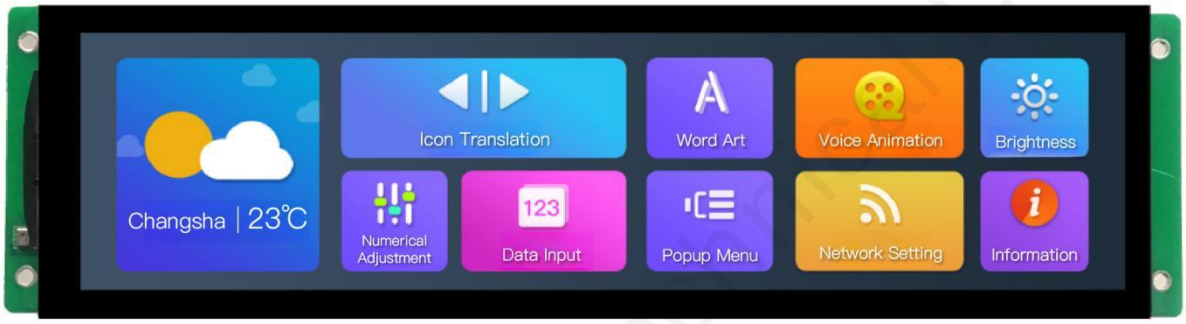
DMG19480C088_03WTC

Features:

- **Powered by T5L2 ASIC, running DGUS II HMI platform, commercial-grade smart LCM.**
- **8.88 inch, 480*1920 resolution, IPS-TFT LCD.**
- **Reliable capacitive touch panel.**



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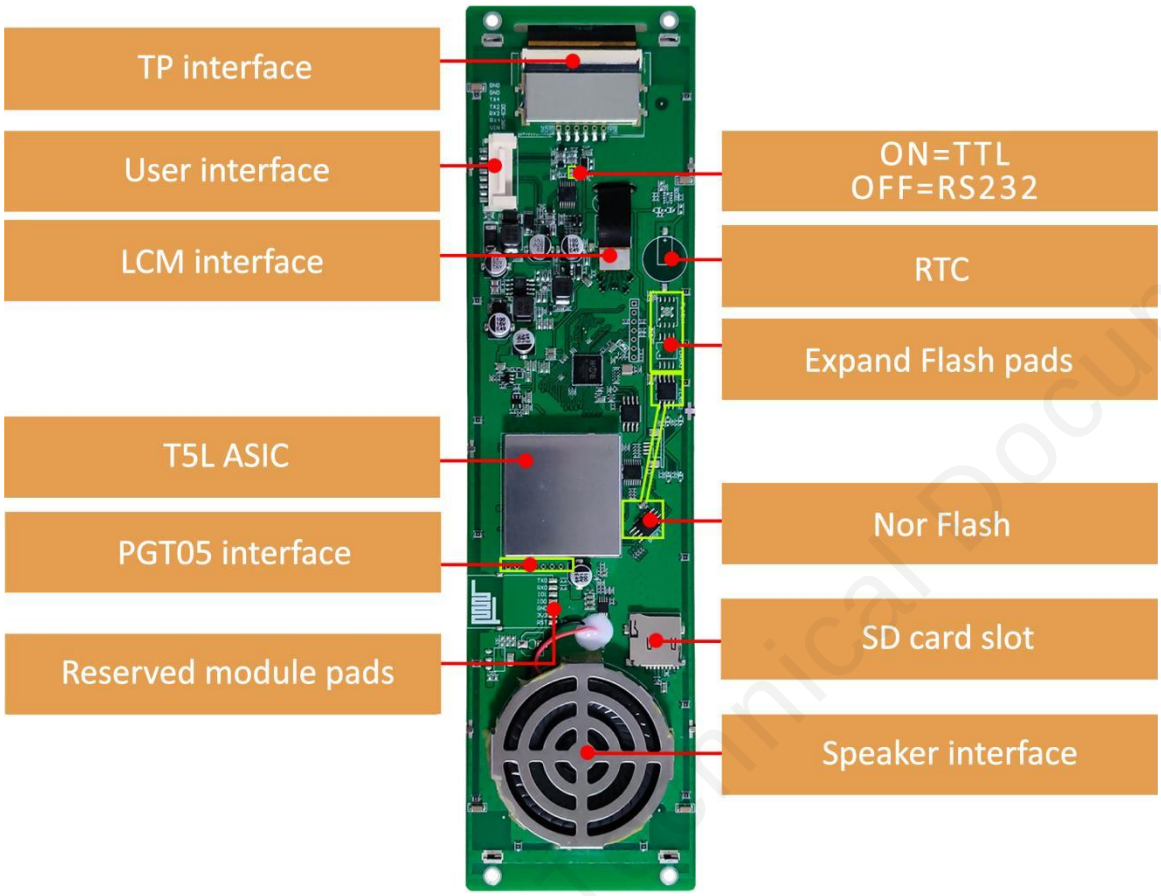
1. Hardware and interface

