

# DMG10600T101\_A5WTR

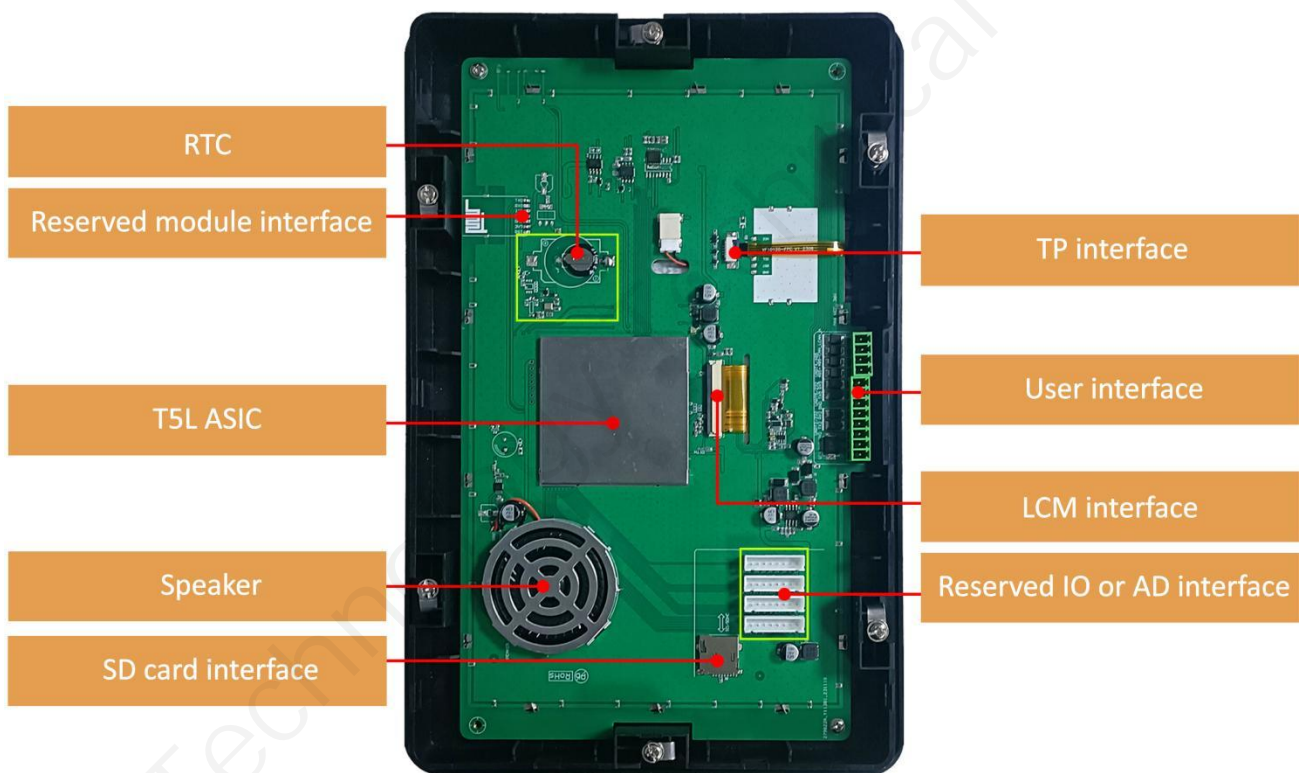
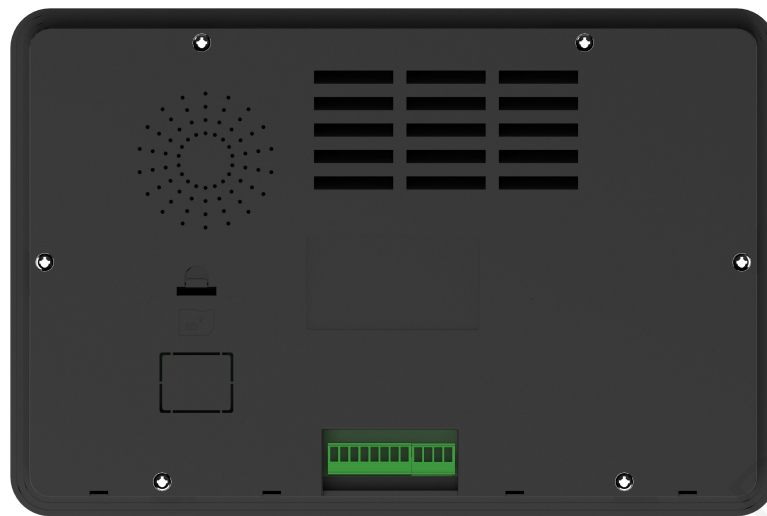
## Features:

