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## Sales and Service

**Guangzhou color Optoelectronics Technology Co., Ltd.**

phone: 020-82186683

fax: 020-82187676

Email : hmi@gz-dc.com (Public Service) website: [www.gz-dc.com](http://www.gz-dc.com)

Address: Guangzhou High-tech Industrial Development Zone, Yushu Industrial Park, Beverly West 8 number C Building

303 Housing official website Taobao retail shop: <https://gz-dc.taobao.com>

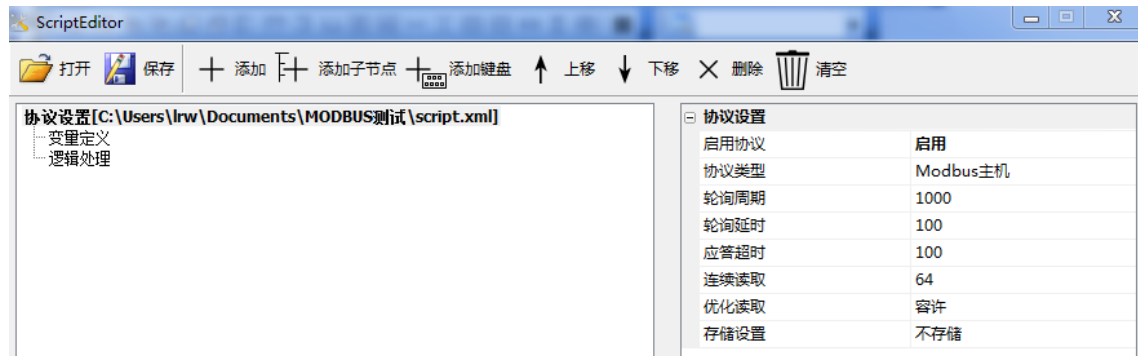
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## 1. Agreement with variable settings

The functions described in this document apply only to contain MODBUS Firmware Version of. use VisualTFT Configuration software, the menu "Tools" - "" a variable set "configuration tool is opened as shown below.

