

ISO9001:2015 Quality system certification

ASTGE 024W024-L240X320R SERIES SPECIFICATION

Contents

1. Model definition	3
2. Product Description	4
2.1 Product model	4
2.2 Product dimensions	5
2.3 Product parameters	7
3. Hardware Introduction	9
3.1 5-pin PH 2.0 mm terminal block pin definition	9
3.2 The image below shows the TF card used in our product, formatted as FAT32, with a capacity of less than 32GB.	9
4. Upper Configuration Software Description	11
4.1 develop software---Corresponding software HMILite	11
4.2 protocol configuration	14
5. reliability testing	15
5.1 ESD testing	15
5.2 High and low temperature ageing test	16
5.3 Group pulse test	17

1. Model definition

The product model is defined as shown in the figure below:

ASTGE024W024-L240X320R-N0T0C	
ASTGE	ASTGE Serial Port Display Series
024	The LCD screen size is 2.4 inches.
W02	Memory capacity and FLASH type: W01:NAND FLASH; W02:NOR FLASH;
4	FLASH capacity: 2Mbyte=1;4Mbyte=2;8Mbyte=3;16Mbyte=4;32Mbyte=5;64Mbyte=6;128Mbyte=7;256Mbyte=8;512Mbyte=9;1Gbyte=X;
L240X320	The LCD screen resolution is L240X320;
R	R: Resistor TP; C: Capacitor TP; N: No touch;
N	A: 4-pin; P: 6-pin; N: Bare screen;
0	0: 5V power supply; 1: 5~30V power supply;
T	Serial port 1 communication mode T: TTL communication; D: RS485 communication; E: RS232 communication;
0	Serial port 2 communication mode 0: None; D: RS485 communication; E: RS232 communication;
C	0: No communication; C: RTC; N: No RTC;

