

MODBUS Example Project

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Summary	

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table of Contents

1. Scope	5
2. Development Environment version	6
3. MODBUS Example Project Overview	7
3.1 Serial Protocol Description screen	7
3.2 Development Engineering Process	7
3.3 MODBUS Protocol operating instructions	7
3.4 Project Overview screen	7
3.5 Agreement with variable configuration overview	8
4. Detailed engineering	10
4.1 Create Project	10
4.1.1. New Construction	10
4.1.2 New Screen	10
4.1.3 Configuration modbus protocol	10
4.2 And logical configuration screen	11
4.2.1. Home	12
4.2.2 Project Description	13
4.2.3 Coil	13
4.2.4 Discrete Input	15
4.2.5 Holding register	17
4.2.6 Input Register	19
4.2.7 Button control	twenty one
4.2.8 Text Control	twenty two
4.2.9. Progress bars, meters, sliders	twenty four
4.2.10 RTC Controls	25
4.2.11 Animation Control	28
4.2.12 Icons Control	30
4.2.13 Curve Control	32
4.2.14 Menu control	34
4.2.15 Picker	36
4.2.16 QR code	38
4.2.17 Data recording controls	40
4.2.18 Historical curve control	44
4.2.19 Hide display controls	46
4.2.20 multi-language	48

1. Scope

Documentation for budget, basic, were linked, 86 box, 485 All series MODBUS Protocol serial-screen products.

2. Development Environment version

1 , VisualTFT Software version: V3.0.0.827 And above; versions View: (1) Open the software, the software version number displayed in the lower right corner. (2) turn on VisualTFT Click Help -> About VisualTFT You can view the current software version number. The latest version can be found at www.gz-dc.com Download



2 , Serial-screen hardware version: V2.22.1025.XXX And above. View version:

- (1) Check the version number sticker on the back screen.
- (2) Create a text control screen, the attribute "input mode" select "System Variables" Properties "System Variables" select "firmware version number", compile the project is downloaded to view the screen.

3. MODBUS Example Project Overview

3.1 Serial Protocol Description screen

Large color serial dismiss all series NANO Outside the series, both versions of two protocols: one is the large color command protocol version, one is MODBUS Protocol version, this example demonstrates how to develop the project mainly for MODBUS Project Agreement.

3.2 Development Engineering Process

Serial screen development process works the following process:

- 1 , New Construction
- 2 , Create and configure screen and controls
- 3 Configuration MODBUS Agreement, mainly based variables, logic processing, MiniC script, Lua Scripts;
- 4 , Bound control properties in the [agreement] with variable settings defined variables.

MODBUS Mainly related to protocol configuration VisualTFT Three parts:

(1) Menu [Tools] -> [agreement] with variable settings; (2) Menu [Tools] -> [MiniC Scripting]; (3) Menu [Tools] -> [Lua Scripting],

this only applies to the serial port of Things series screen, the other series do not support.

3.3 MODBUS Protocol operating instructions

developing MODBUS Works through VisualTFT Generates screen can be downloaded to the serial port of engineering package compiled, the compiler will process configuration MODBUS Information into a serial-screen project file; Serial screen will run according to the project file is automatically generated in line with MODBUS Instruction format protocol. If the screen is the host machine, through the serial port periodically send commands to the slave, the slave receives the instruction to return and resolution, and other controls or operation performed to update the binding preconfigured.

3.4 Project Overview screen

Application of this project screen divided into three groups, as shown in 3-1 Below:

1 Regional 1 : Demo MODBUS The coil protocol, discrete input holding register, input register

The data show that the numerical value directly displayed;

2 Regional 2 : Demonstrates how to use the controls to display the associated variable, MODBUS data;

3 Regional 3 : Demonstrates how to display hidden controls, multi-language control group 1 Grouping 2 Unused

Features;



Map 3-1 Engineering Display

3.5 Agreement with variable configuration overview

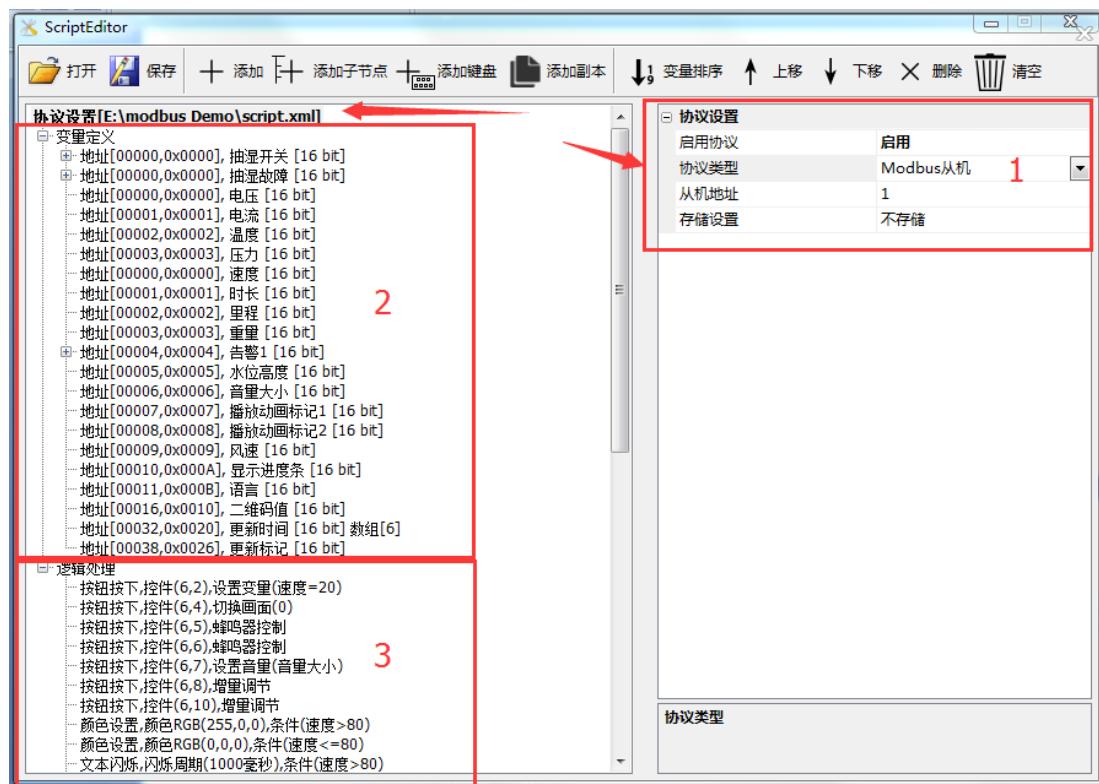
The project agreements with variable configuration shown in Figure 3-2 Fig.

1 Regional 1 : A protocol for the type of project configuration, support MODBUS Master, Slave.

2 Regional 2 : Used to create a variable, type MODBUS Protocol coil, discrete input holding registers

An input register, and also supports memory variable, a system variable;

3 Regional 3 : Logic for configuring settings; build screen, and controls MODBUS The relationship between variables. For more information about protocols and configuration variables can refer to a large color document "large color screen serial port MODBUS Communication. "



Map 3-2 Scripts and protocol configuration

4. Detailed engineering

4.1 Create Project

First, prepare engineering work, including creating a project to build the page, Configuration MODBUS Protocol type.

4.1.1. New Construction

Open the menu [File] -> [New Project], new construction window pops up, set the project name, path, device type, you can click OK.



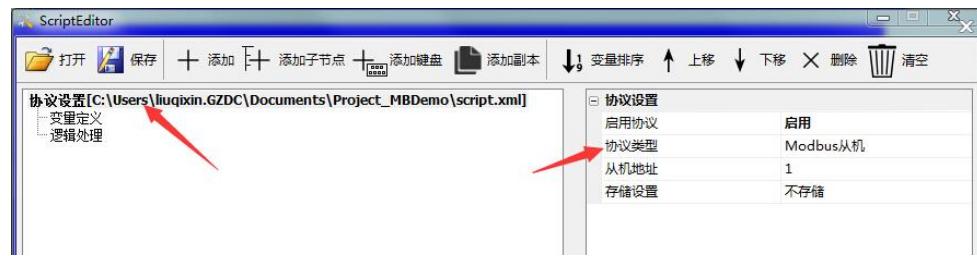
Map 4-1 New Construction

4.1.2 New Screen

The new project will create a default screen, you can also add your own pictures.

4.1.3 Configuration modbus protocol

[Tool] Open Menu -> [] protocol variable set, double-click the left side of the file path, provided at the right side of the protocol, the protocol type is provided, is provided at the present MODBUS Slave.



Map 4-2 Configuration Protocol Type

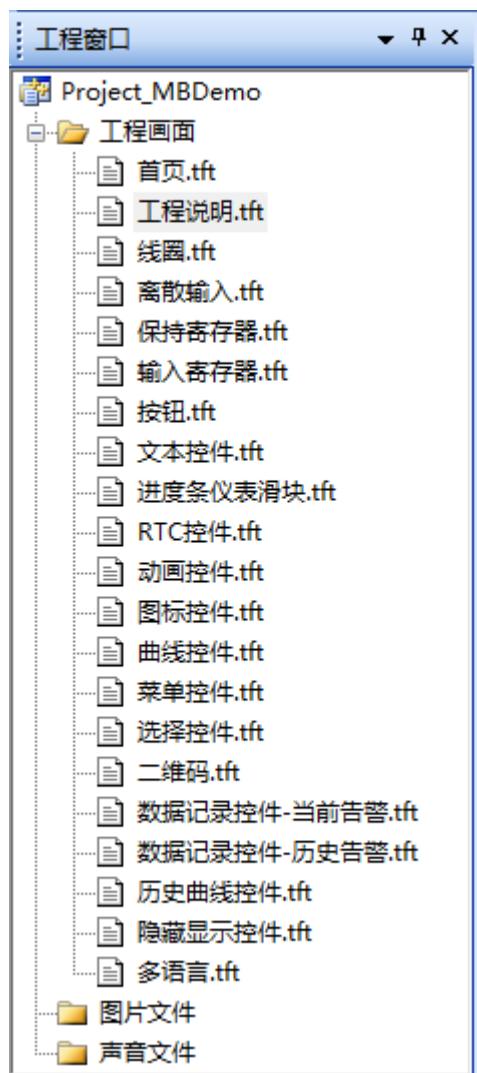
At this point, MODBUS Engineering prototype agreement has been established, the latter can be configured according to the actual needs of engineering graphics and logic.

4.2 And logical configuration screen

Engineering and configuration using the screen MODBUS Logic simultaneously.

Home logical structure using established engineering navigation buttons, different buttons to switch to a different screen, each picture has a Home button, to return home.

The following is a description of each screen project configuration.



Map 4-3 Engineering Display

4.2.1. Home

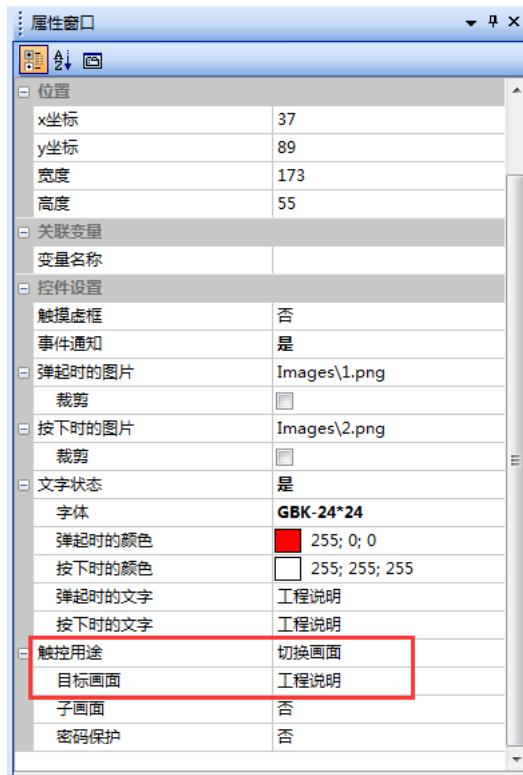
The establishment of each button [Home] screen, as 4-4 , The buttons can be configured to switch to a different screen.



Map 4-4 Home

For example: Button 2 "Project Description" button can be switched to a screen for the properties described [Project] button configuration in FIG. 4-5 ,

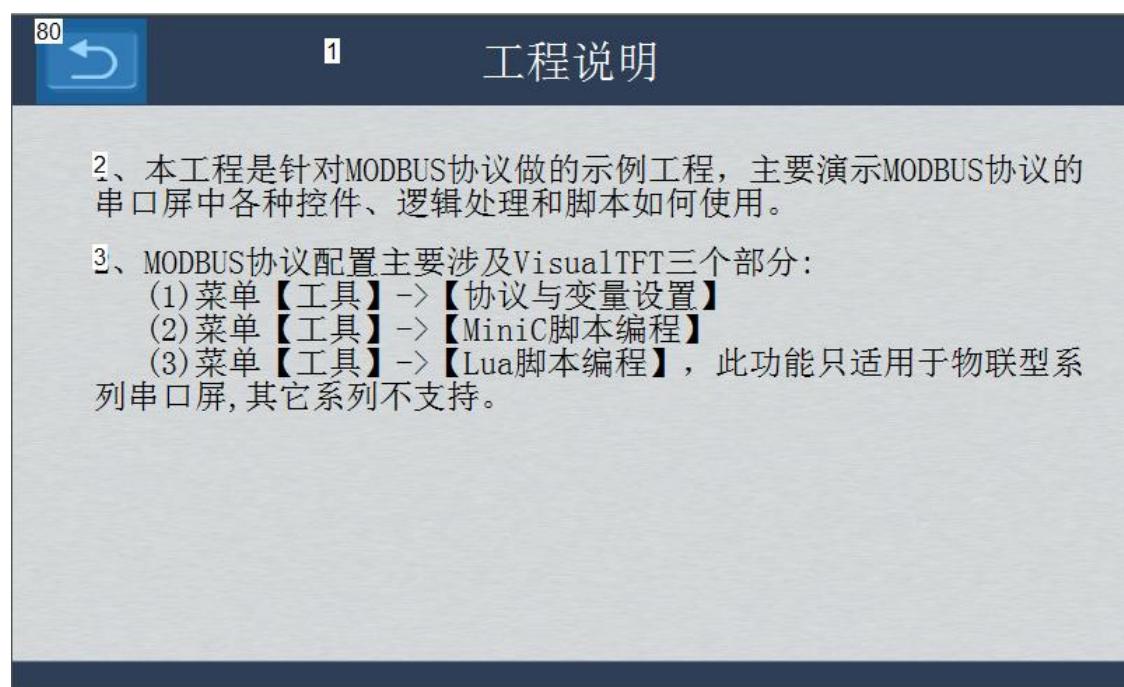
The other buttons empathy.



