

AGM-037A0-I1-R

Features:

Based on T5L1, running DGUS II system, commercial grade.

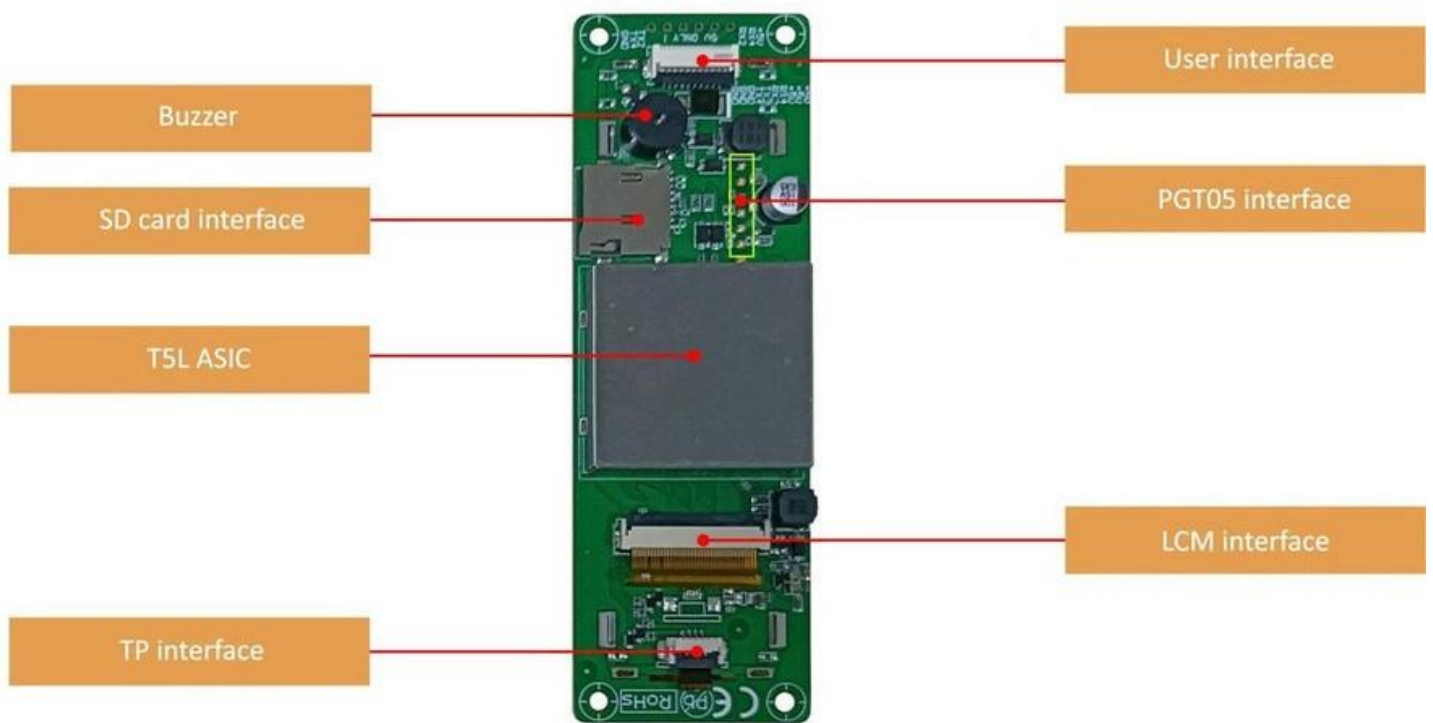
3.7-inch, 240*960 pixels resolution, 16.7M colors, IPS-TFT-LCD, Wide viewing angle.

Optical bonding resistive touch panel.



1. Hardware and interface

1.1 Hardware interface



Hardware interface

Disclaimer:

There are multiple parallel raw materials coexisting to guarantee the stable supply. If customers have particular raw material preferences or requirements, please contact the sales personnel.