2.Product Description

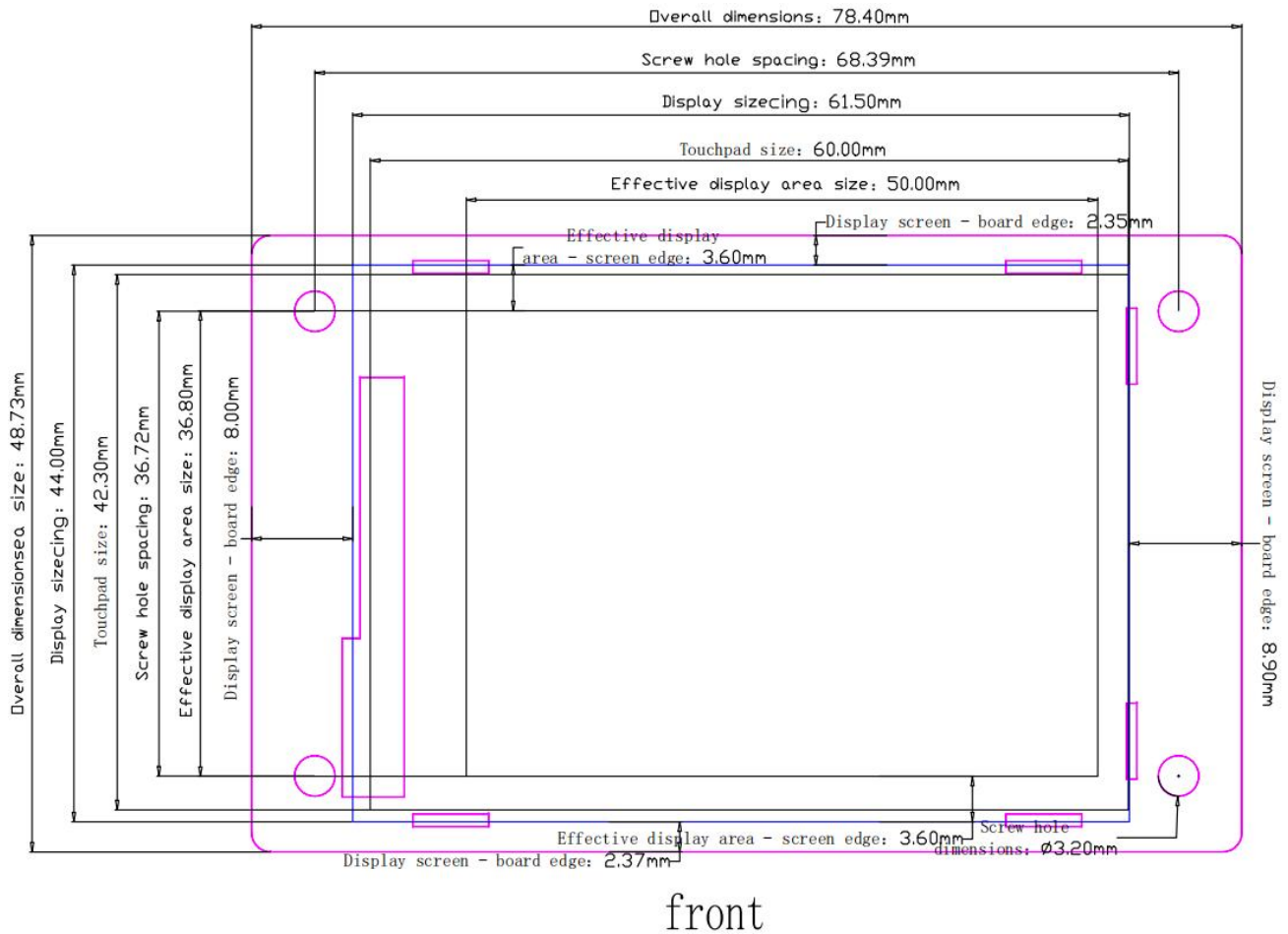
2.1 Product model

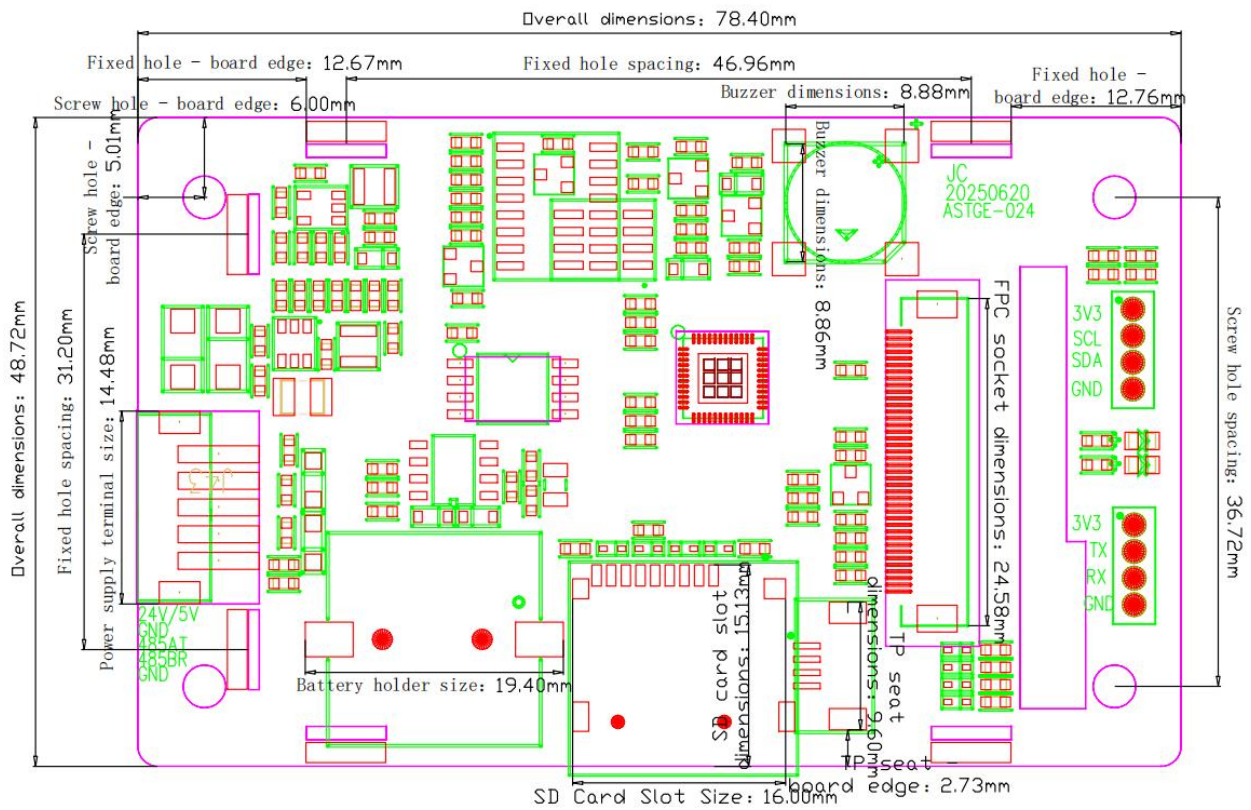


Model	Specification Description
ASTGE024W024-L240X320R-N0T0C	ASTGE series, 2.4-inch 240X320 resolution display, DC5V power supply, one TTL serial port, 16Mbyte SPI NOR Flash, resistive touch;
ASTGE024W024-L240X320R-N1D0C	ASTGE Series, 2.4-inch 240x320 resolution display, DC 5-30V power supply, one RS485 serial port, 16Mbyte SPI NOR Flash, resistive touchscreen;