- Based on T5L2, running DGUS II system, industrial grade.
- 10.1-inch, 1024\*600 Pixels resolution, 16.7M Colors, IPS-TFT-LCD, wide viewing angle.
- Four-wire resistance touch screen.
- With enclosure, Anti-UV, with conformal coating.



# 1. Hardware and interface

## 1.1 Hardware interface



Hardware interface

## 1.2 Hardware and interface description

No.	Name	Description
1	T5L2 ASIC	Developed by DWIN. 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 and 4Pin_3.81mm socket for power supply and serial communication. Download rate(typical value): 12KByte/s
5	Flash	32MBytes 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	Speaker	Onboard speaker. Power: <2.5W
8	RTC	Super-capacitor for power supply. Accuracy: $\pm 20\text{ppm}$ @25°C. It can work normally for 7 days after power failure
9	Reserved RTC interface	Support button cell RTC scheme
10	SD card interface	FAT32. Download files by SD interface can be displayed in statistics. Download rate: 4Mbit/s
11	Reserved module interface	Wi-Fi module: connect to the cloud platform to update remotely USB module: download files by USB flash disk
12	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 (support 0°/90°/180°/270°)
<b>Color</b>	24-bit 8R8G8B
<b>Active Area (A.A.)</b>	222.70mm (W) ×125.30mm (H)
<b>View Area (V.A.)</b>	222.70mm (W) ×125.30mm (H)
<b>Backlight Mode</b>	LED
<b>Backlight Service Life</b>	>30000 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)
<b>Note:</b> You can use dynamic screen saver wallpapers to avoid afterimages caused by fixed page display for a long time.	

### 2.2 Touch parameters

<b>Type</b>	Four-wire RTP (Resistive touch panel)
<b>Structure</b>	ITO film + ITO glass
<b>Touch Mode</b>	Single touch, support continuous sliding touch
<b>Surface Hardness</b>	3H
<b>Light Transmittance</b>	Over 80%
<b>Life</b>	Over 1,000,000 times touch

### 2.3 Serial interface parameters

<b>Mode</b>	UART2: RS232 UART4: RS485(Only available after OS configuration) UART5: RS232(Only available after OS configuration) CAN*1				
<b>UART2,5 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>UART2,5 Baud Rate</b>	3150~3225600bps, typical value of 115200bps				
<b>UART4 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>UART4 Baud Rate</b>	3150~921600bps, typical value of 115200bps				
<b>Data Format</b>	UART2: N81 UART4: N81/E81/O81/N82 , 4 modes (OS configuration) UART5: N81/E81/O81/N82 , 4 modes (OS configuration)				
<b>Interface table</b>	8Pin_3.81mm Socket, 4Pin_3.81mm Socket (CAN*1)				

## 2.4 Electrical specifications

<b>Rated Power</b>	<5W	
<b>Operating Voltage</b>	7~36V, typical value of 12V	
<b>Operating Current</b>	340mA	VCC=12V, max backlight
	120mA	VCC=12V, backlight off
<b>Recommended power supply: 12V 1A DC</b>		

