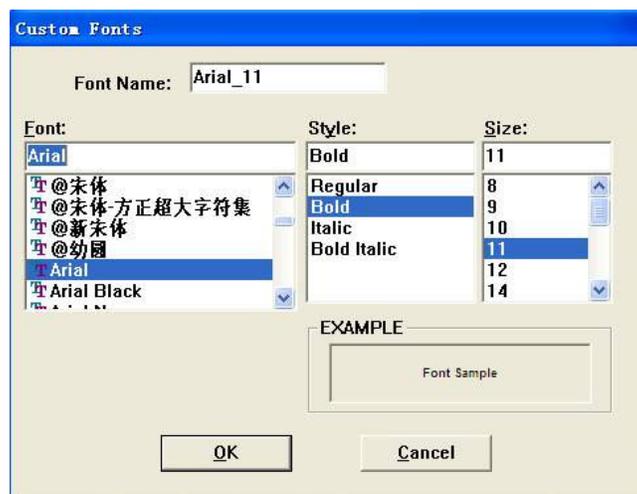
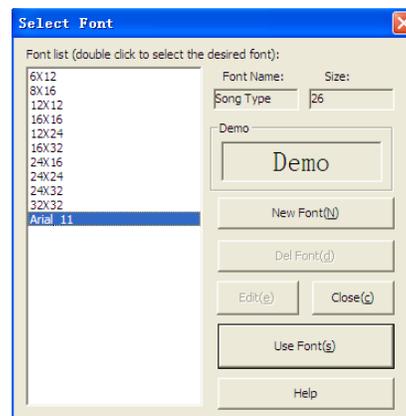
1. The Alarm Bar is in “Alarm display” of “all parts”.
2. The alarm bar’s functions:
Revolving displaying the alarm occurred and not dismissed in alarm buffer.
3. The property of alarm bar:

Attribute name	Property classification	explain
Display date	Yes/No	Yes: the alarm history list whether to display the date of alarm occurred or released No: Not display date
Date format	Available when	Available when “display date” is “yes”. The

	“display date” is “yes”.	display format, with the following options: yy/mm/dd : Year / Month / Day mm/dd/yy : Month / Day /Year dd/mm/yy : Day / Month /Year
Display time	Yes/No	Yes : the alarm history list whether to display the time of alarm occurred or released No : Not display Time
Font	NO	The font of the alarm content
Speed of a revolving door	High/Medium/ Low	Low: revolving door at low speed Medium: revolving door at Medium speed High: revolving door at High speed
Transparent	Yes/No	No: Opaque background color Yes: transparent background

4. the alarm bar support vector font

Display Time	NO
Font	Built-in Font
Speed of a revolving door	LOW
Transparent	NO
From left to right	NO



11.12 Current Alarm Chart

1. The Current Alarm Chart is in “all parts”—“Alarm display”.
2. The Current Alarm Chart functions:
To list all the alarm information occurred and not dismissed in alarm buffer.
3. The property of alarm chart:

Attribute name	Property classification	explain
Display date	Yes/No	Yes: the alarm history list whether to display the date of alarm occurred or released No: Not display date
Date format	Available when “display date” is “yes”.	Available when “display date” is “yes”. The display format, with the following options: yy/mm/dd : Year / Month / Day mm/dd/yy : Month / Day /Year dd/mm/yy : Day / Month /Year
Display time	Yes/No	Yes : the alarm history list whether to display the time of alarm occurred or released No : Not display Time
Font	No	The font of the alarm content

11.13 Recipe Transmission

1. The Recipe Transmission is in “all part”—“button switch”.
2. The Recipe Transmission function:
Recipe Transmission component can download the recipe from HMI to PLC or upload the recipe from PLC to HMI. And save it.
Recipe transmission depends on register HPW0 in software . HPW0 indicates the current group number of the recipe. When upload the recipe data from PLC will record to this group and cover the previous data. When download the HMI download the group data to PLC.
For the project recipe editing, please refer to chapter 12.
3. The property of recipe transmission component:

Attribute name	Property classification	explain
Transmission	Upload Download	Transmission options: Upload: upload recipe data from the PLC to the HMI, and stored in the HMI on, HPW0 recorded HMI group on the current recipe, the recipe after uploading the data will be saved in the set, and overwrite the original recipe data. Download: Download the recipes from the HMI data to the recipe table PLC, HPW0 value, is to download

		the recipe to the PLC group number.
Parts level password	Yes: input password to use this part No: normally use	Choose “yes” to set parts level password; To choose “no” will not set parts level password.
Level automatic lower	Yes no	Yes: after successfully input the password, the security level of the part will descend to level 1. You need only to input level 1 password or higher security level password on next click. No: don’t change the security level of the part
Components operating level	From level 1 to level 12	Set the password level of the component.

11.14 Recipe Display

1. Recipe Display is in “all parts”—“Graphics”.

2. Recipe display features:

HMI can display the current project recipe data in table. If the project haven’t adopt recipe, the table will be blank. Display nothing.

3. The attributes of recipe display:

Attribute name	Property classification	explain
Allows the input	Yes No	To choose weather the recipe data can be modified or not
keyboard screen NO	Available when “allows the input” is yes.	Appoint the built-in keyboard for data input

11.15 XY Curve Chart

1. XY Curve Chart is in “all parts” –“Graphic curves”.

2. XY Curve Chart functions:

Read a continuous registers section in PLC. Then convert them to the appointed data type and display them by XY chart.

For example, read the data in word address D of PLC registers and the points amount is m. then

Data in word address D + 0 for the first point’s X coordinate

Data in word address D + 1 for the first point’s Y coordinate

Data in word address $D + 2$ for the second point's X coordinate
 Data in word address $D + 3$ for the second point's Y coordinate
 Data in word address $D + 4$ for the third point's X coordinate
 Data in word address $D + 5$ for the third point's Y coordinate

 Data in word address $D + 2m-1$ for the m point's Y coordinate
 Data in word address $D + 2m$ for the m point's Y coordinate

3. XY Curve Chart of properties:

Attribute names	Attribute classification	explain
XY chart pattern	Hash point Link points	Hash points: to hash point way of depicting XY graphs data Link points: use hidden-lines depicts the two will successively connected
X value range	without	XY figure shows the X axis of the maximum and minimum, beyond the range of coordinate point cannot normal display.
Y range	without	XY figure shows the Y axis of the maximum and minimum, beyond the range of coordinate point cannot normal display.
Point type	No points 1 point 2 point 3 point 5 point	Describe XY graph the coordinates points type 1 point: A coordinates composed by a pixel 2 point: A coordinates by two pixels composition 3 point: A coordinates composed by 3 pixel 5 point: A coordinates composed by five pixels
X axis calibration	without	Vertical grid-lined article number
Y axis calibration	without	Level grid-lined article number
Whether opening automatic acquisition	No: yes:	No: no acquisition yes: Is gathering
Collection period	numerical	Collect data during the periods of how much
X axis coordinates whether fixed	No: yes:	No: no fixed X coordinate yes: fixed X coordinate
X axis coordinates magnification	When "X axis coordinates whether fixed"	To X axis numerical amplification

	for nobody effective,	
Whether trigger sampling	No: yes:	No: not trigger sampling yes: trigger sampling
Trigger a address	When "whether trigger sampling" for nobody effective,	When "whether trigger sampling" for nobody effective, PLC and HMI internal register addresses
Curve variables	No: yes:	No: curve is not as a variable yes: curve is as a variable
Curve variable address	PLC and HMI internal register addresses	By monitoring the address of the word
Whether transparent	No: yes:	No: opaque yes: transparent
curve	Curve 0-7	A XY figure parts most can display set eight curve
enable		yes: enable this curve No: shut down this curve is displayed
Read the address	PLC and HMI internal register addresses	By monitoring the address of the word

11.16 Bar graph

1. The Bar graph is in “all parts”—“Instrumentation”.

2. The function of Bar graph:

Bar graph is through histogram way to address the value of reaction word variations.

3. Bar graph’s main attributes are shown below

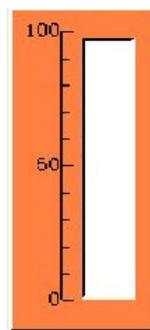
Attribute names	Attribute classification	explain
Read address	PLC and HMI internal register addresses	By monitoring the address of the word
Data format	Unsigned decimal With signs decimal BCD 32-bit floating-point	Unsigned decimal: taking unsigned BIN yards way readout, BCD: with the way readout BCD; Signs in a decimal: symbol BIN yards way

		readout, 32-bit floating-point: standard floating-point format readout
Data range is variable	yes no	yes: data range is not constant, is variable No: data range is variable
Data coverage	When "data range is variables" for nobody effective	When "data range is variables" no effective in instrument, can be shown on the data of components, this value scope of physical instrument measuring range, equivalent is below range, the meter will byte-aligned display; Value above measure range, the meter will full range display.
Vector diagram	color	Instrument class components appearance
reverse show	yes/not	yes: Bar Graph reverse show not: Bar Graph Normal Display
Border color	color	Vector graph border color choices, if no vector diagram or vector diagram does not support, this property will not be available
Dial color	color	Bar charts dish the background color
Rendering alarm	yes no	No: alarm when does not draw Is: alarm when rendering
Up line color	When "drawing alarm" for nobody effective	When "drawing alarm" for the coat, and when read value than the set value is set by this column display colors
Referral color	When "the plan" for effective. Nobody alarm	When "drawing alarm" for the coat, and when read value than setting hours with this column set display colors
Data range is variable	Yes/no	yes: data range is not constant, is variable No: data range is variable
Data coverage	When "data range is variables" no effective	When "data range is variables" no effective in instrument, can be shown on the data of components, this value scope of physical instrument measuring range, equivalent is below range, the meter will byte-aligned display; Value above measure range, the meter will full range display.
Cap registers	When "data range is variables" for nobody effective	When "data range is variables", and maximum registers for nobody effective means great figure measurement range is PLC or HMI internal registers of an internal variables

Floor registers	When "data range is variables" for nobody effective	When "data range is variable" brings effective, lower limit for registers refers to stick figure measurement range is PLC or HMI internal registers of an internal variables
The upper limit value address	When "data range is variables" for nobody effective	PLC and HMI internal register addresses
Lower address	When "data range is variables" for nobody effective	PLC and HMI internal register addresses
chart	NONE	With respective chart displays the current state
Filling pattern	color	Stick figure activity area of filling pattern When vector the graph is empty or chosen vector diagram does not support the foreground color, this will not be available
foreground	color	Stick figure activity area filling used by the foreground color, When vector the graph is empty or chosen vector diagram does not support the foreground color, this will not be available
The background color	color	Stick figure activity area filling used by the foreground color, When vector the graph is empty or chosen vector diagram does not support the foreground color, this will not be available
Display scale value	Yes/no	Is: display scale text scale No: don't show the calibration markings
Scale-free color	color	Calibration markings, only when the text color display scale value is are effective.
Scale range	without	Scale of scope, only when the display scale value is effective.
Decimal digits	Display scale value for is effective,numerical	Scale the decimal point position, only when the display scale is effective, used to value set scale online numerical small digital digits
Display scale line	yes no	yes: in bar chart shows the calibration No: don't show scale line

Lord scale number	Display scale value for is effective,numerical	The number of main scale only when display scale line for nobody effective, used to set each big cell span
Times scale number	Display scale value for is effective,numerical	Between adjacent Lord scale, the number of sub prime scale, its scale line length scale of half, mainly used to set each of small grid span Only when the display scale line for time effectively
Scale color	color	The calibration of color, only when the display scale line for time effectively

a typical bar graph as follows:



The size of active area response the change of word address

11.17 Pie graph

1. The Pie graph is in part--Instrumentation.

2. The Pie graph function:

Pie graph is through cake shape the graph way to reflect the change of address value word.

3. The Pie graph of properties:

Pie graph the main attributes are shown below:

Attribute names	Attribute classification	explain
Read address	PLC and HMI internal register addresses	By monitoring the word address
Data format	BCD 32-bit floating-point With signs decimal Unsigned decimal	Unsigned decimal: taking unsigned BIN yards way readout, BCD: with the way readout BCD; Signs in a decimal: symbol BIN yards way readout, 32-bit floating-point: standard floating-point format readout

Data coverage	numerical	The meter can be shown on the data of components, this value scope of physical instrument measuring range, equivalent is below range, the meter will not show, Value above measure range, the meter will full range display
Vector diagram	without	Watches components appearance
Dials color	color	Cake chart dish the background color
Times scale number	Display scale value for is effective, numerical	Between adjacent Lord scale, the number of sub prime scale, its scale line length scale of half, mainly used to set each of small grid span Only when the display scale line for time effectively
Scale color	color	The calibration of color, only when the display scale line for time effectively

Below is a typical pie chart. Each partial attributes as noted in:

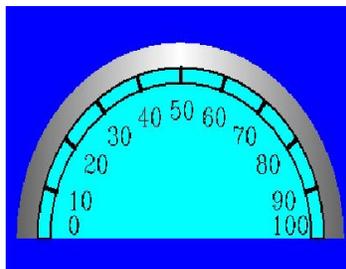


Figure 11-3 pie chart attribute meaning

The size of the fan area shows word refers to the value of the address changes.

11.18 Can graph

1. The Can graph is in part--Instrumentation. ◦

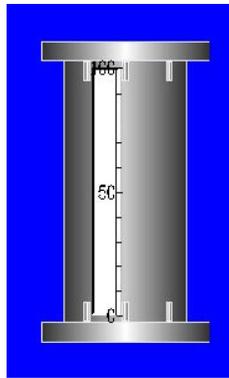
2. The function of Can graph :

Can graph is through cans shape the graph way to respond to changes in the value of the word address

3. Can graph of properties :

Attribute names	Attribute classification	explain
Read address	PLC and HMI internal register addresses	By monitoring the word address
Data format	BCD 32-bit floating-point	Unsigned decimal: taking unsigned BIN yards way readout, BCD: with the way readout BCD;

	With signs decimal Unsigned decimal	Signs in a decimal: symbol BIN yards way readout, 32-bit floating-point: standard floating-point format readout
Data coverage	numerical	The meter can be shown on the data of components, this value scope of physical instrument measuring range, equivalent is below range, the meter will not show, Value above measure range, the meter will full range display
Vector diagram	without	Watches components appearance
Dials color	color	Cake chart dish the background color
Can Background color	color	The Background color of can
Times scale number	Display scale value for is effective, numerical	Between adjacent Lord scale, the number of sub prime scale, its scale line length scale of half, mainly used to set each of small grid span Only when the display scale line for time effectively
Scale color	color	The calibration of color, only when the display scale line for time effectively



Below is a typical cans figure. Each partial attributes as noted in:

11.19 History XY Chart

1. History chart is in part --Graphic curve.
2. The function of history XY Chart:

History is continuous curve XY chart or hashing points in the way of displaying HMI XY figure buffer content.

History and trend diagram XY figure buffer that different places is buffer for each address, XY figure continuous read two words come up, the first word as X axis (the horizontal axis),

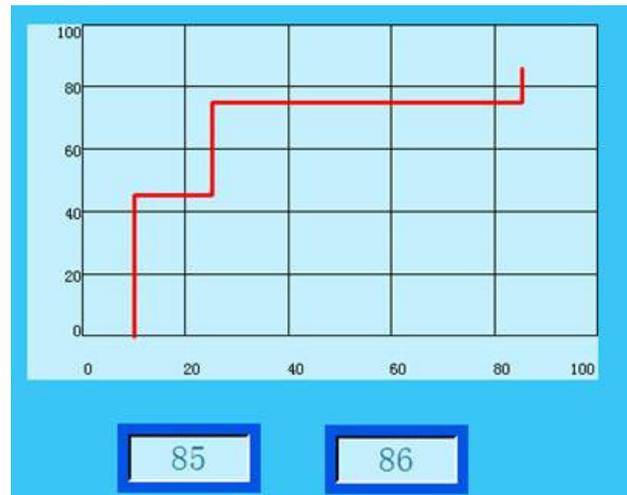
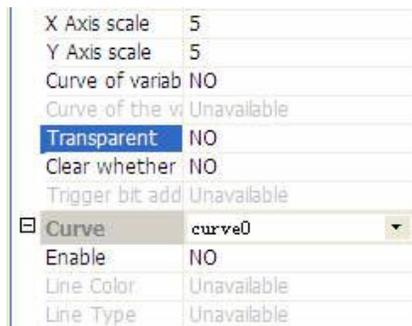
the second word as the Y axis (longitudinal axis), to determine whether a point coordinates. Historical figure components only responsible for XY dynamic curve way of displaying HMI XY figure buffer data, on the monitor the PLC address data in the engineering manager a project any graph input information in configuration to monitor address information Relevant historical XY graphs detailed implementation, and historical XY chart in the actual HMI behavior, please refer to the trend diagram and the historical XY figure chapter

3. History XY Chart attributes:

Attribute names	Attribute classification	explain
XY chart pattern	Hash point Link points	Hash points: to hash point way of depicting XY graphs data Link points: use hidden-lines depicts the two will successively connected
Data range is variable	yes no	yes: data range is not constant, is variable No: data range is variable
X value range	When "data range is variables" no valid at the time	XY figure shows the X axis of the maximum and minimum, beyond the range of points will not display properly.
X cap registers	When "data range is variables" for nobody effective	When "data range is variables", and maximum registers for nobody effective means great figure measurement range is PLC or HMI internal registers of an internal variables
X floor registers	When "data range is variables"for nobody effective,	When "data range is variable" brings effective, lower limit for registers refers to stick figure measurement range is PLC or HMI internal registers of an internal variables
Y range	When "data range is variables"no effective,	XY figure shows the Y axis of the maximum and minimum, beyond the range of points will not display properly.
Y cap registers	When "data range is variables"for nobody effective,	When "data range is variables", and maximum registers for nobody effective means great figure measurement range is PLC or HMI internal registers of an internal variables
Y floor registers	When "data range is variables"for nobody effective,	When "data range is variable" brings effective, lower limit for registers refers to stick figure measurement range is PLC or HMI internal registers of an internal variables
Point type	1 point 2 point 3 point 5 point No points	Describe XY graph the coordinates points type 1 point: a coordinates by a pixel composition 2 points: one coordinates by two pixels composition 3 points: a coordinates composed by 3 pixel

		5 points: coordinates composed by five pixels
X axis calibration	without	Vertical grid-lined article number
Y axis calibration	without	Level grid-lined article number
Curve variables	no yes	No: curve is not as a variable yes: curve is as a variable
Curve variable address	PLC and HMI internal register addresses	By monitoring the address of the word
curve	Curve 0-8	A XY figure parts most can display has 8 curve
enable	no yes	yes: Display curve No: don't show the curve
Clear whether the trigger	Yes no	yes: trigger a bit address to clear the current data No: Disable
XY curve Numbers	without	Curve in trend diagram buffer Numbers

4. History XY Chart support trigger clear curve



11.20 History Curve Chart

1. The History Curve Chart is in part --Graphic curve.
2. History Curve Chart function:

History Curve Chart in time the horizontal axis, the data for the vertical axis, represented by way of displaying HMI history buffer data.

3. History Curve Chart of properties:

Attribute names	Attribute classification	explain
Data range is variable	yes no	Trend chart displays data range is variable Are: data range is variable, from designated equipment registers reads No: data range is constant
Cap registers	When "data range is variables" for nobody effective	When data range is the variable is nobody effective, Trend chart displays range of cap registers
Floor registers	When "data range is variables" for nobody effective	When data range is the variable is nobody effective, Trend diagram display range limits registers
X axis calibration	without	X axis - time axis (the horizontal axis) scale number
The Y axis calibration	without	The Y axis - data shaft (longitudinal axis) scale number
Starting time	without	Check the start time of set data
span	without	To view data range
Translational degree	without	Click the "left" or "right" arrow of time, moving range
Record group,	without	Choose to view the record set number
Curve, variable	without	Can dynamically display different curve number
Channel number starting address	When "data range is variables" for nobody effective	To amend this address, can display different curve
Query time	without	Query start-time Settings
curve	Curve 0-3	A trend diagram parts most can display the four curve
enable	yes no	yes: enable this curve No: shut down this curve is displayed
Channel number	without	Different groups of default channel
Line color	without	Describe curve in the use of the color
Line type	without	Describe curve in the use of the linear

Historical trend diagram components responsible for only with static displays the HMI data buffer data, monitor the PLC address data in the engineering manager - engineering configuration - trend diagram information input to monitor the address information.

Curve number variables Settings: If curve, set to variables, can accord register of data, dynamic display different curve. For example: curve 0: start, curve 1: start, curve 2: start, curve number is variable, the channel number starting address: HDW0, then HDW0, HDW1, HDW2 three register separately can dynamically change 3 curves.

Read the address several	4 words
Read the address	Curve 0 variable registers
Read address + 1	Curve of variable registers. 1
Read address +2	Curve of variable registers. 2
Read address + 3	Curve of variable registers. 3

11.21 Trend Chart

1. Trend Chart in column chart curve components.

2. Trend Chart function:

Trend Chart in time the horizontal axis, the data for the vertical axis, represented by way of displaying HMI trend diagram buffer data.

Trend Chart components responsible for only with dynamic curve way of displaying HMI trend diagram buffer data; monitor the PLC address data in the engineering manager project configuration information in a trend diagram to monitor the address inputting information.

The detailed implementation of relevant trend diagram, and trend diagram in the terminal behavior, please refer to the trend diagram and XY figure chapter.

3. Trend Chart of properties:

Attribute names	Attribute classification	explain
Display scale value	yes no	is: Display scale No: don't show scale
X axis calibration	When "show calibration value" for time effectively	X axis - time axis (the horizontal axis) scale number
The Y axis calibration	When "show calibration value" for time effectively	The Y axis - data shaft (longitudinal axis) scale number
Full screen points	without	Trend diagram each screen sampling points

Curve number is variable	yes no	No: curve, not variables Is this: if curve number is variable, then by the curve number registers to decide display trend diagram buffer that a group of curve
buffer Numbers	When "curve number is variables" no valid at the time	Only when the "curve number is variables" no effective, trend diagram buffer Numbers
Curve, register	When "curve number is variables" for nobody effective	Only when the "curve number is variables" for nobody effective, trend diagram of curves will display parts by the register setting to decide, data formats and trend diagram is consistent, if curve number in trend diagram buffer did not exist, would be unable to display properly.
display scrollbar	yes no	When data is: full screen appears when the scroll bar No: data full screen also won't appear scroll bars, directly to the front of the data buffer display.
Draw alarm area color	yes no	Is this: in trend diagram to draw on upper limit alarm and floor level alarm area No: no trend diagram to draw on alarm area
Upper limit address	PLC and HMI internal register addresses	Alarm area where the upper address to read it, draw limit alarm line
Cap linear	linear	Upper limit alarm line drawing adopted by linear
Cap line color	color	Draw cap line by color
Lower address	PLC and HMI internal register addresses	Alarm area where the lower limit of address to read it, draw limit alarm line
Floor linear	linear	Limit alarm line drawing adopted by linear
Upper thread color	color	Lower line drawing adopted color
target address	PLC and HMI internal register addresses	Target curve of value from where to read it, draw goal line
Goal line linear	linear	Goal line drawing adopted by linear
Goal line color	color	Goal line drawing adopted color

curve	Curve 0 Curve 1 Curve 2 Curve 3 Curve 4 Curve 5 Curve 6 Curve 7	A trend diagram parts most can display the four curve
enable	yes no	Display curve is: No: don't show the curve
Does not show Y-axis	yes no	Yes: Display the Y axis calibration value No: don't show the Y-axis calibration value
Clear whether the trigger	Yes no	yes: trigger a bit address to clear the current data No: Disable

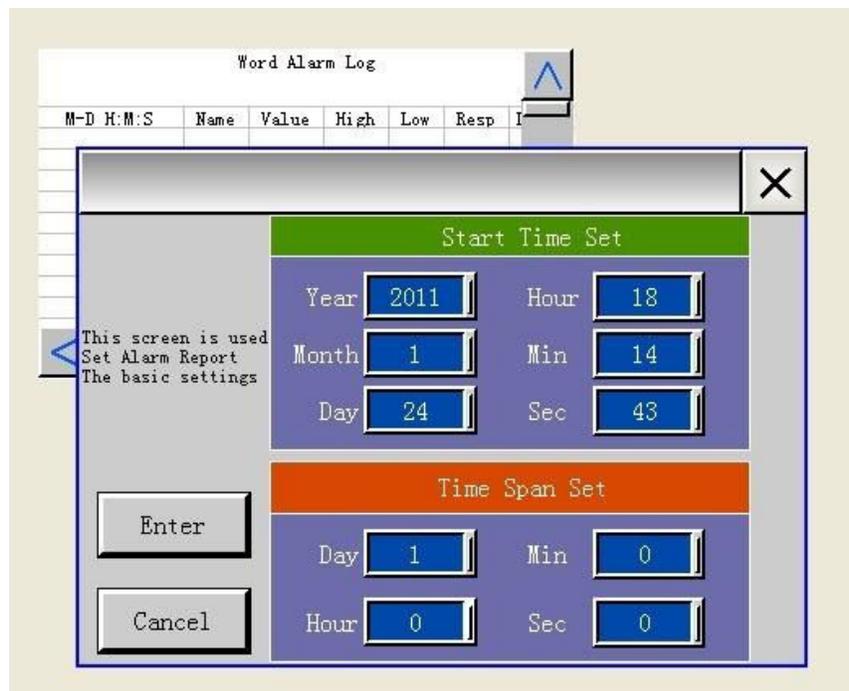
11.22 Data Record Display

1. Data Record Display is in part --Graphic curve.

2. Data Record Display function:

According to customer needs, inquires the some time between all records data, and to form the way displayed, if works without editing data record area or no historical data does not exist, data records show that will not have any content.

In the HMI can dynamically setting inquires the time periods, and can realize power lost preserved, as below:



3. Data Record Display's attributes:

:

Attribute names	Attribute classification	explain
Starting time	without	From this time that parts show later data, this time format is: year/month/day/when/min/SEC This time at the component first runtime effective, after and HMI can dynamically to save the user Settings inquires the segments
span	without	Say how many parts will display the data. Longest span 31 days, namely components vertical scroll bar drag range, format is: day/when/min/SEC This time at the component first runtime effective, after and HMI can dynamically to save the user Settings span inquires segments
Query time	without	The last set of time The current time The current time forward 1 hour The current time 1 day ahead

11.23 Pointer Meter

1 Pointer Meter is in part--Instrumentation.

2 Pointer Meter features:

Instrument is through dial and hands way to address the value of the reaction referred to in the word of changes of instrument in appearance and practical instrument alike

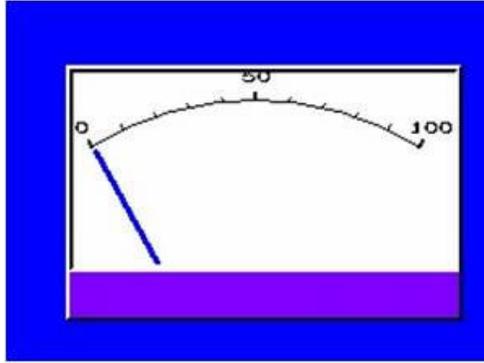
3. The instrument of properties:

Attribute names	Attribute classification	explain
Word address	PLC and HMI internal register addresses	By monitoring the address of the word
Data format	BCD 32-bit floating-point With signs decimal Unsigned decimal	Unsigned decimal: taking unsigned BIN yards way readout, BCD: with the way readout BCD; Signs in a decimal: symbol BIN yards way readout, 32-bit floating-point: standard floating-point format readout
Data coverage	Data range is the variable is: "no" when	The meter can be shown on the data of components, this value scope of physical instrument measuring range, equivalent is below range, the meter will not

	effective	show, Value above measure range, the meter will full range display
Y cap registers	Data range is the variable is: "is" effective	Y cap register addresses
Y floor registers	Data range is the variable is: "is" effective	Y upper register addresses
Instrument reverse display	no yes	No: just don't reverse display yes: is reverse display
Instrument direction		Pointer rotation direction: clockwise and counterclockwise
Display pointer	no yes	Activity area filling used by the foreground color, When vector the graph is empty or chosen vector diagram does not support the foreground color, this will not be available
Pointer color	When the "display pointer" no effective,	Instrument pointer color
Display scale value	no yes	yes: display scale No: don't show the calibration markings
Lord scale number	When "show calibration value" for time effectively numerical	The number of main scale only when "show scale value" for nobody effective, sets the grid of every large span
Times scale number	When "show calibration value" for time effectively numerical	Between adjacent Lord scale, the number of sub prime scale, its scale line length scale of half, mainly used to set each of small grid span Only when the "show calibration value" for time effectively
Scale color	When "show calibration value" as is effective	The text color of the calibration markings, only when the "show scale value" as is effective.
display Calibration value	no yes	yes: display scale text scale No: don't show the calibration markings
Scale range is variable	no yes	Is: enable scale range of scope No: without enabling scale range of scope
Scale range	When the "scale	Scale of scope, when "scale range" no valid at the

	range" no valid at the time	time
Scale range online address	When the "scale range" no effective, PLC and HMI internal register addresses	When the "scale range" no effective, PLC and HMI when internal register addresses
Scale range downlinks address	When the "scale range" no effective, PLC and HMI internal register addresses	"The scale range" no effective, PLC and HMI when internal register addresses
Decimal digits	When "show calibration value" as is effective	Scale the decimal point position, only when the display scale value is effective.
Display scale line	no yes	yes: in bar chart shows the calibration No: don't show scale line
Abnormal display	no yes	yes: in the dashboard airstrip anomaly area No: no dashboard airstrip anomaly area
Normal range	When "abnormal display" effective	Instrument normal realistic data range, only when an exception shows as nobody effective
Low area color	When "abnormal display" effective	Below normal range dials color, only when an exception shows as nobody effective
High area color	When "abnormal display" effective	Higher than normal range dials color, only when an exception shows as nobody effective

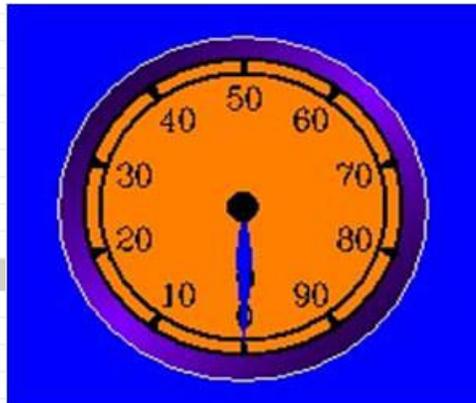
Below is a typical instrument chart . The partial attributes as shown in the bid:



4 Meter component support 360 point of the instrument appearance

The Social Travel Revolution

Scale range	[0- 100]
Scale range upper limit	Unavailable
Scaling limit of address	Unavailable
Color scale	■ \$006b9e
Decimal places	0
Anomalies	NO
Normal range	Unavailable
Low Zone Color	Unavailable
High Area Color	Unavailable
the Type of Circular M	360(Angle)
Starting offset angle	0
Status	
Bold	NO
Text	
Font	Built-in Font
Text Color	■ \$000000



11.24 Buttons

1. Buttons in Parts-- button switch.

2. The key features:

Keys is a kind of special component, input parts of input must rely on the keyboard and screen keyboard pictures must have buttons components can input data.

3. Key attributes:

Attribute names	Attribute classification	explain
Control key	yes no	yes: The key input is control characters no: The key input is ASCII characters
keys	Control keys for nobody effective There are four types: ENTER	ENTER: Confirm that enters, closed keyboard picture DELETE: Equivalent to DEL keys, delete the

	DELETE ESCAPE CLEAR	cursor before characters, CLEAR: Empty HSW45 word, this is the content inside the input buffer, ESCAPE: Cancel the current keyboard input, shut off the picture
	Control key no valid at the time	Key value can either be a ASCII characters
Parts level password	yes: need to input password to just can be used No: normal use	Yes:set Parts level password No: don't Set Parts level password
Level to be automatic reduce	yes no	Yes: After the success of the input password, password down to a level; Click again on the, the input level or higher level of a password can No: Don't change parts password level
Parts operation level		Set Parts level password. Parts password of in engineering parameters under option set level password

11.25 Function switch

1. Function switch is in “all part”—“buttons switch”.
2. Function switch: function used to toggle switch on the basic frame.
3. Function switch attributes list

Attribute names	Attribute classification	explain
No designated picture	yes no	yes: Switch to the designated picture no: Choose specific option
Trigger Types	No Trigger Trigger After Write Trigger Before Write Trigger After Write And Reset Trigger Before Write And Reset Trigger Before Write And Rest After Write	There are six types of trigger: No Trigger: No trigger. Trigger After Write: to set the trigger be 1 after input value is input Trigger Before Write: to set the trigger be 1 when the first value is input Trigger After Write And Reset: to set the trigger be 1 after inputted and then reset the trigger to 0 Trigger Before Write And Reset: to set the trigger be 1 when the first value is inputted and then reset the

		trigger to 0 Trigger Before Write And Rest After Write: to set the trigger be 1 when input and then reset it to 0 after user input 'enter'.
Functional choice	When specifying the number is no picture, effective, A picture Next picture Password protection Data archiving installments Return on page FLASH archived U disk	When specifying the number is no picture, effective A picture: in the basic picture list of adjacent on a screen The next picture: in the basic picture list of adjacent next picture (special instructions, switch picture only for basic picture effective) Password protection: the engineering protection way choice for buttons for input password protection, password, to solve the screen saver. Data archived: will be stored in CF card or CD card data archiving to U disk Installation: press function keys to jump to input installment password picture Return on page: return to its original picture FLASH archived U dish: will preserve in FLASH data archiving to U disk
Picture Numbers	When specifying the picture number is effective. Nobody	When specifying the picture number is this effective Switch to switch to the basic function of picture number (note that the Numbers represent images in this part cannot be picture, otherwise will not be able to switch)
Whether hidden	yes no	No: "no" to the default yes: Hide this component
Trigger address	At present the "hidden" whether is "yes", the only available ;	Fill in triggering hidden bits address
Hidden way	At present the "hidden" whether is "yes", the only available;	No: hidden trigger a 0 hidden yes: the hidden trigger a 1 hidden

interlock	no yes	No: hidden trigger a 0 hidden No: don't use the interlock
Interlock address	When the interlock address for time effectively	When the interlock for nobody effective; f use interlock address, only when the interlock bits address value is 1, a switch to available
Whether does not display "lock" figure	no yes	yes: no padlock icon is displayed No: padlock icon is displayed
Parts level password	yes: need to input password to just can be used No: normal use	Yes: set Parts level password No: no: don't Set Parts level password
Level to be automatic reduce	yes no	Yes: After the success of the input password, password down to a level; Click again on the, the input level or higher level of a password can No: Don't change parts password level
POP-UP window	Screen/title/open coordinate/off	POP-UP Screen,whether use title、off :no close/father close
Parts operation level		Set Parts level password. Parts password of in engineering parameters under option set level password

11.26 Advertise Marquee

1. Advertise Marquee is in “all Parts”—“Graphics”.

2. Advertise Marquee functions:

Advertise Marquee in way of displaying text information, advertising regimes in a specific speed has its own right and left Gun Bing displays text, round and round, not affected by other conditions

3. Properties of advertise marquee:

Attribute names	Attribute classification	explain
regimes speed	low middle	Low: regimes water flow rate low speed Middle: sands speed regimes speed flow

	high	High: regimes of running water speed high speed flow
trend		Left to Right Right to Left
text		Three languages of text display

11.27 Track flash

1. Track flash is in “all part”—“animated bitmap”.

2. Track flash features:

Track flash is HMI bitmap according to screen the preset contrail movement, by PLC to decide HMI bitmap in which track points, and display the display on which state the bitmap.

3. Add trajectory animation processes:

1. On the picture selecting a suitable location and size placed the components;
2. On screen, mouse and move the mouse. In the picture will leave a series of dots (1, 2, 3...). These dots are beforehand, establish good track points. Can choose designated track points, point 0 for the first track points, point 1 for a second track points, ordinal analogy, software support maximum 50 track points,
3. Right-click, completes to track points of input,
4. Track points after completion, if want to input, can change a certain path through the following measures:
 1. Direct the dependency box edge several modified designated point coordinates.
 2. In Track flash in the selected track condition, once again, mouse the left key to drag point, when graphics enter in-house selected state, that is, can drag track points to the desired location.

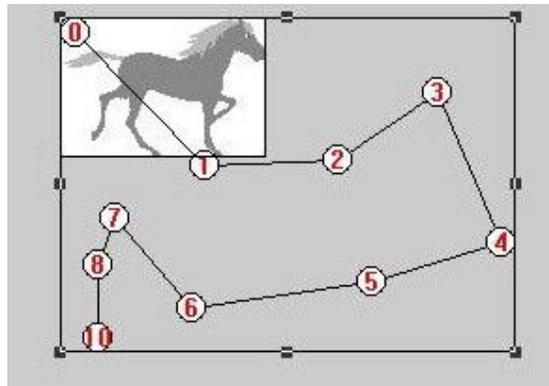


Figure 13-36 trajectory animation examples

According to the word that setting value, address trajectory animation need read continuous two words come up, this two word of functions and effects such as table 13-25.

Exhibit 13-25 read address instructions

Read the address several	2 word
Read address	Quantity and graph or bitmap
Read the address + 1	The default path way position on the Numbers

4. Track flash attributes:

Attribute names	Attribute classification	explain
Word address	PLC and HMI internal register addresses	Mobile graphic monitoring the first address
Vertex set	no	Track graphics preset track points number
According to the time mobile	no yes	No: not specified time to move yes: the specified time to move
Mobile frequency (100ms)	When "by moving time" set to coat effective	Move machine speed
Automatic transform	When "by moving time" set to coat effective no yes	No: not transform yes: Transformation
Transformation frequency (100ms)	When "by moving time" set to coat effective	Conversion speed setting
End return	When "by moving time" set to coat effective no yes	No: no return yes: Return
Whether trigger	When "by moving time" set to coat effective no yes	No: not trigger yes: trigger
state	Status 0-31	Track animation most support 32 state

11.28 Indirect screen display

1. Indirect screen display is in “all parts”—“Graphics”.

2. Indirect screen display features:

Indirect screen display to display screen, its word son value is to show the address of the

picture Numbers, if Numbers for this picture doesn't exist, it is worth indirect pictures showed what also don't show. For example, if the words of the value of 10, but engineering are not present in the Numbers for 10 pictures, the indirect pictures showed what also don't show, conversely, can indicate the number 10 sub images picture.

Indirect screen has the following features:

1. The picture should be shown pictures is the son, if not the son, the picture may not display properly;
2. If the picture number does not exist, then what also don't show, (the equivalent pictures show closed);
3. Eventually display screen size and position, and indirect pictures showed parts outsourcing rectangle is consistent.

3. Indirect screen display of properties:

Attribute names	Attribute classification	explain
Trigger a address	PLC and HMI internal register addresses	PLC and HMI internal register addresses
outline	without	The smallest parts outsourcing rectangular location, size
Show for window	no yes	Whether by way of displaying POPUP window Is: the user can drag window position, also will be closed display window, But differ location value, this kind of display turned OFF looks like a Windows of the dialog box No: just display function, to close the window should be made by triggering a address control;

11.29 Date display

1. Date display in “all parts”—“Graphics”.
2. Date display function:
To display HMI system date
3. Date display of properties:

Attribute names	Attribute classification	explain
Display format	To display the date Display week	To display the date: to display the date Display week: display all week

Date format	When "show format" set to display the date When effective	Date displays format Yy/mm/dd: year/month/day Mm/dd/yy: month/day/year Dd/mm/yy: day/month/year
Week format	When "show format" set to display week effective	Chinese style 1 English style 1 Chinese style 2 English style 2

11.30 Time display

1. Time display is in “all part”—“graphics”.
2. Time display function:
To display HMI current system time

11.31 Mobile graphics

1. Mobile graphics in “all parts”—“animated bitmap”.
2. Mobile graphics functions:

Mobile graphics can be used to put an HMI bitmap (vector chart) placed on the screen the location specified., graphic state and absolutely positioned by PLC and HMI registers for three consecutive words address registers provide, generally speaking, the first registers control component state, the first two control level coordinates (X), the first three control vertical coordinates (Y).

3. Mobile graphics classification:

Mobile graphics have 32 kind different state.

Mobile graphics position is relative to the original initial position concerned. (X axis said abscissa denotes, Y axis said y-coordinate), specific instructions, see table 13-19 .

Exhibit 13-22 mobile explains

Move pattern	X axis movement	Y axis movement	XY axis movement
Read address several	2 word	2 word	Three words
Read address	Bitmap state	Bitmap state	Bitmap state
Read the address + 1) * ratio gain	X axis displacement	The Y axis displacement	X axis displacement

(read address + 2) * ratio gain	—	—	Y axis displacement
------------------------------------	---	---	---------------------

Movement type specification table 13-20 .

Exhibit 13-23 movement type that table

action type	explain
Along the X axis horizontal movement	Mobile graphical widgets just do the X axis horizontal direction, the first registers storage components state, the second word value multiplied by percentage gain is X axis displacement.
Along the Y axis vertical movement	Mobile graphical widgets just do the Y axis vertical movement, the first registers deposit, the second word parts state value multiplied by percentage gain is the Y axis displacement.
Along the X and Y axis movement	Moving parts do X and Y axis movement, the first registers deposit, the second word parts state value multiplied by percentage gain is X axis displacement, the third word value multiplied by percentage gain is the Y axis displacement.

If read from equipment components obtained value beyond the scope of data, if data range is [0, 100] (X range is 0,100], [[Y range is 0,100]), when reading value is less than zero, the graphics will display is larger than 100 initial position, if, then graphics placed in 100 * ratio gain position. This data to X, Y axis displacement are equivalent.

4. Mobile graphic attributes:

Attribute names	Attribute classification	explain
Read the address	PLC and HMI internal register addresses	Mobile graphics monitoring two (or three) consecutive words address of the first address
Appearance bitmap	without	Parts of HMI bitmap, from bits atlas choice
Movement type	X axis movement, The Y axis movement, XY axis movement	Mobile graphic five movement type: X axis and Y axis movement, mobile XY axis movement
Data coverage	without	Mobile graphics can display data range
Percentage gain	NONE	Mobile graphic calculation proportion
state	Status 0-31	Mobile graphics most 32 state

11.32 Direct screen display

1. Direct screen display is in “all parts”—“Graphics”.

2. Direct screen display features:

Direct screen display used to pop up a designated son screen, if trigger a address to a bit for the child, then pop up ON the screen, otherwise, then close the son of display. Picture Direct pictures showed several features:

1. Direct screen display components can be used to display the son, if used for general picture images, then may not be able to display properly.
2. Indicates whether or not the son of screen, entirely by triggering a address to a location value control, ON display screen, the son is closed OFF son picture.
3. Direct screen display the size and position, and parts of outsourcing is rectangular consistent.

4. Direct screen display of properties:

Attribute names	Attribute classification	explain
Trigger a address	PLC and HMI internal register addresses	PLC and HMI internal register addresses
outline	without	The smallest parts outsourcing rectangular location, size
Picture Numbers	without	To display picture directly picture Numbers Numbers represent images should be son picture, if basic picture, and may not be shown correctly
For window display	no yes	Whether by way of displaying POPUP window Is: the user can drag window position, also will be closed display window, But differ location value, this kind of display turned OFF looks like a Windows of the dialog box No: just display function, to close the window should be made by triggering a address control;

11.33 Static vector graphic

1. Static vector graphic is in “all part”—“graphics”.

2. Static vector graphic function:

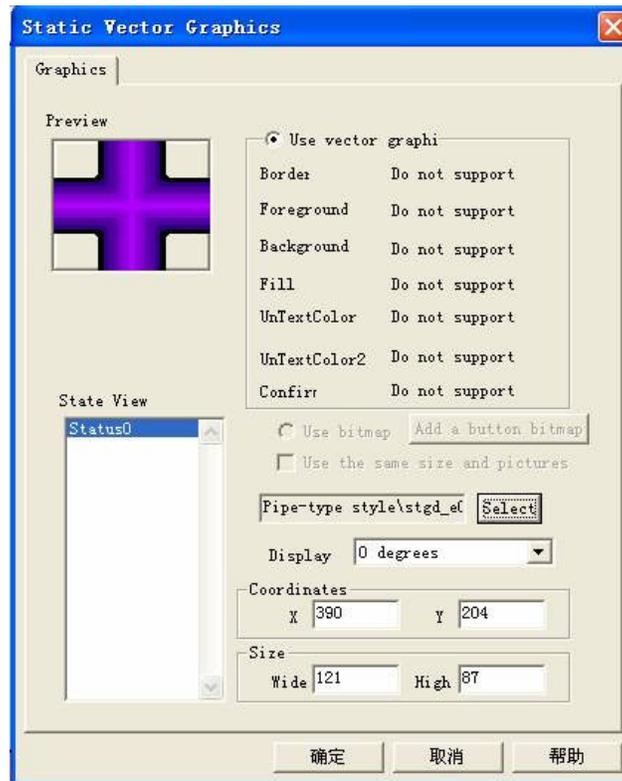
Static vector graphic simply display vector diagram that don't address has relations.

3. Static vector graphic of properties:

To display on the configuration of a static bitmap,First turn on the bitmap into a gallery of engineering, of course, system comes with bitmap can be directly quoted.

Bitmap import, the software will automatically will bitmap color depth into and HMI matching bitmap, like in the 705 G, a figure will convert to level 256 grayscale bitmap; For the 705 C, bitmap will translate for 256 color bitmap, for 908 T, bitmap will convert to 16 truecolor bitmap.

