

ISO9001:2015 Quality system certification

AMT 028W124-L320X240R- XW-1DOC SERIES SPECIFICATION

Strive to create the best intelligent control terminal

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1. Model definition

The model number of the product is defined in the figure below:

AMT028W124-L320X240R-XW-1D0C	
AMT	AMTSerial screen series
028	The size of the LCD screen is 2.8 inches
W12	MEMORY CAPACITY AND FLASH TYPE: W11: 8MB DDR2+ NAND FLASH; W12: 8MB DDR2+ NOR FLASH;
4	FLASHcapacity: 2Mbyte=1;4Mbyte=2;8Mbyte=3; 16Mbyte=4 ;32Mbyte=5;64Mbyte=6;128Mbyte=7 256Mbyte=8;512Mbyte=9;1Gbyte=X
L320X240	The LCD screen resolution is:L320X240;
R	R: Resistance TP ; C: Capacitive TP;N: No touch;
X	Stands for with casing;
W	Representatives: B: black shell; W: white shell;
1	0: 5VPower supply; 1:9~30V Power supply;
D	Serial port 1 communication mode: T: TTLcommunication; D: RS485communication ;E: RS232communication;
0	Serial port 2 communication mode: T: TTLcommunication; D: RS485communication; E: RS232communication; 0:No communication;
C	C: RTC ; N: No RTC

2. Product Description

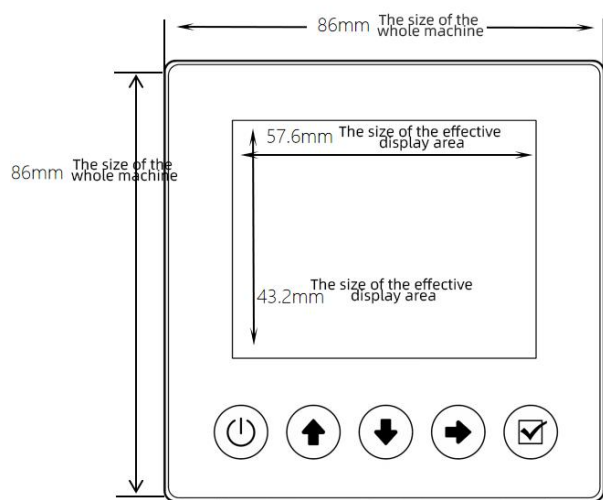
2.1 Product model



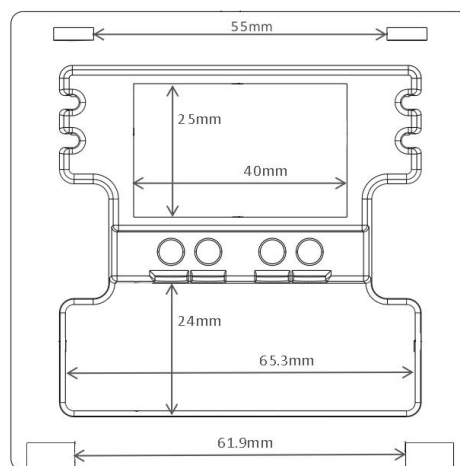
Model	Specifications
AMT028W124-L320X240R-XW-1D0C	AMT series, 2.8-inch L320X240 resolution display, DC9-30V, 16Mbyte SPI NOR Flash, 485 communication, resistive touch;

2.2 Product dimensions

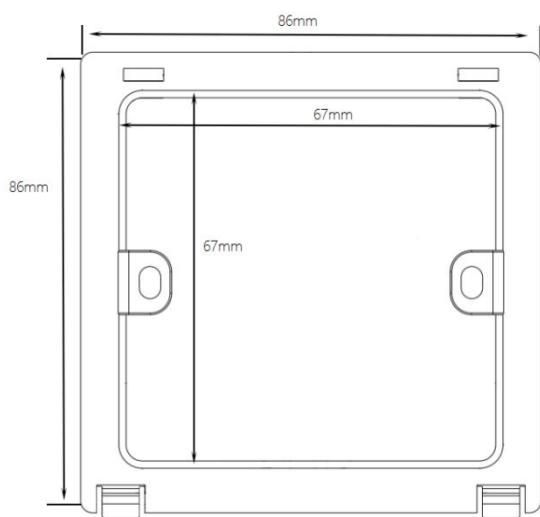
Display dimensions	Product range	The size of the whole machine	The size of the effective display area	Cut-out size	Suggested cut-out size
2.8 inches	AMT028W124-L320X240R-XW-1D0C	86*86*36.1mm	57.6*43.2mm	68*65mm	70*67mm



