

**Foshan Qingjun  
Electronics Co., Ltd.**



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## File information

|          |  |                        |  |
|----------|--|------------------------|--|
| Writer   |  | The date of writing    |  |
| Reviewer |  | The date of the review |  |
| Approver |  | The date of approval   |  |

## Change records

| date | author | version | Change instructions |
|------|--------|---------|---------------------|
|      |        |         |                     |
|      |        |         |                     |
|      |        |         |                     |
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## Change review

| date | Reviewer | opinion |
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|      |          |         |
|      |          |         |
|      |          |         |
|      |          |         |
|      |          |         |

## 1. Contact Us

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## 2. Company Environment

## About Us



### Company Profile >

Founded in 2004, Guangzhou Qingjun Computer Co., Ltd. is a high-tech private enterprise engaged in the research, development, production and sales of intelligent control of automotive electronics and industrial control. It is a manufacturer with real development capability, production capability and independent brand. Established a branch office in Foshan City, Guangdong Province (renamed Foshan Qingjun Electronics Co., Ltd. on February 25, 2014). The company has a group of solid professional knowledge, experienced high education and high-quality technical personnel, and has invented a number of national patents. The company's mature and stable production products at this stage include automotive electronic temperature control, automotive chip key anti-theft system; PLC DC output amplifier board; PLC AC output amplifier board, Omron, Hongfa, Tyco, Hequan, Panasonic relay module; and single chip computer industrial control series, ect. The company adheres to the spirit of enterprise "focus on quality, keep on credibility, do solid work, courage to innovation", and we create value for our customers. "Going forward one step every day, everything starts from now". Our company sincerely cooperates with domestic and foreign merchants and develops together and works hard to create greater wealth for each other. The integrity, strength and products quality of Foshan Qingjun Electronics have been recognized by the industry.