Configuration support any size bitmap zoom.



Attribute names	Attribute classification	explain
outline		Setting vector diagram size and location.
Show direction	top-down From left to right bottom-up From right and left	Top-down: display properly vector of vector diagram. Atlas From left to right: vector diagram left rotates 90 degrees display. Bottom-up: vector diagram left rotate for 180o display. From right and left: vector diagram to right rotates 90 degrees display.
Vector diagram		Choose the vector diagram vector atlas.

11.34 Super combination button

1. Super combination button is in “all part”—“button switch”.
2. Super combination button function: Super combination button will multiple operating integrated into a switch to trigger. Specific functions include a buy, reset, a switch, coil copy, the picture jump, set data, register copy, upload and download formula do simple arithmetic.
3. Super combination button function setting

Function name	explain
Setting coil	Set the data of appointed address as 1
Resetting coil	Set the data of appointed address as 0
Coil take reverse	Specifies a address take reverse
Coil copy	Will address the value of the source bitmap write target of address
Picture jump	Picture jump to designated picture
Set data	For the goal the word address written numerical
Registers copy	Will specified length registers the source address of each value is copied to target address
Download recipe	Recipe download
Upload recipe	Recipe upload
Four fundamental operations	<p>Add: operating address value (constant) plus being operation address value (constant) results assigning target address</p> <p>Reduced the value: operating address minus (constant) by the operating address value (constant) results assigning target address</p> <p>Take: operating address value (constant) multiplied by the operating address value (constant) results assigning target address</p> <p>Except: operating address value (constant) divided by by the operating address value (constant) results assigning target address</p> <p>For more than the value of the operating address (constant) divided by the operating address value (constant) the remainder of assigning target address</p> <p>Sc: operating address value (constant) for accommodations, by the operating address value (constant) for number, get exponent of the results is assigned to target address</p>
Parts level password	<p>Yes: set Parts level password</p> <p>no: don't Set Parts level password</p>
Level to be automatic reduce	<p>Yes: After the success of the input password, password down to a level; Click again on the, the input level or higher level of a password can</p> <p>No: Don't change parts password level</p>
Parts operation level	Set Parts level password. Parts password of in engineering parameters under option set level password

Timing set Bit	At specified time for a specified address write 1
Timing Reset Bit	At specified time for a specified address write 0
Timing Trigger word	At specified time of the specified word address operation, such as the word write value specified address.

11.35 Text Input/Display

1. Text Input/Display is in “numerical input/display” of “all parts”.
2. Text Input/Display will display (write) data of PLC in ASCII characters' format. It can display (write) one-word data or number of consecutive words data.

For a word, the presence of low-byte character code shown on the left, the presence of high byte is displayed on the right side is the same as the text input;

If you allow component input, you must specify a keyboard screen components;

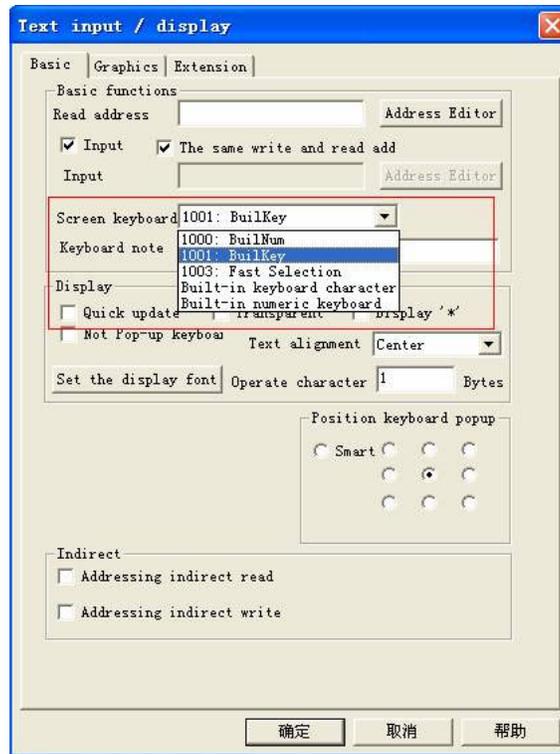
On screen keyboard, refer to the chapter screen keyboard .

Addressing indirect read: Refers to the part of the final read by indirect read address addressing address to determine the indirect read addressing address at up to three. Start with an example here to illustrate.

Text input display parts for read address: F11. Set indirect read addressing address three, D0 respectively, E1, HDW2 system read HDW2 address values, such as its value for 22, the second indirect read addressing address E1 updates for electronics, then the system again read the address of electronics value, such as its value of 33, the first indirect read addressing address D0 updated for the D33. Then read the value of the D33 address for 44, the components of the F11 updates for read address F55, finally the read address for F55.

Indirect read addressing address for two, is similar, the second addressing address of the value and the first addressing address register combination into a new address, read the new address of the system and read the address of the value to register generating new combination address, read the address of the value displayed.

Addressing indirect write : mechanism and indirect read the addressed mechanism, so that no longer do is introduced.



3. The property sheet of Text Input/Display

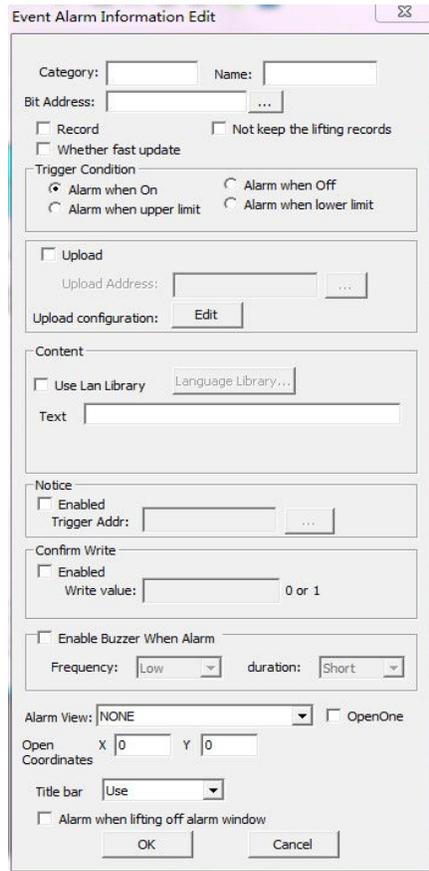
Property Name	Instructions	
General	the general property	
Describing	Notes of the components	
Profile	Outsourcing parts of the smallest rectangle location, size	
Read Address	to read the first address of the text data	
Operation Num	It's number of words displayed or written in Text Input/Display, it's supported of 32 characters.	
Update Quickly	A higher frequency of updating the data display device (about twice)	
Default	yes/not	To use the default value need to modify the keyboard, in a new keyboard input "default" button, key ID:99
Input Allowed	yes: Allowed to input data no: Not allowed to input data	
Write Address	It's available only when the 'Input Allowed' is 'yes'. The device's address of writing text. If the Write Address is null the Write will be same with Read Address.	
Keyboard Screen Num	It's available when Input Allowed is yes ; To designate the screen number of keyboard and the keyboard screen must has a sub-screen and has the button	

	Built-in characters' keyboard: To use the built-in characters' keyboard of HMI and it can enter from one to ten, a to z, A to Z of all the ASCII characters.
Vector Graphics	The face of Vector Graphics can be chosen from Vector Graphics' library.
Border Color	To choice the border's color of Vector Graphics. It's unavailable if there is not Vector Graphics.
Foreground Color	the text color displayed
Background Color	the background color of text
Font	to set the font of the text of each status
Text Alignment	The alignment of label text Middle: display tag in the center of components Left: display tag in the left of components Right: display tag in the right of components
Extended	Extended Properties
Inter Lock	It's available when Input Allowed is yes ; yes: The user can enter when the Inter Lock Address is 'ON' no: can't interlock when entering
Inter Lock Address	It's available when the Input Allowed and Inter Lock is yes . The components can adopt input when the Inter Lock is 'ON', otherwise, will not accept input.
Trigger Types	There are three types of trigger: Trigger Before Write: set the value of trigger be 'ON' when keyboard pop up; Trigger After Write: set the value of trigger be 'ON' after writing the data to register of PLA('ENT' clicked); No Trigger: There is not any types of trigger
Whether shows "*"	YES/NO
Trigger Address	The address triggered. It's available when the Trigger Types is 'Trigger Before Write' or 'Trigger After Write'.

11. 36 EventRecord

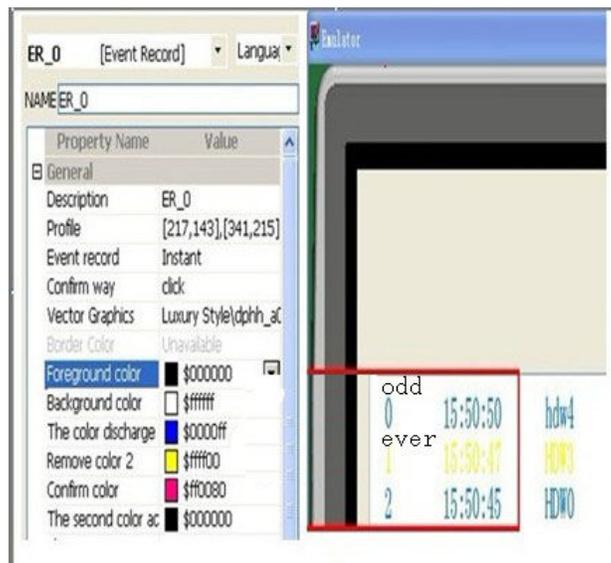
- 1、 Event Record is located in the Alarm Display of the Common parts Frame.
- 2、 Event Record Function:
It will display corresponding event according to all events seted
- 3、 Event Record property:

“Word Event Record” interface



Bit Event Record interface

- 4、 Remove color :it is divided into odd lines and even Lines.
 The color discharge :it will remove alarm color in the odd lines.
 Remove color2 :it will remove alarm color in the even lines.



37. Percentage of the trend

1、 "Percentage of the trend" is located in the Graphic curves of all parts frame.

2、 "Percentage of the trend" Function:

magnify、 Lessen、 up-Move、 down-Move、 restorable

(1)According to set for the five consecutive register address to operator the corresponding action .

The value of the address which you input just as the percent operation.

eg.if the "Read Addr" value is seted for "HDW200", the five consecutive register after will correspond to the following action:

HDW200->"magify",HDW201->"Lessen",HDW202->"up-Move",HDW203->"down-Move",HDW204->"restorable"

if the value of the "HDW200" is "5",it mean that the value of "magify" is equal to %5 .

(2)if the vlaue of the "restorable" word Address is equal to 1,it means it will restore "Percentage of the trend" to display .

when setting the operating mode,in a general way, you can choose "Word Switch" to set the operating mode or other parts to realise.

3、 "Percentage of the trend" Mainly properties:

Property Name ^o	Property classification ^o	Function ^o
Show scale values ^o	NO or YES ^o	Whether display scale or no ^o
Buffer number ^o	NULL ^o	Specify the Buffer number which "Percentage of the trend" will access to ^o
X Axis scale ^o	NULL ^o	Display the scale of X Axis ^o
Y Axis scale ^o	NULL ^o	Display the scale of Y Axis ^o
Full screen points ^o	NULL ^o	Display the Sampling points each screen in the "Percentage of the trend" ^o
Read address ^o	The Address of PLC or HMI internal register ^o	Set the start Address of "Percentage of the trend" to realize five function(magnify、Lessen、up-Move、down-Move、restorable) ^o
Whether to display the slider ^o	NO or YES ^o	NO:no display the slider ^o YES:display the slider ^o
Color slider ^o	Color (R, G, B) ^o	set color ^o
Display Data ^o	NO or YES ^o	NO:no display data in the part ^o YES:display data in the part ^o
Read data address ^o	The Address of PLC or HMI internal register ^o	Read the current Data Address of the slider point specified ^o
Address access time ^o	The Address of PLC or HMI internal register ^o	Read the current Time Address of the slider point specified ^o
Curve ^o	Curve0~Curve11 ^o	up to 12 curve can be displayed ^o
Enable ^o	NO or YES ^o	NO:no display curve ^o YES:display curve ^o

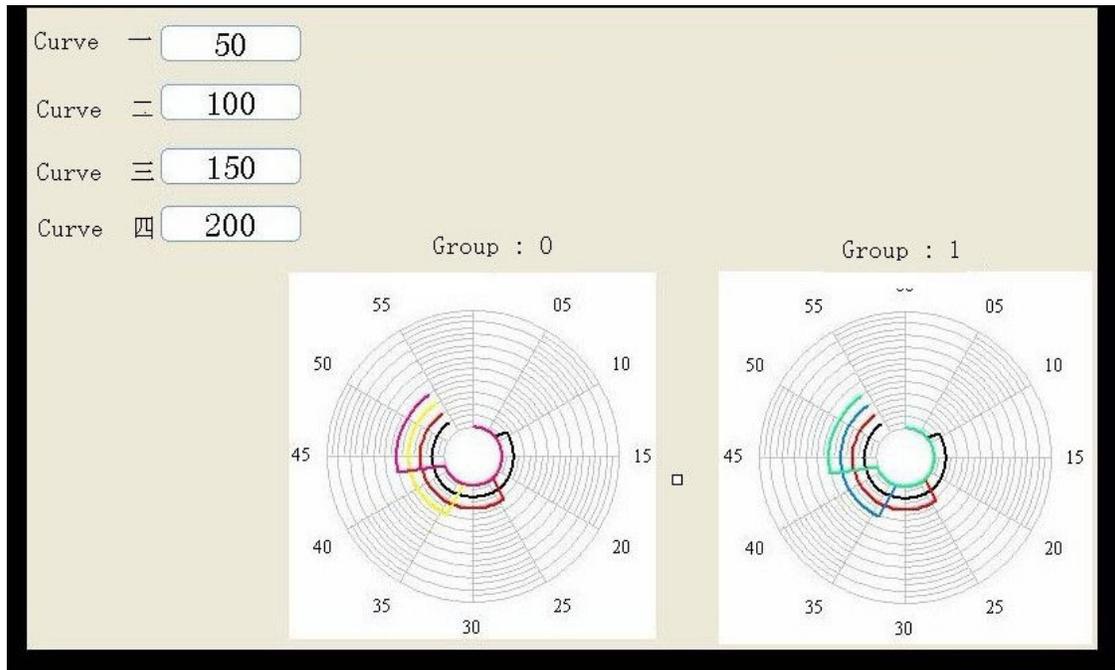
Read Address Function List

Address	Action Type
StartAddr X	magnify
StartAddr X+1	Lessen
Start Addr X+2	up-Move
Start Addr X+3	down-Move
Start Addr X=4	restorable

11.38 History disc record trend

1、 Function Introduction

History disc record trend is used to read the value of buffer address, drawing with the circle in the dis record trend.



2、 Property

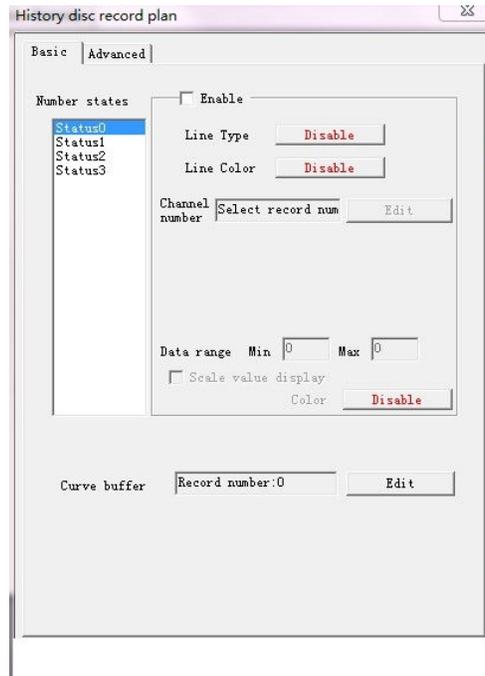
Property Name	Property classification	Function
Record group number		the group number of the displayed trend
Start position	TOP RIGHT BOTTOM LEFT	TOP: Began to draw point from the zero positions ; RIGHT: Began to draw point from the three o'clock positions ; BOTTOM: Began to draw point from the six o'clock

		positions ; LEFT:Began to draw point from the night o ' clock positions ;
Start Time		read the data with Start time working to disc from the corresponding buffer group
Rotation time		painting of the data with a week long time
Curve		chose how much the curve will be displayed. you can set the scale range (from circle center to the outside) and scale color .Up to four curve displayed
Channel number		select the channel which will be display in the group

3、 Method of operatings

1、 Added a record group in the "Data record-area" .Each History disc record trend only record one information of record group .Edit this record group,and add the new channel.Each record group can add some channel data,but only can four channel at the same time.In other words,Each History disc record trend only draw four curve at the same time.if you want to use more than four channel at the same time ,you can be via adding the record group .

set the property of channel and so on.



3、 At this time,"History disc record trend" can work .if you want to know more about,just try it

11. 39 Rotate Bitmap

1、 "Rotate Bitmap" is located in the Animated bitmaps of All parts(Support BMP image, No support JPG pictures)

Function:

Bitmap rotated with a specified circle.The style of rotating is decided by property seted.

The property of "Rotate Bitmap" :

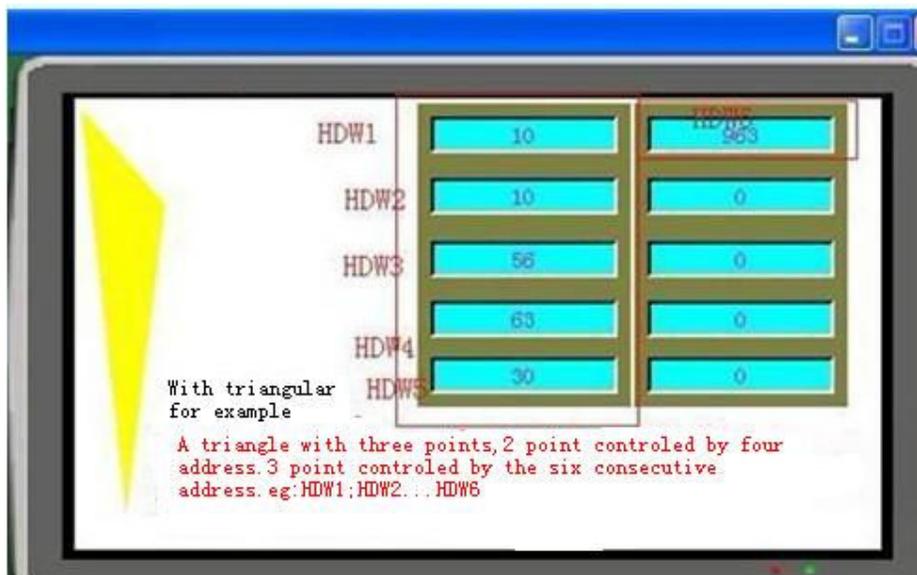
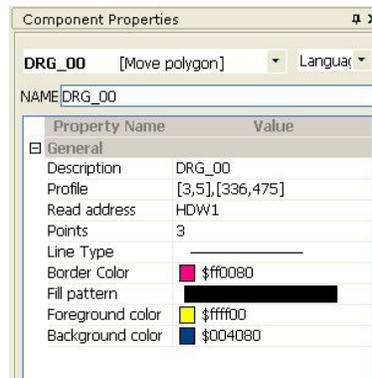
Property Name	Function
Data Format	unsigned decimal,BCD, signed decimal
Address rotation	The address of PLC or HMI internal register
Data range is variable	YES or NO
Rotating by center	only setting the "Data rang is variable" for NO,it is available
Rotation	YES or NO

Rotation period	only setting the value of "Rotation" for YES ,you can operate it. Unit:100ms eg. if you fill in 10, it is equal to 1s(10*100ms=1000ms=1s)
Rotation ratio	fill in the size of Rotation ratio (positive integer)
Back end	YES or NO
Transparent	YES or NO
Clockwise or counterclockwise	YES or NO

11.40 Move polygon

According to the value of register, change the position and status of Polygon.

Edit property: As the following Picture



According to the start address of the N address, you can draw any Polygon which you want to draw.

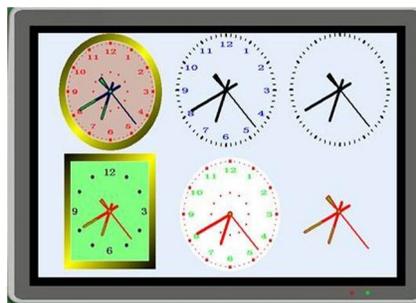
11.41 FlowPart

- 1、 The FlowPart is located in the Animated bitmaps of All Parts.
- 2、 Can realize the effect of water animation type

Line Type	the appearance stype of Line
Border Color	the color of Border
Fill pattern	modify the Filling stype
Appearance of the bitmap	modify the appearance of bitmap
Flow piece of frnColor	set the fronground color of the flow piece
Flow piece of bkColor	set the background color of the flow piece
Pipeline of the bitmap	Custom appearance figure
Pipeline frnColor	set the fronground color of the Pipeline
Pipeline bkColor	set the background color of the pipeline
FlowNo	the number of the flowing piece
Trigger bit address	the bit address of FlowPart triggered
Borders are transparent	YES or NO
Display direction	the flowing direction of FlowPart
Flow Speed	control the speed of Flowing

11.42 Clock

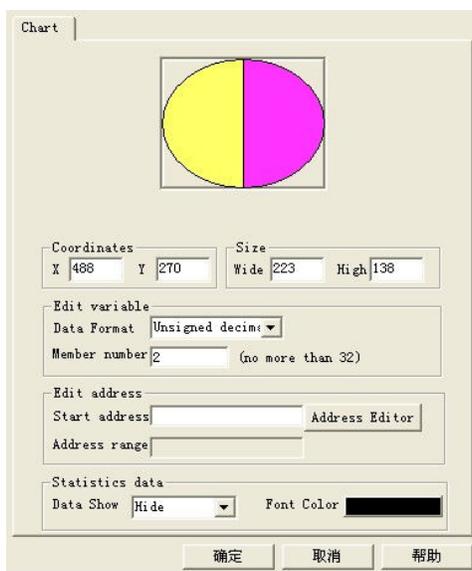
- 1、 The "Clock" is located in the Instrumentation of All parts
- 2、 Function :
"Clock" display the current time via the different appearance style.
- 3、 Properties



Property Name	Property classification	Function
Border Color	color(R, G, B)	select the color of Border
Background-color standard plate	color(R, G, B)	select the BG-color of plate
View Point	YES or NO	whether display or no
Pointer Color	color(R, G, B)	select the color of Pointer
meter pointer type		Totally 5 types, set the corresponding style according to the requirement
meter mark and scope type		Totally 5 types, set the corresponding style according to the requirement
view calibration Line	YES or NO	whether display or no
color scale	color(R, G, B)	
Show scale value	YES or NO	whether display or no
Color scale		

11.43 Sector

- 1、"Sector" is located in the Instrumentation of All parts.
- 2、Function:
"Sector" draw the style of related sector via address.
- 3、Properties:



Property Name	Property classification	Function
Coordinates	X axis or Y axis	Set the position of Sector according to the Coordinates
size	Wide/high	set the size of Sector according to the requirement
Read address		Fill in the start address of Sector
Variable editor		Data Format:BCD\unsigned decimal\signed decimal\32-bit unsigned decimal\32-bit signed decimal member number: To set up the number of composition of Sector
Statistical numerical		color style :No display/numeric/percentage font color:set the related color of font

44. Printer Parts

1、 "Printer Parts" is located in the Graphics of All Parts.

Function: print out the selected content in the scope of Printer Parts. The Printer Parts only print out the content which can be displayed by Screen.

Suggest:just put all the content which you will print out on the base Screen.

2、 Property

Property Name	Function
Trigger bit address	The address of PLC or HMI internal register, trigger the bit address of printer
Trigger address the export file	The address of PLC or HMI internal register, export the bit address of the printed scope of picture
Export file directory	the exported picture saved in the specified directory. Format demand : On-Line Simulation:the picture will be saved in the folder("aaa") of the D disk, Format:D:\aaa\ Download to the HMI: The picture saved in the U disk. Format demand:/Udisk/ The picture saved in the SD card. Format demand:/CFDC/

Profile	<p>eg. only save for the picture, the size just as the size of the project screen</p> <p>eg. if Connect miniature embedded printer, the height will be limited by the paper</p>
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11.45 Custom parts application instructions

1、Brief Introduction

Custom Parts provide our customers to free design the common interface of parts, and meet the definition demand of customers.

2、Structure

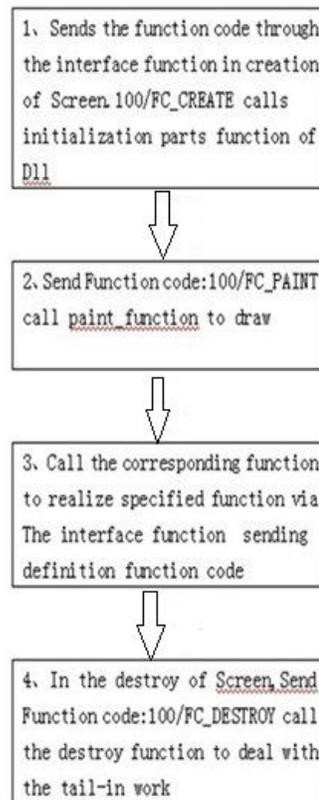
1、SoftWare Property

Property Name	Function
Profile	the size of part
Function Address	the value of Address as a function code, deal with the corresponding operation
The name of dll file	select the dll file which will be used
use time or no	default for no
the time-out value	if available ,the scope is more than 100ms

2、Necessary File --two ***.dll file and one instruction file

- a、one ***.dll file for PC ,Located in the folder-->" dll_pc".
- b、another ***.dll file for HMI, Located in the folder--> "dll_hmi".
- c、instruction file will explain the dll

3、 The relation of HMI and DLL



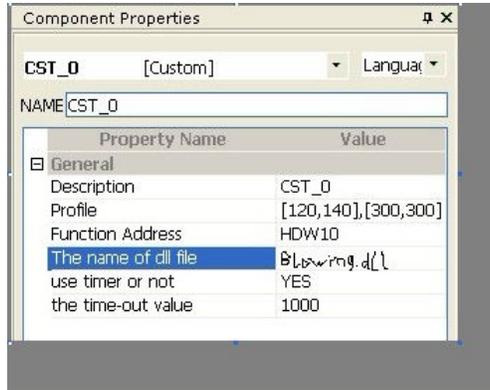
4、 Examlpe of the Custom Parts--blow moulding

1、 The introduction of blow moulding: blow moulding also called hollow blow moulding, is a rapidly developing plastic processing method.

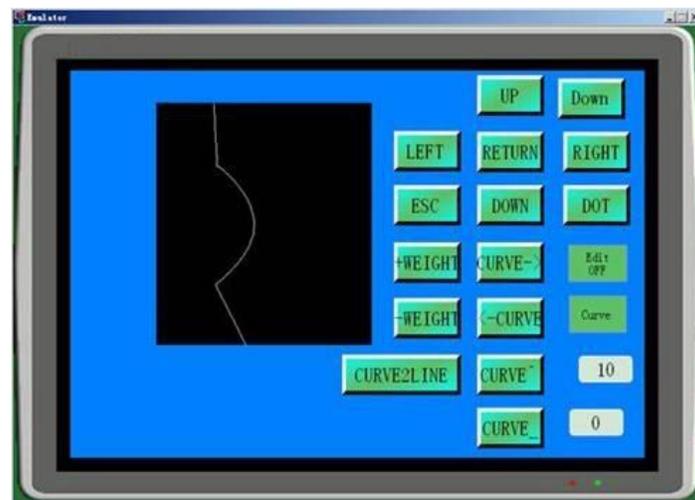
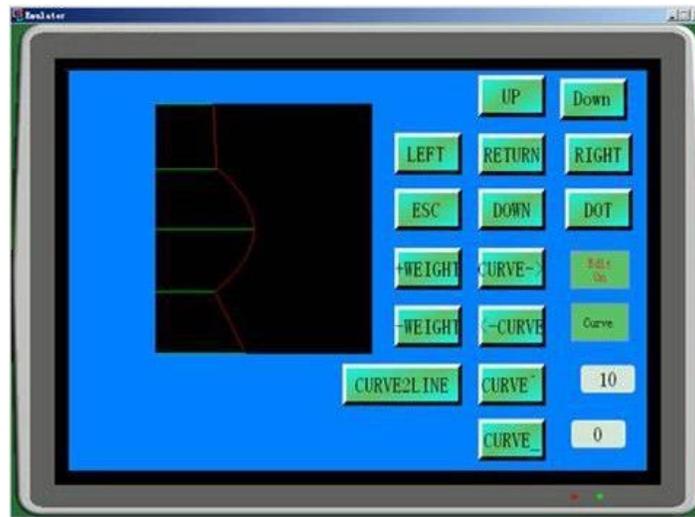
The final product of blow moulding including multilayer composite film and all kinds of polyolefin hollow container, Can be widely used in food, medicine and cosmetics industries.

Domestic blow moulding industry mainly concentrated in guangdong dongguan, zhejiang taizhou, jiangsu zhangjiagang and Shanghai. Along with the science and technology progress and the production scale, the domestic blow moulding industry improve the trend development , from exactly copy to the self development, from the low end to the middle and high-end .

2、 Property List--blow moulding



The picture of the Off-Line Emulator



5、 Summary

With the Cuustom parts launching, it gradually close to the customer demand, and realize the maximum customer needs, make a new window, give customer new sense . Welcome to provide valuable building

11.46 Video display input

1、 Profile

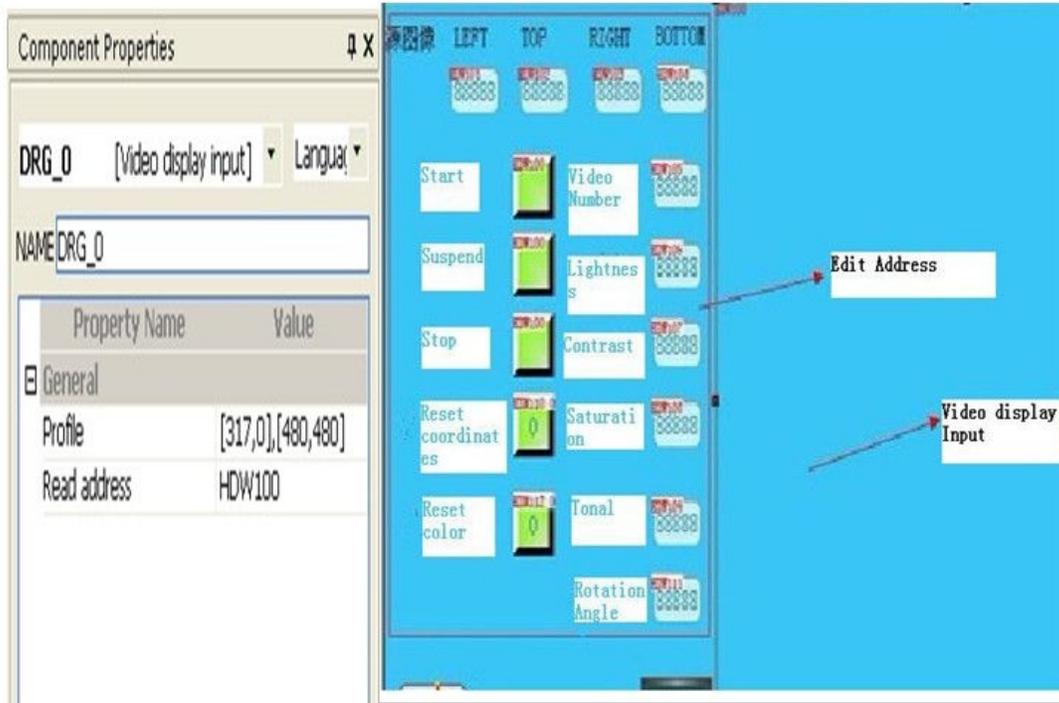
To satisfy the needs of customers, introduced new function:In order to meet customers to know the current situation,realize the real-time monitoring of video.

For Example:

Hypothesis:OperateAddr was setted for HDW100, the project setting as the follow List:

Special register address	value	Implication
HDW100	0	Suspend
	1	Start
	2	Stop
HDW101, HDW102, HDW103, HDW104		Coordinates parameters
HDW105		Video number setting
HDW106		Lightness setting
HDW107		Contrast Settings
HDW108		Saturation setting
HDW109		Tonal control
HDW110		reset and initialize the chip of "Video display input"
HDW111		setting Rotation Angle(0、 90、 180、 270)---(Bit Address)
HDW112		the color of "Reset Video display input "(Bit Address)

Project setting: (Read Address is setted for HDW100, then after its 13 consecution address)



2、Property setting

Lightness	Range 0~255, 0- Darkest, 255-Lightest
Contrast	Range -128~0~127 , -128-Inverse color, 0-dark, 127-strong
Saturation	Range -128~0~127 , -128-Inverse color, 0-dark, 127-strong
Tonal	Range 0~255 , 0-normal , 255-feeble color

Video number setting

Up to support 4 way video input (only one way is available at the same time). Range 0~3: 0-first way, 1- second way , and so on.

Reset setting

when the Bit Address is inputted, it will lead to reset the setting of "Video display input". All of the Settings for the system will recover the default

Rotation Angle setting

1、 Rotation Angle Range 0~3, 0-rotate 0 angle, 1-rotate 90 angle, 2-rotate 180 angle, 3-rotate 270 angle.

2、 The 90 angle and 270 angle will influence processing speed. Use less as far as possible.

3、 In the vertical screen in the HMI, must set rotation Angle. if no set, it will be dealt with the default horizontal screen.

3、 Note

1、 The "video display input" is displayed in the tallest layer, so any pop-up keyboard, the pictures, the window, etc. Video display area will be covered

2、 Video signals must set the display area, lightness, contrast and saturation, tonal and so on, or you will as a display abnormal. while you don't know how to set, please according to the default Settings. if you do the wrong setting, please use the reset functions.

3、 In the type of PAL, 312 line can be maximum inputed in the video source.

4、 In the type of NTSC, the maximum is 256 line. please set the maximum line of video. with the NTSC system, using 312 line drawing, may lead to the most 56 (312-256) line of data display error.

11.47 File List

FileList Function Introduction:

It is used to Import/ export Receipt file. File suffix is .CSV (Specific format can consult LEVI toolbars-Receipt editor

). It can Import/export the Receipt file with SDcard、 CFcard and Udisk .

Generate the new receipt file

export one new group data to the folder of the specified file

modify one group data of the specified file

delete the selected file or folder via the address(HSW505)

Directory

the CSV file in the folder (rcp) of Udisk /Udisk/rcp/

all the CSV file in the folder(Udisk) /Udisk/

the file in the folder(rcp) of SDcard or CFcard /CFDC/rcp/

all the CSV file in the root folder of SDcard or CFcard

1、 Trigger address import file: eg HSX1.4, if the value of address is equal to 1, it will export

to the PLC address from specified group of the selected file .

2、 Trigger address the export file: eg HSX2.4,if the value of address is equal to 1,it will write the specified constituent into CSV file via read the specified address of PLC .

3、 Write Address : eg.HDW0,when the constituent of receipt is imported into the PLC address,it will writed to CSV file.

4、 Read address : eg.HDW2000 write the specified length into CSV file ,via read the start address of PLC

5、 import file name(Named Arabic numerals) : HDW25000 (file name range 0-65535)

6、 export file name(Named Arabic numerals) : HDW25001 (file name range 0-65535)

7、 Action words : word or double word

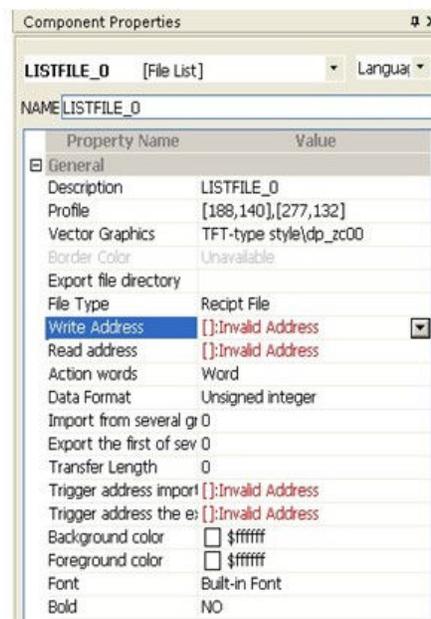
8、 Data Format : Unsigned integer or float(if float is selected ,it will be set for double word)

9、 Import from several groups : it will indicate that the group of CSV is read,when write the receipt to PLC ,reserved internal address HSW503.

10、 Export the first of several group: it will indicate which group will be wrote to,when write the CSV file,if the default value is 0,it will write into the last group,reserved internal address HSW504 .

11、 Transfer Length : the number of constituent

eg.the length of data is equal to 10.if it is double-word,each group will have five data ;if it is word,each group will have 10 data .



CSV file Format:

1. The first line of CSV file used to store a set parameters of the Recipe

	A	B	C	D
1	1(float1, integer0)	1(double-word1, word0)	3(group number)	300(constituent)

2. The file can't be more than 200000 point, and the constituent of each group can't be more than 2000.

eg. The File List have 200 group and 1000 constituent (Less than 20000)

Project case:

1、 Profile

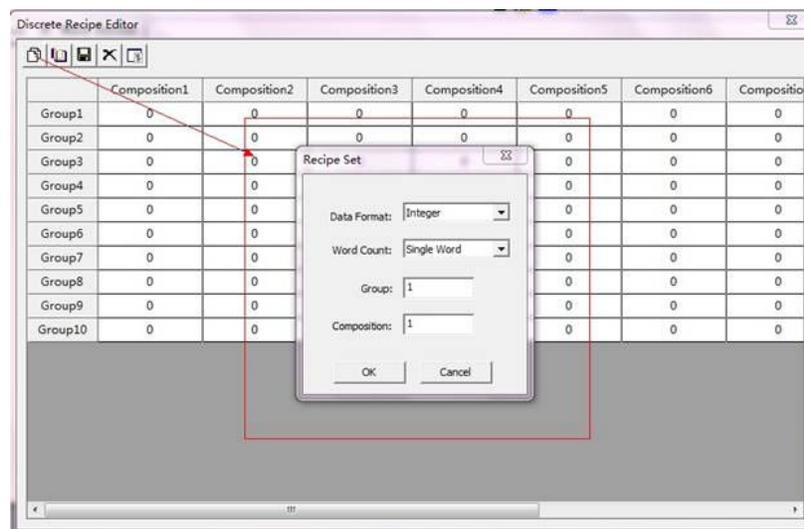
File list can import/export the Recipe. At the same time file list also includes three file types : Recipe file, log files, Record files

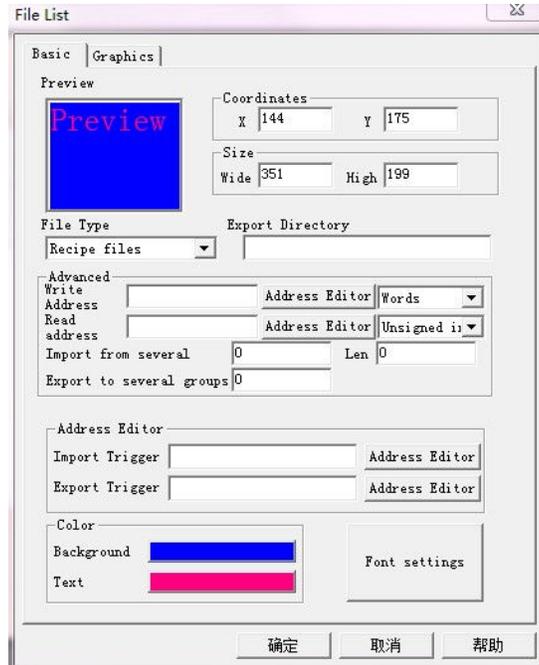
2、 Project setting

three ways of Recipe editor : 1. Discrete Recipe editor 2. Manually editing Recipe file and CSV file by oneself(format must be exactly the same as the file to be open. the file opened success as the follow figure) 3. if Not set as above, directly generate Recipe file by default according to the project setting.

Tools—Recipe Editor, Edit discrete recipe

New Project (file list)—Set "file list" relevant information in the project. as the following figure:





Add the "File List" part in the project

A example of import and export recipes
 The file name length is 0 to 65535 words

Import group number	Import file name (in Arabic numerals)	Write first address HDW1 csv files to plc
88888	88888	88888
Export group number	Export file name (in Arabic numerals)	Read first address HDW1 plc to csv files
88888	88888	88888

Import Export user-defined file path (take D disk for an example)

U disk and SD card fixed named path

Data length is 10. Five data values in each group for a double word, and 10 data values in each group for a word.

Export file directory D: / 123 / (Online simulation path)

Export file directory / Udisk / aaa / (u disk storage path) No more than 33000 data. The maximum of each group is 2000 data.

Export file directory / CFDC / aaa / (SD card or CF card storage path)

3、 Summary

The names of the Recipe is up to 0-65535 characters, and the file name address, group address is fixed special register address. file storage format is CSV file format. if need to check, just open directly, do not use data record

view tool. Storage directory must be written as the above provisions. Recipe can't be more than 200000 points, each constituent points maximum is 2000.

11.48 disc record plan

1、 The "disc record plan" is located in the Graphic curves of All Parts

2、 Function:

History disc record trend is used to read the value of buffer address,drawing with the circle in the dis record trend.if you want to read the address of the "disc record plan " ,you must record it in the "real-time disc record information" of project settings.

3、 Properties

Property Name	Property classification	Function
Buffer number		select the buffer group in the real-time disc record plan information
Start position	TOP RIGHT BOTTOM LEFT	TOP:Began to draw point from the zero positions ; RIGHT:Began to draw point from the three o'clock positions ; BOTTOM:Began to draw point from the six o'clock positions ; LEFT:Began to draw point from the night o'clock positions ;
Curve		chose how much the curve will be displayed.you can set the scale range (from circle center to the outside) and scale color .Up to four curve displayed

11.49 Slider Switch

1、The "Slider Switch" is located in the Button switch of All Parts.

2、Function:

with pushing swich, the value of the address can be changed, and Reaction to the changes of the value of the address;

3、Format Introduction:(refer to Digital Input/Display)

Unsigned Decimal、BCD、Signed Decimal、32-bit floating_Point

4、Properties:

Property Name	Property classification	Function
Operation Address	the address of PLC or HMI internal register	The monitoring of the address
Action words	Word or Double-Word	
Data Format	unsigned decimal;BCD;signed decimal;32-bit floating_point	the type of data
Decimal places	constants	
Display direction	0 degrees 90 degrees 180 degrees 270 degrees	From Top to Bottom From Left to Right From Bottom to Top From Right to Left
Minimum scale	constants	set the minimum scale, if the type of data is float , it will be unavailable
Data range is variable	YES or NO	if be seted for No , the Data range is constants;if be seted for yes , the data range is variable
Data range	constants	0~65535
The upper limit address	the address of PLC or HMI internal register	when "Data range is variable" was setted for yes, it is available
Lower limit of the address	the address of PLC or HMI internal register	as above
Scroll mode	YES or NO	whether use Scroll mode or no
Scroll value		when "Scroll mode" was seted for yes, it

		is available
Show DataLimit	YES or NO	whether datalimit show or not
Show Current Value	YES or NO	whether Current value show or not
Use Background Bitmap	YES or NO	whether use background bitmap or no
Background Bitmap		when "use background bitmap" was seted for yes, it is available
use Slide Bitmap	YES or NO	whether use Slide Bitmap or no
Side Bitmap		when "use Slide bitmap" set for yes, it is available
Borders are transparent	YES or NO	whether Borders are transparent or no
Border Color	color (R, G, B)	the color of border
Whether the background	YES or NO	whether use Background color or no
Background color	color (R, G, B)	the color of background
Color Track	color (R, G, B)	the color of track
Color block	color (R, G, B)	the color of block
Slider width	constants	the width of Slider switch

11.50 The current alarm table

1. The current alarm table in parts of alarm in that column

2. The current alarm table function:

The way to list shows HMI alarm buffer all already happened, but did not remove the alarm information

3. The current alarm table properties

attribute name	Qualitative classification	explain
show date	yes/no	yes: alarm history in the table that if alarming and alarm to date No: not to display the date

date format	When to display the date for effective wrote	When to display the date for effective time, date format that there are some choice Yy/mm/dd: year/month/dayMm/dd/ yy: month/day/yearDd/mm/ yy: day/month/year
show time	yes/no	yes: in alarm history in the table that if alarming or cancellation of the time No: don't show time
script	no matter	Alarm content of the font.
Alarm table don't show the terminated when rectangular box	yes/no	yes: occurrence alarm, alarm table before displaying information have rectangular frame. No: occurrence alarm, alarm table shows no information before rectangular frame.

12.1 Summary

Recipe is a set of data in which the groups have the same structure but different figure. Cause of their consistent structure, we can make up the figures as a recipe for high efficiency data transmission between PLC and HMI.

The example below is to show how to use recipe.

12.2 Illustrate

Under the car paint spraying cite an example, if a new manufacturing car needs painted this procedure, the need for its car top, bottom, car external three places spray on different from (red, green, blue) color paint, and provided the primitive color only red, green and blue, at this moment to spray different color need these 3 kinds of color appropriate ratio, and that different parts of gush at different times. At this moment need to adopt the realization of the function of the recipe. See table 14-1.

