

DMG80600Y121_02NR

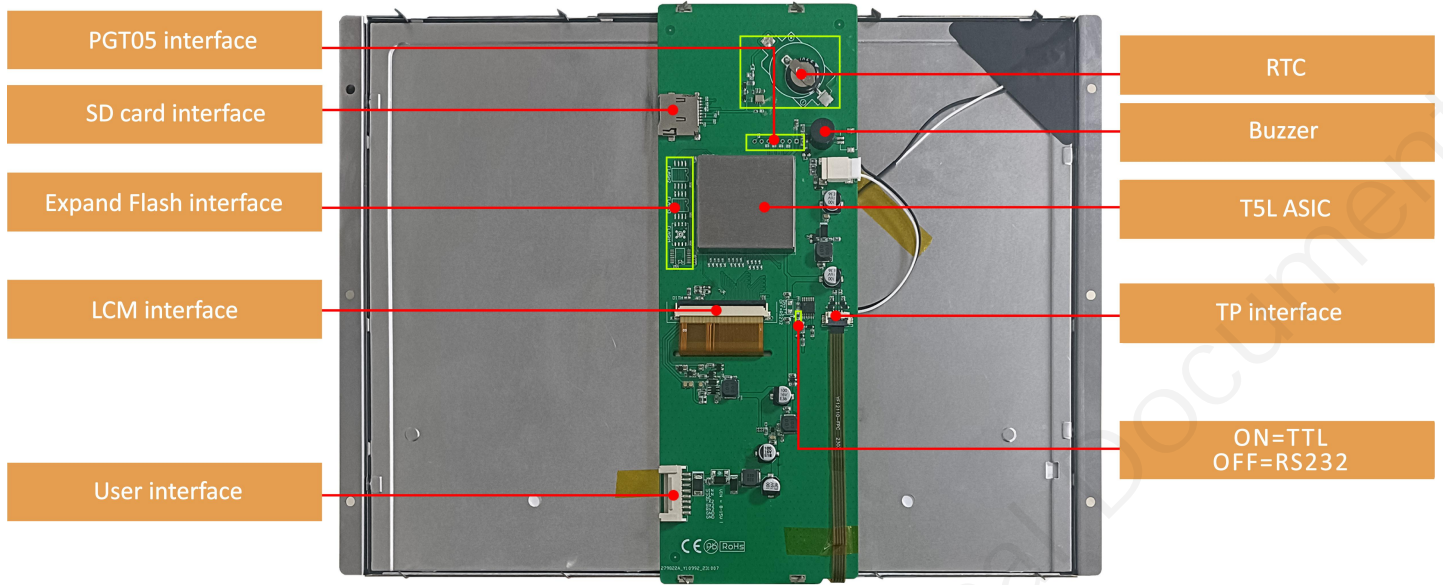
Features:

- Based on T5L1, Support DGUS II system/standard instruction set(TA).
- 12.1-inch, 800*600 pixels resolution, 16.7M colors, TN TFT display.
- Resistive touch screen.



1. Hardware and interface

1.1 Hardware interface



Hardware interface

1.2 Hardware and interface description

No.	Name	Description
1	T5L1 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	FPC60_0.5mm, RGB interface
3	RTP interface	FPC4_1.0mm
4	User interface	8Pin_2.0mm 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.
7	Buzzer	3V passive buzzer. Power: <1W
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	SD card interface	FAT32. Download files by SD interface can be displayed in statistics. Download rate: 4Mb/s
10	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	TN, TFT LCD
Viewing Angle	Normal viewing angle, 70°/70°/50°/70° (L/R/U/D)
Resolution	800×600 pixels (0°/90°/180°/270°)
Color	24-bit 8R8G8B
Active Area (A.A.)	246.0mm (W)×184.5mm (H)
View Area (V.A.)	246.0mm (W)×184.5mm (H)
Backlight Mode	LED
Backlight Service Life	>10000 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 panel)
Structure	ITO film + ITO glass
Touch Mode	Single point touch, support continuous sliding touch
Surface Hardness	3H
Light Transmittance	78%±3%
Life	Over 1,000,000 times touch

2.3 Serial interface parameters

Mode	UART2: ON=TTL/CMOS; OFF=RS232(Default TTL/CMOS)				
Voltage Level	Test Condition	Min	Typ	Max	Unit
	Output 1, Iout = -4mA	4.78	5.0	-	V
	Output 0, Iout = 4mA	-	-	0.4	V
	Input 1	2.5	5.0	-	V
	Input 0	-	-	1.0	V
Baud Rate	3150~3225600bps, typical value of 115200bps				
Data Format	N81				
Interface Cable	8Pin_2.0mm				