### 3. Product Description

#### 3.1 Product Models

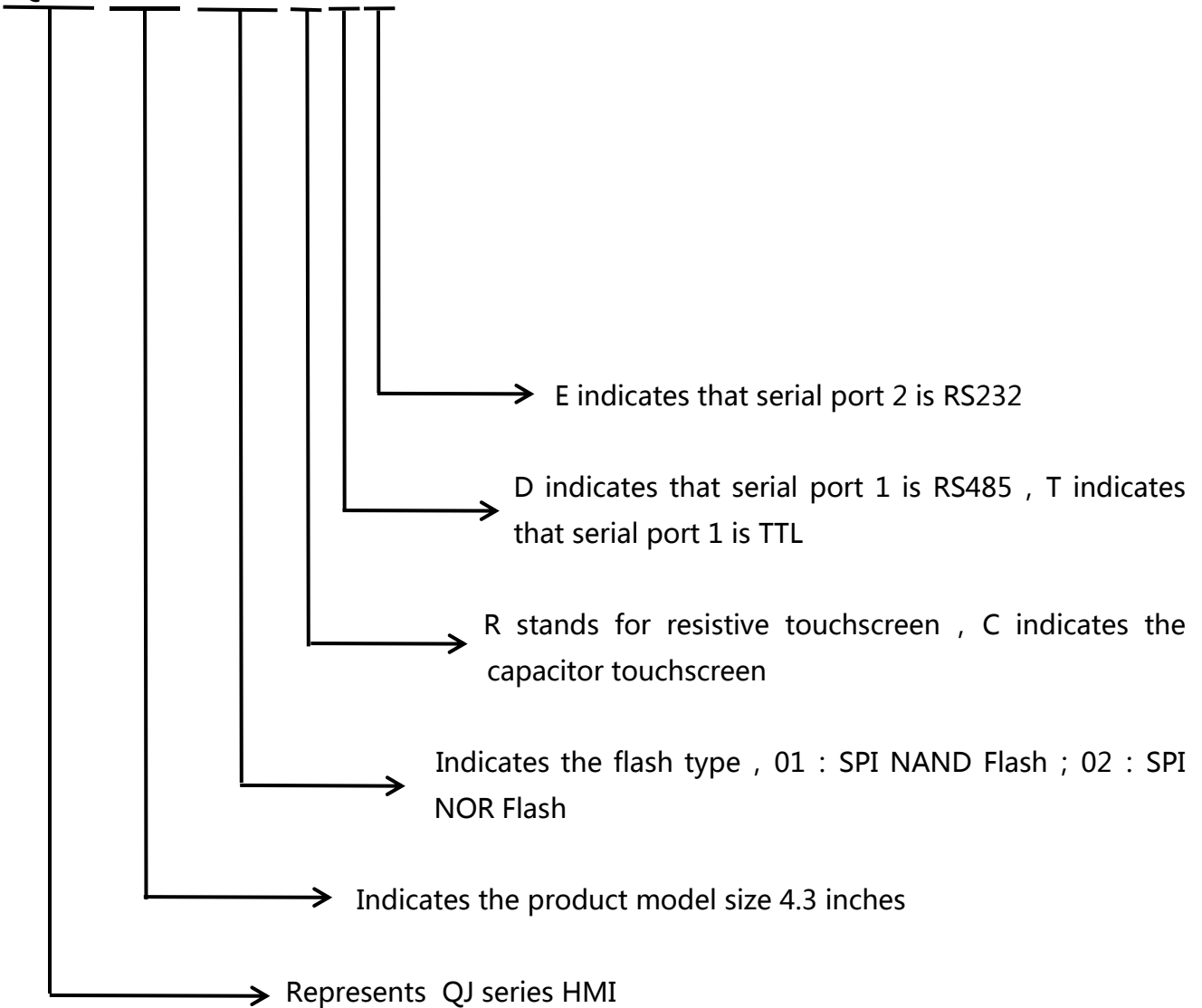


| Module                    | Specifications                                                                                                                  |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| QJ-A043T2/4+              | 4.3 inch, 10 to 30 V, a single serial port:RS232 / RS485 / RS422, 128 Mbyte<br>SPI Nand, Resistive touch screen                 |
| QJ-A043T2/4+(Com2<br>232) | 4.3 inch, 10 to 30 V,serial port 1: RS232/RS485/RS422, serial port 2:<br>RS232, 128Mbyte SPI Nand Flash, Resistive touch screen |
| QJ-A043T2/4+(Com2<br>485) | 4.3 inch, 10 to 30 V,serial port 1: RS232/RS485/RS422, serial port 2:<br>RS485, 128Mbyte SPI Nand Flash, Resistive touch screen |

## Model Definitions

Figure Shows :