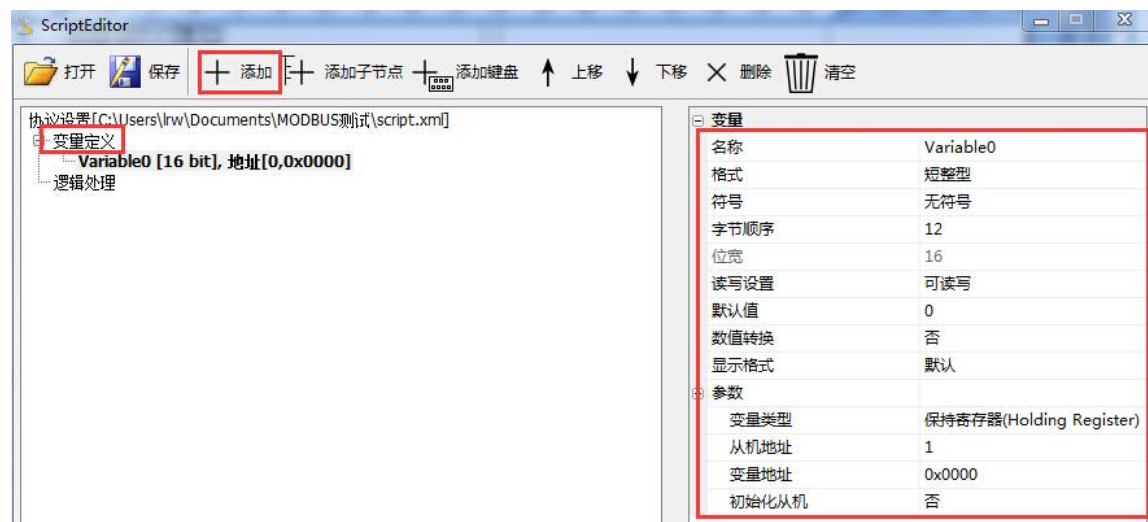


### 1.1 Protocol Settings

- **Enable agreement:** the need to enable the agreement to be supported MODBUS Master / slave, PLC Communication;
- Protocol type: optional communication protocol includes
  - MODBUS Host computer
  - MODBUS Slave
  - Mitsubishi PLC letter of agreement
  - XGUS
- **Slave Address:** MODBUS Slave address;
- **Polling cycle:** time for host read cycle is variable, the default 1 second;
- **Polling Delay:** When the host for the interval of time between two adjacent read command, default 100 millisecond;
- **Answer Timeout:** When the host as to allow maximum delay from machine default 100 millisecond;
- **Successively read:** When the host for setting the maximum number of consecutive read address of the variable;
- **Optimization read:** When the host for the open reading optimized, read only variables associated with the current picture;
- **Storage Settings:**
  - No storage: do not store variable Restore Defaults restart after a power failure;
  - **All storage: not recommended,** because of frequent memory can cause FLASH Bad block increase;
  - Storage specified variable: recommended, usually used to store system rarely change configuration parameters;
- **Storing tag:** version identification flag stored in the screen, when changes are made to the stored data format, generally need to manually modify the stored value tag.

### 1.2 Variable definitions

Select "Variable definition" node on the left, click on the toolbar "Add" button to add a variable, then the variable attribute settings as needed.



Select the variable node Variable1 , Then set the properties window by:

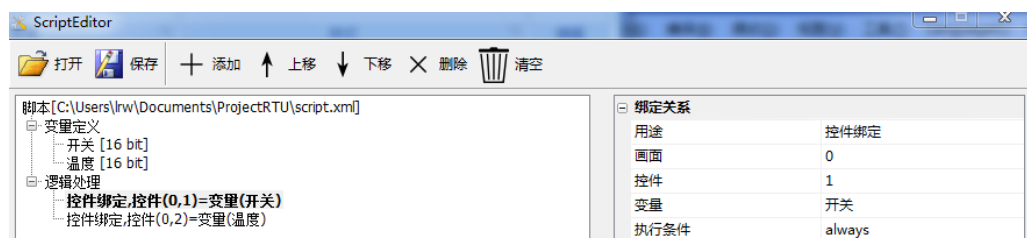
- Name: You can modify a meaningful name, such as "temperature"
- **Format: short integer ( 2 Bytes), long integer ( 4 Byte), a float ( 4 Byte), the string**
- Symbols: For integer type, may be provided with a signed / unsigned
- Byte order: the order data nibbles
- Bit width: bit width corresponding to the variable format, bit-width field may
- Set reading and writing: read and write permissions set variables
- Default: The default value of the variable
- Numeric conversion: actual value = raw value \* scale pan +
- Display Format: integer or decimal display may be provided zero padding

### MODBUS Settings:

- Slave Address: if you need to set the host mode
- Variable Address: variable (or register) address
- **Variable type: a coil ( Coils) , Discrete input ( Discrete Inputs) Holding register ( Holding Register) , Input register ( Input Register )**
- Memory variable: a variable (the calculation result storing) data processing, this variable does not change the serial communication occurs
- System variables: Screen predefined variables, including baud rate, backlight brightness, buzzer, date and time

### 1.3 Logic processing

Select the left "logic" node, click on the toolbar button "Add" logic. As shown below, select the new logical relationship as shown, and then set by the properties window.



Common attributes parameters introduced:

Purpose: Sets the current uses logic, control is bound e.g., control display screen: the screen

control where ID

Control: Control ID

Variables: variable name associated with the control

Execution condition: to set the execution condition of the logic, Always It means always executed, Changed Executes represent variables change.

### 1.3.1 Control bound

Associated with the control variable is set: when the control changes, automatically update the value of the variable; conversely when the variable is updated, the update control displays. use VisualTFT software 765 And above, can also be set directly in the name of the variable associated control property window.

基本	
名称	Button1
编号	2
位置	
x坐标	139
y坐标	186
宽度	170
高度	89
关联变量	
变量名称	Variable0
控件设置	
触摸虚框	是
事件通知	是

### 1.3.2 Control displays

Display Control When the "execution condition" is set in the establishment, or hide the control.

逻辑处理	
用途	控件显示
画面	1
控件	2
执行条件	
变量	Variable1
数值	1
标签	

### 1.3.3 Animation

When the "execution condition" is set to start playing the animation of the establishment, or to stop playing.