2.4 Electrical specifications

Rated Power	<5W	
Operating Voltage	8~15V, typical value of 12V	
Operating Current	360mA	VCC=12V, max backlight
	130mA	VCC=12V, backlight off
Recommended power supply: 12V 1A DC		

2.5 Operating environment

Operating Temperature	-10℃~60℃ (12V @ 60% RH)
Storage Temperature	-20℃~70℃
Conformal Coating	None
Operating Humidity	10%~90%RH, typical value of 60% RH

2.6 UI

UI Version	DGUS II/TA (DGUS II pre-installed)
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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
Frame					B	B		
/	/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/	/

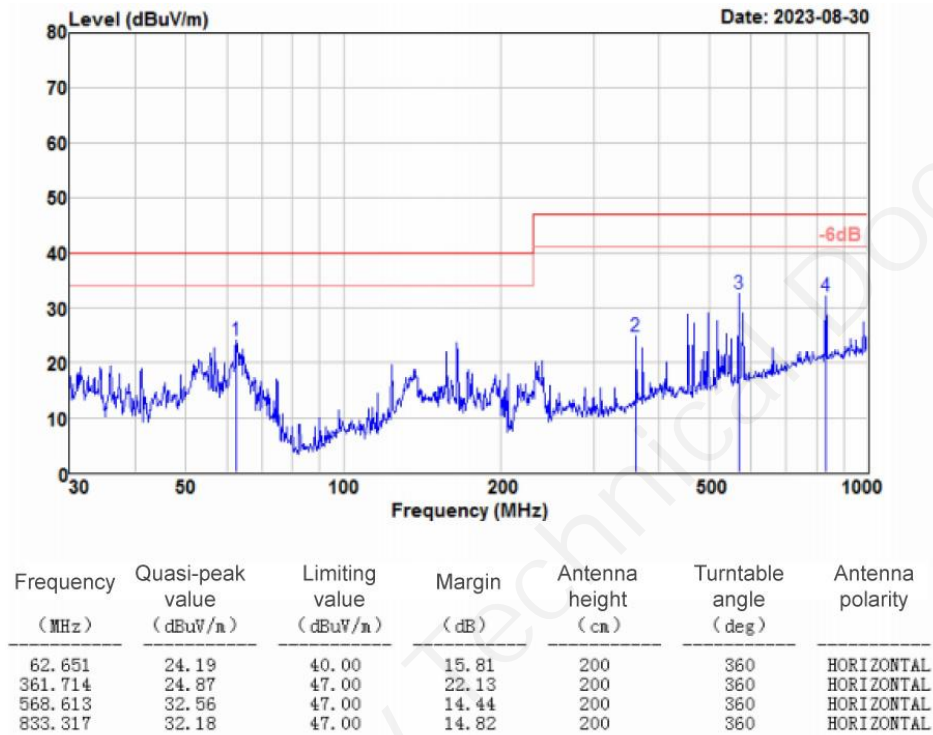
Performance Criterion:

- 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.

