



ISO9001:2015 Quality System Certification

# **ASTG 043 W023-COF** Series Specification

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# 1.Product Description

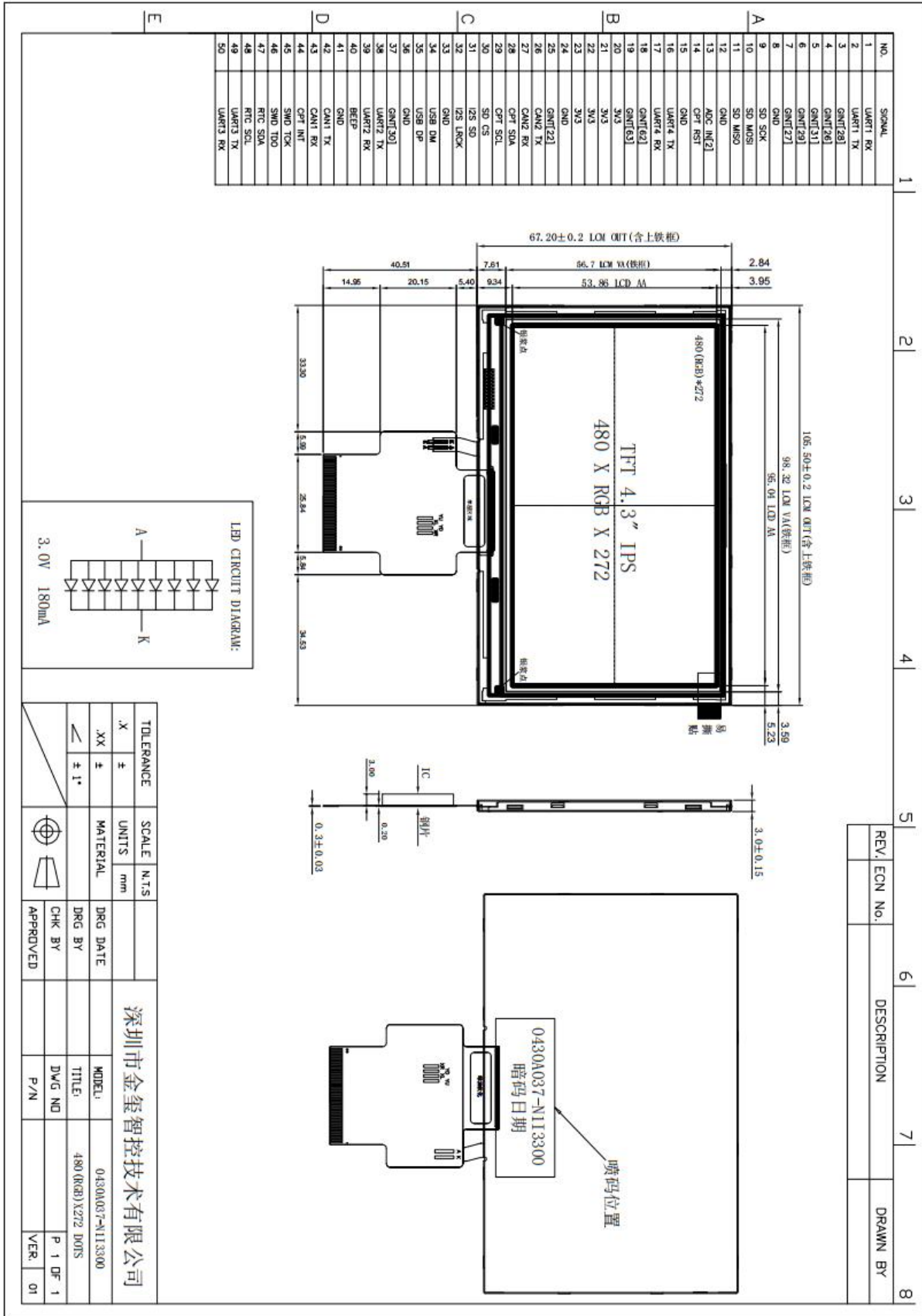
ASTG043W023-L480X272X-COF screen series have two kinds of resistive screen and no touch, at the same time, support the customer's own external capacitive touch screen. COF screen by 3.3V power supply, through our HMI Lite configuration software for UI design, through the USB download to achieve the customer's desired UI interface. COF screen default support for 1-way serial communication (COF screen supports one serial port communication (UART2) and one CAN (CAN1) communication by default to interact with external controllers; it supports RTC and buzzer by default. This COF screen reserves abundant IO ports, which can be controlled by macro commands for input and output.