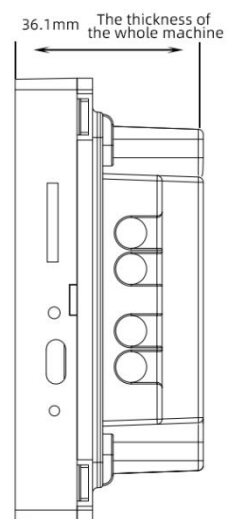
front



back



brack



bottom

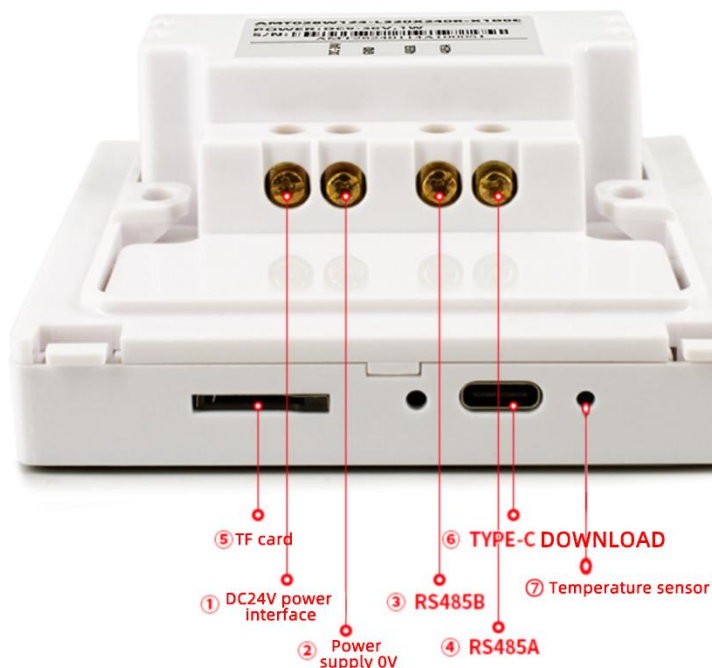
2.3 Product parameters

Product Specifications:		
Hardware performance	Model	AMT028W124-L320X240R-XW-1D0C
	display screen	2.8" TFT LCD
	color	65536 colors
	Resolution (Px)	320*240
	brightness	250 cd/m ²
	Backlight	LED (Support backlight adjustment)
	LED life	20,000 hours
	touch screen	Support 4-wire industrial resistive touch screen (surface hardness 4H)
	CPU	32-bit 600MHz ARM9 has 8MB DDR memory
	memorizer	16Mbyte SPI NOR Flash
	RTC	Real-time clock built-in
	buzzer	Yes
	Temperature sensor	Detection of current temperature (temperature range - 70/+150°C)
	Power-down data is saved	Not supported
	USB port	TYPE-C
	How to download the program	TF card, TYPE-C download
	flash drive	Not supported
	Communication port	RS485 serial communication
Electrical Specifications	Rated power	1W
	Voltage range	DC 9-30V (Anti-reverse connection, distinguish between positive and negative poles of power supply)
	Power protection	+/-250V lightning surge protection