逻辑处理	
用途	动画播放
画面	1
控件	2
执行条件	==
变量	Variable1
数值	1
标签	

#### 1.3.4 Press the button and pop

When the button is pushed or popped, if the "execution condition" is satisfied, the "perform an action."

逻辑处理	
用途	按钮按下
画面	1
控件	2
执行动作	设置变量
变量	Variable0
数值	0
执行条件	==
变量	Variable1
数值	1
标签	

#### 1.3.5 Conditional execution

When the "execution condition" satisfied "perform actions", in order to prevent repeatedly executed, the logic execution condition is satisfied at the instant of time (similar to the rising edge) only.

Screen condition: This logic is defined is valid only in a screen.

逻辑处理	
用途	条件执行[触发]
执行动作	设置变量
变量	Variable0
数值	0
执行条件	==
变量	Variable1
数值	1
画面条件	任意
标签	

#### 1.3.6 Changing Screens



When the "execution condition" is met, switching to the specified target screen, the trigger logic. Target Parameters:

target screen can be variable or constant. Screen condition: This logic is defined is valid only in a screen.

逻辑处理	
用途	切换画面[触发]
目标参数	变量
目标画面	Variable0
执行条件	
变量	Variable1
数值	1
画面条件	任意
标签	

### 1.3.7 Set the variable

When the "execution condition" is satisfied, the specified value set variable. Write-optimized:

optimization enabled only when changing the target variable, writing is performed. Screen condition:

This logic is defined is valid only in a screen.

逻辑处理	
用途	设置变量
变量	Variable0
数值	1
执行条件	
变量	Variable1
数值	1
模式	普通
写入优化	禁用
画面条件	任意
标签	

### 1.3.8 Assembly instructions

Support assembly instructions include:

Jmp Jump: When the "execution condition" set up, go to the "target label", only to jump back.

Mov Assignment: MOV AB , The "parameter variables or constants B "Is set to" target variable B . "

Add addition: ADD AB ,result A = A + B .

Sub Subtraction: SUB AB ,result A = AB .

And And logic: AND AB ,result A = A & B .

Or Or logic: OR AB ,result A = A | B .

Mul multiplication: MUL AB ,result A = A \* B .

Div division: DIV AB ,result A = A / B .

### 1.3.9 record

When the "execution condition" was established to record the event ID .

逻辑处理	
用途	事件记录[触发]
画面	1
控件	1
事件参数	常量
事件ID	1
执行条件	
变量	温度
数值	50
标签	

### 1.3.10 Binding curves

When the "execution condition" was established to record the specified variable in the "history Curves".

逻辑处理	
用途	曲线绑定
画面	1
控件	1
通道	0
变量	温度
采集周期	1
执行条件	always
标签	

### 1.3.11 Color settings

When the "execution condition" is set up, set the control to the specified color.

逻辑处理	
用途	颜色设置
画面	1
控件	1
颜色	<input type="text" value="255; 255; 255"/>
执行条件	always
标签	

### 1.3.12 Blinking text

When the "execution condition" is set up, set the blinking text controls specified period.

逻辑处理	
用途	文本闪烁
画面	1
控件	1
闪烁周期	1
执行条件	always
标签	

### 1.3.13 Buzzer control

When the "execution condition" was established to control the buzzer sounds.

Mode: set to "single" beep beep or periodic;

Control: For the periodic mode, chirping can be set to start, end call and controlled by the conditions; time: For

"Single" mode, chirping can be set length of time; period: for the "cycle" mode, chirping can be set period;

逻辑处理	
用途	蜂鸣器控制
模式	周期性
控制	由条件控制
周期	1
执行条件	>
变量	Variable0
数值	1
标签	

### 1.3.14 External matrix keyboard

This feature is customization, regular version does not support.

### 1.3.15 Write time

When the screen as the host may write the timing designation register, the slave set time.