## 1.1 Product Model



model number	Specification
ASTG043W023-L480X272R-COF	ASTG Series, 4.3-inch 480X272 resolution display, DC3.3V, two TTL serial ports, one CAN interface, 10Mbyte SPI NOR Flash, resistive touch, buzzer, COF structure
ASTG043W023-L480X272N-COF	ASTG Series, 4.3-inch 480X272 resolution display, DC3.3V, two TTL serial ports, one CAN interface, 10Mbyte SPI NOR Flash, no touch, buzzer, COF structure

## 1.2 Product Size



### 1.3 Product Parameters

Product Specification		
hardware performance	model number	<b>ASTG043W023-L480X272R-COF</b> <b>ASTG043W023-L480X272N-COF</b>
	monitor	4.3" TFT LCD
	Resolution (Px)	480X272
	coloration	65536 colors
	luminance	250 cd/m <sup>2</sup>
	Backlight	LED (Does not support backlight adjustment)
	LED Lifetime	20,000 hours
	Screen Active Display Area (AA)	L*W = 95.0mm*53.9mm
	Product size (L*W*H)	105.5mm*67.2mm*4.6mm (MAX with TP)
	touchscreens	L480X272R: Resistive Touch Screen L480X272N: No Touch
	CPU	200MHz ARM Cortex-M4F Built-in 2MB PSRAM memory
	memory	On-chip 2Mbyte SPI NOR Flash; Off-chip 8Mbyte SPI NOR Flash;
	RTC	Support, Add External Circuitry
	buzzers	Support, Add External Circuitry
	Power down data saving	3S autosave
	USB port	USB Device
	Program download method	USB Download
	communication port	1-way TTL level serial interface; 1-way CAN communication interface;
Plug specification	FPC0.5mm-50P	
Electrical Specification	rating	Maximum 1.2W
	rated voltage	3.3V

<b>ns</b>	Permissible loss of power	<5ms
	ESD testing	Contact discharge: +/-2KV; Air discharge: +/-4KV
	EFT Testing	IEC 61000-4-4 national standard 4 (voltage: $\pm$ 4KV; frequency: 5KHZ; time: 120S), no restart, no display abnormality, no touch abnormality and other phenomena, test function is normal
<b>Environmental specifications</b>	operating temperature	-20°C~70°C
	Storage temperature	-30°C~80°C
	Environmental humidity	10~90%RH (non-condensing)
	seismic defenses	10-25 Hz (X, Y, Z directions, 2g/30 min)
	Cooling method	natural air cooling

## 2. Hardware Introduction

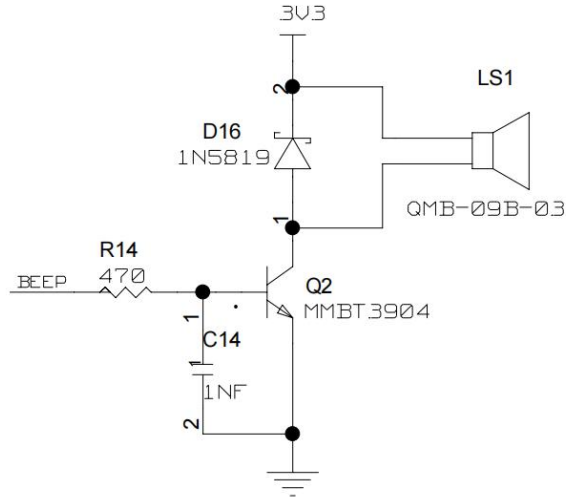
### 2.1 FPC Pin Definition

Pin	define	clarification
1	UART1 RX	Serial port 1, default is print port
2	UART1 TX	
3	GINT[28]	GPIO, Macro Command Operable
4	GINT[26]	GPIO, Macro Command Operable
5	GINT[31]	GPIO, Macro Command Operable
6	GINT[29]	GPIO, Macro Command Operable
7	GINT[27]	GPIO, Macro Command Operable
8	GND	systematically
9	SD SCK	SD Card Clock
10	SD MOSI	SD CMD signal
11	SD MISO	SD DAT0 signal
12	GND	systematically
13	ADC IN[2]	ADC input
14	CPT RST	Capacitive screen reset signal
15	GND	systematically
16	UART4 TX	Serial 4 communication port Reserved
17	UART4 RX	
18	GINT[62]	GPIO, Macro Command Operable

