

# TC040C17W00Z01

## Features:

- Based on T5L0, running DGUS II system, ultra-thin wired controller.
- 4.0-inch, 480\*480 pixels resolution, 262K colors, IPS-TFT-LCD, wide viewing angle.
- OCA bonded Capacitive touch screen.
- With speaker, RTC and WIFI module.
- With Conformal coating.
- Support infrared reception, temperature and humidity real-time display, proximity sensing function, expandable offline voice, WIFI signal enhancement.



## 1, Hardware and Interface

### 1.1 Hardware and Interface Description

No.	Name	Description
1	T5L0 ASIC	Developed by DWIN. Mass production in 2020, 1MBytes Nor Flash on the chip, 512KBytes used to store the user database. Rewrite cycle: over 100,000 times
2	COF Interface	FPC40_0.5mm
3	User Interface	4Pin_2.0mm socket for power supply and serial communication. Download rate (typical value): 12KByte/s
4	Flash	16MBytes NOR Flash, for fonts, pictures and audio files. Rewrite cycle: over 100,000 times
5	Speaker	Built-in Speaker, 8Ω1W
6	SD Interface	FAT32. Download files by SD interface can be displayed in statistics. Download rate: 4Mb/s
7	RTC	Super-capacitor for power supply. Accuracy: ±20ppm @25°C. It can work normally for 7 days after power failure
8	WIFI Module	Tuya WBR3 module

## 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>	480*480 pixels (0°/90°/180°/270°)
<b>Color</b>	18-bit 6R6G6B
<b>Active Area (A.A.)</b>	71.9mm (W)*68.0mm (H)
<b>Backlight Mode</b>	LED
<b>Backlight Service Life</b>	>20000 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)
Note: 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>	CTP (Capacitive touch panel)
<b>Structure</b>	G+G structure with surface cover of tempered glass
<b>Touch Mode</b>	Single point touch, support continuous sliding touch
<b>Surface Hardness</b>	6H
<b>Light Transmittance</b>	Over 90%
<b>Life</b>	Over 1,000,000 times touch

## 2.3 Serial Interface Parameters

<b>Mode</b>	RS485				
<b>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>Baud Rate</b>	3150~921600bps, typical value of 115200bps				
<b>Data Format</b>	N81				
<b>Interface Cable</b>	4Pin_2.0mm				

## 2.4 Electrical Specifications

<b>Rated Power</b>	<5W	
<b>Operating Voltage</b>	6~36V, typical value of 12V	
<b>Operating Current</b>	190mA	VCC=12V, max backlight
	80mA	VCC=12V, backlight off
<b>Recommended power supply: 12V 0.5A DC</b>		

## 2.5 Operating Environment

<b>Operating Temperature</b>	-10℃~60℃ (12V @ 60% RH)
<b>Storage Temperature</b>	-20℃~70℃
<b>Operating Humidity</b>	10%~90%RH, typical value of 60% RH
<b>Conformal Coating</b>	Yes

### 3, Reliability Test

Test Item	Test Level	Result
CE	Class B	Normal performance
RE	Class A	Normal performance
CS	10Vrms 0.15MHz-80MHz 80% AM at 1kHz	Normal performance
Surge	±1kV (AC)	Normal performance
ESD	Air discharge ±8kV	Normal performance
EFT	±2kV (AC)	Normal performance

