航微科技
HOWAY GIS

T21 Series GIS Handheld

Quick Start Guide

V1.0

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1.Introduction

1.1. Features

The following section describes the general features of the T21 Handheld Controller.

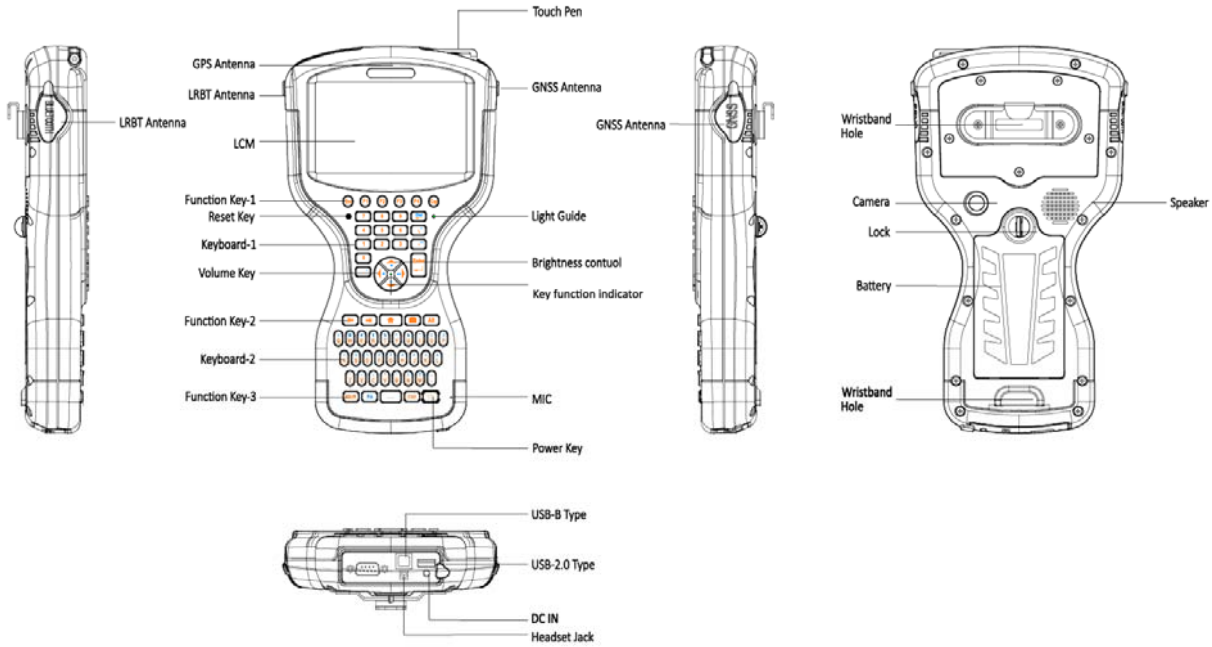
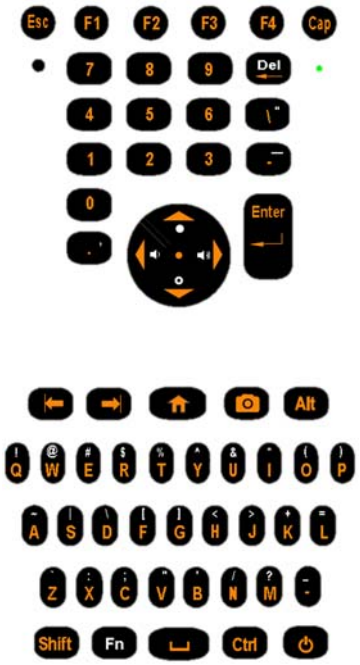


Figure 1-1: General Diagram

1.2. Keyboard



Some keys have two different silk screen colors. One is yellow, the other is white. “Fn” key is used to switch the key’s function between the two colors. Yellow silk screen indicates the default function. When the indicator in the center of the four arrow keys lighted, the function indicated by white color is available.

Table 1-1. Keyboard Function

Key	Sample image	Silk screen Color	Function
Function keys F1-F4		Yellow	User definable keys to execute chosen commands or access chosen screens.
Alpha keys a~z, A~Z		Yellow	To type letters. Yellow characters.
Numeric keys 0~9		Yellow	To type numbers. Yellow characters.
Punctuation and special characters		White	To type punctuation and special characters.
Caps Lock		Yellow	Switches between upper case and lower case letters, and lock the case status.
Backspace		Yellow	Clears all entry at the beginning of user input. Clears the last character during user input. Yellow symbol.
Del		White	Deletes character at the cursor.
Esc		Yellow	Leaves the current screen without storing any changes.
Arrow keys		Yellow	Move the focus on the screen.
Volume adjust		White	Increase or decrease the volume
Backlight adjust		White	Increase or decrease the screen brightness
Next Tab key		Yellow	To advance the cursor to the next tab stop.

