HCFA
禾川科技

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用我们的工作 创造美好的生活

其他功能使用讲解

Zhejiang Hechuan Technology Co., Ltd.

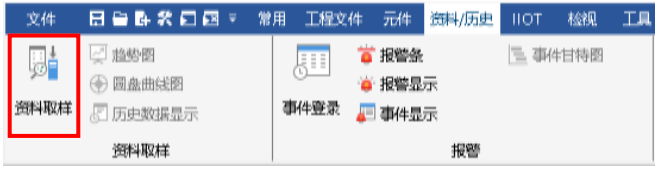
CONTENTS

Data sampling

Explanation of data sampling function

- **[Data sampling] the sampling method used to configure data sampling.**

Step 1: Select [Data History] -> [Data Sampling], and the Data Sampling Properties dialog window will pop up.



Step 2: Click the [Add] button to pop up the data history dialog box, and set relevant parameters such as sampling method, sampling address, and maximum sampling quantity in the dialog box.

1. Sampling method: Set the conditions for executing data sampling: periodic execution or bit/word condition triggering.

2. Batch sampling: Collect data starting from the data source address as the sampling data start address, and collect data from the continuous addresses of multiple formats set in [Channel Number].

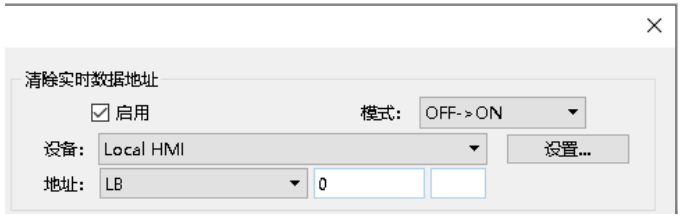
3. Data Recording: If [Auto Stop] is not selected, the HMI can retain up to 86,400 data entries. Once the limit is exceeded, the oldest data entries will be deleted starting from the oldest. If [Auto Stop] is selected, data sampling will stop once the maximum number of entries in [Timed Mode Maximum Entries Maximum Data] is reac

Data sampling

Explanation of data sampling function

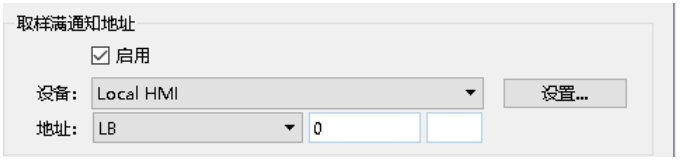
4. **Non-batch sampling:** Collect data at the specified address;

5. **Clear real-time data address:** When the configured conditions are met, the sampled data in the trend chart [real-time mode] will be cleared, and the number of sampled data will be reset to zero, but this will not affect the historical sampled data saved in the file;



6. **Pause sampling control address:** When the state of the specified address is triggered, sampling will be paused until the state of the specified address is restored;

7. **Full sampling notification address:** When the number of sampled data reaches the maximum, write ON to the specified address;



8. **Historical data:** Set the location where sampled data is saved;

Data sampling

Explanation of Trend Display function

- [Trend Display] Components will be set in [Data sampling], and the data will be plotted using continuous line segments.

Step 1: Click [Data History] -> [Trend Display] in the menu bar to pop up the property dialog box of the trend chart component.

Step 2: In the dialog box, select the data source for the trend chart under [General Properties];

1. Data Sampling Component Index: The data source required for plotting;

Step 3: Click the [Trend Display] tab in the trend chart component properties dialog box. Users can select the grid, time scale, and date/time format they wish to display.

Data sampling

Explanation of Trend Display function

Step 4: Click the [Channel] tab in the trend graph component properties dialog box. Users can select the sampling data channels they want to display on the trend graph component and set the curve properties and maximum/minimum values for each channel.

CONTENTS

Alarm function

Event (Alarm) Log

- **[Event (alarm) Log] Used to configure event trigger conditions and content.**

Step 1: Click [Data History] -> [Event (Alarm) Log] in the menu bar to pop up the event log properties dialog box.

Specify the storage location of the event log file. When an event is triggered, the HMI will save the log to the historical data. When using the online or offline simulation function, it will be stored in the ParsePro/project name/ftp folder under the installation directory. Set the conditions for data sampling execution.

Step 2: Click the [Add] button to pop up the event (alarm) log dialog box, and set parameters such as event category, level, type, and conditions in [General Properties];

1. Category: Group alarm events;

2. Level: When the number of events exceeds the system's maximum value (default is 1000), events of lower levels will be deleted from the records;

3. Type: Select the event trigger type, which can be set to trigger based on bit register status or word register value conditions;

Alarm function

Event (Alarm) Log

Step 3: Click the [Information] tab in the event (alarm) login dialog box. This allows the user to set the information content to be displayed in the alarm bar, alarm display, and event display components when the event is triggered.