Table 14-1 recipe examples

part	Red (kg)	Green (kg)	Blue (kg)	Spraying time (in seconds)
Car top	2	2	1	30
Car bottom	3	1	2	40
Car outside	2	3	3	20

From the table look, spraying different sites, all need a group of recipe, here can build three groups of recipe, and each group recipes are four components: red, green, blue, spraying time, in the different groups of recipe, each component values are differ

According to the example we see specific recipe information setup

12.3 Recipe information

In order to make the recipe shows components can display recipe, must undertake the necessary information Settings. Operating as follows:

1. in the engineering manager window project in setting options you chose recipe, shown in 14-1 shows.

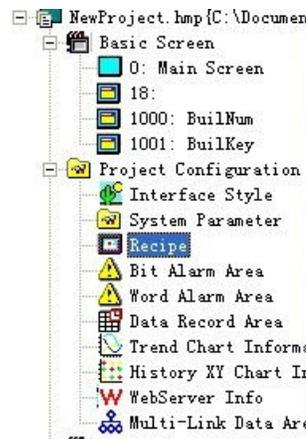


Figure 14-1 project manager of the recipe

2. Double-click the icon, the recipe figure 14-2 window.

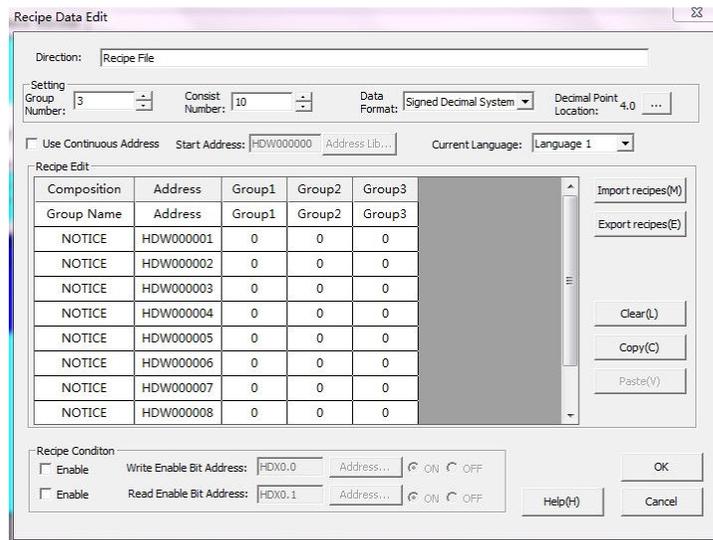


Figure 14-2 recipe data editing

In the example car top, car bottom, car external three groups of recipe, so choose the number of groups of three, and each group recipes are four members: red, green, blue, spraying time, so choose the number for four consecutive address, group name in order pursues as follows: group 1 - car top, group 2 - car bottom, group 3 - car outside, hypothesis starting address for HDW000000, the red - > correspondence address HDW000000, green - > correspondence address HDW000001, blue - > correspondence address HDW000002, spraying time - > correspondence address HDW000003, modified results figure 14-2 shows.

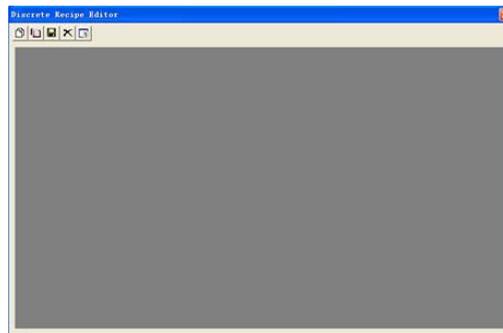
3. If you want to use a manual transmission recipe data, still need to set trigger conditions, from HMI to PLC transmission recipe of data, the need to install write trigger a address; If the PLC read data, the need to install recipe read trigger a address. ON or OFF said when effective, is ON effective or OFF effective.

4. Setting is completed, according to defined can.

5. In HMI engineering, which in turn have to set only one recipe files? If you need to recipe files, can choose edit words removal, copying or paste, If you need will recipe files derivation, you can select import or export.

6. Data format is software will data writing equipment or from equipment read recipe data formats. Support BCD.

7. Tools- - - Recipe editor- - - -discrete Recipe editor



12.4 Recipe show

When set good recipe information after, we can use recipe shows components and transmission components to display recipe and transmission. Specific Settings again explain it in detail.

1. Click on “all parts” of the graphic display parts box of the recipe, figure 14-4.



Figure 14-4 parts graphics box of the recipe shows

2. On the picture selecting a suitable location and size placed the components;
4. Double-click the parts, on the left of the attribute box fill attribute content, figure 14-5.

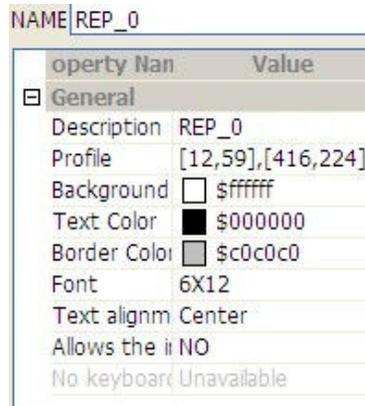


Figure 14-5 recipe shows component attributes dialog box

1. Fill in each required attribute value, and then add ones finished, the final part of the content figure 14-6 below.

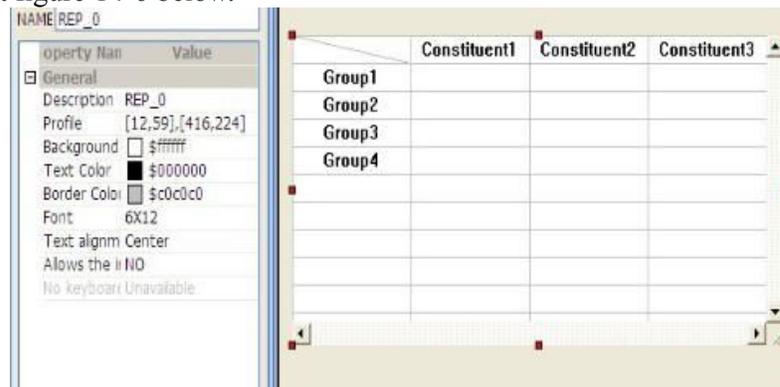


Figure 14-6 completes the reception of the sample

12.5 Recipe transmission

1. Click on all parts box of the recipe transmission parts icon, figure 14-7.

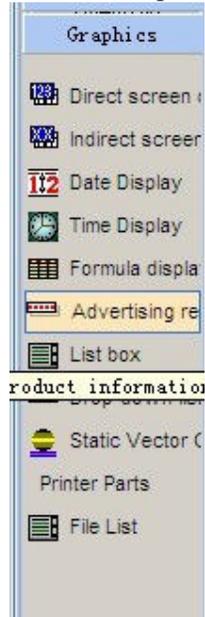


Figure 14-7 recipe transmission

2. On the picture selecting a suitable location and size placed the components;
3. Select the parts, on the left of the attribute box fill attribute content, figure 14-8.

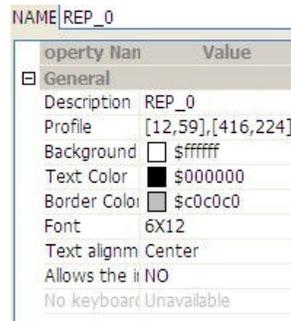


Figure 14-8 recipe transmission parts properties dialog box

4. Figure 14-8 recipe transmission parts properties dialog box.



Figure 14-9 after completing the recipe transmission picture

12.6 The use of Recipe Transmission

Now take simulation Emulator for an example. Display of recipe is shown as figure 14-10.

Group Name	red	green
Car top	0	0
Car bottom	0	0
Car outside	0	0

Figure 14-10 recipe show

Figure 14-10, can be in recipe shows parts click touch screen, choose the current group number, this group Numbers will be stored in group g on HPW0 recipe registers.

If is manual transmission recipe components:

1. First need to select recipe of group g, we first in the left column of the group name select "car top" this group, in the diagram above, the picture has a group of rectangular box.
2. Choose finished, click the recipe transmission components [upload] or [download] parts, in recipe data transmission direction choice:

Table 14-2 upload and download recipe

behavior	explain
upload	From PLC registers transfer to HMI, and modify the recipe files, if HPW0 value for A word, then Numbers for group A recipe data will be covered, and preserve recipe files;
download	Will HPW0 value as a group of words from recipes document number, find this recipe, and download to PLC registers.

If the recipe files Settings trigger a, can realize the automatic transmission recipe:

1. In order to make the recipe data can automatic transmission, should first meet in [recipe information literacy trigger setting] condition;
2. Secondly, still need to select recipe group number, in our HMI registers planning store in this recipe group size register address is HPW000000, when meet recipe transmission condition, we will HPW0 this from register value read, this value is, we must carry on the recipe data transmission operation group number.
3. This recipe can be carried out on the data automatically transmission operation.

12.7 Recipe data index

Reception of any data through the special registers to software RPW index, just use in numerical input/display or words to use this address switch part, can operate recipe documents. For details, please refer to & 21.5 recipe index area (RPW)

13.1 Trend diagram information

Trend diagram information for inputting and save trend diagram of relevant information, software by parts trend diagram, percentage trend diagram to load.

Add trend diagram information dialog pursues as follows:

- 1、 a group of records most support acquisition 12 word address.
- 2、 Can "whether a trigger to trigger the supervisor of acquisition. Record.
- 3、 The sampling time units for 0.1 seconds, record the number refers to the trend diagram or percentage trend diagram shows the most data points.

New Record

Record Number: NEW

Address Information

Continuation Address Bit Trigger

Curve Number: 1

Bit Trigger Address: ...

Discrete Address

0 ... 1 ... 2 ... 3 ...

4 ... 5 ... 6 ... 7 ...

8 ... 9 ... 10 ... 11 ...

Display

Display Format: Unsigned Decimal

Decimal Point Location: 40

Note: The percentage of the trend curve support 12. Only support real-time curve before the four curves. XY chart history curves only support 8

Sampling

Sampling Time: 1 (1-9999) X100ms

Record Count: 100 (1-1000)

OK Cancel

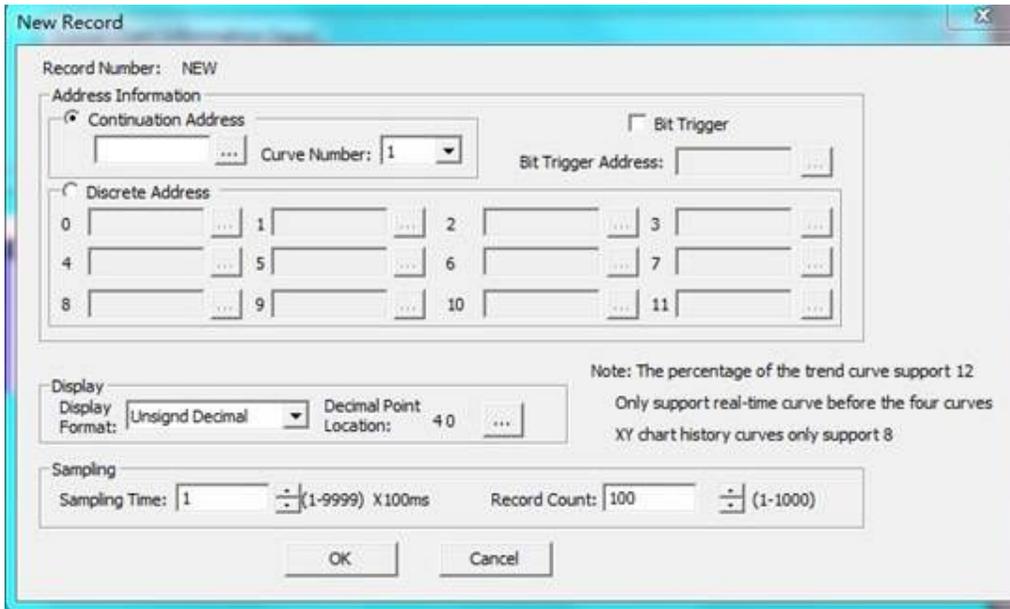
13.2 History XY Chart Information

XY trend diagram for historical inputting and historic preservation XY graphs related information.

Add history XY trend diagram information dialog pursues as follows:

- 1、 A group of records most support acquisition 12 word address.
- 2、 Can "whether a trigger to trigger the supervisor of acquisition. Record
- 3、 The sampling time units for 0.1 seconds, record the number refers to the trend

diagram or percentage trend diagram shows the most data points.

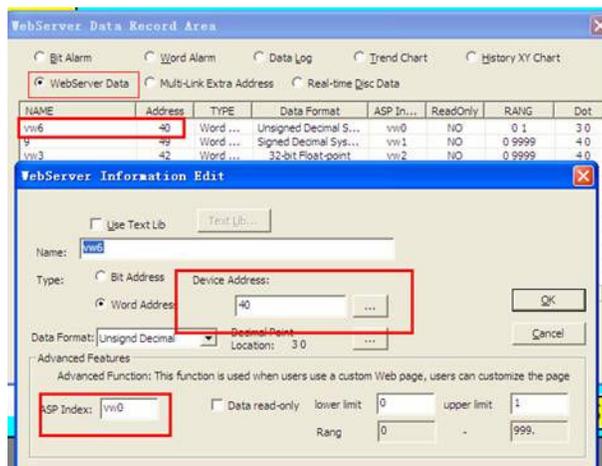


13.3 Web Sever Information

Web Serve data record area used to set up engineering and Web link need to set up the ASP index, as below: click on May not data record area, will the address of the page and engineering related needs to use the ASP index link up.

As HDW10 express HDW10 this address used in engineering, the address in the web through the ASP index VW0 communication link.

Data area set



Project Settings

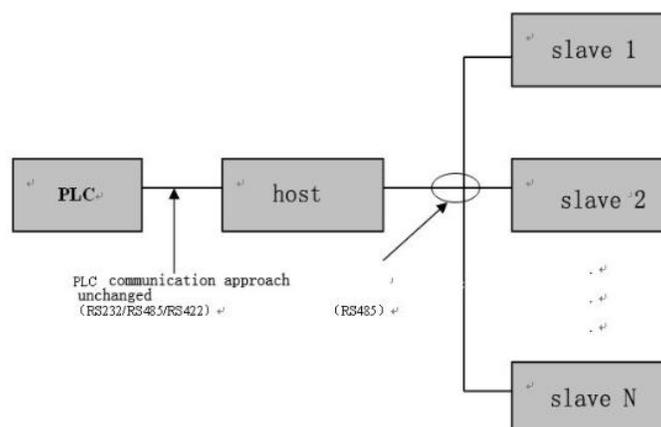


13.4 Multi-motor interconnection (Multi - Link) instructions

Multi-motor interconnection (Multi - link) provides a already economy and convenient solutions to make many sets of man-machine interface RS485 communication attachment to pass through. In multi-motor operation, a man-machine interconnected to host (MASTER), and the other is from machine (SLAVE). As the host of man-machine is the only with PLC, its reception from PLC all data through the host (MASTER) transmission to each from machine, so every 3p when machine should set a communication station number, make host can interact with each from machine, thus with PLC interaction.

1. Connection mode

The example below is one PLC communicates with four Human-Machine Interfaces. Note: the man-machine communication between way is usually RS485, and each from machines need to be set up different communication station number. When the machine is only one from when, also can use RS232 connected.



2. Multi-motor interconnected communication parameter setting

Below are set multi-motor interconnected communication parameters operation step

1. Select Settings - communications mouth Settings, the page select add new connection properties dialog box select multi-motor interconnected communication interface, in "device type" select "Multi - Link Protocol" this agreement.

2. Set master-slave machine, and the corresponding from machine number and from ventilator station number, as shown in figure 13-1.

Note: the greater the number set from machine, communications speed could slower.

From the ventilator station number must start with 1 consecutive Numbers, not repeatable.

Master-slave machine interface communication parameters must as well.

Master-slave machine in choosing agreement must ensure that agreement of Numbers is same, figure 13-2.

Default address
HMI Station: 0
PLC Station: 0

Multiprocessor interconnection
 Host client number 2
 Slave HMI Station 1

Serial port Set (RS485, 115200, 1, 8, NONE) Set...
Ethernet Set 无 Set...
Timeout Set (300, 50, 2, 3, 0, 0) Set...
COM2 expansion Set...
PLC debug Set Set...
 Modify configuration parameters do not change
OK(e)

Figure 13-1

Please select the device type:

N	Communication Port	Device Type
1	COM1	MIT FX NOPROTOCOL
2	COM2	Multi-Link Protocol

Figure 13-2

3. Note

Use multiple machine interconnected, please note the following precautions:

- Please ensure that the Lord, from machine engineering content is same. Besides master-slave machine parameter set.

- In order to ensure engineering run properly, the proposal does not use scripts. If you want to use the script, scripts used in external address must be added to the Settings - multistage interconnected data section.
- Master-slave machine interface communication parameters must as well.
- Master-slave machine in choosing agreement, must ensure that agreement sequence Numbers are the same
- From the ventilator station number must start with 1 consecutive Numbers, not repeatable.
- Set the greater the number, communication from machine speed could slower.
- Use multiple machine interconnected, suggest using RS485 communication mode, when only one from the unit, also can use RS232.

13.5 Real-time disk recording graph information

Real-time disk record graph information for inputting and save disk recording parts of relevant information, software by parts disk recording diagram, historical record chart to read disc.

Add real-time disc record figure information dialog pursues as follows:

- 1、 A group of records most support acquisition four curve.
- 2、 Can "whether a trigger to trigger the supervisor of acquisition. Record
- 3、 The sampling time units for 0.1 seconds, cycle time refers to real-time disk recording drawing a lap time.

14.1 Concepts and applications

By default, the user can access all HMI picture, operate all parts and without any limitation, but some industrial occasion to contain sensitive data or sensitive action picture of paintings restrictions, some part of the operation to shield, make no privileges these figures, people cannot view cannot carry out some sensitive operation.

software provides two site safety protection schemes; one kind is based on screen

security level pattern. One kind is based on key password mode.

Picture security level of protection in picture as the basic unit, and each image (whether basic picture or child picture) has its own level of security. System to the default security level startup project, if want to visit high security level picture must input high-grade password.

Buttons password mode is set at a time when HMI without touching the action, click HMI components are ineffective. Only click Settings for "password protection" function switch, pop-up keyboard, a password to enter the correct password, click HMI components is valid.

Same project can only choose a safe mode, about security model selection, from setting - engineering parameters, security level and password to select the desired safety protection mode.

Figure 14-1 engineering level of security configuration

14.2 Safe level mode

software provides twelve security levels, and each level has its own password, the pictures of each have their own level of security, as below:

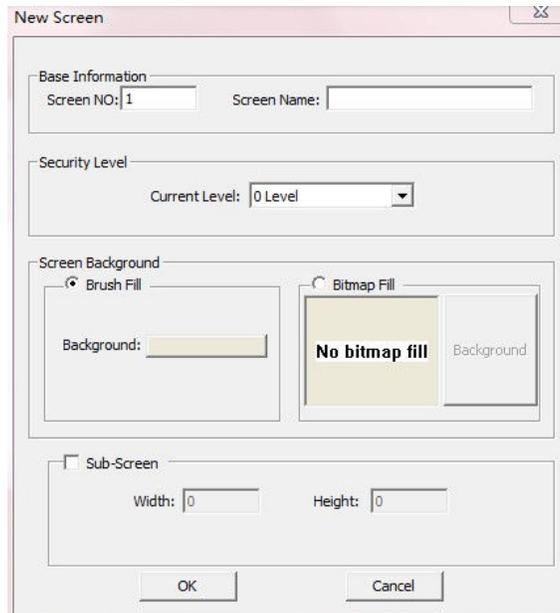


Figure 14-2 picture level of security

software level of security are divided into twelve grades, they in turn increase the safety degree of software, namely, if current access level is secondary, is this safe low grade (including the) picture is accessible, and than this level high is forbidden access.

Security level of pictures and sub-pictures are effective, software in loading any screen, will HMI current level of security and the security level retells compared, if the picture of the security rating higher than the current level, the picture (a picture) will not be displayed and HMI will pop-up keyboard, and below the current password level of all picture can display properly.

From Settings - engineering parameters, security level and password, can install engineering password and security level shown below:

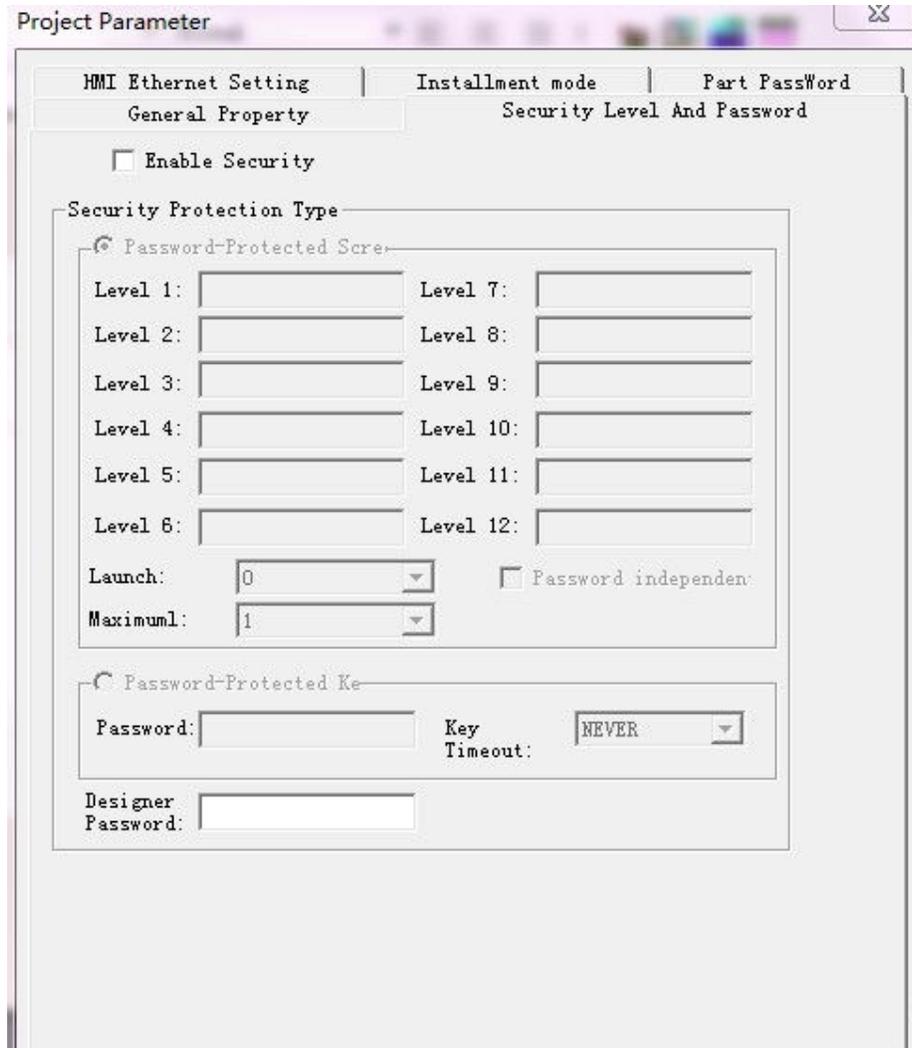


Figure 14.3 engineering safety protection

Use safety protection: enable engineering safety protection mechanism, and by default without enabling safety protection level, this kind of circumstance all the scenes can easily access;

Picture password protection: use screen level of security model to protect the picture

Start level: your system when the default password level.

Various ranks independent password: if set this, so every time from lower level picture enters high screen, all need password, otherwise only need to be first enter high-grade picture input.

Buttons password protection: use buttons password protection mode to protect engineering

Password: activated screen touch effective password

Buttons timeout: if during this time no user response, the HMI will enter a key protection condition.

Designer's password: users from software machine upload application should input password.

Keep in mind that this twelve grades of password not more than eight characters; most And the best differ, if there are two levels of password is same, user input the password, current security levels will be set to the low level.

14.3 Button password mode

If safe mode is to select button, then set password protection in overtime time without user operations of words, touch screen will enter the screen saver state, this is click on the picture of the components is invalid, only click Settings for "password protect the function of" switch, the password from the pop-up keyboard input the correct password, touch screen components could restore the effective state.

Function switch have a specific function is used to enter the password button. Figure 14-4

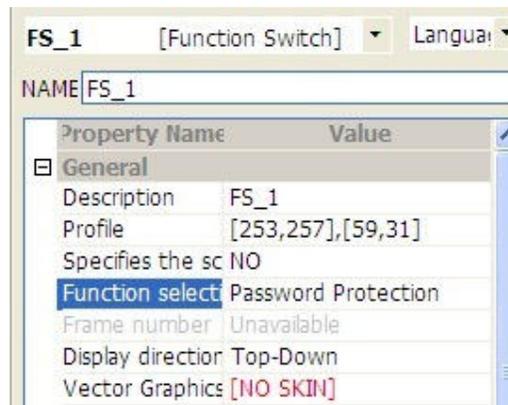


Figure 14-4 use function switch input password

15.1 Overview

In many engineering applications, in order to achieve complex control functions, components alone are no way to meet these needs, but the script is to use man-machine interface by means of programming the system resources to achieve these complex controls.

software provides a powerful, easy, reliable performance of the script system; software's script has the following characteristics,

1、 Used the similar syntax with the BASIC;

BASIC for the general public as the first high-level computer language with simple syntax, easy to use, real-time and high efficiency, BASIC in the IT community has a wide range of applications, BASIC beginners do not need to invest too much energy to be Easy to master.

2、 Support all the program logic control structure;

software script support the order, conditions, loops, and other three logic control structure, as can be achieved any complexity process.

3、 Powerful function;

software script function is divided into two categories: system functions and custom functions.

System function is that software will be made of some commonly used functions in the form of system functions can be referenced in the script at random. These functions have BIN code and BCD code conversion and more.

Defined functions are that user often called the package a program code in the form of a function; you can call all the scripts.

4、 Support the IEC61131 architecture;

IEC61131 is an international standard of PLC programming language, if they support this standard PLC, then his program portability and maneuverability is out of the platform. software support the IEC61131 architecture, which makes the transplant procedure possible between software script and IEC61131-based PLC.

5、 Supports multiple data types;

software script support integer, floating point, BCD code, character, string and other data types.

6、 Easy to learn, powerful and reliable performance

15.2 For the first time using a script

Here we adopted a very simple example to illustrate how to use the script software. This example, we keep the bit state indicator flashing.

First create a new project, PLC model select WECON SIMUTOCOL, select Custom Templates, and then put a bit state indicator on the screen, and bit state indicator monitoring address is set to hdx0.0, this is HMI's internal register address .Other properties of Bit status indicator as shown below:

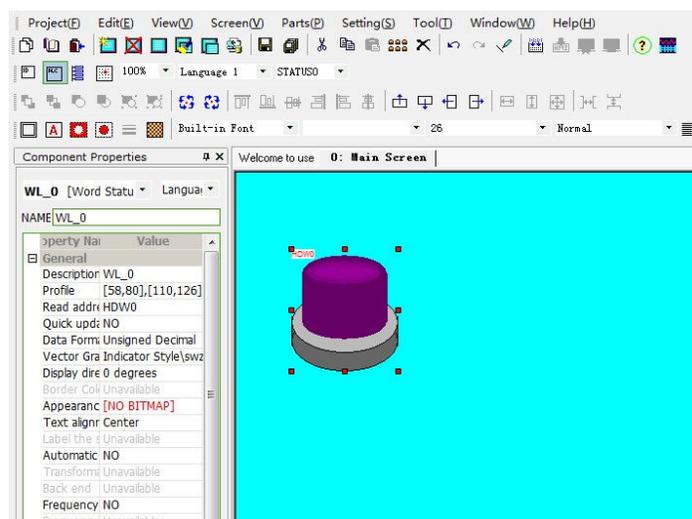


Figure 15-1 for the first time the project using a script

Then, compile, select off-line simulation, find that bit status indicator has been in the state of lamp, if the script is added, you can make lights flash up.

How to join the script? Here are several ways:

One way: Right click on the screen view, from the pop-up menu, select "picture scripts", as shown below:

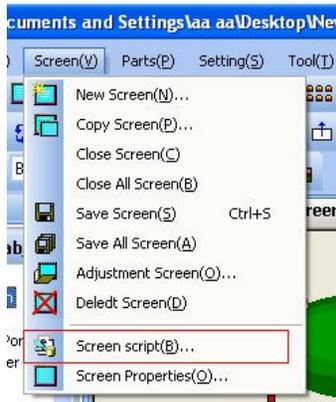


Figure 15-2 Right click pop-up menu to open the Script Editor

Option two: choose tools from the toolbar, into the current picture editor. As shown below:



Figure 15-3 from the toolbar to open the Script Editor

Three ways: from the project manager to select the edit screen, then right click and select the image script, or the project manager "MiniTool" toolbar options, you can open the screen of the Script Editor, as shown below:

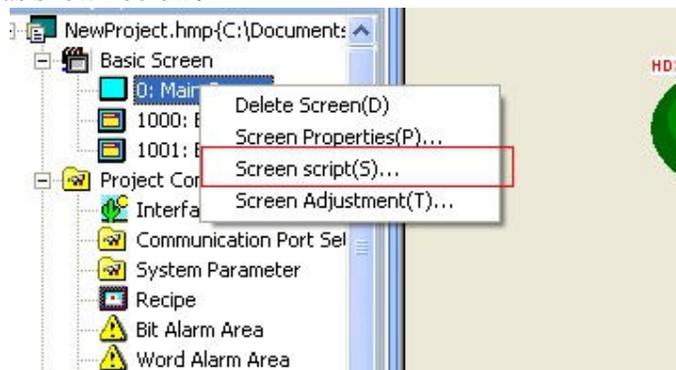


Figure 15-4 from the project manager to open the Script Editor

Into the picture editor, choose from script toolbar  , add a script running by timer triggered, the trigger period is 0.5 seconds, as shown below,

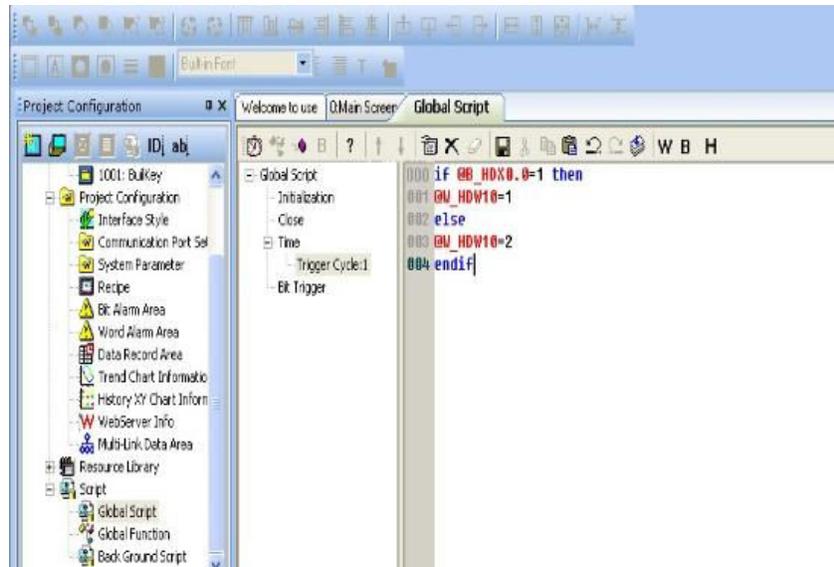


Figure 15-5 Script Editor

Then write the following code in the script view: @ is accessing HMI or the register of the device, B_ is way to access by bit.

```

if @B_HDX0.0=1 then
@W_HDW10=1
else
@W_HDW10=2
endif

```

Figure 15-6 Timing trigger script

This script, which means that the value of the bit HDX0.0 directly in the 0 and 1 switch back and forth, how much switching frequency, depending on the frequency of the trigger script, the example here, we have adopted the script every 0.5s triggered one time.

And from the Script Editor Toolbar, selectto syntax check the script, only after syntax checking the script can be ensure correct operation on the software. Results grammar checker found no problems.

Then, save, compile, select off-line simulation, bit switching began to flash.

From this simple example, we can know, software script is running in the background picture.

15.3.1 Classification of the script

Script has three types: one is the background script; it has only time-trigger script, run the smallest interval is 0 that is the boot script has been running after this. One is the duration of

the project to run a script, called the global script, when software load project, the script began to run until the end of the project, it's time to run the trigger script minimum interval of 0.5 seconds; another is There on the screen during the running of the script, the script called the screen when the screen is loaded, the screen script started to run until the screen is turned off.

Background script only cycle the unit interval is 1 millisecond; you can set the background of running multiple timing trigger script.

To open the background of the script for editing, as long as **the project manager** from the script you can double-click the **background script**. Click on the "back" icon, add a background script, set to run intervals, you can enter the edit screen for editing the script.

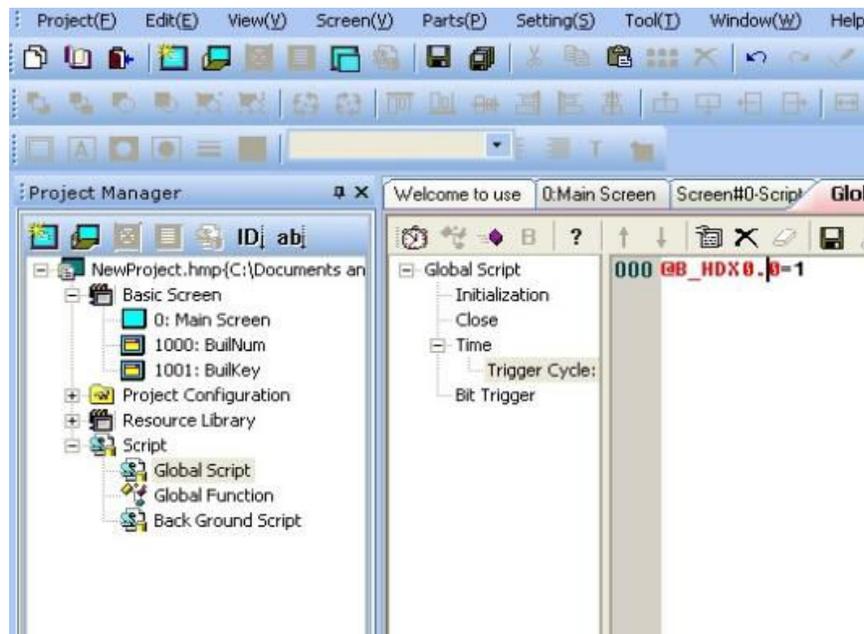


Figure 15-1 to open the background script

Global sub-script from the operating conditions, can be divided into four main categories:

Initialization: load the project to run, this script only works when the loading operation, and only run once;

Close: Close the project run, this script only run when the project closed, and only run once;

Timing: The project is running, from time to time (e.g., 0.5s) to trigger the running until the end of the project. Each project can be set to trigger the running of the overall number of regular script.

Bit trigger: The project is running, when the specified bit from time to time to meet the bit trigger the implementation of the script, as long as the trigger bit conditions, the script will be run repeatedly. Bit trigger has four conditions:

TRUE: software constantly testing the trigger bit value, as long as the value is TRUE, the script will be executed;

FALSE: software constantly testing the trigger bit value, as long as the value is FALSE, the script will be executed;

Edge: software keep testing the trigger bit value, when the value changes from FALSE

TRUE, the script will be executed;

Falling: software constantly testing the trigger bit value, when the value changes from TRUE FALSE, the script will be executed; in a project, there has also many bit trigger by global scripts.

To open a global script for editing, as long as double-click the global script from project manager.

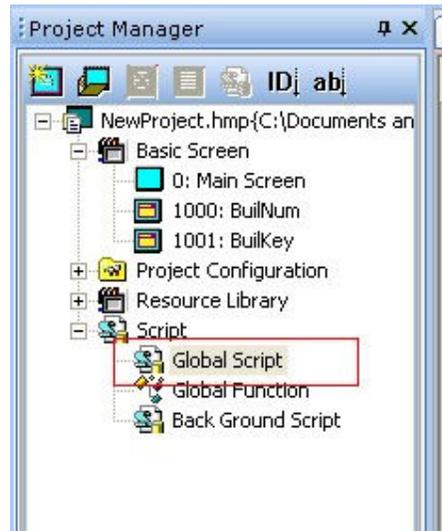


Figure 15-2 open the global script

Sub-picture script from the operating conditions can also be divided into four categories:

Initialization: load the screen to run, the duration of the screen, the script only once;

Close: Close the screen to destroy or run, the duration of the screen, the script only once;

Time: the duration of the screen, from time to time (such as the 0.5s) to trigger the run, until the picture destroyed or closed. Each screen can be set to run multiple timing trigger a global script.

Bit trigger: the duration of the screen, when the specified bits from time to time to meet the bit trigger the implementation of the script, as long as the trigger bit conditions, the script will be run repeatedly. Bit trigger has four conditions:

TRUE: software constantly testing the trigger bit value, as long as the value is TRUE, the script will be executed;

FALSE: software constantly testing the trigger bit value, as long as the value is FALSE, the script will be executed;

Edge: software keeps testing the trigger bit value, as long as the value changes from FALSE TRUE, the script will be executed;

Falling: software keeps the value of detection of the trigger bit, as long as the value changes from TRUE to FALSE, the script will be executed; in a screen, place the trigger script can run more than one.

Sub-screen picture of the script and basic classification and operating mechanism is the same.

As can be seen from the above categories, global script and the classification of the screen is the same, only difference is: the screen script only to run the duration of the screen; and global script is run the duration of the project.

15.3.2 Script Editor

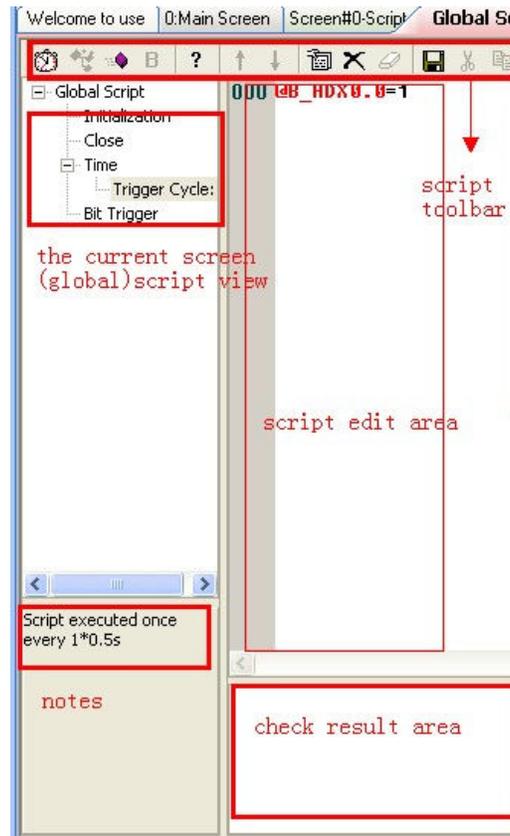


Figure 15-8 overview of the Script Editor

Script toolbar: for new scripts, edit the script.

The current screen (global) script Views: current picture (global) already have the script, the way a tree listed.

Script editor: the view script.

Note: When selecting a script, the script view, will appear in the comment area of the operating conditions of this script and so on.

Results area: on the script syntax check results will be listed here.

Script toolbar:



Figure 17-9 Script Editor Toolbar

-  : Create a timer triggered script.
-  : Adding a customize function, only valid in global function open.
-  : Add a bit trigger script.
-  : View the properties of a script.
-  : Remove the script is selected in view of the script.
-  : Empty the contents of the current script will not restore empty.
-  : Save currently in the editing of the script.
-  : Cut and paste the selected text to the system clipboard.
-  : Copy the selected text to the system clipboard.
-  : Copy the text from the system clipboard contents to the script editor.
-  : Cancel the current operation.
-  : Redo the operation has been canceled.
-  : Syntax check on the current script to check the results will be listed out in the results area.
- W** : With the address of the editor in the script editor, enter the word address.
- B** : With the address of the editor in the script editor, enter bit address.
- H** : Generate by the script to add functions to help the dialog box.

Script view:

Script lists the current screen view (global), all scripts.

Initialization: Engineering (screen) to run the initialization script;

Close: Engineering (screen) off the script to run;

Time: trigger all the time to run the script node;

Bit trigger: trigger to run all the scripts by the bit node;

Double click on the script node can open and edit the script accordingly.

15.3.3 Initialize script

Init script in the project (screen) running initialization scripts in the project (screen) run only once during the existence of. Double-click the **initialization node** from the **script tree view**; you can open the script for editing.

If the project (screen) is initialized not want to run the initialization script, only click empty the contents of the script, and then save it.

15.3.4 Close Script

Close the script is in the works (screen) off the script to run in the project (screen) run only once during the existence of. Double click to close the node from the script tree view, you can open the script for editing.

If the project (screen) is closed and don't want to close the script, only to click empty the contents of the script, and then save it.

15.3.5 Timer script

Timing the script is in the engineering (the screen) the duration of the time the script runs, the timer triggers the script, each screen allows a maximum of 32, the overall maximum time the script is 32.

New timer script

Click the icon from the Script Editor Toolbar , The following dialog box will pop up:

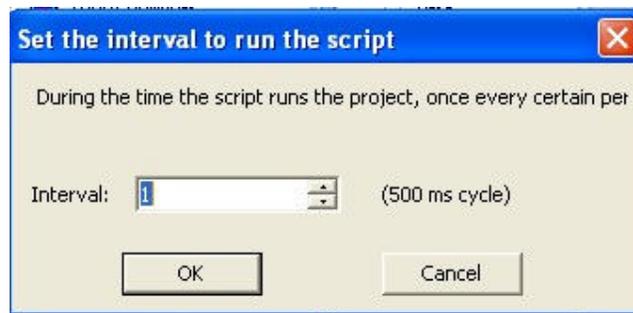


Figure 15-10 new timer script

Interval: how long the script runs each time the unit is: 0.5 seconds.

OK: Create a timer script.

Cancel: Cancels New.

Create a timer script, the timing in **the script view** nodes listed.

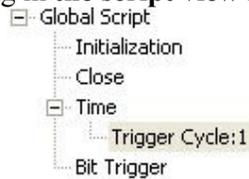


Figure 15-11 After New timer script

Remove the timer script

Select a view from the script timer script, and then select from the toolbar click Delete to delete the script will not resume after.

Timer script property editor

Edit the timer is to modify the script attribute refers to the interval timer, the timer from the script view, select the script, and then click from the toolbar , pop up the following dialog box:

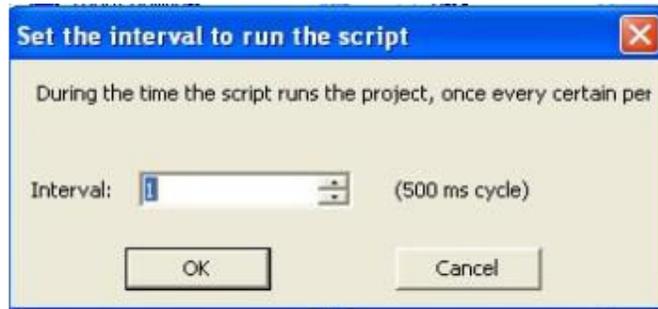


Figure 15-12 Modify timer interval

After modifying the interval time, click **OK** to change a success.

15.3.6 Trigger Script

Bit trigger script refers to the project (screen) duration, software about 20ms every bit will be to check whether the specified trigger condition is met, if the trigger conditions to execute the script once, so the script is triggered as long as the trigger bit conditions, Will be executed until the project (screen) to close.

Bit of each triggering the screen allows a maximum of 32 scripts, each project up to the global bit trigger script is 32.

New bit trigger script

Open the global (screen) of the Script Editor and then click from the toolbar , then pop into the dialog box shown below:



Figure 15-13 new bit trigger script dialog box

Bit address: trigger to monitor the bit.

The meaning of the trigger conditions as follows:

Table 15-1 Bit meaning of trigger conditions

Trigger conditions	Meaning
TRUE	software inspection and monitoring every bit of about 20ms, as long as this bit is TRUE, script execution time;
FALSE	software inspection and monitoring every bit of about 20ms, as long as the bit value is FALSE, the script to be executed once;
Bit change	When a bit changed run once
Rising edge	software inspection and monitoring every bit of about 20ms, as long as the bit value changes from FALSE TRUE, script execution time;
Falling edge	software inspection and monitoring every bit of about 20ms, as long as the bit value changes from TRUE to FALSE, script execution time;

Remove bit trigger script

Select a bit trigger script view from the script, and then select from the toolbar  click Delete to delete the script will not resume after.

Editor-bit trigger script properties

Edit the script attribute refers to the timer trigger conditions and monitoring changes position, select the script from the script view, and then click from the toolbar , after changes, click **OK** to save.

15.3.7 Global function

software allows the user to make frequent use of the code in the form of a global function, the global function call in any script, as if software provides their own system functions the same.

Open the global function

Double-click the **global function** from **project configuration**, open global function editor. As shown below:



Figure 15-14 open the global function

Global function editor as shown below:

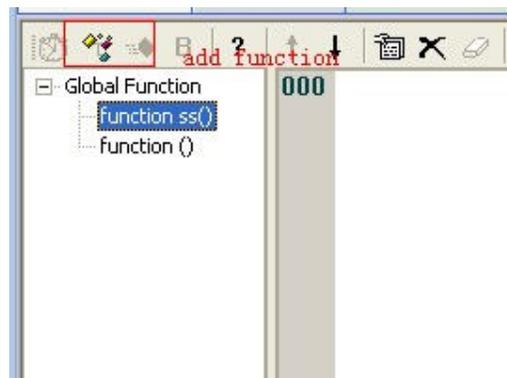


Figure 15-15 view of global function

In view, the global functions are listed.