Map 4-5 Button Configuration

4.2.2 Project Description

[Description] screen for the engineering of the project simple explanation, no other function.



Map 4-6 Project Description

4.2.3 Coil

[Coil] screen is MODBUS Direct display protocol value of the variable "coil" Text control directly bound "coil" type variable run, the text control value of the variable is displayed, when the "coil" of the address value is changed, the text control also It will change.

Configuration:

1 , Add variables: Create "dehumidifying switch" variable, the child is added "switch", the variable type is set to "coil" configuration variable address 0x0000 , As 4-8 Shown;

2 Screen to add a text control (ID : 2), As 4-7 , The text control attribute set, set the associated variable "dehumidifying switch / switch", as shown in 4-9 Shown;

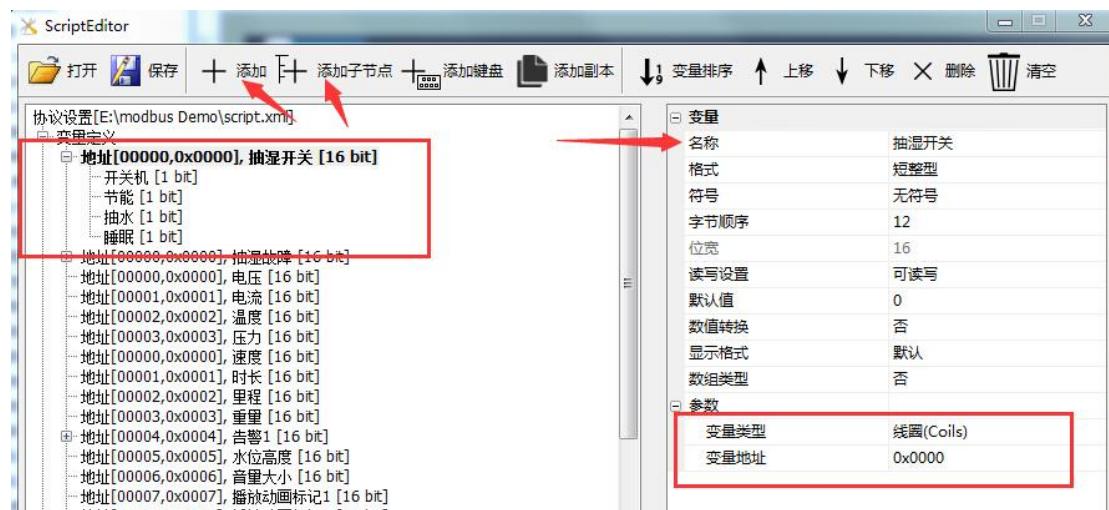
Through the above two steps, ID for 2 The text controls and 0x0000 "Dehumidifying switch / switch change" will address the established association.

In this case, compile the project and run the serial screen will display the text control 0x0000 Numerical coil address.

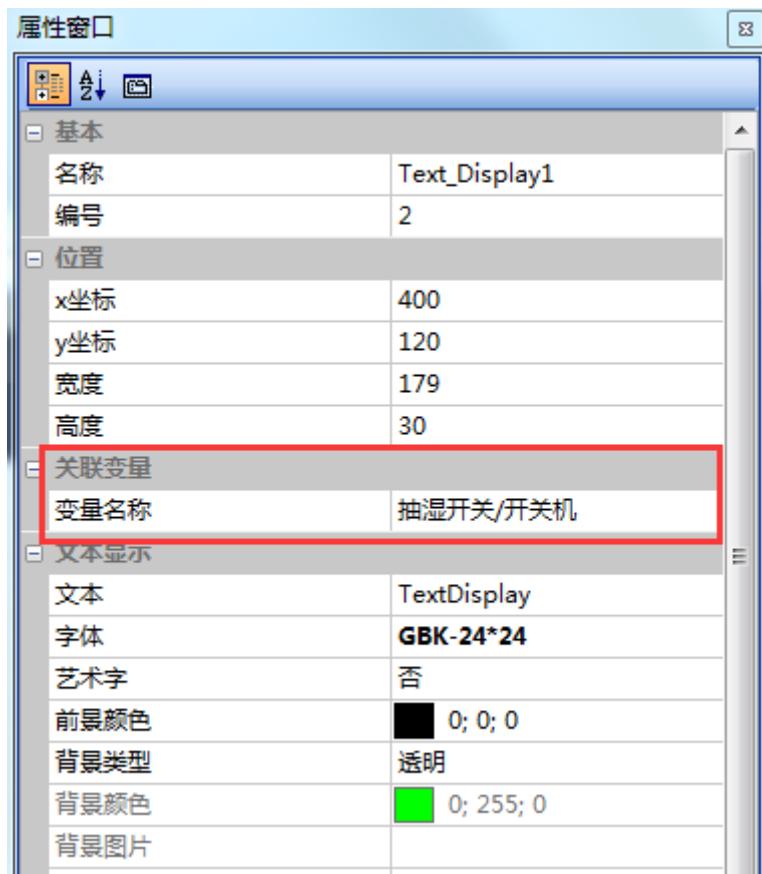
Similarly, ID for 3 , 4 , 5 The text control by the above method are associated with the different variables, you can display the value of the corresponding variable addresses.



Map 4-7 Coil



Map 4-8 New variable coil



Map 4-9 Associated variable

4.2.4 Discrete Input

[Discrete input] screen is MODBUS Direct display protocol "discrete input" variable values, control text directly bound "discrete input" variable type, after the operation, the text control value of the variable is displayed, when the "discrete input" value of the address changes, the text The same controls will change.

method:

1 , Add variables: create "dehumidifier fault" variable, add a child node "fault 0 "Variable type is set to" discrete

Enter "configuration variable address 0x0000 , As 4-11 Shown;

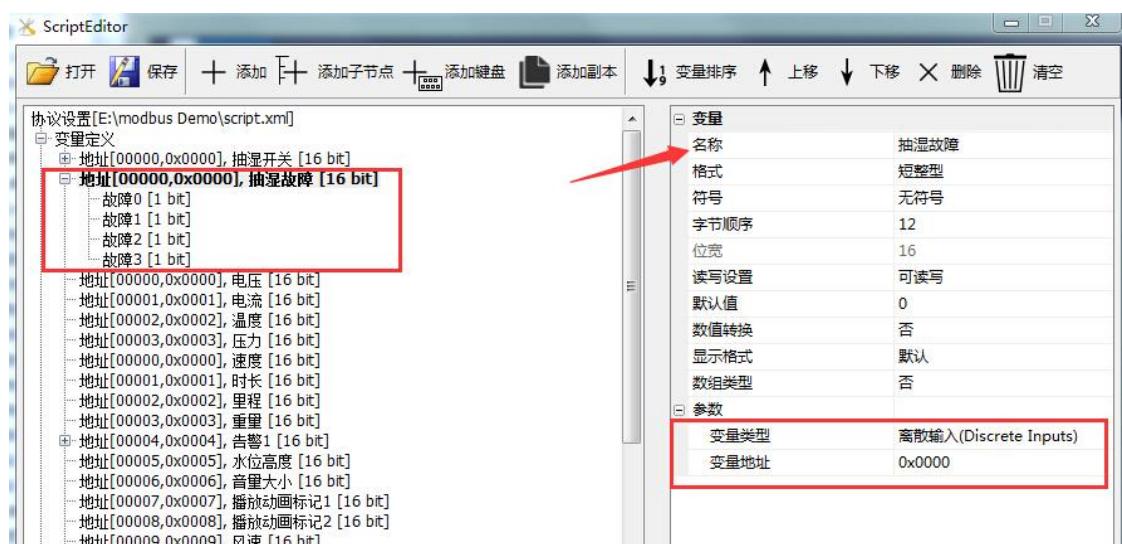
2 Screen to add a text control (ID : 2), As 4-10 , The text control attribute set, set the associated variable "dehumidifying fault / failure 0 "Figure 4-12 Shown;

Through the above two steps, ID for 2 The text controls and 0x0000 "Dehumidifier address fault / fault 0 "They established a correlation. In this case, compile the project and run virtual serial port screen will display the text control 0x0000 The value of discrete input address.

Similarly, ID for 3 , 4 , 5 The text control by the above method are associated with the different variables, you can display the value of the corresponding variable addresses.



Map 4-10 Discrete Input



Map 4-11 New discrete input



Map 4-12 Associated variable

4.2.5 Holding register

[] Holding register screen is MODBUS Protocol directly displayed "holding register" value of the variable, the text control directly bound "holding register" variable type, after the operation, the text control value of the variable is displayed, when the "holding register" to the address value changes, the text The same controls will change.

method:

1 , Add variables: create "speed" variable, the variable type is set to "holding register" configuration variable address

0x0000 , As 4-14 Shown;

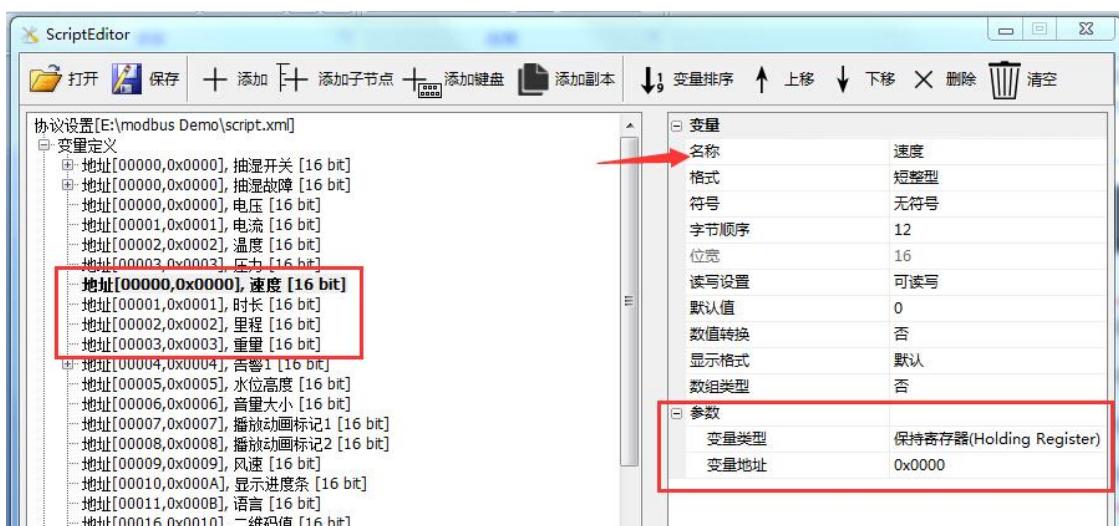
2 Screen to add a text control (ID : 2), As 4-13 , The text control attribute set, set the associated variable "speed", as shown in 4-15
Shown;

Through the above two steps, ID for 2 The text controls and 0x0000 "Speed" will address the established association. In this case, compile the project and run virtual serial port screen will display the text control 0x0000 Address holding register values.

Similarly, ID for 3 , 4 , 5 The text control by the above method are associated with the different variables, you can display the value of the corresponding variable addresses.



Map 4-13 Holding register



Map 4-14 New holding register



Map 4-15 Associated variable

4.2.6 Input Register

[Screen] is the input register MODBUS Direct display protocol "input register" value of the variable, the text control directly bound "input register" variable type, after the operation, the text control value of the variable is displayed, when the "input register" the address value changes, the text The same controls will change.

method:

1 , Add variables: Create a "voltage" variable, the variable type is set to "input register" address configuration variable

0x0000 , As 4-17 Shown;

2 Screen to add a text control (ID : 2), As 4-16 , The text control attribute set, set the associated variable "voltage", as shown in 4-18

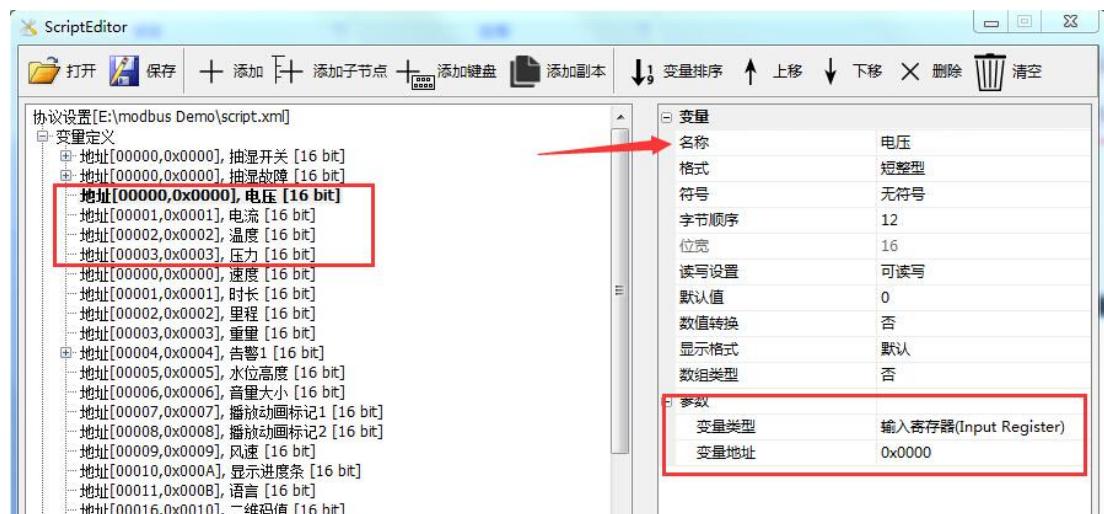
Shown;

Through the above two steps, ID for 2 The text controls and 0x0000 "Voltage" will address the established association. In this case, compile the project and run virtual serial port screen will display the text control 0x0000 Address holding register values.

Similarly, ID for 3 , 4 , 5 The text control by the above method are associated with the different variables, you can display the value of the corresponding variable addresses.



Map 4-16 Input Register



Map 4-17 New input register



Map 4-18 Associated variable

4.2.7 Button control

[] Button controls on the main screen using the button controls do illustration. MODBUS Protocol version, the logic may perform some preset operation button is pressed or bounce.