Previous Tab key		Yellow	To advance the cursor to the previous tab stop.
Home		Yellow	Switches to the Windows CE7 Start Menu.
Camera		Yellow	Access the camera.
Alt		Yellow	To change (alternate) the function of other pressed keys.
Shift		Yellow	Combine with an alpha key to switch between upper case and lower case letters.
Fn		White	First press: switches the functions to the white characters indicated Press again: switches the functions aback to the yellow characters indicated
Space		Yellow	Enters a blank.
Ctrl		Yellow	Combine with another key to perform a special operation
Enter		Yellow	Select the highlighted line and leads to the next logical menu/ dialog.
Power key		Yellow	If the T21X controller is already off: Turns the field controller on when held for 3~5s. If the T21X controller is already on: Turns to power off menu when held for 3~5s.

1.3. LED Functions

Table 1-2, Charging LED Functions

Operation	Power off	Charging	Fully of charged
LED Status	Off	Red light on	Off

Table 1-3, Key function indicator

LED Status	Off	On
Function of the key	Yellow silk screen indicated	White silk screen indicated

2. Getting Acquainted

2.1. Installing the TF card/SIM card/Battery

a) Turn the back cover screw to the open position according to the instructions on a label in the box, and take off the back cover.

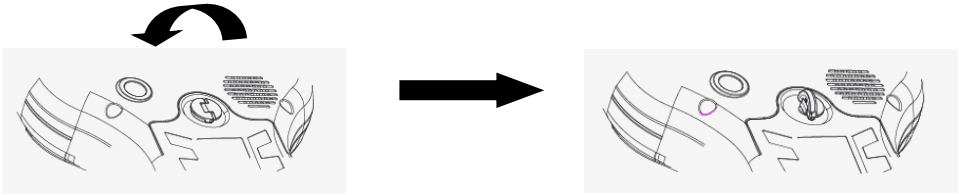


Figure 2-1: Opening the Back Cover

b) Insert the SIM card and TF card according to the instructions in the battery cabin.

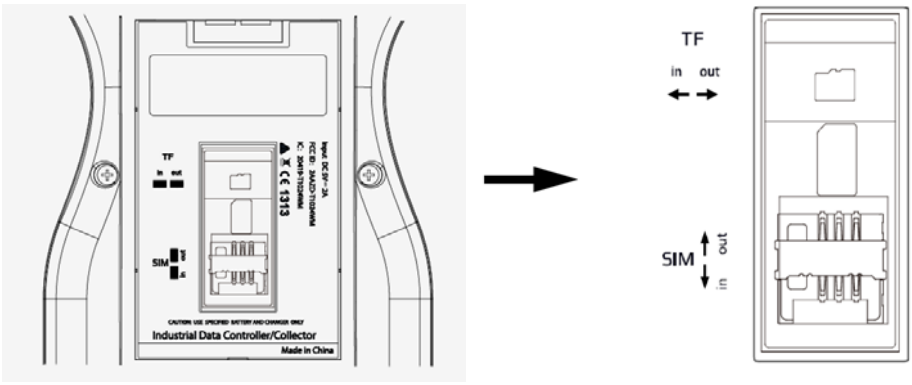


Figure 2-2: Inserting the SIM Card

c) Insert the battery according the instructions on the battery label(Figure 2-3).

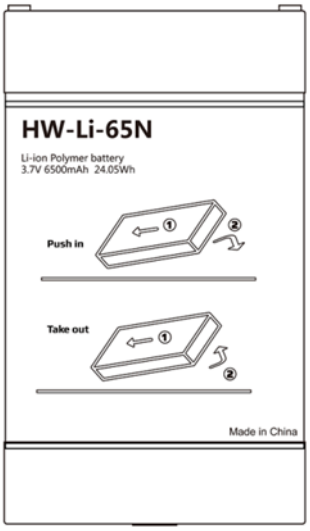


Figure 2-3: Inserting the Battery

d) Close the back cover and turn the back cover screw to the lock position.

2.2. Charging

Open the cover at the bottom of the device, and charge with the DC adapter. Charging current can reach 1.5A.

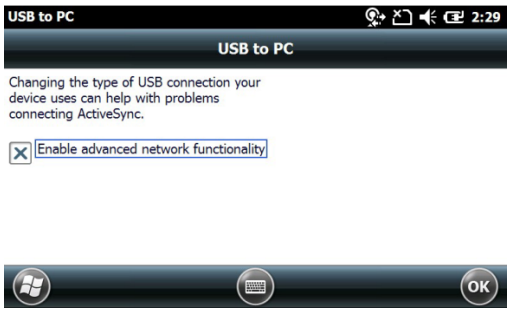
2.3. Turning the collector on/off

a) Make sure the battery has enough power, or connect the T21 to a DC adaptor.
b) Press power button for three (3) to five (5) seconds to turn on (until the boot screen appears).
c) Press the power button for three (3) to five (5) seconds, and confirm to power off.

