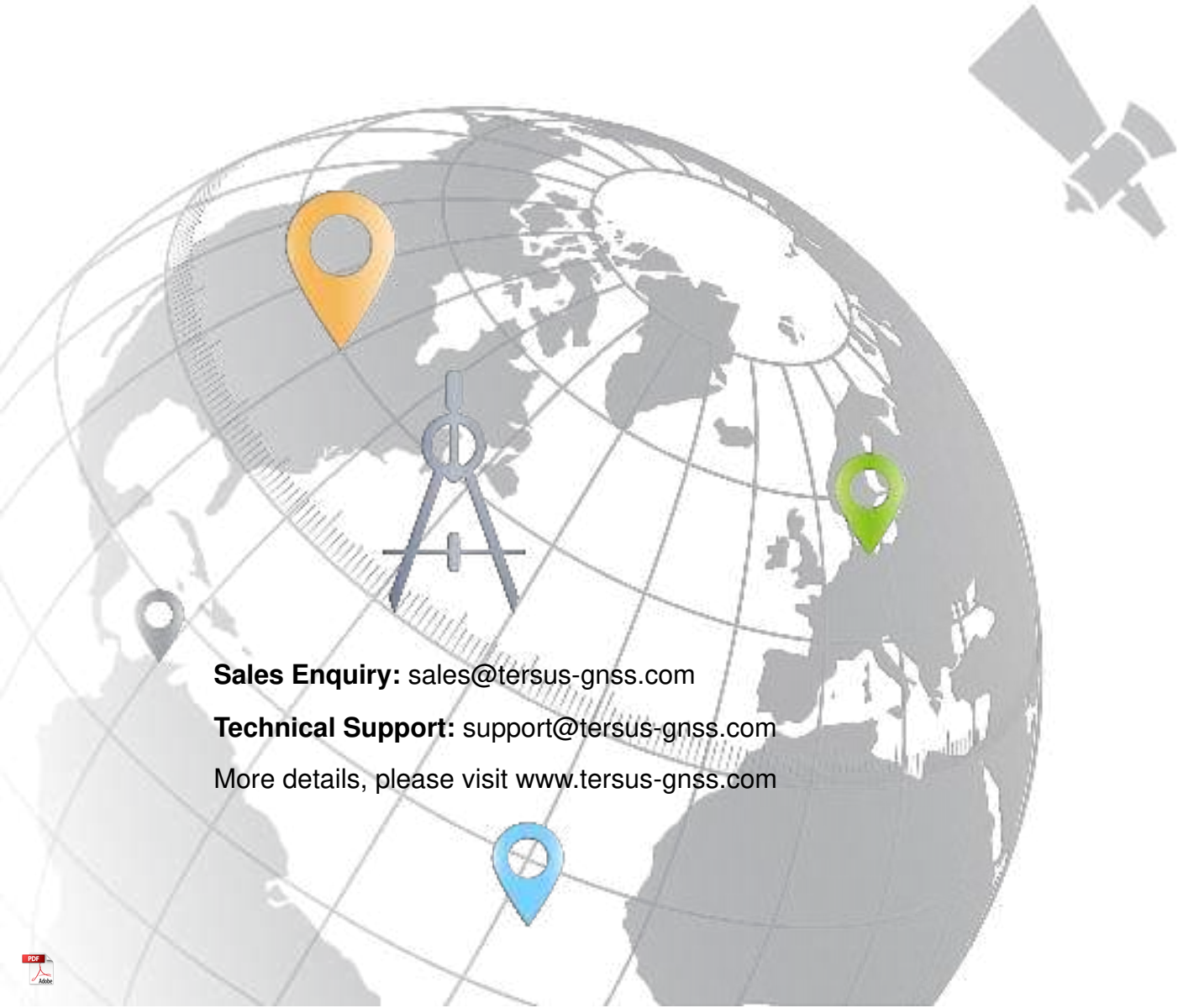
User Manual

Version V1.0-20210409



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More details, please visit www.tersus-gnss.com

Revision History

Version	Revision Date	Change summary
1.0	20210409	Initial Release

Notices

FCC Radiation Exposure Statement:

This device meets the government's requirements for exposure to radio waves. The guidelines are based on standards that were developed by independent scientific organizations through periodic and thorough evaluation of scientific studies. The standards include a substantial safety margin designed to assure the safety of all persons regardless of age or health. The SAR limit of USA (FCC) is 1.6 W/kg averaged. Device types: Portable Device (FCC ID: 2AMDJ-TC50) has also been tested against this SAR limit. SAR information on this and other pad can be viewed on - line at http://www.fcc.gov/oet/ea/fccid/. Please use the device FCC ID number for search. This device was tested simulation typical 10mm to body. To maintain compliance with FCC RF exposure requirements, use accessories should maintain a separation distance between the user's bodies mentioned above, use accessories should not contain metallic components in its assembly, the use of accessories that do not satisfy these requirements may not comply with FCC RF exposure requirements, and should be avoided.