逻辑处理	
用途	写入时间
从机	1
寄存器	0
周期	1
执行条件	always
标签	

<b>寄存器</b>
时间寄存器起始地址，格式：年、月、日、星期、时、分、秒。

## 2. MINIC Scripting

### 2.1 MINIC Introduction

MINIC is a scripting language for serial screen. Its syntax is similar to C Language, but keep only the most frequently used functions.

use VisualTFT Configuration software, via the menu "Tools" - "MINIC Scripting" to open the Script Editor window as shown below.

```

1  /*
2  函数: on_init
3  功能: 系统执行初始化
4  */
5  void on_init()
6  {
7  }
8
9  /*
10  函数: on_systick
11  功能: 定期执行任务(1秒/次)
12  */
13  void on_systick()
14  {
15  }
16

```

MINIC Functions include: arithmetic, bit operations, logic operations, comparison operations, assignment, IF Select statements, system function calls, etc., with specific syntax C The same language.

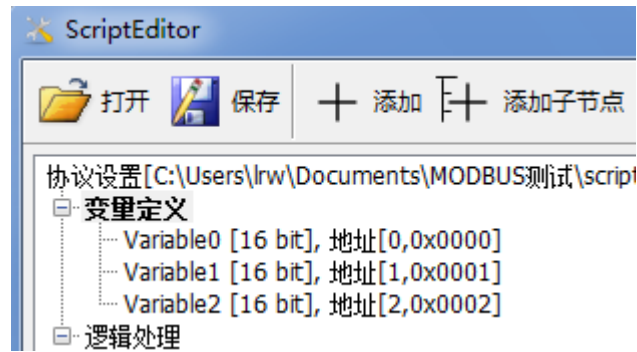
Arithmetic operations: + addition, - subtraction, \* multiplication / division, modulo% ++ from Canada - Decrement bit operation: || Or bits, and bits &, ^ bitwise exclusive OR, ~ bitwise logical operations: || logical OR, && Logical AND, logical NOT operation comparison: ==, !=, <=, >=, <,> assignment: = ; While "=" character string assigned to one another and support values ( MB2.22.1025.259 Support firmware version above)

@ Operator: operator determines whether a change in the transmit register, e.g. if (@ " temperature ")

Constant: an integer ( 168) , Floating-point numbers ( 3.14) , Hexadecimal ( 0xAABB)

### 2.2 Variable definitions

Variables include: global variables, local variables (internal function). FIG global variables are defined as follows, can directly access the global variable in a function. If the variable is Chinese, you need to use double quotes, for example, " temperature " = 32 .



Supported Variable data type in the following table :

Variable Types	Keyword	or
Signed Byte	char	int8
Unsigned byte	unsigned char	uint8
Signed short	short	int16
Unsigned short	unsigned short	uint16
Signed integer	int	int32
Unsigned integer	unsigned int	uint32
Single-precision floating-point number	float	no

The method of local variables defined in the following figure:

```

31 void on_timer(int timer_id)
32 {
33     int second = 0; //局部变量定义，只能在函数的最前前面
34
35     if(timer_id==0) //更新倒计时
36     {
37         second = (sys.timer1+900)/1000; //毫秒转换为秒
38
39         //全局变量为中文时，需要用双引号包围
40         "倒计时秒钟" = second%60;
41         "倒计时分钟" = (second/60)%60;
42         "倒计时小时" = (second/3600)%24;
43     }
44     else if(timer_id==1) //运行时间到
45     {
46         "运行" = 0; //停止运行
47     }
48 }

```

### 2.3 System entry function

System entry function, i.e., the system predefined functions, can not be altered. Currently defined entry function: on\_init , on\_systick , on\_timer , on\_variant\_upate , on\_control\_notify .

#### 2.3.1. The system performs initialization on\_init

/\*

function: on\_init

Function: when the system performs initialization, loading the project execution time

\*/

```
void on_init () {}
```

### 2.3.2. Recurring tasks on\_systick

/\*

function: on\_systick

Function: periodic tasks, 1 A second execution

\*/

```
void on_systick () {}
```

### 2.3.3. Timer expires notice on\_timer

/\*

function: on\_timer

Function: timer timeout notification

parameters: timer\_id Timer ID

Need to receive timer notifications, you must first start the timer start timer: start\_timer

(timer\_id, timeout, countdown, repeat)

timer\_id- Timer ID ( 0-9 )

timeout- Timeout, in milliseconds

countdown-0 Of counting, 1 Countdown decision sys.timer Incremented or decremented

repeat- repeat times, 0 To represent infinity

Stop timer: stop\_timer (timer\_id)

Timer values: sys.timer0 ~ sys.timer9 , In milliseconds

\*/

```
void on_timer (int timer_id) {}
```

### 2.3.4 Variable update notification on\_variant\_upate

/\*

function: on\_variant\_upate

Function: variable lead through the serial port register write update, perform this function.

use "@" Register operator determines whether to transmit a change, e.g. if (@ " temperature " ) .