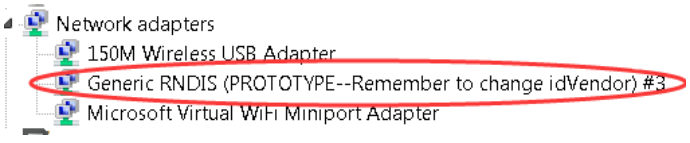
NOTE: If there are abnormal situations, such as the T21 does not operate normally, use the tip of the stylus to press the reset key to restart the T21.

2.4. Synchronization Function

a) Make sure Windows Media Device Center (WMDC) has been already installed in PC, formerly ActiveSync for Win-XP. If not, please download from this link below and install it. https://www.microsoft.com/en-US/download/details.aspx?id=3182
b) Choose 'Enable advanced network functionality' by clicking Setting->Connections->USB to PC.



c) Connect T21 to a PC with USB cable.
d) PC will search an appropriate driver for T21 and install automatically. A similar device will be shown in Device Manager

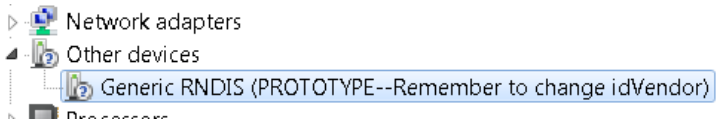


e) The icon will appear in the tool bar of PC then ActiveSync/WMDC will launch as follows,

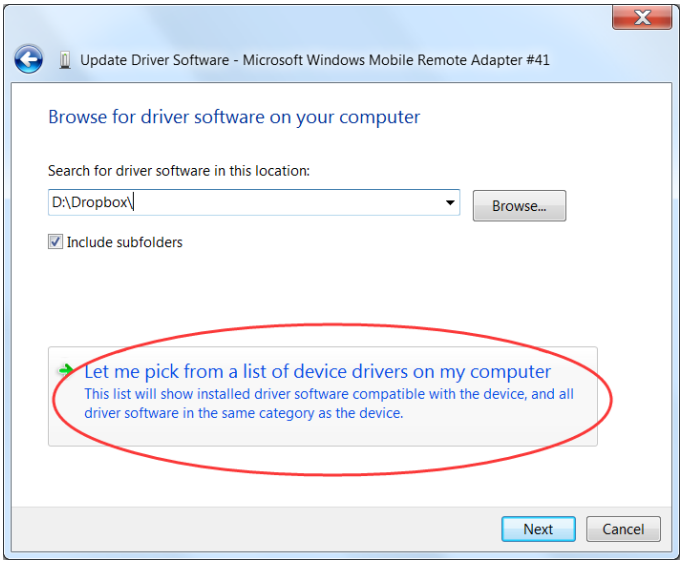
f) Click **Browse** to check the files in the T21, and then transfer data between your PC and the T21.

g) If WMDC doesn't connect, follow the steps below to check its driver first.

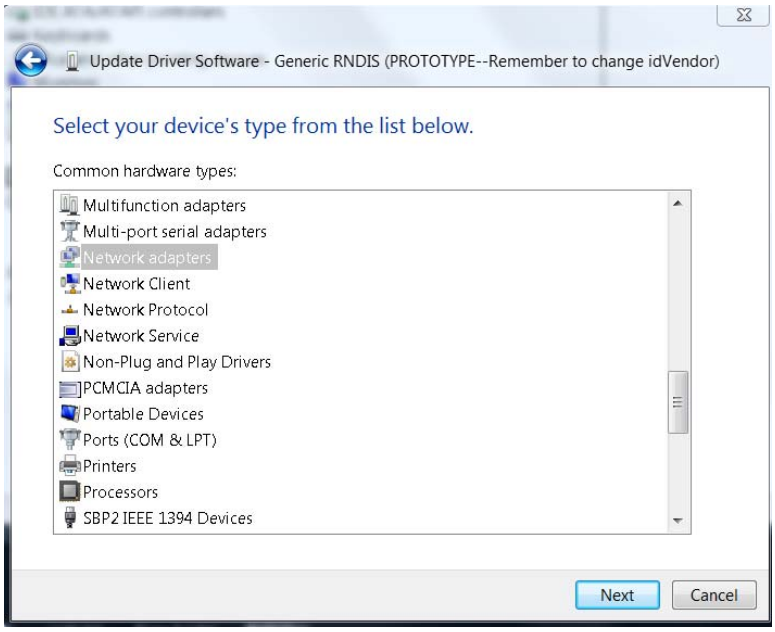
i) Check whether a suitable driver of T21 has been installed or not by PC Device Manger. If not, unrecognized device will be present in 'Device Manager'