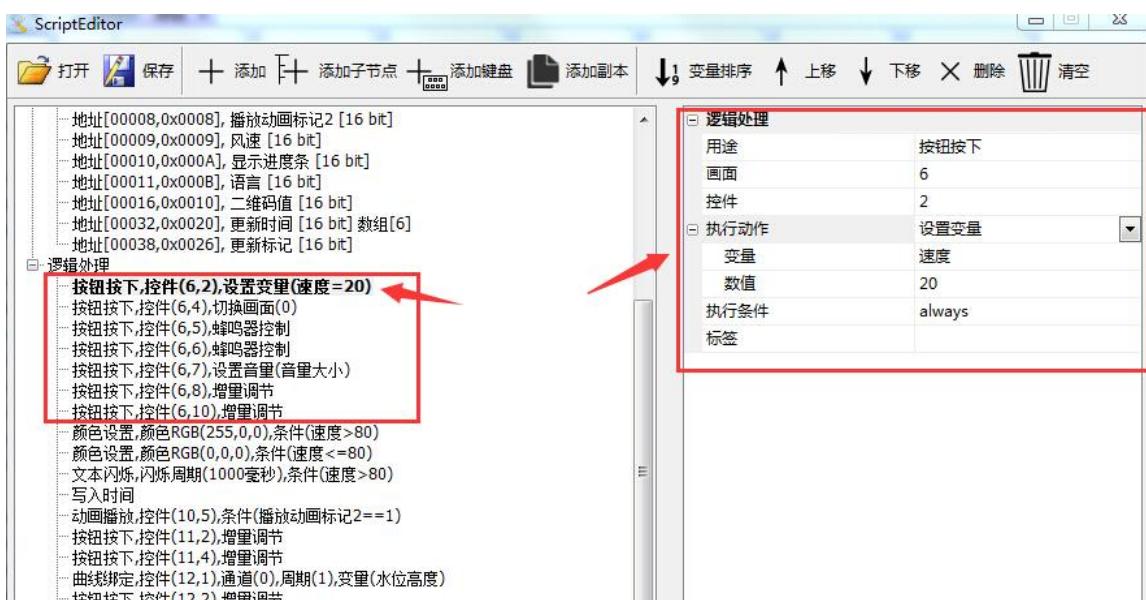
VisualTFT [Resources] of the window you can see [] button control screen ID for 6 , As 4-19 Shown, the button "to set the speed 20 "Controls ID for 2 ; Variable set in agreement with [added] a logical processing, the logical processing is specifically provided in FIG. 4-20 Fig. In this case, compile the project and run virtual serial port screen, when you press the "set speed

20 "Button, the variable" value of the speed "is set to 20 . ID for 3 Text associated with the control variable "speed", a value "speed" of the observation variables.

Also and, where button press can be used to switch the screen, the buzzer setting, the incremental adjustment functions.



Map 4-19 Button control



Map 4-20 Button logic processing

4.2.8 Text Control

[Text] screen controls for use primarily text controls do illustration. MODBUS Version of the protocol, is mainly used for displaying text control variable values bound to the coil, and other types of holding registers can modify the variable to be set "input mode" is a pop-up keyboard input system, through the pop-up keyboard variable bindings value to be modified. Further modifications can be bound display color, blinking logic.

[Text] screen controls ID for 2 The text controls, as 4-21 Shown, bind variables "velocity" in its properties, as 4-22 Shown; added variable set {} in agreement with 3 Article logical processing: first, the use of "color setting",

Color to red (RGB (255,0,0)), The execution condition of the "speed" "greater than," " 80 "; Second, the use of" color setting ", set the color to black (RGB (0,0,0)), The execution condition of the "speed", "less", " 80 "; The third, the use of" text blinking ", the execution condition of the" speed "" greater than, "" 80 "; FIG. 4-23 Fig.

In this case, compile the project and run virtual serial port screen, when the value of "speed" is greater than 80 , The text is displayed in red and flashing if the value of "speed" is less than or equal 80 When the text is displayed in black, and does not blink.

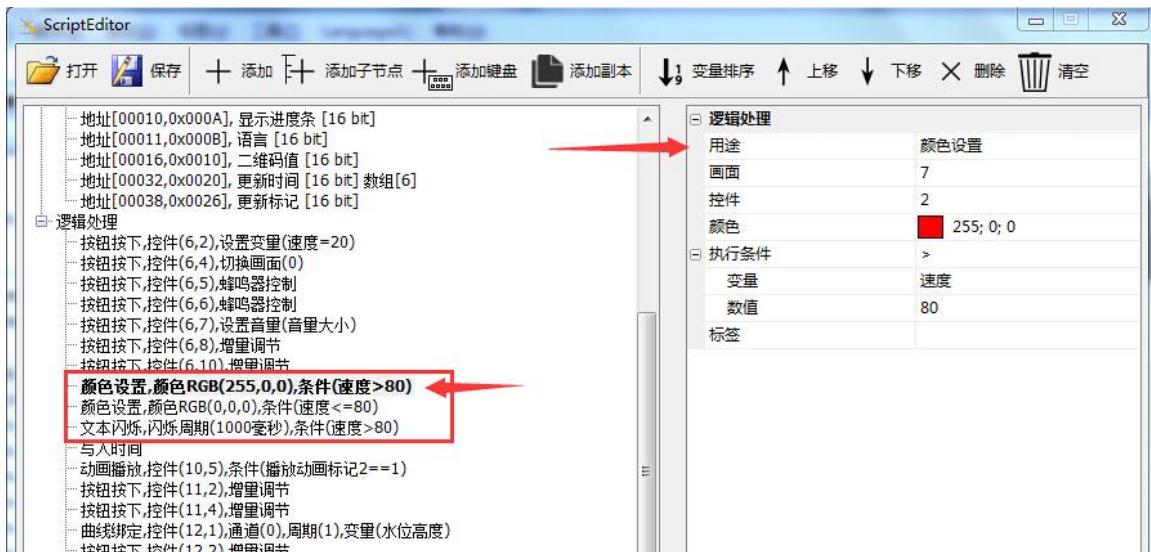
same, ID for 3 , 4 , 5 The text controls You can do this.



Map 4-21 Text Control



Map 4-22 Associated variable



Map 4-23 Text control logic

4.2.9. Progress bars, meters, sliders

[Slide] progress bar meter on the main screen using the progress bar, instrumentation, slider control to do illustration. MODBUS

Protocol version, the progress bar, the instrument, the slider control is mainly used to display variable binding value; Further, the variable can be bound by dragging the slider modified value.

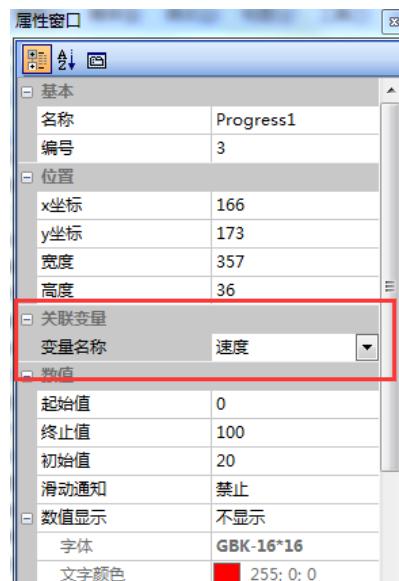
Text control [] progress bar slider Instrument created screen, a progress bar, slider, instrument control, as 4-24 The

Shown; bind these controls are variable "speed", as shown in 4-25 , The associated variable is the progress bar, similar to several other control; wherein the text control values are mainly used to observe the size, can be modified by a value corresponding to its pop-up keyboard.

In this case, compile the project and run virtual serial port screen, when the value of "speed" of the changes, text controls, progress bars, sliders, gauges all will change, the speed displayed values; in addition, when you drag the slider will update the display speed values of other controls.



Map 4-24 Progress bars, meters, sliders



Map 4-25 Associated variable

4.2.10 RTC Controls

[RTC Controls on the main screen] RTC Use and update controls RTC Time to do illustration, FIG. 4-26 Fig. RTC It supports different formats of control properties, as shown in FIG. 4-27 ; May be user-defined display format, as shown in 4-28

Fig.

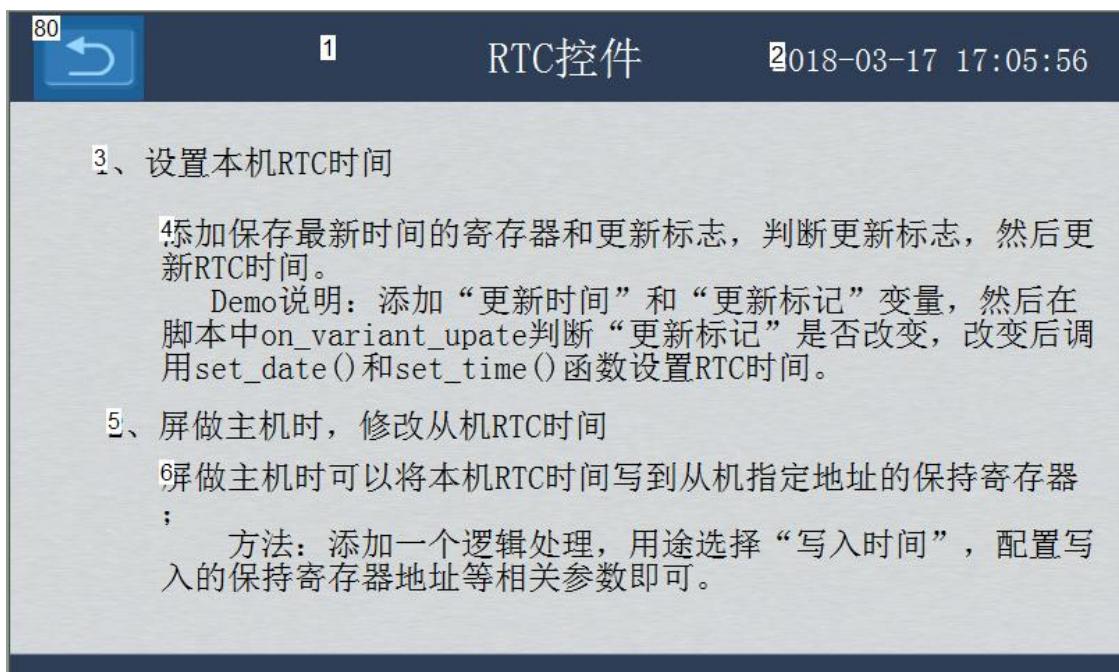
MODBUS Serial protocol version screen, update RTC Time There are two common applications:

1 Provided the machine RTC time

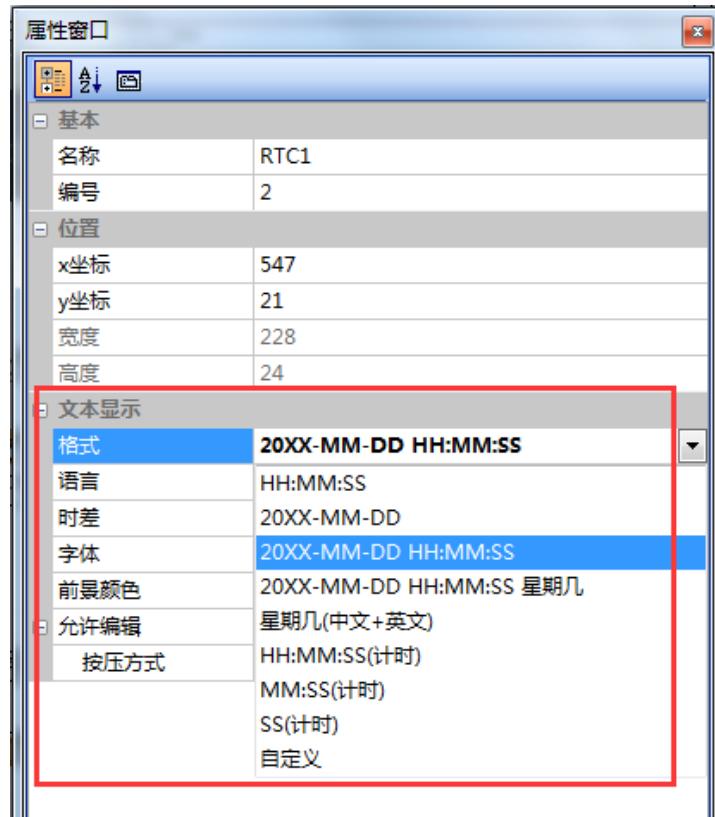
There are generally two methods: 1 , Directly RTC Control Properties "Allow editing" to "editing date and time", "Date of editing" or "Edit Time"; thus, when the long press RTC Control or click on the RTC You can pop the keyboard controls to modify RTC time. 2 ,use set_date () with set_time () Set up RTC Time, specifically with reference to FIG. 4-26 , Set the machine RTC FIG description and time 4-30 of MiniC Code.

2 When the screen as the host, modified a slave RTC time;

Common practice is to: create a slave register holding a fixed address for storing the time (continuous 7 Holding registers, respectively, to store the year, month, week, day, hour, minute, second), the host periodically sends the latest time to the slave. Processing logic in the "write time" function, this operation can be realized. Figure 4-29 Red block, the establishment of a "write time" logic processing, the specific arrangement shown in FIG, where "Address" is the address of the slave holding time, the "cycle" is the write-once multi-host every time ; conditions can be established to perform according to their own needs.



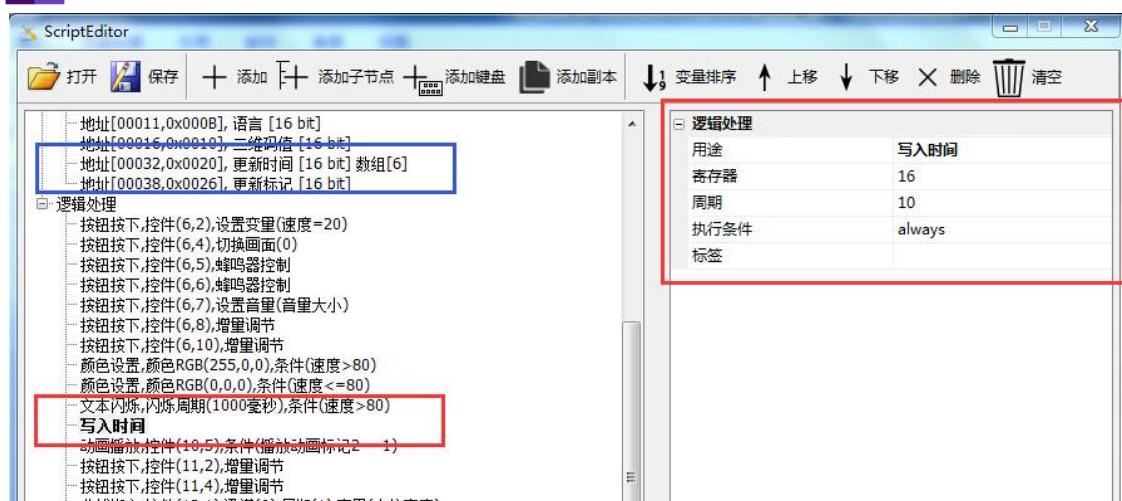
Map 4-26 RTC Controls



Map 4-27 RTC Control Properties



Map 4-28 RTC customize



Map 4-29 Update RTC Registers, logic

```

47  /*
48  函数: on_variant_update
49  功能: 串口通信导致变量更新时, 执行此函数
50  */
51  void on_variant_update()
52  {
53      //操作符'@'用于判定某个寄存器是否发生改变
54      //更新RTC时间
55      if(@"更新标记")
56      {
57          set_date("更新时间"[0],"更新时间"[1],"更新时间"[2]);
58          set_time("更新时间"[3],"更新时间"[4],"更新时间"[5]);
59      }
60
61
62      //“语言”发生变化时, 修改设置系统语言
63      if(@"语言")
64      {
65          sys.lang = "语言";
66      }
67  }
68

```

Map 4-30 Changing the Machine RTC time

4.2.11 Animation Control

[Animation Control] screen using the animation control mainly do illustration, as 4-31 Fig. Controls for playing the animation settings GIF or ICON

Animation file format, you can control the pause or play.