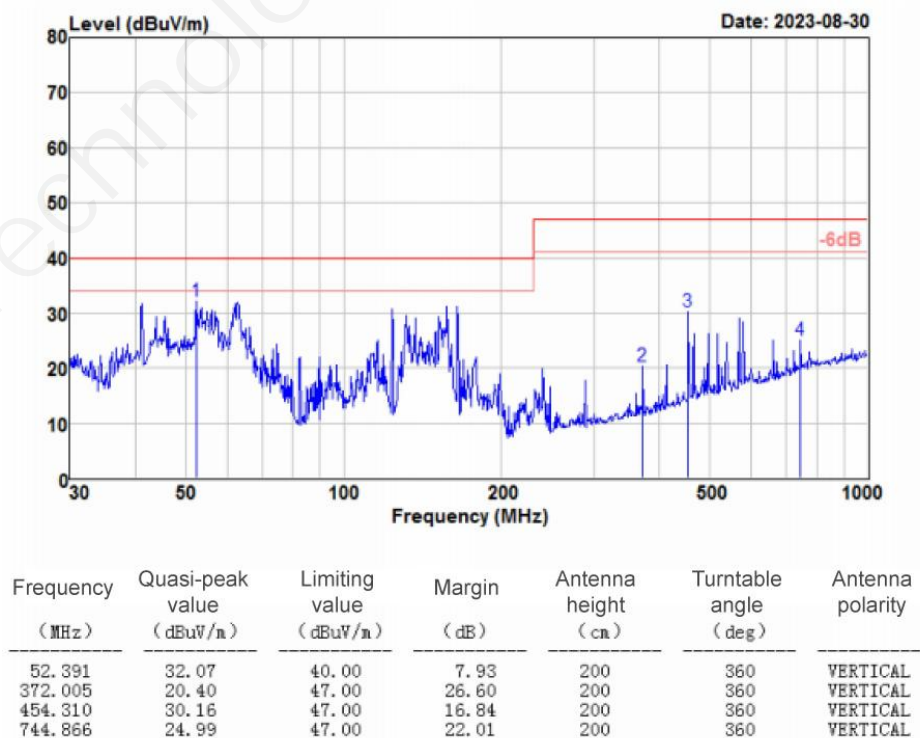
3.2RE test

Test Item	Test Standard	Result
RE	Class B	Normal operation

HORIZONTAL



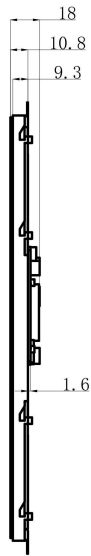
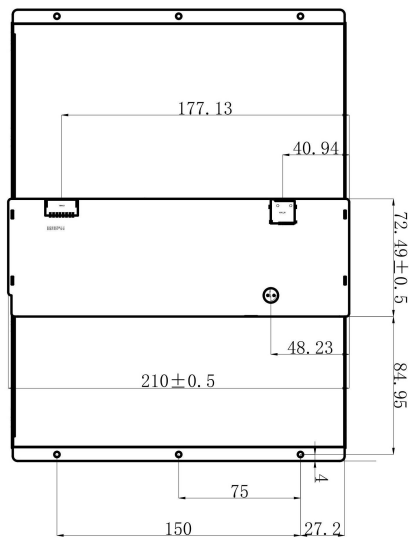
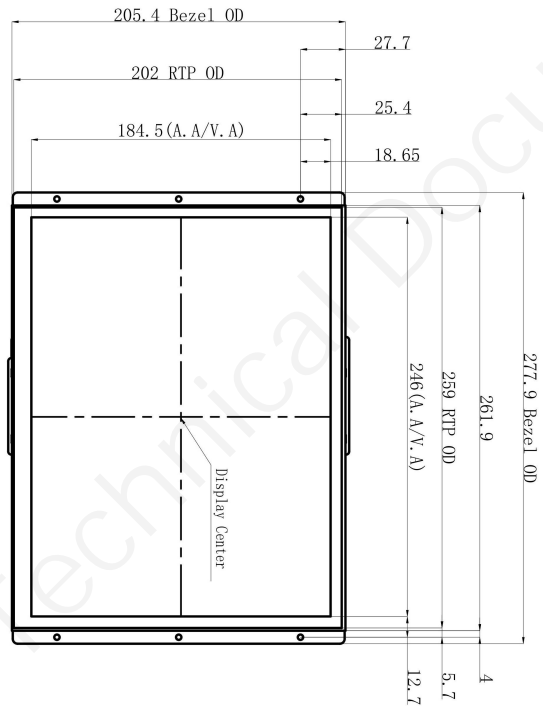
VERTICAL



4. Packaging & dimensions

Form Factor	277.9mm (W)×205.4mm (H)×18.0mm (T)			
Installation Dimensions	Positioning hole: 261.9 (+0.3mm) ×202.0 (+0.3mm)			
Net Weight	680g			
Packaging Standards				
Model	Dimensions	Layer	Quantity/Layer	Quantity(Pcs)
Carton1:	220mm(L)×160mm(W)×47mm (H)	-	-	-
Carton2:	250mm(L)×200mm(W)×80mm (H)	-	-	-
Carton3:	320mm(L)×270mm(W)×80mm (H)	1	2	2
Carton4:	450mm(L)×350mm(W)×300mm(H)	1	10	10
Carton5:	600mm(L)×450mm(W)×300mm(H)	1	16	16

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



Definition	Pin#	Type	Description
VIN	1, 2	P	Power Input
NC	3	-	Undefined
TX2	4	0	UART2 Output
RX2	5	1	UART2 Input
RX2	6	1	UART2 Input
GND	7, 8	P	GND