**QJ 043 W01 R D E**

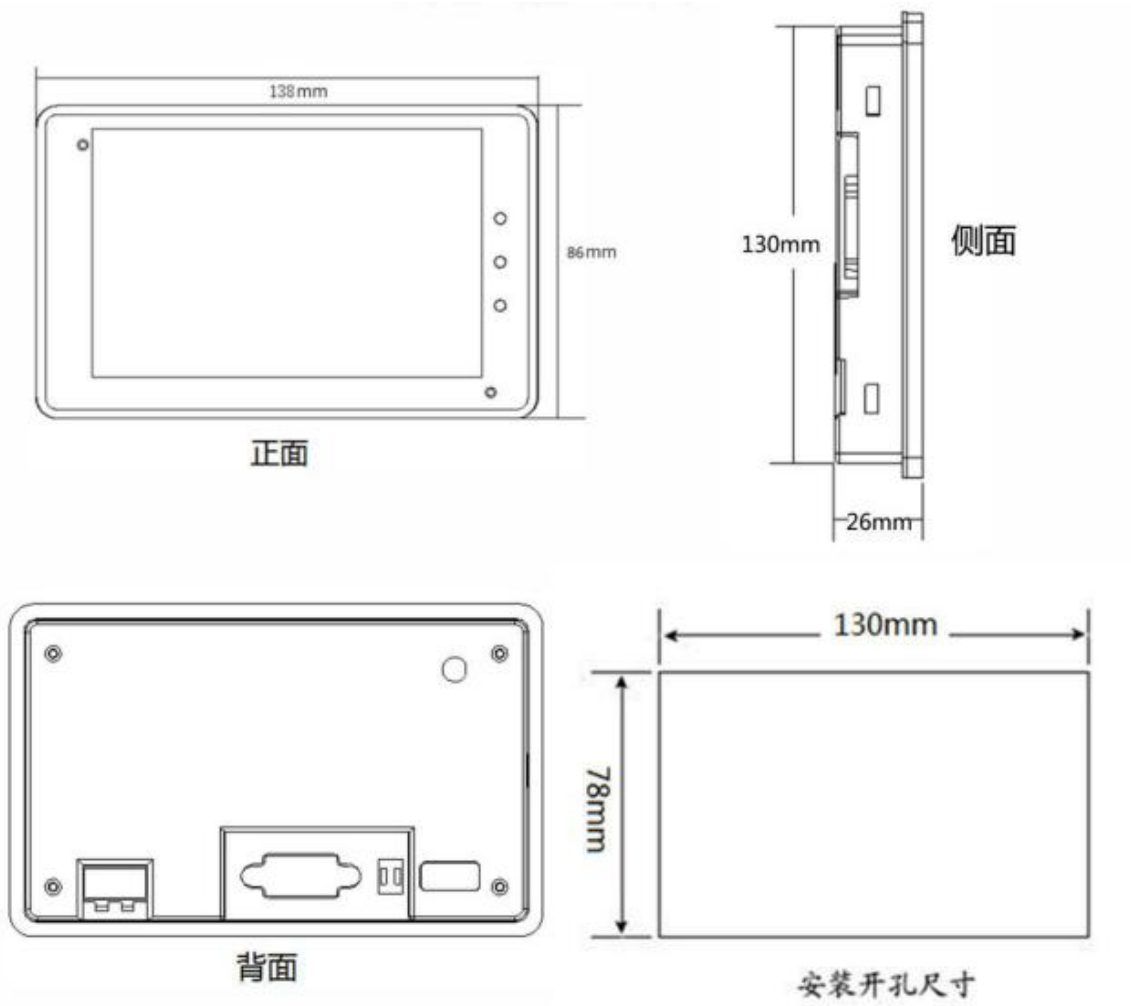


### 3.2 Products Features

|                                |                                                                                      |
|--------------------------------|--------------------------------------------------------------------------------------|
| <b>Power Voltage</b>           | DC10--30V                                                                            |
| <b>Backlight Adjustment</b>    | Support                                                                              |
| <b>Touch</b>                   | 4-wire resistive touch screen                                                        |
| <b>LCD resolution</b>          | 480X272                                                                              |
| <b>USB1</b>                    | Micro USB , Download port                                                            |
| <b>USB2</b>                    | TYPE-A , Download port                                                               |
| <b>LCD</b>                     | TN TFT LCD , 300cd/m2                                                                |
| <b>COM1 communication</b>      | RS232/RS485/RS422 communication ( 3 choose 1 )                                       |
| <b>COM2 communication</b>      | RS232/RS485 communication ( 2 choose 1 )                                             |
| <b>Storage</b>                 | 128Mbyte SPI NAND FLASH                                                              |
| <b>Power Protection</b>        | To prevent the reverse , Distinguish the positive and negative poles of power supply |
| <b>RTC</b>                     | Support                                                                              |
| <b>Save power failure data</b> | Support                                                                              |
| <b>Download</b>                | SD card , USB download , U disk                                                      |

### 3.3 Product Size

| Display Size | Product Model | Overall Dimension | Panel Cutout | Overall Thickness |
|--------------|---------------|-------------------|--------------|-------------------|
| 4.3 in.      | QJ-A043T2/4+  | 138*86mm          | 130*78mm     | 26mm              |



### 3.4 Products Parameters

| Product Specification     |                           |                                                                              |
|---------------------------|---------------------------|------------------------------------------------------------------------------|
| Hardware Performance      | Module                    | QJ-A043T2/4+                                                                 |
|                           | Display Size              | 4.3" TFT LCD                                                                 |
|                           | Resolution                | 480X272                                                                      |
|                           | Colors                    | 260000                                                                       |
|                           | Brightness                | 300 cd/m <sup>2</sup>                                                        |
|                           | Backlight                 | LED                                                                          |
|                           | LED life                  | 20000 hours                                                                  |
|                           | Touch screen              | 4-wire resistive touch screen touch screen ( Surface hardness 4H )           |
|                           | CPU                       | 32-bit 600MHz ARM9 built-in 32MB DDR2 memory                                 |
|                           | Memory                    | 128Mbyte SPI Nand Flash                                                      |
|                           | RTC                       | Real-time clock built-in                                                     |
|                           | Ethernet                  | Unsupported                                                                  |
|                           | Save power failure data   | Support                                                                      |
|                           | USB1                      | A USB2.0 Device port                                                         |
|                           | USB2                      | TYPE A USB , U-disk                                                          |
|                           | Program download Mode     | USB , U disk , SD card                                                       |
|                           | U disk                    | Support                                                                      |
|                           | Communication port        | COM1:RS232,RS485,RS422 . ( 3 choose 1 )<br>COM2 : RS232,RS485 ( 2 choose 1 ) |
| Electrical Specifications | Maximum power consumption | < 2W                                                                         |
|                           | The rated voltage         | DC 10-30V                                                                    |

|                                     |                           |                                                                                                                                                                            |
|-------------------------------------|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                     | Power protection          | +/-2KV lightning surge protection capability                                                                                                                               |
|                                     | The allowed loss of power | <5ms                                                                                                                                                                       |
|                                     | CE&ROHS                   | Comply with EN61000-6-2:2005, EN61000-6-4:2007 standards;Lightning surge +/- 2kV, EFT: +/- 4kV;Electrostatic contact discharge +/-8KV;Electrostatic air discharge +/-15KV. |
| <b>Environmental Specifications</b> | Operating temperature     | -20°C~60°C                                                                                                                                                                 |
|                                     | Storage temperature       | -30°C~70°C                                                                                                                                                                 |
|                                     | Environmental humidity    | 10~90%RH(non-condensing)                                                                                                                                                   |
|                                     | Vibration                 | 10-25Hz (X, Y, Z direction, 2g/30 min)                                                                                                                                     |
|                                     | Cooling way               | Natural air cooling                                                                                                                                                        |
| <b>The Other Parameters</b>         | Protection grade          | The front panel conforms to IP65 (with flat plate cabinet installation), and the rear panel conforms to IP20                                                               |
|                                     | Display Active Area       | 95mmX54mm                                                                                                                                                                  |
|                                     | Panel Cutout              | 130mmX78mm                                                                                                                                                                 |
|                                     | Overall dimensions        | 138mmX86mm                                                                                                                                                                 |
|                                     | The weight                | 149g                                                                                                                                                                       |

