

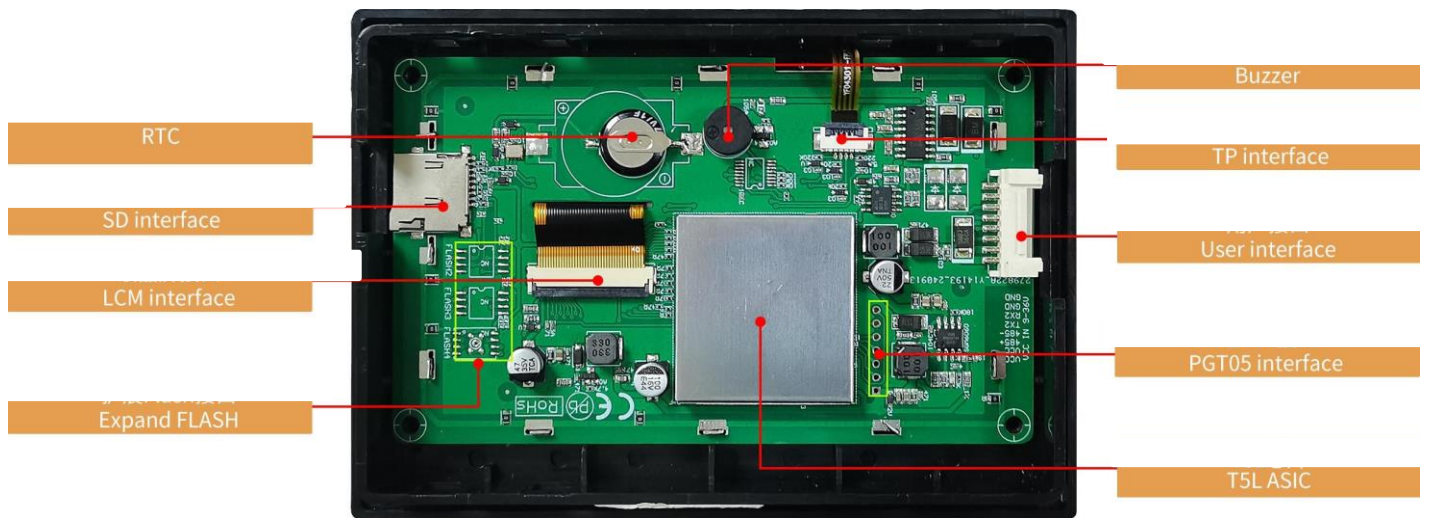
AGM-043A0-I2-R

Features:

- Powered by T5L0 ASIC, running DGUS II HMI platform, commercial-grade smart LCM.
- 4.3 inch, 480*272 resolution, TV-TN-TFT LCD.
- Reliable resistive touch panel.
- 8MB memory, With shell.



1、Hardware and interface



Hardware interface diagram

1.1 Hardware and interface description

No.	Item	Description
1	T5L0 ASIC	Mass production in 2020. Dual 8051 cores, GUI and application run on separate 8051 cores.
2	User interface	8Pin_2.0mm socket for power supply and serial communication.
3	Flash	8MB NOR Flash for storing UI files like fonts, images, music, with over 100,000 erase/write cycles.
4	Expand Flash	Expanding FLASH requires replacing 8MB NOR Flash with 16MB NOR Flash before proceeding with the expansion. It can support up to 64MB (4x16MB NOR Flash) or 48MB+512MB (3x16MB NOR Flash + 512MB NAND Flash).
5	Buzzer	3V passive buzzer.
6	RTC	Super-capacitor powered, accuracy: $\pm 20\text{ppm}$ @25°C, maintains operation for 7 days after power-off. Reserved button cell power supply compatible circuit.
7	SD card interface	For DGUS project file downloads (UI, CFG files, kernel, etc.), 4 Mb/s rate.
8	PGT05 interface	For programming DGUS firmware.

2、 Specification parameters

2.1 Display parameters

LCD Type	TV-TN, TFT LCD.
Viewing Angle	TV viewing angle, 70°/70°/40°/30° (L/R/U/D)
Resolution	480x272 (support 0°/90°/180°/270°)
Active Area (AA)	95.00mm (W)×53.90mm (H)
Viewing Area (VA)	95.00mm (W)×53.90mm (H)
Backlight	LED
Backlight Service Life	>10000 hours
Brightness	250nit
Brightness Control	100-level brightness adjustment (Flickering may occur at 1%-30% of max brightness; not recommended for use in this range)
Note: Use dynamic screen saver to prevent afterimages from prolonged fixed page display.	