	Power loss is allowed	<5ms
	CE&ROHS	Comply with EN61000-6-2:2005, EN61000-6-4:2007 standards, lightning surge +/-250V, group pulse +/-2KV, electrostatic contact discharge +/-2KV, electrostatic air discharge +/-2KV.
Environmental Specifications	Operating temperature	-10°C~50°C
	Storage temperature	-30°C~70°C
	Ambient humidity	10~90%RH (non-condensing)
	Earthquake resistance	10-25Hz (X, Y, Z directions, 2g/30 min)
	Cooling method	Natural air cooling
Other parameters	Ingress protection	The front panel is IP65 compliant (for flat panel mounting) and the rear fuselage is IP20 compliant
	The size of the effective display area	57.6*43.2mm
	The size of the whole machine	86*86*36.1mm
	Cut-out size	68*65mm
	Suggested cut-out size	70*67mm
	Net weight of the whole machine	115g
	Compatible software	Upper: HMISudio5.1

3. Hardware introduction

3.1 Terminal block pin definition

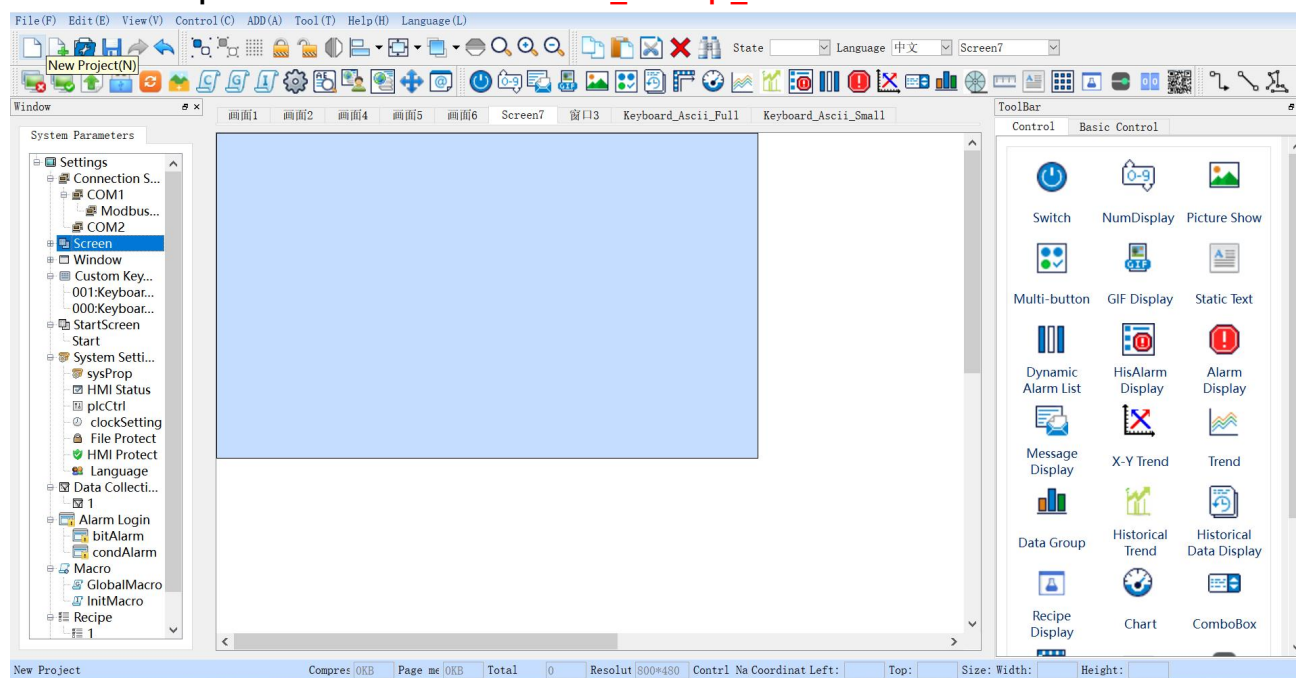


Port definition	
Device position number	illustrate
①	DC24V power interface
②	Power supply 0V
③	RS485B
④	RS485A
⑤	TF card
⑥	TYPE-C DOWNLOAD
⑦	Temperature sensor

keyboard		
Pin	definition	illustrate
1		LB4020 is set
2		LB4021 is set
3		LB4022 is set
4		LB4023 is set
5		LB4024 is set