## 2.5 Operating environment

<b>Operating Temperature</b>	-20℃~70℃ (12V @ 60% RH)
<b>Storage Temperature</b>	-30℃~80℃
<b>Operating Humidity</b>	10%~90%RH, typical value of 60% RH
<b>Conformal Coating</b>	Yes
<b>Anti-UV</b>	Yes
<b>Protection Grade</b>	IP65 (Front)

### 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					A	A		
/	/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/	/

Table 2: Electrostatic Discharge Immunity (Direct Contact)

Test Points Locations	Test Levels							
	-2kV	+2kV	-4kV	+4kV	-6kV	+6kV	-8kV	+8kV
J0	/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/	/

#### 3.2 EFT test

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

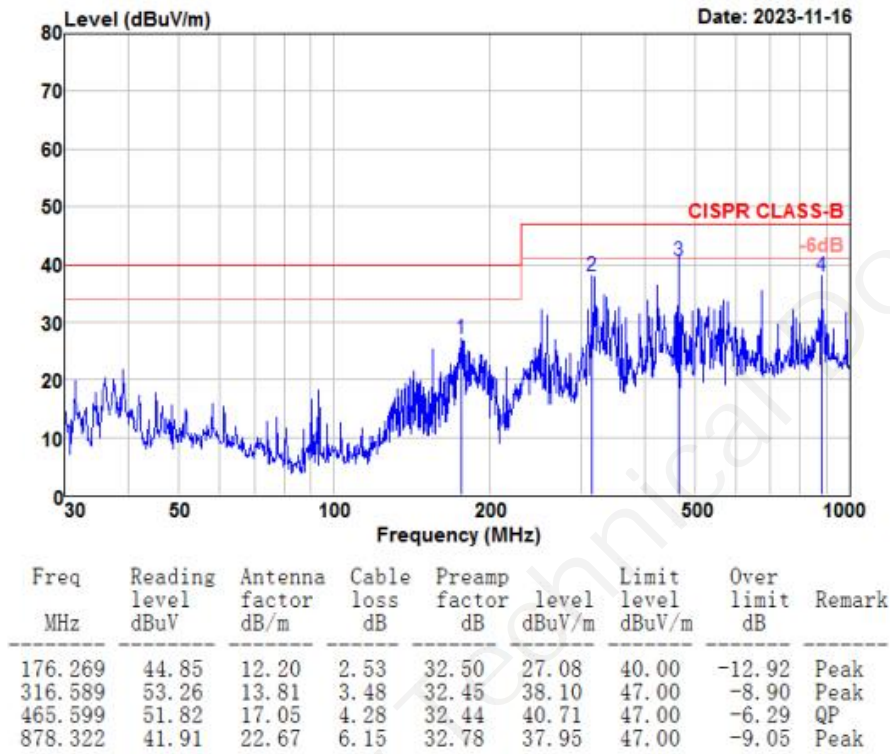
- Test standard :  EN 61000-4-4:2012  IEC 61000-4-4:2012  GB/T 17626.4-2018  
 Other:

Test Points		Test Levels(kV)							
		-0.5	+0.5	-1.0	+1.0	-2.0	+2.0	-4.0	+4.0
DC 12V Power ports	L					A	A		
	N					A	A		
	Earth	/	/	/	/	/	/	/	/
	L+N					A	A		
	L + Earth	/	/	/	/	/	/	/	/
	N + Earth	/	/	/	/	/	/	/	/
	L+N+Earth	/	/	/	/	/	/	/	/
Signal ports	___/___	/	/	/	/	/	/	/	/