MODBUS There are two control protocol animation control mode:

1 Bind variable way

Animation controls directly related variables, when the variable value 0 The animation is stopped; when the value of the variable 1 When, animation.

[Animation Control] screen ID for 2 Animation controls, set the associated variable "Play Animation mark 1 "Figure 4-32 Fig. In this case,

compile the project and run virtual serial port screen, when the variable "animation player mark 1 "for

0 When the animation stops, when the variable value 1 When the animation starts.

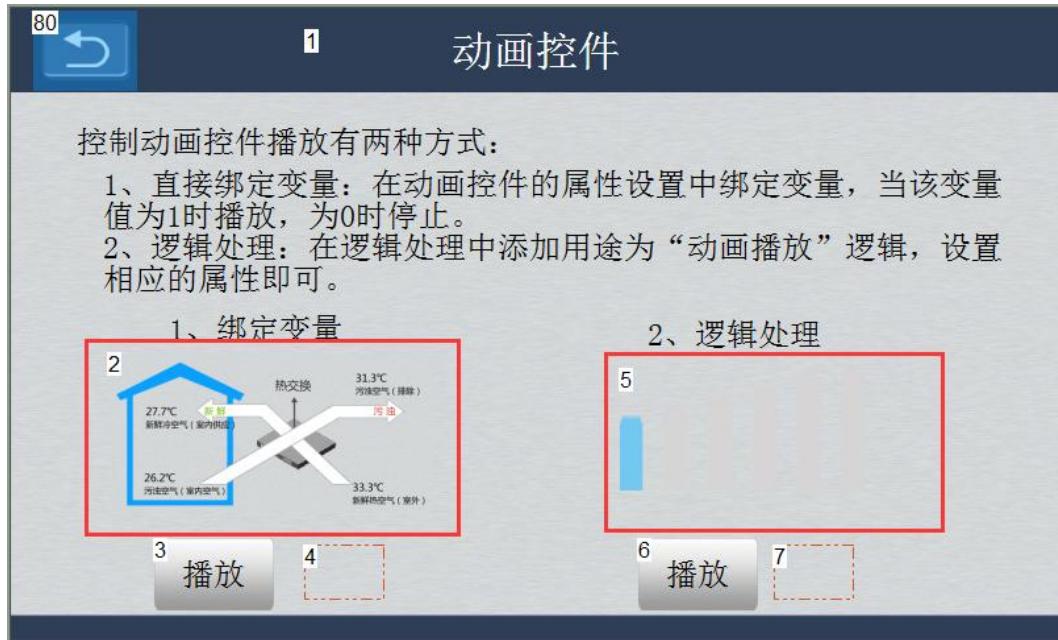
2 Logic processing mode

Processing logic in the "animation" feature, when a preset condition is satisfied, the animation can be controlled or stopped.

[Animation Control] screen ID for 5 Animation controls, created the "animation" of logic, as 4-33 , The execution condition is set as a variable "animation playback flag 2 "" == "" 1 "Time, ID for 5

The animation will be played automatically.

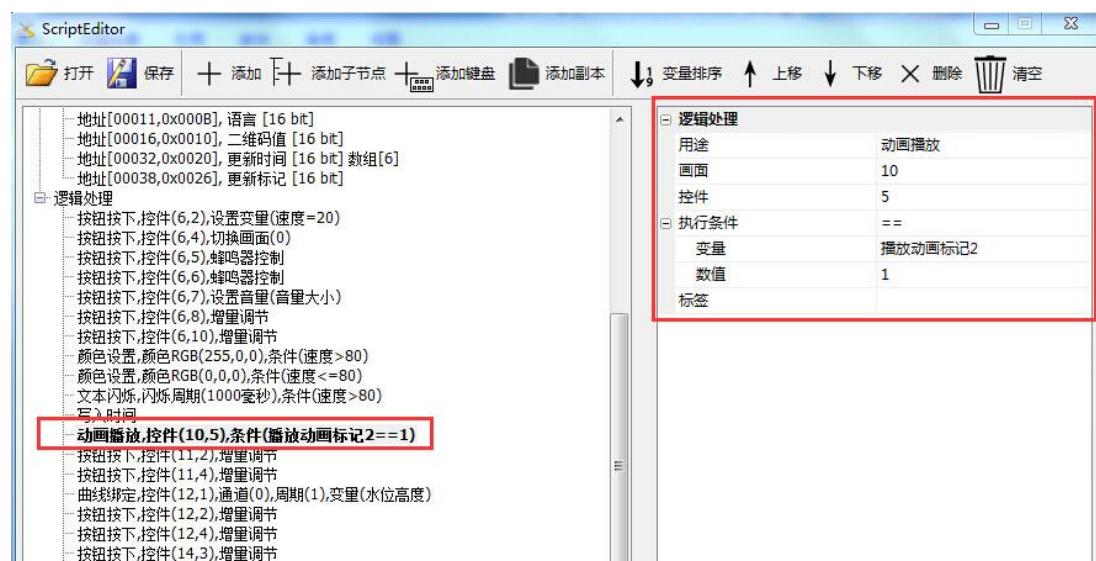
In this case, compile the project and run virtual serial port screen, when the variable "animation player mark 2 "for 0 When the animation stops, when the variable value 1 When the animation starts.



Map 4-31 Animation Control



Map 4-32 Associated variable



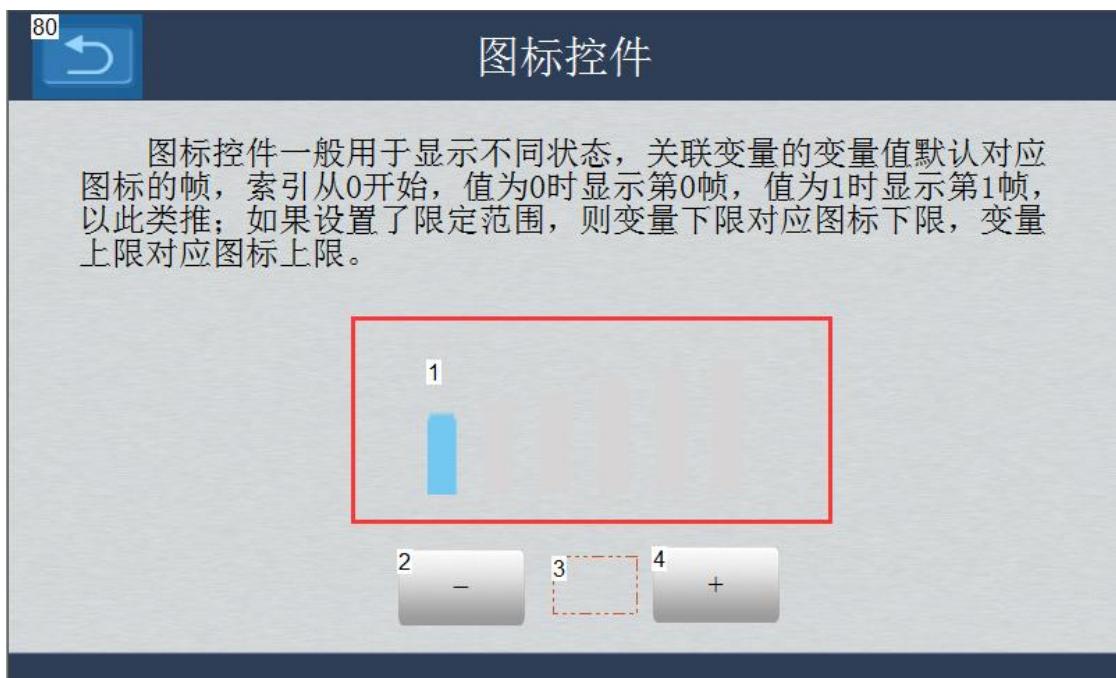
Map 4-33 Animation logic processing

4.2.12 Icons Control

[Control] icon on the main screen controls do use icon illustration, as 4-34 Fig. Icon Control for display settings GIF or ICON Animation file format, by displaying different pictures represent different states, you can control the display of the first few frames of the picture.

MODBUS Protocol can be controlled by way of the associated variable display images of several frames, the default value of the variable associated variable icon corresponding to the frame index from 0 Start value 0 When the show first 0 Frame, the value of 1 When the show first 1 Frame, and so on; if set to limit the scope, the variable lower limit corresponding to the lower limit set icon, the corresponding icon variable upper limit.

Example: [control] screen icon ID for 1 The icon associated with the control variable "wind speed", as 4-35 Fig. In this case, compile the project and run virtual serial port screen, when the variable "wind speed" as 0 When the wind speed display icons for controls 1 Grid; when the variable "wind speed" as 1 When the wind speed display icons for controls 2 Grid; when the variable "wind speed" as 2 When the wind speed display icons for controls 3 Grid; and so on.



Map 4-34 Icons Control



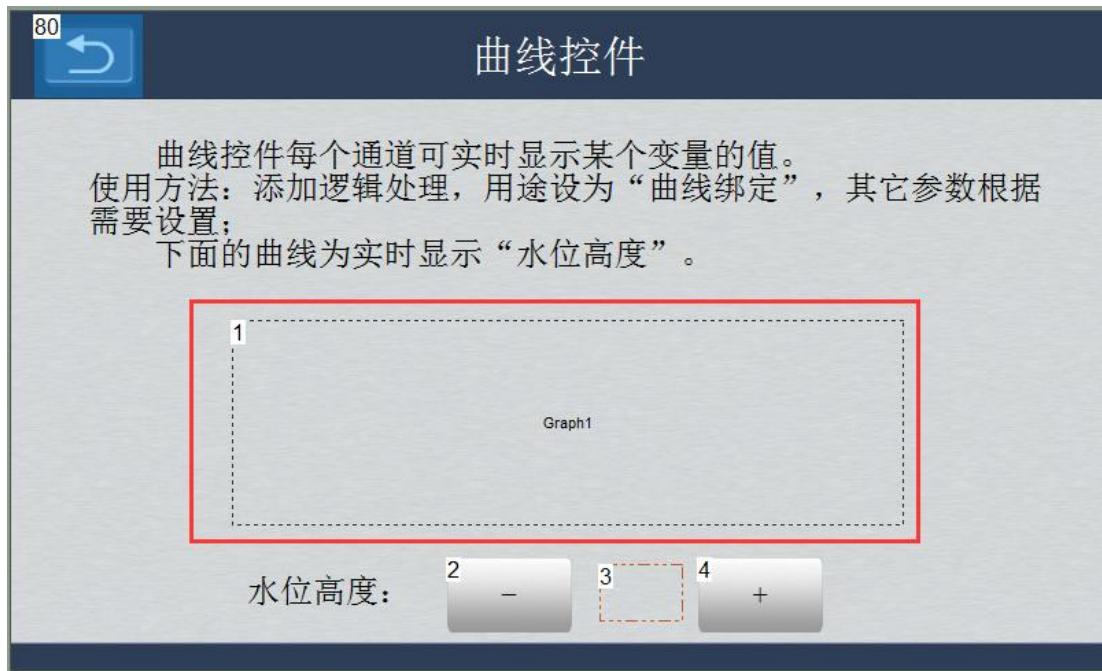
Map 4-35 Associated variable

4.2.13 Curve Control

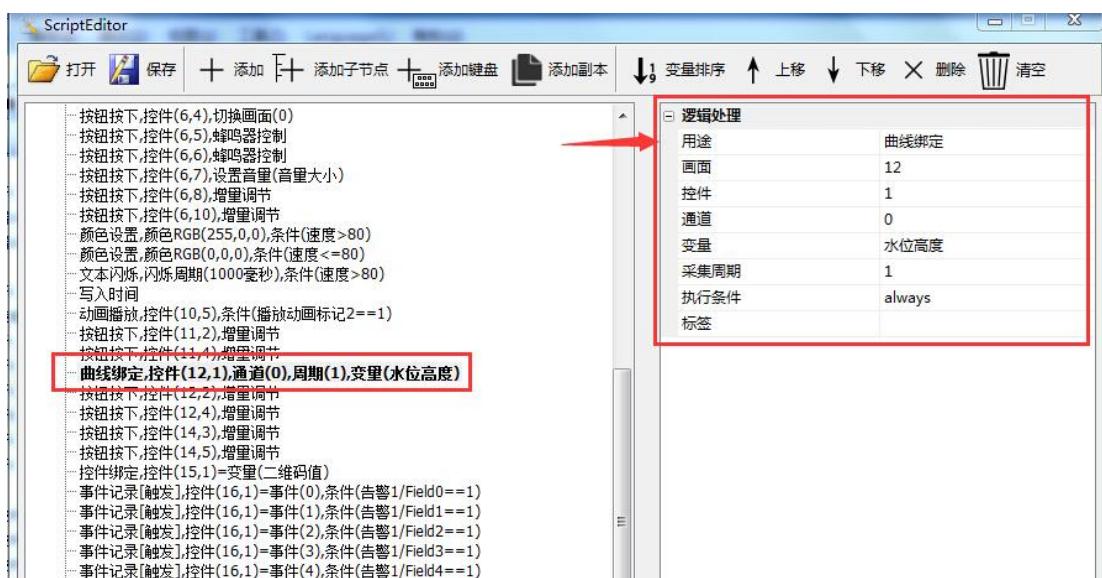
[Control] Screen control curve mainly using the control curves do illustration, FIG. 4-36 Fig. MODBUS Protocol version, the curve control to display the associated variable value, periodically sampling curve control variable value, and then drawing all of the curve to the control sample values, connected to form a curve; curve for each channel can be associated with a control variable, You can set up 8 Channels.

MODBUS Serial protocol version screen, curve channel display variable values, by setting the "binding curve" logic intended use.