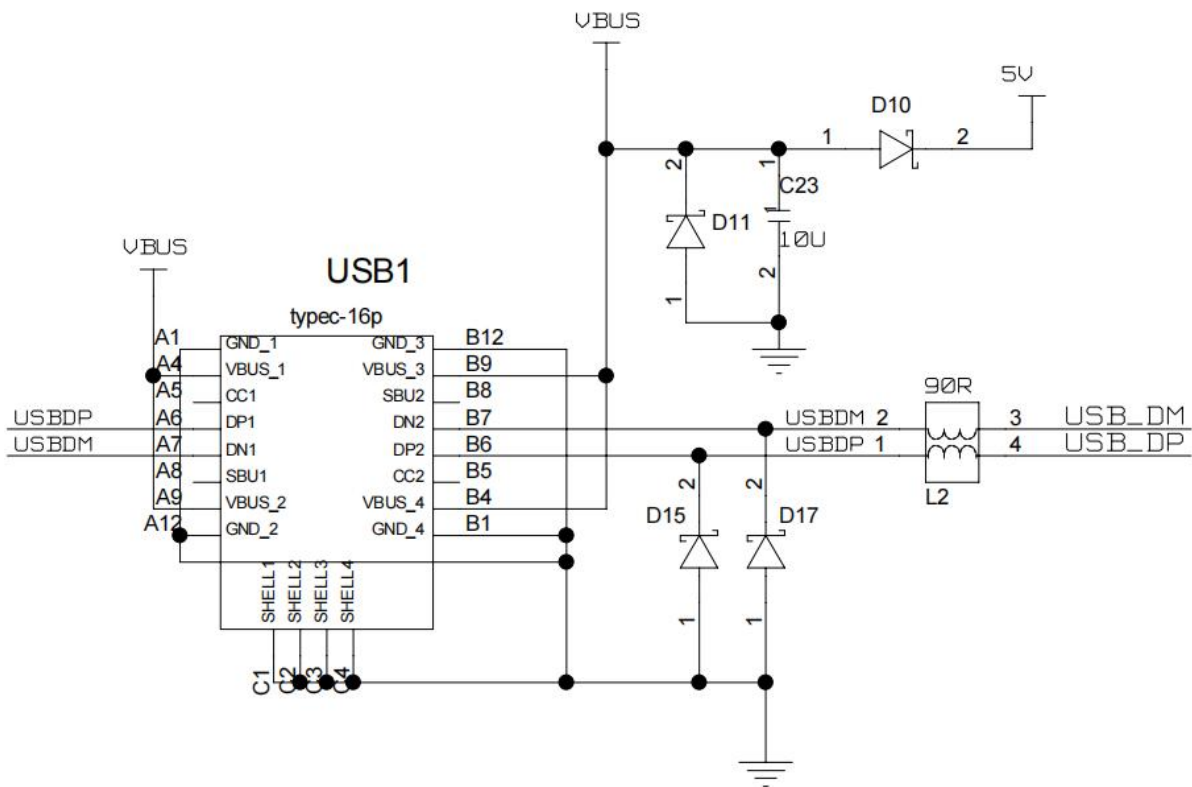
19	GINT[63]	GPIO, Macro Command Operable
20-23	3V3	3V3 power supply
24	GND	systematically
25	N.C.	
26	CAN2 TX	CAN2 Reserved
27	CAN2 RX	
28	CPT SDA	Capacitive Screen I2C SDA Signal
29	CPT SCL	Capacitive Screen I2C SCL Signal
30	SD CS	
31	I2S SD	I2S interface, can be used as GINT[0]
32	I2S LRCK	I2S interface, can be used as GINT[1]
33	GND	systematically
34	USB DM	USB, Download Port
35	USB DP	
36	GND	systematically
37	GINT[30]	GPIO
38	UART2 TX	Serial port 2, the default communication serial port
39	UART2 RX	
40	BEEP	Buzzer control, 2.7KHz square wave
41	GND	systematically
42	CAN1 TX	Default CAN1 communication interface
43	CAN1 RX	
44	CPT INT	capacitive display interruption
45	SWD TCK	JLINK
46	SWD TDO	
47	RTC SDA	RTC I2C DATA signal
48	RTC SCL	RTC I2C Clock Signal
49	UART3 TX	Serial Port 3, Communication Port, Reserved
50	UART3 RX	

