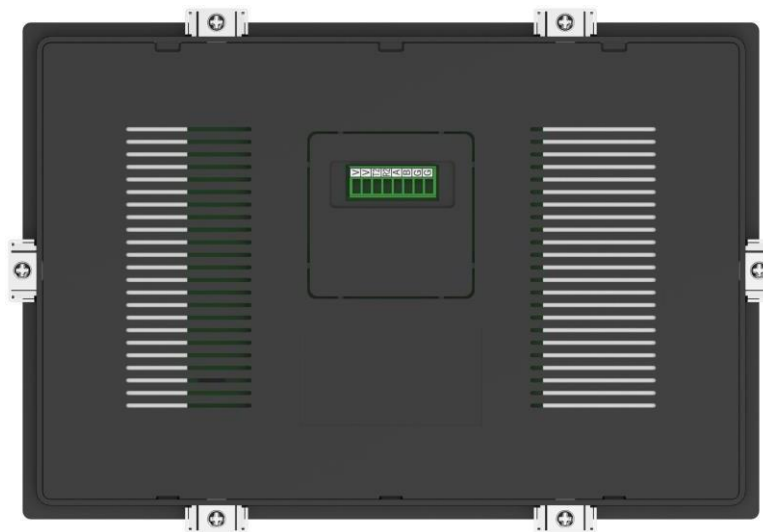


# AGM-101A0-I2-R

## Features:

- Based on T5L2, running DGUS II system, commercial grade.
- 10.1-inch, 1024\*600 pixels resolution, 16.7M colors, IPS-TFT-LCD, wide viewing angle.
- Resistive touch screen.
- With shell.



## 1、 Hardware and interface description

No.	Name	Description
1	T5L2 ASIC	Mass production in 2019, 1MBytes Nor Flash on the chip, 512KBytes used to store the user database. Rewrite cycle: over 100,000 times
2	LCM interface	FPC50_0.5mm, RGB interface
3	RTP interface	4Pin_1.0mm interface
4	User interface	8Pin_3.81mm socket for power supply and serial communication. Download rate(typical value): 12KByte/s
5	Flash	16MBytes NOR Flash, for fonts, pictures and audio files. Rewrite cycle: over 100,000 times
6	Expand Flash	Expandable to 64Mbytes NOR Flash or 48Mbytes NOR Flash+512Mbytes NAND Flash. When expanding Flash, components such as decoders and capacitors need to be soldered. Please consult the corresponding salesperson for relevant customization (Located inside the shielding cover)
7	Buzzer	3V passive buzzer. Power: <1W
8	RTC	Super-capacitor powered, accuracy: $\pm 20\text{ppm}$ @25°C, maintains operation for 7 days after power-off.
9	SD interface	FAT32. Download files by SD interface can be displayed in statistics
10	Reserved module interface	Wi-Fi module: connect to the cloud platform to update remotely USB module: download files by USB flash disk
11	PGT05 interface	When product crashes by accident, you can use PGT05 to update DGUS kernel and make the product return to normal

## 2、 Specification parameters

### 2.1 Display parameters

<b>LCD Type</b>	IPS, TFT LCD
<b>Viewing Angle</b>	Wide viewing angle, 85°/85°/85°/85° (L/R/U/D)
<b>Resolution</b>	1024×600 pixels (0°/90°/180°/270°)
<b>Color</b>	24-bit 8R8G8B
<b>Active Area (A.A.)</b>	223.2mm (W)×125.8mm (H)
<b>View Area (V.A.)</b>	-
<b>Backlight Mode</b>	LED
<b>Backlight Service Life</b>	>20000 hours (Time of the brightness decaying to 50% on the condition of continuous working with the maximum brightness)
<b>Brightness</b>	250nit
<b>Brightness Control</b>	0~100 grade (When the brightness is adjusted to 1%~30% of the maximum brightness, flickering may occur and is not recommended to use in this range)
<p>Note: You can use dynamic screen saver wallpapers to avoid afterimages caused by fixed page display for a long time.</p>	

### 2.2 Touch parameters

<b>Type</b>	RTP (Resistive touch panel).
<b>Structure</b>	ITO film + ITO glass.
<b>Light Transmittance</b>	78%±3%