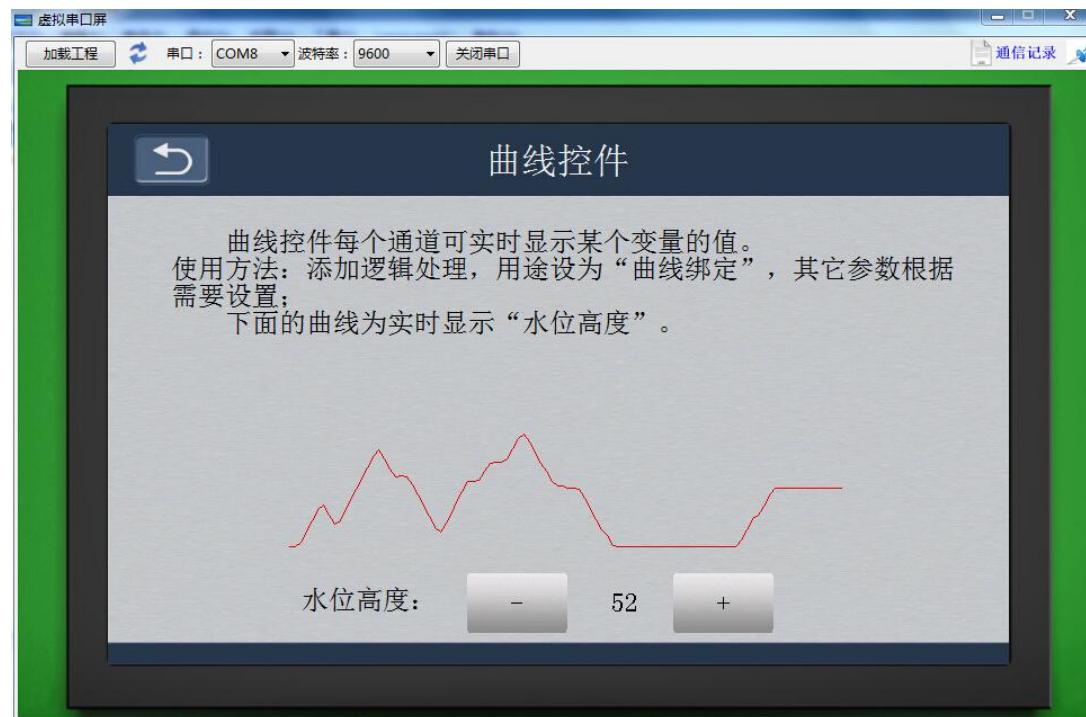
[Control] screen Curve ID for 1 Curve control, a preset channel, the control channel for 0 , Added logic associated parameters are shown in 4-37 As shown, every "A second sample variable" value of the water level "in. Screen ID for 2 , 4 The button is used to adjust the "water level" value, ID for 3 Real-time display of text controls "water level" value; after dynamic adjustment "water level", may be formed in FIG. 4-38 Control graph shown in FIG.



Map 4-36 Curve Control



Map 4-37 Binding curves



Map 4-38 Run the sample curve control

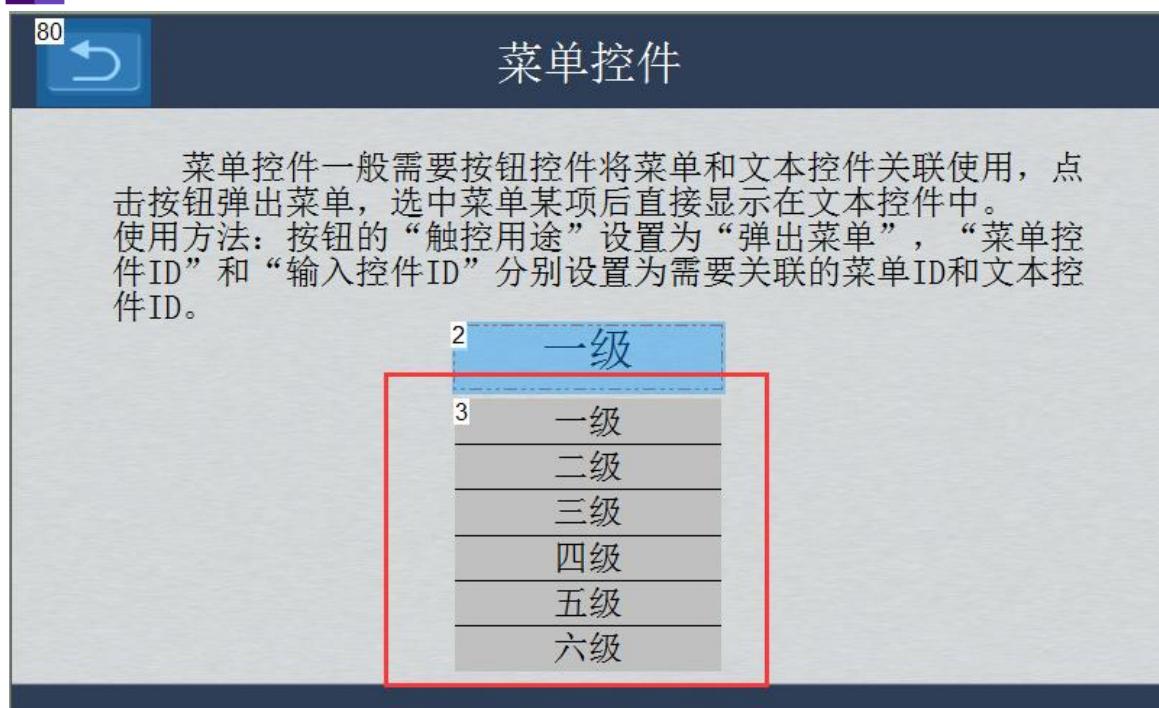
4.2.14 Menu control

[Menu control] screen using the menu controls mainly do illustration, "Menu Style" menu in two ways: "pop-up menu" and "fixed menu", pop-up menus do mainly for use here.

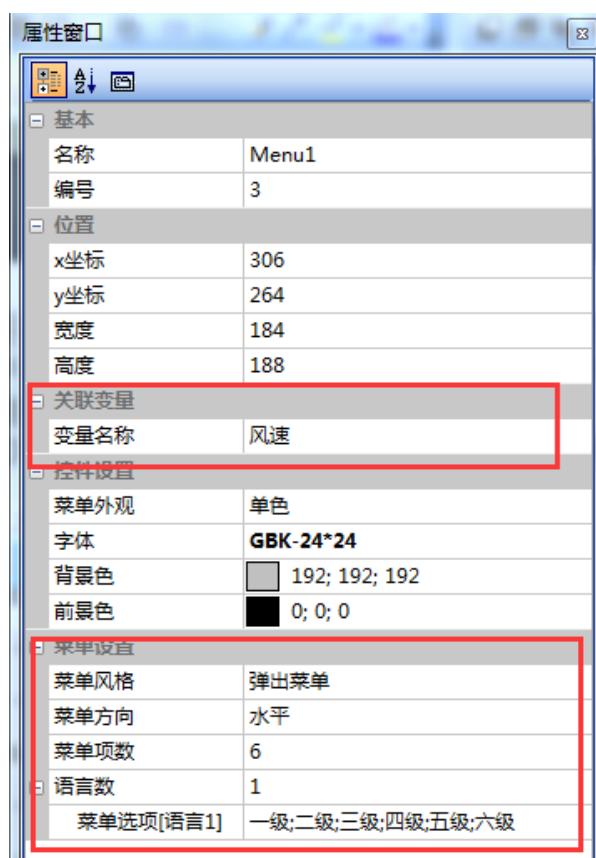
"Pop-up menu" button control need to use the context menu and text controls, click the button pop-up menu, displayed directly in the text control After selecting menu items.

[Controls] menu screen shown in 4-39 As shown, create ID for 1 Text control, ID for 2 Buttons and controls ID for 3 Menu controls; Properties menu control to the FIG. 4-40 , The associated variable "SPEED" menu style as "pop-up menu", menu options are "one; two; three; four; five; six", respectively, the index 0 , 1 , 2 , 3 ,

4 , 5 ; Button provided in FIG. 4-41 , The use of the touch is set to "pop-up menu", "menu control ID "Set as" 3 "" Input controls ID "Set as" 1 "; In this case, compile the project and run virtual serial port screen when you click on a text control, pop-up menu, click on the menu option when the contents of a text control into a selected menu options, while the variable" wind speed "is also set corresponding to the index value of the option; if you do not set the variable, only the value of the text control changes.



Map 4-39 Menu control



Map 4-40 Menu Settings

弹起时的图片	
裁剪	<input type="checkbox"/>
按下时的图片	
裁剪	<input type="checkbox"/>
文字状态	否
触控用途	弹出菜单
菜单控件ID	3
输入控件ID	1

Map 4-41 Button Configuration

4.2.15 Picker

[Select] screen controls for use primarily select Control Does illustration. Picker two main purposes: to select the slide and status display. "Sliding select" mainly for sliding select the default options through the touch screen; "status display" is mainly used for different display preset options, similar icon controls.

[Select] screen controls ID for 1 Picker as a "slide selection" manner, ID for 2 The selection control for the "status display" mode.

1 , Select the slide

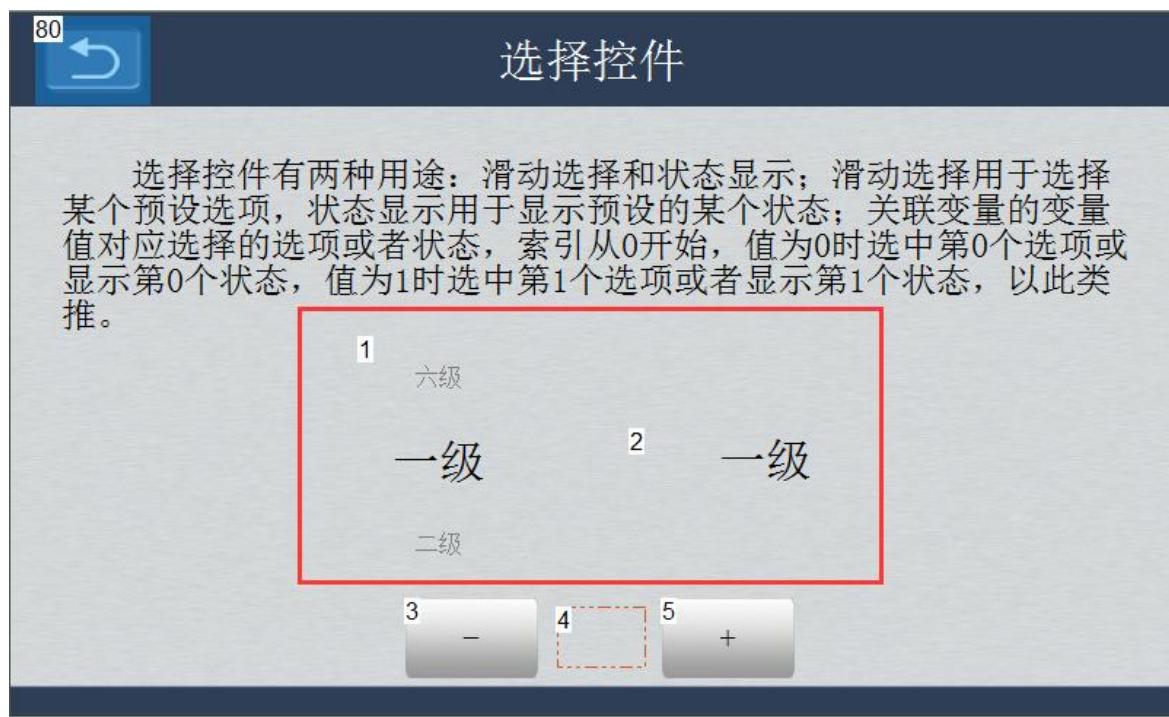
ID for 1 The selection control, as shown in FIG property 4-43 , The associated variable "SPEED", use is set to "slide select", and set the candidate scaling ends, the preset data setting option "one; two; three; four; five; six; ";

In this case, compile the project and run virtual serial port screen, you can select a control point and drag the mouse (analog slide selection), when the drag is stopped, select an option, while the value of "wind speed" variable will change update.

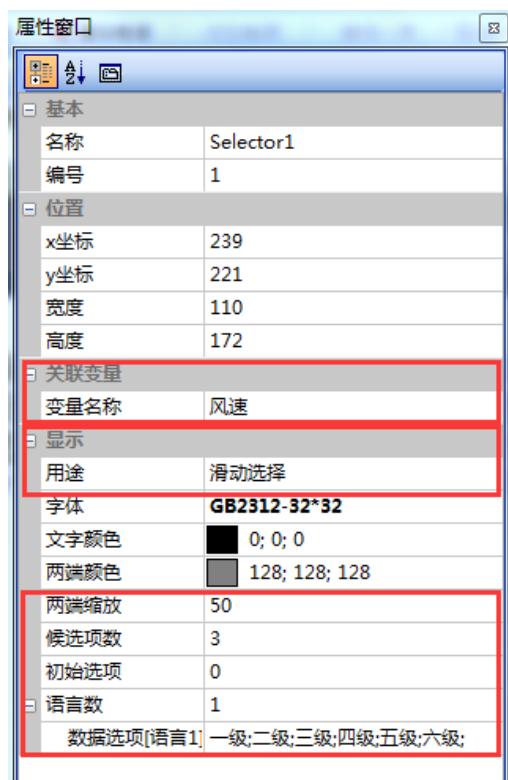
2 , State selection

ID for 2 The selection control, as shown in FIG property 4-44 , The associated variable "SPEED", use is set to "STATUS", the preset data setting option "one; two; three; four; five; six; ";

In this case, compile the project and run virtual serial port screen, when the value of "wind speed" variable changes, control 2 State value displayed will be updated accordingly.