## 4. Hardware Introduction

### 4.1 Definition of terminal pin

#### Product interface



| Port Definitions       |                                  |
|------------------------|----------------------------------|
| Device Position Number | Descriptions                     |
| ①                      | Power interface                  |
| ②                      | communication : D-sub9 interface |
| ③                      | USB TYPE A port                  |
| ④                      | Micro USB port                   |
| ⑤                      | SD card interface                |

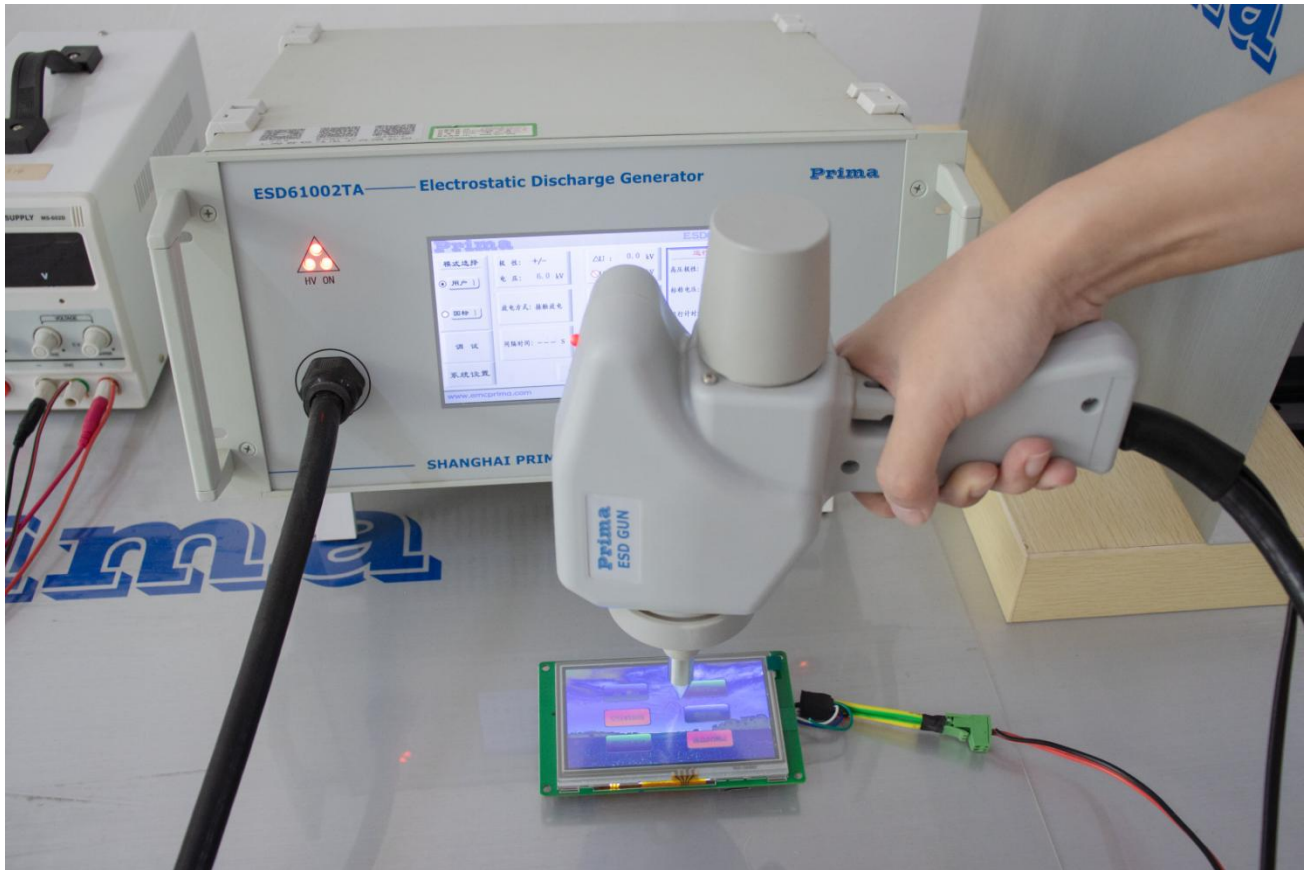
| Power supply interface -- ① |            |                                          |
|-----------------------------|------------|------------------------------------------|
| Pin                         | Definition | Descriptions                             |
| 1                           | +24V       | Positive input of power supply, DC10-30V |
| 2                           | GND        | Negative power input                     |
| 3                           | PE         | GND                                      |