1.1 Hardware interface diagram



Hardware interface diagram

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1.2 Hardware and interface description

No.	Item	Description
1	T5L2 ASIC	DWIN independently developed, mass production in 2019. 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	32MBytes(2*16MBytes NOR Flash), can be used to store user UI files such as fonts,images, music,etc., with erase/write cycles>100,000 times.
4	Expand Flash pads	Two expansion slots support NOR or NAND Flash, up to 64Mbytes (4*16Mbytes NOR Flash) or 48Mbytes+512Mbytes (3*16Mbytes NOR Flash+1*512Mbytes NAND Flash).
5	Speaker	Onboard speaker. Power: 2W.
6	SD card slot	For DGUS project file downloads (UI, CFG files, kernel, etc.), 4 Mb/s rate.
7	Reserved module pads	Supports DWIN WiFi modules (e.g., WIFI-20) and USB download modules (e.g., HDL702).
8	PGT05 interface	For programming DGUS firmware.

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2. Specification parameters

2.1 Display parameters

LCD Type	IPS, TFT LCD.
Viewing Angle	Wide viewing angle (85°/85°/85°/85° typical), high contrast, and good color reproduction.
Resolution	480×1920 (0°/90°/180°/270°)
Active Area (AA)	218.88mm(W)×54.72mm(H)
Viewing Area (VA)	219.70mm(W)×55.50mm(H)
Backlight	LED
Backlight Service Life	>20,000H
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	Capacitive touch panel.
Structure	G+G structure with tempered glass surface and hardness ≥ 6H.
Light Transmittance	>85%

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2.3 Serial interface parameters

Mode	UART2: ON=TTL/CMOS; OFF=RS232 (Default RS232) UART4: ON=TTL/CMOS; OFF=RS232 (Only available after OS configuration)				
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	UART2: N81 UART4: N81/E81/O81/N82 ,4 modes (OS configuration)				
Interface Cable	8Pin_2.0mm (note: If user use the optional accessory cable HDL65011 of DWIN for communication, need to exchange TX&RX pins of the cable.)				

2.4 Electrical specifications

Rated Power	<5W	
Operating Voltage	9-36V, typical value of 12V.	
Operating Current	300mA	VCC=12V, max backlight.
	140mA	VCC=12V, backlight off.
Recommended power supply: 12V 1A DC.		

2.5 Operating environment

Operating Temperature	-20℃ to 70℃ (12V @ 60% RH)
Storage Temperature	-30℃ to 80℃
Conformal Coating	None
Operating Humidity	10%-90%RH, typical value of 60% RH.

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3. Reliability test

3.1 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.

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

Discharge Type	Discharge Value	Result
Contact discharge	±4KV	Normal operation
Air discharge	±8KV	Normal operation

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4. Packaging & dimensions

Form Factor	252.0(W)×65.4(H)×17.0(T) mm
Net Weight	265g

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	4	4
Carton4：	450mm(L)×350mm(W)×300mm(H)	2	10	20
Carton5：	600mm(L)×450mm(W)×300mm(H)	2	16	32