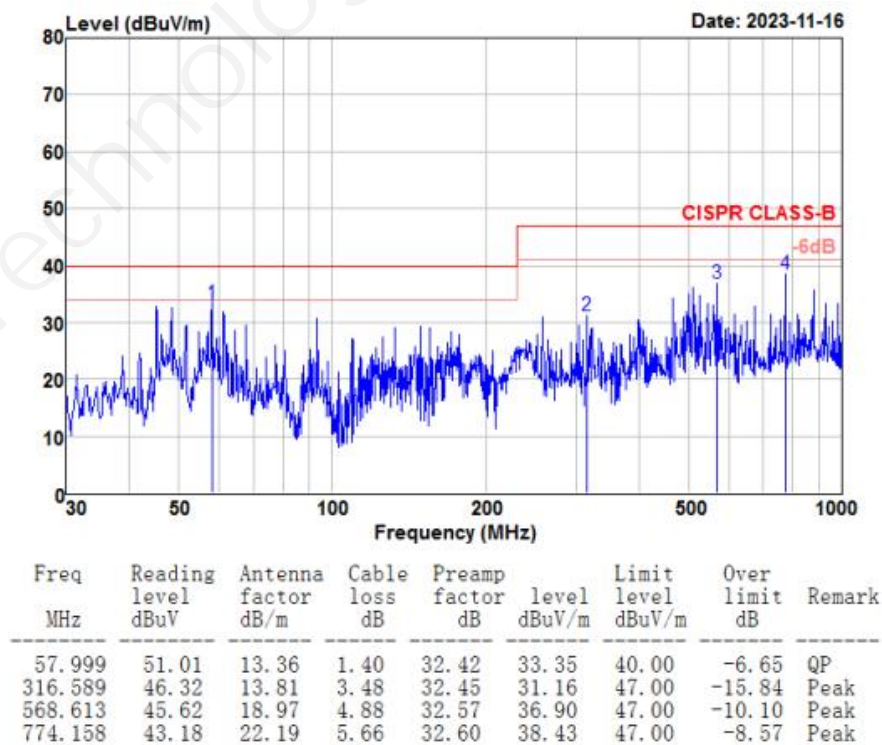
### 3.3 RE test

Test Item	Test Standard	Result
RE	Class B	Normal operation

#### HORIZONTAL



#### VERTICAL





### 3.4 CS test

- Test standard :  EN 61000-4-6:2014     IEC 61000-4-6:2013     GB/T 17626.6-2017  
 Other:
- Modulation:  Amplitude 80%,1kHz sine wave     Amplitude 80%,2Hz sine wave     Other:
- Dwell time:  1s     3s     other:
- Frequency Step Size :  1 % of preceding frequency value     other:

Coupling Line	Frequency Range (MHz)	Voltage Level(e.m.f.) (V)	Result
1)C 1/2 1/2	0.15~80	10	10

#### Performance Criterion:

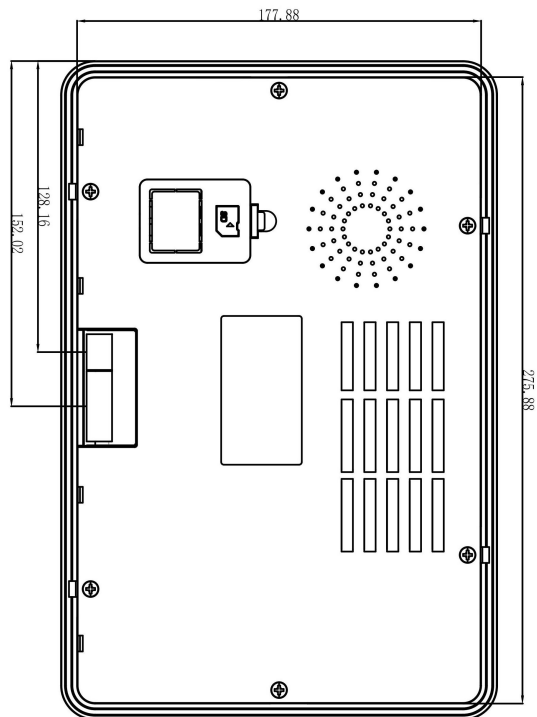
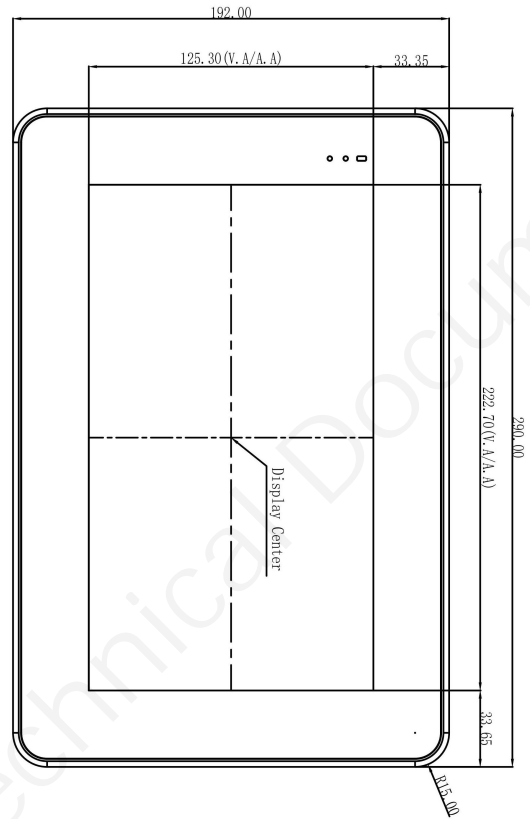
- A. Normal performance within limits specified by the manufacturer, requestor or purchaser;
- B. Temporary loss of function or degradation of performance which ceases after the disturbance ceases, and from which the equipment under test recovers its normal performance, without operator intervention;
- 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