1.2 Hardware and interface description

No.	Name	Description
1	T5L1 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	FPC40_0.5mm, RGB interface
3	RTP interface	4Pin_1.0mm interface
4	User interface	10Pin_1.0mm latching 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	Buzzer	3V passive buzzer
7	SD card interface	FAT32. Download files by SD interface can be displayed in statistics. Download rate: 4Mb/s
8	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

LCD Type	IPS, TFT LCD
Viewing Angle	Wide viewing angle, 85°/85°/85°/85°(L/R/U/D)
Resolution	240×960 pixels (support 0°/90°/180°/270°)
Color	24-bit 8R8G8B
Active Area (A.A.)	22.9mm (W)×91.4mm (H)
View Area (V.A.)	22.9mm (W)×91.4mm (H)
Backlight Mode	LED
Backlight Service Life	>20000 hours (Time of the brightness decaying to 50% on the condition of continuous working with the maximum brightness)
Brightness	300nit
Brightness Control	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)
Note: You can use dynamic screen saver wallpapers to avoid afterimages caused by fixed page display for a long time.	

2.2 Touch parameters

Type	RTP (Resistive touch screen)
Structure	ITO film + ITO glass
Touch Mode	Single point touch, support continuous sliding touch
Surface Hardness	3H
Light Transmittance	Over 80%
Life	Over 1,000,000 times touch

2.3 Serial interface parameters

Mode	UART2: ON=TTL/CMOS; OFF=RS232 UART4: ON=TTL/CMOS; OFF=RS232 (Only available after OS configuration)				
Voltage Level	TestCondition	Min	Typ	Max	Unit
	Output1,lout=-4mA	2.7	3.2	-	V
	Output0,lout=4mA	-	0.1	0.4	V
	Input1 Input0	2.4	3.3	5.5	V
		0	-	1.0	V
Baud Rate	3150~3225600bps, typical value of 115200bps				
Data Format	UART2: N81 UART4: N81/E81/O81/N82 , 4 modes (OS configuration)				
Interface Cable	10Pin_1.0mm				

2.4 Electrical specifications

Rated Power	<5W	
Operating Voltage	4.5~5.5V, typical value of 5V	
Operating Current	150mA	VCC=5V,maxbacklight
	80mA	VCC=5V,backlightoff
Recommended power supply: 5V 1A DC		

2.5 Operating environment

Operating Temperature	-20°C~70°C (5V @ 60% RH)
Storage Temperature	-30°C~80°C
Conformal Coating	None
Operating Humidity	10%~90%RH, typical value of 60% RH

3. Reliability test

3.1 Electrostatic discharge test

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

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
Screen			B	B	.			
/	/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/	/

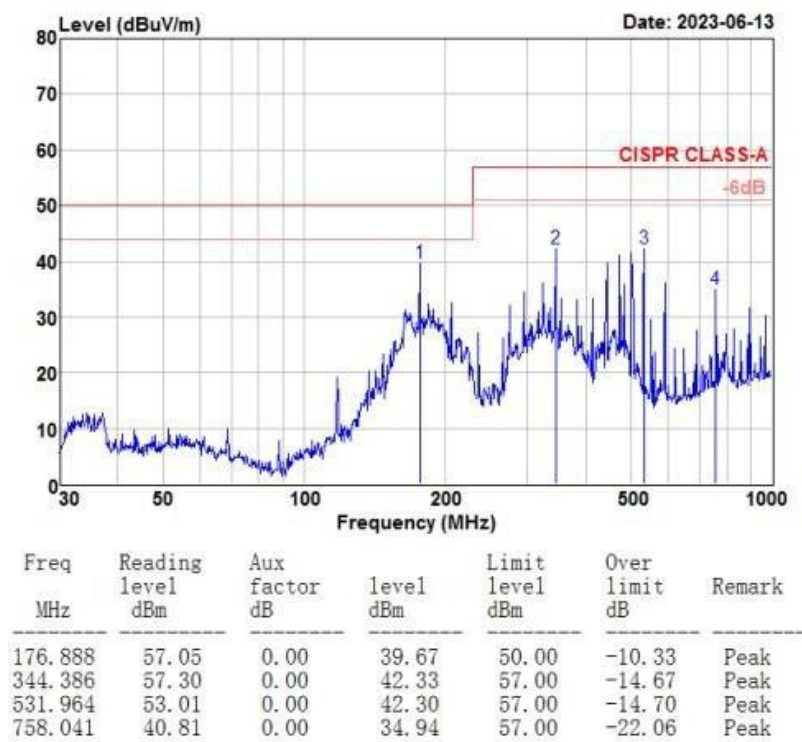
Table 2: Electrostatic Discharge Immunity (Direct Contact)

