ISO9001:2015 Quality System Certification

ASTG 035W023-B-L320X480R SERIES SPECIFICATION

Dedicated to creating the best intelligent control terminal possible

Catalogs

1. Product Description

1.1 Product Model

model number	Specification
ASTG035W023-B-L320X480R-0T0C-T	ASTG Series, 3.5” 320X480 resolution display, DC5V power supply, one TTL serial port, 10Mbyte SPI NOR Flash, with TP;
ASTG035W023-B-L320X480R-1D0C-T	ASTG series, 3.5” 320X480 resolution display, DC5~30V power supply, one RS485 serial port, 10Mbyte SPI NOR Flash, with TP;
ASTG035W023-B-L320X480R-1E0C-T	ASTG series, 3.5” 320X480 resolution display, DC5~30V power supply, one RS232 serial port, 10Mbyte SPI NOR Flash, with TP;

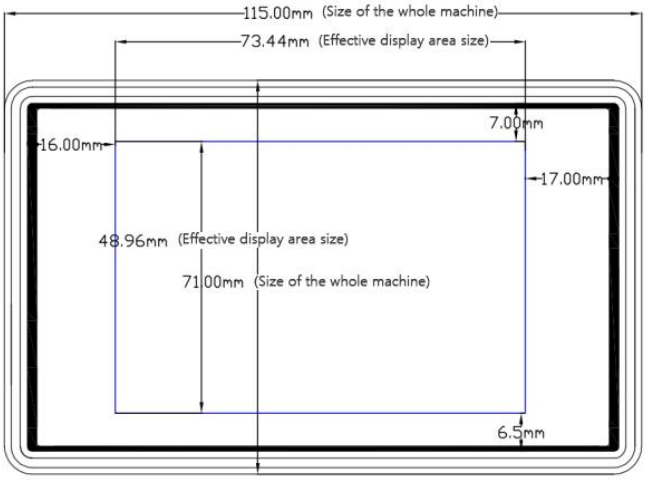
1.2 Model Definition

The model number of the product is defined as follows：

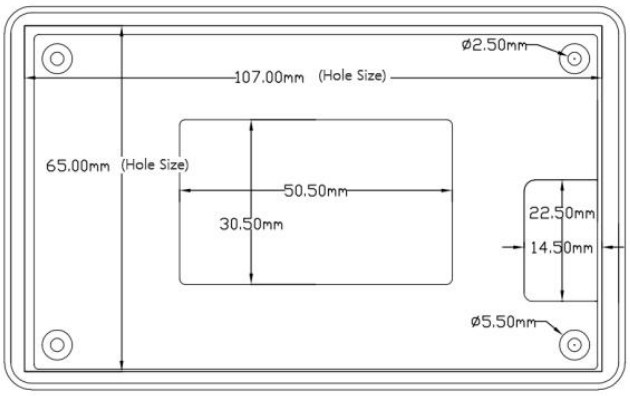
ASTG035W023-B-L320X480R-0T0C-T	
ASTG	ASTG Serial Screen Series
035	The representative product size is 3.5 inches;
W02	Memory capacity and FLASH type. W01:32MB DDR2+ NAND FLASH； W02:32MB DDR2+ NOR FLASH； W11: 8MB DDR2+ NAND FLASH； W12: 8MB DDR2+ NOR FLASH；
3	FLASH capacity. 2Mbyte=1;4Mbyte=2;8Mbyte=3;16Mbyte=4;32Mbyte=5;64Mbyte=6;128Mbyte=7;256Mbyte=8;512Mbyte=9;1Gbyte=X；
B	Indicates product with housing;
L320X480	The LCD resolution is L320X480;
R	R: Resistor TP; C: Capacitor TP; N: No touch;
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 2 communication mode 0: None; D: 485 communication; E: 232 communication;
C	0: no communication; C: RTC; N: no RTC;
T	T: TF card; U: USB;