4. Description of the upper-level configuration software

4.1 Develop software--HMIStudio_Setup_V5.1



The superior configuration software [HMIStudio5.1](#) is a set of superior software that customers can edit arbitrarily, the customer's applications are all developed based on the superior software, and the superior software is composed of rich controls, any combination, so as to achieve the functions that the customer wants:

The controls include:

Switch buttons	Including "bit button", "word button", "indicator light", "screen button", "function button" and "polymorphic button" to touch the connected device and monitor the status
Value input and display	It includes a variety of base inputs and displays, ASCII code input and display for the value of the monitored address, and a time display for the real-time time
Flow blocks	Animated graphics that simulate the flow of liquids in a pipeline
Static text/tables/ticks	A variety of basic shapes, including straight lines, circles, ellipses, rectangles, etc
Picture display as well as animated gifs	A picture display box that displays one or more pictures
appearance	Histograms, gauges, rings, show some state value of the data
Slide switches	Create a slider area to display the value, or change the value of a given word address by pressing the slider to move it.
Roller	Swipe to display data.
Recipe display	Displays the defined recipe records in a tabular manner. Note: To use this control, you need to establish a recipe first
Message display	Displays a pre-set message
Alarm display	Display the alarm information of the current device (divided into digital alarm and analogue alarm), and the alarm setting must be configured before using the control (up to 512 digital alarms can be created, and up to 32 conditional alarms can be created)
Dynamic alarms	It is used to display the current alarm, which is different from the alarm control in that the dynamic alarm bar displays the current alarm content in the form of text scrolling
XY curves	Real-time dynamic display of data collector data
Historical curves	Displays the data saved by the history collector as a curve
formulation	Create a recipe-like menu (up to 200 data per recipe, up to 200 recipes)
Multi-function button	A switch button through which various functional requirements can be easily and quickly achieved
Trend charts	Draw a reference curve for multiple data to accurately and intuitively determine the trend of a certain value over a period of time

drop-down box	This function allows you to select the corresponding status
Data groups	A curve is used to show the change in data from register address N to register address N
Movement trajectory	Drag and drop the scroll bar to control the address data
QR code	Dynamically generate QR codes, enter the URL by scanning, payment and other functions (up to 10 QR codes on a single screen, no more than 1,000 QR codes in one configuration)

Extended functions of the host unit software:

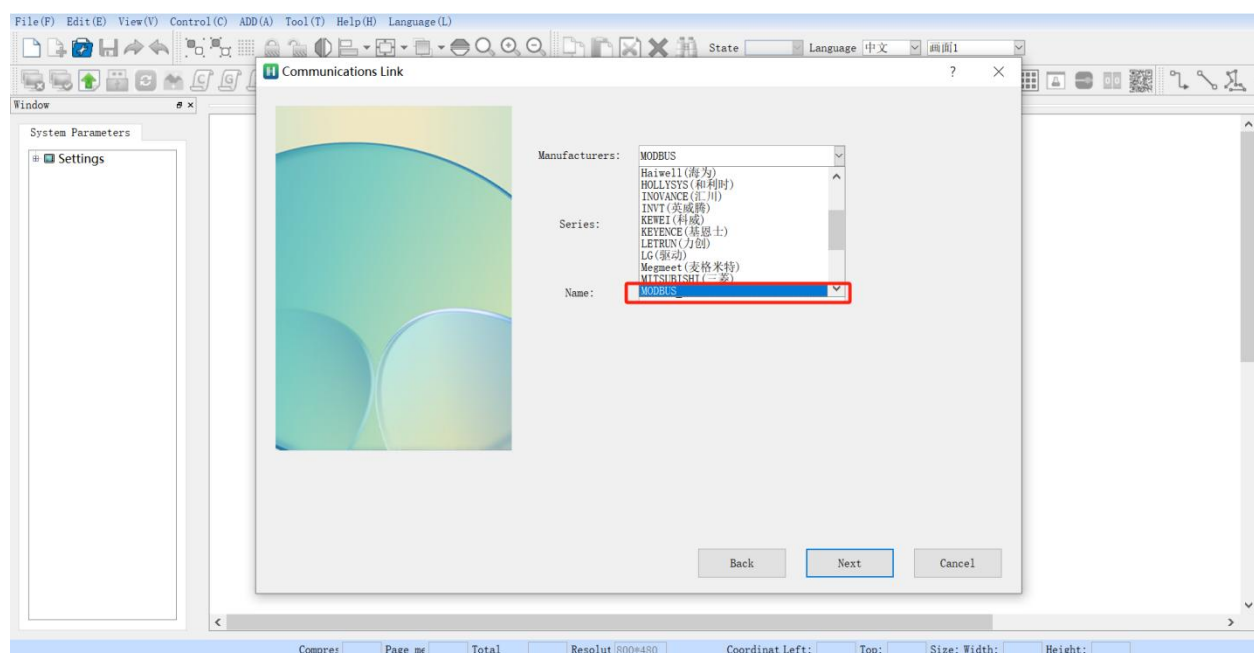
macroinstruction	C language programming, to implement a variety of complex logic or functions
PLC control	Control of the HMI via PLC (control of the HMI screen via PLC register numerical control, modification of recipes, writing recipe data to PLC, switching of current user level)
language	Support multiple Chinese languages (up to 6 Chinese)
Data acquisition	Data acquisition for temperature, pressure, humidity, etc. (up to 32 data acquisitions can be created)
Data Transfer	Refers to the transmission of data on the same type of address, which can be periodic (as fast as once every 1 second) or triggered
HMI protection	If the time exceeds the time specified by the user, the HMI will jump to the specified screen previously set by the user, and the user only places the "panel protection unlock button" under the function button in the specified screen
File protection	When opening a project, you need to enter a password to verify the opening
User password level	Set user permissions and passwords, and enter the corresponding passwords to enter the corresponding permissions (a total of 8 user levels)
Boot screen	Users can customize the boot logo screen
Offline simulation	Before compiling and downloading the picture to the device in the HMI, you can use the offline simulation function that comes with HMISTudio to check the correctness and effect display of the configuration screen
Online simulation	Online simulation allows you to communicate with a PLC and other related devices via a personal computer (HMI configuration software is installed first) without the use of an HMI