### 3. Recommended Circuit Design

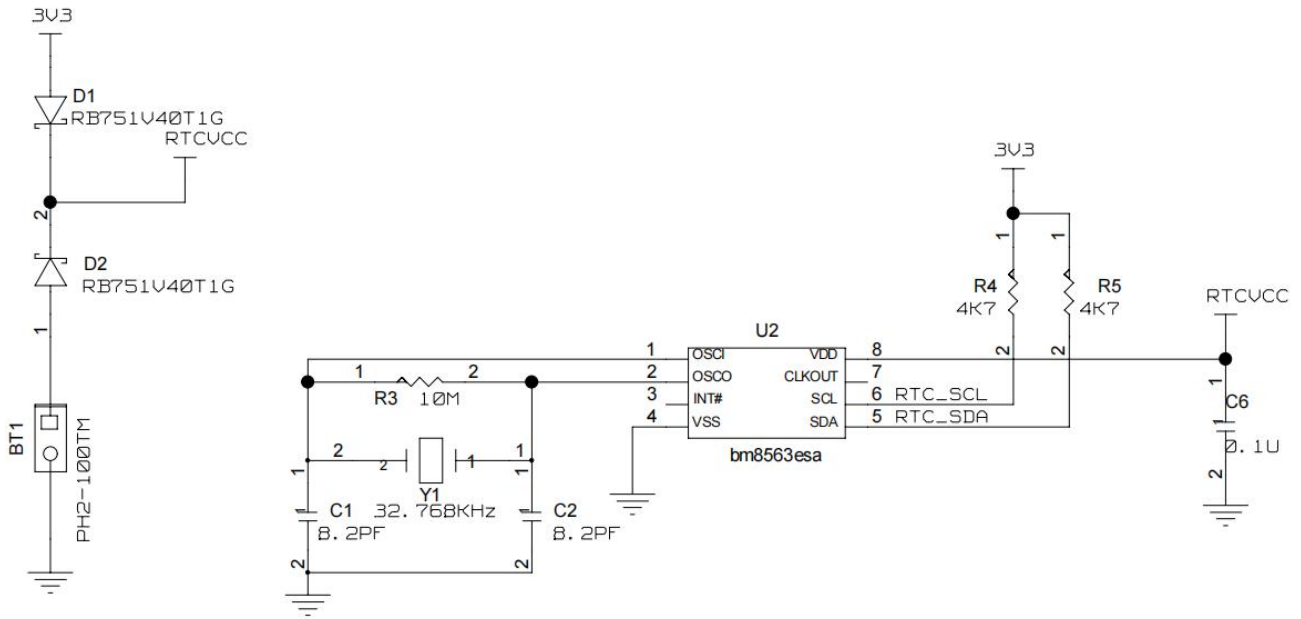
#### 3.1 Buzzer Circuit



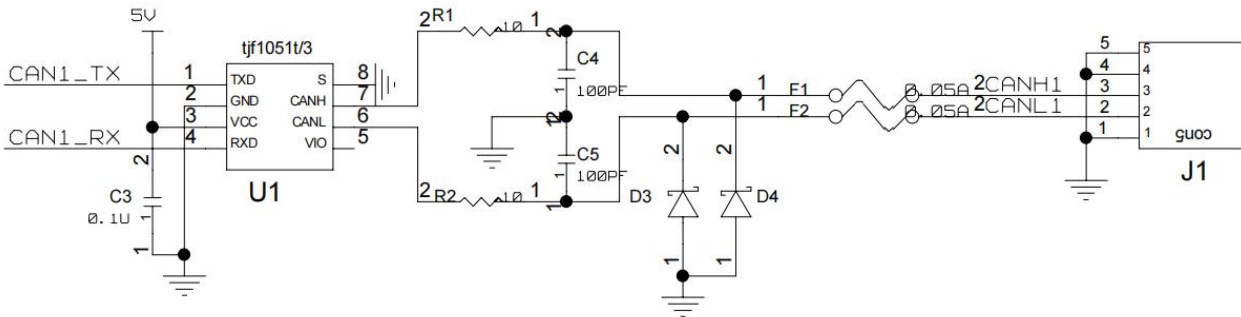
#### 3.2 USB circuit



### 3.3 RTC circuit

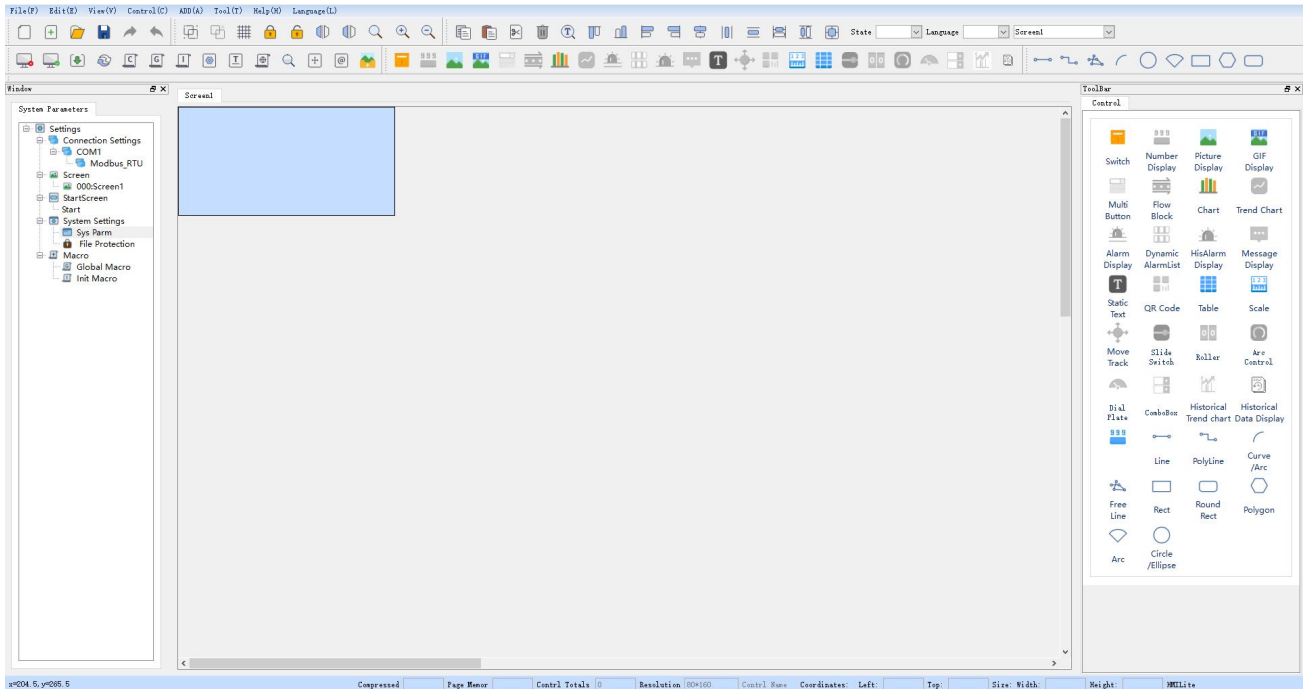


### 3.4 CAN communication interface circuit



## 4. Description of the upper configuration software

### 4.1 development software



The configuration software **HMILite** is a set of upper software that can be edited by the customer at will. The customer's applications are all developed on the basis of the upper software, which consists of a rich set of controls that can be combined at will in order to realize the functions desired by the customer:

#### Controls are included:

<b>switch button</b>	Includes "bit buttons" , "word buttons" , "indicator lights" , "screen buttons" , "function buttons" , and "multistate buttons" . "Function buttons" and 'Multi-state buttons' can be used to touch the connected device and monitor the status.
<b>Numerical input and display</b>	Includes multiple binary inputs and displays, ASCII inputs and displays for displaying monitored address values(Up to 16 ascii displays + QR code controls on a single screen)
<b>mobile block</b>	Animated graphics that simulate the state of liquid flow in a pipe
<b>Static text/table/scale</b>	A variety of basic shapes, including lines, circles, ellipses, rectangles, etc.
<b>Image display and</b>	Picture display box showing one or more pictures