New global function

From the Script Editor toolbar, click , This icon is used to add a global function, click on the mouse, then the following dialogue box appears.

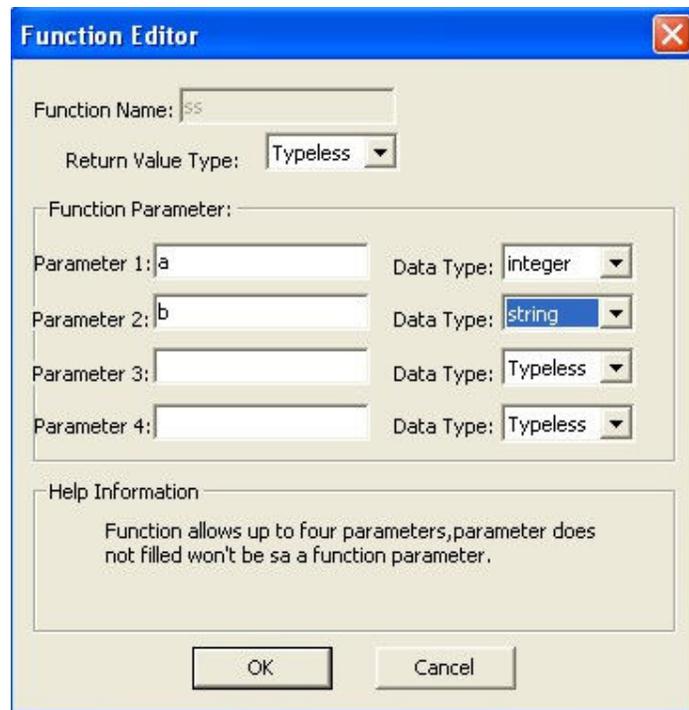


Figure 15-16 New Function dialog box

Function name: the name of global function, the function name can not have the same name.

Return value type: the return value type, there are four options: no type, string, integer, float.

Parameter a: the name of parameter a.

Data Type: Parameter data types. There are four options: no type, string, integer, float. The rest and so on.

Note that, global function can only have four parameters, if not complete the data, then the function has no parameters, the function of the number of parameters depends on the actual number of parameters filled out. Function parameters can not duplicate names.

Remove global function

The view from the function (Figure 15-15), select the function you want to delete, and then, from the Script Editor Toolbar, select , you can delete the script needs to be noted that references in other scripts if this function will compile error.

Edit properties of global function

Property is to be a function name or function parameters to be modified. The view from the function (Figure 15-15), select the function you want to edit, then select from the toolbar , figure 15-16 to open the dialog box, adjust the function parameters.

Note that if the function has been introduced, adjustments may be brought after the function syntax errors.

Call global function

And call the system function is the same.

15.4 Script access to the device

software -Script provides a direct and effective approach to device address, this approach is through the @ symbol to direct access to the address.

17-8 script access to the device

WRITING	MEANING	EXAMPLE
@B_ ;@b_ ;	Access to a bit of	<p>@ B_I0.0: Access bit address I0.0</p> <p>@ b_HDX0.0: Access bit address HDX0.</p>
@W_ ;@w_ ;	Access to a bit of	<p>@ W_IW0: access to word address IW0</p> <p>@ b_HDW0: access to word address HDW0</p>
<p>@B_connection #Station Number: Address</p> <p>@W_connection#Station Number :Address</p>	<p>When the HMI articulated a number of controlled devices, the "#" in front of that connection that equipment, ":" in front of that number to access the station.</p> <p>If there is no "#" means that access to the main connection, if there is no ":" means that access to the default station number</p>	<p>@ B_2 # 2: I0.0: connection number to access the station number 2 of 2 bit address I0.0;</p> <p>@ W_2 # 2: IW0: Access Connection No. 2 station number 2 word address IW0;</p> <p>@ B_I0.0: the default connection to access the default station number of the bit address I0.0;</p>

Script access to the device in two ways: read and write. The specific modalities for access control equipment, depending on the analysis of the script software .

For example the following code:

```
If @B_HDX0.0 = 1 then 'The value read from the register HDX0.0
@B_HDX0.0 = 0 'Will be 0 write to the register HDX0.0
Else
@B_HDX0.0 = 1 'Will be 1 write to register HDX0.0
End if
```

The following code is not only read but also write:

@W_QW0 = @W_QW0 + 1 QW0 read data start register, the number of plus 1, write to the QW0

Note that this access method for the position, it can only access a bit; for the word, it can only access a word, if you visit length greater than 1, it must be used to provide access control equipment software system function.

Access to internal registers of the HMI. No connection number and station number.

15.5.1 Grammar Check

Before saving each script, you should check for grammar, only by the right script can syntax check ran properly on the HMI, or HMI will not be implemented with the wrong script.

When the project is compiled, software Studio will check the syntax of each script is correct or not, the checked syntax errors will be listed.

Of course, users can also write scripts, syntax check, which would be from the script editor toolbar options , if the syntax is correct, the system will prompt there is no syntax errors, but found the syntax will be enumerated, so that users Changes.

15.5.2 Grammar Error

This section lists the software - Script common grammatical mistakes. As follows:

Identifier *** contains invalid characters.

--

Attempt to redeclare sub ***

Attempt to redeclare function ***

Attempt to use reserved word *** as identifier.

Attempt to use type *** as identifier.

Unexpected ')' while parsing the datas for function ***

cannot parse expression (one of the the datas of function ***)

cannot parse the datas of ***

too many the datas for function ***

not enough the datas for function ***

(' expected after sub name ***

unected ')' while parsing the datas for sub ***

cannot parse expression (one of the the datas of sub ***)

cannot parse the datas of ***

too many the datas for sub/function ***

not enough the datas for sub/function ***

cannot parse expression

(' expected after function name ***

unexpected use of sub *** as a part of expression

illegal statements preceding subs/functions declaration

unexpected end of file while looking for 'endsub'

end of line expected after 'else'.

end of line expected after 'endif'.

end of line expected after 'next'.

end of line expected after 'wend'.

'while', 'until' or end of line expected after 'do'.

cannot parse expression after 'while'.

cannot parse expression after 'until'.

'do' without 'loop'.

sub *** contains invalid character '@'.

sub *** already declared.

function *** already declared.

sub name expected after 'sub'.
function name expected after 'function'.
variable name expected
the data *** contains invalid character '@'.
'integer', 'floating' or 'string' expected
'', ' or ')' expected
'endsub' without 'sub'.
'endfunction' without 'function'.
end of line expected after 'beep'.
'dim' unexpected here.
variable name expected after 'dim'
'as' expected after variable name.
'integer' 'floating' or 'string' expected after 'as'.
',' or end of line expected after type in dim statement.
cannot parse expression after 'while'.
end of line expected after 'while' condition.
'while' without 'wend'
end of line expected after 'wend'.
'wend' without 'while'
variable name expected after 'for'.
'=' expected after variable name
cannot parse expression after 'for'
'to' expected
cannot parse expression after 'to'
cannot parse expression after 'step'

end of line expected

'for' without 'next'

end of line expected after 'next'.

'next' without 'for'

cannot parse expression after 'if'.

'then' expected.

unexpected end of file while looking for 'endif'.

unexpected end of file while looking for 'else' or 'endif'.

'else' without 'if'.

'endif' without 'if'.

label name expected after 'goto'.

unexpected end of line while looking for ')' in function call.

',' expected.

missing ')'

unexpected end of line in expression.

unexpected end of file in expression.

15.6 Some problems should be paid attention to using a script

software -Script is easy to use, simple, flexible, and its performance is reliable, HMI applications are indispensable for complex real helper, HMI Script will consume a large amount of CPU time, and ultimately affect the efficiency of the whole project. software -Script should be used properly, If used improperly , Script will consume a large amount of CPU time, and ultimately affect the efficiency of the whole project.

Generally, there are several issues need to be handled carefully.

- 1、 Try not to use in the script too large circulation, if the script performs a loop too many times, is bound to affect the efficiency of HMI in other areas(especially the picture response and the efficiency of data collection);
- 2、 In the script, try not to frequent access to external registers(such as PLC's registers, etc), the serial communication is slower, if frequent access to external

registers, will result in seriously reduced the efficiency of the script execution. Even affect the picture response efficiency, of course, because software local register (HSX, HDX, HPX, HSW, HDW, HPW, and RPW) is the software 's memory itself, so there is no problem about efficiency.

- 3、 Although software 's each screen timer (bit trigger script)allows a maximum of 32, respectively, but the sub-screen picture can be nested, so the number may run the script far more than this number, but in order to ensure the performance and efficiency, while running the script on software there is no more than 16 is appropriate;
- 4、 The maximum length of each script is 512 lines , but in actual use, the script is too long can lead to reduced efficiency.

A2H function

Convert a 4-digit hex number in ASCII character to a binary number. The character of the fourth digit is in word A2 and the characters of the other digits are in the words following A2 in sequence. The result will be saved in A1.

Expressio: $A1 = A2H(A2)$

Sample

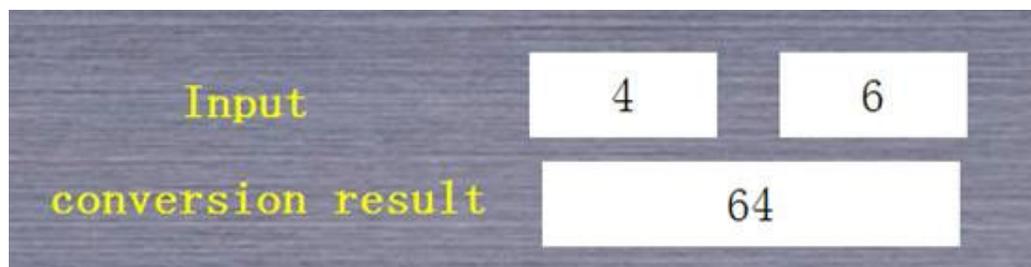
```
@W_HDW0=@W_SendNum1+@W_SendNum0<<8  
@W_HDW7890=A2H(@W_HDW1000)
```

PS: 1、 SendNum1 a word indicates a byte, SendNum0shifted left 8bits plus the SendNum1form a word.

2、 A2H parameters must be address.

3、 protocol selection user agreement

Simulation results



Input	6	8
conversion result	86	

Abs function

Return the absolute value of a number.

Expressio: `val = Abs(expr)`

Sample

```
dim a, b, c as integer
  a = SignedInt16("@W_HDW0")
  b=a
  c = Abs(b)
  @W_HDW1=c
```

ps: function SignedInt16function is unsigned word is transformed into a symbol

Simulation results

Input	conversion result
-6	6

Input	conversion result
6	6

ACos function

Return the arccosine of a number.

Expressio: var = **ACos**(*expr*)

Sample

```
Dim a ,b as floating
a = D2Float("@W_HDW0", a)
b=ACos(a)
b= RadToDeg(b)
float2d("@W_HDW2", b)
```

ps: the RadToDeg function will be converted into Remarks radian angle value

Simulation results



AddrStringCompare function

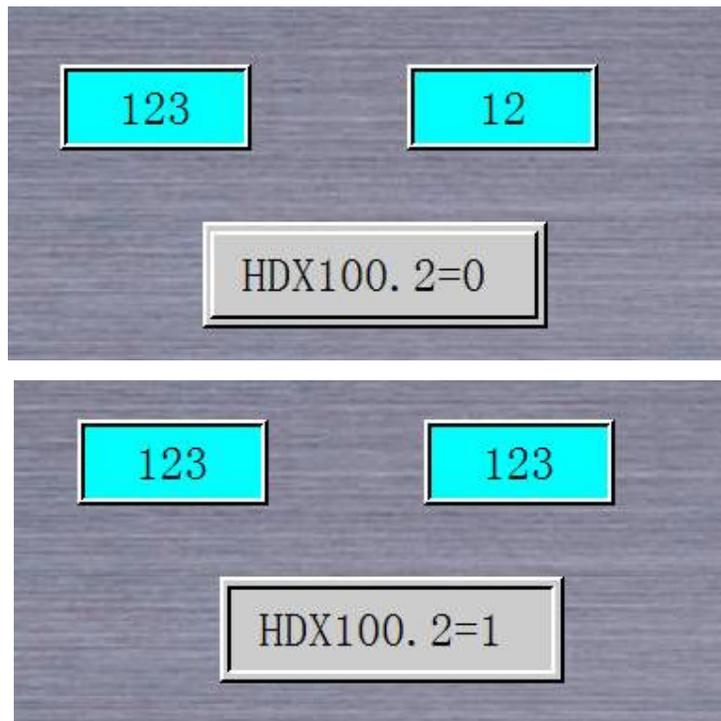
Comparison of A1 and A2length length value, if equal tol, or0.

Expressio: n =AddrStringCompare(A1, A2, length)

Sample

```
if AddrStringCompare("@W_HDW10", "@W_HDW0", 5)=1 then
  @B_HDX100.2=1
else
  @B_HDX100.2=0
endif
```

Simulation results



Asc function

Return the ASCII character code corresponding to the first letter in a string.

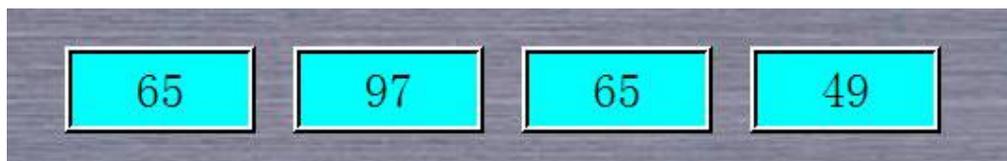
Expressio: `val = Asc(expr)`

Sample

```
a = Asc("A")' return 65  
a = Asc("a")' return 97  
a = Asc("Apple")' return 65  
a = Asc(123)' return 49
```

PS: expr any expression, if not a string, it is converted into a string.

Simulation results



AsFloating function

Convert the data to floating.

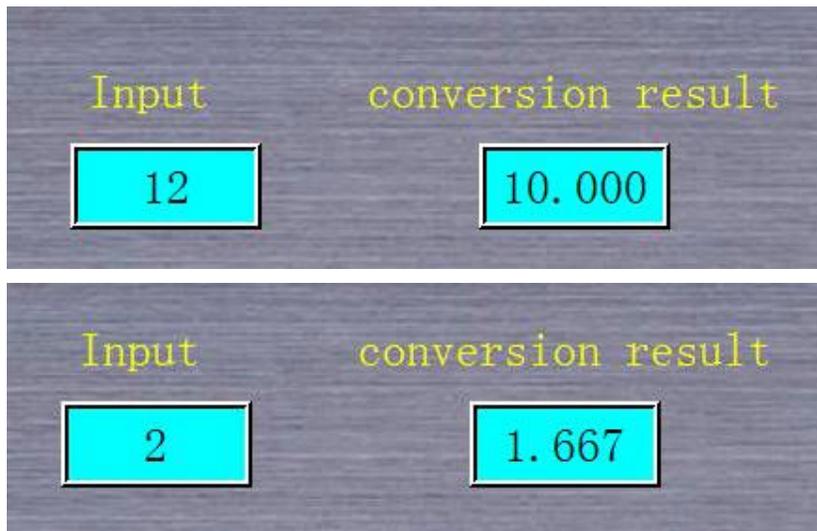
Expressio: val = **AsFloating**(*expr*)

Sample

```
dim    a      as integer
      a=@W_HDW0
      b= AsFloating(a)
      b=b/1.2
      Float2D("@W_HDW2", b)
```

PS: expr uses well defined variables. The function Float2D B floating-point data to a floating-point type address hdw2

Simulation results



ASin function

Return the arcsine of a number.

Expressio: var = **ASin**(*expr*)

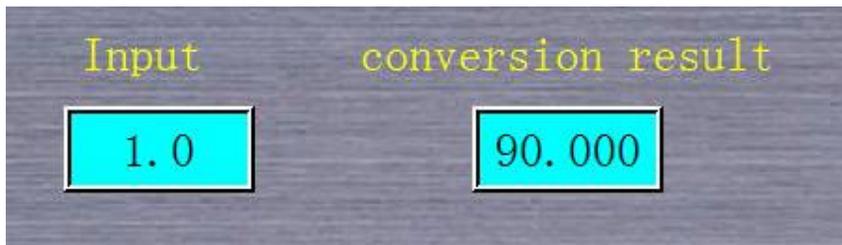
Sample

```
Dim    a ,b    as floating
      a= D2Float("@W_HDW0", a)
      b=ASin(a)
      b= RadToDeg(b)
      float2d("@W_HDW2",    b)
```

PS: The RadToDeg function will be converted into angle radian

value value

Simulation results



AsInteger function

Convert the data to integer.

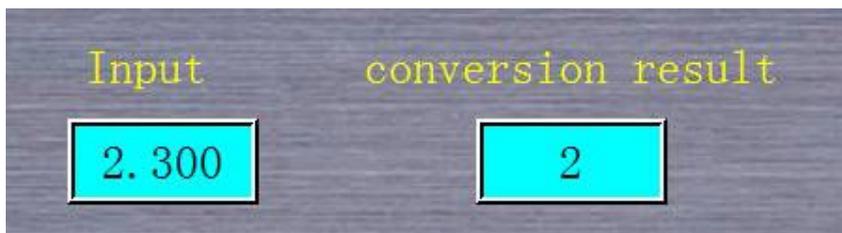
Expressio: `val = AsInteger(expr)`

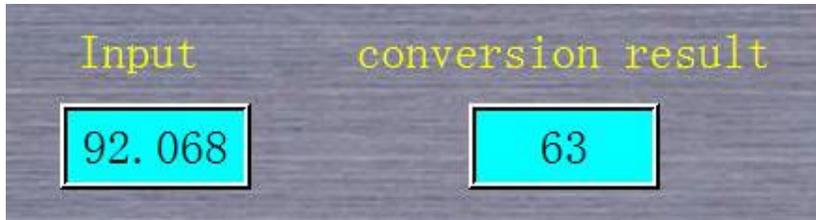
Sample

```
dim a as floating
a = D2Float("@W_HDW0", a)
b = AsInteger(a)
@W_HDW112=b
```

PS: function Float2D b floating-point data to a floating-point type address hdw2

Simulation results





AsString function

Convert the data to string.

Expressio: val = **AsString**(*expr*)

Sample

a=123

b=234

c= AsString(a)+ AsString(b)

@W_HDW0=c

d=a+b

@W_HDW100=d

output: HDW100=357, HDW0=123234

Simulation results



ATan2 function

Return the arctangent of x/y.

Expressio: var = **ATan2**(x, y)

var is calculated after the value stored address or variable

X can address or variable

Y can address or variable

Simulation result

ATan2函数

Returns the arctangent value X/Y

Grammar

var=ATan2(X, Y)

Explain

Returns radians value results are in the range -pi to pi.

ATan2parameters using two symbols to determine the return value. From the radian value is converted into the angle value use RadToDeg function

Example

@W_HDW20=ATan2(@W_HDW10, @W_HDW12)

6

32

0.1853

B2W sub procedure

Convert a byte array starting at A2 with the size specified by A3 to a word array. The result is saved in the memory starting at A1 or PLC. The high bytes of the word array are set to 0.

Syntax

B2W(A1, A2, A3)

Remarks

It's a sub procedure, so has no return value. A1, A2 must be system addresses (such as @W_00002) starting at the '@' character. A3 can be a system address or a declared value.

Sample

@W_HDW10 =0x1234

B2W(@W_HDW20, @W_HDW10, 2) ' HDW21=0x12 HDW20=0x34

Simulation result

B2W subroutine

A bunch of A2 from start byte array (its size is specified by A3) is converted to a digital group. Results stored in the A1system or PLC address. High word group0

Grammar
B2W (A1, A2, A3)

Explain
 This is a subroutine, it has no return value
 A1, A2must take the ' @ ' character begins to system memory or PLC address (such as @W_00002)
 A3system can be used for address or other types of variables

Example

B2W(@W_HDW20, @HDW10, 2)

A2	CD3F
	3F
A1	CD

B2W subroutine

A bunch of A2 from start byte array (its size is specified by A3) is converted to a digital group. Results stored in the A1system or PLC address. High word group0

Grammar
B2W (A1, A2, A3)

Explain
 This is a subroutine, it has no return value
 A1, A2must take the ' @ ' character begins to system memory or PLC address (such as @W_00002)
 A3system can be used for address or other types of variables

Example

B2W(@W_HDW20, @HDW10, 2)

A2	A2E6
	E6
A1	A2

BCD function

Converts A2 from a binary number to a BCD number and saves the result in A1.

Syntax

A1 = BCD(A2)

Remarks

The return value is a word that its hex value is as the BCD code. A2 can

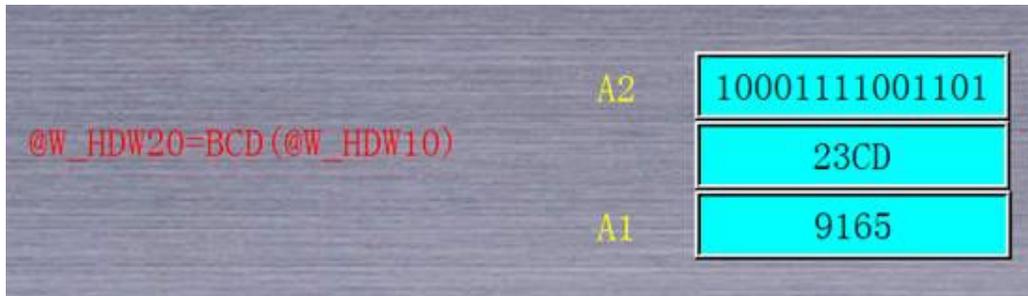
be a system address (such as @W_00002) starting at the '@' character or be a constant value. A1 can be a system address or a declared value.

Sample

```
@W_0001 = BCD(@W_0002)
```

If the value of @W_0002 is 0x3cd, the return value will be 0x973.

Simulation result



Beep

Make a beep sound through the computer's speaker.

Syntax

Beep

Remarks

Have no parameters.

Sample

If B_HDX0.1= 0 then **Beep**

Beep Function

Through the buzzer emits a beeping sound

Grammar

Beep

Explain

No parameters

Give an example

if @B_HDXO 1=1 then Beep



BMOV sub procedure

Copies a block of data starting at A2 to the memory block starting at A1. A3 specifies the number of words to be copied.

Syntax

BMOV(A1, A2, A3)

Remarks

It's a sub procedure, so has no return value. A1, A2 must be system addresses (such as @W_00002) starting at the '@' character. A3 can be a system address or a constant value.

Sample

BMOV subroutine

Will start from A2 data copy to the A1 memory block.
A3 said to copy word number

Grammar

BMOV(A1, A2, A3)

Explain

This is a subroutine, it has no return value.

A1, A2 must be in the ' @ ' character begins to system memory or PLC address (such as @W) _00002) A3 system can be used for address or other types of variables

The number A3

Give an example

	A2	25	2589	36	58	375
BMOV (@W_HDW20, @W_HDW10, 5)						
	A1	25	2589	36	58	375

Chr function

Converts its parameters from integers to corresponding ASCII characters and return the string composed of these characters.

val = **Chr**(*expr1*, *expr2*, ...)

Syntax

exprX

Any expression. If not integer, convert to integer.

Remarks

This function can accept any number of parameters.

The following examples illustrate the use of the **Chr** function:

a = **Chr**(72) Return "H".
a = **Chr**(72, 69, 76, 76, 79) Return "HELLO".
a = **Chr**() Return empty string.



ClrB sub procedure

Sets bit A1 to FALSE (0).

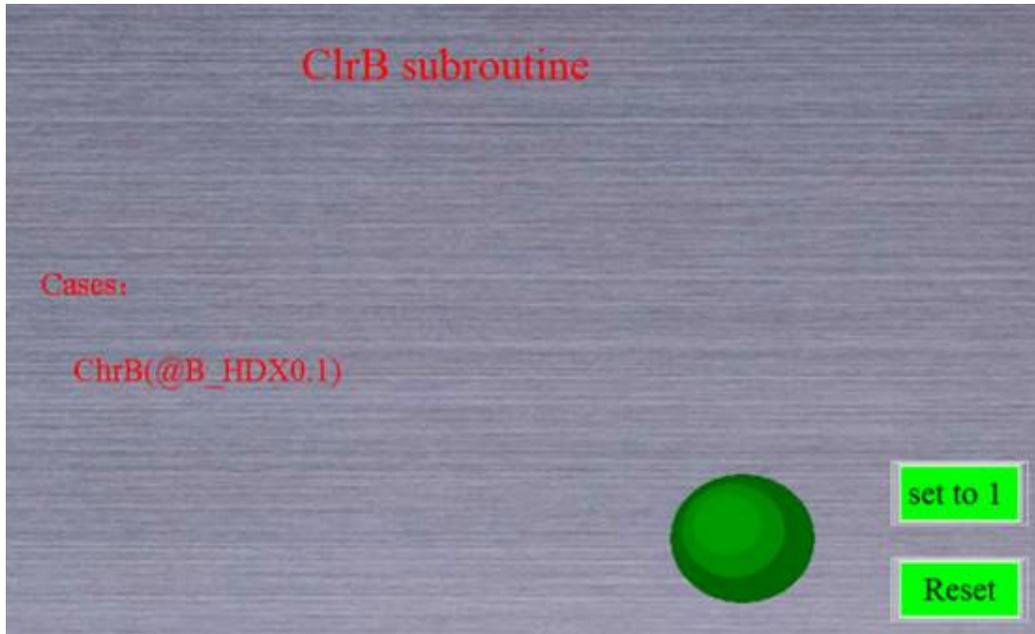
Syntax

ClrB(A1)

Remarks

It's a sub procedure, so has no return value. A1 can be a system address (bit) or a declared value.

Sample



D2F sub procedure

Convert a 32-bit integer into a 32-bit floating point number. The integer to be convert is in A2 and its following word. The conversion result will be saved in A1 and its following word.

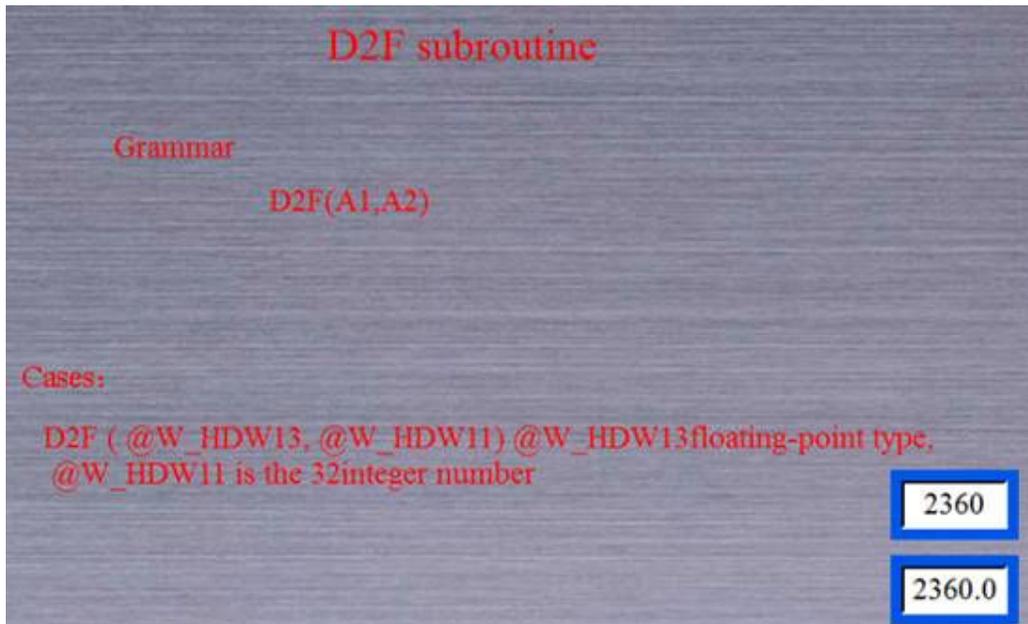
Syntax

D2F(A1, A2)

Remarks

It's a sub procedure, so has no return value. A2 must be a system address (such as @W_00002) starting at the '@' character. A1 can be a system address (Floating) or a declared value.

Sample



D2Float function

Store floating data A1 in a floating address f.

Syntax

f = **D2Float**(A1, f)

Remarks

A1:A1 can be a system address starting at '@' character or PLC address (such as @W_00002)

f :f is a floating variable.

Sample

```
dim f as floating
dim a as floating
a=1.2
float2d("@w_hdw100", a)
f = D2Float("@w_hdw100", f)
float2d("@w_hdw102", f)---- @w_hdw102=1.2
```



DegToRad function

Convert degrees to radians.

```
var = DegToRad(expr)
```

The DegToRad function

From the angle of value converted to radians

Grammar

`Var=DegToRad(expr)`

Explain

Input / output value to floating point

Give an example

Angle

`@W_HDW50=DegToRad(@W_60)`

curvature

The DegToRad function

From the angle of value converted to radians

Grammar

`Var=DegToRad(expr)`

Explain

Input / output value to floating point

Give an example

Angle

`@W_HDW50=DegToRad(@W_60)`

curvature

DIM ... AS...

Declares variable and makes its type fixed.

Dim *varname1* [**AS** *type*], *varname2* [**AS** *type*] ...

Syntax

varname

Name of the variable. See standard variable naming conventions.

type

Variable type. See types.

Remarks

Variable declared with **Dim** does not change its type at run-time. Consider the following examples:

```
                a was not declared with dim
a = 10          a is integer and contains 10
a = 3.15       a becomes floating and contains 3.15
a = "Hello"    a becomes string and contains "Hello"
```

```
Dim a as Integer
a = 10          a is integer and contains 10
a = 3.15       a is integer and contains 3
a = "Hello"    a is integer and contains 0
```

If you don't specify variable type, **Dim** statement is ignored.

You can declare only one variable per statement.

The following examples illustrate the use of the **Dim** statement:

```
Dim a                No type specified. Ignored.
Dim a as Integer     OK
Dim a, b, c as Integer Three variables in single Dim statement.
Dim str1, str2 as String, int1, Multiple variables of different types in
int2 as Integer      single Dim statement.
```

DO ... LOOP

Repeats a block of statements while a condition is **True** or until a condition becomes **True**.

Do [**While** | **Until** *condition*]

[*statements*]

Loop

Or, you can use this syntax:

Do

[*statements*]

Loop [**While** | **Until** *condition*]

The data

condition

Expression that evaluates **True** or **False**.

statements

One or more statements executed while or until condition is **True**.

Remarks

If *condition* is **True**, all statements in *statements* are executed until the **Wend** statement is encountered. Control then return 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.

Unlike **For**, **While** evaluates *condition* on every loop pass.

The following example illustrates use of the **While...Wend** statement:

do

input "do you want to continue ", a
loop while a = "y" or a = "Y"

End statement

Terminate execution of the script.

Sample:

If a = 10 Then **End**

F2D sub procedure

Convert a 32-bit floating point number into a 32-bit signed integer. The floating point number to be converted is in A2 and its following word. The conversion result will be save in A1 and its following word.

Syntax

F2D(A1, A2)

Remarks

It's a sub procedure, so has no return value. A1 must be a system address (such as @W_00002) starting at the '@' character. A2 can be a system address (Floating) or a declared value.

Sample

F2D(@W_00001, @W_0002)

F2S function

Transform floating data A1 into string and store in A2. The string format is defined by s1.

Syntax

f = **F2S**(A1, A2, s1)

Remarks

A1 A2:A1A2 can be system address starting at '@' character or PLC address (such as @W_00002) .

S1: the format of string. such as: 03.03f.

Sample

F2S subroutine

The Afloating-point into character,
according to S1A2format storage

Grammar

F2S(A1, A2, S1)

Explain

Input / output value to floating point

Give an example

	S1	03.03F
F2S("@W_HDW200", @W_HDW10", 03.03F)	A1	3.3256
	A2	3.326

F2S subroutine

The Afloating-point into character,
according to S1A2format storage

Grammar

F2S(A1, A2, S1)

Explain

Input / output value to floating point

Give an example

	S1	03.03F
F2S("@W_HDW200", @W_HDW10", 03.03F)	A1	1.2237
	A2	1.224

FILL

Fill a block of memory starting at A1 with the value of A2. A3 specifies the number of words to be filled.

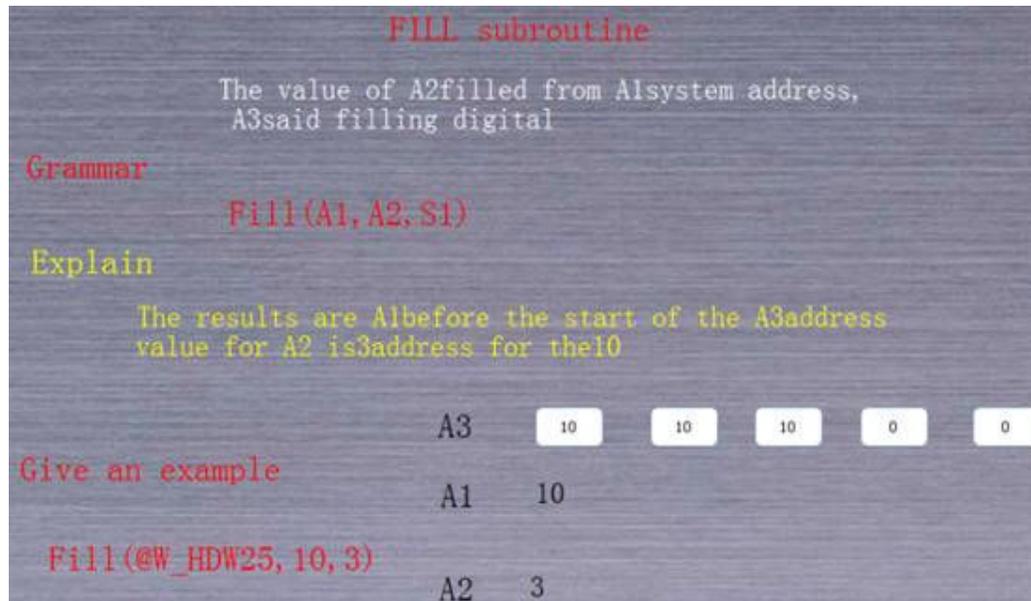
Syntax

FILL(A1, A2, A3)

Remarks

It's a sub procedure, so has no return value. A1 must be system address (such as @W_00002) starting at the '@' character. A2, A3 can be a system address or a constant value.

Sample



Float2D Function

Move the float number of A2 to A1 , A1 is also float.

Syntax

Float2D(A1, A2)

Remarks

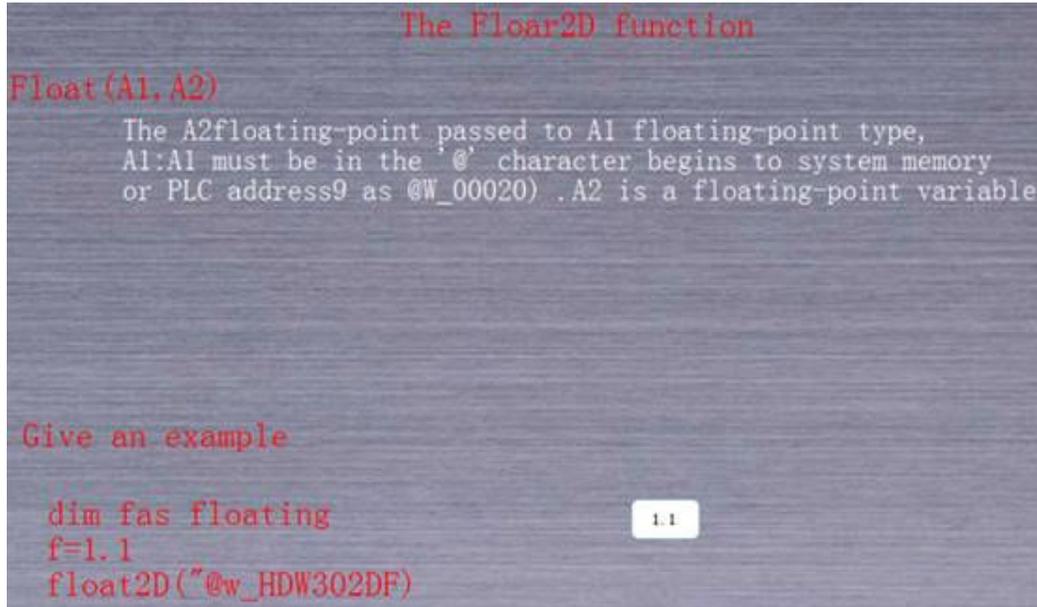
A1:A1 can be HMI address or PLC address starting at '@' (such as @W_00002) .

A2:A2 is a float variable.

Sample

```
dim f as floating
f=1.1
```

Float2D("@w_hdw102", f) -- @w_hdw102=1.1



FOR ... TO ... STEP ... NEX

The specified number of repeated execution of a block of instructions.

For *counter* = *start* **To** *end* [**Step** *step*]
 [*statements*]
Next

Grammar

counter

Used as a cycle counter of a variable.

start

The initial value of counter.

end

Counter the last value.

step

Each loop, the change of counter value and step value, if the value of step is not specified, then take the default value for step. When start>end, step defaults to -1; while start<end, step defaults to 1.

statements

In For and Next between, to perform the specified number of instructions.

Explain

When the cycle is started, and the implementation of the circulation in all instruction, step is applied to the counter. That is to say, whether of the instruction loop will be executed (depends on the circulatory conditions is satisfied), or loop exit and continues to execute the instruction after the Next, plus counter action will be executed to.

Start, end and step can be any expression or any type of variables:

By placing a For... Next cycle in another cycle, can call For... Next cycle.

Unlike While, For only on a end value.

Empty For cycle will be ignored, not to delay action.

Sample

```
dim tem as string
dim a as integer
for i = 333 To 325 Step -2
tem=newnoaddr("@W_HDW104",333-i)
WriteAddr(tem,i)
```

```
@W_HDW11=i
Next
```

The slide is titled "FOR... TO... STEP... NEXT" and explains that it is used for the "specified number of repeated execution of a block of instructions".

Grammar: `FOR Counter=start to end(stop step) [statements]`

NEXT: If not specified, the default for step1 For relies on the star and end values, automatically defined to live by counter.

Give an example:

- Circulatory impairment:**

```
for1=333 TO325 Step 2
@W_HDW11=i
NEXT
```
- Circular appreciation:**

```
for1=2 TO399 Step 2
@W_HDW12=1
NEXT
```

Examples of values shown in boxes:

- Example 1 shows the effect of 333 and 0, resulting in values 331, 0, 329, 0, 327, 0.
- Example 1: 325
- Example 2: 398

Note: Unlike While, FOR to end value & empty for cycle will be ignored

Function

Function statement

Declares the name, the datas, and code that form the body of a **Function** procedure.

Function *name* (*arglist*)

statements

name = *expression*

statements

End Function

Syntax

name

Name of the Function. See standard variable naming conventions.

arglist

List of variables representing the datas that are passed to the **Function**

procedure when it is called. Multiple variables are separated by commas.

statements

Any group of statements to be executed within the body of the **Function** procedure.

Remarks

You can declare variable type within *varlist* or you can specify only variable name.

You can't define a **Function** procedure inside any other procedure.

You call a **Function** procedure using the procedure name followed by the the data list.

Function declaration must precede **Function** call.

Code execution starts with the first line after the last procedure.

To return a value from a function, assign the value to the function name. Any number of such assignments can appear anywhere within the procedure. If no value is assigned to name, the procedure return integer variable with value 0.

Functions can be recursive, that is, they can call themselves to perform a given task. However, recursion can lead to stack overflow.

The following example illustrates the use of the **Function** statement:

```
Function sincos (angle as floating)
```

```
sincos = sin(angle) + cos(angle)
```

```
End Function
```

```
.....
```

```
print sincos(pi/2)
```

```
.....
```

Goto statement

Branches unconditionally to a specified line within a procedure.

Syntax

Goto *label*

A line label can be any combination of characters that starts with a letter and ends with a colon (:). Line labels are not case sensitive. Line labels must be in the beginning of the line.

Remarks

Goto can branch only to lines within the procedure where it appears.

H2A function

Convert a 16-bit binary number into a 4-digit hex number in ASCII character form. The number to be converted is in A2. The character of the fourth digit will be saved in A1 and the characters of the other digits will be saved in the words following A1 in sequence.

Syntax

A1 = H2A(A2)

Remarks

The return value is a string. A2 can be a system address (such as @W_00002) starting at the '@' character or be a constant value. A1 can be a system address or a declared value.

Sample

The H2A function

A sixteen bit binary number into ASCII characters to indicate the hexadecimal number 16.
To convert a number on A2.

Grammar:
`A1=H2A(A2)`

Note:
the return value is a string.
A1, A2 system can be used for address or other types of variables

Give an example

`@HDW_501=H2A(H0W_90)`

The diagram illustrates the conversion process. At the top, a box labeled 'Binary' contains the value '10000001'. Below it, two boxes are shown: 'Hexadecimal' containing '41' and 'Character string' containing '41'. This demonstrates that the binary value 10000001 is equivalent to the hexadecimal value 41, which is also the ASCII character '4'.

Hypot function

Calculate the hypotenuse.

`var = Hypot(expr1, expr2)`

Remarks

Hypot calculates the length of the hypotenuse of a right triangle, given the length of the two sides *expr1* and *expr2*.

The HYPOT function

Calculate the hypotenuse of the value

Grammar

Var=Hyppot (exprt1, expr2)

Note:
Hyppot calculates a hypotenuse of the value, the other two sides of the value of expr1 and expr2.

Give an example

A=Hypot (@W_HDW105@W_HDW108)
@W_HDW111=A

If the @W_HDW105 input3input4, @W_hdw108, @W_HDW111 shows the results for the 5

The HYPOT function

Calculate the hypotenuse of the value

Grammar

Var=Hyppot (exprt1, expr2)

Note:
Hyppot calculates a hypotenuse of the value, the other two sides of the value of expr1 and expr2.

Give an example

A=Hypot (@W_HDW105@W_HDW108)
@W_HDW111=A

If the @W_HDW105 input3input4, @W_hdw108, @W_HDW111 shows the results for the 5

IF ... THEN ... ELSE ... END IF

Conditionally executes a group of statements, depending on the value of an expression.

If condition Then statement [Else elsestatement]

Or, you can use the block form syntax:

```
If condition Then  
statements  
[Else  
elsestatements]  
End If
```

Syntax

condition

Any expression that evaluates to **True** or **False**

statement, statements

Statement(s) executed if *condition* is **True**.

elsestatement, elsestatements

Statement(s) executed if *condition* is **False**.

Remarks

When executing **If**, *condition* is tested. If *condition* is **True**, the statements following **Then** are executed. If *condition* is **False**, the statements following **Else** are executed. After executing the statements following **Then** or **Else**, execution continues with the statement following **End If**.

The following example illustrates the use of the **If** statement:

```
If a = 0 Then print "OK"  
If (a = 0) or (b = 0) Then c = c - 1 Else c = c + 1  
if a = 0 Then  
b = 0  
c = 0  
Else  
b = 1  
c = 1  
End IF
```

You can nest **If** statements by placing one **If** within another:

```
if a = 0 Then
```

If b = 0 Then

c = 0

Else

c = 1

End IF

End IF

case:

Dependent on the value of the expression, conditional run a command

Grammar	Give an example	
IF Condition then statemnts	If@B_HDWO.3 Then	
ELSE	if @B_HDX0.4=1 Then	
elstatements	@B_HDX0.5=1	
endif	Else	
	@B_HDX0.5=0	
	EndIf	

Illustrate, when executive IF condition will be tested. If condition is True, then instruction after the block will be executed

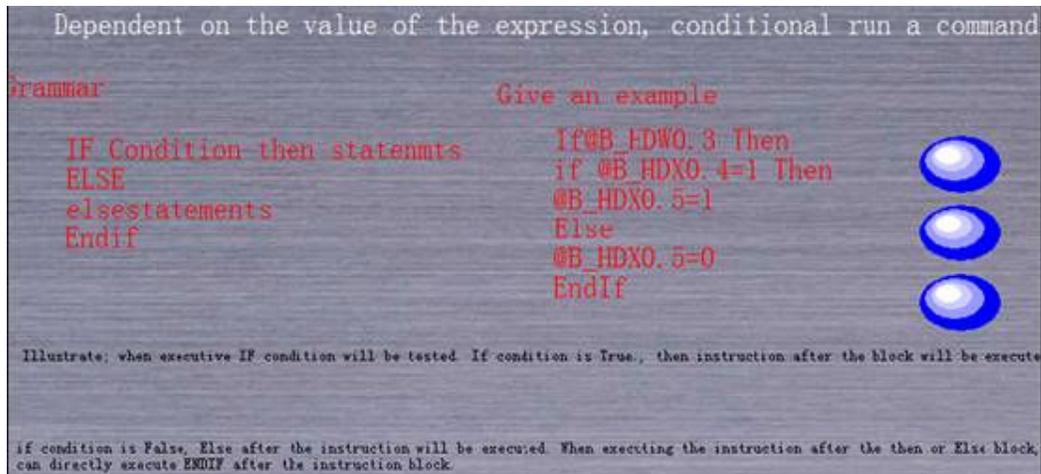
if condition is False, Else after the instruction will be executed. When executing the instruction after the then or Else block, can directly execute ENDF after the instruction block.