1.3 Product Size

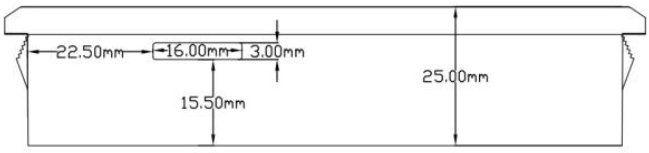
Display size	Product Series	Size of the whole machine	Effective display area size	Hole Size	Recommended opening size
3.5 inches	ASTG035W023-B-L320X480R	115*71*25mm	73.44*48.96mm	107*65mm	109*67mm



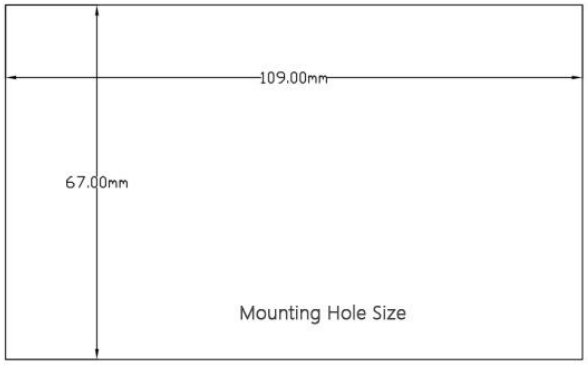
positively



backside



bottom



1.4 Product Parameters

Product Specification		
hardware performance	Model Series	ASTG035W023-B-L320X480R-0T0C-T ASTG035W023-B-L320X480R-1D0C-T ASTG035W023-B-L320X480R-1E0C-T
	monitor	3.5" TFT LCD
	Resolution (Px)	320X480
	coloration	65536 colors
	luminance	250 cd/m^2
	Backlight	LED (Does not support backlight adjustment)
	LED Lifetime	20,000 hours
	touchscreens	4-wire industrial resistive touch screen (surface hardness 4H)
	CPU	200MHz ARM Cortex-M4F Built-in 2MB PSRAM memory
	memory	On-chip 2Mbyte SPI NOR Flash; External 8Mbyte SPI NOR Flash
	RTC	Real-time clock built-in
	buzzers	be in favor of
	Power down data saving	3S autosave
	USB port	not have
	Program download method	TF Card Download
	USB flash drive	unsupported
	communication port	ASTG035W023-B-L320X480R-0T0C-T: Serial port: TTL communication ASTG035W023-B-L320X480R-1D0C-T: serial port: RS485 communication ASTG035W023-B-L320X480R-1E0C-T: Serial port: RS232 communication
	Plug specification	5pin:PH2.0mm terminal block

Electrical Specifications	rating	Maximum 1W
	voltage range	Communication TTL: DC5V Communication 485/232: DC5~30V
Environmental specifications	operating temperature	-10℃~50℃
	Storage temperature	-30℃~70℃
	Environmental humidity	10~90%RH (non-condensing)
	seismic defenses	10-25 Hz (X, Y, Z directions, 2g/30 min)
	Cooling method	natural air cooling
	Size of the whole machine	115*71*25mm
	Effective display area size	73.44*48.96mm
	Hole Size	107*65mm
	Recommended opening size	109*67mm
	Net weight	110g
image	Supports up to 50 screens (up to 50 controls per screen)	

2.Hardware Introduction

2.1Terminal Block Pin Definition

2.2 The following picture is the TF card used in our products, the format is FAT32, the capacity of 32GB or less.

The following chart is for reference only

Port Definition	
Device Location Number	**clarification**
①	Power supply interface and communication input interface
②	TF card holder, support TF card to download configuration or upgrade the underlying program