<b>gif animation</b>	
<b>meter</b>	Bar graphs, gauges, circles, showing some state value of the data
<b>trend chart</b>	Real-time dynamic display of monitoring address data trend graphs( <b>Trend charts + historical trend charts up to 4 supported</b> )
<b>Historical Data Display</b>	Display the data acquired by the data collector in tabular form
<b>Historical Trend Chart</b>	Real-time dynamic display of the trend graph of the data acquired by the data collector( <b>Trend charts + historical trend charts up to 4 supported</b> )
<b>Multi-function buttons</b>	An on/off button, with which all functions can be easily and quickly accessed. <b>(Add up to 2 functions)</b>
<b>trajectory</b>	Control address data by dragging a scrolling block
<b>two-dimensional barcode</b>	Dynamically generated QR code, access to web site by scanning, payment and other functions <b>(up to 6 ascii displays + QR code controls on a single screen)</b>
<b>Alarm display</b>	Displays the current alarm information of the device (divided into digital alarms and analog alarms), you must configure the alarm settings before using the control <b>(up to 128 alarms can be done (digital alarms))</b> .
<b>Dynamic Alarms</b>	Used to display the current alarm, which is different from the alarm control in that the dynamic alarm bar displays the current alarm in the form of scrolling text.
<b>Historical Alarm Display</b>	Displays all generated alarm messages, <b>3S detection saved, up to 3 saved</b>
<b>drop-down box</b>	Drop-down list to select the corresponding item/status
<b>slide switch</b>	Create a slider area to change the value of the specified word address by pressing the slider left/right/up/down.
<b>tire</b>	Create a data area and scroll up and down to modify the current value

<b>circular adjustment</b>	Use the arc style to display the current value, and adjust the current value by dragging the slider to modify it.
<b>meter dial</b>	Use dials to display time, progress, speed and other data

Extended functionality of the host machine configuration software:

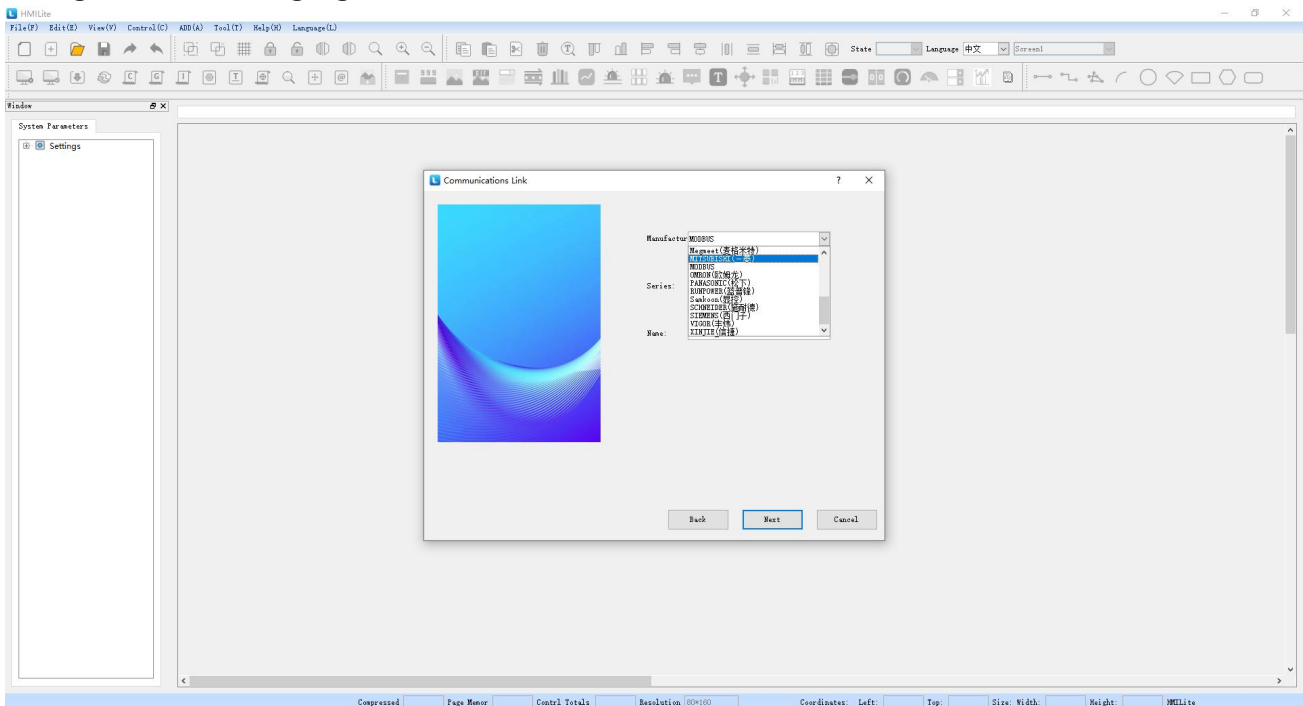
<b>macro instruction</b>	Programming in C to implement a variety of complex logic or functionality (macro instruction program (MarcoRun.dat) up to 136KB, custom protocols up to 100, macros read-only or read/write variables up to 100).
<b>PLC control</b>	HMI control via PLC
<b>HMI Protection</b>	The HMI can be used normally within a certain period of time, if the time exceeds the time specified by the user, the HMI will jump to the specified screen previously set by the user, in the specified screen, the user only places the function button below the "panel protection unlock button" .(only 3 levels supported)
<b>document protection</b>	Do you need to enter a password to open the project?
<b>User password level</b>	Set user privileges and passwords, access to the appropriate privileges need to enter the appropriate passwords
<b>data acquisition</b>	Data acquisition of temperature, pressure, humidity, etc. is possible (data acquisition supports up to 64KB).
<b>multilingualism</b>	Multi-language support(Support up to 4 languages, alarm display, message display and drop-down box only support English and Chinese display)
<b>boot screen</b>	User can customize the boot-up Logo screen
<b>Offline simulation</b>	Before compiling and downloading the screen to the HMI device, you can use the offline simulation function that comes with HMILite to check the correctness of the configuration screen and the effect of the display.
<b>Online Simulation</b>	Online simulation allows you to communicate with plc's and other devices via your personal computer (HMILite configuration software must be installed first) without the use of an HMI.
<b>Supports multiple controller communication protocols</b>	Suitable for a variety of PLC, inverter, servo controller, microcontroller control system, etc. (Mitsubishi, Panasonic, Omron, Delta, Xinjie, Yonghong, Siemens, Keens, LG, modbus, customized and other communication protocols) the user only needs to operate directly in the software to select the call can be!
<b>Custom Add Gallery</b>	Support for customizing the gallery, users can intercept their favorite images loaded into a custom gallery to call according to need