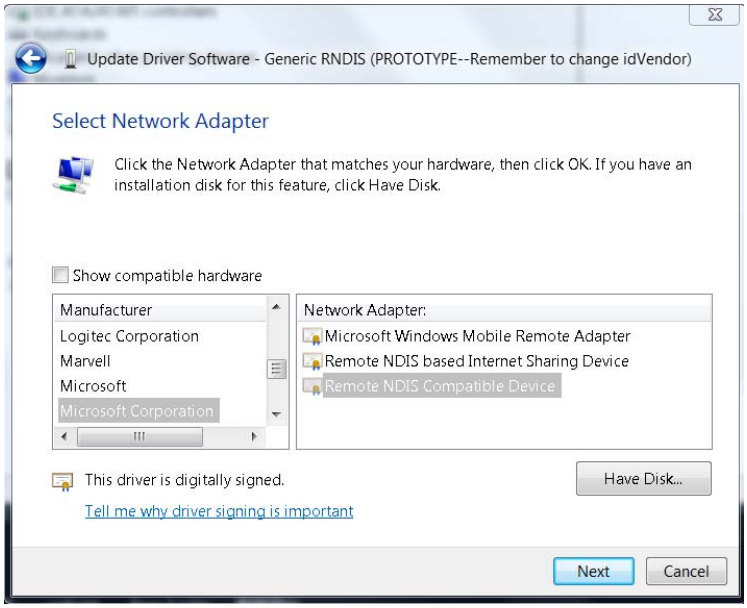
ii) Click on the 'unrecognized device'，choose 'update driver software'，then click 'Let me pick from a list of device drivers……' on the Dialog box.



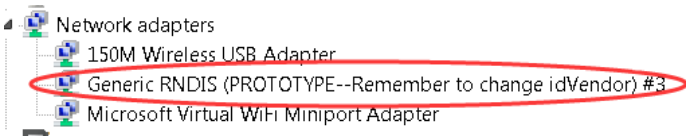
iii) Choose 'Network adapter' as the figures shows,



iv) Choose 'Remote NDIS Compatible Device' , click Next as below,



v) The driver will be installed successfully. A RNDIS device like below figure will be shown in PC Device Manger



h) If the above RNDIS device has been already shown in Device Manager, WMDC doesn't launch successfully yet, especially for Win10 operating system. Please run a utility called "HWSyncTools.exe" provided by vendor.

2.5. Installing Applications

2.5.1. Installing Applications via ActiveSync or WMDC

a) Make sure the T21 is connected with your PC via ActiveSync or WMDC.

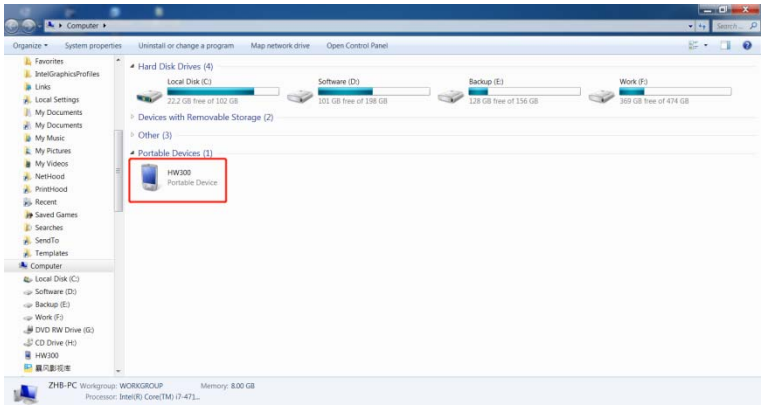


Figure 2-4: T21 Connected with PC

b) Click the installation file on your PC to start the installation of an application.

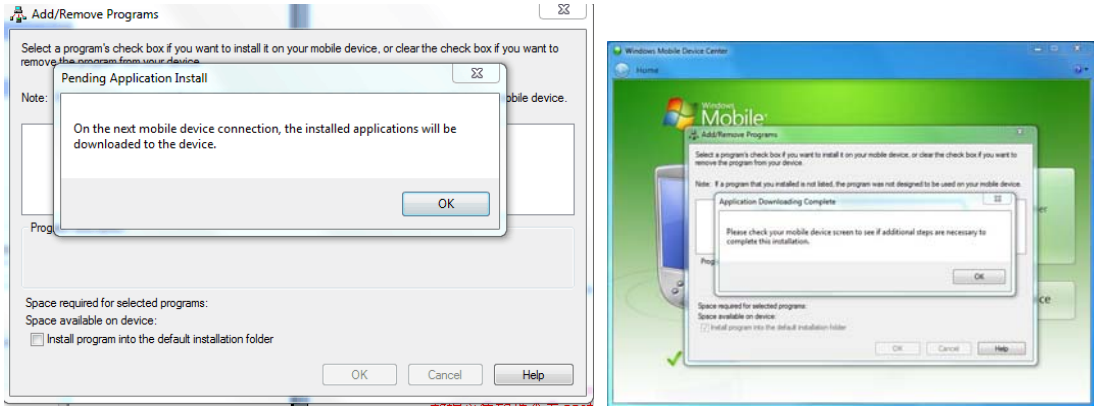


Figure2-5: Installing the Applicationg

c) Select an installation directory in the T21（**Flash Storage** is suggested）, and tap **install**.