ASTGE024W024-L240X320R-N1E0C	ASTGE Series, 2.4-inch 240x320 resolution display, DC 5-30V power supply, one RS232 serial port, 16Mbyte SPI NOR Flash, resistive touchscreen;

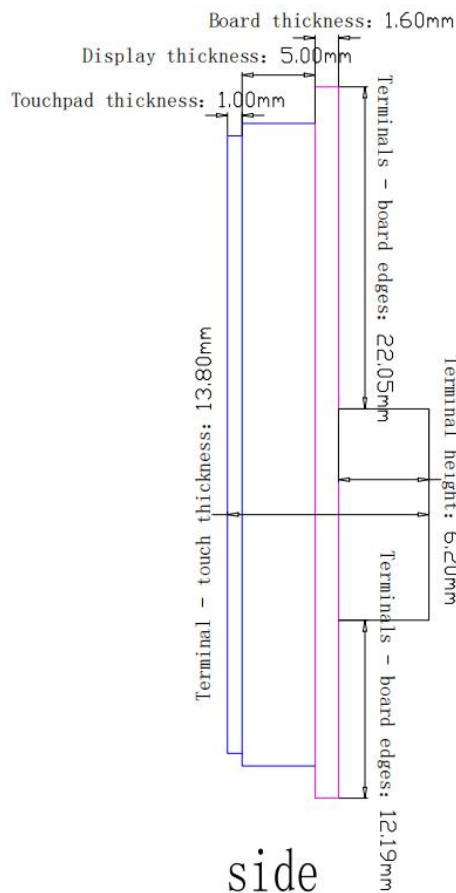
2.2 Product dimensions

Display size	product line	Overall dimensions	Effective display area size	Display size	Screw hole spacing
2.4 inches	ASTGE024W24-L240X320R	78.40*48.73* 13.8mm	50*36.8mm	61.5*44mm	68.39*36.72mm