Map 4-42 Picker



Map 4-43 Select the slide



Map 4-44 Status Display

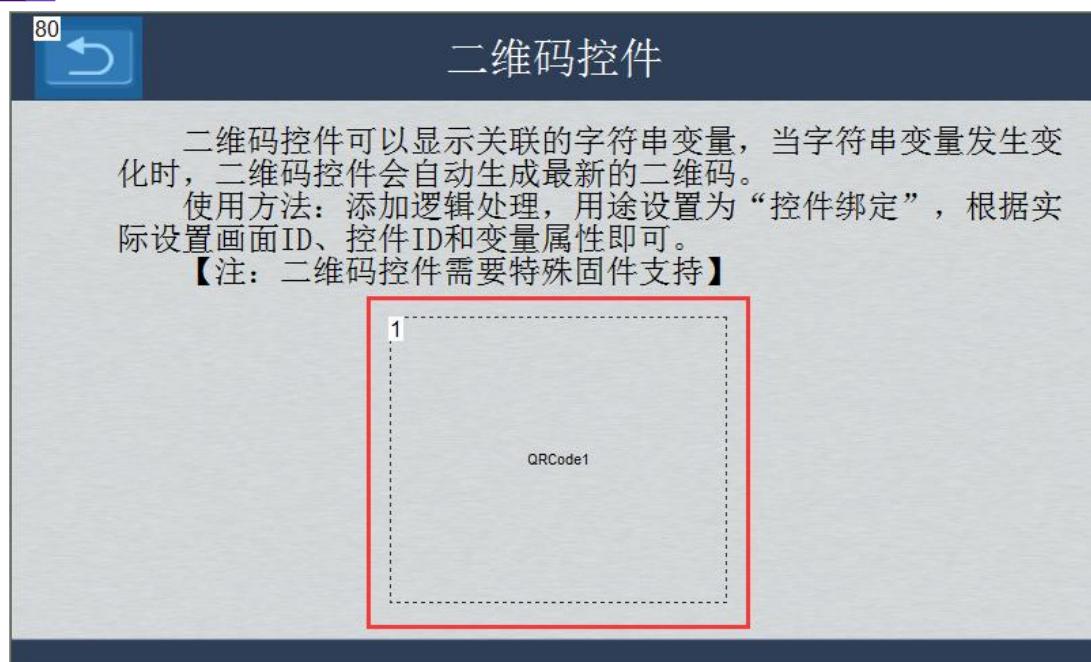
4.2.16 QR code

[] Two-dimensional code on the main screen controls do use two-dimensional code example shows. String controls can be set two-dimensional code is displayed in the form of two-dimensional code. MODBUS Serial protocol version screen control displays a two-dimensional code associated with string type variables. Note that the two-dimensional code controls require special firmware support.

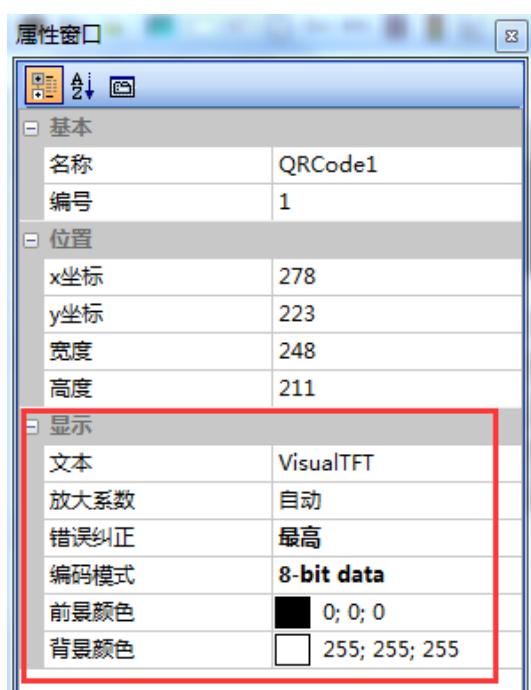
[] Two-dimensional code picture ID for 1 Specific control properties of two-dimensional code is provided in FIG. 4-46 Shown; "Text" is the default character string is displayed, the higher is the size of a single point "amplification factor", "correct illusion" of the level, the smaller the length of the string can be displayed, "encoding" i.e., two encoding code.

Create a "two-dimensional code value" variable, the variable type is set to "string type", as shown in the specific settings 4-47 As shown, create a "binding controls" logic processing, the control variable "two-dimensional code value" is associated.

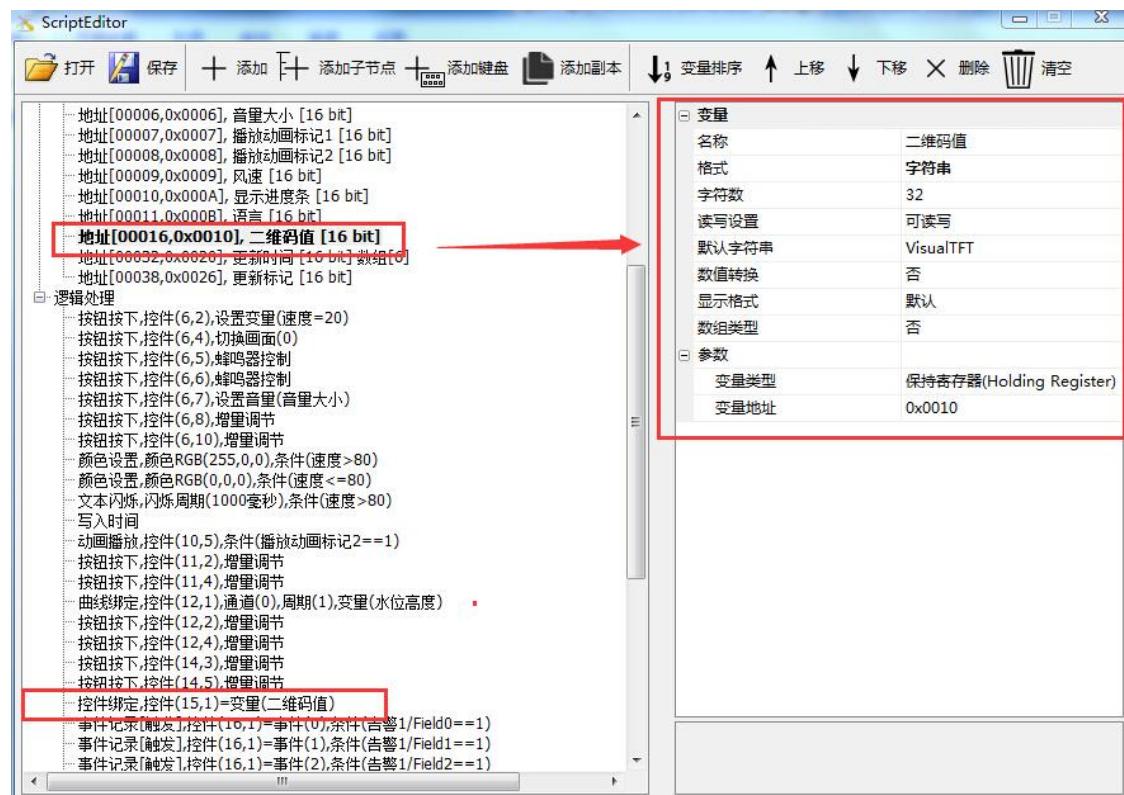
In this case, compile the project and run virtual serial port screen, two-dimensional code control displays bind variables "two-dimensional code value," the two-dimensional code, when the variable "two-dimensional code value" changes, the two-dimensional code control automatically update to generate new two-dimensional code.



Map 4-45 Two-dimensional code control



Map 4-46 Two-dimensional code property



Map 4-47 Two yards and bind the control variable

4.2.17 Data recording controls

[Data logging control - Current alarm] and [data logging control - historical alarm] screen is mainly on the use of data recorded Control Does illustration.

Data recording controls MODBUS Essentially identical "to the current alarm", "alarm history" and "historical alarm and lift", where "Alarm history" and "historical alarm and the release," the "History: Serial protocol version often used in three screen" Record Type "alarms and lift "compared to the" alarm history ", each alarm recording an increase of alarm release time. This example is only on the "Current alarms" and "Alarm history" doing illustration.

Control record type data recorded as "current alarms" and "historical alarm" setting using the same procedure, the following steps:

1 , Setting data recording control "Record Type" to "Current alarm" or "alarm history", as 4-50 Shown;

2 , Setting possible events in the "Alarm Resolution" ID Values, and color description information, FIG. 4-51 Shown;

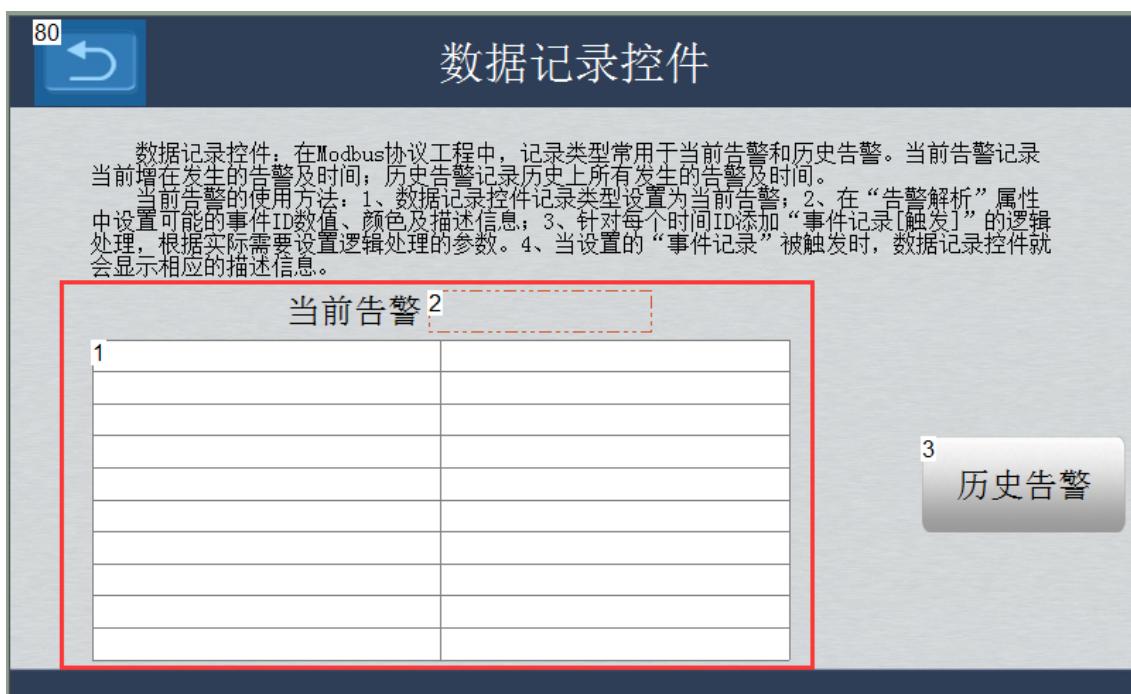
3 , For each event ID Uses of the "Event Log [trigger]" logic processing, FIG. 4-52 Shown; Each

Logical processing according to set "execution condition"; in this case creates a holding register variable of type "Alarm 1 "And then on" Alert 1 "Each bit establish" Field0 "" Field1 "" Field2 "Child node, it is judged" Field "Whether 1 , Whether as a condition to perform.

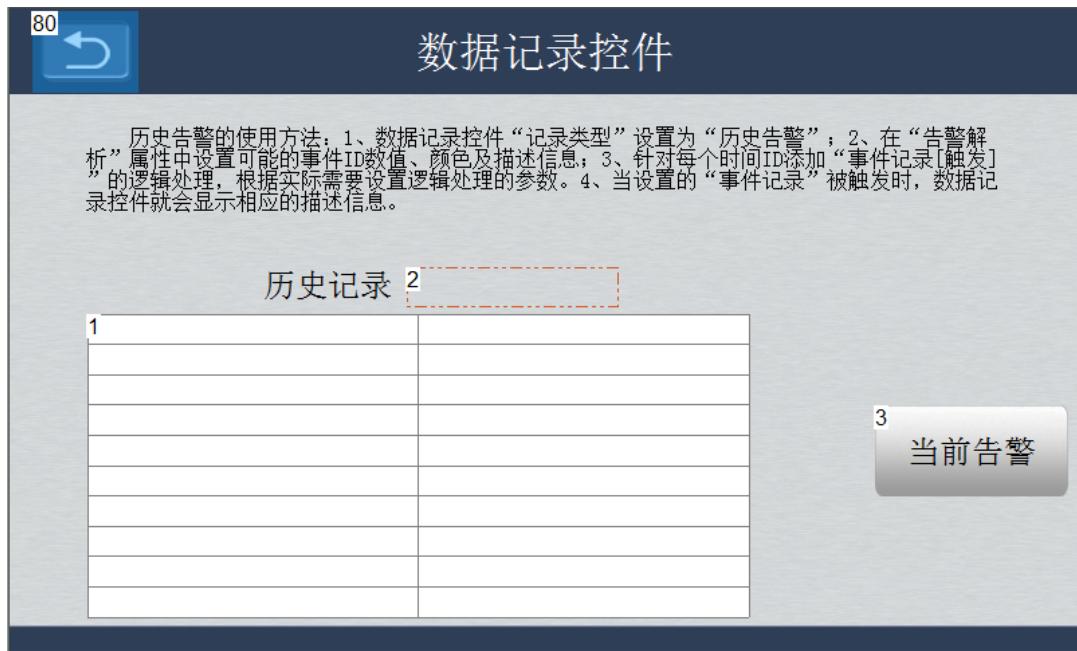
According to the above configuration steps "Current alarms" and "Alarm history", at this time, compile the project and run virtual serial port screen.

When you have set "alarm 1 "The value of 3 (Filed0 = 1 , Field1 = 1 , Field2 = 0), 4 (Filed0 = 0 ,

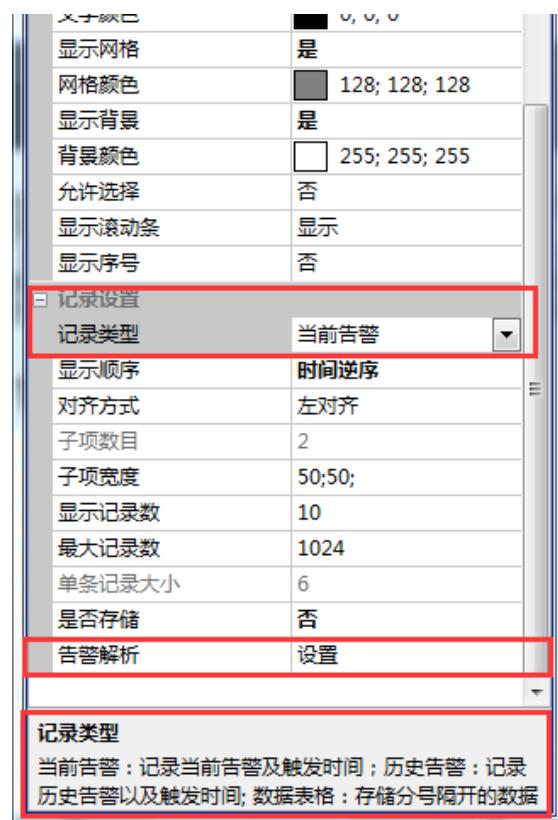
Field1 = 0 , Field2 = 1 After), this alarm display in FIG. 4-53 As shown in FIG historical alarm 4-54 Fig.