FCC Warning

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE 1: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits

are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-Consult the dealer or an experienced radio/TV technician for help.

NOTE 2: Any changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Caution:

Intended for sale and application in a business environment.

Use the Product in the environment with the temperature Between -20℃ and 35℃; Otherwise, it may damage your product. Products can only be used below 2000m altitude

For the following equipment:

Product Name: TD-LTE Wireless Data Terminal

Model No.: TC50 Brand Name: Tersus

Tersus GNSS Inc

E-mail: yaping.liu@tersus-gnss.com

hereby declares that this [Name: TD-LTE Wireless Data Terminal, Model: TC50] is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU.

CE

The product shall only be connected to a USB interface of version USB2.0 and that the connection to a power USB is allowed.

Use careful with the earphone maybe possible excessive sound pressure from earphones and he

CAUTION
RISK OF EXPLOSION IF BATTERY IS REPLACED
BY AN INCORRECT TYPE.
DISPOSE OF USED BATTERIES ACCORDING
TO THE INSTRUCTIONS

Adapter shall be installed near the equipment and shall be easily accessible.

Only can use adapter as below:

Power Adapter Model: GQ24-090200-AX

INPUT:AC100-240V, 50/60Hz, 1.0A; Output:DC9V, 2.0A

Dong Guan City GangQi Electronic Co.,Ltd.

The plug considered as disconnect device of adapter.

This product is intended for sale and application in a business environment.

RED Article 10 2

-This product can be used across EU member states

RED Article 10 10

	BE	BG	CZ	DK	DE	EE	IE
	EL	ES	FR	HR	IT	CY	LV
	LT	LU	HU	MT	NL	AT	PL
	PT	RO	SI	SK	FI	SE	UK (NI)

The device is restricted to indoor use only when operating in the 5150 to 5350 MHz frequency range.

The RF distance between body and product is 5mm

2G

Support Networks: GSM, GPRS, EDGE

Support Bands:GSM900, DCS1800

Frequency Range:

GSM900: Tx: 880-915MHz, Rx: 925-960MHz

DCS1800: Tx: 1710-1785MHz, Rx: 1805-1880MHz

RF Output Power:

GSM900: 32.31dBm, GSM1800: 28.80dBm;

EDGE900: 27.16dBm, EDGE1800: 25.68dBm

3G

Support Networks: WCDMA, HSDPA, HSUPA

Support Bands:WCDMA Band 1, WCDMA Band 8

Frequency Range:

WCDMA Band 1: Tx: 1920-1980MHz, Rx: 2110-2170MHz

WCDMA Band 8: Tx: 880-915MHz, Rx: 925-960MHz

RF Output Power: WCDMA Band 1: 23.05dBm, WCDMA Band 8: 23.37dBm

4G

Support Bands: FDD-LTE Band1, 3, 7,8, TDD-LTE Band 38, 40

Frequency Range:

FDD-LTE Band 1: Tx: 1920-1980MHz, Rx: 2110-2170MHz

FDD-LTE Band 3: Tx: 1710-1785MHz, Rx: 1805-1880MHz

FDD-LTE Band 7: Tx: 2500-2570MHz, Rx: 2620-2690MHz

FDD-LTE Band 8: Tx: 880-915MHz, Rx: 925-960MHz

TDD-LTE Band 38: Tx: 2570-2620MHz, Rx: 2570-2620MHz

TDD-LTE Band 40: Tx: 2300-2400MHz, Rx: 2300-2400MHz

Max.RF Output Power:

FDD-LTE Band 1: 21.49dBm, FDD-LTE Band 3: 22.68dBm,

FDD-LTE Band 7: 22.78dBm, FDD-LTE Band 8: 23.41dBm,

TDD-LTE Band 38: 22.54dBm,TDD-LTE Band 40: 22.01dBm

Bluetooth

Bluetooth Version: Bluetooth V4.1

Frequency Range: 2402-2480MHz

Max.RF Output Power: 6.96dBm (EIRP)

Wi-Fi (2.4G)

Support Standards: 802.11b, 802.11g, 802.11n-HT20/40

Frequency Range:

2412-2472MHz for 802.11b/g/n(HT20); 2422-2462MHz for 802.11n(HT40)

Max.RF Output Power: 16.17dBm (EIRP)

Wi-Fi (5G)

Support Standards: 802.11a, 802.11n-HT20/40

RF Output Power: Max. 13.98dBm (EIRP)

Operation Frequency:

Band 1: 5180-5240MHz, Band 2: 5260-5320MHz, Band 3: 5500-5700MHz,

5.8G SRD

Support Standards: 802.11a, 802.11n(HT20/40)

RF Output Power Max. 13.81dBm (EIRP)

Operation Frequency: 5745-5825MHz

NFC

Frequency Range: 13.56MHz

Radiated H-Field: 4.29dBuA/m(@3m)

GPS

Frequency Range: 1575.42MHz Receiving

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1. Introduction

This chapter mainly introduces the overview and specification of the Tersus TC50 Controller.