Dependent on the value of the expression, conditional run a command

Grammar	Give an example	
IF Condition then statemnts	If@B_HDWO.3 Then	
ELSE	if @B_HDX0.4=1 Then	
elstatements	@B_HDX0.5=1	
Endif	Else	
	@B_HDX0.5=0	
	EndIf	

Illustrate, when executive IF condition will be tested. If condition is True, then instruction after the block will be executed

if condition is False, Else after the instruction will be executed. When executing the instruction after the then or Else block, can directly execute ENDF after the instruction block.



IsFloating function

Return a **TRUE** if the data is floating or **FALSE** if it is not.

val = **IsFloating**(*expr*)

Syntax

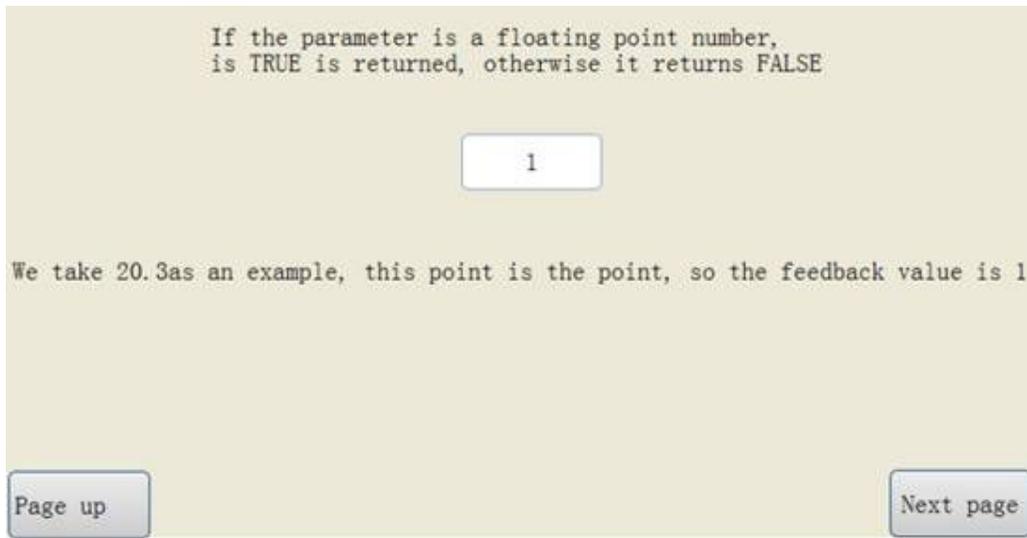
expr

Any expression.

Remarks

The following examples illustrate the use of the **IsFloating** function:

```
Dim var                                ' var can be of any type
input "input a value ", var           ' you can input integer, floating
                                       or string
if IsInteger(var) then print var, " is' check var type
integer"
if IsFloating(var) then print var, " is
floating"
if IsString(var) then print var, " is
string"
```



IsInteger function

Return a **TRUE** if the data is integer or **FALSE** if it is not.

```
val = IsInteger(expr)
```

Syntax

expr

Any expression.

Remarks

The following examples illustrate the use of the **IsInteger** function:

```
Dim var                                ' var can be of any type
input "input a value ", var            ' you can input integer, floating
                                        or string
if IsInteger(var) then print var, " is' check var type
integer"
if IsFloating(var) then print var, " is
floating"
if IsString(var) then print var, " is
string"
```

LCase function

Return a string that has been converted to lowercase.

```
val = LCase(expr)
```

Syntax

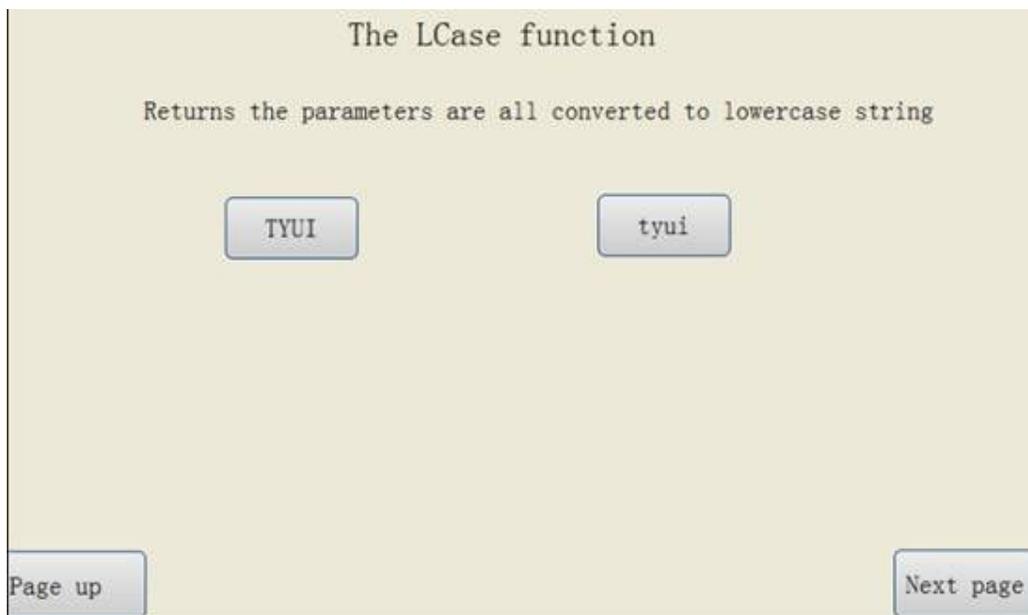
expr

Any expression. If not string, convert to string.

Remarks

The following examples illustrate the use of the **LCase** function:

```
a = LCase(123)      ' Return "123".  
a = LCase("Hello")' Return "hello".
```



Left function

Return a specified number of characters from the left side of a string.

```
val = Left(string, length)
```

Syntax

string

Return the String from which the leftmost characters. If not string, convert to string.

length

Number of the characters return. If not integer, convert to integer.

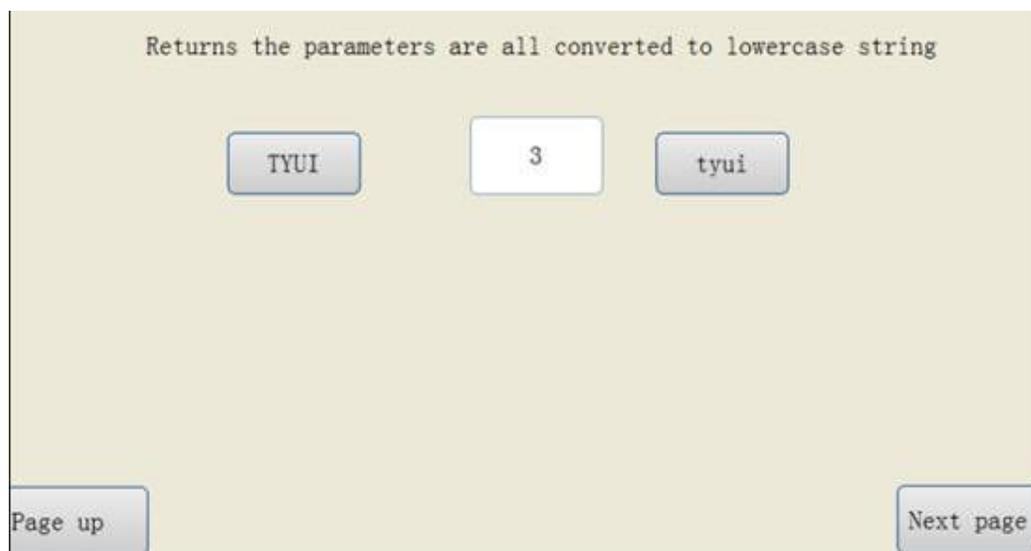
Remarks

If *length* less than 1, empty string is returned.

If *length* greater than or equal to the number of character in string, the entire string is returned.

The following examples illustrate the use of the **Left** function:

```
a = Left("Hello", 3) ' Return "Hel".  
a = Left("Hello", 50) ' Return "Hello".  
a = Left("Hello", -50) ' Return "".
```



Len function

Return the number of characters in a string.

```
val = Len(expr)
```

Syntax

expr

Any expression. If not string, convert to string.

Remarks

The following examples illustrate the use of the **Len** function:

```
a = Len(123)      ' Return 3.
```

```
a = Len("Hello")' Return 5.
```

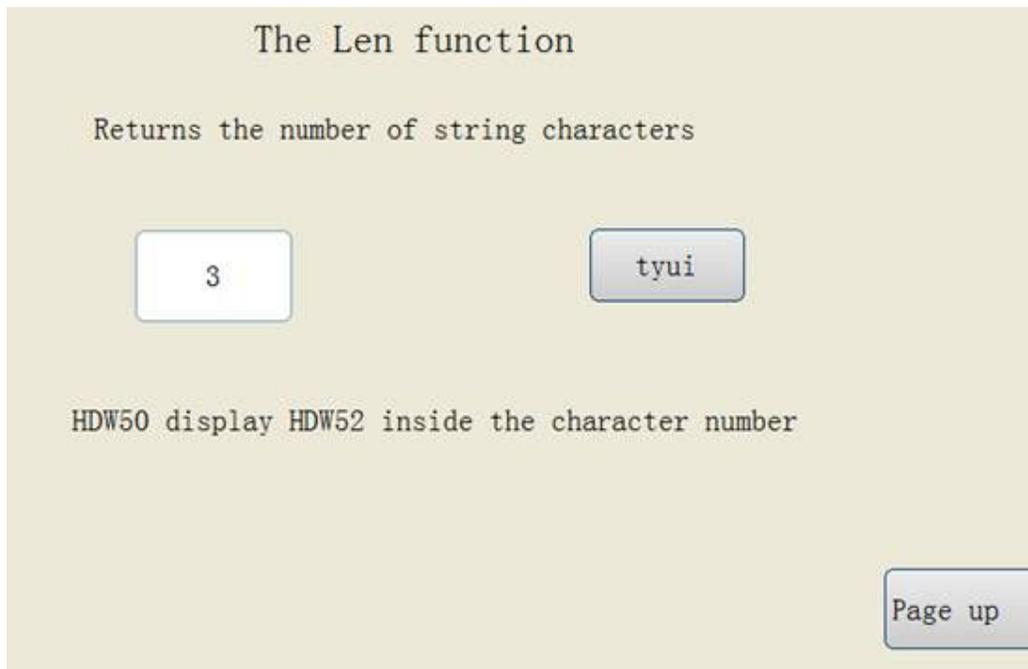
Simulation

```
dim a as integer
```

```
a =Len(123)\ Returns3.
```

```
\a= Len("Hello")\Returns5.
```

```
@W_HDW0=a
```



Log function

Return the natural logarithm of a number.

```
var = Log(expr)
```

Syntax

expr

Any expression.

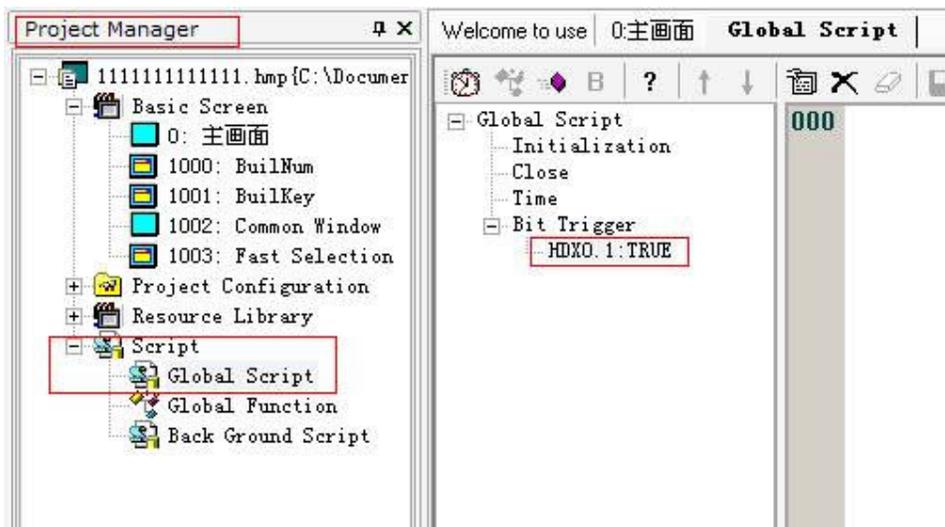
Remarks

You can calculate base- n logarithms for any number x by dividing the natural logarithm of x by the natural logarithm of n as follows:

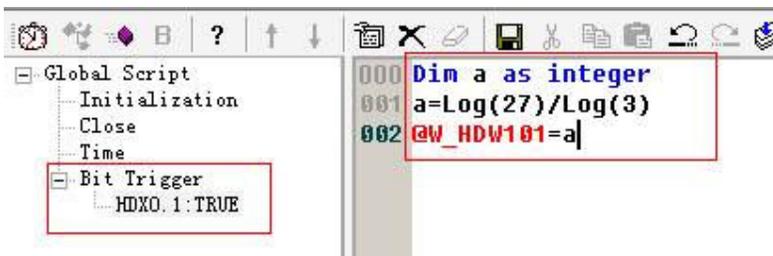
$$\text{Log}_n(x) = \text{Log}(x) / \text{Log}(n)$$

case

1, the case for the use of bit trigger script, a "numerical input / display" components (address HDW101), a switch component (HDXO.1.address) to demonstrate the function of Log. Add a trigger scripts as shown below:

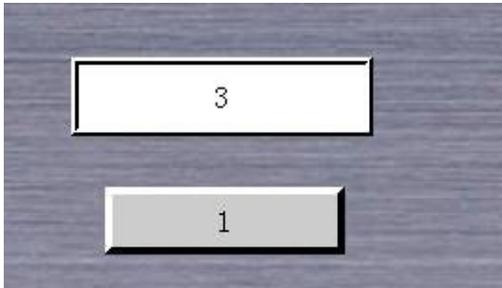


2, in the open scripting code input as shown below:



Case description: this script in order to find the value of $\log_3 27$, the correct output results for 3; the script first rows define an integer variable a is used to store the operational results, HDW101 uses an internal register storing variables; when the screen "switch" HDX0.1 is triggered when lscript (Note: parameters can only be an PLC address or HMI the internal address, address value transfer must by definition variable to complete).

3, in the engineering area drop1" numerical input / display" components (read address is: HDW101 used to display the results of value) and 1" switch" components (read address for HDX0.1 is used to trigger a script), a switch selecting switch type, edit the project successfully, click switch, appear as shown in the following illustration interface:



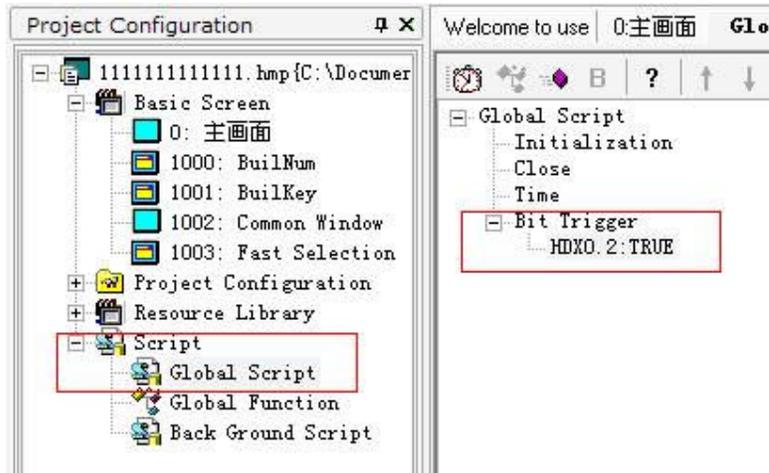
Log10 function

Return the logarithm to the base 10.

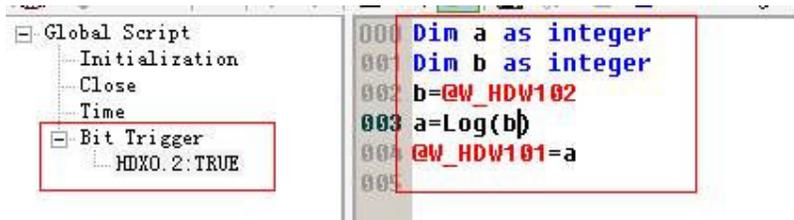
var = **Log10**(*expr*)

case:

1, the case for the use of 1bit trigger script, two" numerical input / display" components (HDW101, HDW102 address), a switch component (HDX0.2 address) to demonstrate the function of Log10. Add a trigger script steps as shown below:

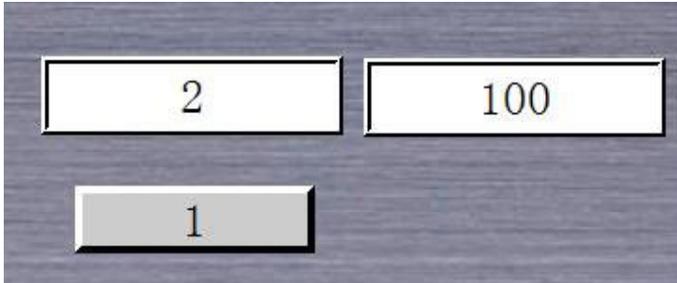


2, in the open area such as the code written script:



Case description: seek Log10100correct output value 2. Script first, 2 lines are respectively defined integer variable a, B, a is used to store the operational results, B as the internal address HDW102value transfer of intermediate variables; HDW101used to store the display variable, HDW102 is used to input the expression value of X; HDXO.2as script trigger position, when the screen" switch" HDXO.21when the trigger script (Note: parameters can only be PLC address or HMI internal address, address value transfer must by definition variable to complete).

3, in the engineering area drop2" numerical input / display" part and 1" switch" components, respectively, to address HDW101, HDW102and HDXO.1, a switch selecting switch type, edit the project after the success of"2", displaying the result of calculation simulation will appear as shown in the following illustration interface:



LTrim function

Return a copy of the string without leading spaces.

```
val = LTrim(str)
```

Syntax

str

String being truncated. If not string, convert to string.

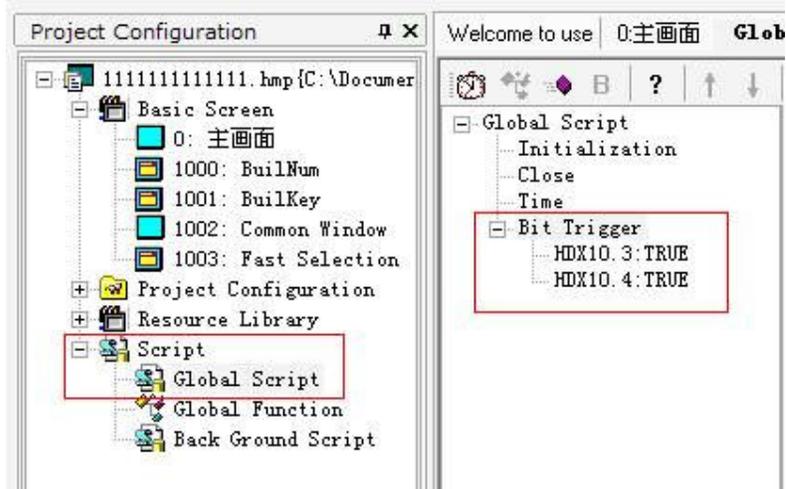
Remarks

The following example illustrates the use of the **LTrim** function:

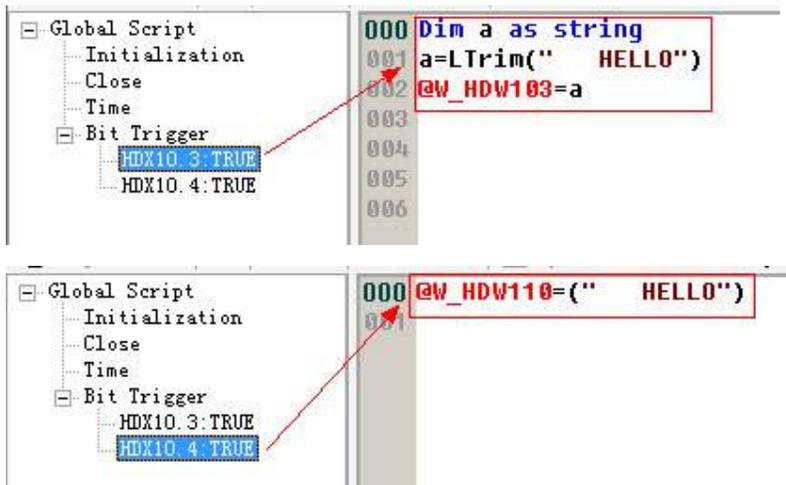
```
a = LTrim(" -Hello- ") ' Return "-Hello- ".
```

case:

1, by adopting the comparative method: using two bit trigger script, two "text input / display" components (HDW104, HDW110address), two switch components (HDX10.3, HDX10.4address) to contrast DEMO LTrim function. Add a trigger scripts as shown below:



2, in the open scripting code input as shown below:

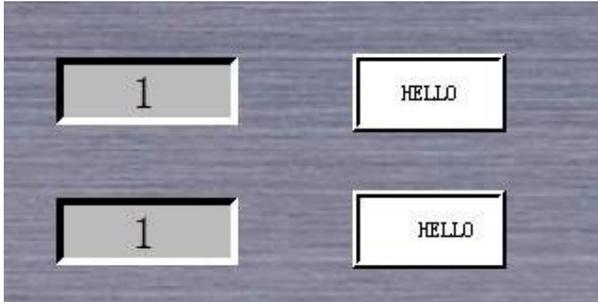


Case description: using two bit trigger scripts were compared, the two script trigger the same string string.

HDX10.3trigger script meaning: when HDX10.3is set to 1scripts to be triggered, LTrim function is executed, the text input / display unit will display the function after processing the string; HDX10.4trigger script meaning: when HDX10.3is set to 1scripts to be triggered, address HDW110text input / display unit will display the assignment after processing string.

3, in the engineering area drop two" text input / display" part and 2" switch" components, respectively, to address HDW103, HDW110and HDX10.3, HDX10.4, a switch selecting switch type, edit the project after the

success of the off-line simulation, click a switch will appear as shown in the following illustration interface:



MAX function

Set A1 as the larger value in A2 and A3.

Syntax

$A1 = \text{MAX}(A2, A3)$

Remarks

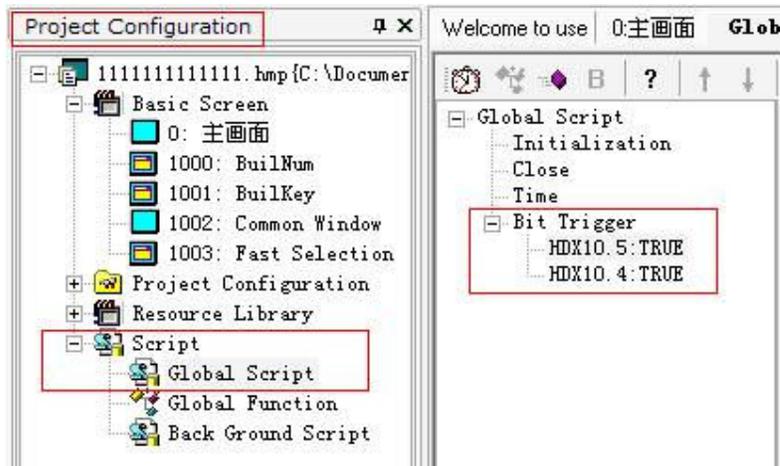
The return value is a integer. A2 and A3 can be system addresses (such as @W_00002) starting at the '@' character or be a constant value, A1 can be a system address or a declared value.

Sample

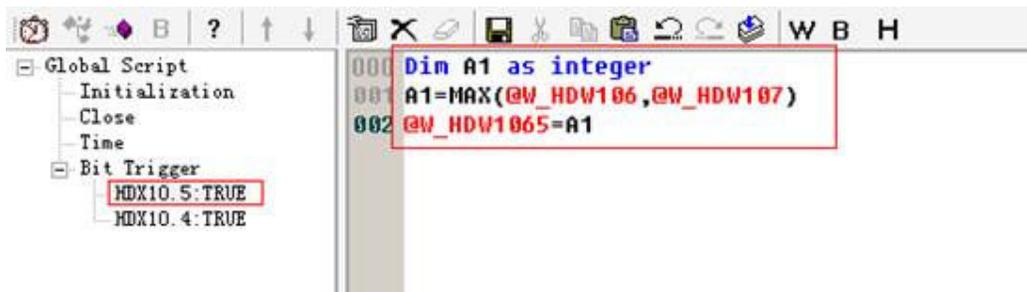
@W_0001 = MAX(@W_0002, @W_0003)

case:

1, the case for the use of "trigger script, 1" text input / display" components (address HDW105-107), a switch component (HDX10.5address) to demonstrate the function of Mid. Add a trigger scripts as shown below:

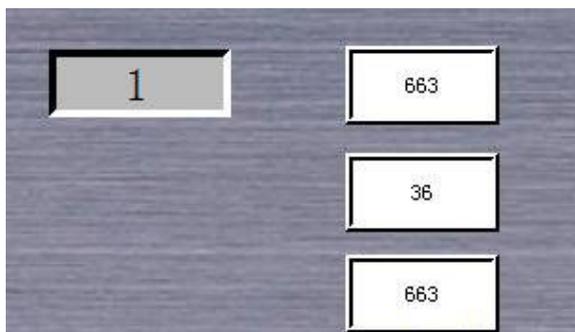


2, in the open scripting code input as shown below:



Script : adopt a trigger trigger script, HDX10.6, in the script to define a lstring variable a as intermediate variable temporary interception result, when position ltrigger script; from the second character in the string (" e") began to intercept2 characters, then the word address display intercepting results" (EL").

3, in the engineering area drop1" text input / display" part and l" switch" components, respectively, to address HDW105 HDW106 HDW107 and HDX10.5, a switch selecting switch type, edit the project after the success of the off-line simulation, click on the switch, the output results as below:



Mid function

Return a specified number of characters from a string.

```
val = Mid(string, start, length)
```

Syntax

string

String from which characters are returned. If not string, convert to string.

start

Character position in *string* at which the part to be taken begins. If not integer, convert to integer.

length

Number of characters to return. If not integer, convert to integer.

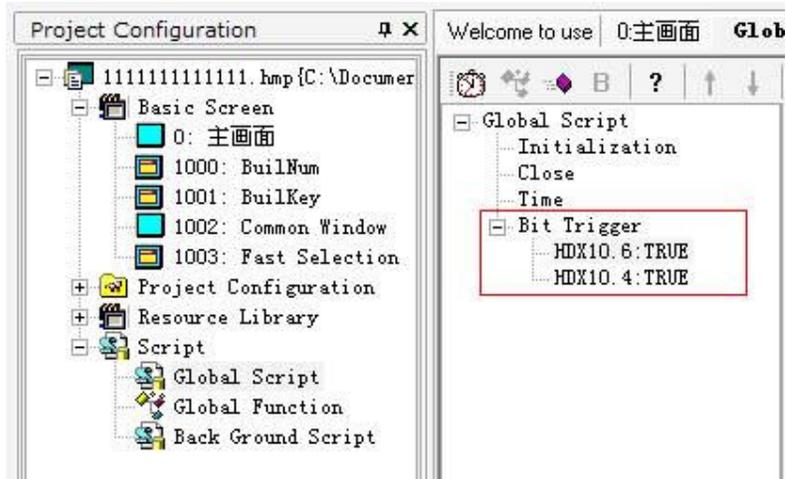
Remarks

The following examples illustrate the use of the **Mid** function:

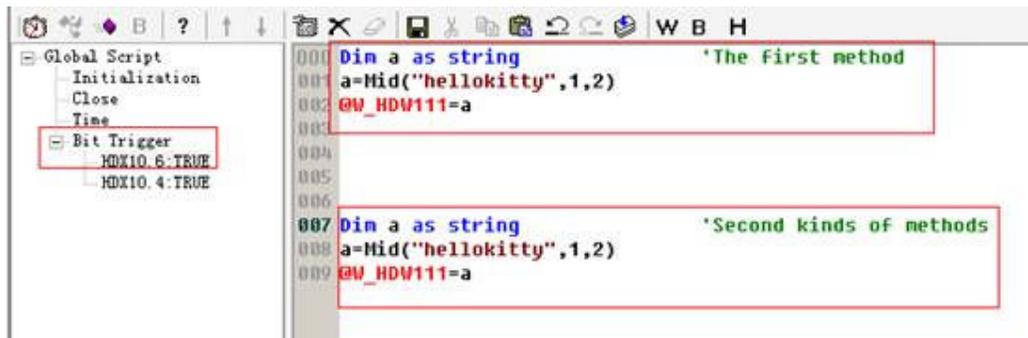
```
a = Mid("software -Script", 5, 3)   ' Return "Scr".  
a = Mid("software -Script", 5, 30) ' Return "Script".  
a = Mid("software -Script", -10, 30) ' Return "software -Script".
```

case:

1, the case for the use of ltrigger script, 1" text input / display" components (address HDW111), a switch component (HDX10.6address) to demonstrate the function of Mid. Add a trigger scripts as shown below:

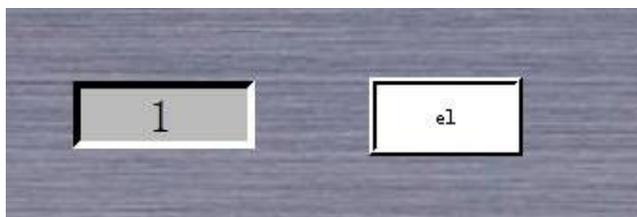


2, in the open scripting code input as shown below:



Script : adopt a trigger trigger script, HDX10.6, in the script to define a lstring variable a as intermediate variable temporary interception result, when position ltrigger script; from the second character in the string (" e") began to intercept2 characters, then the word address display intercepting results" (EL").

3, in the engineering area drop1" text input / display" part and 1" switch" components, respectively, to address HDW111 and HDX10.6, a switch selecting switch type, edit the project after the success of the off-line simulation, click on the switch, the output results as below:



MSeconds function

Return the current milliseconds of the system.

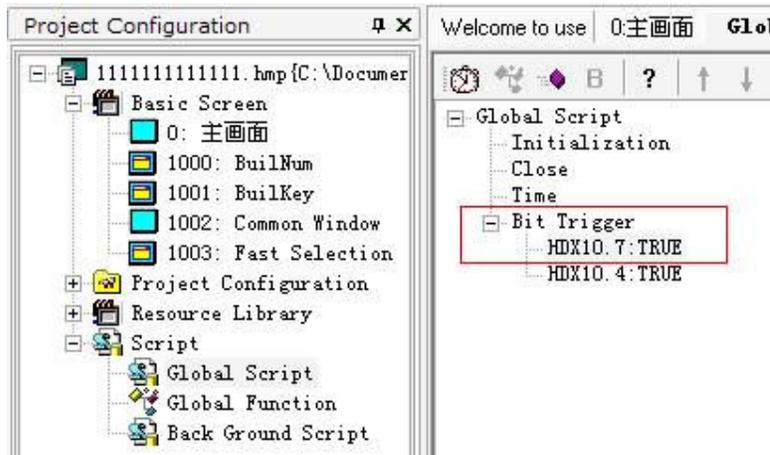
```
var = MSeconds()
```

Syntax

It has no parameter.

case:

1, the case for the use of Itrigger script, 1" numerical input / display" components (address HDW120), a switch component (HDX10.8address) to demonstrate the function of MSeconds. Add a trigger scripts as shown below:

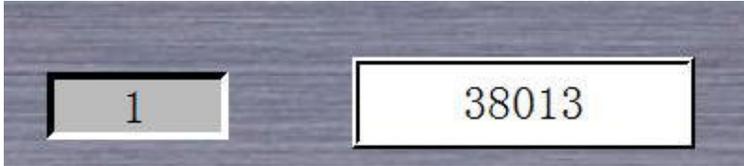


2, in the open scripting code input as shown below:

```
HDW120=MSeconds()
```

Script: script function display current system s value. Definition
Ifloating-point variable a as a storage medium; in 1 words address to
display value.

3, in the engineering area drop 1" numerical input / display" part and
1" switch" components, respectively, to address HDW120 and HDX10.8, a
switch selecting switch type, edit the project after the success,
off-line simulation click switch, results as shown below:



NewNoAddr

Move address of A1 back or front by length offset.

Syntax

string = **NewNoAddr**(A1, length)

Remarks

A1:A1 should be HMI address or PLC address begin with '@' (such as @W_00002) .

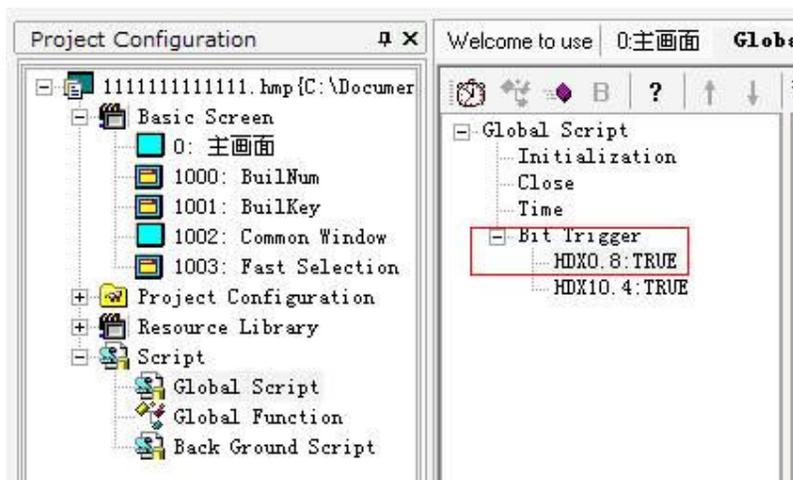
Length: the length of offset. it should be transform into integer if it is not integer.

Sample

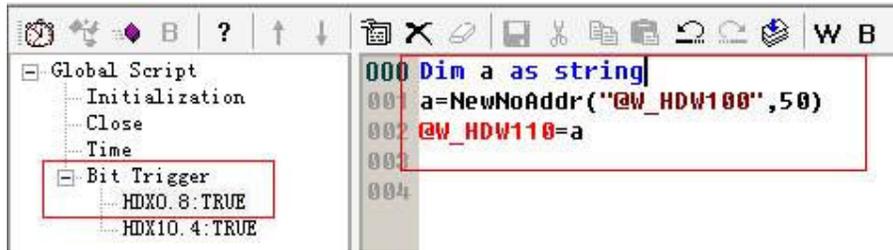
```
string = NewNoAddr("@W_HDW100", 10) --- ' string = HDW110
string = NewNoAddr("@W_HDW100", -10) --- 'string = HDW90
```

case:

1, using 1bit trigger script, 1" text input / display" components (address HDW110), 1switch components (address HDX0.8) to demonstrate the function of NewNoAddr. Add a trigger scripts as shown below:



2, in the open scripting code input as shown below:



Note: script with HDX0.8 set to 1 to trigger the script to run, to define a lstring variable a to store after offset address; use 1 words address HDW110 display offset address; HDW100 to offset the original address; the script to run after the actual operation address into HDW150.

3, in the engineering area drop 1" text input / display (" components to display the address offset) and a 1" switch" components, respectively, to address HDW110 and HDX0.8, a switch selecting switch type, edit the project after the success of the off-line simulation, click a switch interface, appear as shown below:



NStringCompare Function

Compare the length of **A1** and **A2**. If equals, return 1. Else, return 0.

Syntax

n = **NStringCompare**(A1, A2, length)

Remarks

A1 A2:A1 can be system address starting at '@' character or PLC address (such as @W_00002) .

A2:A2 is string variable.

Length: the length of compare data.

Sample

'parameter1 "@W_HDW0"--the first address of data;"123456"--string;
6--:6 bytes.

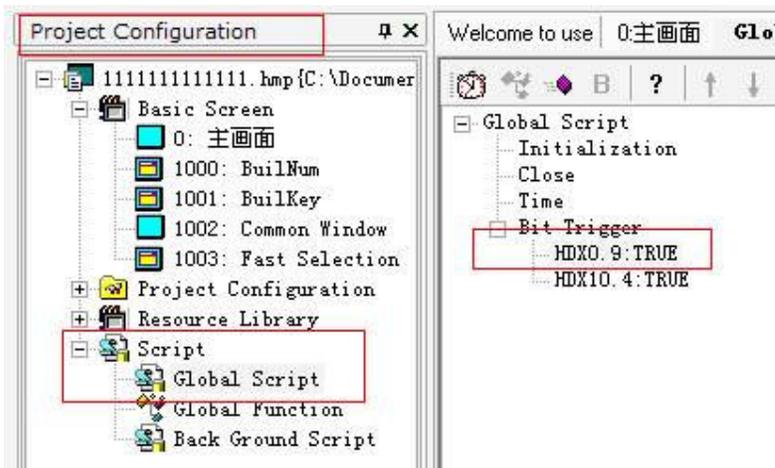
```

if NSStringCompare(@"W_HDW0", "87654321", 8)=1 then
@B_HDX100.0=1
else
@B_HDX100.0=0
endif

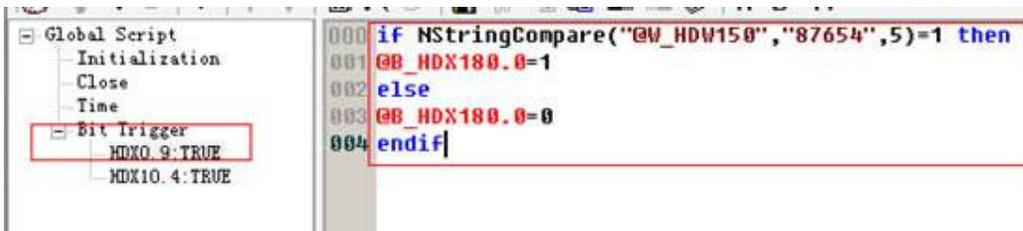
```

case:

1, the case for the use of ltrigger script, 1" text input / display" components (address HDW150), two switch components (HDX0.9, HDX180.0address) to demonstrate the function. Add a trigger script steps as shown below:

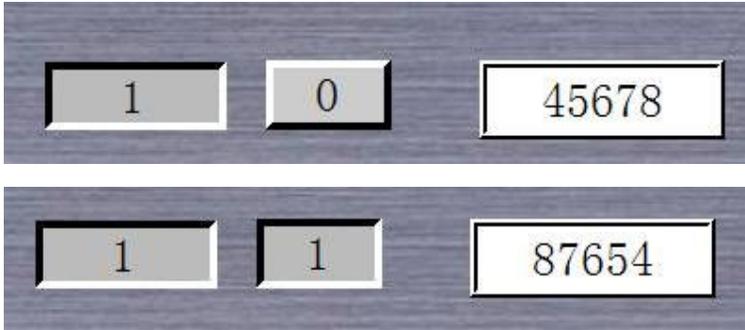


2, in the open scripting code input as shown below:



Script: if HDW150input string and the string "87654" is equal, HDX180.01; HDX180.00 is not equal.

3, in the engineering area drop 1" text input / display" components (for input to compare strings) and 2" switch" components, respectively, to address HDW150 and HDX0.9(used to trigger script), HDX180.0(used to show the comparison results), a switch is a switching type, edit project successfully, click a switch HDX0.9, appear as shown below:



Operators

+

`result = expression1 + expression2`

Sums two variables.

expression1	expression2	result
integer	integer	integer
floating	floating	floating
string	string	string
integer	floating	floating
integer	string	string
floating	integer	floating
floating	string	string
string	integer	string
string	floating	string

-

`result = expression1 - expression2`

Finds the difference between two numbers.

expression1 expression2 result integer integer integer floating floating floating string string floating integer
 floating floating integer string floating floating integer floating floating string floating string integer floating
 string floating floating

*

`result = expression1 * expression2`

Multiplies two numbers.

expression1 expression2 result integer integer integer floating floating floating string string floating integer
floating floating integer string floating floating integer floating floating string floating string integer floating
string floating floating

/

result = expression1 / expression2

Divides two numbers.

expression1 expression2 result integer integer floating floating floating floating string string floating integer
floating floating integer string floating floating integer floating floating string floating string integer floating
string floating floating

<<

result = expression1 << expression2

Moves the value of expression1 left bits by the value of expression2, and return the moved value.

>>

result = expression1 >> expression2

Moves the value of expression1 right bits by the value of expression2, and return the moved value

~

result = ~expression

Performs bits inversion on an expression. Type of the result is always integer.

mod (%)

result = expression1 **mod** expression2

`result = expression1 % expression2`

Divides the value of one expression by the value of another, and return the remainder.

Type of *result* is always integer.

or (|)

`result = expression1 or expression2`

Performs a logical disjunction on two expressions.

Type of *result* is always integer.

and (&)

`result = expression1 and expression2`

Performs a logical conjunction on two expressions.

Type of *result* is always integer.

not (!)

`result = not expression`

Performs logical negation on an expression.

Type of *result* is always integer.

xor (^)

`result = expression1 xor expression2`

`result = expression1 ^ expression2`

Performs logical Exclusive OR on two expressions.

Type of *result* is always integer.

Right function

Return a specified number of characters from the right side of a string.

```
val = Right(string, length)
```

Syntax

string

String from which the rightmost characters are returned. If not string, convert to string.

length

Number of characters to return. If not integer, convert to integer.

Remarks

If *length* less than 1, empty string is returned.

If *length* greater than or equal to the number of characters in string, the entire string is returned.

The following examples illustrate the use of the **Right** function:

```
a = Right("Hello", 3) ' Return "llo"  
a = Right("Hello", 50) ' Return "Hello"  
a = Right("Hello", -50) ' Return ""
```

SetB sub procedure

Sets bit A1 to TRUE (1).

Syntax

```
SetB(A1)
```

Remarks

It's a sub procedure, so has no return value. A1 can be a system address (bit) or a declared value.

Sample

SetB(@B_00001)

SignedInt16function

function function	
Unsigned word is transformed into a symbol	
Expression	val = SignedInt16 (expr)
case	
dim a as integer a = SignedInt16("@W_HDW0") @W_HDW2=a	
output	when a is negative when the value of HDW2is negative

Sin function

Return the sine of an angle.

var = **Sin**(*expr*)

Syntax

expr

Any expression that expresses an angle in radians.

Remarks

To convert angle from degrees to radians use **DegToRad** function.

Sqr function

Return the square root of a number.

var = **Sqr**(expression)

Remarks

If *expression* is a negative number, **Sqr** return square root of its absolute value.

The following examples illustrate the use of the **Sqr** function:

```
a = Sqr(4)    ' Return 2.  
a = Sqr(0)    ' Return 0.  
a = Sqr(-4)   ' Return 2.
```

Sub statement

Declares the name, the datas, and code that form the body of a **Sub** procedure.

```
Sub name (arglist)  
  statements  
End Sub
```

Syntax

name

Name of the Sub. See standard [variable](#) naming conventions.

arglist

List of variables representing the datas that are passed to the **Sub** procedure when it is called. Multiple variables are separated by commas.

statements

Any group of statements to be executed within the body of the **Sub** procedure.

Remarks

You can declare variable type within *varlist* or you can specify only variable name.

You can't define a **Sub** procedure inside any other procedure.

You call a **Sub** procedure using the procedure name followed by the the data list.

Sub declaration must precede **Sub** call.

Code execution starts with the first line after the last procedure.

The following example illustrates the use of the **Sub** :

```
Sub SomeSub (a as integer, b)
print "a = ", a
print "b = ", b
End Sub
```

.....

```
SomeSub(a + b + c, 123)
```

.....

SWAP sub procedure

Swaps the low byte and high byte of each word of a memory block starting at A1 A2 specifies the size of the memory block in words.

Syntax

```
SWAP(A1, A2)
```

Remarks

It's a sub procedure, so has no return value. A1 must be a system address (such as @W_00002) starting at the '@' character. A2 can be a system address or a declared value.

Sample

```
SWAP(@W_00001, 12)
```

```

@WHD103 is 16hexadecimal values input / output      3412
@WHD104 is 16hexadecimal values input / output      4523
@WHD105 is 16hexadecimal values input / output      5634
@WHD106 is 16hexadecimal values input / output      6745

Engineering script      @WHD103=0X1237
                        @WHD104=0X2345
                        @WHD105=0X3456
                        @WHD106=0X4567
                        SWAP(@W_HDW103,4)

```

Tan function

Return the tangent of an angle.

var = **Tan**(*expr*)

Syntax

expr

Any expression that expresses an angle in radians.

Remarks

To convert angle from degrees to radians use **DegToRad** function.

```

@W_HD0unsigned decimal input / output      1.732

Engineering script

dim a as floating
a=Tan(pi/3)
@W_HDW=a

```

Trim function

Return a copy of a string without leading and trailing spaces.

```
val = Trim(str)
```

Syntax

str

String being truncated. If not string, convert to string.

Remarks

The following example illustrates the use of the **RTrim** function:

```
a = Trim(" -Hello- ") ' Return "-Hello-".
```

UCase function

Return a string that has been convert to uppercase.

```
val = UCase(expr)
```

Syntax

expr

Any expression. If not string, convert to string.

Remarks

The following examples illustrate the use of the **UCase** function:

```
a = UCase(123) ' Return "123".  
a = UCase("Hello") ' Return "HELLO".
```

Variables

Variable is a named storage location that can contain data that can be modified during program execution. Each variable has a name that uniquely identifies it within its level of scope.

Variable names:

- Must begin with an alphabetic character.
- Must be no longer than MAX_NAME_LENGTH characters.

Variable can contain data of the following types:

string

floating

integer

Variable declared with [Dim](#) statement cannot change contents type, while non-declared variable can change type of its contents during execution.