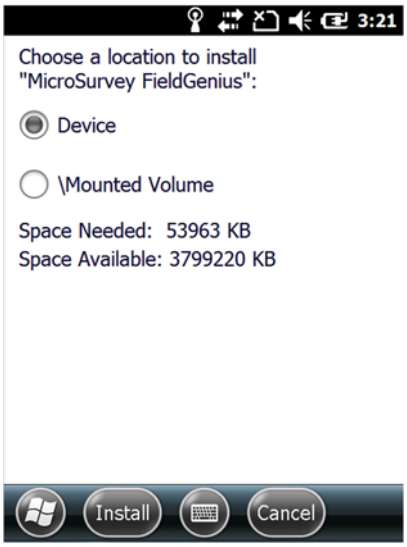


Figure 2-6: Choosing Install Location

NOTE: We suggest installing the application in **Flash Storage**, and saving your data to a TF card.

2.5.2. Directly Installing Applications

If the installation file is compatible on mobile devices, copy the file into the T21 and tap the file to directly start the installation.

2.6. GNSS status

a) Go to **Start menu** and find '**GNSSViewerPlus'**.

b) T21 supports COM3 as GNSS port and its BaudRate depends on GPS module. If GPS module is uBlox F9P, its baudrate is 38400. If other GPS module, choose BaudRate by tapping **Setup>Port Setup** as shown in Figure 2-7.