2.2 Touch parameters

Type	Resistive touch panel.
Structure	ITO film + ITO glass structure and hardness 3H.
Light Transmittance	78%±3%

2.3 Serial interface parameters

Mode	UART2: RS232 UART4: RS485 (OS Only available after OS configuration)				
Voltage Level	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
Baud Rate	3150~3225600bps, typical value of 115200bps.				
Voltage Level	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
Baud Rate	3150~921600bps, typical value of 115200bps.				
Data Format	UART2: N81 UART4: N81/E81/O81/N82 (OS) 4 modes (OS configuration)				
Interface Cable	8Pin_2.0mm				

2.4 Electrical specifications

Rated Power	<5W	
Operating Voltage	9~36V, typical value of 12V.	
Operating Current	109mA	VCC=12V, max backlight.
	50mA	VCC=12V, backlight off.
Recommended power supply: 12V 1A DC.		

2.5 Operating environment

Working Temperature	-20°C~70°C (12V @ 60% RH)
Storage Temperature	-30°C~80°C
Anti-UV	N
Conformal coating	N
Operating Humidity	10%~90%RH, typical value of 60% RH.

3、 Electrostatic discharge test

Test temperature: 25°C. Test humidity: 50%RH.

Test process: Place the product on the test bench fixture (approximately 15cm in height), and perform contact and air discharge tests on the smart LCM. Observe if any freezing, black or white screen, flickering, or rebooting occurs during the test.

GB/T 17626.2 B.

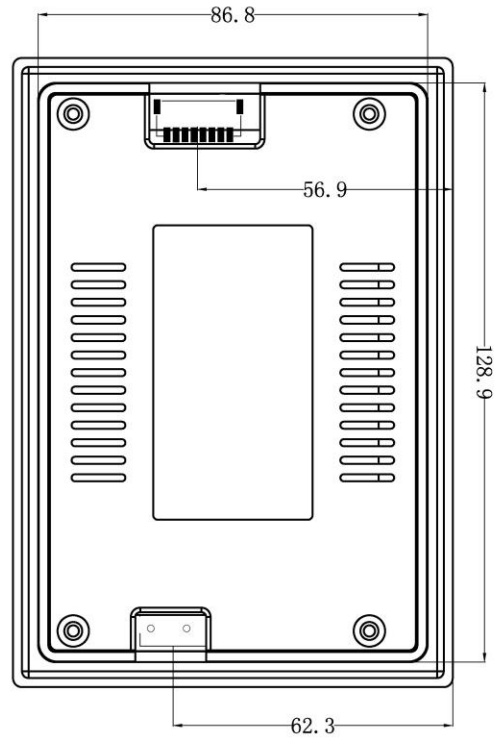
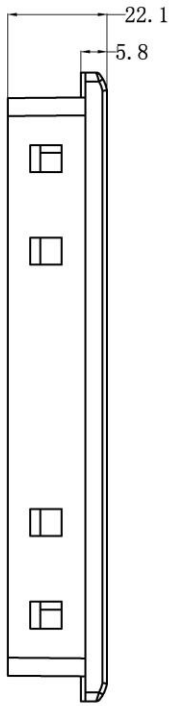
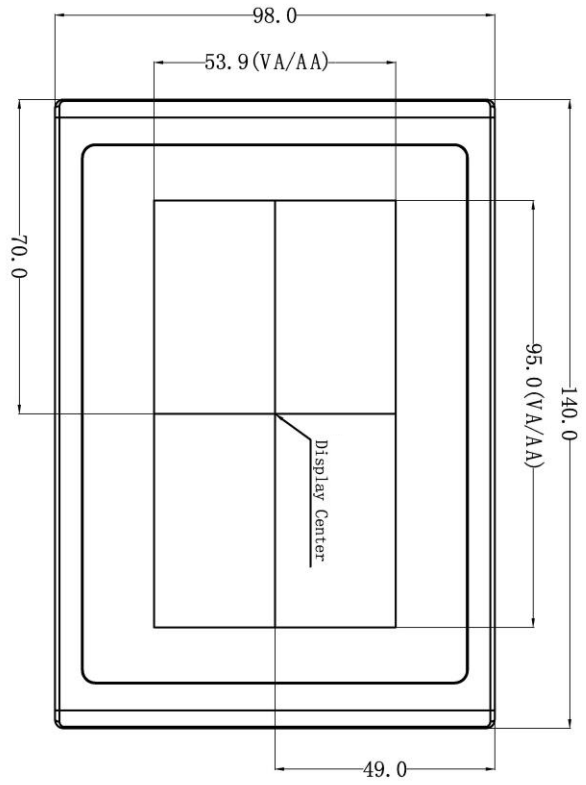
Test conclusion: The product's ESD performance meets GB/T 17626.2 Class B standards.