1. Writing to the alarm display/event display components when the event is confirmed: When the event is confirmed, the confirmation value is written to the confirmation address set in the corresponding event display and alarm display components;

2. Alarm sound: Set the sound emitted by the HMI when the event is triggered; this feature is still under development;

3. Monitoring address: Configure the number of registers and addresses that can be added in the text content

Step 4: Click on the [Statistics] tab in the event (alarm) log dialog box. You can view the number of times the event occurred and the cumulative event statistics for the corresponding address.

Alarm function

Alarm bar function

- The [alarm bar] displays events defined in [Event Log] a running light format, and the event content t hat currently meets the trigger conditions.

Step 1: Click [Data/History] -> [Alarm Bar] in the menu bar to pop up the alarm bar component properties dialog bo x. Set the [General Properties] in the dialog box.

1. **Displayed category range:** Configure the event g roups displayed in the alarm bar component.

Step 2: Click the [Sort] tab in the alarm bar compone nt properties dialog box. Users can select the information they want to display, set the display order, and set the dat e/time format.

Alarm function

Alarm Display function

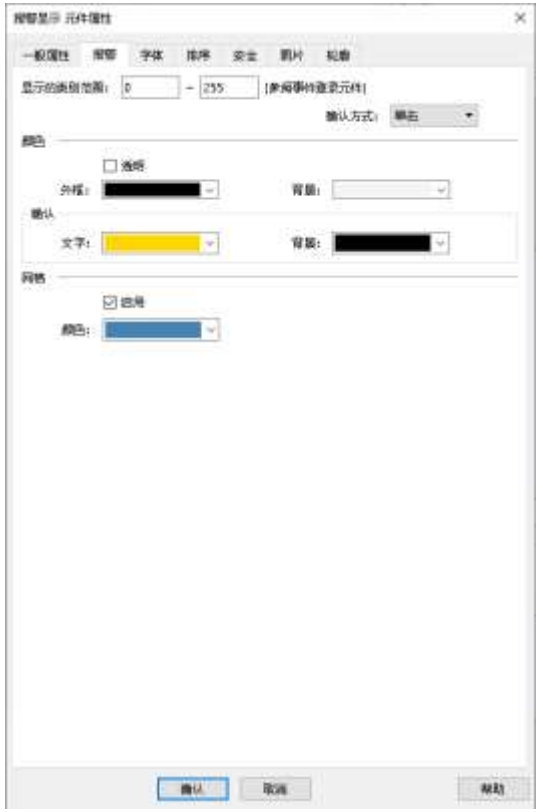
- **[Alarm Display]The components are displayed in tabular form as defined in [Event Log], and the event content that currently meets the trigger conditions.**

Step 1: Click on [Data/History] -> [Alarm Display] in the menu bar to bring up the alarm display component properties dialog box. Set the [General Properties] in the dialog box:

1. Confirmation Address: The confirmation value set in [Event Log] -> [Write to Alarm Display/Event Display Component when Event is Confirmed] will be output to the specified address;

Step 2: Click the [Alarm] tab in the alarm display component properties dialog box.

1. Confirmation Method: Set the confirmation method after the event is triggered, which can be set to single-click or double-click;



Alarm function

Alarm Display function

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Step 3: Click the [Font] in the Alarm Display Component Properties dialog box. Users can configure the content and style of the title bar of the alarm display component list.

4: Click the [Sort] in the Alarm Display Component Properties dialog box. Users can select the information they want to display, set the display order, and set the date/time format.

Alarm function

Event Display function

- **The [Event Display] component displays events defined in [Event Log] that currently meet the trigger conditions in tabular form.**

Step 1: Click on [Data History] -> [Alarm Display] in the menu bar to bring up the alarm display component properties dialog box. Set the [General Properties] in the dialog box:

Step 2: Click the [Event Display] tab in the Event Display component properties dialog box.

1. Maximum number of events: The maximum number of events that the component can display. When the number of events displayed by the component exceeds the maximum number, new events will be displayed at the top, and the last event will be deleted.

Alarm function

Event Display function

Step 3: Click the Font tab in the Event Display co mponent properties dialog box. Users can configure t he content and style of the title bar of the alarm displa y component list.

。Step 4: Click the [Empty Warning] tab in the Ev ent Display component properties dialog box. You can set the text to be displayed on the component before an event is triggered.

Alarm function

Event Display function

Step 5: Click the [Sort] tab in the Event Display component properties dialog box. Users can select the information they want to display, set the display order, and set the date/time format.

CONTENTS

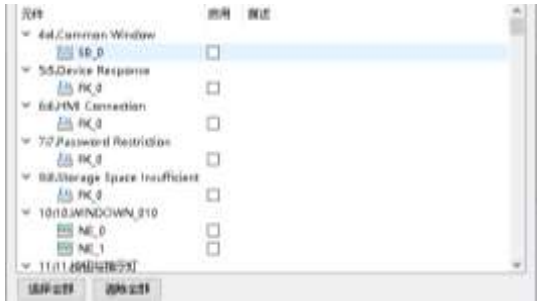
Operation Log Settings

Operation Log Settings Function

- [Operation Log] can be configured to record the operations required in the HMI.