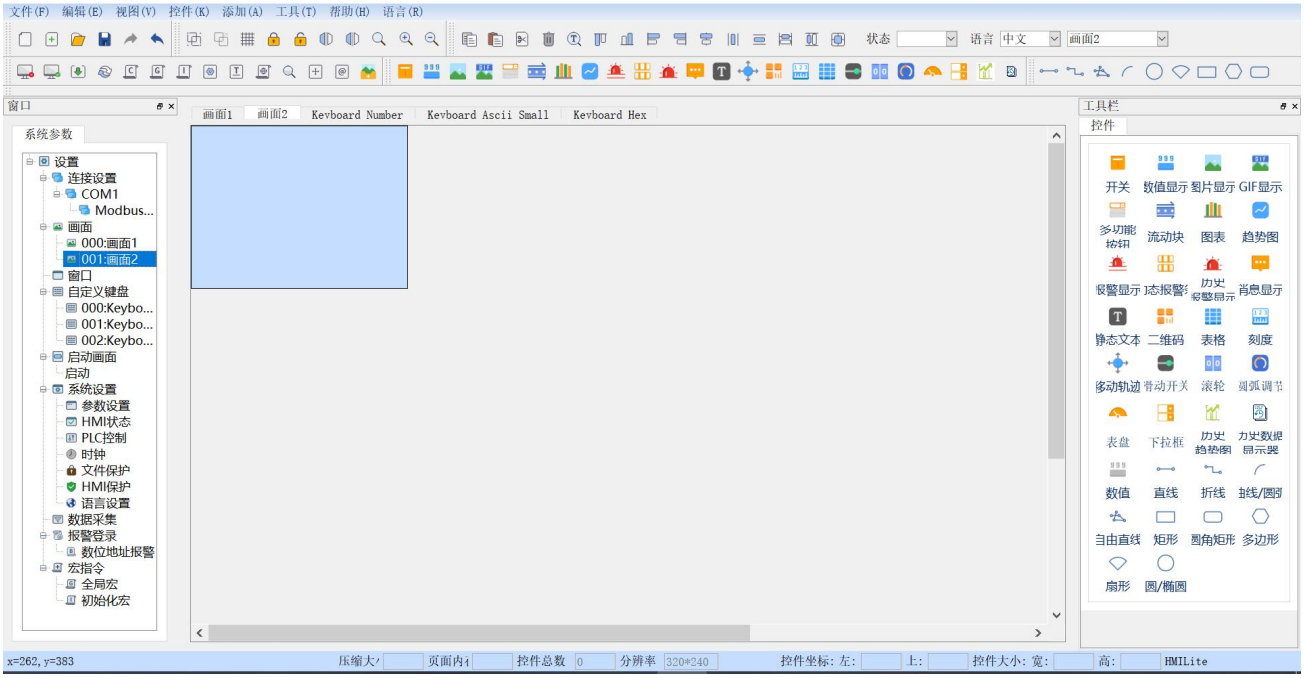
ASTG035W023-B-L320X480R-0T0C-T---5pin:PH2.0mm wiring terminal			
Pin	**define**	**Power Input**	**Serial port 1：TTL**
1	GND	POWER GROUND	
2	RXD		3.3V TTL RXD
3	TXD		3.3V TTL TXD
4	GND	correspondingly	
5	DC5V	Power Input	

ASTG035W023-B-L320X480R-1E0C-T---5pin:PH2.0mm wiring terminal			
Pin	**define**	**Power Input**	**Serial port 1：RS232**
1	GND	POWER GROUND	
2	RS232 RX		reception
3	RS232 TX		dispatch
4	GND	correspondingly	
5	DC24V	Power Input	

ASTG035W023-B-L320X480R-1D0C-T---5pin:PH2.0mm wiring terminal			
Pin	**define**	**Power Input**	**Serial port 1：RS485**
1	GND	POWER GROUND	
2	RS485 B		RS485 B（-）
3	RS485 A		RS485 A（+）
4	GND	correspondingly	
5	DC24V	Power Input	

3. Description of the upper configuration software

3.1 development software---Software HMILite



The upper configuration software **HMILite** is a set of customers can be arbitrarily edited by the upper software, customer applications are all based on the upper software for the development of the upper software, the upper software consists of a wealth of control composition, any combination, so as to realize the functions desired by the customer:

Controls are included:

switch button	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.
Numerical input and display	Includes multiple binary inputs and displays, ASCII inputs and displays for displaying the value of the monitored address, and a time display for showing real-time time (Up to 6 ASCII and QR code controls combined for a single screen)
mobile block	Animated graphics that simulate the state of liquid flow in a pipe
Static text/table/scale	A variety of basic shapes, including lines, circles, ellipses, rectangles, etc.
Image display and gif animation	Picture display box showing one or more pictures
meter	Bar graphs, gauges, circles, showing some state value of the data
message display	Displaying pre-set messages(20 for a single configuration)
message display	Displays the current alarm information of the device (divided into digital alarms and analog alarms), you must configure the alarm settings before you use the control (you can do up to(Up to 32 digital alarms can be created)