Discharge Type	Discharge Value	Result
Air discharge	±4KV	Normal operation

4、Packaging & dimensions

Form Factor	140.00mm (W)×98.00mm (H) ×22.10mm (T)			
Net Weight	185g			
Packaging Standards				
Model	Dimensions	Layer	Quantity/Layer	Quantity(Pcs)
1 Carton1:	220mm(L)×160mm(W)×47mm (H)	1	2	2
2 Carton2:	250mm(L)×200mm(W)×80mm (H)	2	2	4
3 Carton3:	320mm(L)×270mm(W)×80mm (H)	2	4	8
4 Carton4:	435mm(L)×335mm(W)×290mm(H)	2	25	50
5 Carton5:	600mm(L)×430mm(W)×290mm(H)	2	60	120

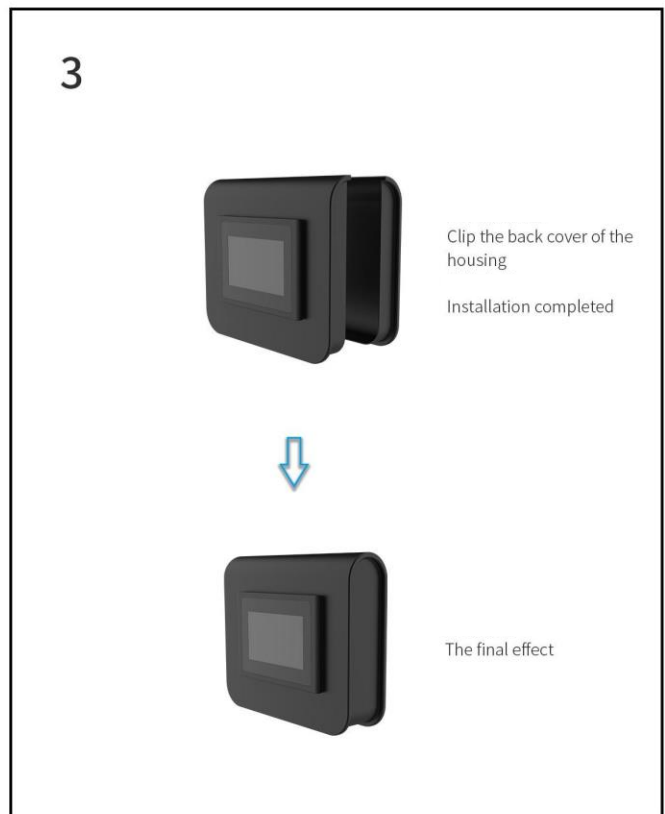
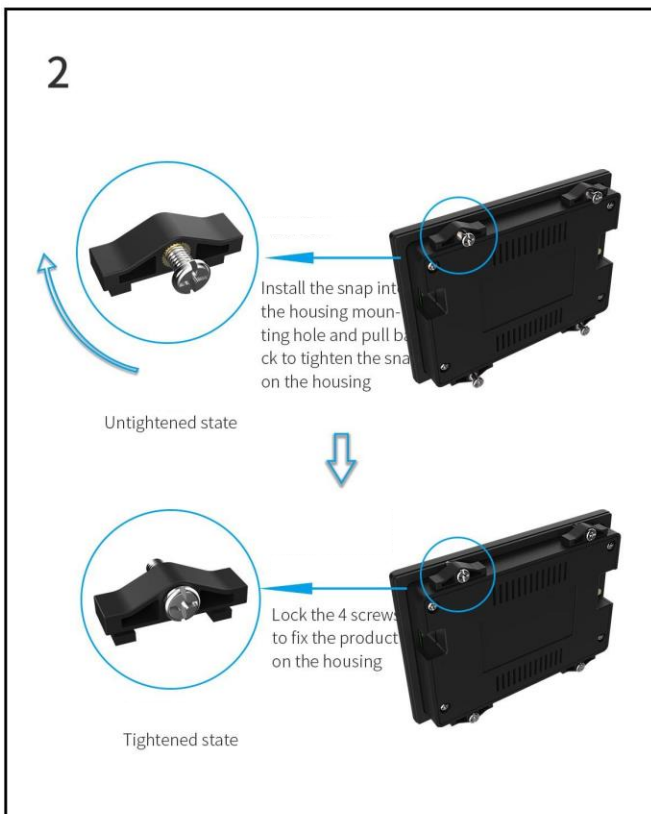
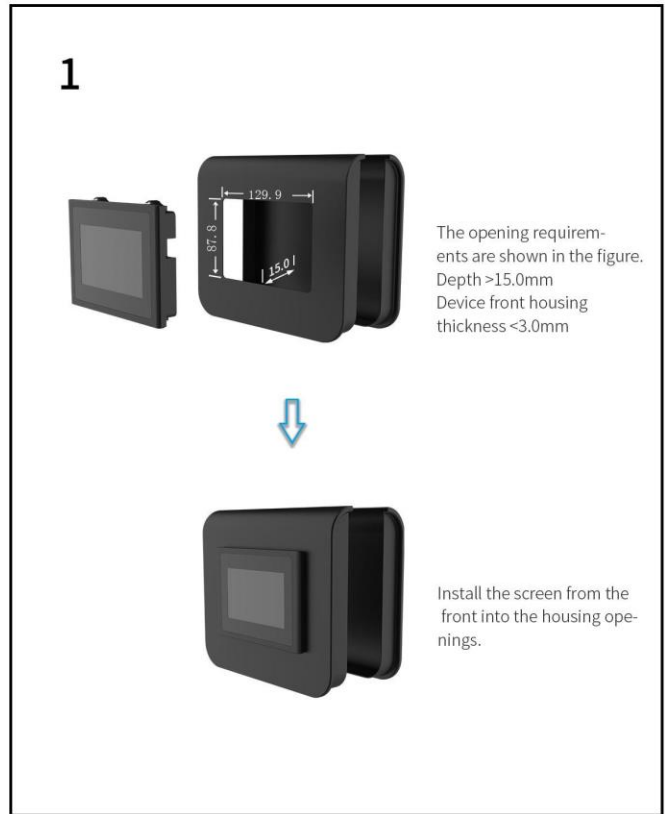
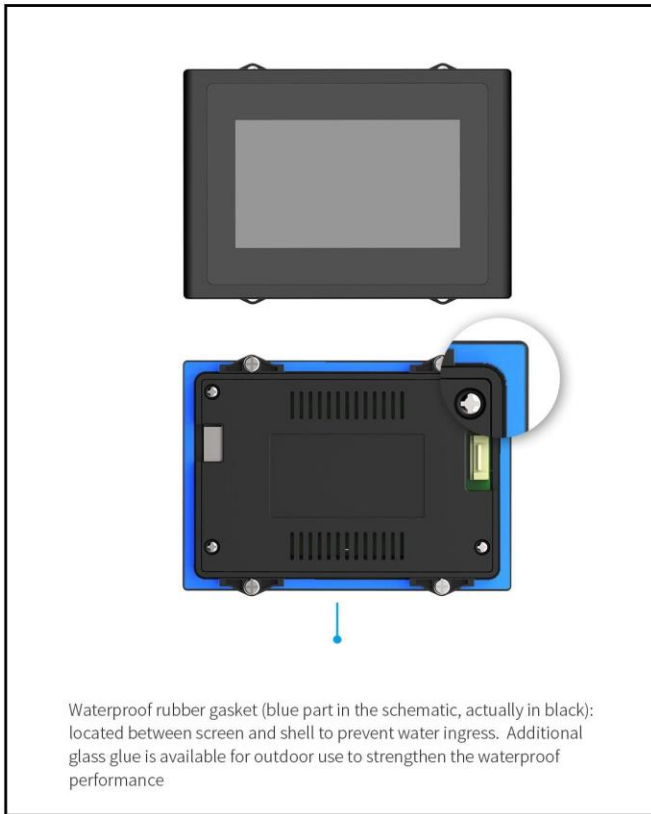


Definition	Pin#	Type	Description
VCC	1, 2	P	Power Input
485+	3	A	485+
485-	4	B	485-
TX2	5	0	Output
RX2	6	I	Input
GND	7, 8	P	GND