Step 1: Click [Data History] -> [Operation Log settings] in the menu bar to open the Operation Log Properties dialog box.

Step 2: Select Enable, then set the write function components to be recorded.



Step 3: In [Storage Settings], select the maximum number of steps to be displayed for the HMI operation.

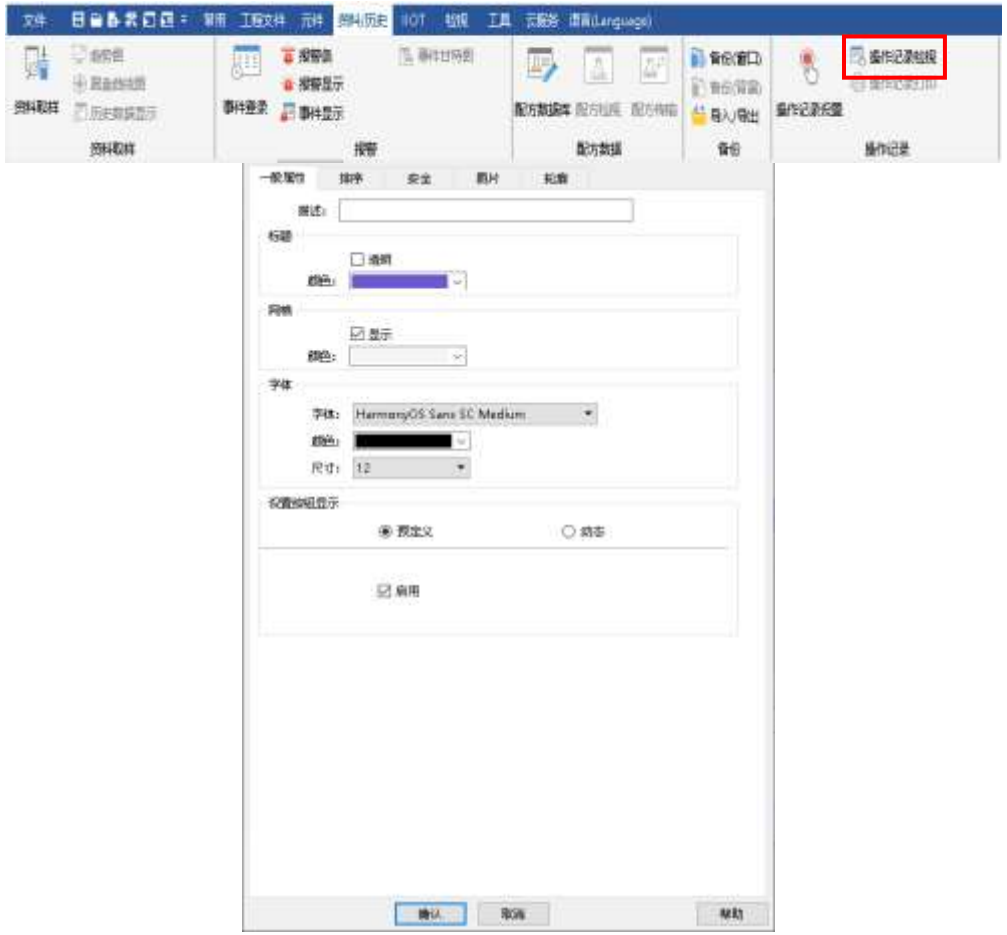
Step ④: Configure the control address. Entering a specific value will execute the corresponding command for the selected operation log and return the command execution result. The control address defaults to LW(n), and the command execution result is stored in LW(n+1).

Operation Log Settings

Operation Log View Function

- [Operation Log View] can display the component operation steps configured in the operation log.

Step 1: Click [Data History] -> [Operation Log View] in the menu bar to pop up the Operation Log View component properties dialog box.;



Step 2: Select [Operation Log View] -> [General Properties] to configure the component's title color and font properties.

Step 3: Select [Operation Log View] -> [Sort] to configure the information you want to display, set the display order, and set the date/time format.