| COM D-sub9 interface -- ② |        |                          |            |                |                |            |
|---------------------------|--------|--------------------------|------------|----------------|----------------|------------|
| Pin                       | Define | COM1 RS422               | COM1 RS485 | COM1 RS232     | COM2 RS232     | COM2 RS485 |
| 1                         |        |                          |            |                | RS232 receiver | RS485 B(-) |
| 2                         | RXD    |                          |            | RS232 receiver |                |            |
| 3                         | TXD    |                          |            | RS232 driver   |                |            |
| 4                         |        |                          |            |                | RS232 driver   | RS485 A(+) |
| 5                         | SG     | RS232/RS422/RS485 Ground |            |                |                |            |
| 6                         | RX-    | RS422 receiver-          |            |                |                |            |
| 7                         | RX+    | RS422 receiver+          |            |                |                |            |
| 8                         | TX-    | RS422 driver-            | RS485 B(-) |                |                |            |
| 9                         | TX+    | RS422 driver+            | RS485 A(+) |                |                |            |

## 5. Reliability Test

All products of company have carried out a series of reliability tests before mass production , including ESD test, high and low temperature aging test, EFT and so on, to ensure the quality of products

### 5.1 ESD Test



Execution standard : IEC 61000-4-2

Test process: Lay the product flat on the test table, and conduct contact and air discharge in turn around the touch screen iron buckle and the display area, as showing above. Check the screen is weather reset and displayed abnormally.

### Testing Data

| Product Models | Discharge type | Discharge value | Test Results                                                   |
|----------------|----------------|-----------------|----------------------------------------------------------------|
| QJ-A043T2/4+   | Contact        | +/-8KV ;        | No reboot, system halt or Abnormal display. Function is normal |
|                | Air            | +/-10KV ;       | No reboot, system halt or abnormal display. Function is normal |

|                    |         |           |                                                                |
|--------------------|---------|-----------|----------------------------------------------------------------|
| <b>QJ043W01RTE</b> | Contact | +/-8KV    | No reboot, system halt or abnormal display. Function is normal |
|                    | Air     | +/-10KV ; | No reboot, system halt or abnormal display. Function is normal |

## 5.2 High low Temperature Aging Test



Test Environment: high and low temperature aging test box

Test Temperature: -20° to 70°

Test Process: Place the product in the high and low temperature aging test box. Through 70° high temperature, -20° low temperature, high and low temperature alternating transformation aging test. Observing the product whether resets ,restarts and shows abnormal display, abnormal function, and other phenomena during the test process.

### The Test Data

| Product model       | The temperature                                 | Humidity | The test results                                               |
|---------------------|-------------------------------------------------|----------|----------------------------------------------------------------|
| <b>QJ-A043T2/4+</b> | The high temperature of 70 °                    | 60%      | No reboot, system halt or Abnormal display. Function is normal |
|                     | Low temperature - 20 °                          | 60%      | No reboot, system halt or Abnormal display. Function is normal |
|                     | Alternating high and low temperature (-20°~70°) | 60%      | No reboot, system halt or Abnormal display. Function is normal |

### 5.3 Electrical Fast Transient test



Implementation Standard :IEC 61000-4-4

Test Process: Lay the product flat on the test bench and supply power to the screen through the pulse group generator, coupling pulse group. The diagram above. Check the product whether resets, restarts, and shows abnormal display on the screen.

### The Testing Data

| Product Models | Test Standard | Test Port          | The Test Results                                                                                                                                      |
|----------------|---------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| QJ-A043T2/4+   | EFT +/- 4KV;  | The power port     | There is no flicker under 1KV , and flicker above 1KV on the screen, but there is no reboot, system halt or abnormal display. Function is normal.     |
|                |               | Communication port | There is no flicker under 2.5KV , and flicker above 2.5KV on the screen, but there is no reboot, system halt or abnormal display. Function is normal. |
| QJ043W01RTE    | EFT +/- 4KV;  | The power port     | There is no flicker under 1KV , and flicker above 1KV on the screen, but there is no reboot, system halt or abnormal display. Function is normal.     |
|                |               | Communication port | There is no flicker under 2.5KV , and flicker above 2.5KV on the screen, but there is no reboot, system halt or abnormal display. Function is normal. |

## 5.4 Lightning Surge Test



## The Test Data

| Product Models | Test Standard | Impedance | The Test Results                                                                                                                                  |
|----------------|---------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| QJ-A043T2/4+   | COUPL         | 12Ω       | There is no flicker under 2KV , and flicker above 2KV on the screen, but there is no reboot, system halt or abnormal display. Function is normal. |
| QJ043W01RTE    | COUPL         | 12Ω       | There is no flicker under 2KV , and flicker above 2KV on the screen, but there is no reboot, system halt or abnormal display. Function is normal. |