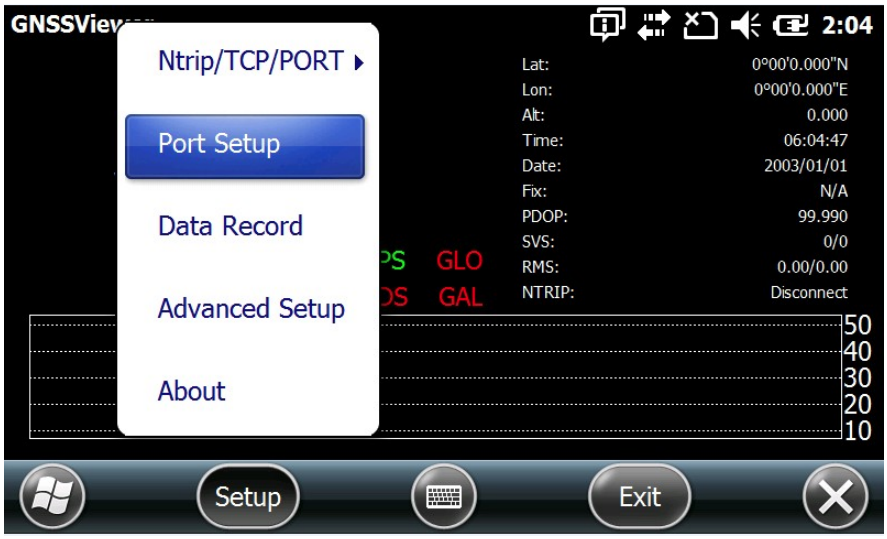


Figure 2-7: GNSS Status

c) Tap **OK**

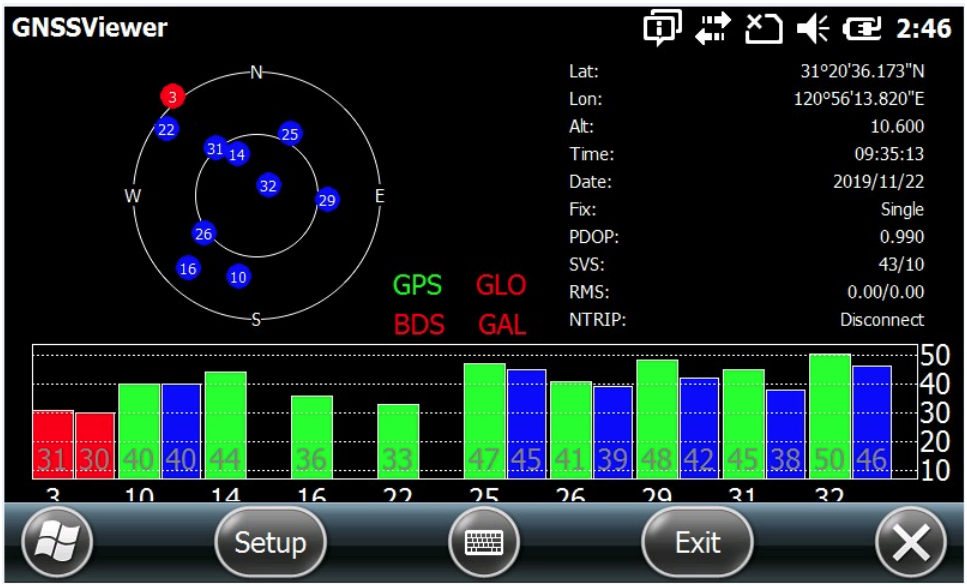


Figure 2-8: GNSS Status

2.7. Camera

a) Select **Start>Picture & Video**, select **Camera** icon or press **camera key**.

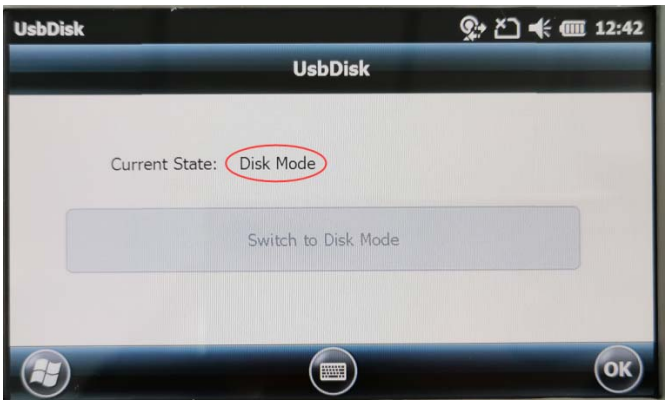
b) Press the camera key or **F3** to take photos.

c) Tap screen and select **OK** to exit.

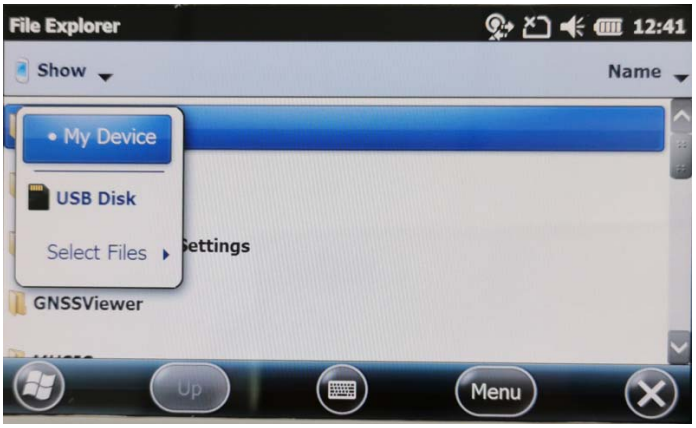
2.8. U Disk Function

a) Switch T21 to be 'Disk Mode' by clicking Setting -> System -> USBDisk -> Switch to Disk Mode

b) Plug a USB disk to USB port at the bottom of the T21 while Current State is in Disk mode.



c) The drive of 'USB Disk' will be shown in 'File Explorer'



Here something important needs to be noted:

i) Do not insert a U disk and USB cable at the same time

ii) Each time use the U disk function, you have to switch the T21 to 'Disk Mode' first, Or the U disk will not be found. If that, pull out the U disk, then insert it again.

iii) Default mode is ActiveSync mode with power on or restart T21 device.

2.9. Headset Jack

a) Plug a headset device to headset jack at the bottom of the device

b) Go to **\My Device\MUSIC** and play a music by Windows Media Player

c) The headset device now works.

2.10. User Serial Port

The user serial port is COM2. To transfer data between the T21 and other devices using a DB9 serial cable.

NOTE: This user serial port is at the bottom of the T21.

2.11. Wireless Connection (Bluetooth/GPRS/WIFI)

2.11.1. Standard Bluetooth

a) Select **Start>Settings>Connections>Wireless Management**, tap the

icon to activate the Bluetooth(BT) device.

b) Select **Start> Settings> Bluetooth**, and tap **Add new device…**. Follow the tips shown on the screen to finish the operation of pairing the other BT Device.

NOTE: The standard Bluetooth virtual ports are COM7 and COM9.

2.11.2. Long Range Bluetooth (Optional)

a) Select **Start>Settings>System**, and tap **Bluetooth Radio Manager**.

Figure 2-9: Bluetooth Radio Manager

b) Chose the module **DirectConn**, and tap **Power On**.

c) Tap **Search BT** to start searching for BT devices.

d) After all BT devices have been found, select a device.

e) Tap **Connect** to pair with a BT device of your choice. Your screen will display **Connect the BT device successfully** after BT pairs successfully.