CONTENTS

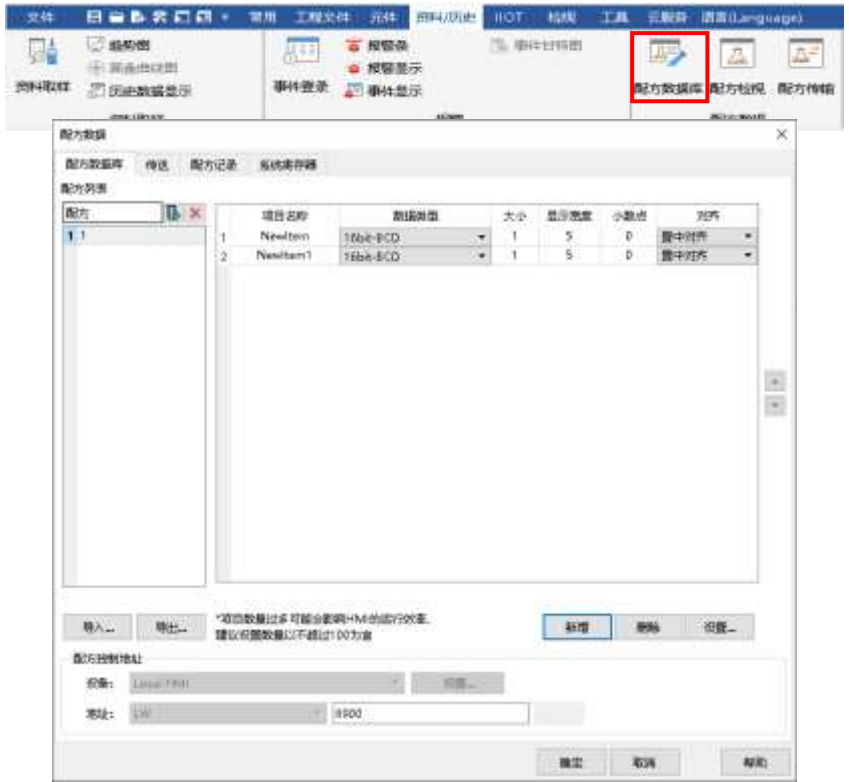
Recipe Function

Recipe Database Function

- **[Recipe Database] Contains the project name, data type, and other related attributes of the recipe.**

Step 1: Click on 【Data History】 -> 【Recipe Database】 in the menu bar to open the Recipe Database Properties dialog box;

1. Recipe List: Add or delete recipes, with a maximum of 100 recipes; after clicking 【Add】, you can configure the display content properties of the recipe view component in the table;



Step 2: Select the system registers in the Recipe Database Properties dialog box to view the registers related to recipe operations;

Recipe Function

Recipe View Function

- **The [Recipe View] component is used to view all items and values set in the recipe group.**

Click [Data History] -> [Recipe View] in the menu bar to pop up the Recipe View component's property dialog box. Set the [General Properties] in the dialog box:

1. Recipe Directory : Select the recipe name you want to view from the drop-down menu.

Recipe Function

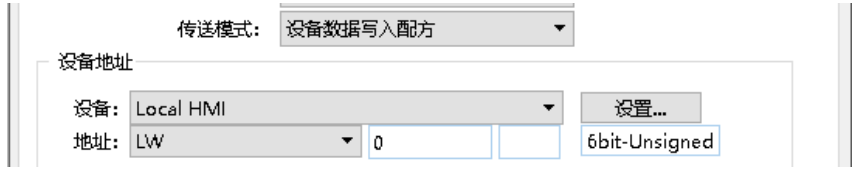
Recipe View Function

- **The [Recipe Transfer] component is used to transfer data from the selected recipe group to a specified address, or to write data from a specified address to a specified recipe group.**

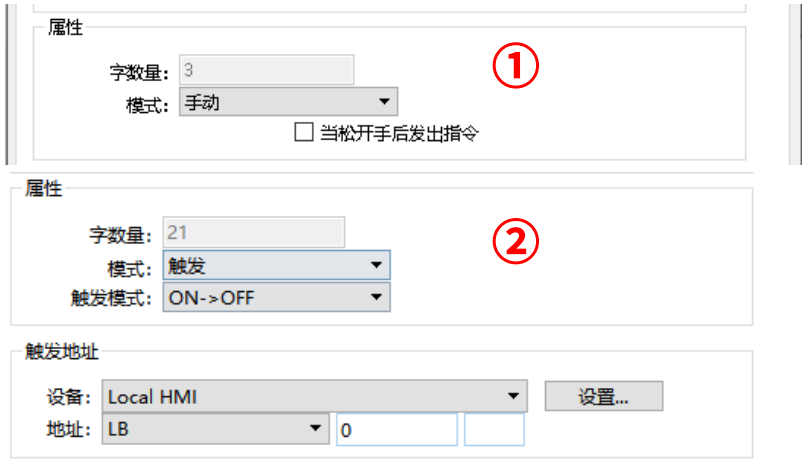
Click on the menu bar [Data History] ->[Recipe Transfer] to open the recipe transfer component properties dialog box. In the dialog box, set the [General Properties]:

1. Recipe Directory: Select the desired recipe name from the drop-down menu;

2. Transfer Mode: ① Device Data Write to Recipe: Write data from the specified address to the recipe; ② Recipe Data Write to Device: Read recipe data to the specified address;



3. Mode: ① Manual: Execute recipe transfer operation when clicked or released; ② Trigger: Read recipe data to the specified address;



CONTENTS

Macro Command Functions

Macro Command Functions

- **[Macro Command] is used to manage all macro command files.**

Step 1: Click [Project] -> [Macro] in the menu bar. The Macro Instruction Library Properties dialog window will pop up;

1. Macros that have been compiled successfully are in the [Compiled Successfully] list, and macros that have not been compiled are in the [Unfinished Compilation] list; each project packages up to 255 macros.