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

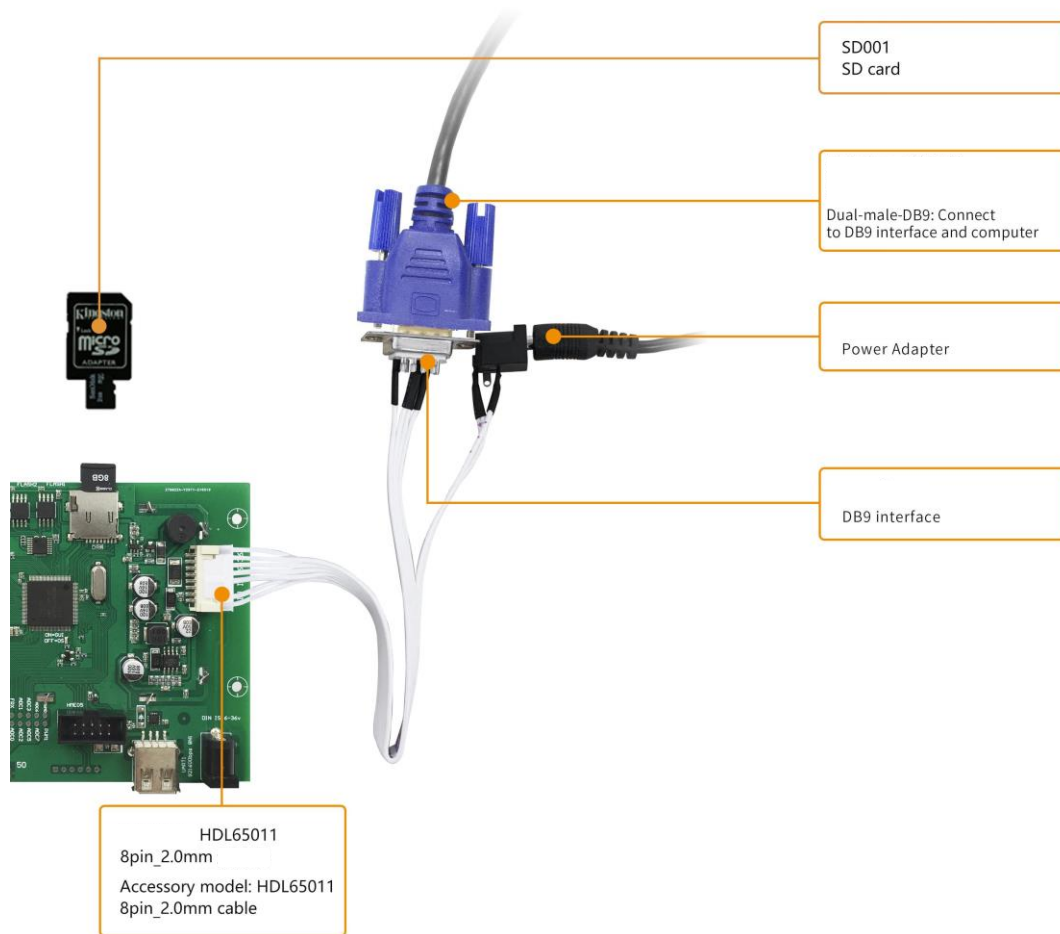
Model			
Drawing	A 4	Drawn	G. Y
Scale	1:1	Review	Date
Unit	MM	Approval	Date
			2023.01.03

Installation Schematic



5、 Debug tools

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



6、T5L series IC features

(1) 8051, 1T250MHz。

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:

Separated 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. Low-cost 16Mbytes SPI Flash is adopted as External memory.

- 400Hz

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

- 1 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, exchanging data with OS CPU Core using memory interface.

- PC

Support PC configuration development and simulation. Support background remote upgrade.

(3) CPU OS CPU) 8051 CPU:

Separated CPU (OS CPU) core runs user 8051 code 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 with 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).

7、 Revision records

Rev	Revise Date	Content	Editor
00	2021-09-25	First Edition	
01	2021-11-23	FLASH, 16M 8M Change the Flash from 16M to 8M	
02	2022-01-05	RTC Update RTC accuracy description	
03	2022-11-14	Modify dimension description	
04	2023-01-04	CAD Revise CAD and installation dimensions	
05	2024-08-30	Modify Power Voltage	
06	2024-09-12	Update physical drawing	
07	2024-11-25	RTC Change RTC	