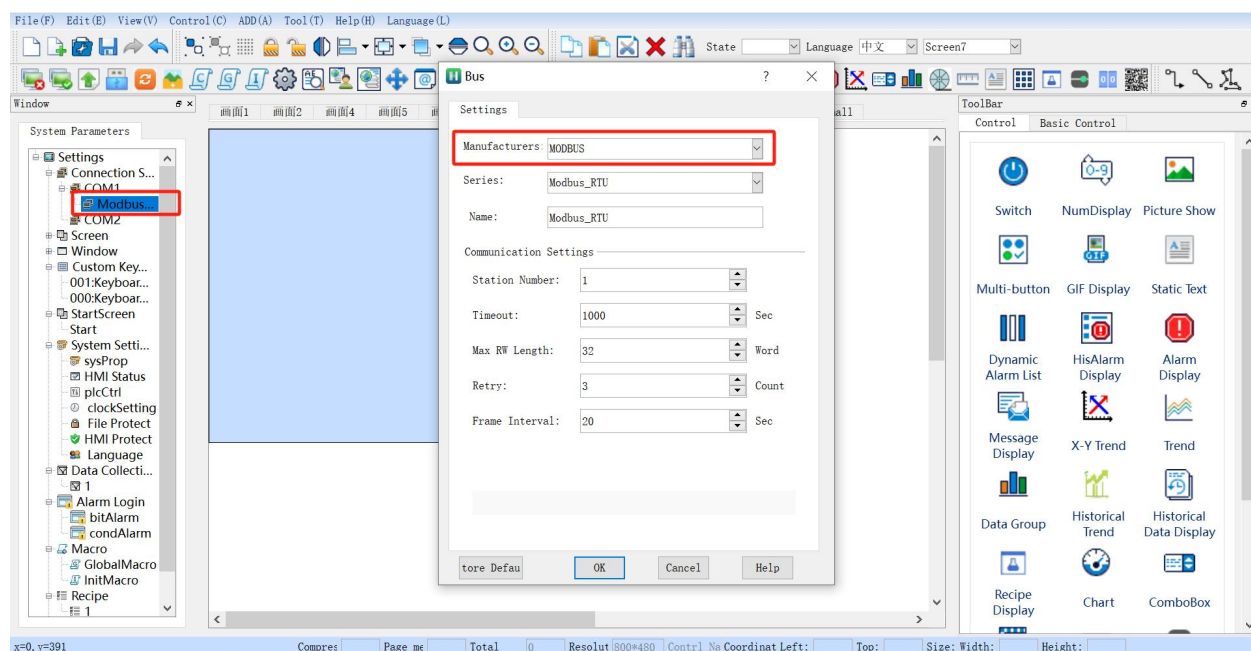
It supports a variety of controller communication protocols	Adapt to various PLCs, inverters, servo controllers, single-chip microcomputer control systems, etc. (Mitsubishi, Panasonic, Omron, Delta, Xinjie, Yonghong, Siemens, Keyence, LG, Modbus and custom protocols) Users only need to directly select and call on the software when operating
Customize the gallery	Support custom image gallery, users can take screenshots of their favorite pictures and load them into the custom gallery for calling
keyboard	It supports Chinese and English keyboard input, and users can switch between them freely
Gallery	The gallery is abundant, supporting Png, Jpg, Gif, Bmp and other formats, vector gallery, arbitrary zoom without aliasing

4.2 Protocol Configuration

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

Open HMISTudio 5.1 configuration software, click [New Project], and select the required communication protocol in [New Project]. You can also modify and select the communication protocol you need in the project, and open the protocol under the COM1 port settings to change it. As shown in the figure below.





5. Reliability testing

Before mass production, a series of process reliability tests are carried out: ESD, high and low temperature aging and other tests to ensure product quality.