2. Click the [Add] button to pop up the macro command editor dialog window.

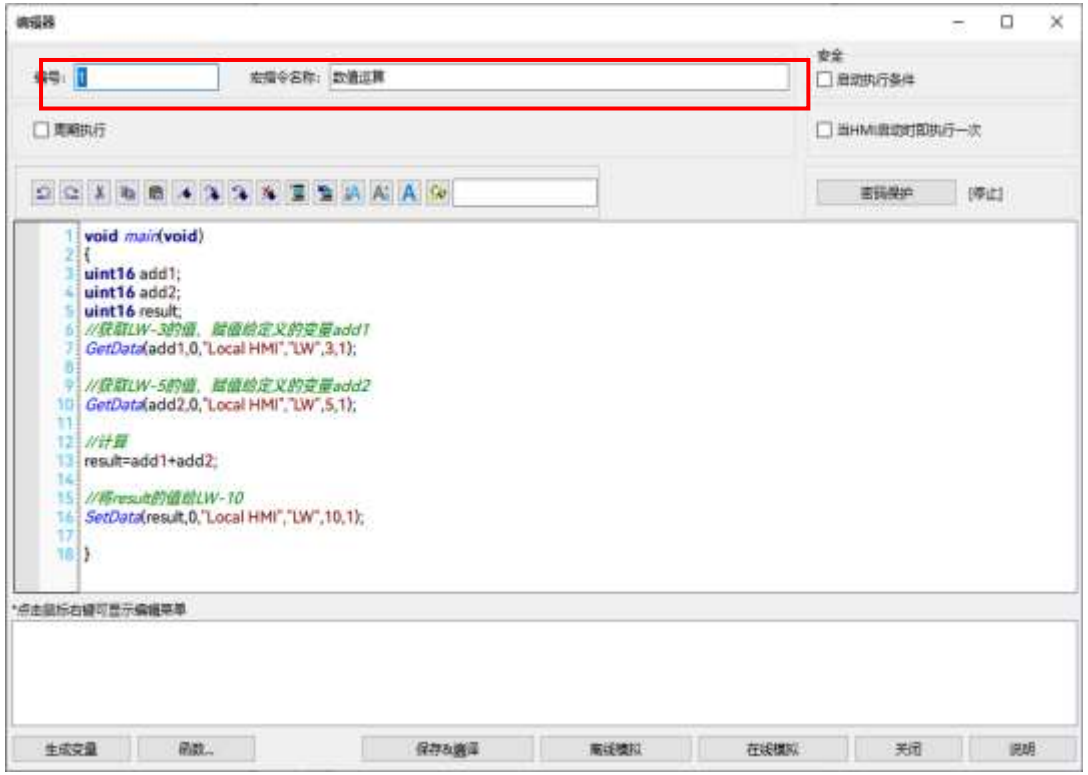
Macro Command Functions

Macro Editor Function

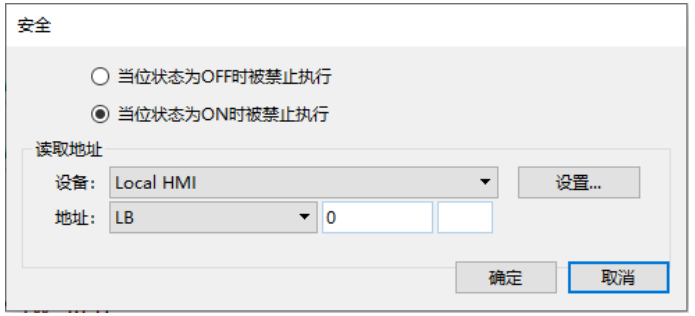
- **The [Macro Command Editor] is used to write macro code.**

Step 1: Set macro command parameters;

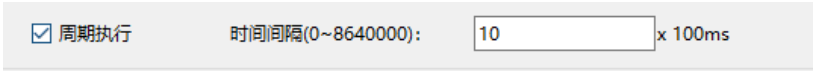
1. Set the name and number of the macro command.