### 4, Packaging & Dimensions

#### 4.1 Dimensions

Form Factor	86.0mm(W)*87.2mm (H)*16.9(T)mm
Net Weight	105g

#### 4.2 Packaging

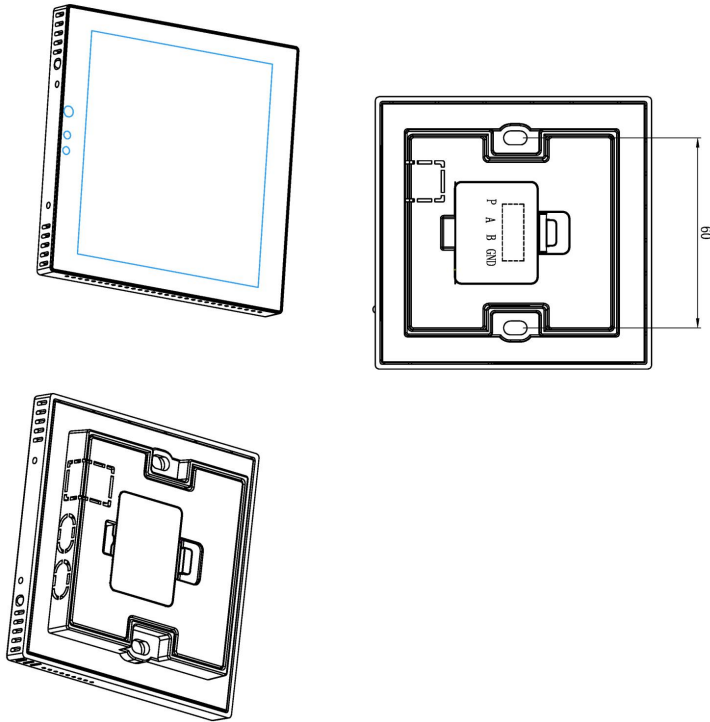
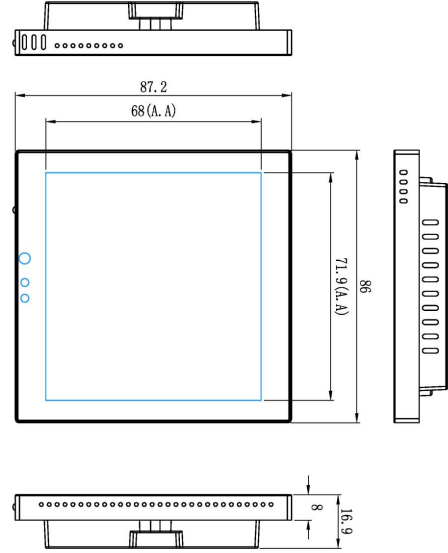
Model	Dimensions	Layer	Quantity /Layer	Quantity(Pcs)
Carton1:	220mm(L)*160mm(W)*47mm(H)	1	2	2
Carton2:	250mm(L)*200mm(W)*80mm(H)	2	2	4
Carton3:	320mm(L)*270mm(W)*80mm(H)	2	4	8
Carton4:	450mm(L)*350mm(W)*300mm(H)	-	-	-
Carton5:	600mm(L)*450mm(W)*300mm(H)	1	56	56

#### 4.3 Product List

Item	Specification	Quantity
Display	TC040C17W00Z01	1
Connecting Wire	HDL65071 (Double 4-pin 2.0 pitch plug, same side wire, 50CM)	1
Round Head Screw	M4*25mm	2

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

Name	Pin#	Type	Description
P	1	P	Power Input
A	2	485+	485+
B	3	485-	485-
GND	4	P	GND