back



side

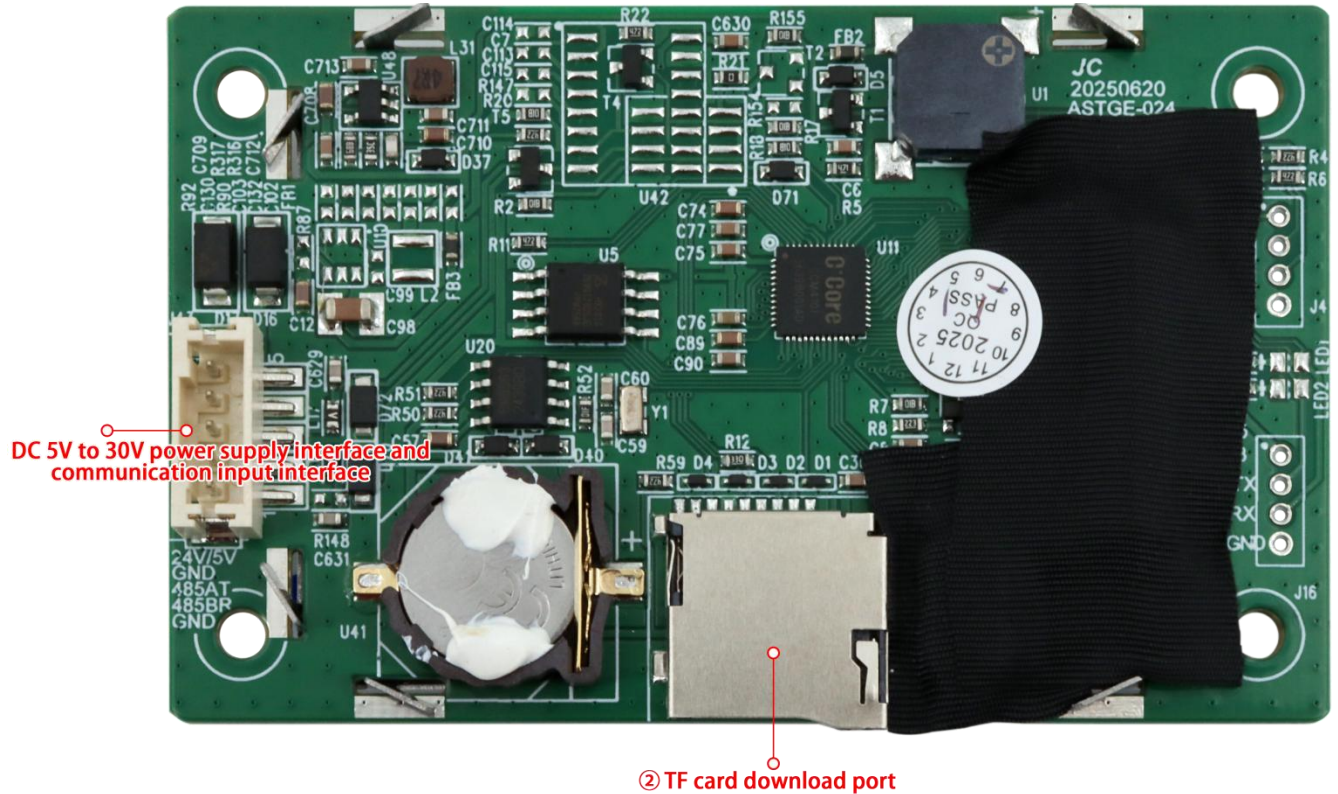
2.3 Product parameters

Product Specifications		
Hardware performance	Model series	ASTGE024W024-L240X320R-N0T0C
	display	2.4" TFT LCD
	Resolution (Px)	240X320
	colour	65,536 colours
	brightness	250 cd/m ²
	backlight	LED (Does not support backlight adjustment)
	LED lifespan	20,000 hours
	touch screen	resistive touch screen
	CPU	200MHz ARM Cortex-M4F
	memory	16Mbyte SPI NOR Flash
	RTC	support
	buzzer	support
	Power failure data retention	3S automatic saving
	Program download method	TF card
	communication port	ASTGE024W024-L240X320R-N0T0C: Serial port: TTL communication ASTGE024W024-L240X320R-N1D0C: Serial port: RS485 communication ASTGE024W024-L240X320R-N1E0C: Serial port: RS232 communication
	Plug-in connector	5-pin PH 2.0 mm terminal block