Map 4-48 Data recording controls - Current alarms



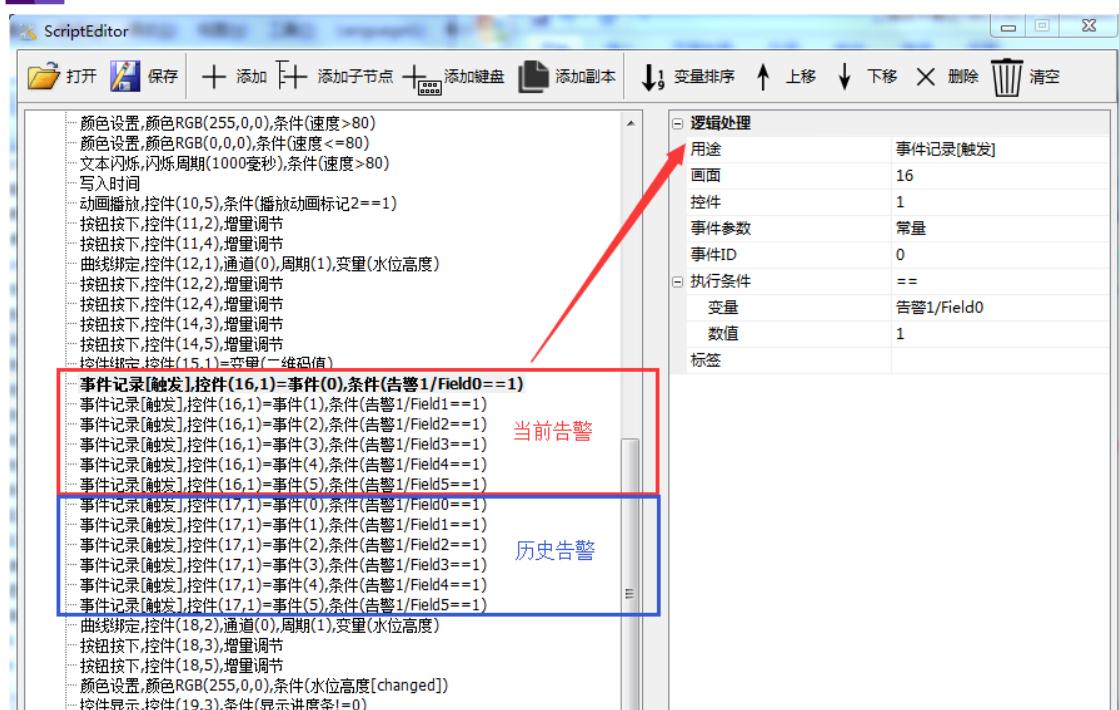
Map 4-49 Data recording controls - historical alarm,



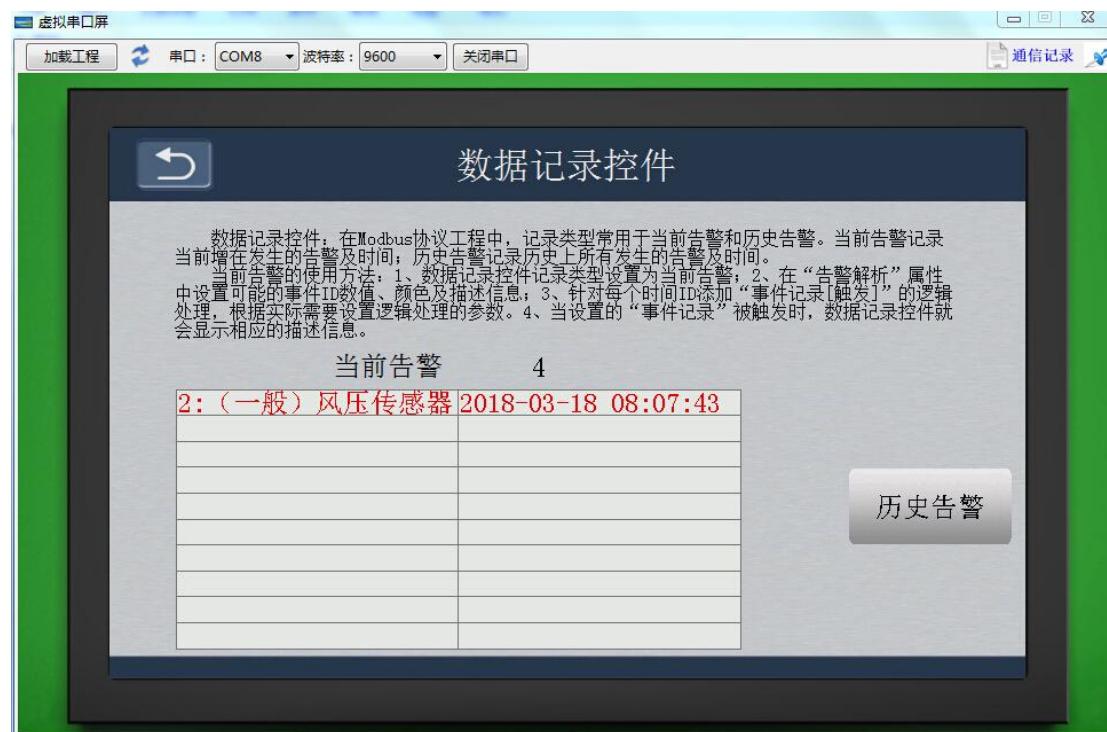
Map 4-50 Data recording control property settings



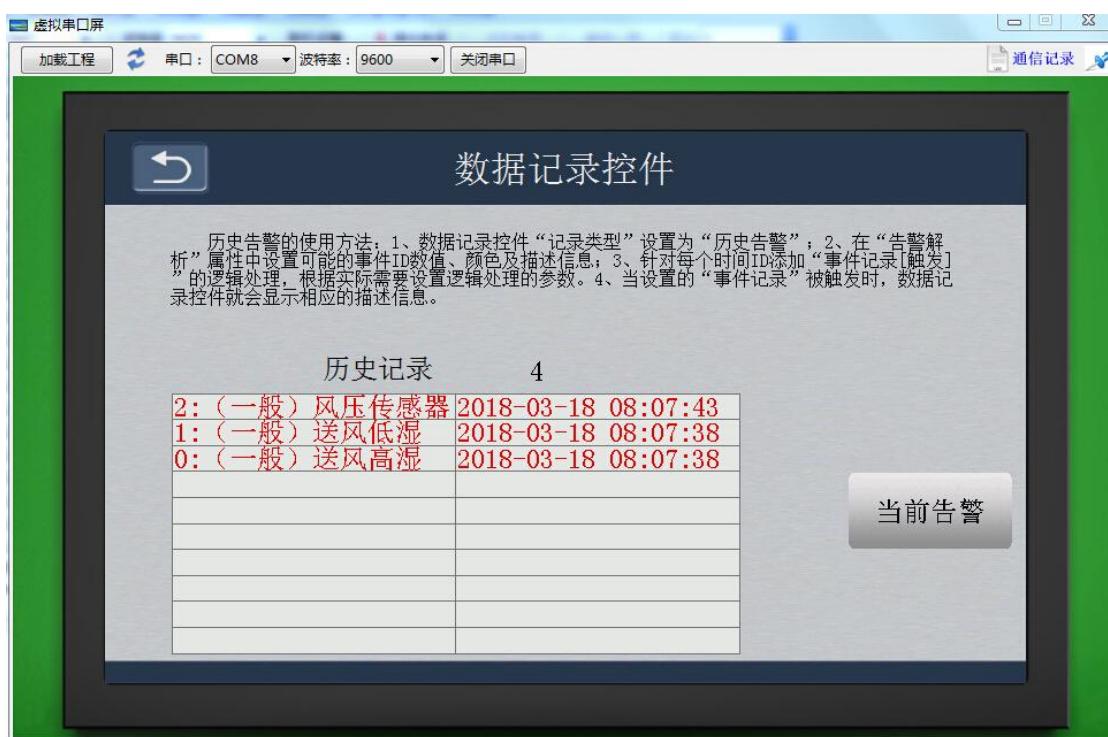
Map 4-51 Set the alarm parsing



Map 4-52 Current logic alarms



Map 4-53 Current alarms

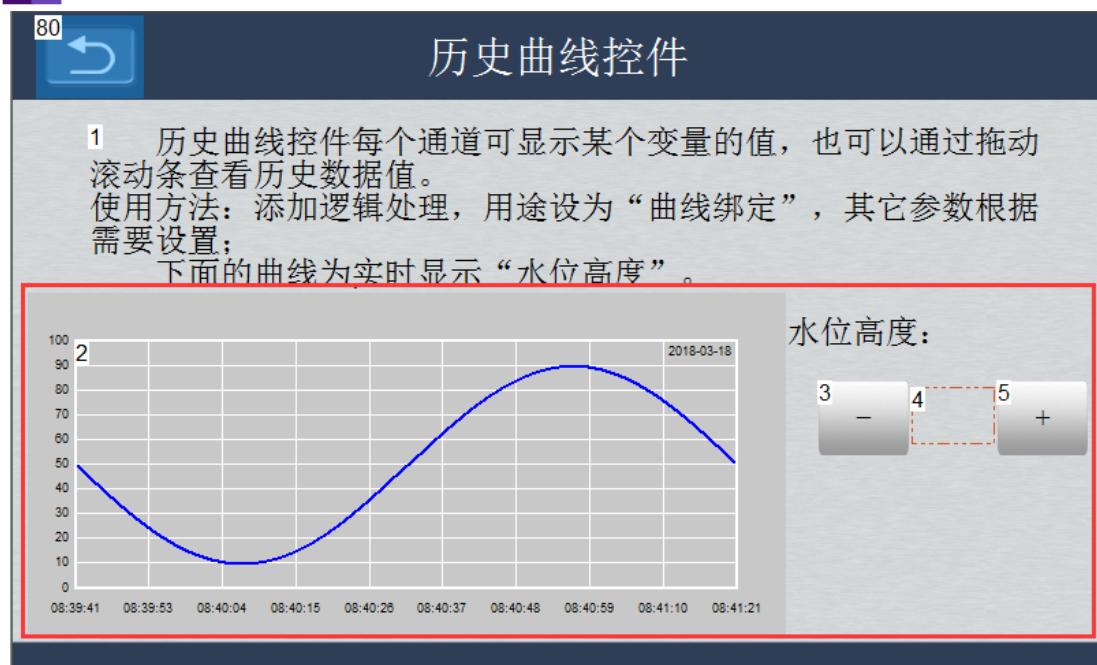


Map 4-54 Historical alarm

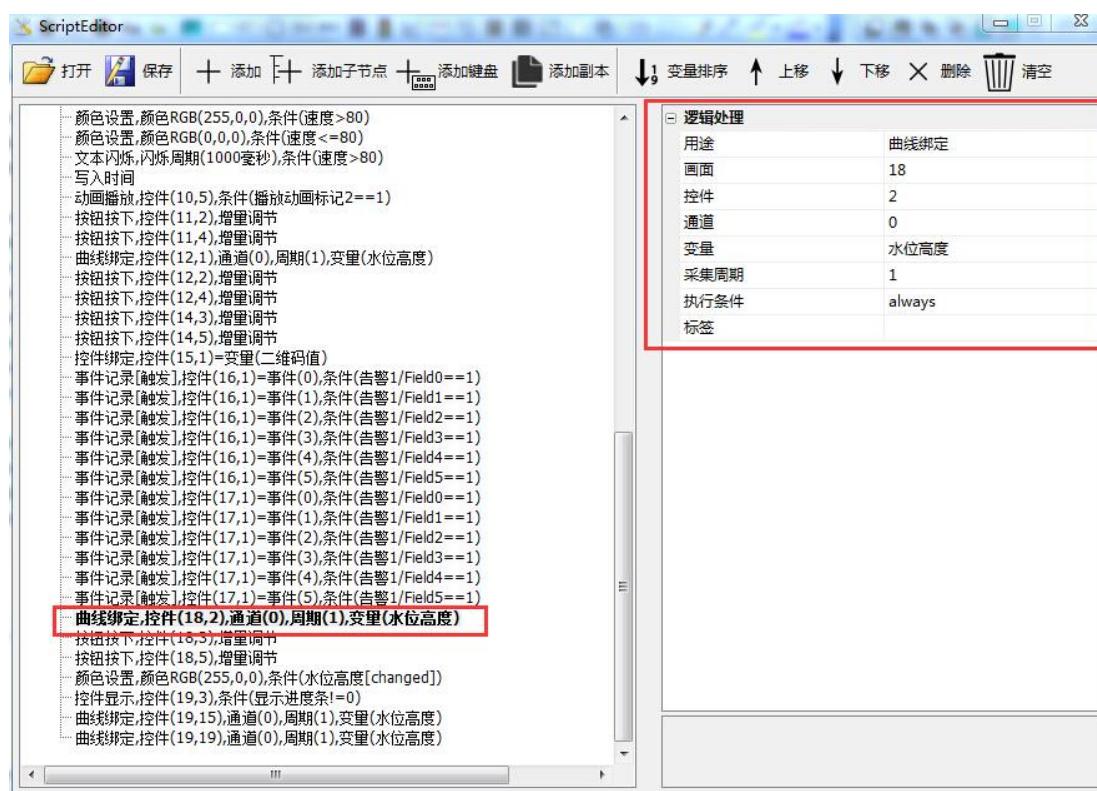
4.2.18 Historical curve control

[History] screen Curve controls for use primarily historical curve controls do illustration. Historical curve curve controls and controls real-time sampling, display the value of the variable binding, at different historical curve control pre-stored data, you can view historical data. MODBUS Protocol version, the history control to display the curve of the associated variable value, periodically sampling history curve control variable value, and then drawing all of the sample values into the control history curve, connected to form a curve; history curve control for each channel can associated with a variable, you can set up 8 Channels. By setting the "binding curve" purpose bindings display logic.