Test Points Locations	Test Levels							
	-2kV	+2kV	-4kV	+4kV	-6kV	+6kV	-8kV	+8kV
Border	/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/	/

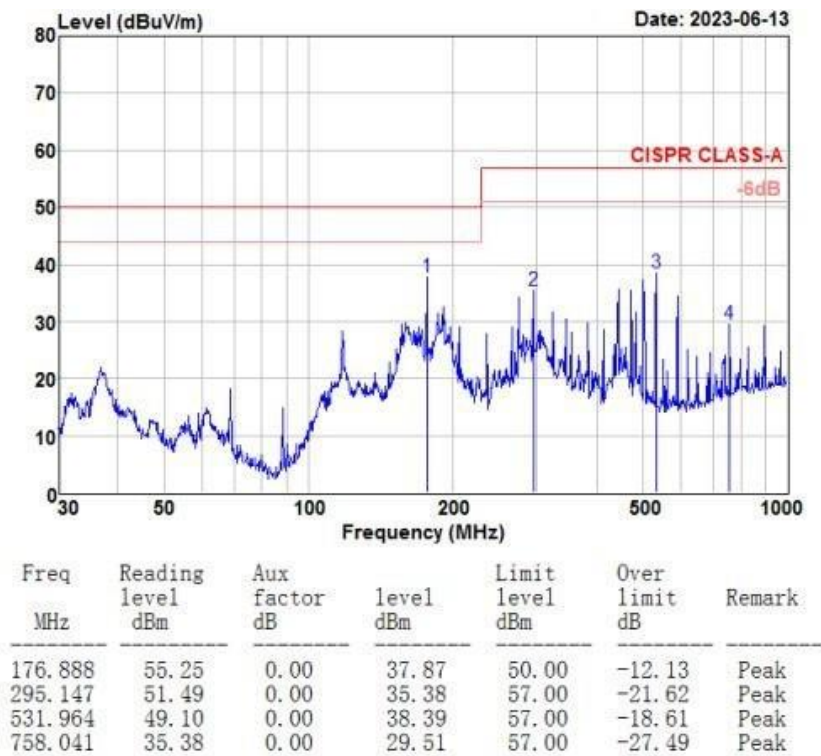
3.2 RE test

Test Item	Test Standard	Result
RE	ClassA-6dB	Normal operation

HORIZONTAL



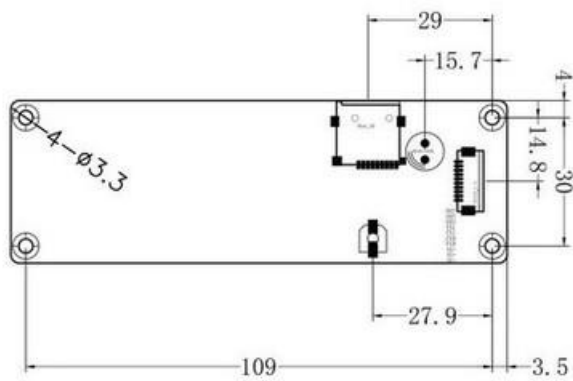
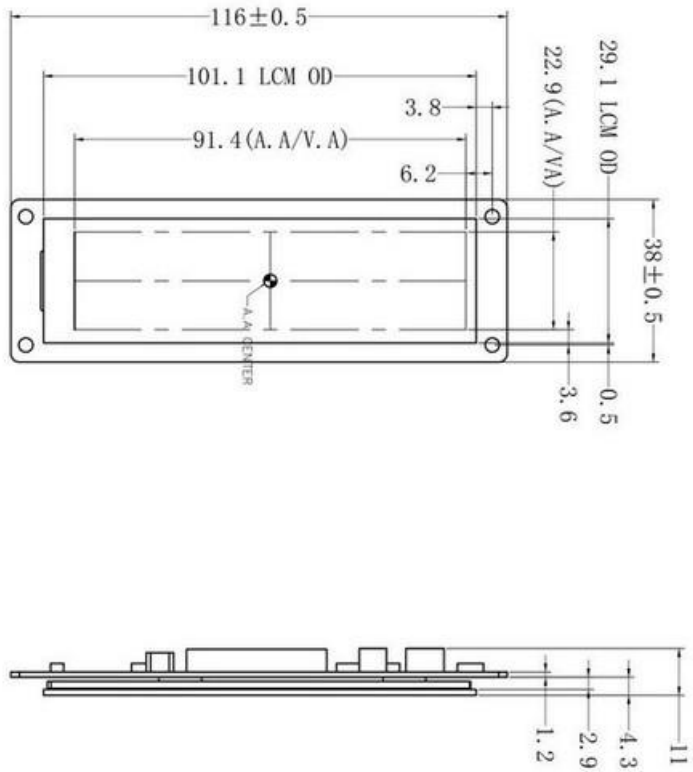
VERTICAL

**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.

4. Packaging & dimensions

Form Factor	38.0mm (W) × 116.0mm (H) × 11.0mm (T)			
NetWeight	35g			
Packaging Standards				
Model	Dimensions	Layer	Quantity/Layer	Quantity(Pcs)
Carton1:	320mm(L)×270mm(W)×80mm (H)			
Carton2:				
Carton3				
Carton4				
Carton5				