1. Location hole is used as position reference.

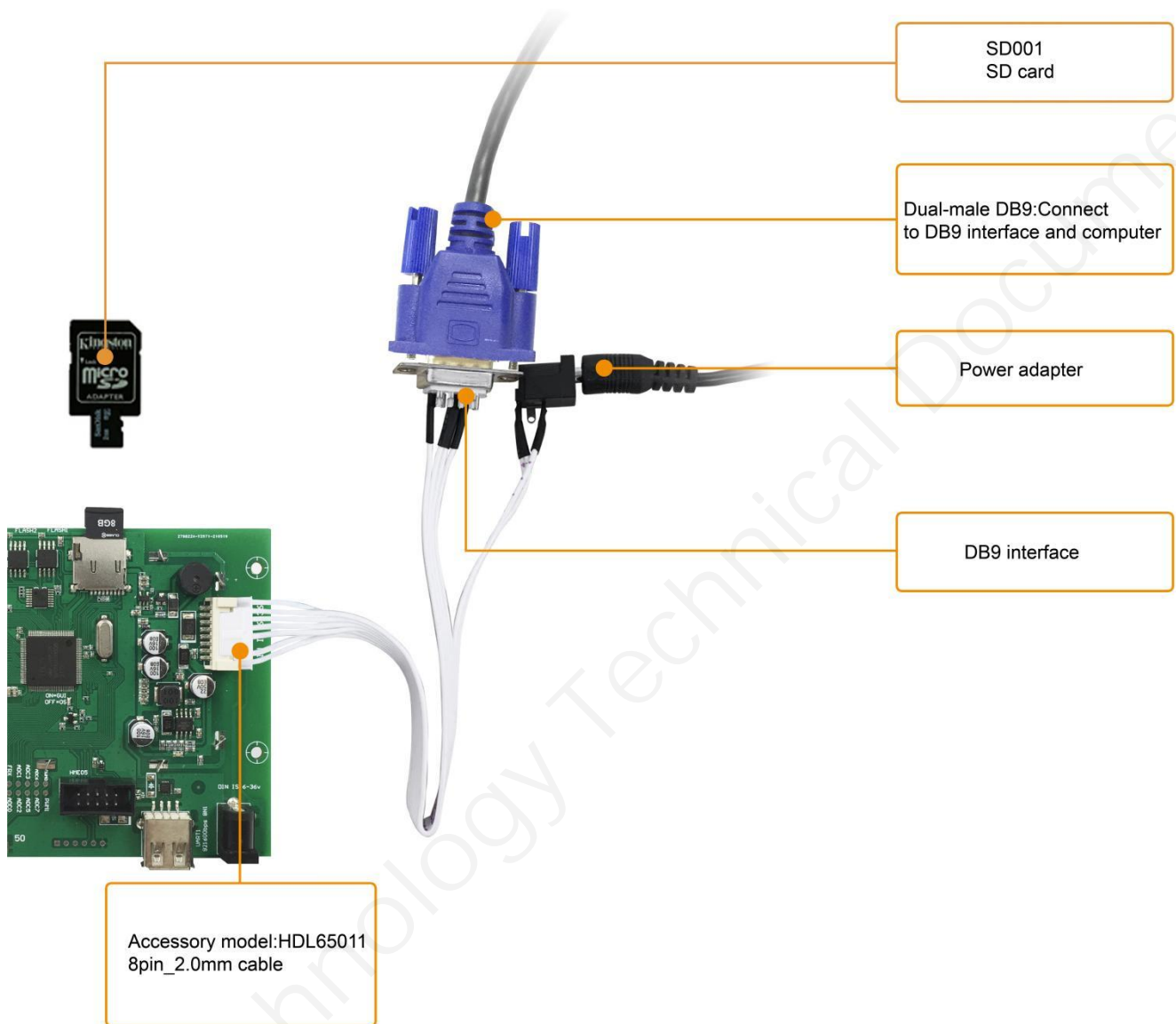
2. Unmarked Tolerance is $\pm 0.3\text{mm}$

Note: Active area is marked in Dash lines

Model	DMG80600Y121_02NR			
Drawing	A 4	Drawn	DWIN	Date
Scale	1:1	Review		2023.12.19
Unit	MM	Approval		Date
DWIN Technology				

5. 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.



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 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-channle 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

7. Revision records

Rev	Revise Date	Content	Editor
00	2023-12-22	First Edition	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:

- Customer service Tel: +86 400 018 9008
- Customer service email: dwinhmi@dwin.com.cn
- 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!