## 2.3 Serial interface parameters

<b>Mode</b>	UART2: RS232 UART4: RS485 (Only available after OS configuration)				
<b>Voltage Level</b>	Test Condition	Min	Typ	Max	Unit
	Output 1	-	-5.0	-3.0	V
	Output 0	3.0	5.0	-	V
	Input 1	-15.0	-5.0	-	V
	Input 0	-	5.0	15.0	V
<b>Baud Rate</b>	3150~3225600bps, typical value of 115200bps				
<b>Voltage Level</b>	Test Condition	Min	Typ	Max	Unit
	Output 1	2.5	5.0	-	V
	Output 0	-	-5.0	-2.5	V
	Input 1	0	2.5	-	V
	Input 0	-	-2.5	-0.2	V
<b>Baud Rate</b>	3150~921600bps, typical value of 115200bps				
<b>Data Format</b>	UART4: N81/E81/O81/N82) 4 modes (OS configuration)				
<b>Interface table</b>	8Pin_3.81mm Socket				

## 2.4 Electrical specifications

<b>Rated Power</b>	<5W	
<b>Operating Voltage</b>	9~36V, typical value of 12V	
<b>Operating Current</b>	350mA	VCC=12V, max backlight
	120mA	VCC=12V, 背光关闭 VCC=12V, backlight off
<b>Recommended power supply: 12V 1A DC</b>		

## 2.5 Operating environment

<b>Working Temperature</b>	-20℃~70℃ (12V @ 60% RH)
<b>Storage Temperature</b>	-30℃~80℃
<b>Three-proof Paint</b>	None
<b>Operating Humidity</b>	10%~90%RH, typical value of 60% RH

### 3、Reliability test

#### 3.1 Electrostatic discharge test

Test process: Place the product flat on the test bench and perform air discharge on the display area of the serial port screen. During the experimental process, it was observed whether the screen is dead, black, white, splash, or reboot. According to the experiment results, the performance is in line with the criteria GB/T 17626.2 B level and above.

Test standard :  EN 61000-4-2:2009   
  IEC 61000-4-2:2008   
  GB/T 17626.2-2018  
 Other:

Table 1: Electrostatic Discharge Immunity (Air Discharge)

Test Points Locations	Test Levels							
	-2kV	+2kV	-4kV	+4kV	-8kV	+8kV	-15kV	+15kV
屏屏					A	A		

Table 2: Electrostatic Discharge Immunity (Direct Contact)

Test Points Locations	Test Levels							
	-2kV	+2kV	-4kV	+4kV	-6kV	+6kV	-8kV	+8kV
\	\	\	\	\	\	\	\	\

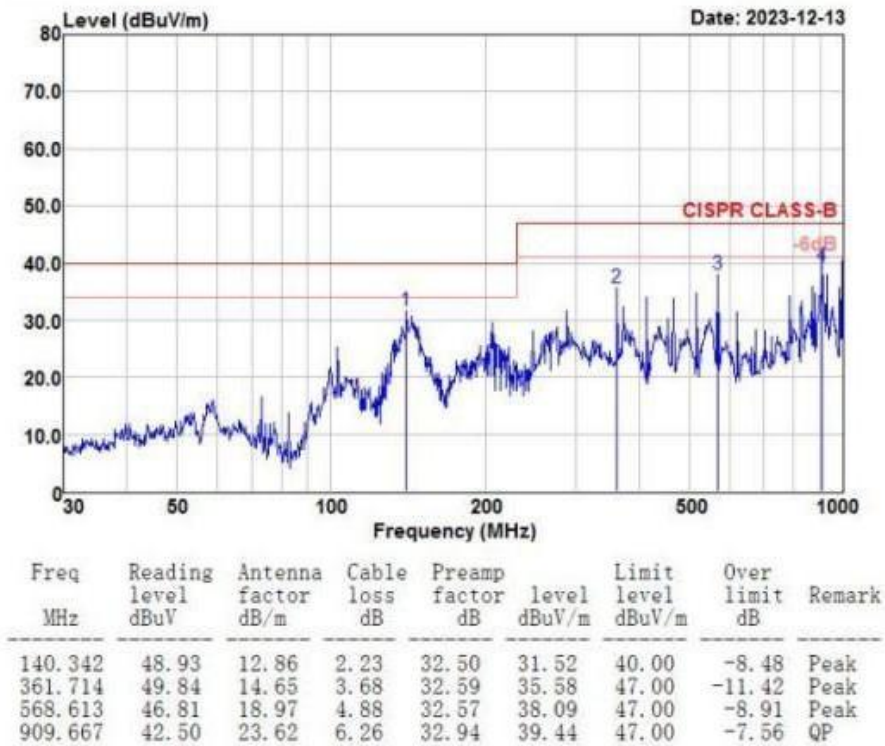
#### Performance Criterion:

- A. Normal performance within limits specified by the manufacturer, requestor or purchaser;
- B. Temporary loss of function or degradation of performance which ceases after the disturbance ceases, and from which the equipment under test recovers its normal performance, without operator intervention;
- C. Temporary loss of function or degradation of performance, the correction of which requires operator intervention;
- D. Loss of function or degradation of performance which is not recoverable, due to damage to hardware or software, or loss of data.

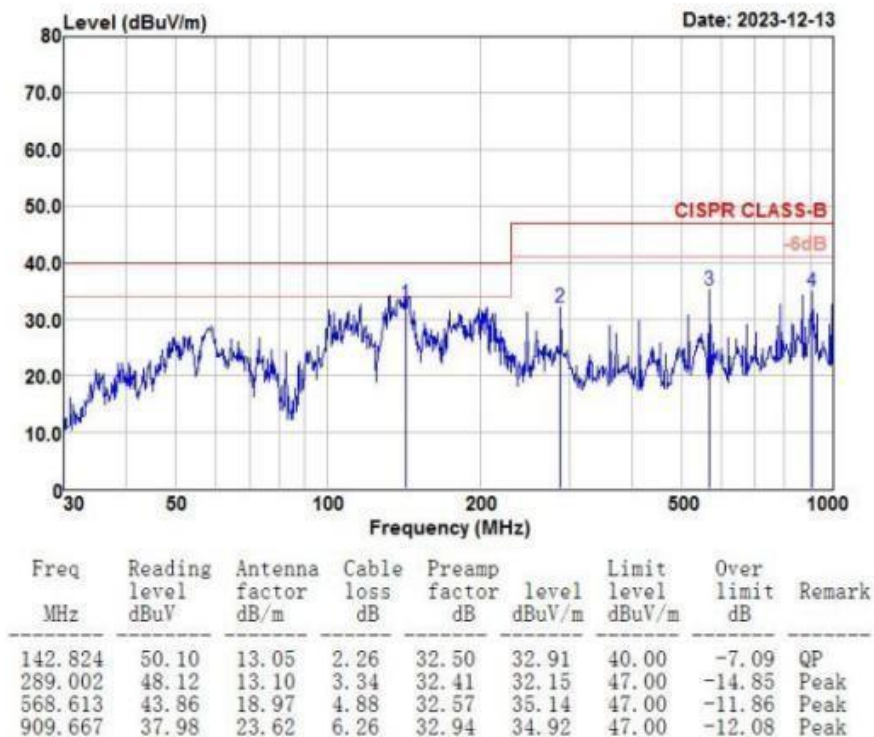
### 3.2 RE test

Test Item	Test Standard	Result
RE	Class B	Normal operation

#### HORIZONTAL

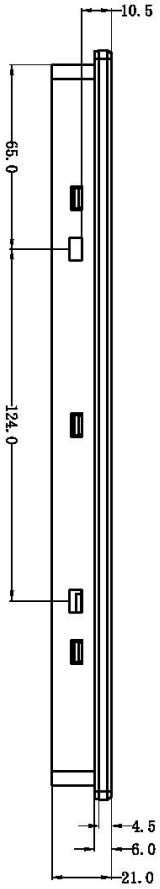