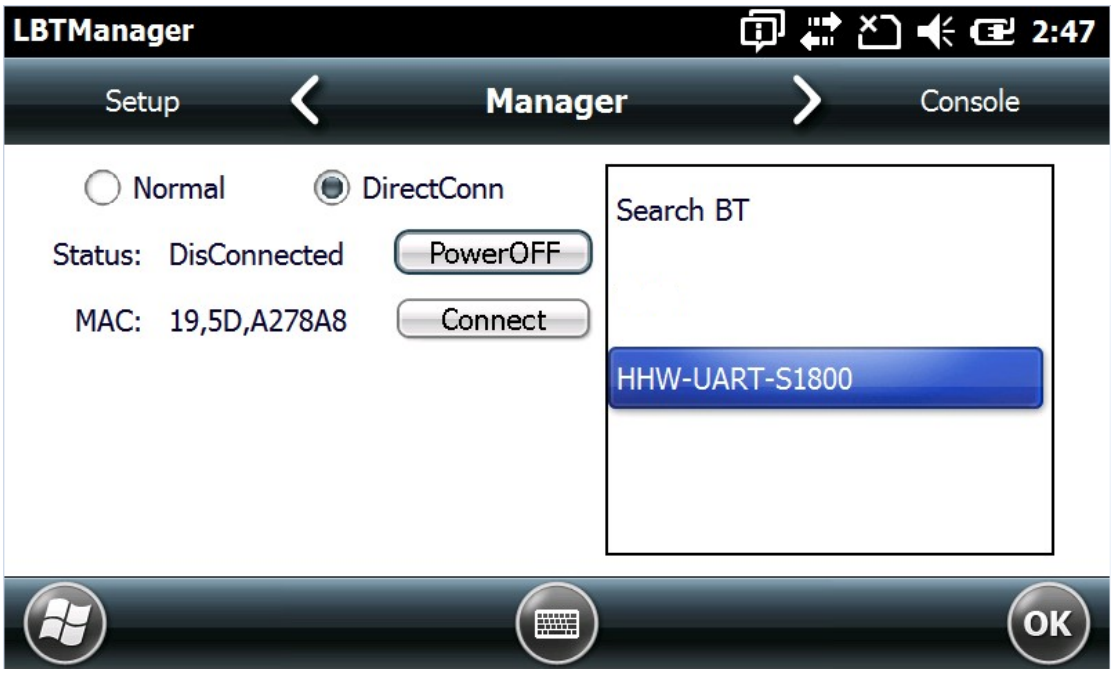


Figure 2-10: BT Manager-DirectConn

f) Tap **Console** to check the status of Bluetooth, as shown below.

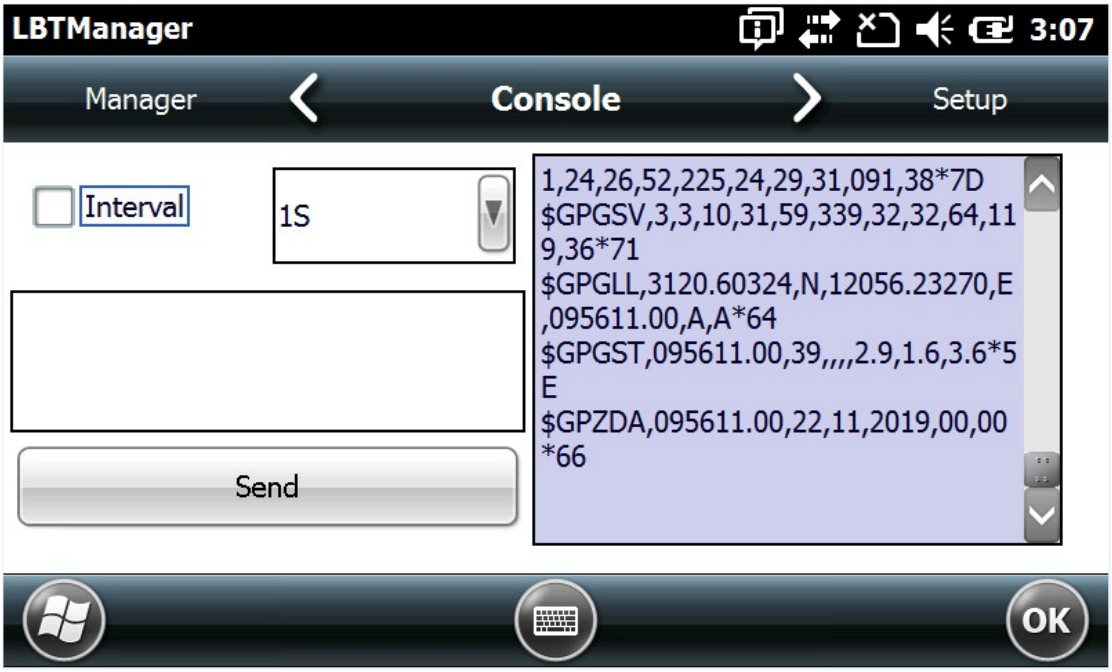


Figure 2-11: BT Manager-Status

g) Tap **Setup** to setup this Bluetooth, as shown below.