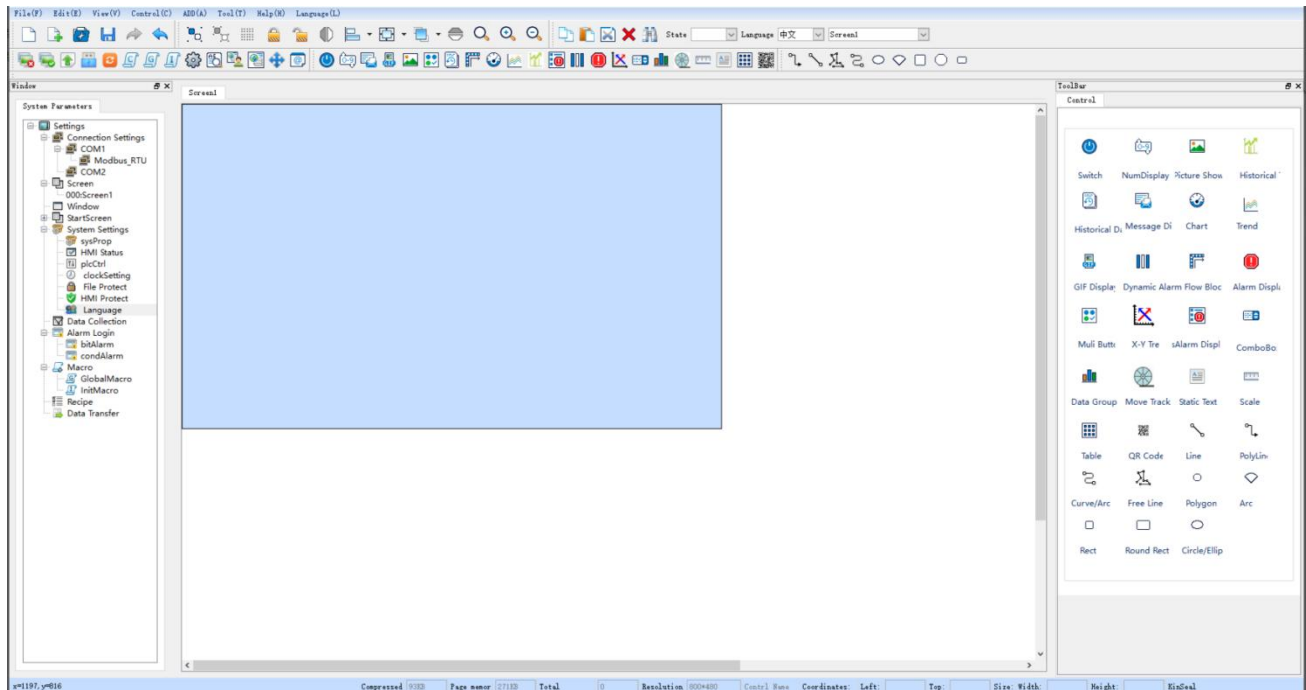
## 6. Software Download

Products configuration software and driver installation method, please go to the official website of Intelligent Control company download center to download the following files.

Notes: For Windows 7, the system will automatically install the driver after installing software. For Windows XP and Windows 8, the driver installation fails due to operating system limitations , According to the first [《Manual for Disabling digital signatures for Windows 8 and 10》](#) Disabling digital Signatures , then according to the Manually install the driver.

## 7. Description PC Configuration Software

### 7.1 Develop software



PC Software is a tool that users can edit arbitrarily. All application programs are developed based on it. It composes rich controls, which can be arbitrarily combined to achieve the functions that users want :

#### Features Includings :

|                                        |                                                                                                                                                                                      |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Switch Button</b>                   | Including "Bit Button" "Word Button" "Indicator" "Screen Button" "Function Button" "Polymorphic Button" touch the connected device to monitor the status                             |
| <b>Numerical Input and Display</b>     | Including a variety of base input and display, ASCII code input and display, used to display the monitoring address value;Another time display is used to display the real-time time |
| <b>Flow Block</b>                      | An animated graphic that simulates the flow of liquid in a pipe                                                                                                                      |
| <b>Static text/table/scale</b>         | A variety of basic shapes, including lines, circles, ellipses, rectangles, etc                                                                                                       |
| <b>Image Display and GIF animation</b> | A picture display box that displays one or more pictures                                                                                                                             |
| <b>Instrument</b>                      | Bar chart, meter, ring, showing a value of some state of data                                                                                                                        |
| <b>Message Display</b>                 | Displays messages that be edited by user                                                                                                                                             |
| <b>Alarm Display</b>                   | Display the alarm information of the current device (divided into digital alarm and analog alarm), Alarm settings must be configured before using the control                        |

|                             |                                                                                                                                                                       |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Dynamic Alarm</b>        | Used to display the current alarm, which is different from the alarm control is the dynamic alarm bar in the form of text scrolling display the current alarm content |
| <b>X Y Curve</b>            | Real time and dynamic display of data trend of data collector                                                                                                         |
| <b>History Curve</b>        | Displays the data saved by the history collector in curvilinear form                                                                                                  |
| <b>Recipe</b>               | Create a recipe like menu                                                                                                                                             |
| <b>Multifunction Button</b> | A switch button, through the button can be very convenient to achieve a variety of functional requirements                                                            |
| <b>Trend Chart</b>          | Draw reference curves of multiple data to accurately and intuitively judge the change trend of a certain value in a period of time                                    |
| <b>Dropdownlist</b>         | Used to select the corresponding state function                                                                                                                       |
| <b>Data group</b>           | To display the data change from register address N to register address N as a curve                                                                                   |
| <b>Motion trail</b>         | Control address data by dragging a scroll block                                                                                                                       |
| <b>Qr code</b>              | Dynamic generation of QR code, through scanning into the url, payment and other functions                                                                             |