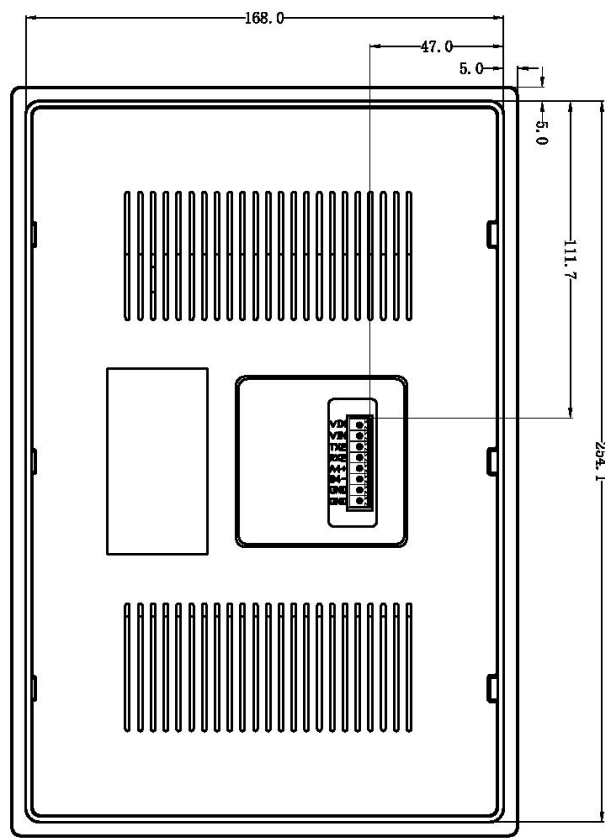
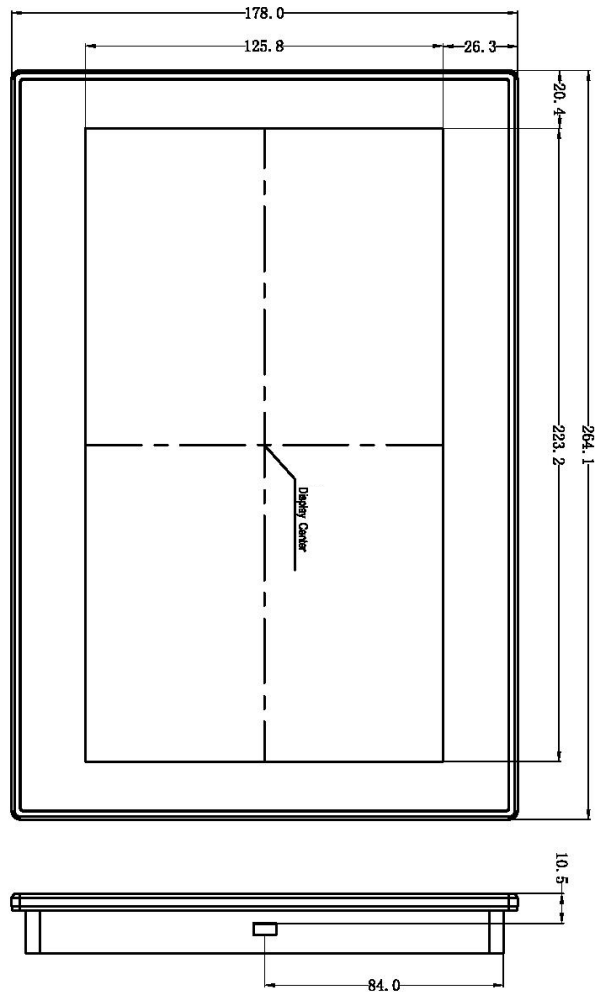


#### VERTICAL



#### 4、Packaging & dimensions

<b>Form Factor</b>	264.1mm (W)×178.0mm (H) ×21.0mm (T)			
<b>Net Weight</b>	660g			
Packaging Standards				
<b>Model</b>	<b>Dimensions</b>	<b>Layer</b>	<b>Quantity/Layer</b>	<b>Quantity(Pcs)</b>
1 Carton1:	220mm(L)×160mm(W)×47mm (H)	-	-	-
2 Carton2:	250mm(L)×200mm(W)×80mm (H)	-	-	-
3 Carton3:	320mm(L)×270mm(W)×80mm (H)	-	-	-
4 Carton4:	435mm(L)×335mm(W)×290mm(H)	-	-	-
5 Carton5:	600mm(L)×430mm(W)×290mm(H)	1	10	10



Definition	Pin#	Type	Description
VIN	1, 2	P	Power Input
TX2	3	O	Output
RX2	4	I	Input
A4+	5	-	485+
B4-	6	-	485-
GND	7, 8	P	GND