	specifications	
Electrical specifications	rated power	Maximum 0.8W
	voltage range	Communication TTL: DC5V Communication RS485/RS232: DC5~30V
	Allow power loss	<5ms
	ESD testing	Contact discharge: +/-3KV; Air discharge: +/-12KV
	EFT testing	IEC 61000-4-4 National Standard 4 (voltage: ±4KV; frequency: 5KHZ; time: 120S), no restart, no display abnormalities, no touch abnormalities, etc., test function normal
Environmental specifications	operating temperature	-10°C~50°C
	storage temperature	-30°C~70°C
	ambient humidity	10–90% RH (no condensation)
	earthquake resistance	10-25 Hz (X, Y, Z directions, 2 g/30 minutes)
	cooling method	natural air cooling
Product dimensions	Overall dimensions	78.40*48.73*13.8mm
	Effective display area size	50*36.8mm
	Display size	61.5*44mm
	Screw hole dimensions	68.39*36.72mm
	corresponding software	Upper position: HMILite

3. Hardware Introduction

3.1 5-pin PH 2.0 mm terminal block pin definition



3.2 The image below shows the TF card used in our product, formatted as FAT32, with a capacity of less than 32GB.

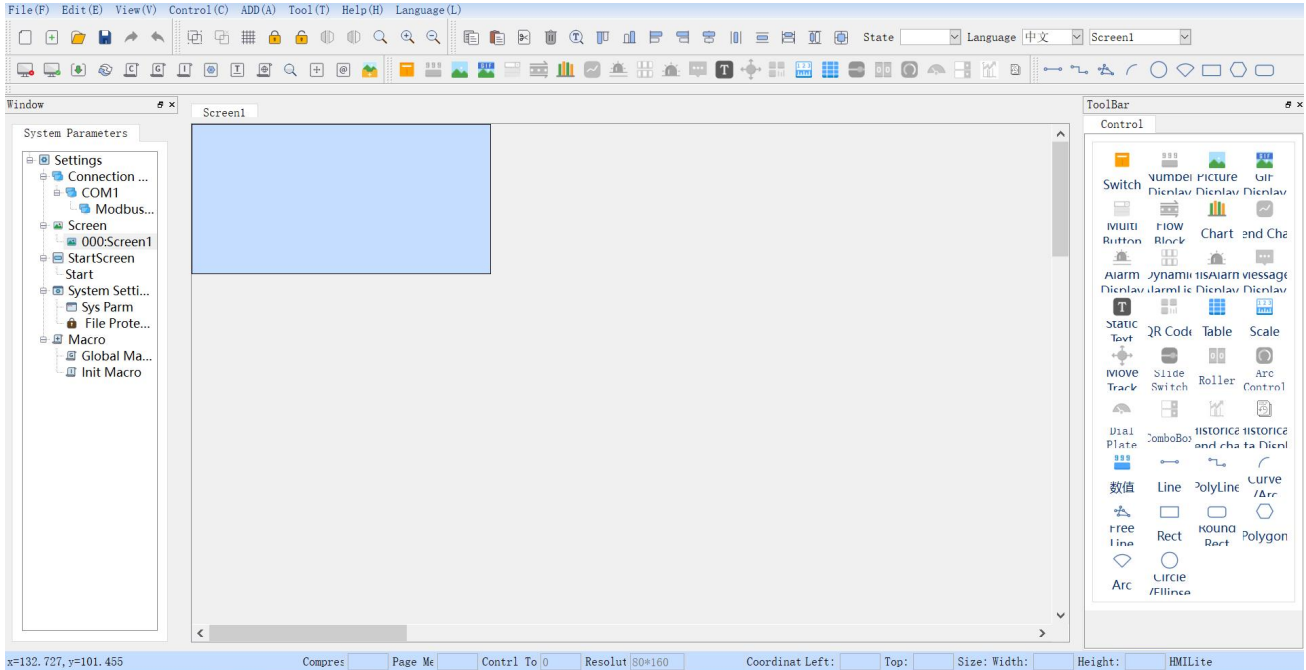
The following figure is for reference only