Dynamic Alarms	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.
Historical Alarm Display	displaying all generated alarm messages,Save the latest three alarm messages when the HMI is powered off and on
indirect	Real-time dynamic display of data collector data (maximum number of curves 1, maximum 2 channels per curve, supports 1S acquisition and 100ms acquisition, maximum 256 points per curve)
Multi-function buttons	An on/off button, by means of which the various functional requirements can be reached easily and quickly (max. 2 functions)
trajectory	Control address data by dragging a scrolling block
two-dimensional barcode	Dynamically generated QR code, scanning to enter the web site, payment and other functions (a single screen up to 5 QR code, a configuration does not exceed 100 QR code)

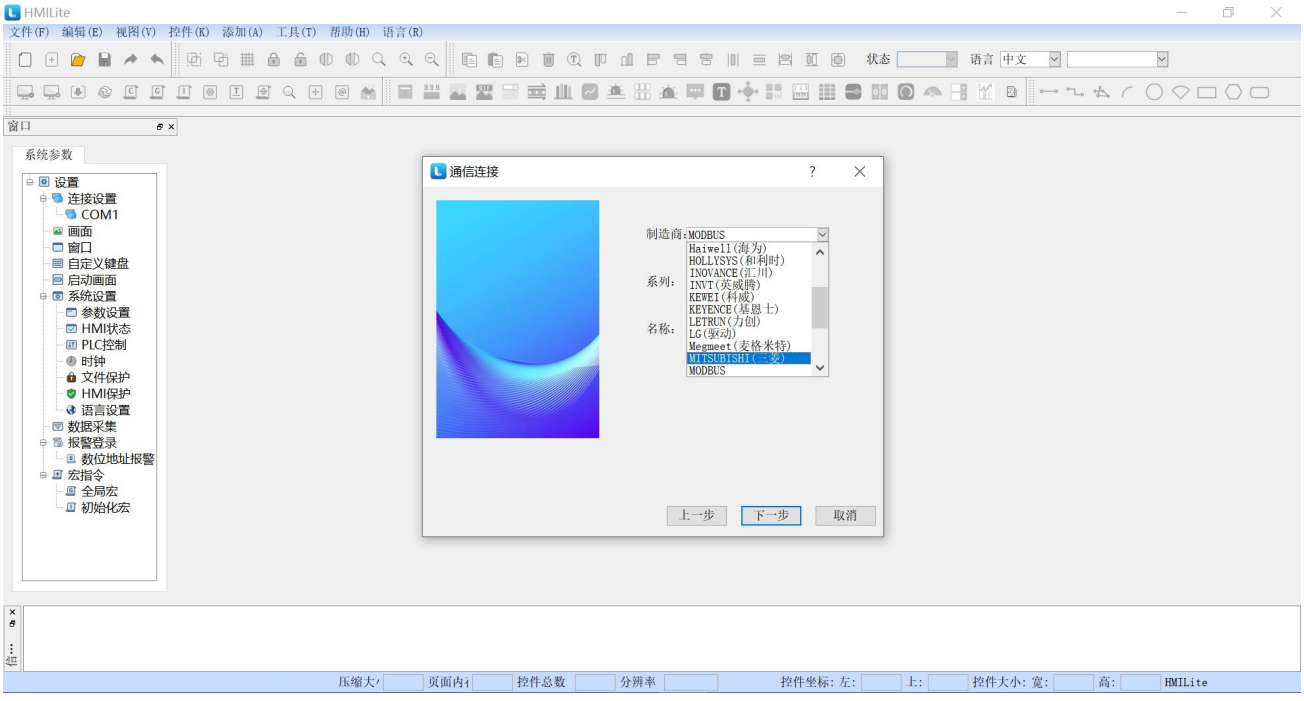
Extended functionality of the host machine configuration software:

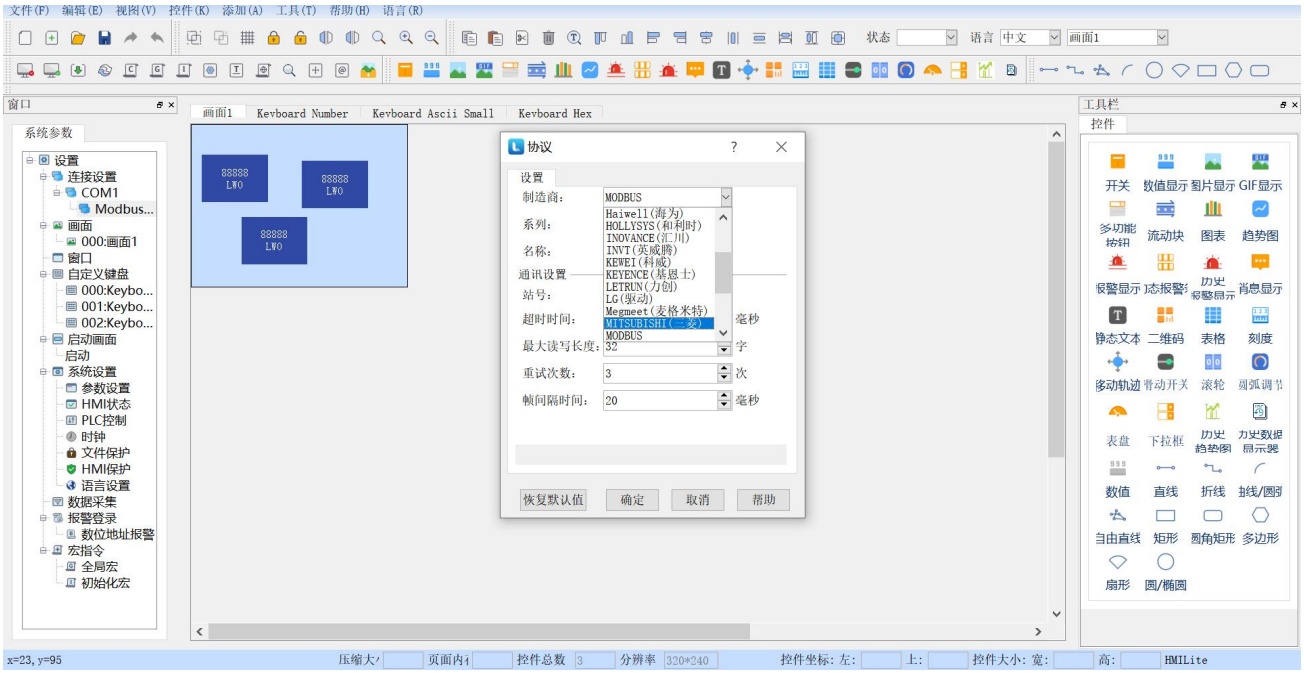
macro instruction	C programming to implement a variety of more complex logic or functions(Create up to 50 macro instructions, up to 10 variables for a single macro instruction, up to 100 variables for all macro instructions, no more than 6 global macro calls)
PLC control	HMI control by PLC (switching of HMI screen by PLC register value, switching of current user level)
HMI Protection	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 designated screen previously set by the user, and in the designated screen, the user only places the "Panel Protection Unlock Button" under the function buttons (up to 3 levels).
document protection	Do you need to enter a password to open the project?
User password level	Set user rights and passwords, access to the appropriate rights need to enter the appropriate password (a total of 8 user levels)
boot screen	User can customize the boot-up Logo screen
Offline simulation	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.
Online Simulation	Online simulation allows you to communicate with plc and other related devices through your personal computer (HMILite configuration software must be installed first) without using HMI.