1. Location hole is used as position reference.

2. Unmarked Tolerance is +/-0.3mm

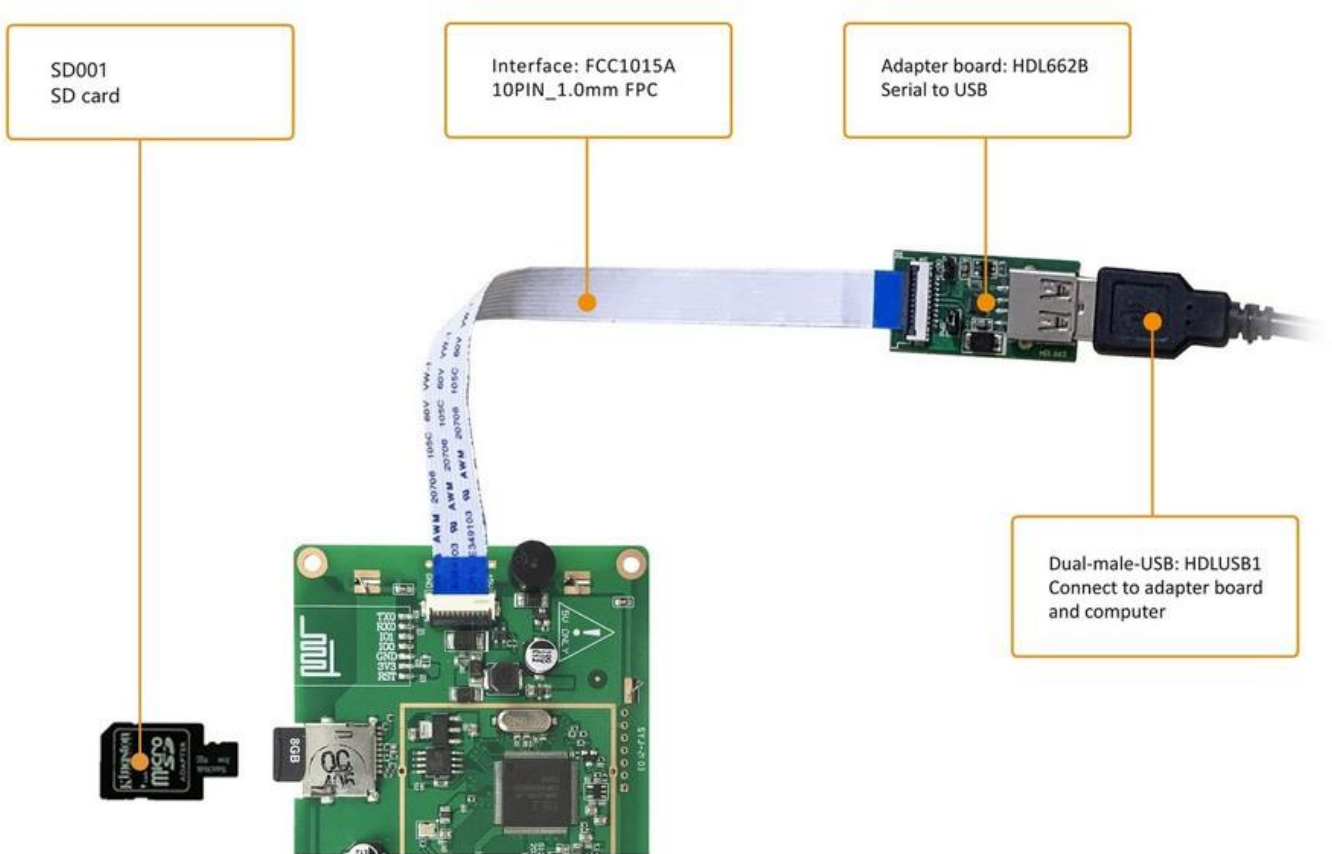
Note: Active area is marked in Dash Lines

Definition	Pin#	Type	Description
GND	8, 9, 10	P	GND
TX4	7	0	UART4 Output
TX2	6	0	UART2 Output
RX2	5	1	UART2 Input
RX4	4	1	UART4 Input
+5V	1, 2, 3	P	Power Input

Model	Model		Model		Model	
Drawing	A 4	Drawn	Date	2023. 11. 03		
Scale	1 : 1	Review	Date			
Unit	MM	Approval	Date			

5. Debugging tools

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



6. T5L series IC features

- (1) 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) Separate GUI CPU Core running DGUS II System:
 - High-speed display memory, 2.4GB/S bandwidth.
 - 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.
 - Images and icons stored in JPEG format. Adopt Low-cost 16Mbytes SPI Flash.
 - Support CTP or RTP with adjustable sensitivity and maximum 400 Hz touch frequency.
 - 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 variable storage space for exchanging data with OS CPU Core and memory.
 - Support DGUS development and simulation on PC. Support background remote upgrade.
- (3) Separate CPU (OS CPU) core runs user 8051 code or OS system and user CPU is omitted in practical application:
 - Standard 8051 architecture and instruction set, 64Kbytes code space, 32Kbytes on-chip RAM.
 - 64 bit integer mathematical operation unit (MDU), including 64 bit MAC and 64 bit divider.
 - 28 IOs, 4-channel UARTs, 1-channel CAN, up to 8-channel 12-bit A/Ds and 2-channel 16-bit PWM of adjustable resolution.
 - Support IAP on-line simulation and debugging with unlimited number of breakpoints.
 - Upgrade code online through DGUS system.
- (4) 1Mbytes on-chip Flash with patent encryption technology ensure code and data security.
- (5) 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	Con ten t	Edi tor
00	2023-11-21	First Edition	Xu Ying

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