Port definition			
Device location number	Explanation		
①	DC 5V to 30V power supply interface and communication input interface		
②	TF card download port		
5-pin PH 2.0 mm Terminal block			
Pin	definition	Power input	COM1: TTL
1	GND	power supply ground	
2	RXD		3.3V TTL RXD
3	TXD		3.3V TTL TXD
4	GND	Communication location	
5	+5V	Power input	
5Pin PH2.0mm Terminal block			
Pin	definition	Power input	COM1: RS232
1	GND	power supply ground	
2	232 RXD		receive
3	232 TXD		send
4	GND	Communication location	
5	+24V	Power input	
5Pin PH2.0mm Terminal block			
Pin	definition	Power input	COM1: RS485
1	GND	power supply ground	
2	RS485 B		RS485 B
3	RS485 A		RS485 A
4	GND	Communication location	
5	+24V	Power input	

4. Upper Configuraion Software Description

4.1 develop software---Corresponding software HMILite



The **HMILite** upper-level configuration software is a set of upper-level software that customers can edit as they wish. All customer applications are developed based on the upper-level software, which consists of a rich set of controls that can be combined in any way to achieve the functions desired by the customer:

The controls include:

switch button	Includes 'position buttons,' 'character buttons,' 'indicator lights,' 'screen buttons,' 'function buttons,' and 'multimode buttons' for touch operation of connected devices and monitoring of status.
Numerical input and display	Includes multiple base input and display, ASCII code input and display, used to display the value of the monitored address. (Single screen ASCII display + up to 16 QR code controls)
flow block	Animated graphics simulating the flow state of liquid inside a pipe
Static text/tables/scales	Various basic shapes, including lines, circles, ellipses, rectangles, etc.
Image display and GIF animation	Image display box showing one or more images
instrument	Bar chart, gauge, ring, displaying a certain status value of data
trend chart	Real-time dynamic display of data trend graphs for monitored addresses (Trend chart + historical trend chart supports up to 4 charts)

Historical data display device	Display data collected by the data collector in tabular form.
Historical trend chart	Real-time dynamic display of data acquisition device trend graphs(Trend chart + historical trend chart supports up to 4 charts)
multifunction button	A switch button that allows you to quickly and easily access various functions(Add up to 2 features)
movement trajectory	Control address data by dragging and rolling blocks
QR code	Dynamically generate QR codes, scan to access websites, make payments, and more(Single screen ASCII display + up to 6 QR code controls)
Alarm display	Displays alarm information generated by the current device (divided into digital alarms and analogue alarms). Before using this control, you must first configure the alarm settings (up to(Up to 128 digital alarms can be set up))
Dynamic alarm	Used to display current alarms, it differs from alarm controls in that dynamic alarm bars display current alarm content in the form of scrolling text.
History alarm display	Display all generated alarm messages , 3S detection storage, maximum storage of 3 entries
drop-down box	Select the corresponding item/status from the drop-down list.
slide switch	Create a slider area to change the value of a specified word address by pressing the slider left/right or up/down.
roller	Create a data area and modify the current value by scrolling up and down.
Arc adjustment	Display the current value using an arc pattern, and modify and adjust the current value by dragging the slider.
dial	Use a dial to display data such as time, progress, speed, etc.