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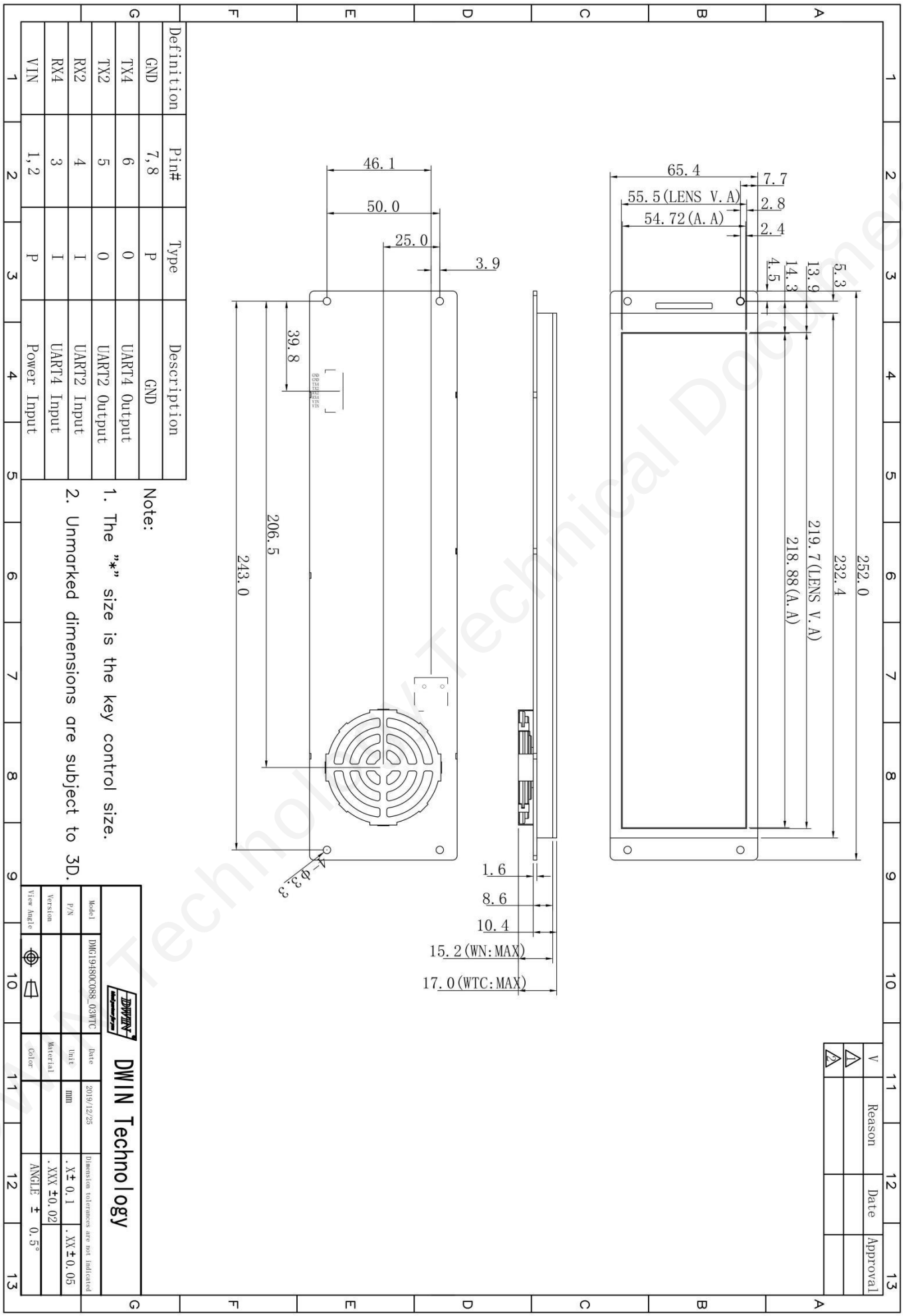

Definition	Pin#	Type	Description
GND	7,8	P	GND
TX4	6	O	UART4 Output
TX2	5	O	UART2 Output
RX2	4	I	UART2 Input
RX4	3	I	UART4 Input
VIN	1,2	P	Power Input

Note:

1. The "*" size is the key control size.
2. Unmarked dimensions are subject to 3D.

V	Reason	Date	Approval
A			

Model	DMG19480C088_03WTC	Date	2019/12/25
P/N		Unit	mm
Version		Material	
View Angle		Color	

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Dimension tolerances are not indicated: .X± 0.1 | .XX± 0.05 | .XXX ±0.02 | ANGLE ± 0.5°