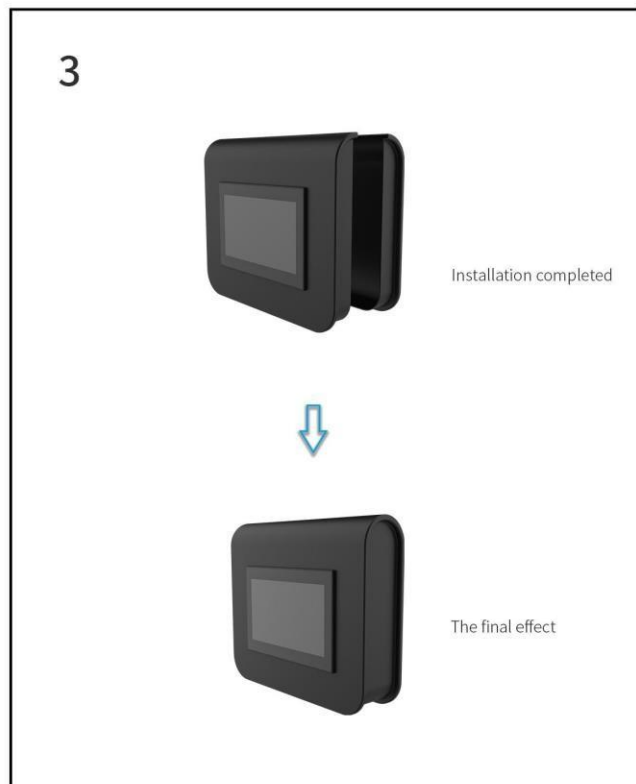
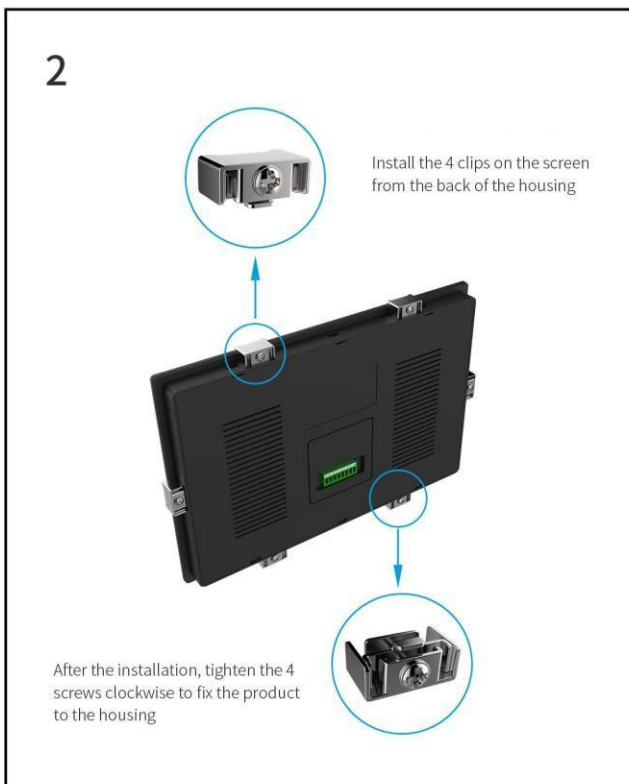
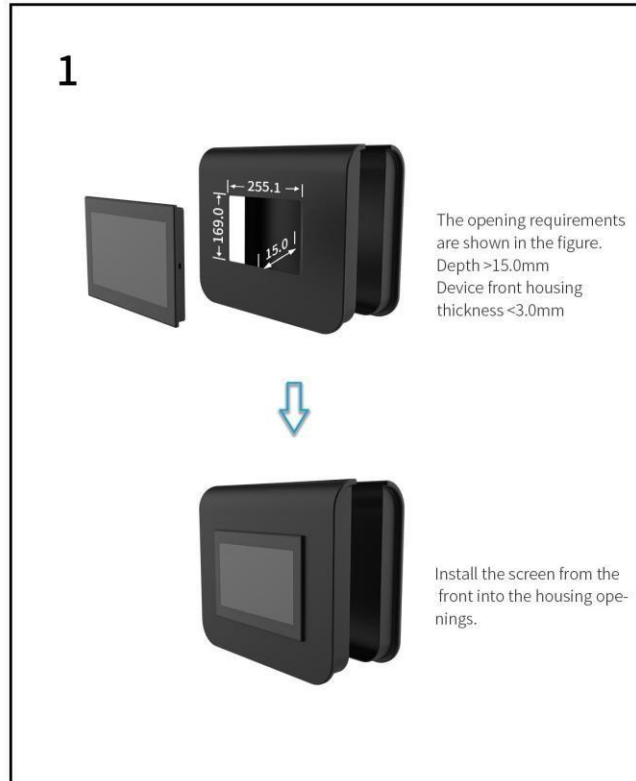
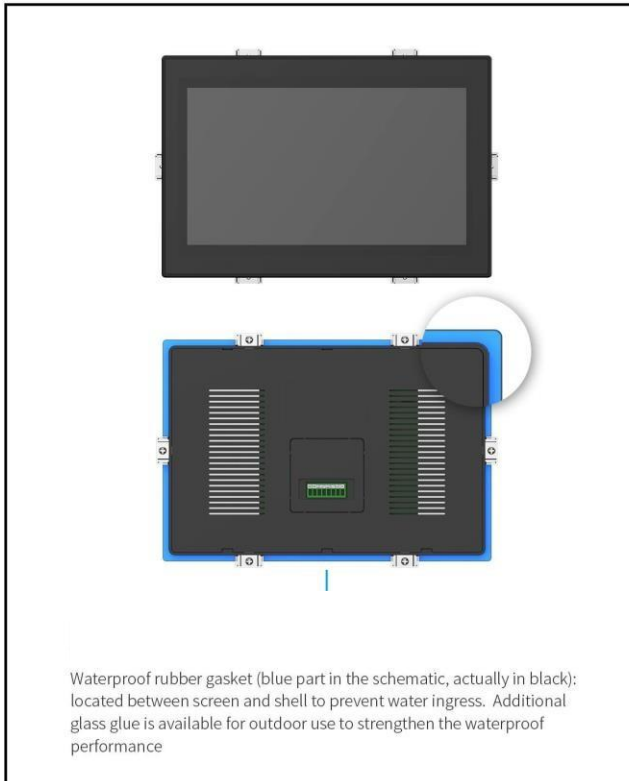
Location hole is used as position reference.  
 2  
 Unmarked Tolerance is +/-0.3mm  
 Active area is marked in Dash lines