1. Location hole is used as position reference.

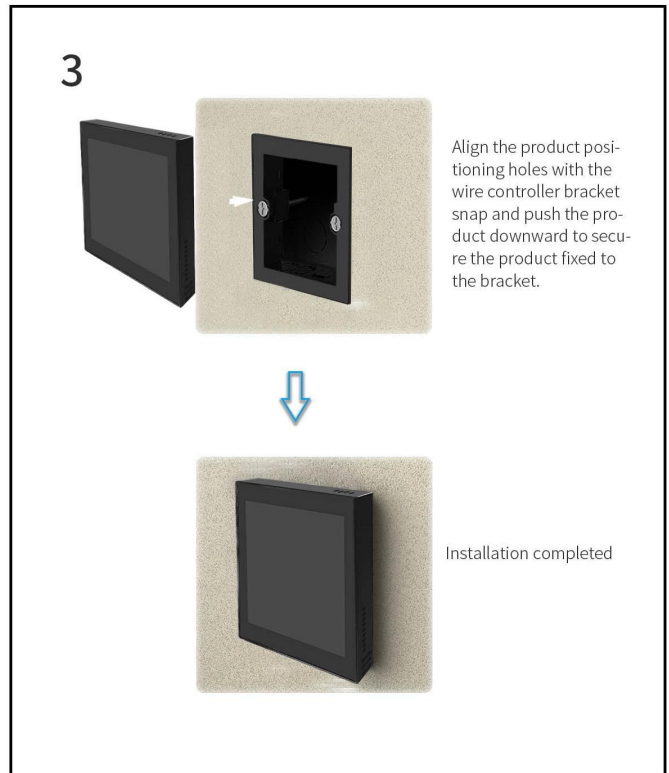
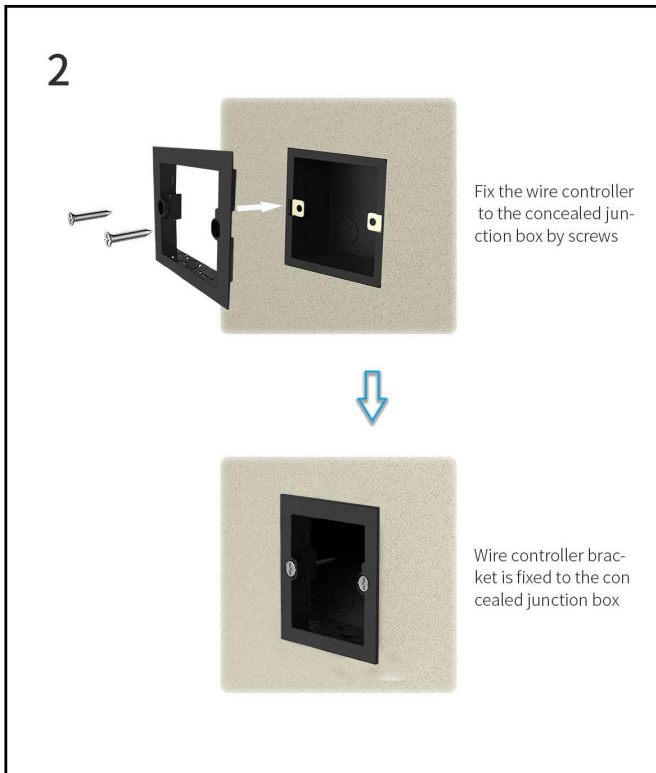
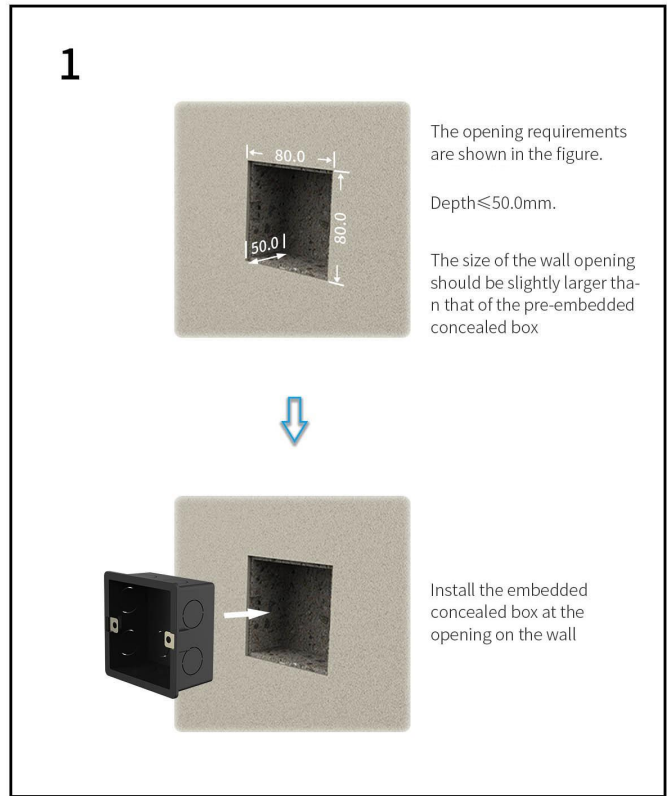
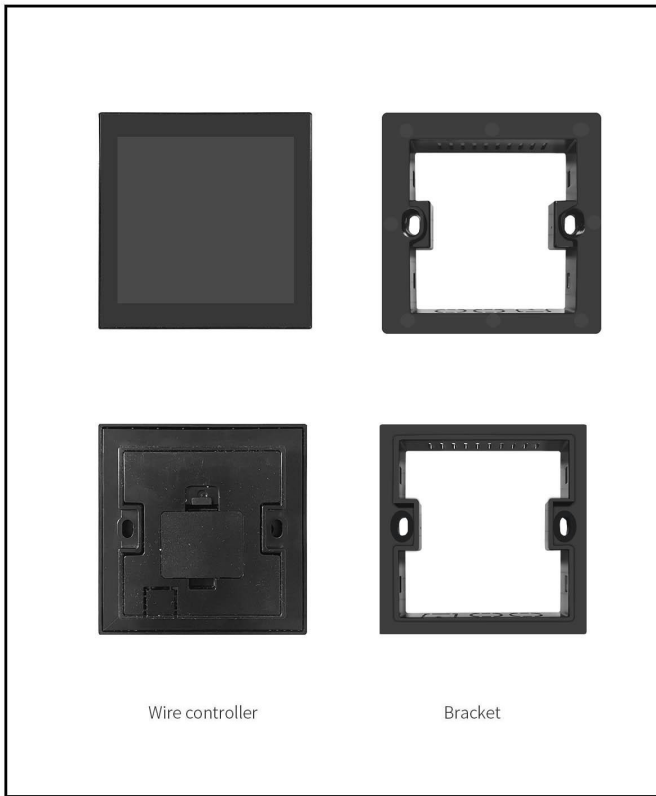
2. Unmarked Tolerance is +/-0.3mm

Active area is marked in Dash lines

Model	TC040C17W00Z01			
Drawing	A 4	Drawn	DWIN	
Scale	MM			

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## Installation Schematic



## 5, 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.**

## 6, Revision Records

Rev	Revise Date	Content	Editor
01	2023-01-04	First Edition	YML

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

DWIN Technology Technical Document