1.1 Overview

The Tersus TC50 Controller is a rugged multi-functional data controller with design of 5" HD touch screen and an alphanumerical keypad. Equipped with powerful Octa-core processor and android operating system, it is perfect to adapt with Tersus survey software. With professional IP67 rating, it is robust and reliable for harsh operating conditions.

Figure 1.1 TC50 controller

1.2 Specification

Table 1 TC50 technical specification

System	
Operating System	Android 8.1
CPU	MT6763 Octa-Core 2.0GHz
Memory	4GB RAM + 64GB ROM
External storage	Micro SD, up to 128GB
Display	5“ sunlight-readable capacitive touch screen
Resolution	720x1280
Camera	5MP front, 13MP rear
Flash Light	High light Flash LED
Electrical	
Battery	7000mAh 3.8V
Battery Life	14 hours
Charging Time	<4 hours (fast charge)
Communication	
Wi-Fi	IEEE 802.11a/b/g/n 2.4G&5G
Cellular Mode	Dual SIM Dual Standby
SIM1 & SIM2	FDD-LTE B1/B3/B5/B7/B8 TD-LTE B38/B39/B40/B41 TDSCDMA B34/B39 WCDMA B1/B2/B5/B8 CDMA1x/CDMA2000 BC0/BC1 GSM B2/B3/B5/B8
Bluetooth	BT4.1 (BLE)
USB	USB Type-C (supports OTG)
NFC	Protocol of ISO14443A/B, and ISO15693 Distance 0~5cm

GNSS	GPS/GLONASS/BeiDou
Physical	
Dimension	207mmx84mmx20mm
Weight	370g (include battery)
Reliability	
Operating Temperature	-20°C ~ +35°C
Storage Temperature	-30°C ~ +70°C
Humidity	5% ~ 95%
Dustproof & Waterproof	IP67
Shock	1.5m drop onto concrete

Figure 1.2 TC50 outlook

2. General Operation

This chapter introduces how to use Tersus TC50 Controller.

2.1 Insert SIM card and SD card

Please note the direction of the card notch when inserting the card, inserting a non-standard card may cause damage to the SIM card slot of the controller.

The controller cannot support two CDMA cards at the same time, when two CDMA cards are installed at the same time, only one card can use the 4G network, the other card will not be able to register the network.

To install the SIM card you need to open the battery cover, remove the battery and open the SIM card cover.

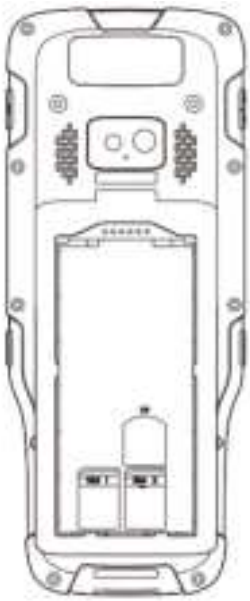

Figure 2.1 Insert SIM card and SD card

2.2 Reboot the device

Press and hold the power button for 2 seconds and click the "Reboot" on the screen.

2.3 Forced restart

Press and hold the power button for 8 seconds to force the controller to restart.

2.4 Charge the battery

Before using the product for the first time, it is recommended to charge the battery. If the battery is depleted, it can be activated by the charger.

Note: The charger should be kept close to the main socket and easily plugged in.

⚠	Warning: Use specified charger and battery only.

2.5 Extend battery life

Some functions may use up more power, which eventually shorten the battery life. You could:

- Close all the wireless connection when not in use Bluetooth, Wi-Fi or GPS.
- Reduce the brightness and shorten the screen timeout to save battery, or press power key to shut down the screen when the controller is not in use.
- Close any automatically synchronized applications such as Email, calendar, contacts and other.
- Some applications which are downloaded could also shorten the battery life.

2.6 Cautions

The controller should be used in an environment of -20°C to 35°C and stored at temperatures between -30°C and 70°C.

High or low temperatures will affect the performance on the device and may cause damage to the device and the battery.

Please charge the device at temperatures between -5°C and 35°C to avoid degradation of battery performance and reduced standby time.

Please DO NOT use unofficial ROMs or crack the system files of the device, as this may cause security risks and we will not be responsible for this.

	Electromagnetic Radiation! This product has an electromagnetic radiation specific absorption rate (SAR) maximum of ⩽ 2.0 W/kg. Users with implanted pacemakers, hearing aids, cochlear implants etc. should follow medical advice when using this product.
	Safety Warning! The following actions may cause battery safety hazards and lead to safety problems during normal use of the equipment. ● Dismantling the battery yourself; ● Forcibly squeezing or puncturing the device; ● Repairing the device through unofficial channels; ● Charging with non-standard chargers and cables; ● Putting the device in a microwave oven, on a fire, or near other heat sources.

3. Terminology

DC	Direct Current
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
LED	Light Emitting Diode
NFC	Near Field Communication
RAM	Random Access Memory
ROM	Read-Only Memory
SD card	Secure Digital Memory Card
SN	Serial Number
SIM	Subscriber Identification Module
USB	Universal Serial BUS

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