Supports multiple controller communication protocols	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!
Custom Add Gallery	Support for customizing the gallery, users can intercept their favorite images loaded into a custom gallery to call according to need
keypads	Support Chinese and English keyboard input, the user can freely switch the use of
image archive	Rich gallery, support Png, Jpg, Gif, Bmp and other formats of the picture, vector gallery, any zoom non-aliased

3.2 Protocol Configuration

Users can run MODBUS RTU, Mitsubishi, Siemens, Delta, Xinjie and other protocols through the host computer configuration; open the HMILite configuration software, click on [New Project], you can select the desired communication protocol in [New Project], you can also modify the project to select the communication protocol you need to open the com1 port settings below the protocol to change, the following figure.





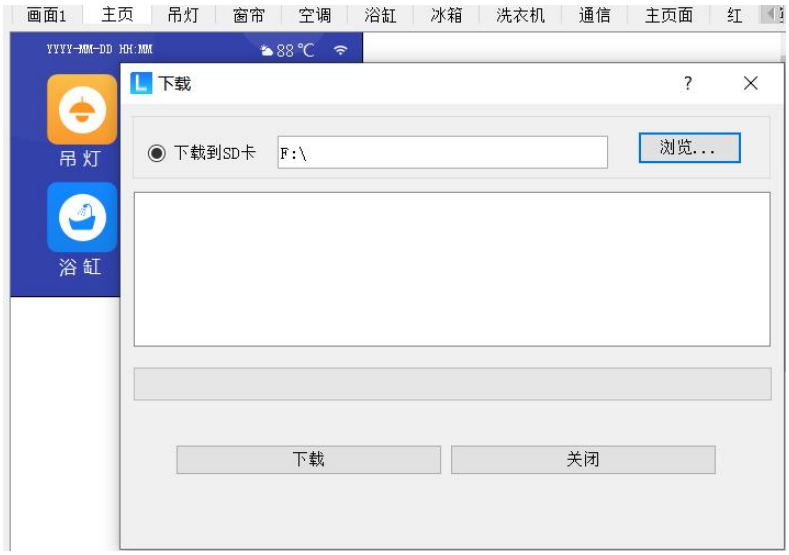
3.3 Download program description

Download method: TF card download

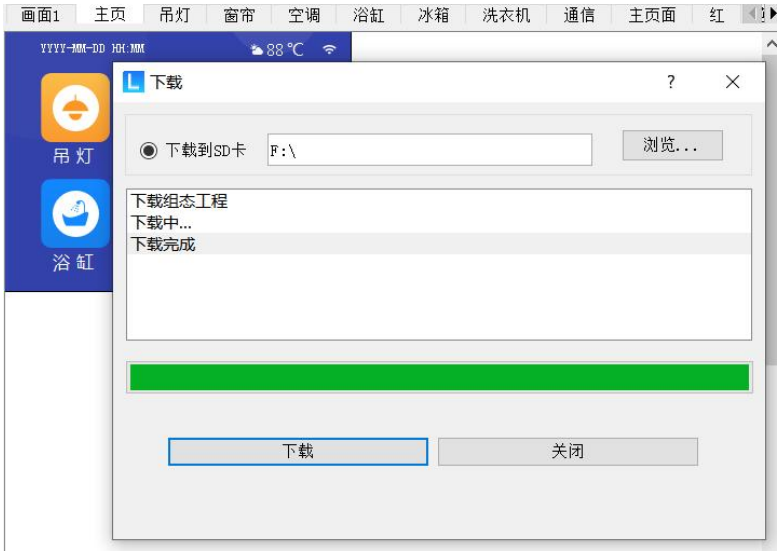
Steps in the download process: After making a good configuration program, first find the top of the software to download the project, open the compilation, browse and select the TF card identification location, download the program to the root directory of the TF card. Then first insert the TF card into the card slot on the touch screen, power on the touch screen, the touch screen will automatically update the program.

explain the steps

(1) Open the configuration program and select the Download button in the upper left corner of the upper toolbar  Compile, compilation is completed pop-up download dialog box



（2）Insert the TF card into your computer and select the “Browse” button. Find the root directory of the TF card recognized by your computer. Then click the “Download” button.



（3）After the configuration program is successfully downloaded to the TF card, insert the TF card into the card slot of the touch screen and power up the touch screen, then the touch screen system will automatically update the program.