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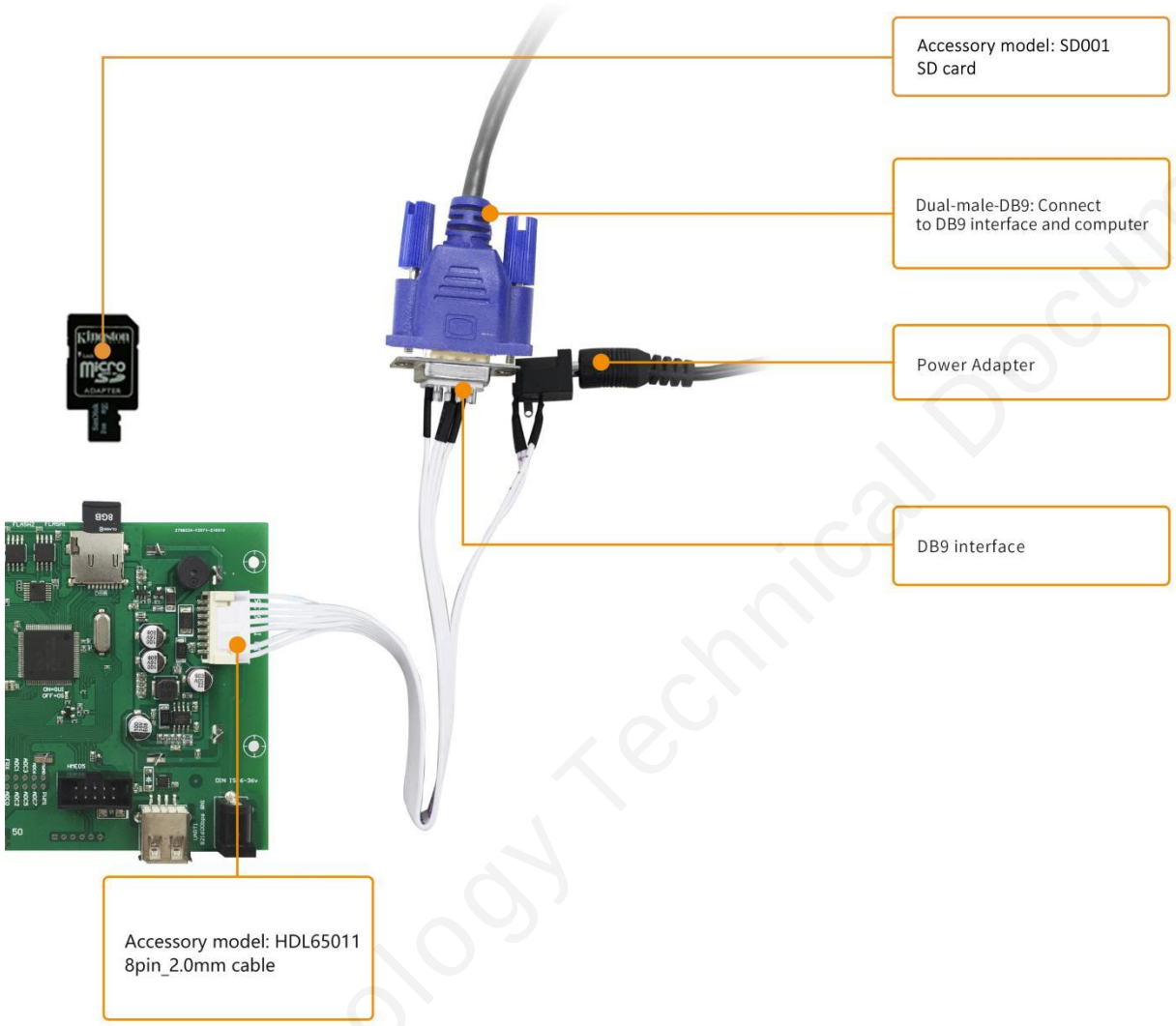
5. Debug tools

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



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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

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7. Revision records

Rev	Revise Date	Content	Editor
00	2023-09-15	First Edition	Xu Ying
01	2025-02-21	Change of LCD screen scheme	Xu Ying

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

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Important Disclaimer

DWIN reserves the right to make any changes to product designs without prior notice.

Customers should ensure strictly adhering to all the relevant standards and requirements during the product application process, including but not limited to functional safety, information security, and regulatory provisions.

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