5.1 ESD testing



Executive standard: IEC 61000-4-2

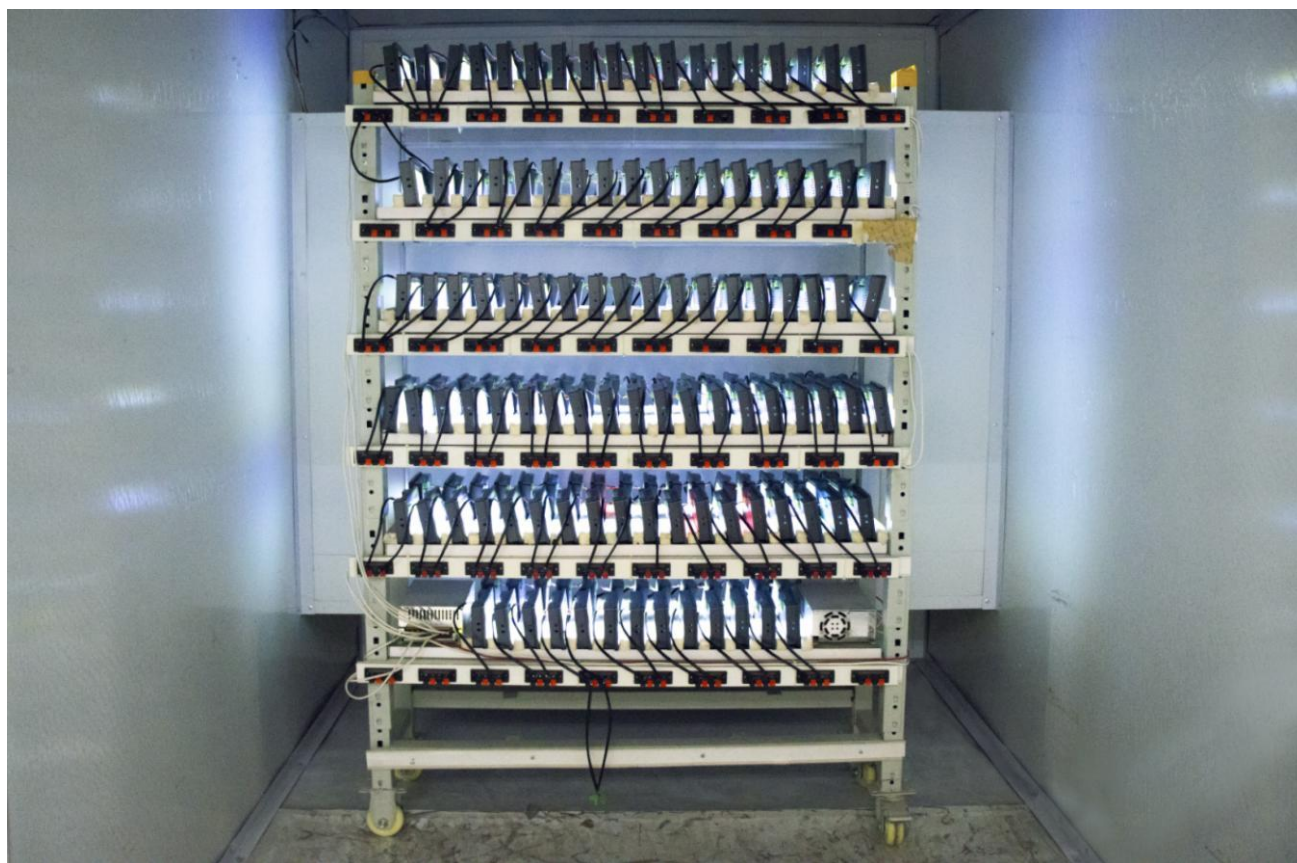
Test process: Place the product flat on the test bench, and carry out contact and air discharge for the periphery of the touch screen iron buckle and the display area in turn, as

shown in the figure below. Observe whether the screen resets and restarts, or whether the display is abnormal

Test data

Product range	Type of discharge	Discharge value	Test results
AMT028W124-L320X240R-XW-1D0C	contact	+/-2KV;	No abnormal phenomena such as restart, crash, blurred screen, etc. Functional
	air	+/-2KV;	No abnormal phenomena such as restart, crash, blurred screen, etc. Functional

5.2 High and low temperature aging test



Test environment: high and low temperature aging test chamber

Test temperature: -10°~50°

Test process: Place the product in the high and low temperature aging test chamber. Through the 50° high temperature, -10° low temperature, high and low temperature alternating transformation aging test, observe whether there is a reset and restart, abnormal display, abnormal function and other phenomena during the test and after the test.

Test data

Product range	temperature	humidity	Test results
AMT028W124-L320X240R-XW-1D0C	High temperature 50°	60%	No abnormal phenomena such as restart, crash, blurred screen, etc. Functional
	Low temperature -10°	60%	No abnormal phenomena such as restart, crash, blurred screen, etc. Functional
	High and low temperature alternate (-10°~50°)	60%	No abnormal phenomena such as restart, crash, blurred screen, etc. Functional

5.3 Swarm pulse test



Executive standard: IEC 61000-4-4

Test process: The product is placed flat on the test bench, and the power supply after the pulse group generator is coupled to the pulse group to supply power to the screen. As shown in the figure below. Observe whether the screen resets and restarts, displays abnormalities and other abnormal phenomena

Test data

Product model	Test Standards	Test the port	Test results
AMT028W124-L320X240R-XW-1D0C	EFT +/-2KV;	Power and communication ports	There are no abnormal phenomena such as restart, freeze, and blurred screen. Functional

5.4 Lightning surge test



Test data

Product model	Coupling mode	impedance	Test results
AMT028W124-L320X240R-XW-1D0C	COUPL	12Ω	+/-250V screen has no flicker, no restart, crash, blurred screen and other abnormal phenomena. Functional

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control terminal possible