### Extended Function Of Host Configuration Software :

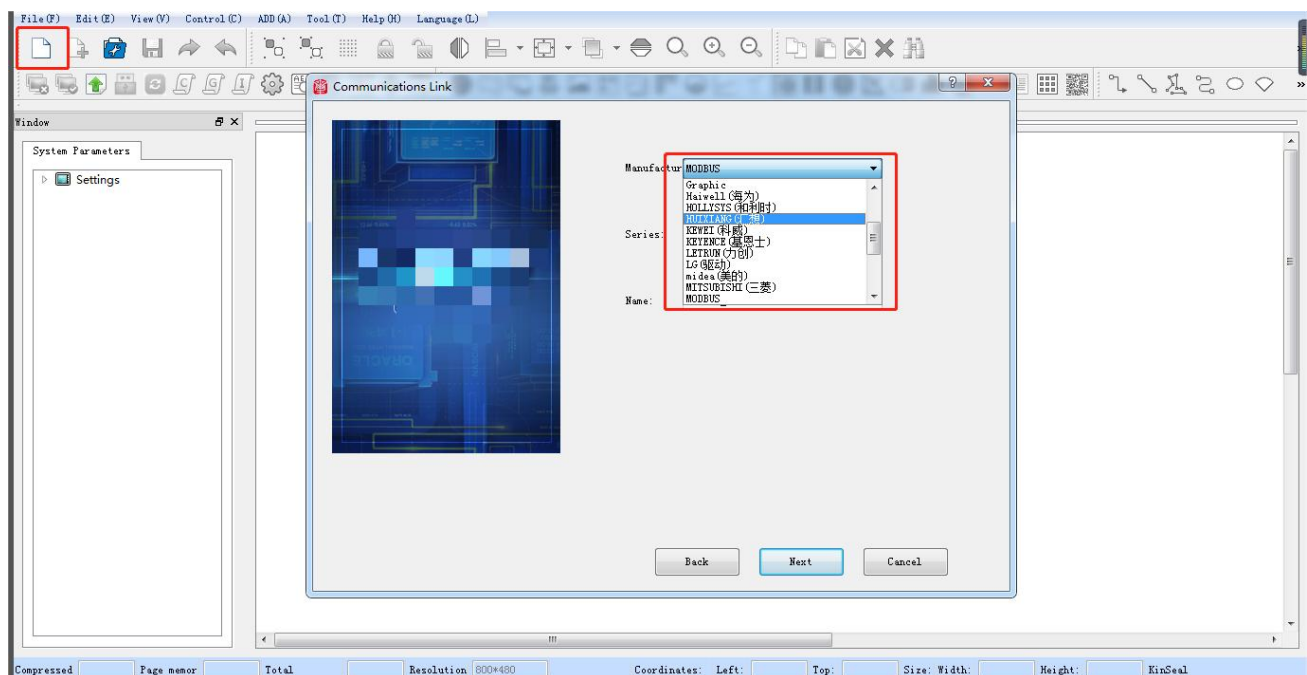
|                            |                                                                                                                                                                                                                                                                                                              |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Macro Instruction</b>   | C programming language, to achieve a variety of more complex logic or functions                                                                                                                                                                                                                              |
| <b>PLC Control</b>         | HMI is controlled by PLC                                                                                                                                                                                                                                                                                     |
| <b>Language</b>            | Support for multiple languages                                                                                                                                                                                                                                                                               |
| <b>Data Collection</b>     | Data acquisition for temperature, pressure, humidity, etc                                                                                                                                                                                                                                                    |
| <b>Data Transmission</b>   | Refers to the transmission of data over the same type of address. The transmission mode can be periodic (how many seconds) or triggered                                                                                                                                                                      |
| <b>HMI Protection</b>      | It is set that HMI can normally use HMI within a certain period of time. If the time exceeds the time specified by the user, HMI will jump to the specified screen previously set by the user. In the specified screen, the user only places the "Panel protection unlock button" under the function button. |
| <b>File Protection</b>     | Whether to enter a password when opening the project                                                                                                                                                                                                                                                         |
| <b>User password Level</b> | Set the user permission and password. Enter the password to access the corresponding permission                                                                                                                                                                                                              |
| <b>Boot Screen</b>         | Users can customize the startup Logo screen                                                                                                                                                                                                                                                                  |
| <b>Online Simulation</b>   | Online simulation enables you to communicate with relevant devices such as PLC through personal computer (HMI configuration software needs to be installed first) without HMI                                                                                                                                |