Model	Drawn		Date	
A 4	J. G	J. G	20211028	
Drawing	Scale	Review	Date	
A 4	1:1			
Unit	MM	Approval	Date	

## 5. Installation diagram

# AGM-101A0-I2-R

## Installation Schematic



## Schematic diagram of SD card update steps



Find the position of the buckle



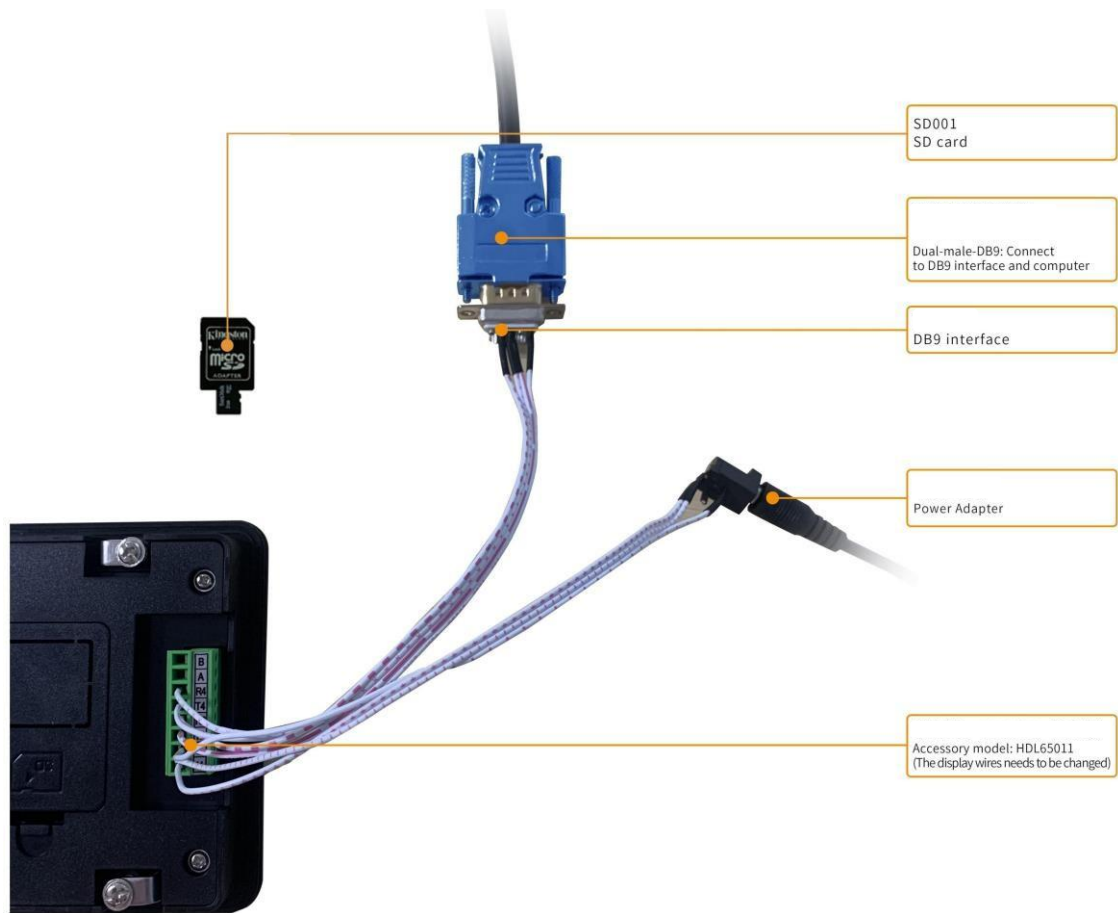
Press the buckle with a slotted screwdriver or similar tool and disassemble it outward