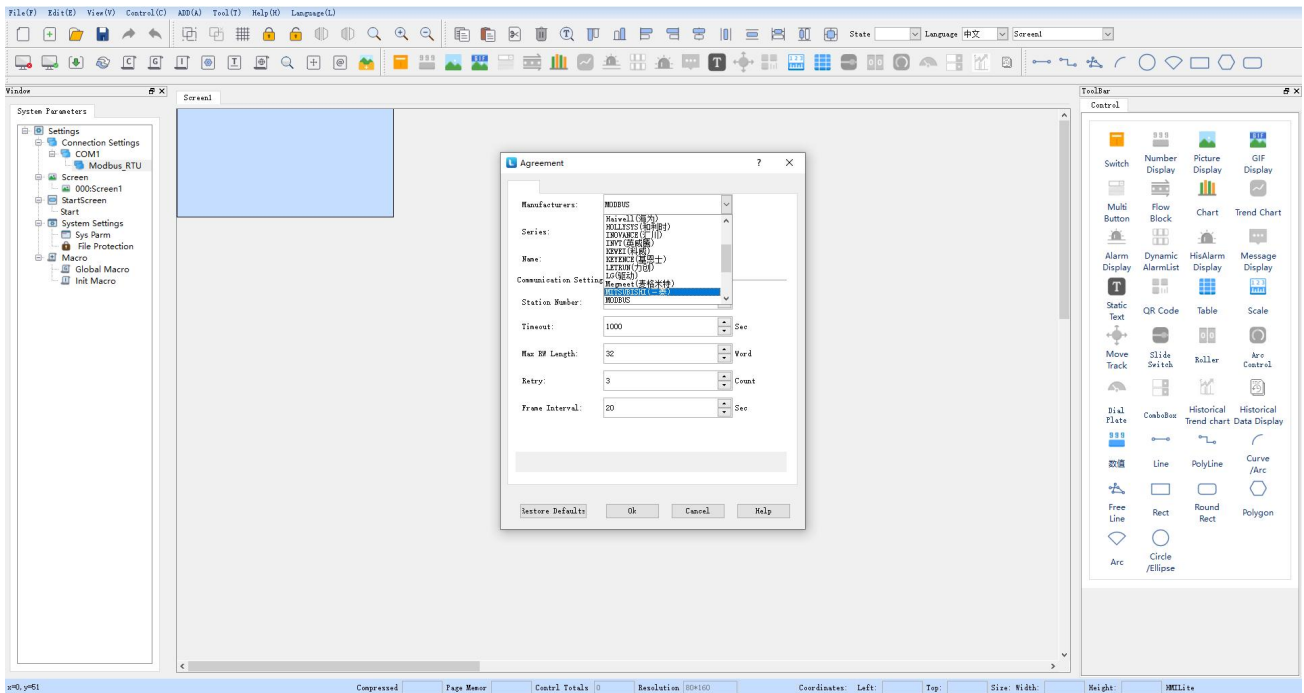
<b>image archive</b>	Rich gallery, support Png, Jpg, Gif, Bmp and other formats of the picture, vector gallery, any zoom non-aliased
<b>Customized Keyboards</b>	Support custom keyboard, according to their own needs to do keyboard style

## 4.2 Protocol Configuration

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

Open **HMI Lite** configuration software, click **[New Project]**, you can select the desired communication protocol in **[New Project]**, you can also modify the project to select your desired communication protocol, open the com1 port settings below the protocol to change, the following figure.





## 5. Reliability Testing

All products of JinXi ZhiControl have been subjected to a series of processed reliability tests: ESD test, high and low temperature aging test, group pulse and other tests. Ensure product quality.

### 5.1 ESD testing

Implementation standard: IEC 61000-4-2

Test process: Place the product flat on the test bench, and conduct contact and air discharge for the touch screen iron buckle periphery and display area in turn, as shown in the figure below. Observe whether the screen resets and restarts, display abnormalities and other phenomena.



## Test Data

Product Model	Type of discharge	discharge value	Test results
ASTG043W023-L480X272R-COF	exposure	+/-2KV;	No reboot, crash, splash screen and other abnormal phenomena, the function is normal
	atmosphere	+/-4KV;	No reboot, crash, splash screen and other abnormal phenomena. Normal function

## 5.2 High and low temperature aging test



Test environment: high and low temperature aging test box in the

Test Temperature: -20°~60

Test process: Place the product in the high and low temperature aging test box. Through the 50 ° high temperature, -10 ° low temperature, high and low temperature alternately changing aging test, observe the test process and test after the test whether there is a reset restart, display anomalies, functional anomalies and other phenomena.

### Test Data

Product Model	temp	humid ity level	Test results
<b>ASTG043W023-L480X272R-COF</b>	High temperature 60°	60%	No reboot, crash, splash screen and other abnormal phenomena. Normal function
	Low temperature - 20°	60%	No reboot, crash, splash screen and other abnormal phenomena. Normal function

	Alternating high and low temperatures (-20°~60°)	60%	No reboot, crash, splash screen and other abnormal phenomena. Normal function
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### 5.3 Group Pulse Test

Implementation standard: IEC 61000-4-4

Test process: Place the product flat on the test bench and power the screen through the power supply after coupling the pulse group by the pulse group generator. As shown in the figure below. Observe the screen to see whether there are abnormal phenomena such as reset and restart, display abnormality and so on.



### Test Data

Product Model	test standard	test port	Test results
ASTG043W023-L480X272R-COF	EFT +/-4KV;	power and communication ports	4KV screen without flickering, no reboot, crash, splash screen and other abnormal phenomena. Normal function

## 6.Contact Us

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