4.Reliability Testing

All products are subjected to a series of processed reliability tests before mass production: ESD, high and low temperature aging and other tests to ensure product quality.

4.1 ESD testing

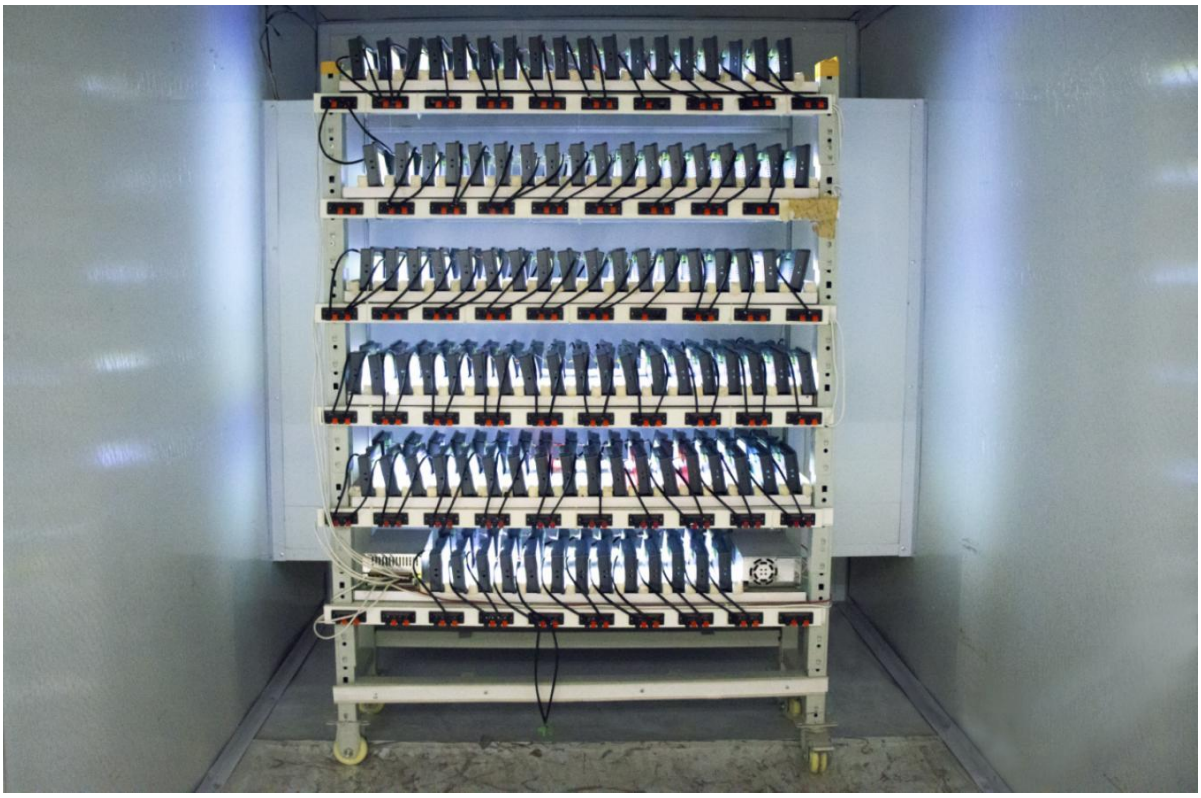
Implementation standard: IEC 61000-4-2

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
ASTG035W023-B-L320X480R	exposure	+/-4KV;	No reboot, crash, splash screen and other abnormal phenomena. Normal function
	atmosphere	+/-8KV;	No reboot, crash, splash screen and other abnormal phenomena. Normal function

4.2 High and low temperature aging test



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

Test Temperature: -10°~50

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	humidity level	Test results
ASTG035W023-B-L320X480R	High temperature 50°	60%	No reboot, crash, splash screen and other abnormal phenomena. Normal function
	Low temperature -10°	60%	No reboot, crash, splash screen and other abnormal phenomena. Normal function
	Low temperature -10°	60%	No reboot, crash, splash screen and other abnormal phenomena. Normal function

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