Update using an SD card

## 6、 Debugging tools

It is recommended for new users smart LCMs to purchase official accessories. For more details, please refer to customer service center.



## 7、 5L series IC features

(1) 8051, 1T, 250MHz。

Mature and stable 8051 core which is the most widely used with the maximum operating frequency of T5L is up to 250MHz, 1T(single instruction cycle)high speed operation.

(2) CPU (GUI CPU) DGUS II:

Separate GUI CPU Core running DGUS II System:

- 2.4GB/S

High-speed display memory, 2.4GB/S bandwidth.

- 2D JPEG 200fps@1280\*800, UI。

2D hardware acceleration, the decompression speed of JPEG is up to 200fps@1280\*800 and the UI with animation and icons as its main feature is extremely cool and smooth.

- JPEG 16Mbytes SPI Flash。 Images and icons stored in JPEG format. Adopt Low-cost 16Mbytes SPI Flash.

- 400Hz

Support CTP or RTP with adjustable sensitivity and maximum 400 Hz touch frequency.

- 15bit 32Ksps PWM

1-way 15bit 32Ksps PWM digital power amplifier driver loudspeaker, save power amplifier cost and achieve high signal-to-noise ratio and sound quality restoration.

- 128Kbytes OS CPU

128Kbytes variable storage space for exchanging data with OS CPU Core and memory.

- PC

Support DGUS development and simulation on PC. Support background remote upgrade.

(3) CPU (OS CPU) 8051 CPU:

Separate CPU (OS CPU) core runs user 8051 OS system and user CPU is omitted in practical application:

- 8051, 64Kbytes 32Kbytes RAM。

Standard 8051 architecture and instruction set, 64Kbytes code space, 32Kbytes on-chip RAM.

- 64bit (MDU) , 64bit MAC 64bit。

64 bit integer mathematical operation unit (MDU), including 64 bit MAC and 64 bit divider.

- 28 IO, 4 UARTs, 1 CAN 8 12bit A/D, 2 16bit PWM。

28 IOs, 4-channel UARTs, 1-channel CAN, up to 8-channel 12-bit A/Ds and 2-channle 16-bit PWM of adjustable resolution.

- IAP。

Support IAP on-line simulation and debugging with unlimited number of breakpoints.

- DGUS

Upgrade code online through DGUS system.

(4) 1Mbytes Flash,

1Mbytes on-chip Flash encryption technology ensure code and data security.

(5) -40°C~+85°C -55°C~105°C IC) 。

Operating temperature ranges from -40°C to +85°C(IC operating temperature customizable from -55°C to 105°C).

## 8、 Revision records

<b>Rev</b>	<b>Revise Date</b>	<b>Content</b>	<b>Editor</b>
00	2021-09-25	First Edition	
01	2021-12-31	RTC Update RTC accuracy description	
02	2022-09-07	IPS Switch to IPS LCD naturally	
03	2023-06-16	Update physical image	
04	2023-12-04	EMC EMC hardware upgrade, natural consumption of old inventory boards	
05	2024-09-10	Modify Power Voltage	
06	2025-02-14	RTC RTC changed to Farad capacitor power supply	