<b>Form Factor</b>	290.0 (W) × 192.0(H) × 29.5(T)mm			
<b>Net Weight</b>	1040g			
Packaging Standards				
<b>Model</b>	<b>Dimensions</b>	<b>Layer</b>	<b>Quantity/Layer</b>	<b>Quantity(Pcs)</b>
Carton1:	220mm(L)×160mm(W)×47mm (H)	-	-	-
Carton2:	250mm(L)×200mm(W)×80mm (H)	-	-	-
Carton3:	320mm(L)×270mm(W)×80mm (H)	1	1	1
Carton4:	450mm(L)×350mm(W)×300mm(H)	1	5	5
Carton5:	600mm(L)×450mm(W)×300mm(H)	1	8	8

Disclaimer: The product design is subject to alternation and improvement without prior notice.

Definition	Pin#	Type	Description
RX5	1	I	UART5 Input
TX5	2	O	UART5 Output
GND	3	P	GND
RX2	4	I	UART2 Input
TX2	5	O	UART2 Output
GND	6	P	GND
GND	7	P	GND
VIN	8	P	Power Input
CAN_H	9	CAN_H	CAN_H
CAN_L	10	CAN_L	CAN_L
485-	11	485-	UART4 485-
485+	12	485+	UART4 485+



1. Location hole is used as position reference.

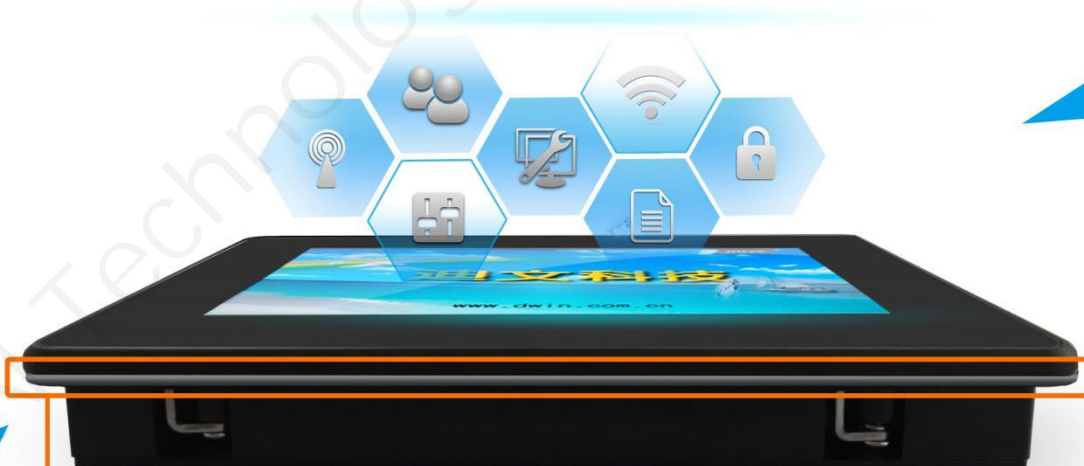
2. Unmarked Tolerance is  $\pm 0.3\text{mm}$