W2B sub procedure

Convert a word array starting at A2 with the size specified by A3 to a byte array. The result will be saved in the memory starting at A1. The conversion will discard the high bytes of the word array.

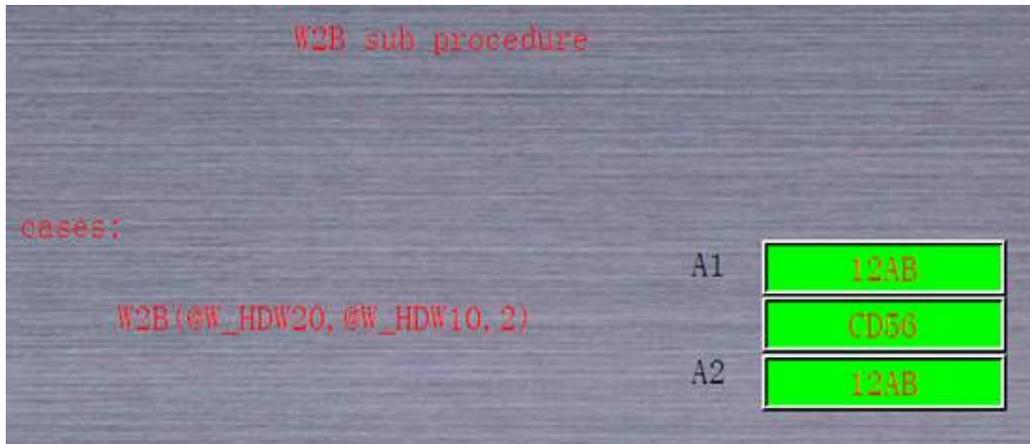
Syntax

W2B(A1, A2, A3)

Remarks

It's a sub procedure, so has no return value. A1, A2 must be system addresses (such as @W_00002) starting at the '@' character. A3 can be a system address or a declared value.

Sample



W2D sub procedure

Converts A2 from a single-word number to a double-word number and saves the result in A1.

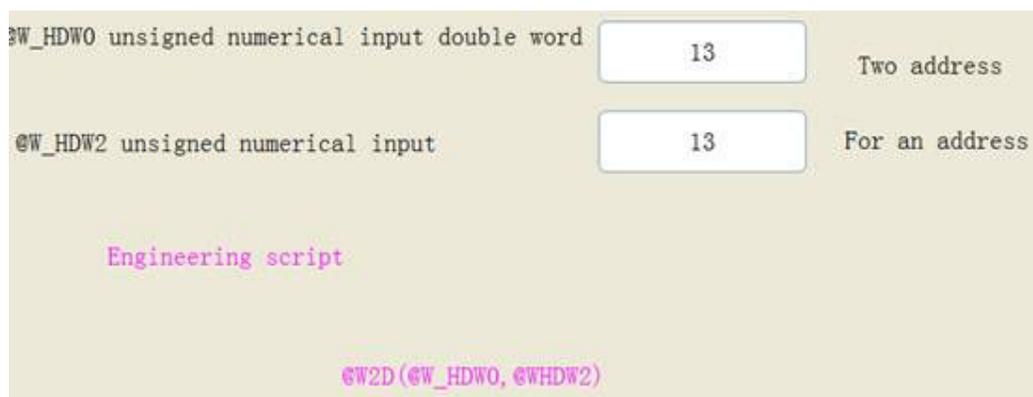
Syntax

W2D(A1, A2)

Remarks

It's a sub procedure, so has no return value. A1 must be a system address (such as @W_00002) starting at the '@' character. A2 can be a system address (word) or a declared value.

Sample



W2F function

Converts a 16-bit signed integer into a 32-bit floating point number.

The integer to be convert is in A2. The conversion result will be saved in A1 and its following word.

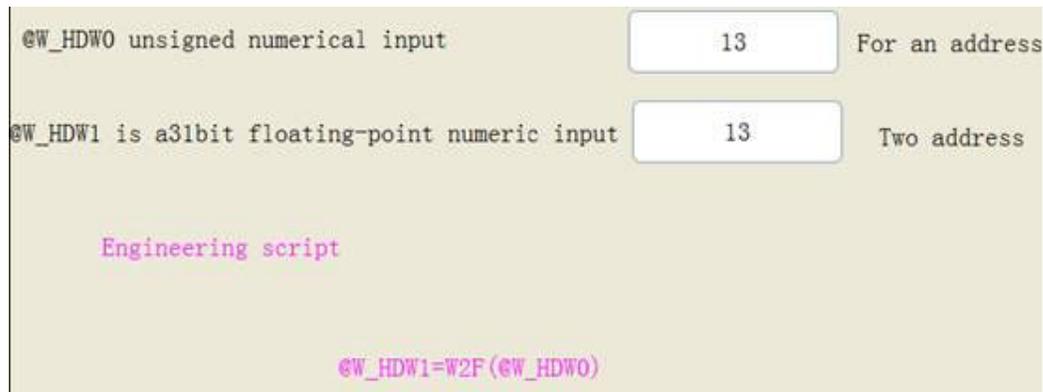
Syntax

A1 = W2F(A2)

Remarks

The return value is a floating number. A2 can be a system address (such as @W_00002) starting at the '@' character or be a declared value. A1 can be a system address (Floating) or a declared value.

Sample



W2S function

Transform integer data A1 into string and store in A2. The string format is defined by S1.

Syntax

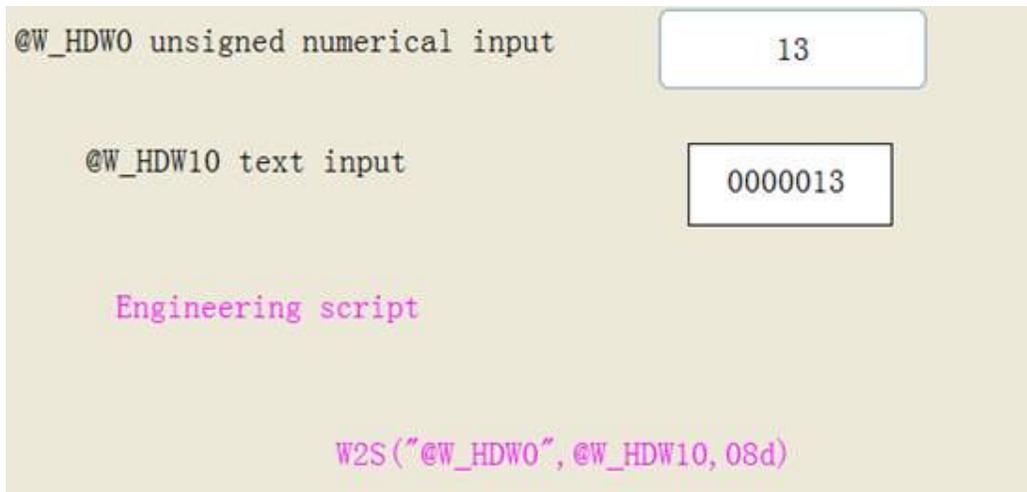
W2S(A1, A2, S1)

Remarks

A1 A2:A1A2 can be system address starting at '@' character or PLC address (such as @W_00002) .

S1:the format of string such as: 08d.

Sample



WHILE ... WEND

Executes a series of statements as long as a given condition is **True**.

```
While condition  
statements  
Wend
```

The *datas*

condition

Expression that evaluate **True** or **False**.

statements

One or more statements executed while condition is **True**.

Remarks

If *condition* is **True**, all statements in *statements* are executed until the **Wend** statement is encountered. Control then return 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.

Unlike **For**, **While** evaluates *condition* on every loop pass.

The following example illustrates use of the **While...Wend** statement:

```
While a > 0
```

```
print "a = ", a
a = a - 1
Wend
```

WriteAddr function

copy A2 to A1

Syntax

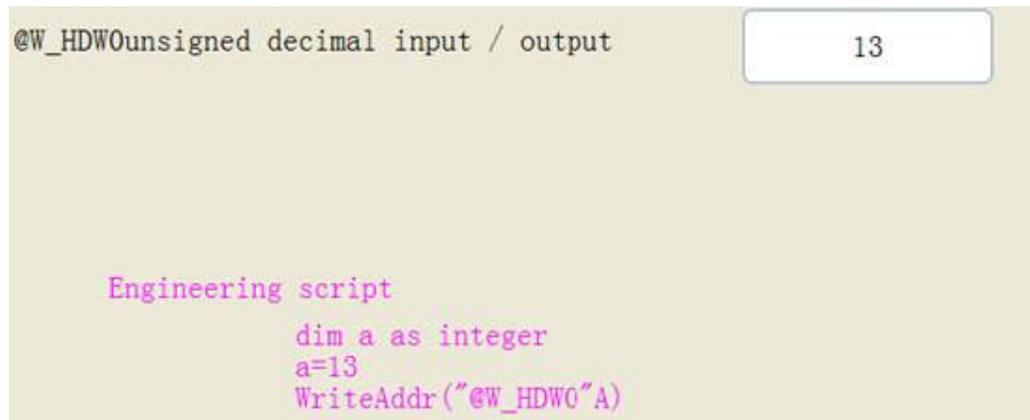
WriteAddr(A1, A2)

Remarks

A1:A1 can be system address starting at '@' character or PLC address (such as @W_00002) .

A2:A2 can be system address (floating) or other format variables.

Sample



16.1 Compile process

After editing, the project needs to be compiled to simulate or downloaded to the operating device. software Studio of compile process mainly completes work as follows:

- Inspection pictures or engineering could exist in user errors or warning;
- Optimization disposal repository, the picture can faster speed running on the HMI,
- According to the engineering parameters compiler language setting, the link text library text resources, about compiler language, please refer to the text library chapter;
- Treatment engineering use Windows font;
- Engineering and frames are packed into HMI document for download to run on HMI.

From the menu to compile tools - engineering can be completed in compiler action, also can from the toolbar icon to compile the project, in before compilation, software Studio will traverse all has opened the picture, save modifications.

16.2 A compiler error (warn)

Compile process, software will instruct picture that errors or warning, table 16-1 enumerated the most common error warning, and its treatment methods.

table16-1 errors editing list

Serial number	content	type	cause and effect
1	Operating address (or trigger address, monitoring address) format is wrong	warning	Parts of the written form and engineering correspondence address of PLC address format is not consistent, or the current PLC type can't identify the address, Or components quoted by address library entry has been deleted may cause components can't correctly communication with PLC.
2	Designated picture, switch function does not exist	warning	What point to the picture number does not exist, or has been deleted, May cause function switch cannot switch to designated picture number
3	To a keyboard picture does not exist	warning	Digital input, a string to a keyboard input image does not exist, or has been deleted, May lead to cannot enter components can't correctly pop-up Windows
4	Direct pictures showed what point to the picture number does not exist	warning	Direct pictures showed components to a picture number does not exist, or picture has been deleted, May cause direct pictures showed parts not show designated picture.
5	Digital input parts (or components) character input specified keyboard picture is not the son picture	warning	Keyboard picture number to a picture is not the son images; May cause keyboard picture cannot normal display.
6	What point to the picture is not the son picture	warning	Pictures showed classes components or keyboard picture is not the son, may lead to a picture on the screen at software not normal display.

7	Starting picture does not exist	warning	Starting picture has been deleted or became son screen, such projects in the HMI admiral cannot booting normally.
8	Formulation of trigger address, starting the right address	warning	With 1
9	Alarm triggers address format is wrong	warning	With 1

17.1 Project download/upload

“Download” is to download the “.hmt” file which’s compiled from original projects to HMI through serial port or USB.

The download process is as follows:

1. Download before program; we first need to use a serial port connections will HMI debugging mouth (COM2) and PC of serial connecting;
2. Serial connection, HMI automatically enter download state;
3. from the menu tools/download project, as shown in figure 17-1

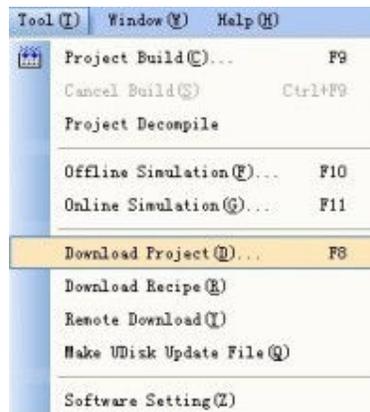


Figure 17-1 download engineering

4. Can also from software Studio in the installation directory to the download interface, as shown in figure 17-2 shows

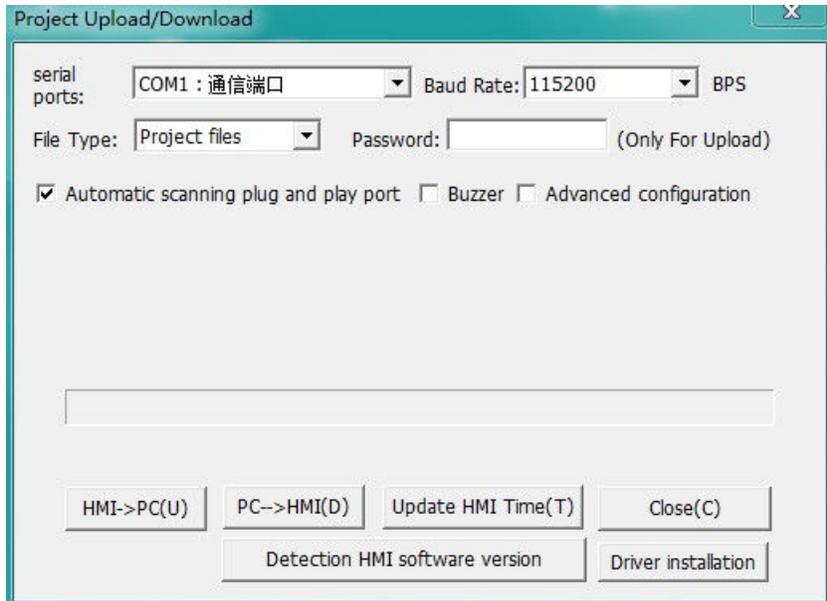


Figure 17-2 upload/download interface

Exhibit 17-1 upload/download interface specifications

Attribute names	explain
serial	PC download a serial port choice
Baud rate	PC serial port and HMI communicate baud rate, baud rate default is 115200bps
The file type	To transfer files is formula or compiled HMT files
HMI->PC	From HMI upload files needed for to PC preservation
PC->HMI	From the PC download engineering or formula to HMI
close	To close the dialog

5. Engineering after the download is complete, need to restart software , can let the new HMT files on operation;

6. If download process error, the program will give some hints and HMI on the original HMT files will keep.

9 needles download line of the connection mode for

9 needles female head 9 needle female head

2 3

3 2

5 5

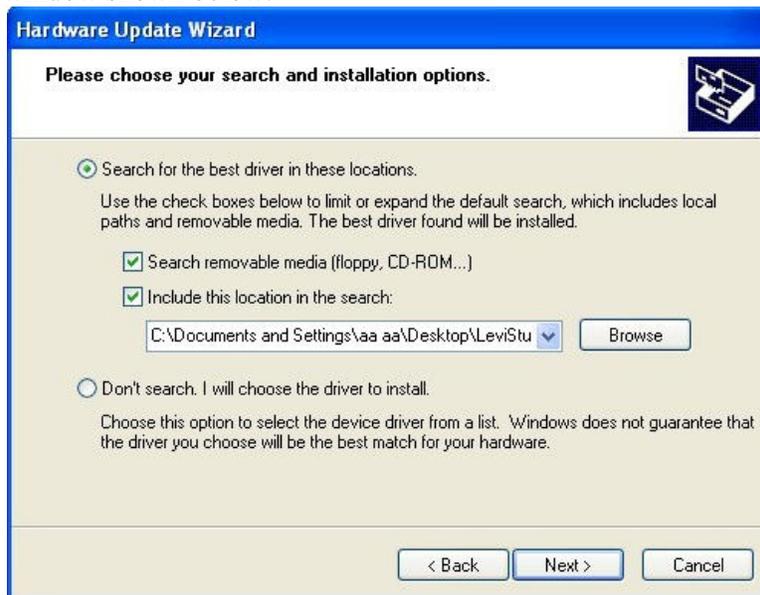
2. Use USB download line to download need to install USB driver first.

When first time use USB connection line to connect WECON equipment with your computer, a dialog box will pop up as shown in figure below.



At that time, please select "from the list or the location specified installation (advanced)" option, and click "next", then, you will see a new picture shown below:

At that time, please select "in that position on search best driver (S)", and then select "in search of including the position (0)", and click "browse button, when the emergence of a folder choose window shown below:



Please select installation directory of software USB driver this folder, and click ok. The selected drive, click the "next" button, then appeared new picture shown below:

Select the most the following version, and click "next" and then appeared new picture shown below:



Click the "continue to wait for a while," slightly, dimension control USB driver namely installation success, picture appear as follows:



Click "finish" button, then your computer has been successfully installed dimension control USB device driver.

Finish installing USB drivers, "serial interface in download" choose USB port can. Other operations and serial interface down

17.2 Recipe upload/download

Formula of the upload/download and engineering is the same, recipe file download success will cover the formulation of the original document; will upload the PC formula HMI up preservation.

18.1 Off-line simulation

Off-line simulation is in PC RS232 mouth not pick up PLC equipment is simulated, the simulation may cause some need to communicate and PLC parts cannot pass through off-line simulation to reflect the operation conditions.

18.2 Online simulation

Online simulation is on the PC RS232 interface has connected the corresponding PLC equipment, and PLC have preset good ladder-diagram procedures, the model can well reflect engineering in HMI and in practical engineering environment the running status.

Use online simulation can test engineering and PLC is normal or not. Online simulation if communication is not, the reason is probably communication parameter setting error; please check all parameters of the communication mouth setting whether already and PLC communications identical parameters.

19.1 Summary

In order to write engineering conveniently, software offers several kinds of internal memory, the user can put them as program temporary variables used, use method and access PLC registers is consistent with the way, and also through the way to refer to the address, and software total provides three such memories.

System data area (HS) : be system defined special registers;
Data storage area (HD): user store user data,
Special storage area (HP): software retains registers;
Formula index area (RPW): formula file index registers.

Note: HP, HS some registers has been reserved software , every word may own special purposes, such use already reserved for software .

HDW users generally can literally as a temporary variable use.

19.2 System data area (HS)

software system data area (HS) is used to store data in the system, can with two ways to access:

1. By the way, prefix access word for HSW, Numbers scope is: the HSW0 - HSW2047, which is the way to access the decimal. For instance: the HSW0 stands for the zeroth word in system data area and HSW1 stands for the first word in system data area.
2. In a way to access, prefix is HSX, Numbers scope is: the HSX0.0 - HSX2047.15, "."in front of the Numbers is word Numbers (range 0-2047), and then the is a Numbers (range 0-15).比如 HSX1020.12, For example HSX1020.12, its meaning is to bits mode access to system data area, the exact location is the first 1020 a word of the 12th.

Note that the HSW and HSX visit space is overlap, For example, HSX1020.12 is to visit a word first 1020 12th, and this bit values and through HSW001020 access to get a word, this word of 12th actually HSX1020.12 is same with place.

If a HSW has been reserved, then HSX visit this word a bit values is meaningless.

19.3 Data area (HD)

software system storage area (HD) used to preserve engineering data, can temporarily in two ways to access:

1. By the way, prefix access word for HDW, Numbers scope is: the HDW0 - HDW8191, which is the way to access the decimal. For example: HDW0 said system data area 0 a word, HDW01 said system data of the first word.
2. In a way to access, prefix is HDX, Numbers scope is: the HDX0.0 - HDX8191.15, "said." in front of the number of Numbers, then the word number is of the word, the two Numbers a Numbers are decimal. For example HDX1020.12, its meaning is to bits mode access to system data area, the exact location is the first 1020 a word of the 12th.

Note that the HDX HDW and visit space is overlap, i.e. HDX1020.12 is to visit a word first 1020 12th, and through HDW1020 access to get a word, this word of the 12th and HDX1020.12 is consistent.

The use of programming is especially open, software generally not within this region preset retains registers, and users can be at ease use. HDW8000 above address for power maintain area.

19.4 Special storage area (HP)

software 's special storage area (HP) is used to store system of special data, can in two ways to access:

1. By the way, prefix access word for HPW and Numbers scope is: the HPW0 - HPW8191, which is the way to access the decimal. For instance: the HPW0 said system data the zeroth word, HPW1 said system data of the first word.
2. In a way to access, prefix is HPX, Numbers scope is: the HPX0 - HPX8191.15, "said." the preceding digit word Numbers (range: 0-8191), then the two digits of the word is a Numbers (range: 0-15), the two Numbers are decimal. For example HPX1020.12, its meaning is to bits mode access to system data area, the exact location is the first 1020 a word of the 12th.

Users need special attention is, HPW and HPX visit space is overlap, i.e. HPX1020.12 is to visit a word first 1020 12th, and this bit values and through HPW1020 access to get a word, this word of 12th is consistent.

If HP (HPX, HPW) be reserved,

19.5 Recipe index area (RPW)

software provides a flexible way to index formula files formula data, this makes for using numeric inputs/show parts, word switch to modify/show formula files. The formulation of the data

RPW usage as follows:

RPW * * # # #, four Numbers, the first two * * said what, # # # # group said is which components. six components, such as: RPW01002 says the first group formula of the first two components. And RPW11002 said 11 groups blending the first two component; If be indexed group number or components number does not exist, then RPW values, such as default zero RPW11011 represents the first 11 groups blending the first 11 composition, if there is no, then visit RPW11011 return value of zero, and went to RPW11011 write threshold, will not write files.

You need to be aware that as long as RPW * * # # # exist, then either components on HPW * * # # # writing will be saved to formula file.

RPW did not provide bits of the access method, because this doesn't make any sense.

From RPW * * # # # coding method, it is known that RPW range from RPW00000 - RPW501000, including group size range is 0-49, and ingredients range is 0-1000.

19.6 retain registers

Table 19-1 special storage area (HP) reserves registers

Reserved word address	meaning	use
HPW0	HMI formula group number registers	For download, when formula transmission components are users touch, software will get from HPW000000 formula group number and will download to this formula terminal. For uploading, when formula transmission components are users touch, software will get from HPW000000 formula group number and will upload formula into the PLC rent location preservation; supervisor of the original formula data will be overwritten.

System storage area (HS) reserves registers

Reserved word address	meaning	use
HSW000000	Saving preferences	When HSW000000 value is 1, the system will save engineering parameter modification
HSW000001	Cancel parameter Settings	Cancel do save software to HSW0000000 and HSW0000001 are mutually exclusive
HSW000002	HMI station #	reserved
HSW000003	PLC station #	reserved
HSW000004	COM1 agreement link types	0: RS232 1: RS485 2: RS422
HSW000005	The communication with PLC socket	0: COM1 1: COM2
HSW000006	COM1 baud rate (BPS)	0: 2400 1: 4800 2: 9600 3: 19200 4: 38400 5: 57600 6: 115200
HSW000007	COM1 data bits	0: 7 1: 8
HSW000008	COM1 of parity	0: none 1: odd 2: even 3:SPACE
HSW000009	COM1 stop bit	0: 1 Bit 1: 2 Bit

HSW000010	COM1 of flow control method	0: No flow control 1:Soft flow control 2:Hard flow control
HSW000011	COM1 connection failure retry count	
HSW000012	COM1 of serial waiting for overtime	Ms unit
HSW000013	COM1 of serial receiving data timeout	Ms unit
HSW000014	Splash screen number	The initial screen number. Engineering
HSW000015	Language types	In engineering set up different language, can show different font and HMI support three languages, 0:language one 1:Language two 2:Language three
HSW000016	Font types	reserves
HSW000017	Font size	reserves
HSW000018	Font quality	reserves
HSW000019	Touch buzz	0: No bees 1: bees
HSW000020	Touch input methods	0:Little touch 1:Two-point touch This parameter is read-only
HSW000021	Whether reversed color LCD display	0: Display properly 1: Reversed color display
HSW000024	Whether reboot the HMI	0: Without enabling 1: enable
HSW000025	Script whether to read through	0: Without enabling 1: enable
HSW000026	Printer type	reserve
HSW000027	Print port	reserve
HSW000028	Local time in	RMS range 0-999 (reserved, read and write)

HSW000029	Local time year	RMS 01-12 (range reserved,read and write)
HSW000030	Local time day	RMS 01-31 (range reserved,read and write)
HSW000031	Local time hours	RMS range 0-23 (reserved, read and write)
HSW000032	Local time minute	RMS range 0-59 (reserved, read and write)
HSW000033	Local time seconds	RMS range 0-59 (reserved, read and write)
HSW000034	Upload programs	1: Upload (reserved, read and write)
HSW000035	Download a program	1: Download (reserved, read and write)
HSW000036	COM2 link types	0: RS232 1: RS485
HSW000037	COM2 baud rates	0: 2400 1: 4800 2: 9600 3: 9600 4: 19200 5: 38400 6: 57600 7: 115200
HSW000038	COM2 data bits	0: 7 1: 8
HSW000039	COM2 of parity	0: none 1: odd 2: even 3: SPACE
HSW000040	COM2 stop	0: 1 Bit 1: 2 Bit
HSW000041	COM2 of flow control method	0: No flow control 1: Soft flow control 2: Hard flow control

HSW000042	COM2 failure connection retry count	
HSW000043	COM2 wait for overtime	Ms unit
HSW000044	COM2 receiving data timeout	Ms unit
HSW000045	Keyboard input string display cache area	Keyboard input image cache area
HSW0000112	Whether opening security protection	When HSW000112 value is 1, the system will enable security level Settings
HSW000113	The default security level	Default security level. When HSW000113 value for the following value meaning: 1: 1level 2: 2level 3: 3level
HSW000114	The current safety level	The current safety level. When HSW000114 value for the following value meaning: 1: 1level 2: 2level 3: 3level 4: 4level 5: 5level 6: 6level 7: 7level 8: 8level 9: 9level 10: 10level 11: 11level 12: 12level
HSW125	set LCD contrast Settings	

HSW126	week	0: Sunday 1: Monday 2: Tuesday 3: Wednesday 4: Thursday 5: Friday 6: Friday
HSW127	Control BEEP rang the bell	0: normal rang the bell 1: has been ring the bell (Don't save power. The default is 0)
HSW128	Run script unit cycle value	
HSW129	Run script unit period whether as a variable value	
HSW130	Monitoring address Timer intervals unit cycle value	
HSW131	Monitoring address Timer intervals unit period whether as a variable value	
HSW132	PLC reading and writing cache update time interval	
HSW133	PLC cache update time interval is reading and writing for a variable	
HSW136	The IP address of the machine HMI 1 (from left to right)	

HSW137	The IP address of the machine HMI 2 (from left to right)	
HSW138	The IP address of the machine HMI 3 (from left to right)	
HSW139	The IP address of the machine HMI 4 (from left to right)	
HSW140	This machine is of HMI subnet mask address 1 (from left to right)	
HSW141	This machine is of HMI subnet mask address 2 (from left to right)	
HSW142	This machine is of HMI subnet mask address 3 (from left to right)	
HSW143	This machine is of HMI subnet mask address 4 (from left to right)	
HSW144	The local gateway machine HMI address 1 (from left to right)	
HSW145	The local gateway machine HMI address 2 (from left to right)	

HSW146	The local gateway machine HMI address 3 (from left to right)	
HSW147	The local gateway machine HMI address 4 (from left to right)	
HSW148	HMI local port address	
HSW000157	Security level mutual independence	0-Not independent 1-independent
HSW000160	At present the password of user input	Obligate HSW000160 ~ HSW000163, altogether four words, most input 8 characters password
HSW000168	The current password security level to low switch register number	The current safety level. When HSW000168 value for the following value meaning: 1: 1level 2: 2level
HSW000169	A serial port 1 retrial overtime	0~65535
HSW000170	Serial 2 retry overtime	0~65535
HSW000173	A serial port 1 waiting IO delay, reading, speaking and writing	0~65535
HSW000174	Serial 2 wait IO delay, reading, speaking and writing	0~65535
HSW000175	Serial 3 waiting IO delay, reading, speaking and writing	0~65535
HSW000176	Heavy clear history painting XY figure	0: not heavy painting empty 1: heavy painting empty

HSW000189	Whether display an error message box ticket z device	0: Don't display 1: display
HSW000191	Empty record data files,	0: false 1: true
HSW000192	Empty system setup files,	0: false 1: true
HSW000193~194	Keyboard input minimum range, double word	0~0xFFFFFFFF
HSW000195~196	The maximum range keyboard input, double word	0~0xFFFFFFFF
HSW000200	The current the number of Bit alarm	
HSW000201	The current the number of word alarm	
HSW000202	Empty bits alarm historical data	1=true 0=false
HSW000203	Empty words alarm historical data	1=true 0=false

2

HSW000205

Empty \ Flash \ Data
partition of all
files, power off
heavy climate man-
machine can querying
Data.

1-delete \ \ Flash \ \ Data
partition all files,

2-delete \ \ Flash \ \Data \
\ DL under all documents Data
records

3-delete \ \ Flash \ \ Data \
\ AL record of all documents
under the alarm

4-delete \ \ CFDC \ \ Data
partition of all files,

5- -delete \ \ CFDC \ \Data \
\ DL Data record all of the
files

6-delete \ \ CFDC \ \Data \<\
AL record of all documents
under the alarm

7-delete \ \ Udisk \ \ Data
partition of all files,

8-delete \ \ Udisk \ \Data \
\ DL Data record all of the
files

9-Delete \ \ Udisk \ \ Data \
\ AL record of all documents
under the alarm

HSW000214	Close the popup window (such as alarm window)	1 :closed
HSW000216	Keyboard case switching	0: capital 1: lowercase
HSW000217	Delete multinational language system setup, revert to the default language	0: false 1: true
HSW000218	Settings screen saver switch	0: false 1: true
HSW000219	Set start-time. The countdown screensaver	In seconds for the unit
HSW000220	Set the countdown time screen saver	In seconds for the unit
HSW000221	set the time of close Background lamp	In seconds for the unit
HSW000223	Setting whether alarm rang the bell	0-Ring the bell 1-Don't ring a bell
HSW000224	PROT2 mouth PLC station number	0~255
HSW000225	Socket 2	1~3
HSW000226	PROT3 mouth PLC station number	0~255
HSW000227	Socket 3	1~3
HSW000230	CF/SD card data archived to U disk	0:no 1:yes
HSW000233	Not through the Cache access equipment PLC etc	0: through 1: not through
HSW000235	Flash file to record data restrict to U disk	0:no 1:yes
HSW000238	A Bit warning sign	Value is 1 that took place Bit warning

HSW000239	A word warning sign	Value is 1 that took place Bit warning
HSW000243	The current discrete edit formula group number	1~3
HSW000244	Formula uploads and downloads	1=upload 2-download
HSW000245	Remove alarm record	Cleared alarm record
HSW000247	COM3 link types	0: RS232 1: RS422 2: RS485
HSW000248	COM3 baud rates	0: 2400 1: 4800 2: 9600 3: 9600 4: 19200 5: 38400 6: 57600 7: 115200
HSW000249	COM3 data bits	0: 7 1: 8
HSW000250	COM3 of parity	0: none 1: odd 2: even 3: SPACE
HSW000251	COM3 stop bit	0: 1 Bit 1: 2 Bit
HSW000252	COM3 of flow control method	0: No flow control 1: Soft flow control 2: Hard flow control
HSW000253	COM3 failure connection retry count	
HSW000254	COM3 wait for overtime	Ms unit
HSW000255	COM3 receiving data timeout	Ms unit

HSW000256	<p>Stage sets of data record parameter Settings</p> <p>Whether does not keep records</p> <p>This setting can power lost preservation</p>	<p>0: save</p> <p>1: Don't save</p>
HSW000257	<p>Stage sets of data record parameter Settings</p> <p>Data sampling interval</p> <p>This setting can power lost preservation</p>	<p>Seconds for the unit 0 ~ 65535</p>
HSW000258	<p>Stage sets of data record parameter Settings</p> <p>Autosave interval</p> <p>This setting can power lost preservation</p>	<p>Minutes for the unit 0 ~ 65535</p>
HSW000259	<p>Stage sets of data record parameter Settings</p> <p>Immediately store data records</p> <p>This setting can power lost preservation</p>	<p>0: According to the engineering of setup time preservation</p> <p>1: Immediately storage to CF card, within the system will be reset</p>
HSW000260	<p>The first group data record parameter Settings</p> <p>The first group data record parameter Settings</p> <p>This setting can power lost preservation</p>	<p>0: save</p> <p>1: Don't save</p>
HSW000261	<p>The first group data record parameter Settings</p> <p>Data sampling interval</p> <p>This setting can power lost preservation</p>	<p>Seconds for the unit 0 ~ 65535</p>

HSW000262	The first group data record parameter Settings Auto save interval This setting can power lost preservation	Minutes for the unit 0 ~ 65535
HSW000263	The first group data record parameter Settings Immediately store data records This setting can power lost preservation	0: According to the engineering of setup time preservation 1: Immediately storage to CF card, within the system will be reset
...
HSW000296	10 sets of data recording parameters Settings Whether does not keep records This setting can power lost preservation	0: save 1: Don't save
HSW000297	10 sets of data recording parameters Settings Data sampling interval This setting can power lost preservation	Seconds for the unit 0 ~ 65535
HSW000298	10 sets of data recording parameters Settings Auto save interval This setting can power lost preservation	Minutes for the unit 0 ~ 65535
HSW000501	The default parts password level	
HSW000502	The current component password level	
HSW000503	File list formula import number	

HSW000504	File list formula derived no	
HDW25000	File list formula into the name of the document	
HDW25001	File list formula export file name	
HSW000506	Empty the current events show linked list	
HSW000507	Empty the historical events of that linked list	
HSW000508	Delete EVReg. Landuse-dat files	
HSW000509	Component level password independent	
HSW000500	Whether opening parts password	
HSW000543	Used to mark on the touch screen when on the X coordinate values	
HSW000544	Used to mark on the touch screen when on the Y coordinate values	
HSW000546	Save the print parts used to sign when USB flash disk is loading success	HSW546=1

HSW000547	ave the print parts used to sign when U do the graphics saved successfully	HSW547=1:Saving HSW547=2:Saved successfully
HSW000545	the number of Screen saver	
HSW000661-666	File list	The time when formula derived: year, month, day,,points, seconds
HSW000667	File list import export state	HSW667=10000:importing HSW667=10000+group: Import success HSW667=20000:Import failure HSW667=30000:Exporting HSW667=30000+group:Export success HSW667=40000+group:Export failure
HSW000299	10 sets of data recording parameters Settings Immediately store data records This setting can power lost preservation	0: According to the engineering of setup time preservation 1: Immediately storage to CF card, within the system will be reset

HSW000744- HSW001255	Power lost save area	Open to users with the use of the power lost preservation district, total size for 512 words, the user can will need to save power lost data placed in here. Because the FLASH is HMI to store the data, we strongly suggest too often don't write this section, too often write operation can affect the life of FLASH.
HSW000542	Equal to 1	Memory is full already
HDW8000-HDW30000	Power lost save area	New power lost reserve is open to users with the use of the power lost preservation district, total size for 16 K + 2000 words, the user can will need to save power lost data placed in here. Because the FLASH is HMI to store the data, we strongly suggest too often don't write this section, too often write operation can affect the life of FLASH.
Picture level password		
HSW000404	Safety level 1 password	Altogether 8 characters
HSW000408	Safety level 2 password	Altogether 8 characters
HSW000412	Safety level 3 password	Altogether 8 characters
HSW000416	Safety level 4 password	Altogether 8 characters
HSW000420	Safety level 5 password	Altogether 8 characters
HSW000424	Safety level 6 password	Altogether 8 characters
HSW000428	Safety level 7 password	Altogether 8 characters
HSW000432	Safety level 8 password	Altogether 8 characters
HSW000436	Safety level 9 password	Altogether 8 characters

HSW000440	Safety level 10 password	Altogether 8 characters
HSW000444	Safety level 11 password	Altogether 8 characters
HSW000448	Safety level 12 password	Altogether 8 characters
Parts level password		
Password using the internal parts HSW address words address type		
safety level 1	Altogether 8 characters	HSW452
safety level 2	Altogether 8 characters	HSW456
safety level 3	Altogether 8 characters	HSW460
safety level 4	Altogether 8 characters	HSW464
safety level 5	Altogether 8 characters	HSW468
safety level 6	Altogether 8 characters	HSW472
safety level 7	Altogether 8 characters	HSW476
safety level 8	Altogether 8 characters	HSW480
safety level 9	Altogether 8 characters	HSW484
safety level 10	Altogether 8 characters	HSW488
safety level 11	Altogether 8 characters	HSW492
safety level 12	Altogether 8 characters	HSW496

Whether opening parts level password	HSW500
The default parts password level	HSW501
The current component password level	HSW502
Local IP address high word 1	HSW136
Local IP address high word 2	HSW137
Local IP address high word 3	HSW138
Local IP address high word 4	HSW139
Local mask IP address high word 1	HSW140
Local mask IP address high word 2	HSW141
Local mask IP address high word 3	HSW142
Local mask IP address high word 4	HSW143
Local gateway IP address high word 1	HSW144
Local gateway IP address high word 2	HSW145
Local gateway IP address high word 3	HSW146
Local gateway IP address high word 4	HSW147
Local port addresses	HSW148

20 Communication and PLC driver

RS-232, RS-422 with RS-485 are serial data interface standards, initially were by electronic industries association (EIA) formulated and issued by the RS-232 released in 1962, named EIA-232-E, as industrial standard, to ensure that different manufacturer between products compatible. The RS-422 by RS-232 development, it is to make up deficiencies RS-232 proposed. For improving the RS-232 communication distance is short, the rate low shortcomings, RS-422 defines a balance communication interface, will transmit rate increased to 10Mb/s, the transmission distance extend to 4000feet (rate below 100kb/s), and allow it in a balanced bus connection a maximum of 10 receivers. The RS-422 is a stand-alone sending and receiving the multi-motor unidirectional, balanced transmission standard, was named TIA/EIA-422-A standard. For expansion application scope, EIA again in 1983 in RS-422 basis to develop the RS-485 standard, increased the multi-point, two-way communication ability, namely allows multiple transmitter connected to the same bar on the bus, but also increase the transmitter's drive ability and conflict protective properties, expands the bus after total model circumference, named TIA/EIA-485-A standard. Due to the EIA suggested standard are "RS" as a prefix, so in the communication industry, still habits will make the above standard with RS prefix appellation.

RS-232, RS-422 with RS-485 standard only docking ports, electrical characteristics make provision, and do not involve connectors, cable or agreements, and based on this, the user can build your own top communication protocols. So in video boundary, the application of many factories are established a set of high-level communication protocol, or public or manufacturer exclusive use. Such as video manufacturer of Sony and Panasonic the VCR the RS-422 control protocol is a difference, video server control protocol is more, such as Louth, Odets protocol is open, and Pro-LINK are based on Profile.

20.1 RS-232 Serial interface standards

At present the RS-232 PC and communication is the most widely used in industry, a serial interface. RS-232 is defined as a kind of serial communication low speed increase communication distance one-port standards. RS-232 Take imbalance of transmission, the so-called one-port communications

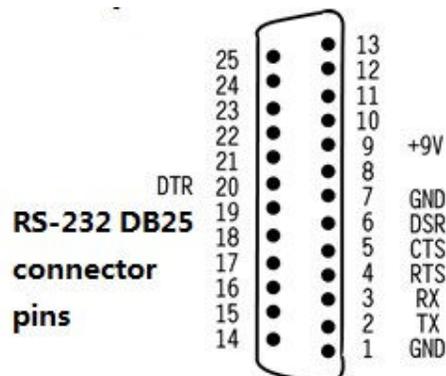


Figure 20-1 RS-232 DB25 Connector pins

Collect, inchoation of data signals is relative to the signal ground, such as DTE equipment issued from the data in the use of DB25 connector is 2 feet 7 feet (relatively) level, signal ground DB25 each pin definition see figure 22-1. The typical RS-232 signal in positive and negative level swing between, in sending data, the sender driver output are level on +5~+15V, negative level in -5~-15V level. When numerous according to transmission line for TTL, from the beginning to the end, online data transmission from TTL level to level the RS-232 level returns to TTL level. Receiver typical working level in +3~+12V and -3~-12V. Due to send and receive level of the poor level is only about 2V 3V to, so its common-mode rejection ability is poor, plus twisted-pair cable distribution of capacitance, the transmission distance maximum about 15 meters, the highest rate for 20kb/s. RS-232 is as point-to-point (i.e. only couple received or sent equipment) communication and to design, which drives load for 3~7kΩ. So the RS-232 of communication between the suitable for local equipment. Its relevant electric parameters see exhibit 20-1.

Table 20-1 RS232、RS422、RS485 electrical characteristics table

provisions		RS232	RS422	R485
Working way		one-port	difference	difference
Node number		1 collect、1 hair	1 hair 10 collect	1 hair 32 collect
Maximum transmission cable length		50 feet	4000 feet	4000 feet
Maximum transmission rate		20Kb/S	10Mb/s	10Mb/s
Maximum driving output voltage		+/-25V	-0.25V~+6V	-7V~+12V
Driver output signal level (Load minimum)	load	+/-5V~+/-15V	+/-2.0V	+/-1.5V
Driver output signal level (The maximum no-load)	no-load	+/-25V	+/-6V	+/-6V
Drive load impedance(Ω)		3K~7K	100	54
Pendulum rate(maximum)		30V/μs	N/A	N/A
Receiver input voltage range		+/-15V	-10V~+10V	-7V~+12V
Receiver input threshold		+/-3V	+/-200mV	+/-200mV
Receiver input resistance(Ω)		3K~7K	4K(minimum)	≥12K
Drive common-mode voltage			-3V~+3V	-1V~+3V
Receiver common-mode voltage			-7V~+7V	-7V~+12V

20.2 The RS-422 with RS-485 serial interface standards

The RS-422, RS-485 with RS-232 different, Data signals applied difference of transmission, also called balance transmission, it USES A pair of twisted-pair cable, which first defined as A, another first defined as B as shown in figure 20-2.

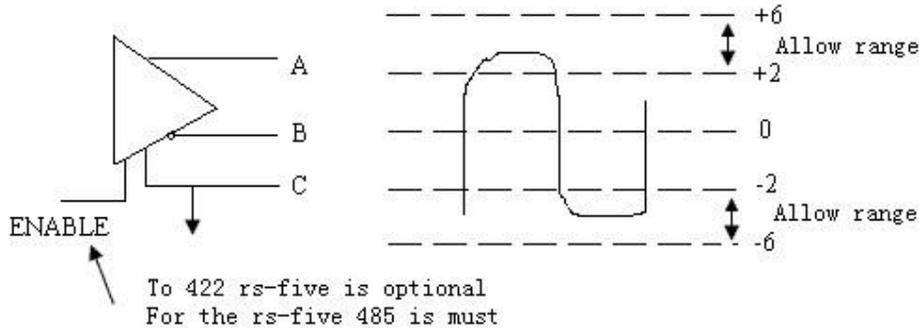


Figure 20-2 RS-422/RS-485 Line definition

Normally, send drive A and B is level between in $+2\sim+6V$, is A logical state, negative level in $-2\sim-6V$, is another logic state. Another signal ground C, based on RS-485 has a "enabled" end, while in the RS-422, this is available but unused. "Enabled" side is used to control sending drive and transmission line cut off connections. When "enabled" the role, send drive at a high impedance condition, known as "third state", namely, it is distinct from logic "1" and "0" the third state.

Receiver is made with the sender relative regulation, accept, inchoation through balancing twisted-pair cable will AA and BB corresponding connected, when in the end more than $+200mV$ AB between the electricity at ordinary times, the output is logic level, less than $-200mV$, the output negative logic level. Receiver receives balance online level range is usually in $200mV$ to $6V$ between. See figure 20-3.

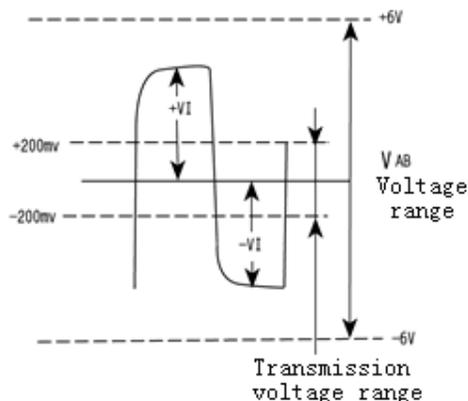


Figure 20-3 Transmission voltage range

When AB between more than $+200mV$ electricity at ordinary times, + output is logic level, less than $-200mV$, the output negative logic level. Receiver receives balance online

level range is usually in 200mV to 6V between.

20.3 Electrical provisions

The RS-422 standard full name is "balance voltage digital interface circuit of electrical properties", it defines interface characteristics of the circuit. Figure 20-4 in the diagram B is typical of RS-422 four-wire interface. Actually had a root signal ground, total 5 thread. Figure 20-4 in diagram A is its DB9 connector pins definition. Due to the receiver using high input impedance and send drive than RS232 stronger drive ability, so allow in the same lines connecting multiple receiving node, most may meet 10 node's a main device (Master), the rest being from equipment (Salve), from between devices cannot communication, so the RS-422 support point to more two-way communication. Receiver input impedance for 4k, reason inchoation maximum load ability is 10 by $4k+100\Omega$ (final meet resistance).The RS-422 four-wire interface because use separate sending and receiving channel, so don't control data direction, each device, the signal switching between any must all can according to software methods (XON/Offshore hands) or hardware way (a pair of single twisted-pair cable).

