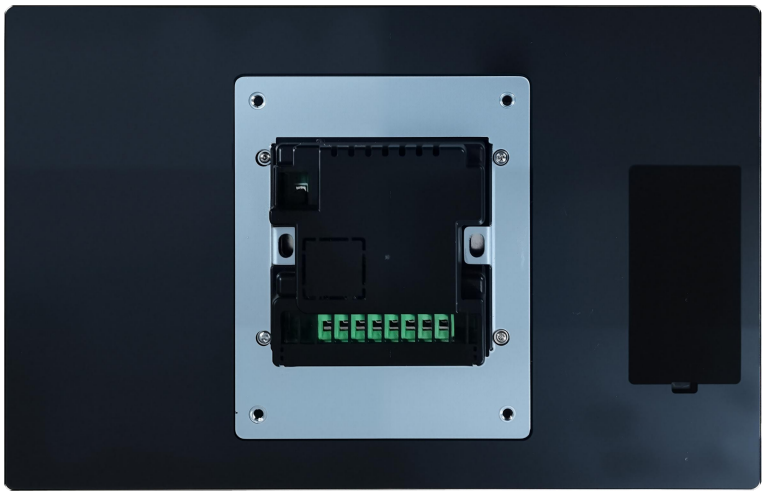
TC101C22W00

Features:

- **Powered by T5L2 ASIC, running DGUS II HMI platform, wire controller.**
- **10.1 inch, 1280*800 resolution, IPS-TFT-LCD.**
- **OCA bonded capacitive touch screen.**
- **With RTC and Tuya Wi-Fi module.**
- **Conformal coating.**

1 Hardware and interface

1.1 Hardware interface diagram



Hardware interface diagram

Terminal Definition	I/O	Description
V	IO	Power input
G	P	Ground
4A	IO	485+ (UART4)
4B		485- (UART4)
5A	IO	485+ (UART5)
5B		485- (UART5)
AD	O	Analog input
G	P	Ground

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	One 8Pin_5.08mm socket for power supply and serial communication.
3	Flash	16MB NOR Flash and 128MB NAND Flash for storing UI files like fonts, images, music, with over 100,000 erase/write cycles.
4	Buzzer	3V passive buzzer.
5	RTC	Super-capacitor powered, accuracy: ±20ppm @25℃, maintains operation for 7 days after power-off.
6	SD card slot	For DGUS project file downloads (UI, CFG files, kernel, etc.), 4 Mb/s rate.
7	Wi-Fi module	Tuya Wi-Fi module.
8	PGT05 interface	For programming DGUS firmware.

2 Specification parameters

2.1 Display parameters

LCD Type	IPS, TFT LCD.
Viewing Angle	Wide viewing angle (80°/80°/80°/80° typical), high contrast, and good color reproduction.
Resolution	1280x800 (support 0°/90°/180°/270°)
Viewing Area (VA)	216. 58mm (W)×134.76mm (H)
Backlight	LED
Backlight Service Life	>20000 hours
Brightness	350nit
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 a hardness of ≥ 6H.
Light Transmittance	>85%

2.3 Serial interface parameters

Mode	UART5: RS485 (Only available after OS configuration)				
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	3150~3225600bps, typical value of 115200bps.				
Data Format	UART5: N81/E81/O81/N82 4 modes (OS configuration)				
Interface Cable	8Pin_5.08mm				

2.4 Electrical specifications

Rated Power	<6W	
Operating Voltage	9~36V, typical value of 12V.	
Operating Current	320mA	VCC=12V, max backlight.
	110mA	VCC=12V, backlight off.
Recommended power supply: 12V 1A DC.		