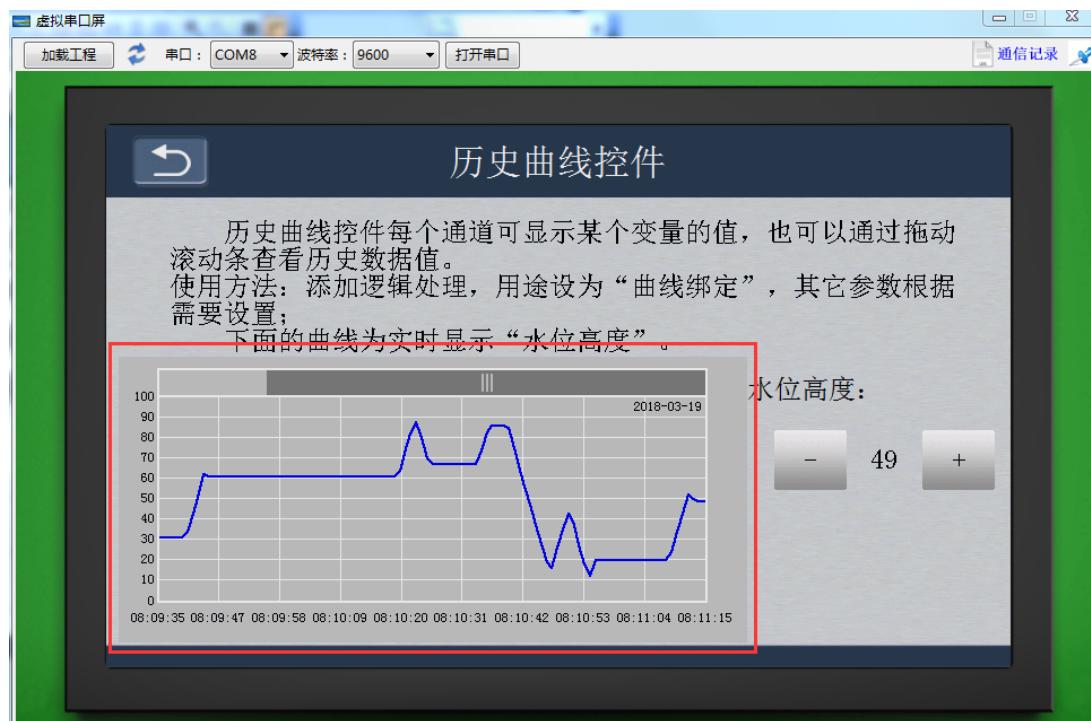
[History] screen Curve Control ID for 2 History curve control, preset a channel, the channel for the control of 0 , Added logic associated parameters are shown in 4-56 As shown, every " 1 "A second sample variable" value of the water level "in. Screen ID for 3 , 5 The button is used to adjust the "water level" value, ID for 4 Real-time display of text controls "water level" value; after dynamic adjustment "water level", may be formed in FIG. 4-57 Control graph shown in FIG., While dragging the scrollbar to view historical data.



Map 4-55 Historical curve control



Map 4-56 Curve Control logic processing history



Map 4-57 Run the sample history curve control

4.2.19 Hide display controls

[Hide] screen display controls the main display controls on the use of hidden features make examples illustrate. In many cases under the project needs to hide or show some controls in the case of a certain condition is met. Hide and display controls implemented in two ways: 1 The display control logic, 2 , MINIC middle show () hide () function.

1 , Logic processing

[Hide] screen display controls as shown in the increase 4-58 As shown, ID for 2 Text control, ID for 3 Control progress bar, a text control bind variables "displays a progress bar", the processing logic increases, as shown 4-59 Fig.

In this case, compile and run the project screen virtual serial port, set the variable "displays a progress bar" value 0 When the progress bar is hidden, set the variable to 1 Progress bar is displayed.

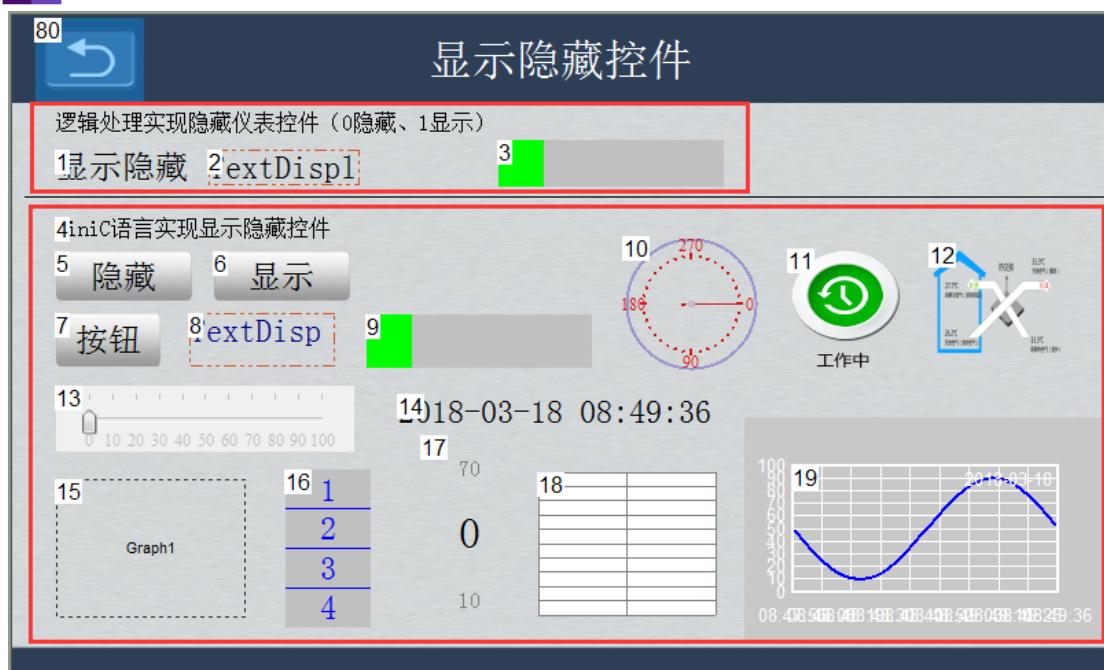
2 , MINIC of show () hide () function

[Hide] screen display controls as shown in the increase 4-58 As shown, ID for 5 "Hide" button control, ID for 6

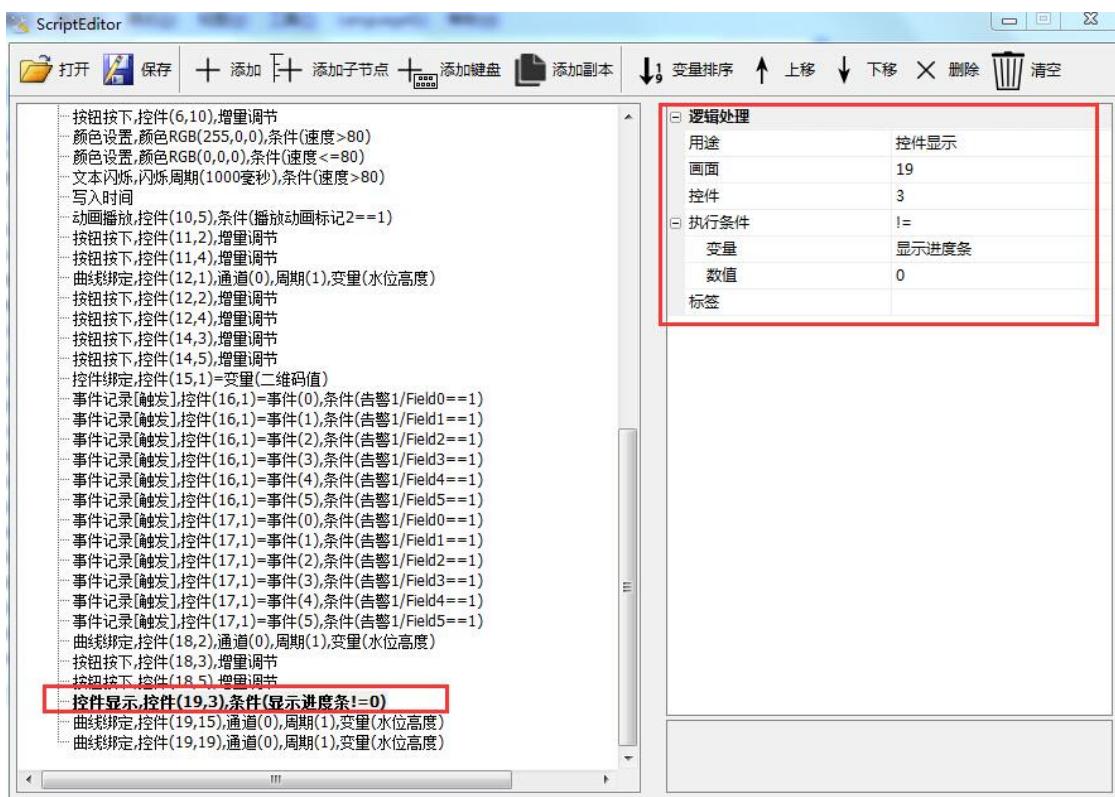
"Display" button control, increase ID From 7-19 The various controls. in MINIC FIG tags added 4-60

Button press operation processing shown.

In this case, compile the project and run virtual serial port screen, when the "Hide" button control is pressed, ID for 7-19 Controls hidden, when the "Display" button control is pressed, ID for 7-19 The control displays.



Map 4-58 Hide display controls



Map 4-59 To hide the display of the control logic

```

69  */
70  函数: on_control_notify
71  功能: 控件值更新通知
72  参数: screen_id, 画面ID
73  参数: control_id, 控件ID
74  参数: value, 新值
75  */
76  void on_control_notify(int screen_id,int control_id,int value)
77  {
78      int i;
79      if(screen_id == 19)
80      {
81          //隐藏显示画面
82          if(control_id == 5 && value == 1)
83          {
84              //隐藏
85              for(i = 7; i <=19; ++i)
86              {
87                  hide(19, i);
88              }
89          }
90          else if(control_id == 6 && value == 1)
91          {
92              //显示
93              for(i = 7; i <=19; ++i)
94              {
95                  show(19, i);
96              }
97          }
98      }
99  }
100

```

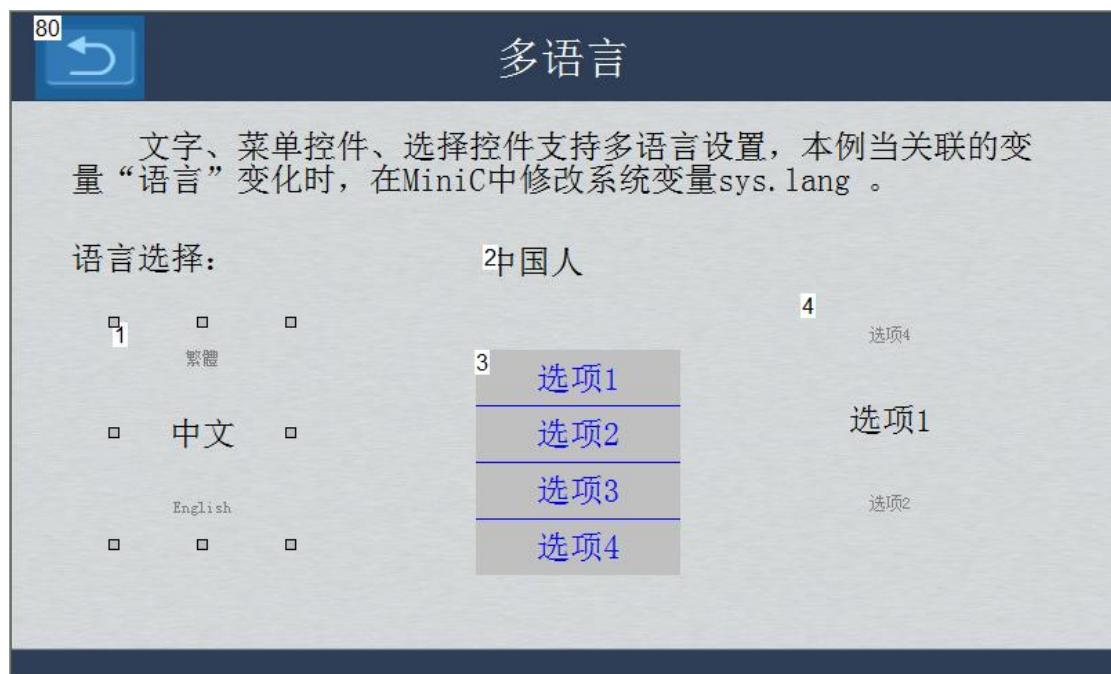
Map 4-60 Hide display controls MINIC Code

4.2.20 multi-language

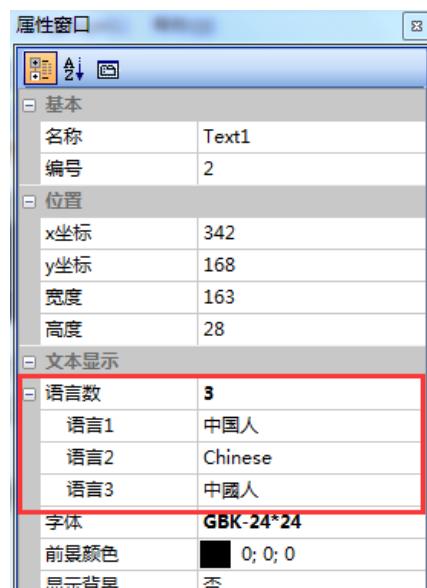
[Multi-language] on the main screen using multi-language capabilities to do illustration. In many cases customers need multi-language project selection, text, menu controls, select the control supports multi-language settings.

[Multilingual] screen, add text, menu controls, select the control, as 4-61 As shown, the multi-language property is set in three languages, each language option to increase or decrease. Figure 4-62 Fig. 4-63 Fig. 4-64 Fig. Also add a select control to select the type of language, bind variables "language", in MINIC Species increased handling of language selection, set the system variable language sys.lang .

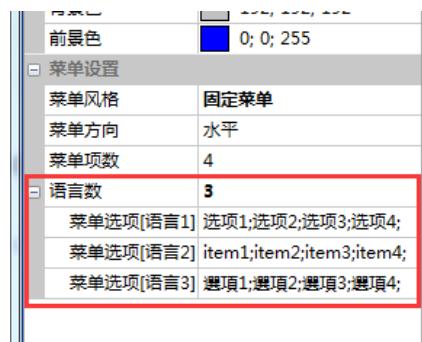
In this case, compile the project and run virtual serial ports screen, select the language, text, menu controls, select the control content by selecting the controls, you can display different languages.



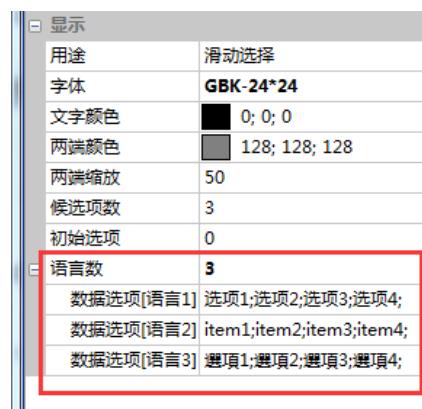
Map 4-61 multi-language



Map 4-62 Multi-language character set



Map 4-63 Multi-language menu settings



Map 4-64 Select Control Multi-language settings

```

47 */
48 * 函数: on_variant_update
49 * 功能: 串口通信导致变量更新时, 执行此函数
50 */
51 void on_variant_update()
52 {
53     //操作符'@'用于判定某个寄存器是否发生改变
54     //更新RTC时间
55     if(@"更新标记")
56     {
57         set_date("更新时间"[0],"更新时间"[1],"更新时间"[2]);
58         set_time("更新时间"[3],"更新时间"[4],"更新时间"[5]);
59     }
60
61     //“语言”发生变化时, 修改设置系统语言
62     if(@"语言")
63     {
64         sys.lang = "语言";
65     }
66 }
67
68

```

Map 4-65 multi-language