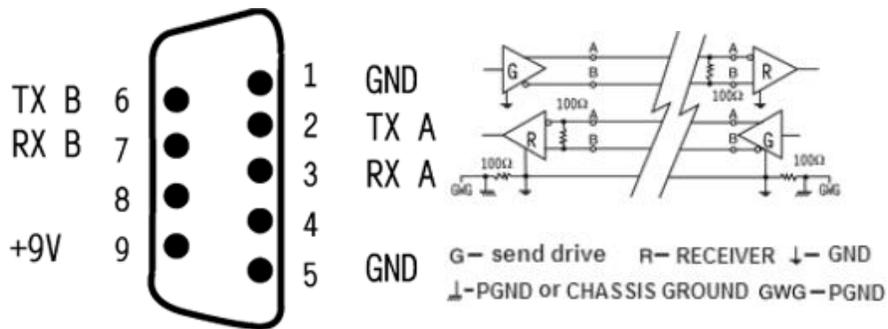


figure A

figure B

Figure 20-4 RS-422 Electrical provisions

The RS-422 of maximum transmission distance for 4000feet (about 1219 meters), the maximum transmission rate for 10Mb/s.The equilibrium twisted-pair length and transmission rate inversely proportional to, in 100kb/s rate below, is it possible to achieve maximum transmission distance. Only in a short distance to obtain the highest rate transmission. General 100 meters long twisted-pair cable on the availability of maximum transmission rate is only 1Mb/s.

The RS-422 need a eventually connect resistance, ask its resistance is about equal to the characteristic impedance transmission cable. In distance transmission torque when not be eventually meet resistance, namely is in commonly 300 meters below without end meet resistance. Finally meet resistance up in transmission cable the farthest end.

The RS-422 relevant electric parameters see RS232 and RS422 and RS485 electrical characteristics table

20.4 The RS-485 electrical regulations

Because the RS-485 from RS-422 based on, so the RS-485 many electrical provisions and the RS-422 similar. Like all adopt balanced transmission mode, all need to pick up on a transmission line end meet in resistor etc. The RS-485 can use second-line with four lines way, two-wire system can achieve true multi-point two-way communication, See figure 20-5 of figure C.

With four wire connection, and the RS-422 as only realize point to more communication, namely can only have one main (Master) equipment, the rest being from equipment, but it has improved than RS-422, whether four-wire or second-line connection mode bus can many received 32 equipment. See figure 20-5 of figure D.

figure

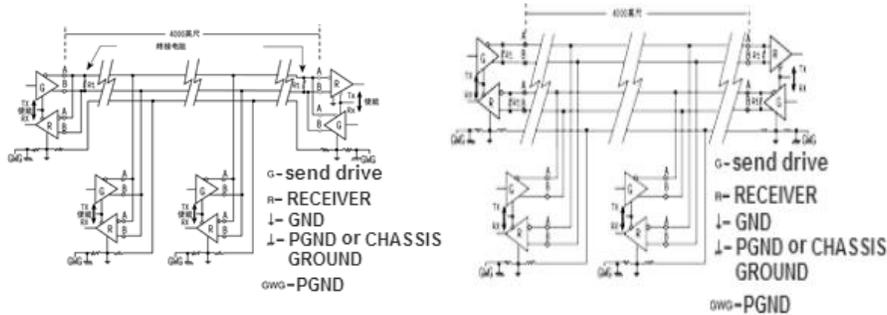


figure C

figure D

Figure 20-5 RS-485 Electrical provisions

The RS-485 RS-422 with different still lies in its common-mode voltage output is different, the RS-485-7V to +12V is between the RS-422, while in RS-422-7V to +7V - between the RS-485 receiver minimum input impedance for 12k and resistance is 4k 422; Because the RS-485 satisfy all the standard RS-422, so the RS-485 drive can be used in the RS-422 network applications.

The RS-485 relevant electrical provisions see RS232 and RS422 and RS485 electrical characteristics table.

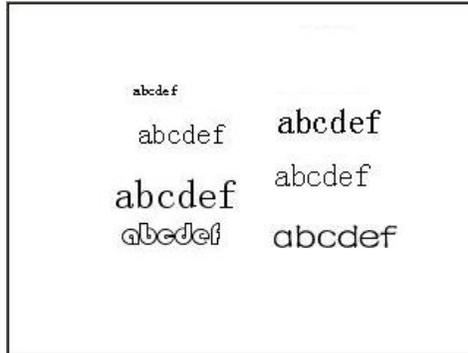
The RS-485 RS-422 with same, its biggest transmission distance is about for 1219 meters, maximum transmission rate for 10Mb/s. The length of the balance twisted-pair cable with transmission rate inversely proportional to, in 100kb/s rate below, is it possible to use policy the longest cable length. Only in a short distance to obtain the highest rate transmission. General 100meters long twisted-pair maximum transmission rate is only 1Mb/s.

The RS-485 requires 2 end meet resistance, its resistance requirements is equal to the characteristic impedance transmission cable. In distance transmission torque when not be eventually meet resistance, namely is in commonly 300 meters below without end meet resistance. Finally meet resistance up in transmission of the bus at both ends.

21 Font library

software support all the Windows vector fonts, vector fonts can increase the picture show strength. Users according to their own needs may independently define various vector fonts, software most can support up to 32 custom fonts.

From the main menu bar **Settings** to choose **font library**



List box: Enumerate the current established custom font library, software built-in have font is not listed here

Font name: The currently selected the name of vector fonts

Size: the currently selected font size

Add fonts: Add new custom font, software most support 32 kinds of custom font

Delete font: delete selected font

Edit properties: Editors of selected font properties

Closed: To close the dialog

Example: Selected font the actual effect of demonstration.

21.1 Add fonts

Click on the FIG. 21-2 **add fonts**, appear below the dialog box:

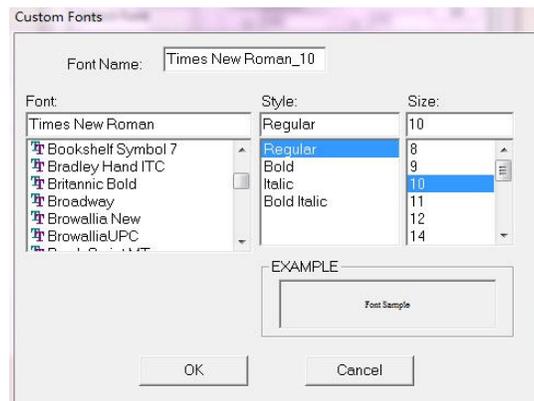


FIG. 21-3 add fonts

Font name: Font from define name, not repeatable.

Font: Windows system which support vector fonts.

Style: Regular: format, Bold, Italic: italics, Bold Italic: Course italic

Size: customize the font size

Delete lines: between words, add or remove line

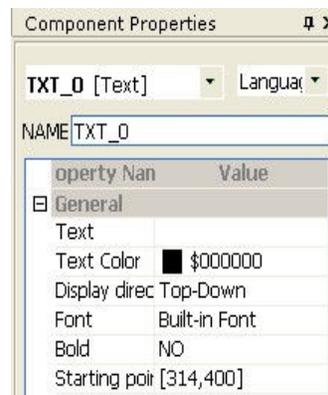
Underline: Files below days underlined

Paradigm: Font preview effect

21.2 Customize font

The following components can use custom font: Word switch, a switch, function switch, word status display, a status display, mobile graphics, static text, graphics, track four lights, buttons.

There are two ways of using custom font:



From parts of the attribute box choose **font** properties, as shown in figure 21-4 shows

FIG. 21-4 attribute box change font tags parts

Popup dialog boxes below:

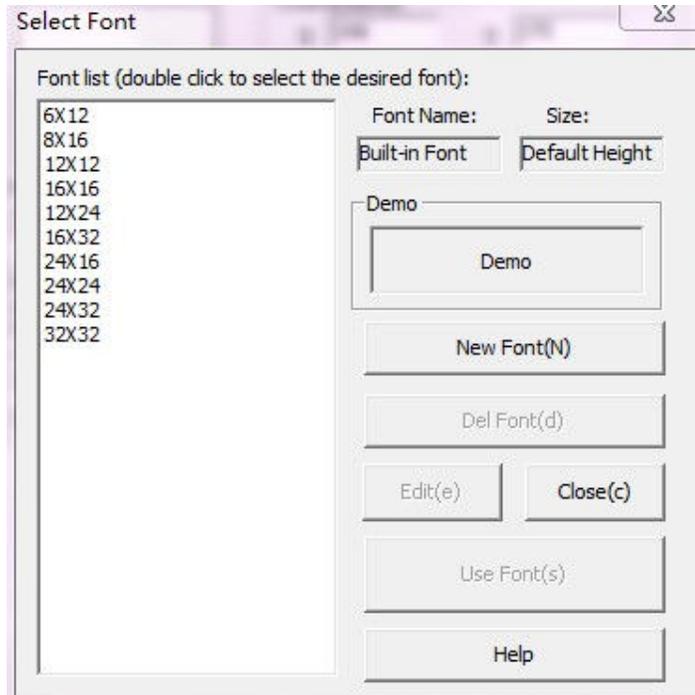


FIG. 21-5 choose font

In FIG. 21-5, in front of fonts are built-in font, behind of customize the font, font is selected to be you, then **click options**.

There's another way to choose the font size for current component which is from attribute editing bar.

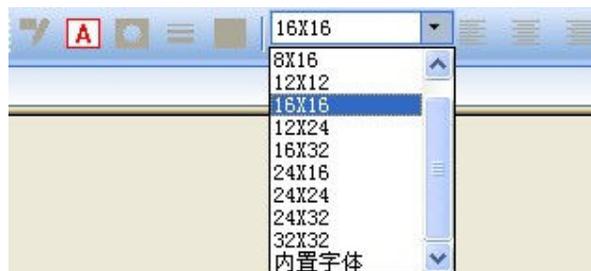


FIG. 21-6 from the tool bar choose font

22 Data record

As long as software equipped with a mass storage, data records of the recorded data stored in CF card, record the length of time depends on CF card capacity, record contents and sampling interval. With the capacity of 1G CF card, for example: The number of days can be stored for:

- (1) 4 route data: about 1400 days

- (2) 6 route data: about 1100 days
- (3) 8 route data: about 900 days
- (4) 12 route data: about 650 days
- (5) 16 route data: about 500 days
- (6) 32 route data: about 250 days

Record to CF card after data, users can through Internet or serial uploaded to PC, also can directly plucked CF card, through CF card literacy is derived data.

software log file format is CSV format, it is very common data storage formats, users can will the format data import to database or EXCEL spreadsheet data processing or preserved.

22.1 Data record function

software data record function is according to below to structural organization. In a project, can have multiple record groups, each record group contains multiple channels, different groups, the sampling time is different, its storage time is not the same.

Topological graph show below:

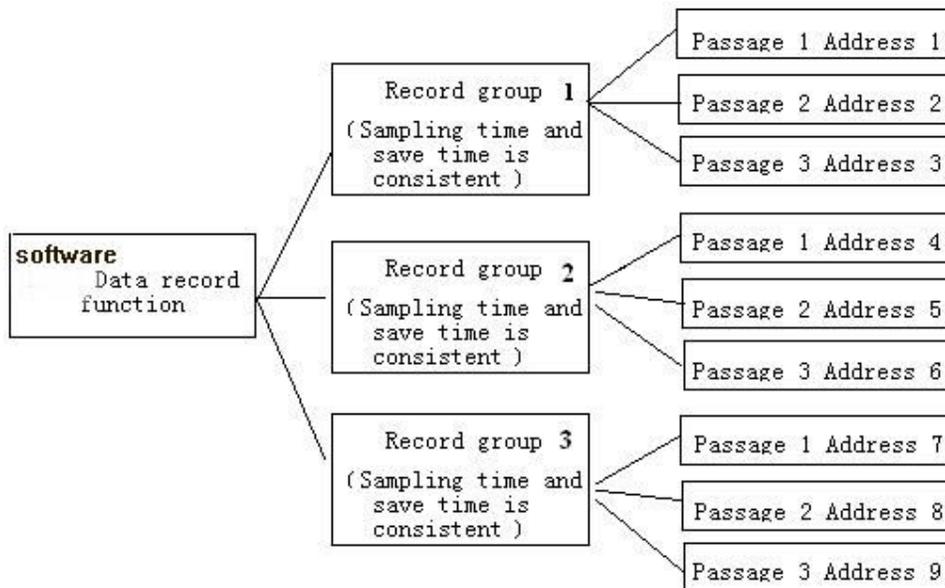


Figure 22-1 data record of topological structure

To record data in CF card on the preservation of it according to the above structure to organize.

The same record group, its sampling time and save time is consistent, in the group includes the multi-channel, sampling time arrives, each channel can according to own addresses to PLC registers data collection.

Sampling interval: Record group sequential sampling twice the time interval, record contents, the less will now be more accurate.

Auto save interval: software will be the first to receive data sampling stored in memory, every once in a while (it is), the system will save time the memory of the sampled data saved to CF card, if the system is powered down, then the man-machine will not save is still in the

data in memory.

As long as the data record function engineering use, and is to support a mass storage module of software , the system will according to set sampling interval sampled data, according to the set auto save interval preserving data.

22.2 Data record area

Engineering need configures good data record area can use data record function. From **Settings** -> **data record area**, open figure 22-2 shows the dialog box.

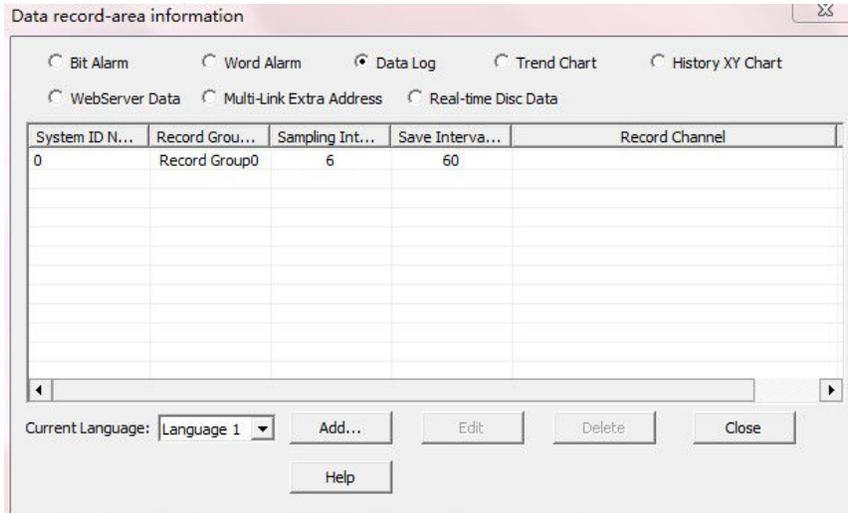


Figure 22-2 Data record area

Figure 22-2 shows the dialog enumeration current engineering records group.

Add: add a record group

Edit: Edit the selected record groups

Delete: Delete the current record groups

Closed: To close the dialog

Click **add**, and then entered as shown in figure 22-3 illustrates the dialog box.

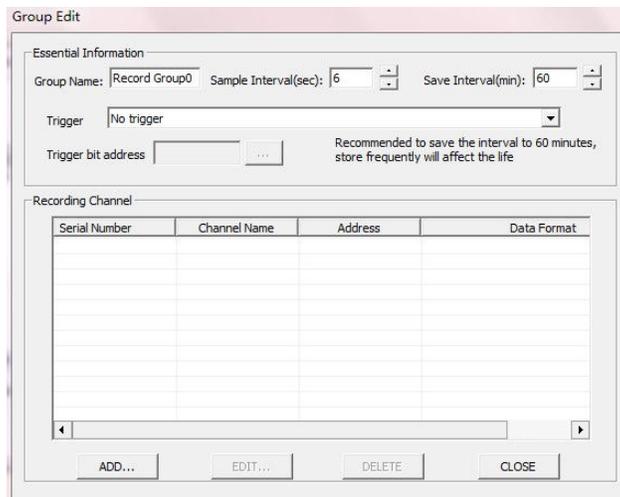


Figure 22-3 groups edit dialog box

Group name: Record the name of the group, the name is the only, can't name repetition.
Sampling interval: The record group sample interval, in seconds for the unit.
Auto save interval: The record set two successive do save operation (data from memory write CF card) intervals to minutes for the unit.
Determine: Determine the change.
Record channel: Enumerate the record set how many records channel.
Add: Add a record channel.
Edit: Edit the selected record channel.
Delete: Delete selected record channel.
Closed: To close the dialog
Trigger function: there are four available states—no trigger, trigger to record (sampled according to time), trigger to record and zero clearing trigger bit, trigger to record but not to zero clearing;

Each record group sampling interval, auto save interval, data processing, the log files are can dynamically in HMI revision, and modify the hind can power lost preservation, software retain only through the components on the register operation can be achieved, these registers in **&19.6 software retain registers** section are detailed description

In figure 22-3 illustrates the group editing dialog box, click **"add"** to access editor:

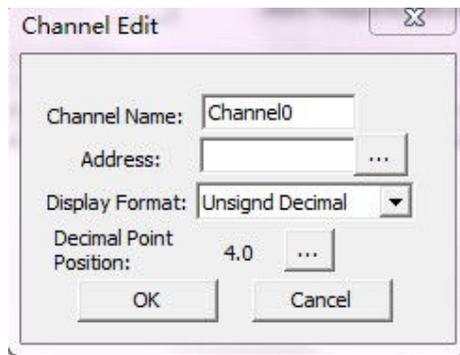


Figure 22-4 channel edit dialog box

Channel name: Channel's name, the name in the record in the group is the only, can't repeat.
Address: Records of the word address, can monitor is PLC registers, also can be the HMI registers.
Display format: In what format conversion of data, currently supporting unsigned decimal, with signs decimal, binary, octal, 16 floating-point BCD.
Decimal point position: Data stored in CF card o-quinines, whether should display the decimal point, and the format of the decimal point.

22.3 Data records

Record in CF card of data can also be on view, as long as the HMI placed a data records show that components.

Data records show offline analog shown below; click on ICONS S, pop-up inquires the

22.4 Upload data

Record data can be uploaded to the PC up undertake handling, use **data record upload (Data Upload)** can data from HMI to the PC, file format is CSV, this software in WECON company (www.we-con.com.cn) web site have downloaded. The software after the operation, appear below the dialog box.

Will the HMI specified COM2 mouth to mouth PC communications connection, and then run the Data Upload, appear below dialog box.



Figure 22-7 communication mouth Settings

Serial: Choose a PC communications mouth

Baud rate: Communication baud rate

Alarm data: Upload HMI of alarm historical data

Record the data: Upload HMI history records data

Click on the figure 22-8 shows the **determination**, and then entered as shown in figure 22-7 shows the dialog box:



Figure 22-8 Upload data dialog box

Buffer directory: Upload data process, need to specify a buffer directory to buffer data

Record group: HMI existing record group posting, must specify a record groups, one can only uploading a record groups

Start time and end time: Choose to upload data range

From HMI Derived data: According to the current selection from HMI upload data

Close: Cancel, do not upload data.

22.5 Read data through the card reader

Will CF card from HMI drew (highly recommended to pull inserted CF card closes HMI power) and HMI in CF card data is kept in through the catalogue organization. Therefore, only the familiar with the inside of the directory structure to find relevant documents.

Alarm data organization.

AL(alarm data directories located)0 is an alarm data directories located, 1 is word alarm data directories located 200701, 200702 these directories separately 2007 data, February 2007 data 01, 02 directory that day data inside document is some time between recorded data files.

For example, must look on October 23, 2006 the word alarm data. You must first from CF card find AL directory and find directory called AL "1" subdirectories, open this catalogue, find directory called"200610"this directory. Then find "03"this directory. This directory saved is on October 23, 2006, all the words alarm record data.

Data file is in accordance with the period to be named, such as 12-0.csv says it is twelve o'clock data files.

Record the data organization

AL(Record data directories located)a Subdirectories called group of Numbers 200701,200702 these directories separately January 2007 data, February 2007 of data 01 and 02 directory that day data inside a document is some time between recorded data files.

For example, must look on October 23, 2006 the word alarm data. You must first from CF card find DL directory and found in the catalogue record DL called serial number of subdirectories of group, open this catalogue, find directory called "200610"/span> this directory. Then find " 03" this directory. This directory saved is October 2006 23 all records data.

Data file is in accordance with the period for names, Such as 12-0.csv says it is twelve o'clock data files.

22.6 Record data printing

After uploading data can be passed below two ways of printing:

- 1、 Use of **EXCEL spreadsheet** open CSV format data files, sometimes time that a column met with "the # # # #" way of displaying and this is not the time, You just put in EXCEL in column width amplification time can display the time, then from the menu and select file "print file", can print data files.

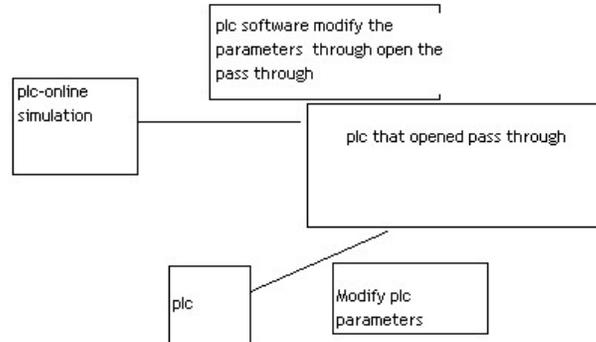
- 2、 With Windows system comes with **Notepad program** open CSV format data files from the menu, then choose "document print", complete data file print.

Both printed data is same, but the former has form lines and more beautiful, the latter no form line, more compact.

23. Application Scenario 1 :

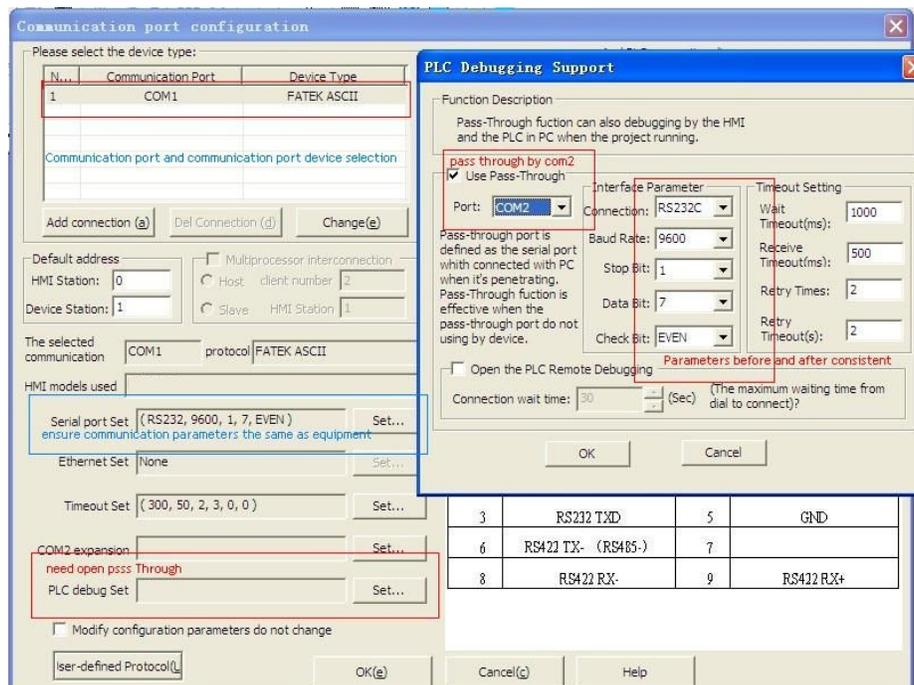
Online simulation

PC online simulation, HMI open the penetration function, PLC equipment in the distant remote download plc procedures, modify the parameters of the plc procedures.



Project settings

Note: The interface parameter is not correct, cause can not communicate ; timeout set too long or too short may lead to abnormal communication.

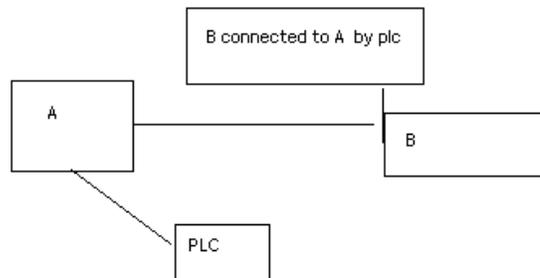


Application Scenario 2

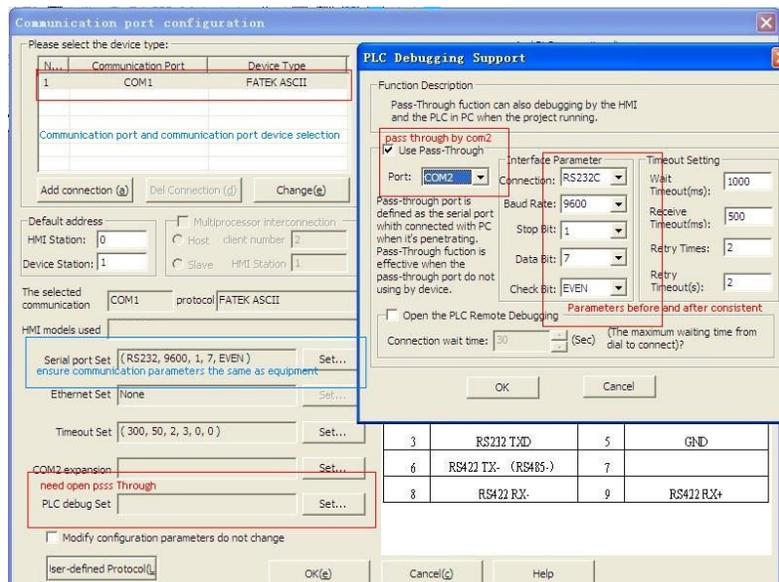
Penetration function between the screen

Between the 2 screen, a screen A to open the penetration function, a screen B not open to penetration. B communication, PLC by A start the corresponding operation.

Project settings



Note: The interface parameter is not correct, can cause not communicate timeout set too long or too short may lead to abnormal communication



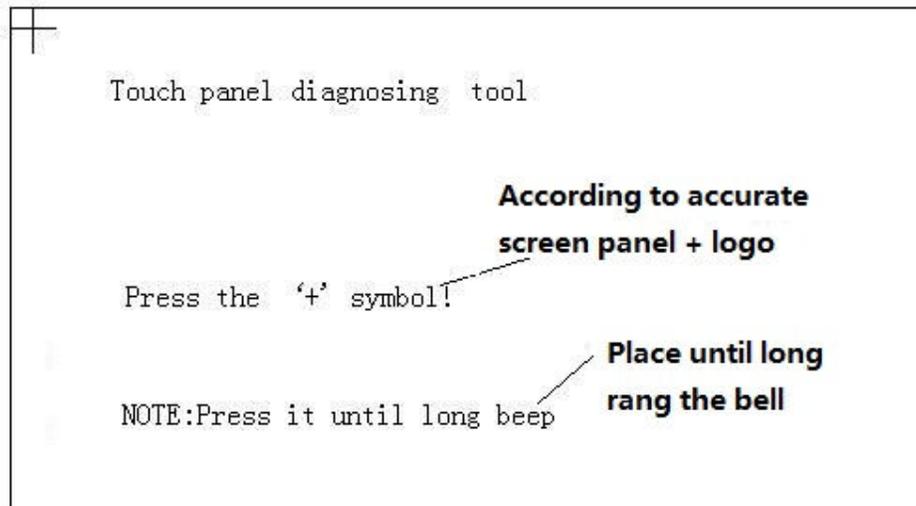
24. Common problems

In the first use of interface, the client often meets the following problems:

- (1) Touch screen key position inaccurate, touch screen test;
- (2) Upgrade update the engineering and kernel programs;
- (3) LCD contrast and brightness to adjust;
- (4) CF card record data uploaded;
- (5) HMI System parameter modification;
- (6) HMI factory test;

(1) **Touch screen key position is not accurate, what should I do?**

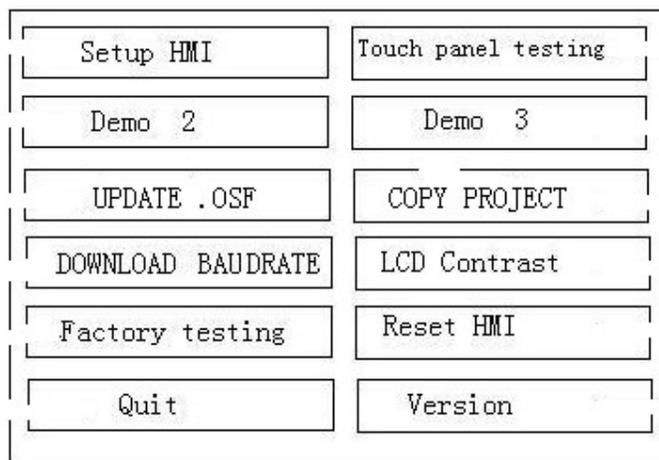
Solution: hold the upper left of the screen about 3~5 seconds, appear as follows interface



Click the top-left corner, in turn, lower the mid-point of the lower-right corner '+', restart can.

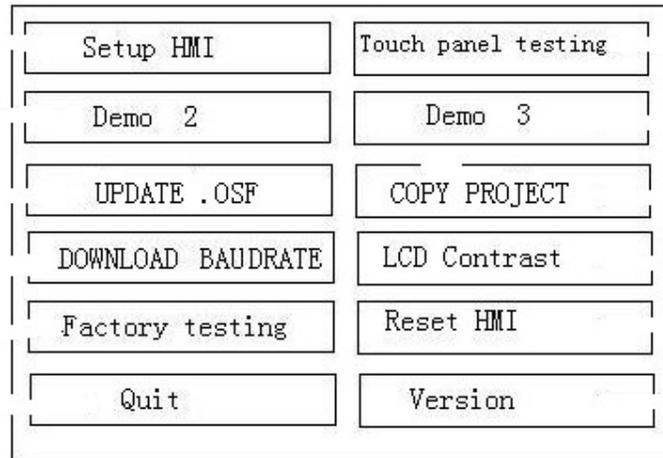
(2) **How to enter touch screen test image?**

Solution: hold the top right-hand corner of the screen about 3~5 seconds, appear as follows interface

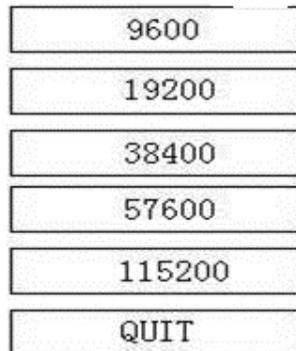


Choose "Touch panel testing", enter the Touch screen testing interface;

- (3) **Need to upgrade update the engineering and kernel program, how should do?**
Solution: hold the upper or lower screen about 3~5 seconds, appear as follows interface:

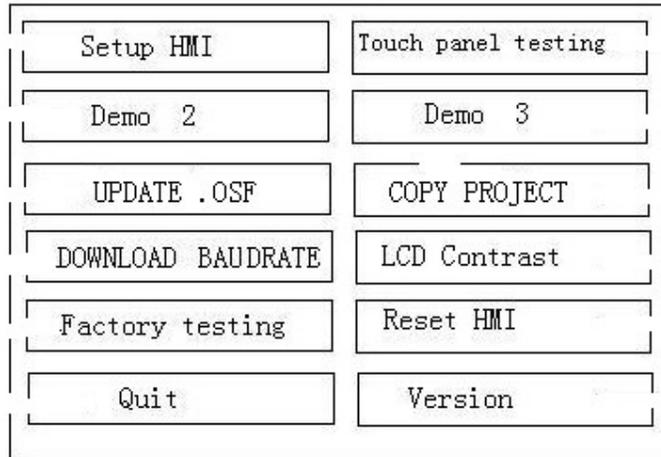


Current DOWNLOAD BaudRate is 115200,
Select Baudrate or Download Project



Then, then choose corresponding engineering or the kernel file download escalation;

- (4) **How to adjust the contrast of LCD screen?**
Solution: hold the top right-hand corner of the screen about 3~5 seconds, appear as follows interface



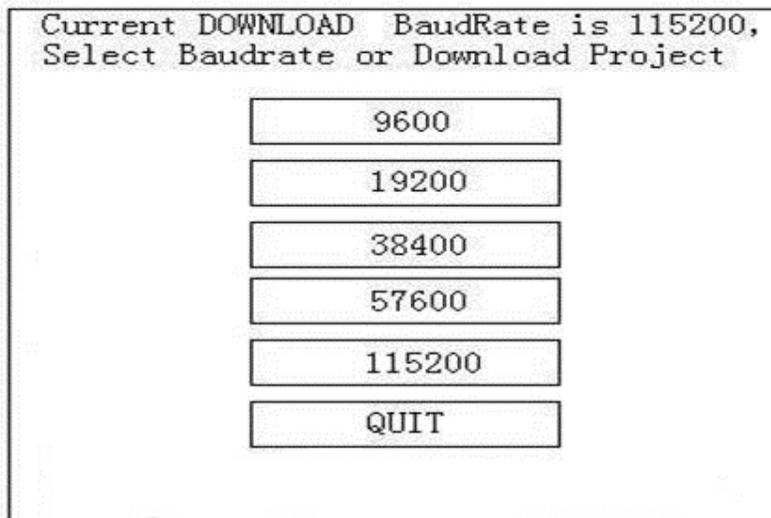
Then click "LCD Contrast" Contrast adjustment, enter setup screen regulation;

(5) **How to adjust the brightness of the LCD screen?**

Solution: in the back of the screen, the supply position of above about 5cmtweeters, there is a small openings, find a cross the small screwdriver, inserted in can; fine-tune;

(6) **CF card, record the data how to upload?**

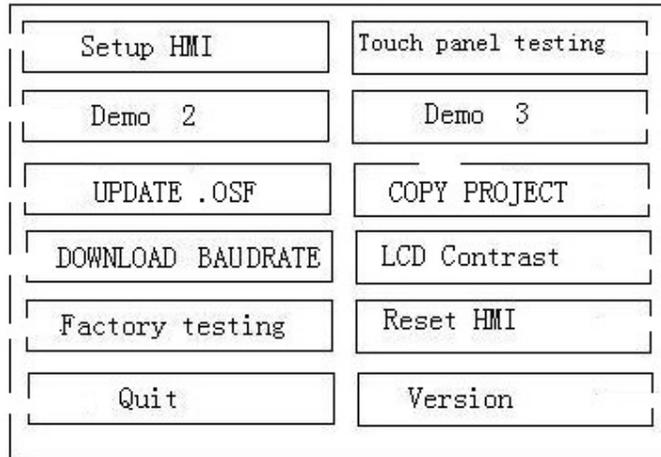
Solution: hold the lower right side of the screen about 3~5 seconds, appear as follows interface



Then, on a PC uploads software, choose record operation can;

(7) **Need to modify HMI system parameter, what should I do?**

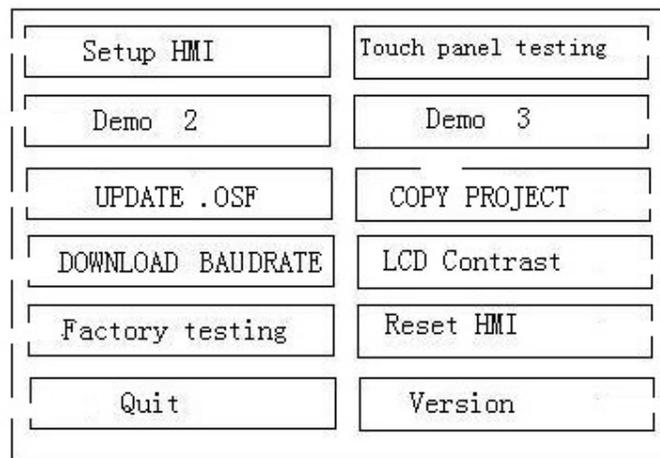
Solution: hold the top right-hand corner of the screen about 3~5 seconds, appear as follows interface:



Choose "Setup HMI", enter the touch screen parameter Settings interface;
 Note: if not familiar with the operation of the customer, try not to literally modification, otherwise the consequence is proud.

(8) How to enter HMI factory test?

Solution: hold the top right-hand corner of the screen about 3~5 seconds, appear as follows interface:



Choose "Factory testing", enter the touch screen if the Factory testing interface.

25.Move And Zoom Parts Added:

1. 、 Bit Switch、 Word Switch、 Functional Switch、 Super combination of buttons、 Bit Status Indicator Light、 Word Status Indicator Light、 4 Indicator Light、 Text

2、 Text Input/Display、 Direct Screen Display、 Indirect、 Date Display、 Time Display、 Static Vector Graphic、 Rectangle、 Bitmap (Testing•••)

Attribute Name Introduction

Data Range: setting the permit MinValue and MaxValue

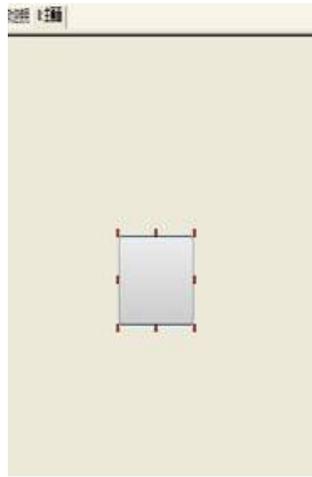
Prop Gain: Move and Zoom change Value=Input Data*Prop Gain + offset

Move Start Addr the start Addr of the Moving part, apply to make the part move

Zoom Start Addr the start Addr of the Zoom part , apply to make the part zoom

Move and Zoom Function Introduction:

1. From Parts “Left-Click” to select corresponding part, then drag and drop the part in the Screen, (as follow figure 2)



Figure(2)

2. “Double-Click” the part->Pop-upFrame properties ->select “Animatin”, as follow figure:

3. Select the data format, eg. Unsigned decimal, MinValue~MaxValue=0~65535

4. Prop Gain can be set to any one of the number which is not equal to 0. eg. Prop Gain="1.0000000"

5. Input the Addr of the Moving and Zooming, and Select the corresponding Zoom type or Move type. You can set the start Addr int the Component properties, as follow: Click the following “Invalid Addr” to set the Addr

6、Move Start Addr:

eg.—In order to make the Bit Switch Patr move, you need to set the “Move type addresss”

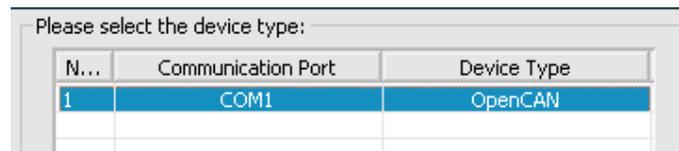
= HDW100, and then set the Digital Input/Display “Read addr”=HDW100. At this time, that you input the value to the “Read addr” just as you want to move the distance of the Bit Switch part.

Zoom start Addr: As Described Above?

(As described in chapter 15 mobile graphics zoom function article as above)

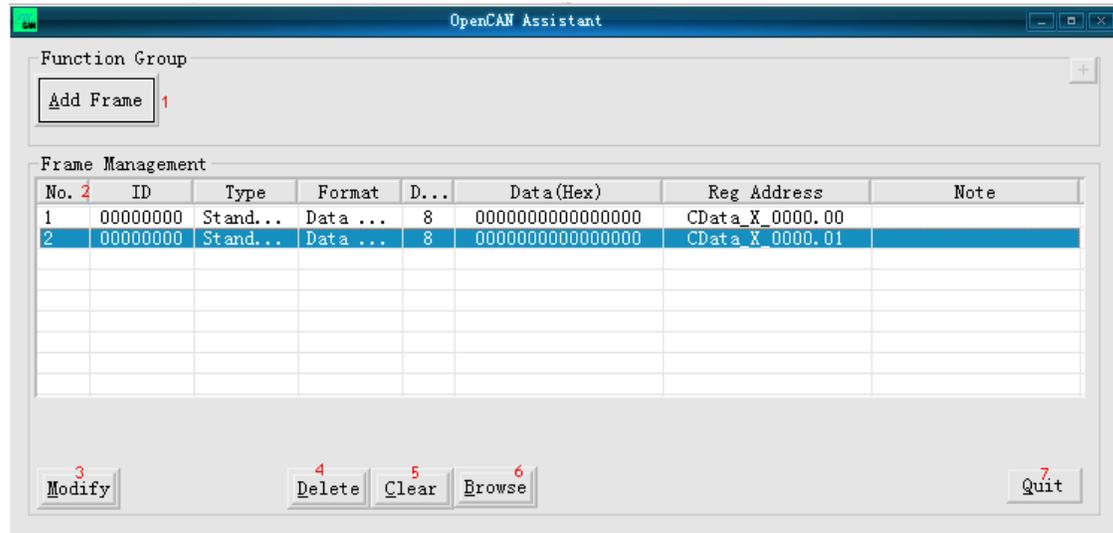
26. Opencan User Manual

1 Please select the OpenCAN device type before startup



2 Start from the configuration software, via the menu “Settings’
——» ”” communication port settings “——»
” ”OpenCAN configuration.

The main interface



1 Data Access: Increase a frame which is related to register address

2 Frame list: The list shows some of the major parameters of every frame added by the users

3 Modify: Modify the new frame in the data access

4 Delete: Delete the selected frame in the list; If the list did not select any frame, then remove the first frame

5 Clear:Clear all of the frames in the list.

6 Browse:Display the configuration file of xml format.

7 Quit:Complete the frame configuration and exit the program.

Data access

Reg Address	Reg Data Type	Start Index(Bit)	Data Len(Bit)

1 ID: Set up a CAN frame ID, the ID is hexadecimal format.

2 ID allocation: Set the ID by the PF, PS, and SA split.

ID (Hex)
0x 00000000 Distribute ID
PF: 0x 00 SA: 0x 00 PS: 0x 00

3 Frame Type: Select the section frame to be a standard frame or extension frame .

4 Frame format: Select the section frame to be a data frame or remote frame.

5 Data: Set the data portion of the CAN frame, two figures represent a hexadecimal number, and Separate then by space bar; support 8-byte data as defined in the CAN message.

6 Reg Address: Set the register address which is related to the CAN frame, The register address and register address set on the main state are One-to-one correspondence ,the date in the address allocated according to tonal.

Edit: Set the address or word address bit or word address format

Option: Set the option that address and frame are associated enter the register address option "interface, to specifically, browse the following register address option" interface.

7 Transmit: The HMI has two ways to transmit: one is the HMI send the frame and the device receiving、processing and feedback; The other is the opposite, the HMI receive the frame from the device then process and feedback.

First to receive then send:when check the option the HMI will be passive that HMI first to receive then feedback. IF not selected, the interaction is the opposite.

Feedback methods: including no response, acknowledgment (ack) response and data response.

No response: device or HMI will not receive feedback.

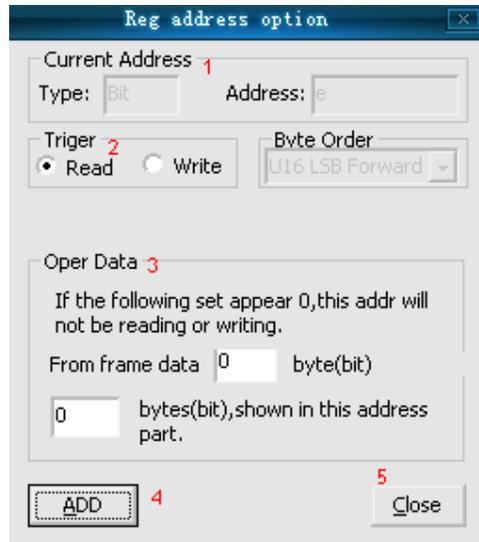
Ack response: device or HMI will received feedback that is waited to be confirmed ,can compare the data part.

Response: device or HMI will receive feedback with data, must be set to be spun off in the feedback frame data stored in the register address.

Must set the data that will be spun off from the feedback frame then stored in the register address.

Answer ID: If the address you want to receive data in the frames of the different ID, you need to set this item, check the "diff with sender", enter a different ID in the input box behind. If not procced the setting the HMI will receive the frame the same as the sender then process the data of the frame.

Register address option interface



1 Current address: Display the register address and type setted in the data access interface.

2 Triger: two modes of operation based on the screen on the register to "read" and "write."

If you select to "read", when register is reading the device's data , the read mode is send the user's frame circularly.

If you select "write", the register address conduct the screen data write to the device, the way of write is user conduct a write operating for the user, will trigger to send the frame.setted by the user for one time

3 Data operations: conduct same corresponding data set to read and write operationsin trigger conditions.

If the trigger conditions is the read operation, the part you need to set the current address that to obtain the location and length of the frame.

If the trigger condition is a write operation, there are two cases:

A. is not selected, the written data is added to the frame "option, when users write on the screen, sent the frame directly setted by user.

B. IF select the option that "written data is added to the frame ", when users write on the screen, the program will insert the location and length of the data according to user settings, set the write data in user settingsframes and send.

Location and the input format of length :

(1) If the register address type bit, you need to use a decimal point bit bytes, such as 1.1 is the first bit in 8 bytes of the data frame , and the unit of the length is bit and so on.