2.5 Operating environment

Operating Temperature	-10℃~50℃ (12V @ 60% RH)
Storage Temperature	-20℃~60℃
Operating Humidity	10%~90%RH, typical value of 60% RH.
Conformal coating	Y

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
Air discharge	±8KV	Normal operation

3.2 RE test

Test Item	Test Standard	Result
RE	Class B (-6dB)	Pass

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;

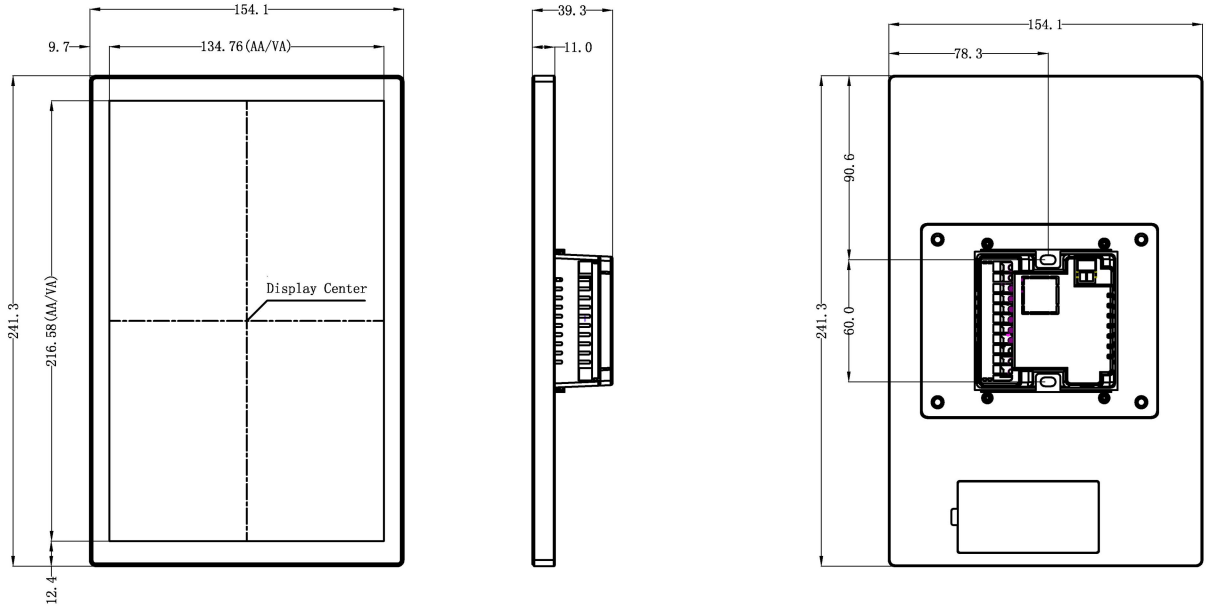
C. Temporary loss of function or degradation of performance, the correction of which requires operator intervention;

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	241.3mm(W)×154.1mm (H)×39.3(T)mm
Net Weight	950g
Packaging Standard	

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	1	1
Carton4	435mm(L)×335mm(W)×290mm(H)	1	5	5
Carton5	600mm(L)×430mm(W)×290mm(H)	1	10	10



Definition	Pin#	Type	Description
V	1	P	Power Input
G	2	P	GND
4A	3	IO	485+ (UART4)
4B	4	IO	485- (UART4)
5A	5	IO	485+ (UART5)
5B	6	IO	485- (UART5)
AD	7	I	Anoalog Input
G	8	P	GND

Location hole is used as position reference.

Unmarked Tolerance is +/-0.3mm

Active area is marked in Dash lines

Model	TC101C22W00				DWIN Technology
Drawing	A 4	Drawn	JCG	Unit	250929
Scale	1:1	Review		Unit	
Unit	MM	Approval		Unit	

5 T5L series IC features

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.

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.

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.

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Upgrade code online through DGUS system.

1Mbytes on-chip Flash with DWIN patent encryption technology ensure code and data security.

Operating temperature ranges from -40℃ to +85℃(IC operating temperature customizable from -55℃ to 105℃).

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

6 Revision records

Rev	Revise Date	Content	Editor
00	2025-10-22	First Edition	Chen

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