Note: Active area is marked in Dash lines

Model	DMG10600T101_A5WTR				
Drawing	A 4	Drawn	G. Y	Date	2021.10.19
Scale	1:1	Review		Date	
Unit	m m	Approval		Date	
DWIN Technology					

## 5. Installation instruction

# DMG10600T101\_A5W Installation



Waterproof rubber gasket: installed between the screen and the shell to prevent water. When used outdoors, in order to ensure the waterproof effect, glass glue can be added to the waterproof strip to strengthen the waterproof ability.

# HMI Installation Instruction



Figure 1

Install the screen in the opening of the shell from the front

Requirements: 277.1 x 179.0mm(W\*H)  
depth > 21.2mm  
Panel thickness < 3.5mm

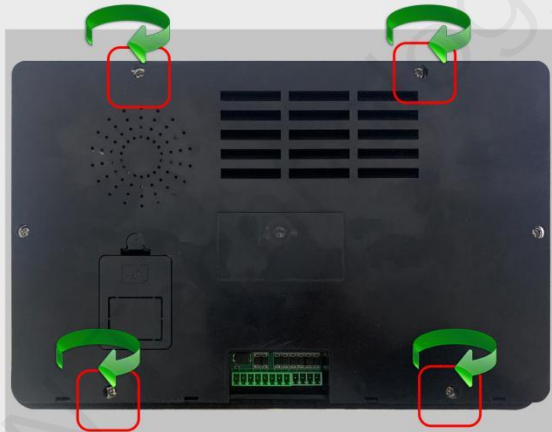


Figure 2

The marked positions are **swivel buckles** that can be used to hold the product in place



Figure 3

The buckle will automatically rotate  $90^\circ$  with the screw, and the product can be fixed on the shell by locking four screws