\*/

```
void on_variant_upate () {}
```

### 2.3.5 The control value update notification on\_control\_notify

/\*

**function: on\_control\_notify**

Function: Control value update notifications, for example, the user clicks the button, the execution parameters via the

keyboard input data: screen\_id Generates this notification screen ID

parameter: control\_id Generates this notification control ID

parameter: value Numerical example of button press 1 , To button up 0 Value, or text control entry

\* /

void on\_control\_notify (int screen\_id, int control\_id, int value) {}

**2.3.6 Screen Change notice on\_screen\_change**

/ \*

**function: on\_screen\_change**

Features: Screen switch notification, the current screen ID This function is executed when parameter

changes: screen\_id The current picture ID

\* /

void on\_screen\_change (int screen\_id) {}

**2.4 System Variables**

System variables, namely pre-defined system variables, convenient and direct access to the script.

**2.4.1 Baud Rate sys.baudrate**

Can read and write, this represents a serial communication baud rate, this will save the parameters of power.

**2.4.2 Backlight brightness sys.backlight**

Set the current backlight brightness value 0 Darkest ~ 255 brightest

**2.4.3 Buzzer Enable sys.beep\_en**

Write 0 Disable the beeper, write 1 Enable buzzer.

**2.4.4 Communication system failure sys.com\_err**

The last time the system read and write operations register is faulty, the variable is greater than 0 It indicates a fault.

**2.4.5 Current Screen sys.current\_screen**

Analyzing the current picture can be located by the variable, or variables to achieve the modified screen transition.

**2.4.6 System power-up time sys.tick (In seconds)**

From the system running time since the power-count, in seconds, it will be off again from 0 Start.

**2.4.7 System Date sys.year year, sys.month month, sys.day day, sys.week week**

sys.year year, sys.month month, sys.day day, sys.week These variables are read-only weeks, if you need to modify the system date, use set\_date System functions

**2.4.8 system time sys.hour Time, sys.minute Minute, sys.second second**

sys.hour Time, sys.minute Minute, sys.second The second variable is read-only, if you need to modify the system time, use set\_time System functions

#### 2.4.9 System Timer sys.timer0 ~ sys.timer9 (In milliseconds)

Read-only variables, the value may be cis or countdown timer, see start\_timer System functions

### 2.5 System function call

System function that is predefined system functions can be called directly in the script.

#### 2.5.1 Start timer: start\_timer (timer\_id, timeout, countdown, repeat)

- timer\_id- Timer ID ( 0-9 )
- timeout- Timeout, in milliseconds
- countdown-0 Of counting, 1 Countdown decision sys.timer Incremented or decremented
- repeat- repeat times, 0 To represent infinity
- Timer value: by sys.timer0 ~ sys.timer9 Access, in milliseconds

#### 2.5.2 Stop timer: stop\_timer (timer\_id)

#### 2.5.3 Set the system date: set\_date (year, month, day)

#### 2.5.4 Set the system time: set\_time (hour, minute, second)

#### 2.5.5 Set variables: set (variant, value)

The function assignment "=" similar, but different, to A = B with set (A, B) To illustrate. Common: finished after A The value is equal to B Value;

The difference: if A It is a register, A The value is not changed, using the assignment operator does not send a write command serial port, using set Function will send the serial write command.

Meanwhile, the support function values and character strings assigned to one another (note: MB2.22.1025.259 Support firmware version above).

#### 2.5.6 Display controls: show ( screen\_id, control\_id )

This function is used to display the specified control (note: MB2.22.1025.259 Support firmware version above).

- screen\_id Specified screen ID
- control\_id Specified control ID

#### 2.5.7 Display controls: hide ( screen\_id, control\_id )

This function is used to hide the specified control (Note: MB2.22.1025.259 Support firmware version above).

- screen\_id Specified screen ID
- control\_id Specified control ID