Extended functions of the host configuration software:

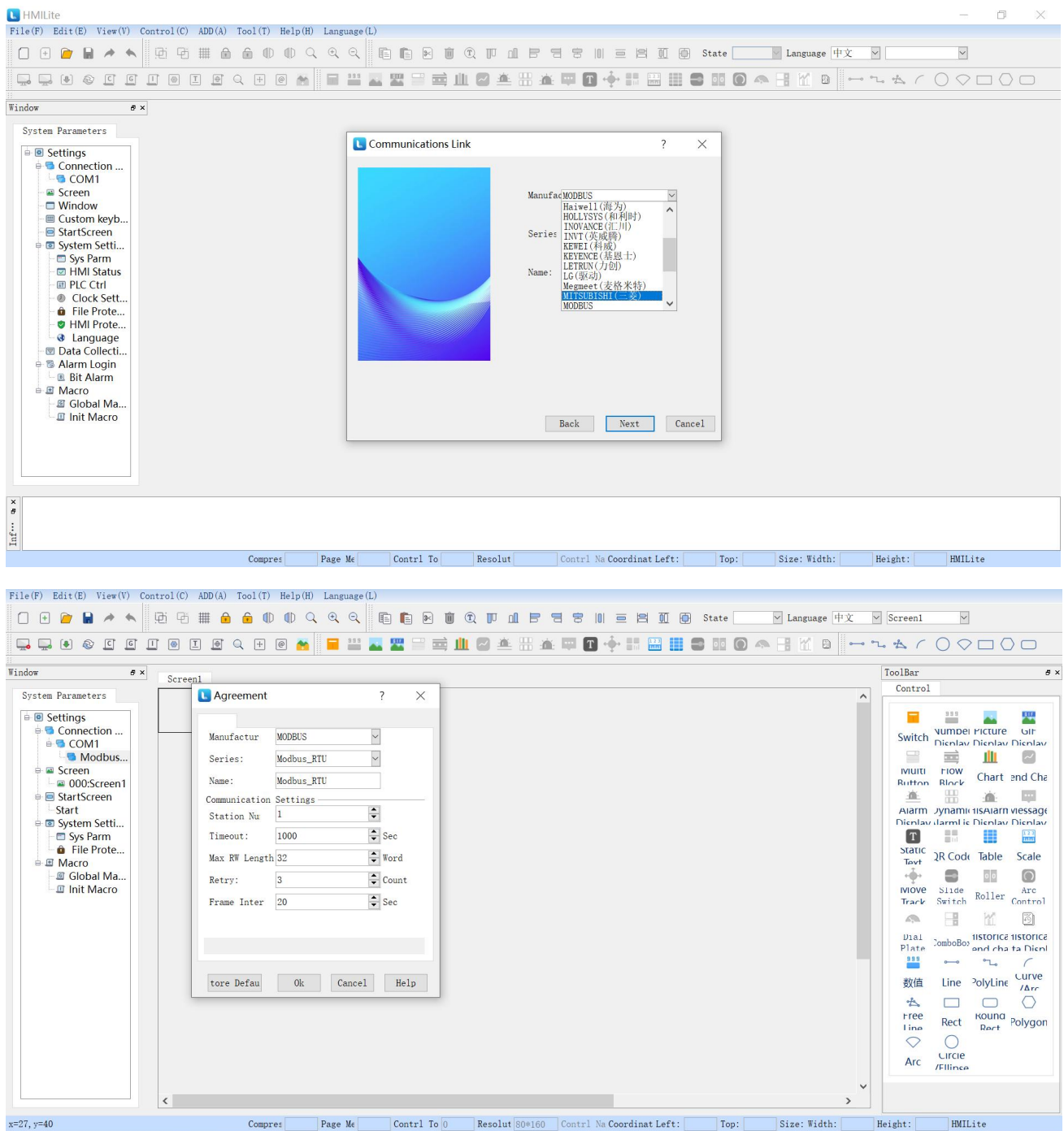
macro instruction	C language programming, implementing various complex logic or functions(Macro program (MarcoRun.dat) maximum size 136KB, maximum number of custom protocol lines 100, maximum number of read-only or read-write variables in macro commands 100)
PLC control	HMI controlled by PLC
HMI protection	The HMI can be used normally within a specified 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 ' panel protection unlock button ' below the function