2.Start execution conditions: After checking, set the conditions for macro instructions to prohibit execution;



3. Periodic execution: After checking this box, the macro will be triggered periodically at the set frequency.

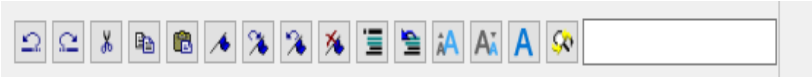


4. Execute once when HMI starts: This macro will automatically execute once when HMI startup is complete;

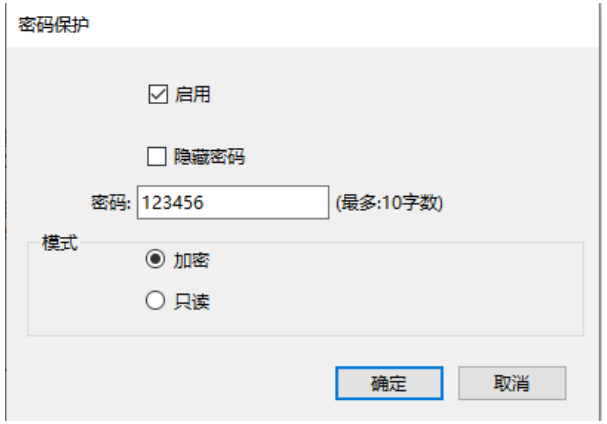
Macro Command Functions

Macro Editor Function

5. Above the editing area, there is a toolbar, providing [Retract], [Restore], [Cut], [Copy], [Paste], [Delete], [Annotate], [Find] and other buttons;



6. **Password protection:** After user sets password protection, when users want to modify the script, users need to enter the correct password. When three consecutive password errors, users need to restart the system to re-enter the password;



Macro Command Functions

Macro Command Writing

宏指令
script

1. A macro must have exactly one main function [void main(void)] to start the execution of the macro. The format is as follows:

```
2   void main(void)
3   {
4
5
6   }
```

2. Variables: Variable declarations must be placed before macro statements. Otherwise, if the statement is placed before the variable declaration, the macro will n ot compile. Common variable types are as follows:

变量类型	描述	范围
布尔型（bool）	1 bit (一个位)	0, 1
字符串型（string）		
字节型（int8）	8 bits (一个字符)	+128 ~ -128
短整型（int16）	16 bits (一个字符)	+32767 ~ -32767
双整型 （int32）	32 bits (双字符)	+2147418112 ~ -2147418112
浮点型（float）	32 bits (双字符)	
字节型（uint8）	8 bits (一个字符)	0~255
短整型（uint16）	16 bits (一个字符)	0~65535
双整型（uint32 ）	132bits (双字符)	0~4294967295

3. **Arrays:** Macro instructions support one-dimensional arrays (indexes start from 0), with the following format: An array Data of 16-bit integer type, containing Data[0] to Data [9], with an initial value of 0;

```
array<int16> Data(10,0);
```

Macro Command Functions

Macro Command Writing

宏指令 script

4. Operators: Specify how data is manipulated and operated on, including assignment, arithmetic (addition, subtraction, multiplication, division), comparison, logical, and shift operations;

1. Assignment and arithmetic operations

运算符号	描述	举例
=	赋值运算符号	pressure = 10

数学运算符号	描述	举例
+	加	A = B + C ;
-	减	A = B – C ;
*	乘	A = B * C ;
/	除	A = B / C ;
%	求余 (返回剩余数)	A = B % 5 ;

2. Comparison operations

比较运算符号	描述	举例
<	小于	if (A < 10){B = 5 ;}
<=	小于等于	if (A <= 10){B = 5 ;}
>	大于	if(A > 10){B = 5 ;}
>=	大于等于	if (A >= 10){B = 5 ;}
==	等于	if (A == 10){B = 5 ;}
!=	不等于	if(A != 10){B = 5 ;}

3. Logical operations

逻辑运算符号	描述	举例
&&	与	if(A < 10 && B > 5){ C = 10;}
||	或	If(A >= 10 || B > 5){ C = 10;}
!	非	if(!A){B = 5 ;}

4. Shift operations

移位运算符号	描述	举例
<<	往左移动指定的位数	A = B << 8
>>	往右移动指定的位数	A = B >> 8

5. Bitwise operations

位运算符号	描述	举例
&	位与运算	A = B & 0xf
|	位或运算	A = B | C
^	位异或运算	A = B ^ C
~	位取反运算	A = ~B

The precedence of all the above operators: operators inside parentheses > arithmetic operators > shift and bitwise operators > comparison operators > logical operators > assignment operators;

Macro Command Functions

Macro Command Writing

5. Built-in functions: The macro instructions themselves provide some built-in functions, which can be viewed in the [Description] section at the bottom right of the macro instruction editor;

For example, retrieving/transmitting data from connected devices is as follows:

①GetData: Retrieves data from a specified address register, in the following format;

```
GetData(read_data, start, device_name, device_type, address_offset, data_count)
注：read_data：存放读取数据的变量名；
    Start：存放地址偏移；
    device_name：被读取数据的设备名称；
    device_type：读取的地址类型；
    address_offset：读取地址；
    data_count：传输数据量。
```

```
6  //获取LW-3的值，赋值给定义的变量add1
7  GetData(add1,0,"Local HMI","LW",3,1);
```