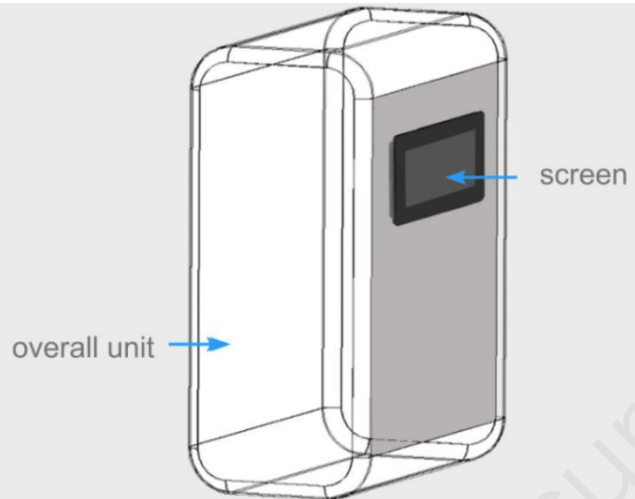


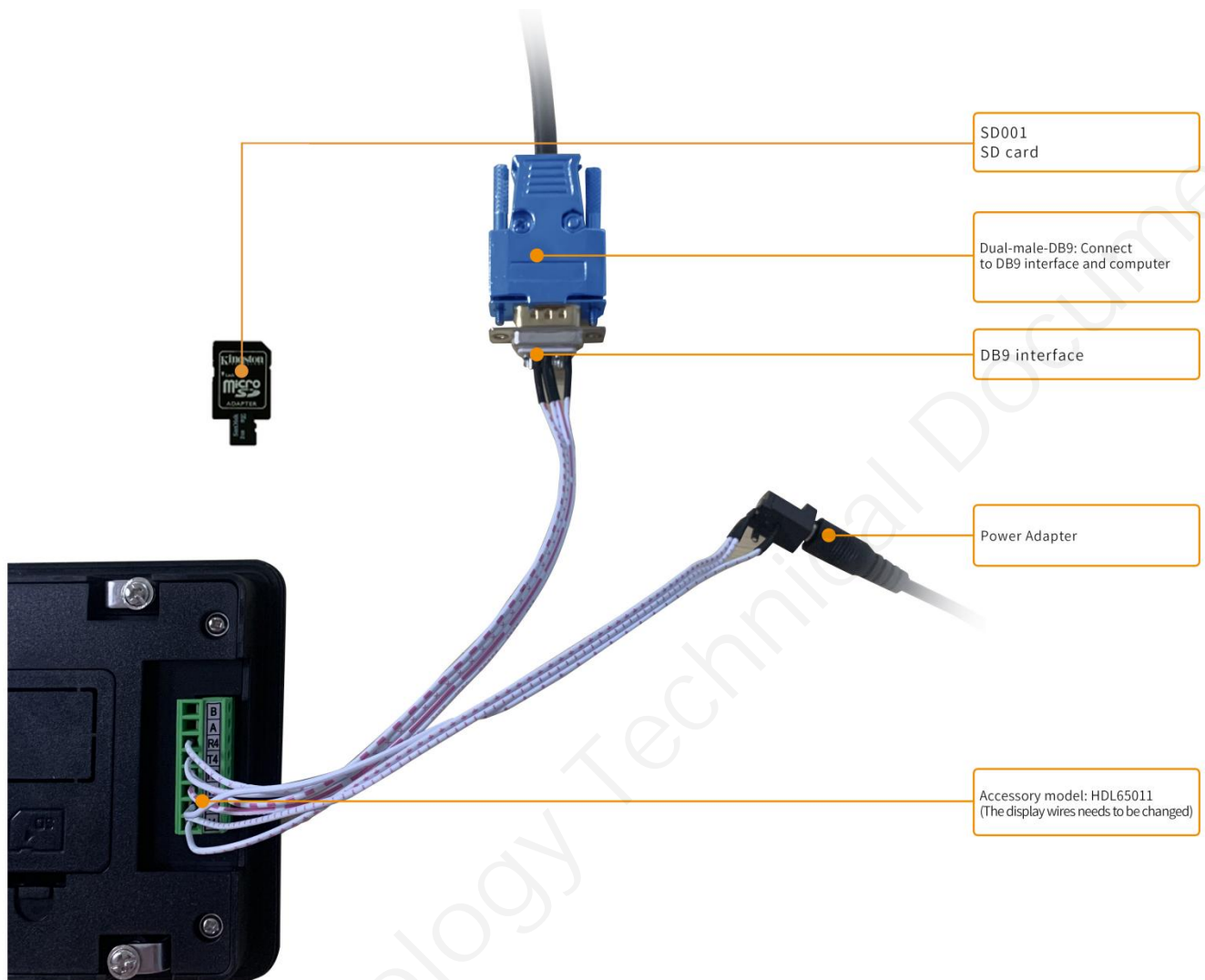
Figure 4

Overall unit effect picture



## 6. Debugging tools

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



## 7. 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 DWIN 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 DWIN 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).

**DWIN encourages users to design your own customized product based on T5L**



## 8. Revision records

Rev	Revise Date	Content	Editor
00	2022-12-26	First Edition	Xu Ying
01	2023-12-21	EMC hardware upgrade, natural consumption of old inventory boards	Xu Ying

Please contact us if you have any questions about the use of this document or our products, or if you would like to know the latest information about our products:

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- DWIN Developer Forum: <https://forums.dwin-global.com/>

Thank you all for continuous support of DWIN, and your approval is the driving force of our progress!