	button(Only supports 3 levels)
file protection	Do you need to enter a password to open the project?
User password level	Set user permissions and passwords. To access the corresponding permissions, you need to enter the corresponding password.
data collection	Data collection for temperature, pressure, humidity, etc(Data collection supports up to 64KB)
language	Supports multiple languages(Supports up to 4 languages. Alarm display, message display, and drop-down menu only support Chinese and English.)
startup screen	Users can customise the boot logo screen.
offline simulation	Before compiling and downloading the screen to the HMI device, you can use the offline simulation function provided by HMILite to check the correctness and display effect of the configuration screen.
online simulation	Online simulation allows you to communicate with devices such as PLCs via your personal computer (HMILite configuration software must be installed first) without using HMI.
Supports multiple controller communication protocols	Compatible with various PLCs, variable frequency drives, servo controllers, microcontroller control systems, etc. (Mitsubishi, Panasonic, Omron, Delta, Xinjie, Yonghong, Siemens, Keyence, LG, Modbus, custom communication protocols, etc.). Users only need to select and call the function directly in the software when operating.
Custom add image library	Supports custom image library addition. Users can capture their favourite images and load them into a custom image library for use.
image library	Extensive image library supporting multiple formats including PNG, JPG, GIF, BMP, etc., vector image library, and seamless scaling without jagged edges.
Custom keyboard	Supports custom keyboards, allowing you to create keyboard styles according to your needs.

4.2 protocol configuration

Users can configure and run MODBUS RTU, Mitsubishi, Siemens, Delta, Xinjie and other protocols via the host computer.

Open the **HMLite** configuration software and click [**New Project**]. You can select the required communication protocol in [**New Project**], or modify the selection of the required communication protocol within the project. Open the protocol settings below the com1 port to make changes, as shown in the figure below.



5. Reliability testing

All products undergo a series of process reliability tests: ESD testing, high and low temperature ageing testing, group pulse testing, etc. to ensure product quality.

5.1 ESD testing

Standard: IEC 61000-4-2

Test process: Place the product flat on the test bench and conduct contact and air discharge tests on the touch screen iron clip perimeter and display area in sequence, as shown in the figure below. Observe whether the screen resets, restarts, or displays abnormalities.



test data

Product model	Discharge type	discharge value	test results
ASTGE024W024-L240X320R	contact	+/-3KV;	No abnormal phenomena such as rebooting, freezing, or screen freezing; functions are normal.
	air	+/-12KV;	No abnormal phenomena such as rebooting, freezing, or screen freezing. Functions normally.

5.2 High and low temperature ageing test



Test environment: High and low temperature ageing test chamber

Test temperature: -20° to 60°

Test process: Place the product in the high and low temperature ageing test chamber. Conduct ageing tests with alternating high and low temperatures of 60° and -20°, and observe whether any reset reboots, display abnormalities, or functional abnormalities occur during the test process and after the test is completed.

test data

Product model	temperature	humidity	test results
ASTGE024W02 4-L240X320R	High temperature 60°	60%	No abnormal phenomena such as rebooting, freezing, or screen freezing. Functions normally.
	Low temperature -20°	60%	No abnormal phenomena such as rebooting, freezing, or screen freezing. Functions normally.
	Alternating high and low temperatures (-20° to 60°)	60%	No abnormal phenomena such as rebooting, freezing, or screen freezing. Functions normally.

5.3 Group pulse test

Standard: IEC 61000-4-4

Test process: Place the product flat on the test bench and supply power to the screen through the power supply coupled with the pulse group generated by the pulse group generator. See the figure below. Observe whether the screen resets, restarts, or displays abnormalities.



test data

Product model	Testing standards	test port	test results
ASTGE024W024-L240X320R	EFT +/-2KV;	Power supply and communication ports	The 2KV screen has no flickering, no restart, no freeze, blurring screen and other abnormal phenomena. Functioning normally

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