②SetData: Writes data to a specified address register;

```
SetData(send_data, start, device_name, device_type, address_offset, data_count)
注：send_data：被读取数据的变量名；
    Start：读取地址偏移；
    device_name：写入数据的设备名称；
    device_type：写入的地址类型；
    address_offset：写入地址；
    data_count：传输数据量。
```

```
14
15 //将result的值给LW-10
16 SetData(result,0,"Local HMI","LW",10,1);
```

6. If statement format:

Example: When the value of Data[0] is less than 10, increment Data[0] by 1; when the condition is not met, assign 0 to Data[0];

```
4   array<int16> Data(10,0);
5   if(Data[0]<10)
6   {
7       Data[0]=Data[0]+1;
8   }
9   else
10  {
11      Data[0]=0;
12  }
```

Example: When the value of Data[1] is less than 10, increment Data[1] by 2; when the value of Data[1] is greater than or equal to 10 and less than 20, increment Data[1] by 1;

```
14  if(Data[1]<10)
15  {
16      Data[1]=Data[1]+2;
17  }
18  else if(Data[1]>=10 && Data[1]<20)
19  {
20      Data[1]=Data[1]+2;
21  }
```

Macro Command Functions

Macro Command Writing

宏指令 script

7. For command format:

Example: Determine the number of values in the array Data[0]~Data[9] that are less than 10, and assign the result to Data[10]; determine the number of values in the array Data[0]~Data[9] that are greater than or equal to 10 and less than 20, and assign the result to Data[11].

```
4   array<int16> Data(12,0);
5   for(int i=0;i<10;i++)
6   {
7       if(Data[i]<10)
8       {
9           Data[10]=Data[10]+2;
10      }
11      else if(Data[i]>=10 && Data[i]<20)
12      {
13          Data[11]=Data[11]+2;
14      }
15  }
```

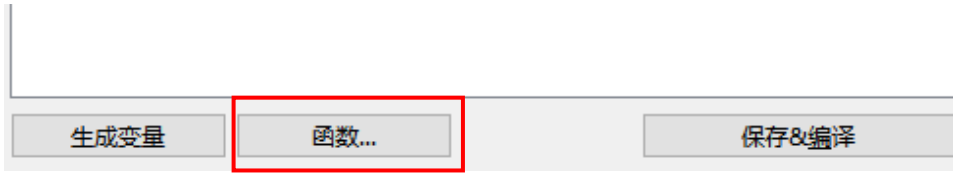
8. Quick variable declaration: Click the "Generate Variable" button at the bottom left of the macro command editor, and set the variable name, data type, initial value, etc.

Example: Declare an array Data, with a data type of 16-bit integer array Data, containing Data[0]~Data[9], with an initial value of 0, as shown below:

Macro Command Functions

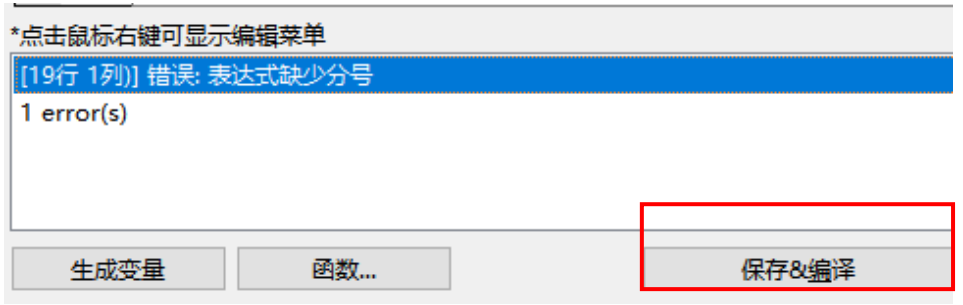
Macro Command Writing

9. Quickly call built-in functions: Click the [Function] button at the bottom left of the macro command editor to set input and output variables *1, etc.



Example: Read the data from controller MW1000 into variable Data[0]

10. Save & compile: Click the [Generate Variable] button at the bottom left of the macro command editor to set the variable name, data type, initial value, etc.



Note: *1. When using quick calls to built-in functions, pay attention to the data format required by the function when selecting input/output variables.

CONTENTS

Pay by Installments

Pay by Installments function

- **[Installment Payments] Used to configure installment payment trigger conditions and content, set installment payment modes, installment periods & passwords, due date reminders, and other functions.**

Step 1: Click [Project] -> [Pay by Installment] in the menu bar to bring up the installment payment properties dialog box.