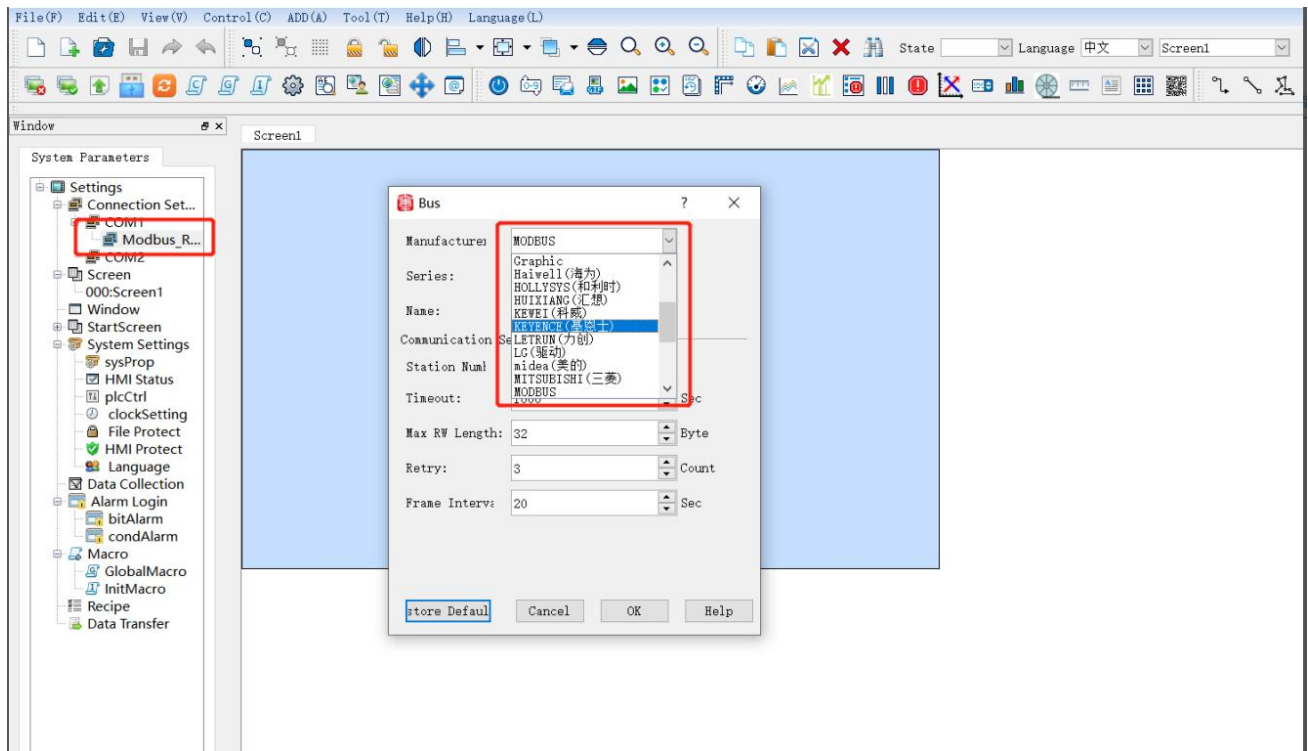
|                                                             |                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Offline Simulation</b>                                   | Before the picture is compiled and downloaded to the HMI device, the offline simulation function of HMISTudio can be used to check the correctness of the configuration picture and the effect display                                              |
| <b>Supports Multiple Controller Communication Protocols</b> | Suitable for a variety of PLC, inverter, servo controller, SCM control system (Mitsubishi, Panasonic, Omron, Delta, Letter Jie, Fatek, Siemens, Keens, LG, and other major PLC) user operation only need to choose to call directly on the software |
| <b>Custom Add Gallery</b>                                   | Support custom add gallery, users can according to the need to intercept their favorite picture loaded into the custom gallery to call                                                                                                              |
| <b>Keyboard</b>                                             | Support Chinese and English keyboard input, users can freely switch to use                                                                                                                                                                          |
| <b>Gallery</b>                                              | Image library rich, support Png, Jpg, Gif, Bmp and other formats of pictures, vector image library, arbitrary zoom without aliasing                                                                                                                 |
| <b>Baud Rate Range</b>                                      | Support serial baud rate range of 1200-230400                                                                                                                                                                                                       |

## 7.2 Protocol Configuration

Users can run MODBUS RTU, Mitsubishi, Siemens, Delta, Xinje and other protocols through the configuration of the upper computer.

Open HuaqingjunStudio configuration software and click on new project to select the desired communication protocol in new project. You can also modify the communicate on protocol you need in the project by opening the protocol under COM1 port Settings. The diagram below.





## 8. Development Of The Document

Committed To Creating The Best  
Intelligent Control Terminal