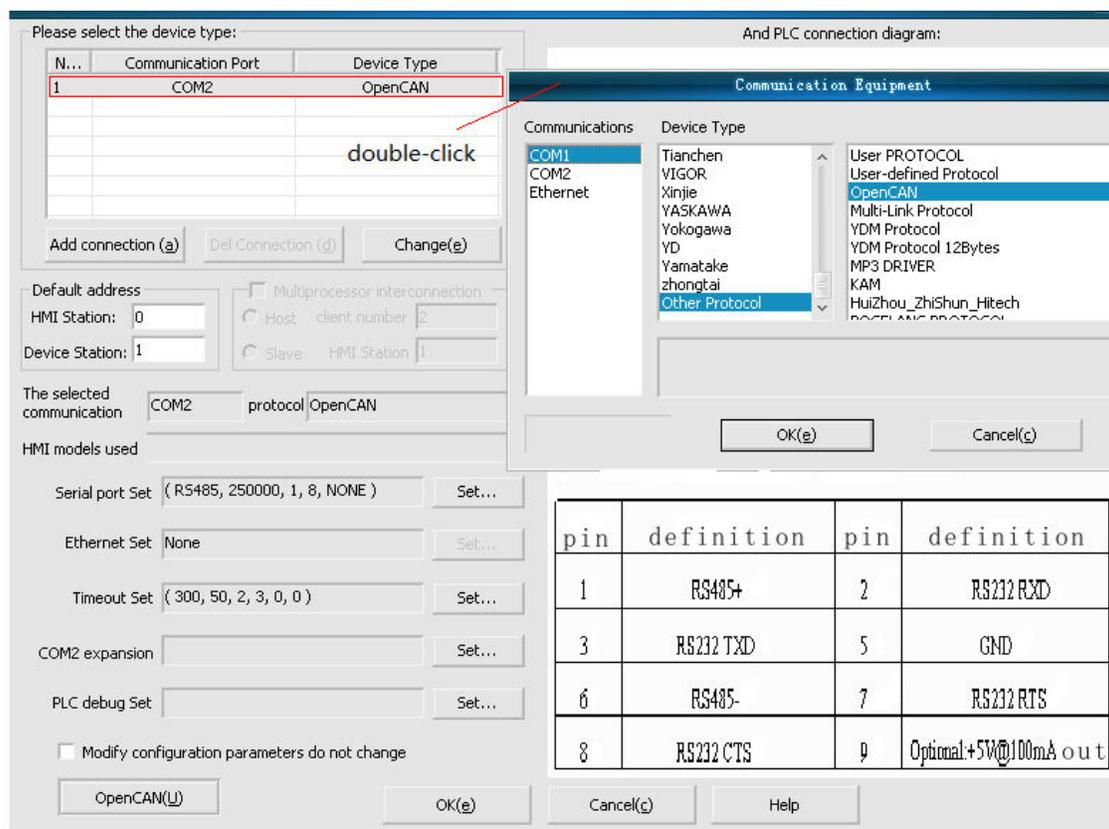
(2) If the register address type is word, just use integer to indicate bytes, such as 1, indicating the first bytes of the 8 data bytes in the data frame, and the length is bytes, and so on.

4 Add: add the current settings.

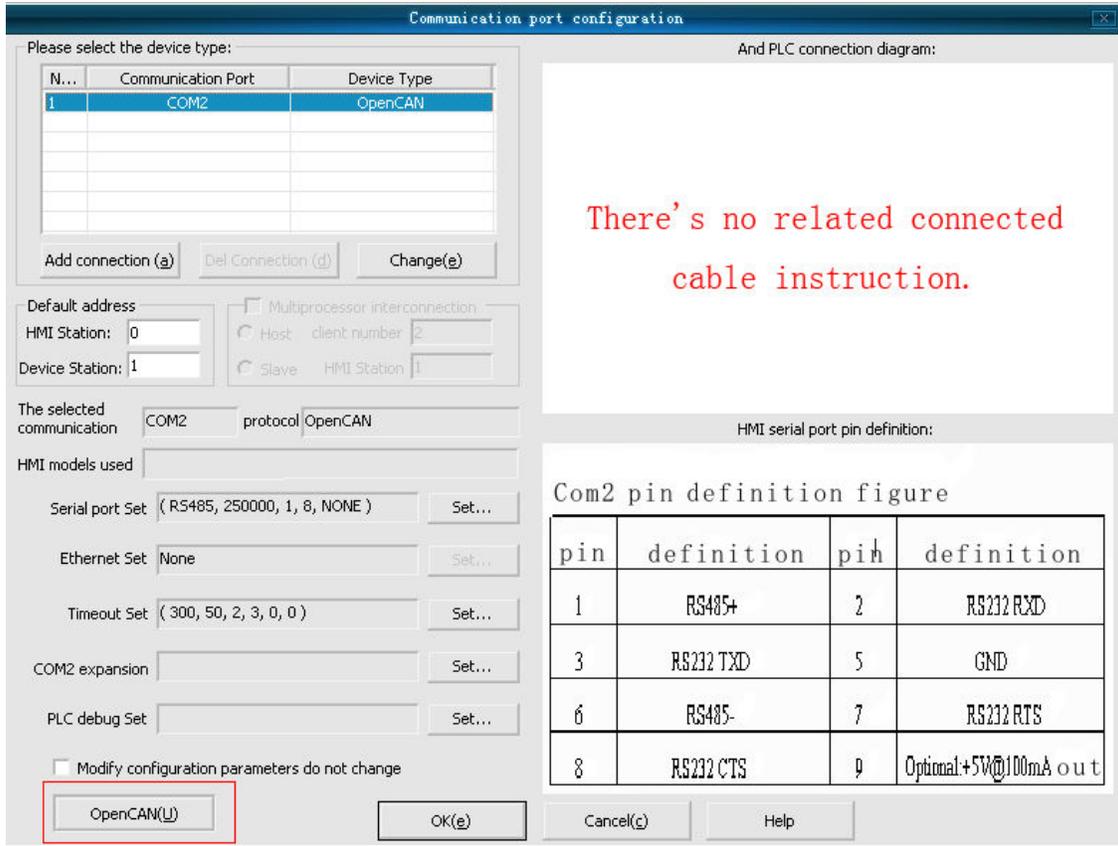
5 Close: close the window.

Using Example: the first, select the protocol.

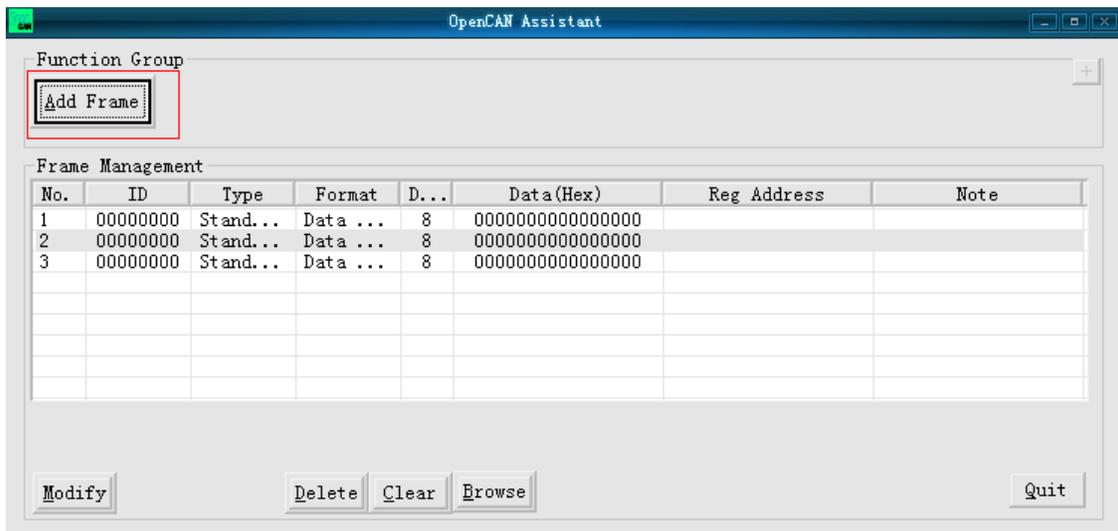
When we created the project requires you to set the serial communications, HMI model and the device type. choose our opencan agreement in the device type there . Open the communication port settings, double-click the device type and then find opencan point and click determine.



The second step, add frame instructions.

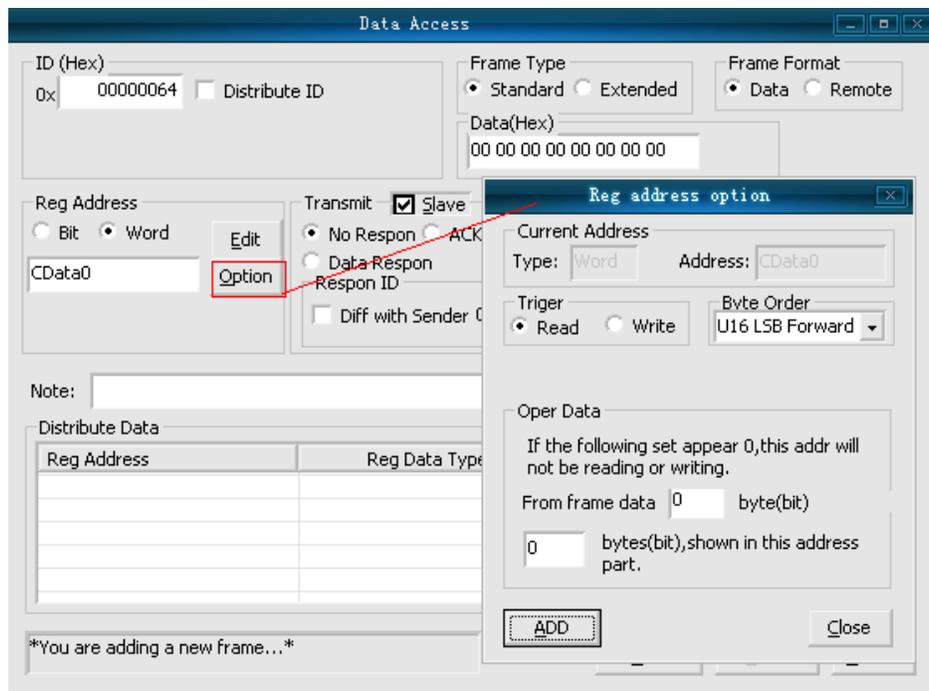
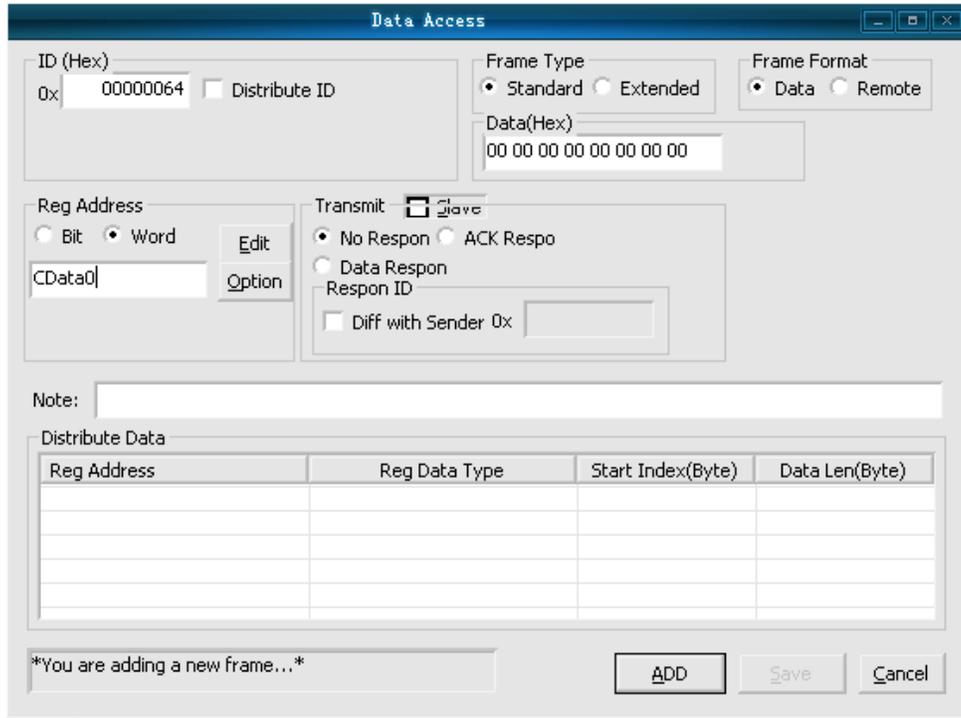


In set, then communication configuration set . And then click the bottom in left corner to go into the interface .



Then we click add instructions. According to the agreement, id input 000064 h and then address is words address, click editor. We reading data are all from equipment there , so data don't fill in, then don't need to feedback , so hook

up the button
'slave' and 'no response'.



At first we are reading, so in the options click reading, and then select U8

SingleByte the units is bytes. Then click ADD is ok, and finally add the address you editor in the picture of .engineering

27. The introduce of CAN agreement 1939 address editor way.

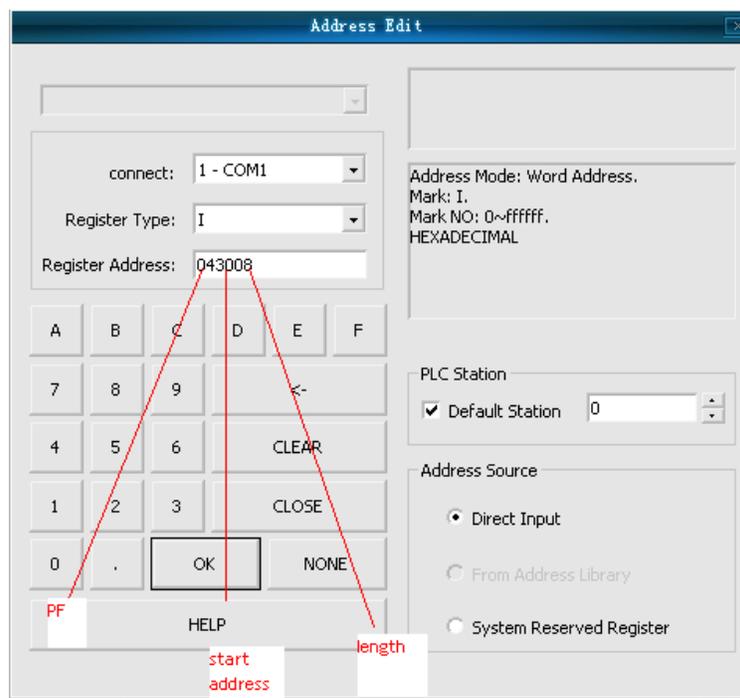
Two hexadecimal data represent an information in the Address Editor.

For example: In this image, the hex 04 on behalf of the PF value.

Hex 30 represents the start address.

Hex 08 represents the length of the hex.

Hex 167 represents the SOURCE ADDRESS (SA).



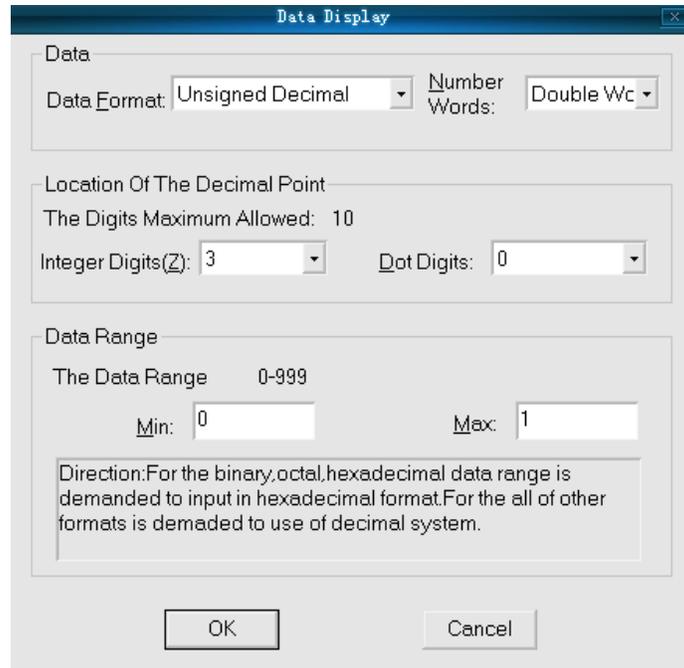
Data:0101 0101 0101 0101 0101 01.....

Such as address 010 008 PF = 0x01: start address 0x00 length 0x08 , data is 0101 0101

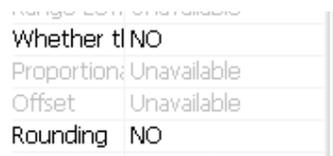
Data:1110 0010 1110 1110 1010 1001 0.....

Such as the address 320 703 PF = 0x32: start address 0x07, length 0x03, data is 011, the subscript of the start address start from 0.

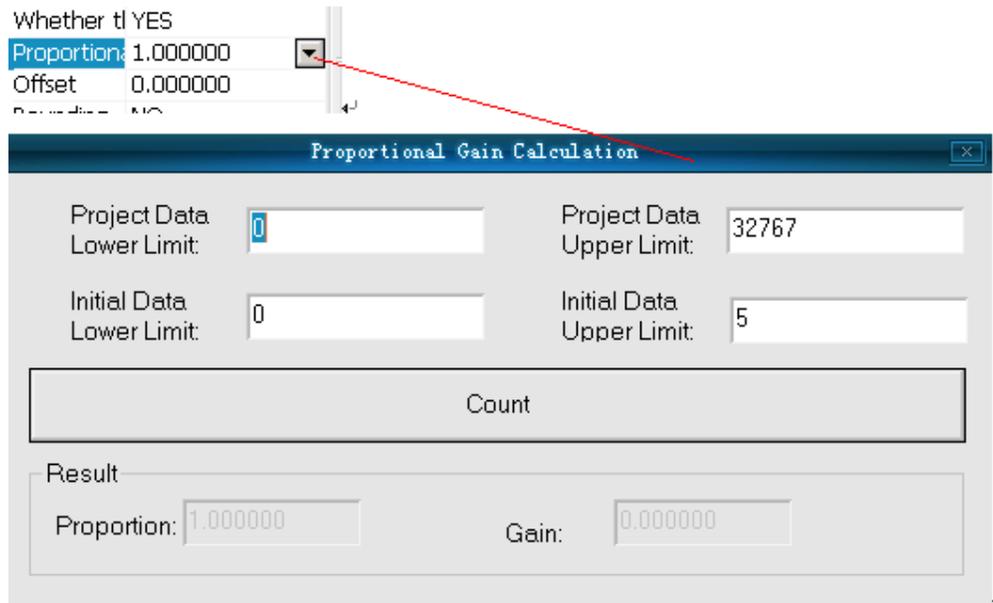
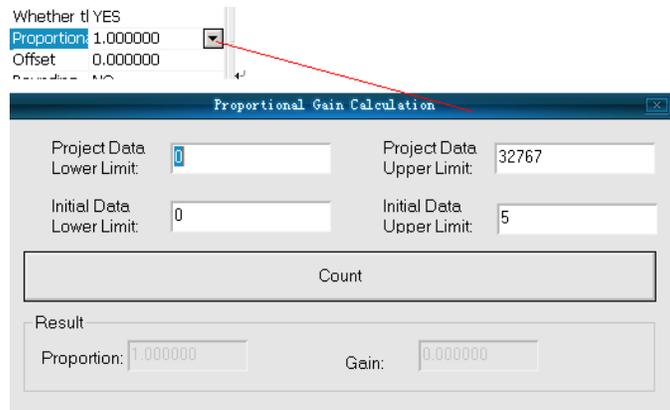
The length is calculated according to the starting address, if the length is greater than 0x10 must be set to double word, or set words , the length must not exceed 0x20.



The use of Gain and offset:



If you want to use the gain or offset, whether t1 choose "Yes", input data directly If don't know the determine data of the gain and offset , you can click



the triangular arrow on the right, it will appear this calculation tool.
The following is a description of the formula:

Instruction

Computing Formula: $Y=kX+b$. X:Input(display) data from man-machine interface. Y:Data written to the PLC(or from the PLC to read the data)

Project Data:Input data from man-machine interface.

Initial Data:The data is written to the PLC(or from the PLC to read the data).

$k = \frac{\text{Initial Data Upper Limit} - \text{Initial Data Lower Limit}}{\text{Project Data Upper Limit} - \text{Project Data Lower Limit}}$.

$b = \text{Initial Data Lower Limit} - k * \text{Project Data Lower Limit}$.

28. Modbus All Function drive documentation.

Note: Modbus protocol also adds the word to take function, you can access the address like the 100.1 and other formats , but the function code send is the same as the word read and write !

Register type	Function code(Hexadecimal)	Access method	Readable and writable?
3	04(read) 06(Write Single Register) 10(Write more)	16-bit access	✓
4	03(read) 06(Write Single Register) 10(Write more)	16-bit access	✓
W6	03(read) 06(Write Single Register) 10(Write more)	16-bit access	✓
W16	03 (read) 10(Write more)	16-bit access	✓

Register type	Function code(Hexadecimal)	Access method	Readable and writable?
0	01(read) 05(Write Single Register) 0F(Write more)	16-bit access	✓
1	02(read) 05(Write Single Register) 0F(Write more)	16-bit access	✓
W5	01(read) 05(Write Single Register) 0F(Write more)	16-bit access	✓
W15	01 (read) 0F(Write more)	16-bit access	✓

29. Set Ethernet IP by internal address

Note: 700L don't have Ethernet capability

Set Ethernet IP by internal address

HMITERM enable internal address to set the IP address of the Ethernet , after set the IP onlt make HSWO = 1can save the new IP address, and after restart the touch screen the new IP address entered into force for communication.

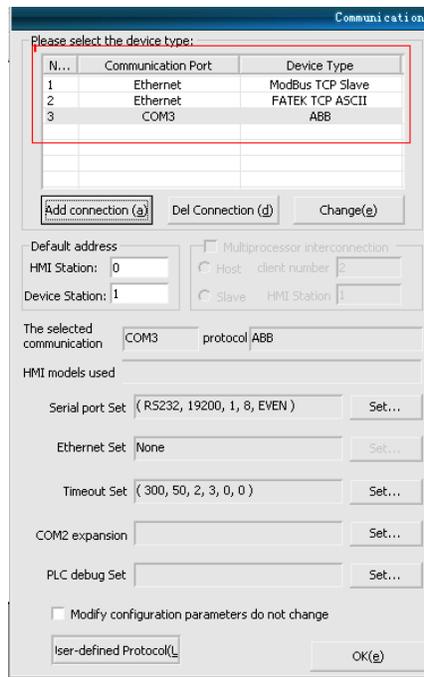
Here the IP address refers to the destination address.

At present, the address opened is HSW561 ----- HSW660 , every 5 be a group. Each connection is assigned the five addresses.

1 HSW561 ---- 565 is the first Ethernet. In which HSW561, HSW562, HSW563 HSW564 is IP address 192.168.1.46 , HSW565 is the port number 502.

2 HSW566 --- HSW570 is the second Ethernet address , the first four is the IP192.168.1.201 , the fifth is the port number 500 .

As above, through the number of Ethernet in communication mouth, offset the address it is used to store its corresponding IP number.



In the communication process, if the address of HSW561 --- 660 is changed, and HSWO = 1 , then it will will save the value which has changed , restart the touch screen will use a new IP address to communicate (we can restart it by hardware or let address HSW24= 1 by software)



30. The internal HDX, HDW address about Modbus RTU master Mapping .

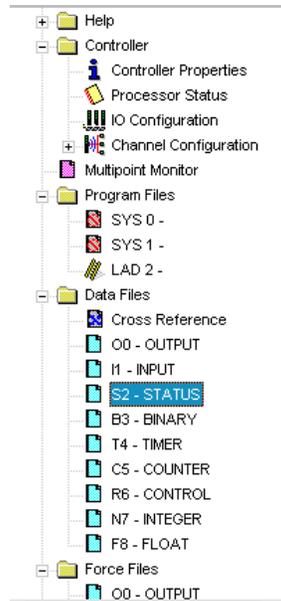
Bit address: HDX3000.0 ~ HDX3499.15 corresponding to 00 07 999, readable and writable

Word address: HDW3500 ~ HDW7999 corresponds to 40 ~ 44 499 , readable and writable

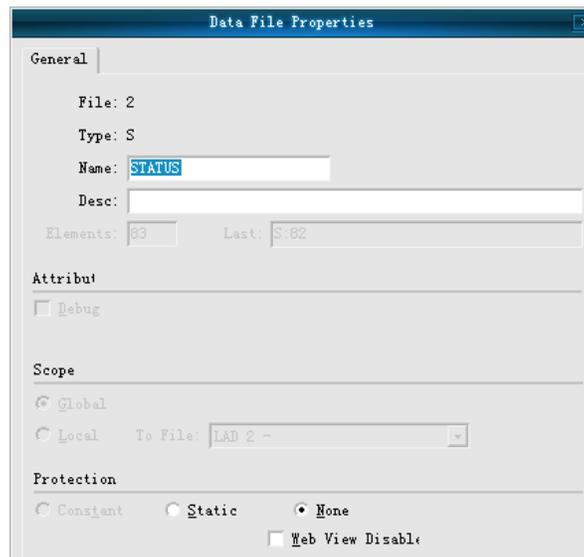
31. AB mirologix 1200

1:AB plc register settings

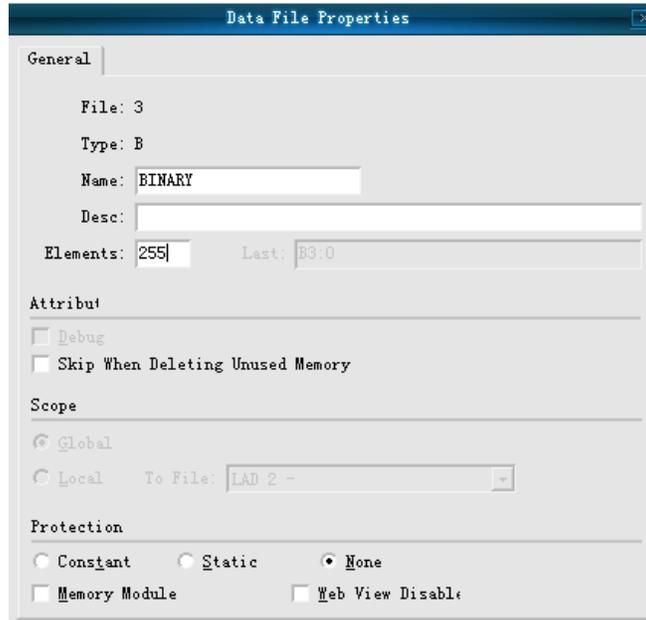
Set the plc by rslogix 500



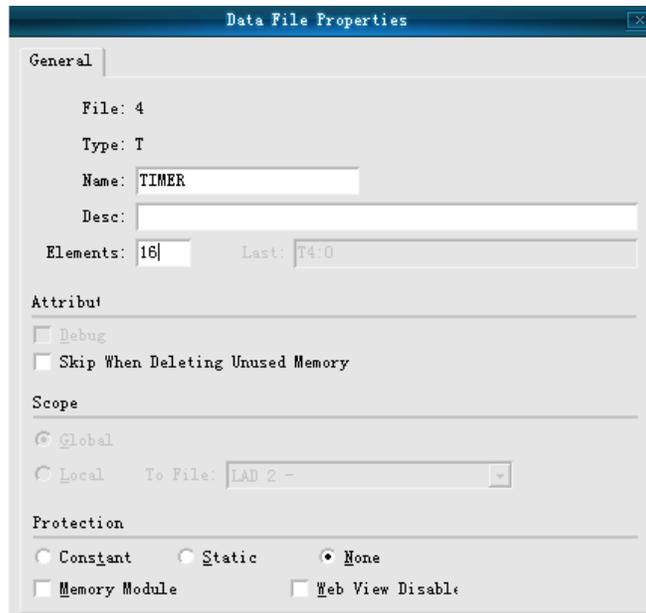
A: Set the size of the elements in the register properties by right click B3, C5 T4 R6 N7 F8 at the data file .



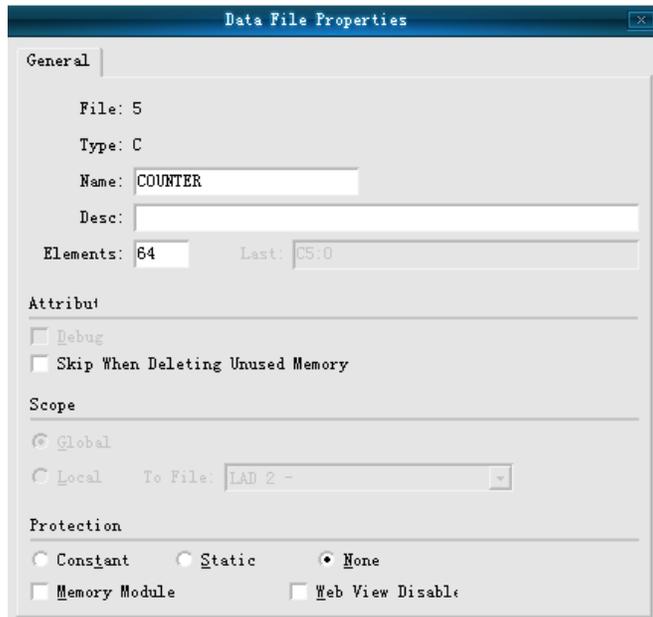
B: Set 255 at B3 element



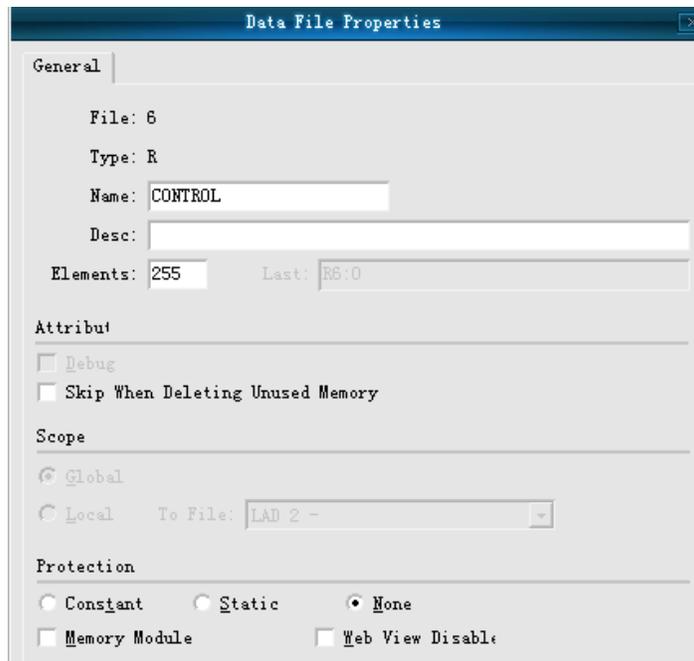
C:Set 16 at T4 element



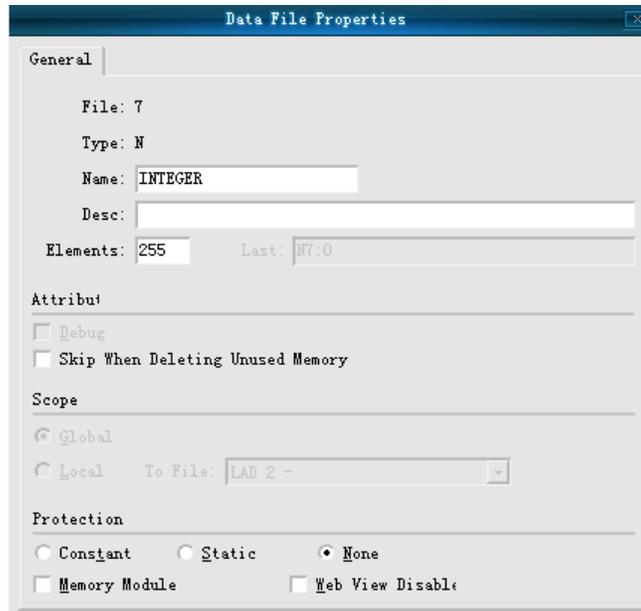
D:Set 64 at C5 element



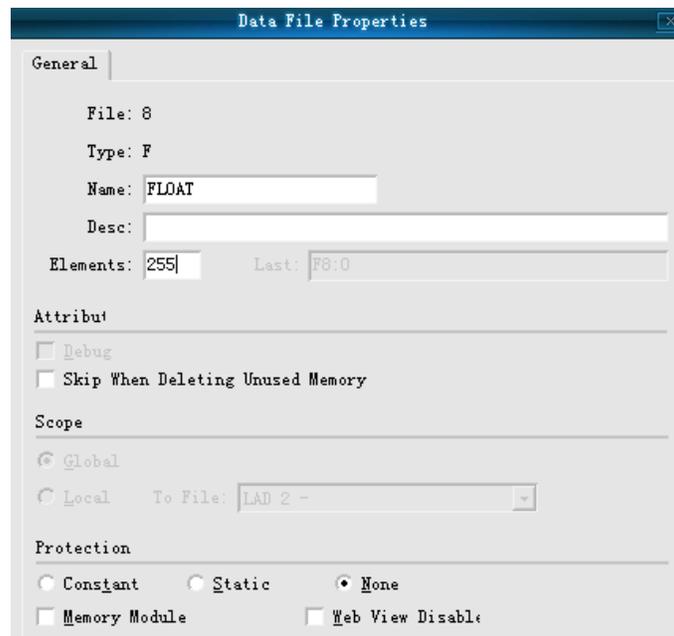
E:Set 255 at R6 element



F:Set 255 at N7 element



G:Set 255 at F8 element



2:The registers

1: Please set F register to be 32 bit of the floating-point double-word. For example, use F register and set the data format to be double-word. So when set the address, they are F0, F1, F2 and so on.

2:The other registers set to be double-word. For example, if set the N0 to be double-word, that the addresses are N0 N2 N4 and so on.

31. The introduce of AB PLC Address Editor

Operational address is based on the case that an Allen-Bradley PLC connected to touch screen , if exits the expansion module or other special circumstances, please refer to the Allen-Bradley PLC instruction manual.

The following is the Allen-Bradley, the MicroLogix 1200 as an example

Bit address: address range: 0.0 to 255.15

In front of the point data from 0 to 255 is word address, the format is decimal; 0 to 15 after the decimal point is the sub-address, format is decimal.

Bit address B: Address range: 000.0 ~ fff.15

Pink range from 0 ~ f , format is hexadecimal, on behalf of the block number; The red range is 00 ~ ff , format is hexadecimal, on behalf of the word address; After the decimal point 0-15 on behalf of the Sub-address, the format is decimal

Word address S: address range: 0 ~ 255 represents the word address, formatted is decimal;

Word address TS: address range 0000: ffff red 00 ff. Represents the block number format is hexadecimal ;

Yellow 00 ~ ff on behalf of word address, in hexadecimal format

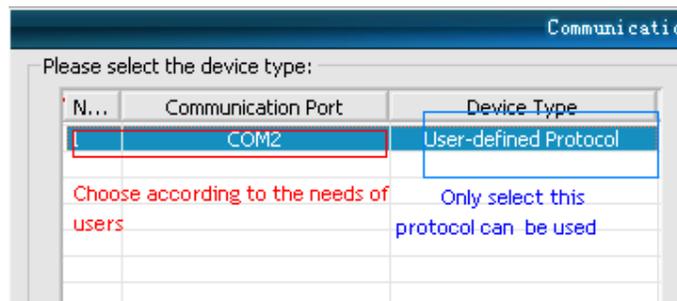
Register address TP, CS, CP, N-, the F and TS address edit the same.

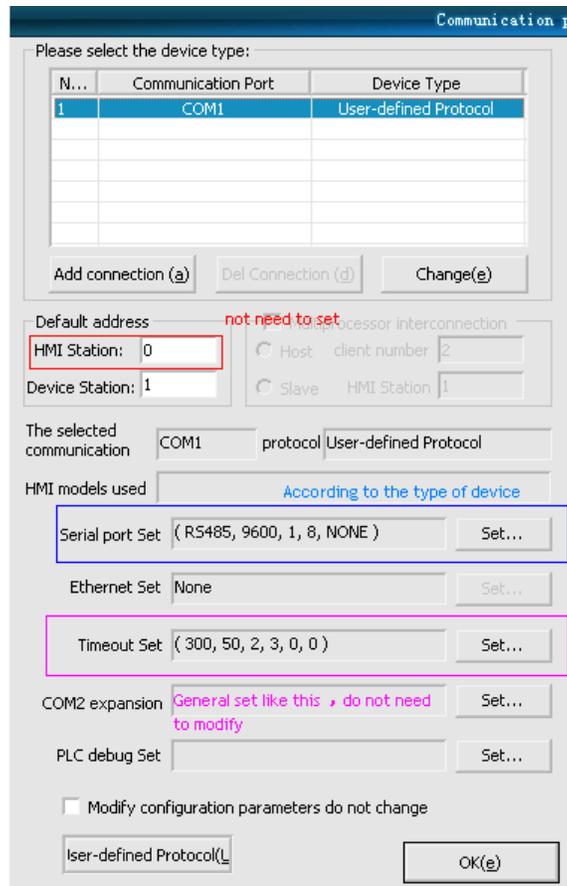
PLC bit address type	Address format	Address range
I	dd.dd	I-0.0~255.15
O	dd.dd	O0.0~255.15
B	fff.dd	B00.00~fff.15
S	dd.dd	S0.0~255.15
N	ffff.dd	N00.00~fff.15
PLC bit address type	Address format	Address range
S	ddd	S0~255
TS	ffff	TS0~FFFF
TP	ffff	TP0~FFFF
CS	ffff	CS0~FFFF
CP	ffff	CP0~FFFF
N	ffff	N0~FFFF
F	ffff	F0~FFFF

d stand for decimal, h stand for hexadecimal ,different PLC may support different register ,subject to the actual PLC prevail.

32. User-defined protocol

First: The configuration





Protocol settings:

The settings here the most important is the type of device, you must select the "user-defined protocol"

Communication port, according to the needs of users to modify

Interface parameter settings:

Depending on the device to modify

The default address, station number:

Here generally do not set

Timeout setting:

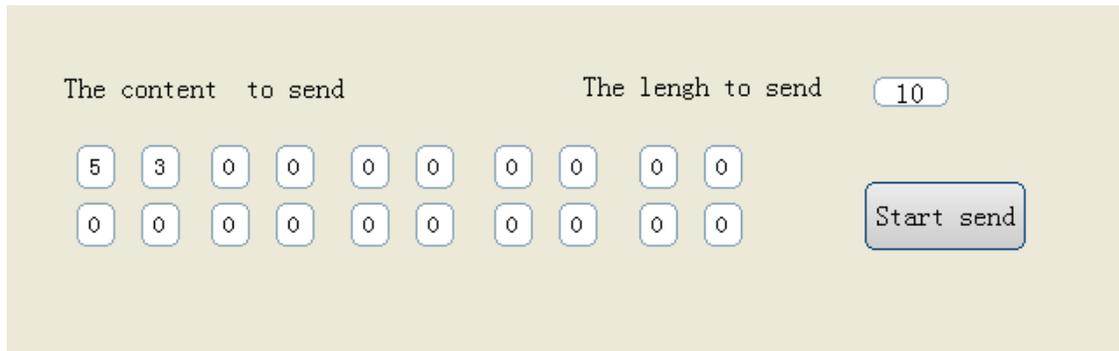
as the same as picture

Second, The operation of the serial port to send data.

1, Fill SendNum word register, the register is to send serial data, sent the data out from the serial port, the unit is BYTE.

2 Set SendLen word register, the register is to sent the length of data , unit is BYTE

3 Set SendFlag word register , when all data is written, then set this register be 1, then can send the data.



From the example, the Serial port will send this data:5 3 0 0 0 0 0 0 0 0

Third, the serial port to read data operation

1 We can first emptied the ReadNum register data, ReadNum register read the data from the serial port .Put into here, the unit is BYTE .

2 Set ReadMaxLen bit registers, this register is to receive the length of the data from the serial port , it is the best to set a certain range of the length, otherwise it will affect the serial communication speed, that must wait for the timeout .

3 Set ReadFlag-bit register on after that, began to read the serial port, put the data in ReadNum registers, put the actual bytes in ActualReadLen register.

4 ActualReadLen bit register is the actual received data, can compare this register to determine whether the read was successful, if 0, it means did not read any data. Sample:



In this example ,it will read 10 data from the serial port into ReadNum register.

Fourth, serial cleanup operation

The COMIO register is used to clear the serial buffer, when the bit is set, the serial data will be cleared

Five ,CRC checksum to send the CRC of data.

Check0 to check4 computing the crc check of send data ,it means the checksum of sendnum register address.

Check0: the starting address.

Check1: length

Check2: If value is 1, starting

Check3: crc checksum high

Check4: crc checksum low.

Example: calculate CRC checksum from sendnum3 to sendnum10 .

Check0=3

Check1=7

Check2=1

The final crc check read in the address check3 and check4 .

Receive the crc check of data, from Check5 to check9

is to calculate crc check of the receive data ,it is the value checksum of register address.

Check5: the starting address.

Check6: length

Check7: If value is 1, starting

Check8: crc checksum high

Check9: crc checksum low

Example: Calculate CRC checksum from readnum3 to readnum10 .

Check5=3

Check6=7

Check7=1

The final crc check read in the address from check8 to check9.

33. The overview of address mapping function :

Address mapping: the source address corresponds to the target address (can counterpart by intermediate operations). The source and destination addresses is PLC address can also be the internal address. Can come from a different serial port. Like BMOV script . For example, the D0 mapped to HDW100 mapping length is 10., D0, D1, D9, the values were mapped to HDW100 HDW101 HDW109.

Editing software

Project Manager: "address mapping used to edit the address needs to be mapped.

Third, the introduce of the address mapping function

3.1 Address mapping: the source address corresponds to the target address (can counterpart by intermediate operations). The source and destination addresses is PLC address can also be the internal address. Can come from a different serial port. Like BMOV script . For example, the D0 mapped to HDW100 mapping length is 10., D0, D1, D9, the values were mapped to HDW100 HDW101 HDW109.

When mapping is "read only", the value of the source address change ;destination address value corresponding changes; when send the value of the target address after the change, the value of the corresponding source address does not change

3.2 When mapping is "write only", the value of the source address change ;destination address value corresponding changes; when send the value of the target address after the change, the value of the corresponding source address does not change.

3.3 When mapping is "read and write " when the source address value changes, the value of the target address corresponding changes; the value of the destination address is sent, the value of the corresponding source address along with change.

3.4 The source address can have two groups, two groups after certain operations (four arithmetic or logic operation), the result is mapped to the destination address. For example, the source address HDW100; source address is HDW200 by the sum of the mapping to the target address HDW300 mapping length is 10.

$$\text{HDW300} = \text{HDW100} + \text{HDW200}$$

$$\text{HDW301} = \text{HDW101} + \text{HDW201}$$

HDW309= HDW109+HDW209

The mapping control whether or not to open the mapping function by bit address. For bit and word, a bit address to control the. A mapping block also has a bit address. Bit address mapping and word address mapping, and their respective global bit address to control; each mapping block relationship can also have their own control address, but the global control bit address priority.

3.5 The mapping can be two options: to read and write, read-only.

3.5.1 read and write

The source address of the value changes, the value of the destination address along with change. The value of the destination address is changed, the value of the source address change too. For some four operations or logic operations, the operator approach is not the inverse operation, can not choose this way.

3.5.2 read-only

The source address of the value changes, the value of the destination address along with change. Change of the value of the target address, source address does not change. For some four operations or logical operations can only choose this way.

Cautions

4.1 Some four computing don't have inverse operation: trigonometric functions, shift, asking, etc., there is no inverse operation can only choose "read only" mode.

For example HDW100 and HDW200 remainder then the resulting value is mapped to HDW300, so when the value of the HDW300 changes, HDW100 will not change. Because unable to calculate HDW100.

4.2 Each mapping block the maximum length is 65535.

4.3 If no control over the mapped address, the default is to open mapping. After the bit address is set, when the bit address value is 1 is not open mapping, the bit address value is 0, open mapping.

4.4 The update frequency of the degree means, : the update frequency of reading the device data. The default is 0

4.4.1 The normal read speed is 0; quick read value is 2, read through the value is 1, do not read buffer, directly read the device is 3.

34. Function of The Address

mapping

Synchronous update of the destination and source addresses.

1. Choose Project Configuration.



2.

The 'Address mapping' dialog box is shown with the 'Word Addr' radio button selected. It contains several input fields and controls:

- Source address1: [Text Field] [Edit] [Data type] 32 bit register
- Source address2: [Text Field] [Edit] [Data type] 32 bit register
- Rules of operation: [none] [Length: [Text Field]]
- Mapping mode: [Read and write] [Update frequency: [Text Field]]
- Control to enable trigger address: [Text Field] [Edit]
- Target address: [Text Field] [Edit] [Data type] 32 bit register
- [Control to enable trigger address]

Buttons at the bottom: Add, Change, Del, Clear, Close.

Field n...	Sou...	Rules of ...	S...	Target addr...	Mapping mode	Trigger addr...	Length	Update frequency
WORD	D0	none		HDW100	Read and w...	X2	10	2
WORD	D50	none		HDW500	Read and w...	X2	10	2

3.1 **【Only Read】** The value of the destination address as the source address value;

3.2 **【Read and Write】** Bi-directional mapping.

With the update of the destination and source addresses

3.3 .Four arithmetic or logic operation is mapped to the destination address.
For example, one source address is HDW100, and another one is HDW200 .
destination address is HDW300 .mapping length is 10.

HDW300= HDW100+HDW200

HDW301= HDW101+HDW201

HDW309= HDW109+HDW209

3.4

NOTE

4.1 Some must choose “Only read”

4.2 The max address len is based on the protocol.

4.4 Update Frequency:0 or 2