Step 2: After selecting to enable installment payments, you can choose the installment payment mode:

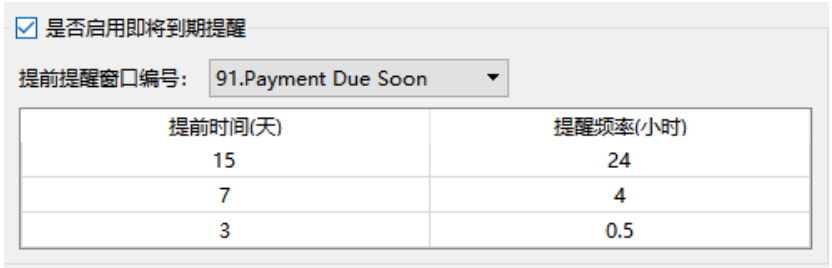
1. **Static installment payment:** Determine whether the payment is due based on the set time; set the maximum number of installments, ranging from 1 to 36; then set the password and due date (year/month/day/hour/minute) for each installment in the table below.

2. **Run time installment payment mode**: Calculate the due date based on the set run time to prevent users from continuing to use the HMI by modifying the time or disconnecting the power supply.

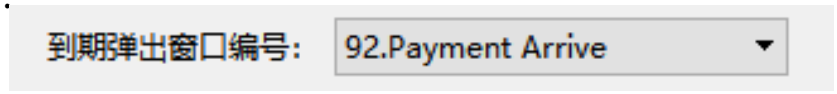
Pay by Installments

Pay by Installments function

3. Expiration reminder: Once enabled, a designated window will pop up based on the preset advance time and reminder frequency.



4. Expiration pop-up window number: Set a designated window to pop up when the expiration time is reached.



5. Super password: Once selected, when the expiration time is reached, entering the correct super password will directly close the installment payment function, meaning that the installment payment expiration interface will no longer pop up.

6. Dynamic Key: After the HMI expires, if the user wishes to continue using it for a few more days without counting toward the installment period, the dynamic installment payment mode can be used. After configuring the dynamic key, go to the menu bar [Project File] -> [Password Generation] to generate a new password. When the expiration date is reached, enter the generated password and set an additional expiration time.

Pay by Installments

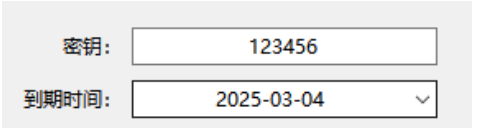
Password Generator Tool Function

- **[Installment Payment] Used to calculate a new password in cooperation with the dynamic key in installment payments.**

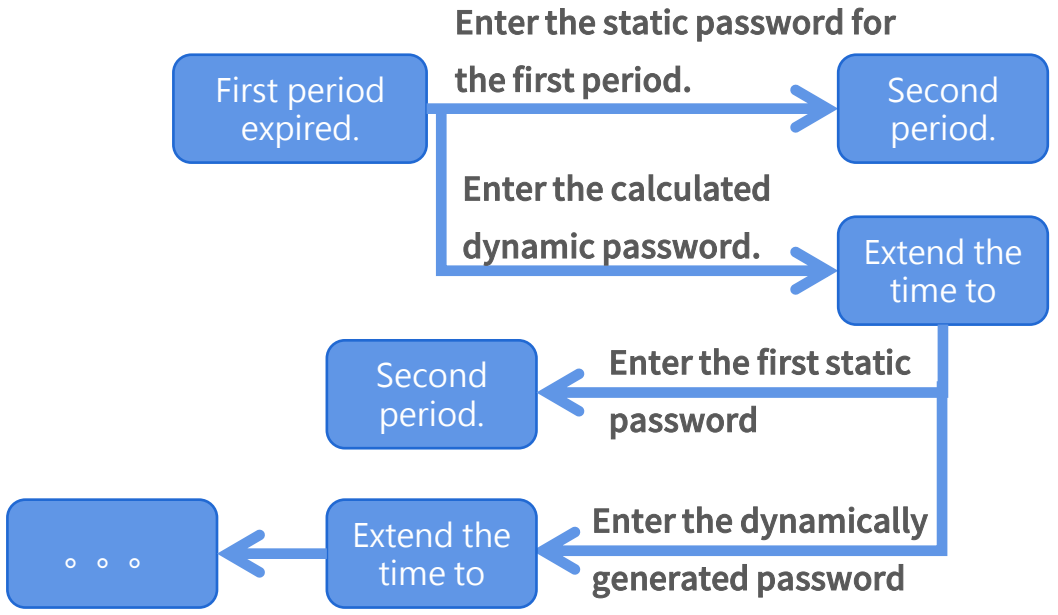
Step 1: Click [Project] -> [Password Generation Tool] in the menu bar to bring up the password generation tool properties dialog box.

After the HMI expires, if the user wants to continue using it for a few more days without counting the number of days, they can use the dynamic installment payment model.

Step 2: In the password generation tool properties dialog box, enter the key for the installment payment settings and set the expiration time.



Step 3: Click the [Generate Password] button to generate a new password. After the customer enters the generated password to unlock, they can set an additional expiration time, as shown in the diagram below:

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