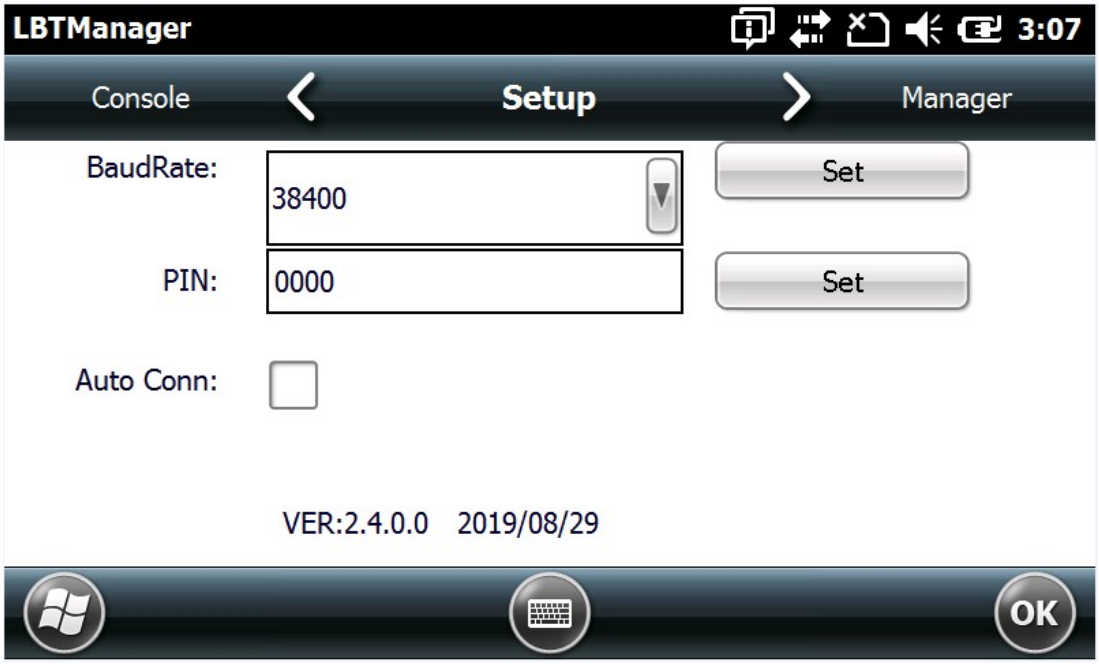


Figure 2-12: BT Manager-Setup

h) The default baud rate is 38400.

i) The **PIN** code refers to the pairing PIN code of the BT device which T21 want to pair with.

j) If you check **Auto Conn**, T21 will automatically connect to the last pairing BT device when powered up.

NOTE: Long Range Bluetooth port is COM2 which is the same as user serial port. If Long Range

Bluetooth been used, user serial port is disable.

2.11.3. Wi-Fi

a) Select **Start>Settings>Connections>Wi-Fi**.
b) Tap **Search for Networks**, select a network listed. Follow the installation guide to input a password and confirm connection to Wi-Fi.

2.11.4. GPRS/3G Data connection

a) Make sure there is a SIM card in the T21.
b) Select **Start>Settings>Connections>Connections**.
c) Tap **Add a new modem connection**.
d) Input connection name, select **Cellular Line (GPRS)**, and tap **Next.**
e) Input **Access point name**, tap **Next**.
f) Tap **Finish** and add new connection successfully.
g) Tap **Manage existing connections**.
h) Tap and hold on **new connection** and select **Connect**.
i) If there is the identifier on the signal icon in the top right corner, this indicates a successful.

3. Useful Functions

3.1. Screen response

Select **Start> Settings> System> Screen** ,tap the **Align Screen** icon and follow the guide to align the screen.

Figure 3-1: Align Screen

3.2. Adjusting the backlight

Select **Start> Settings> System> Backlight** to adjust backlight according to the guide.

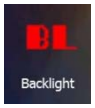


Figure 3-2: Backlight

3.3. Removing programs

Select **Start> Settings> System> Remove Programs** , select the programs you wish to remove in

the list and, click **OK** to remove.

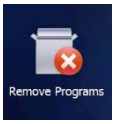


Figure 3-3: Remove Program

3.4. Auto power off*

(*NOTE: The device does not support the Auto power off function, instead use Go-to-sleep mode.)

Select **Start> Settings> System> Power> Advanced**, set the power off time in different conditions. Backlight will be off according to selected settings.

Figure 3-4: Go-to-Sleep Mode

3.5. Clean Boot

Select **Start> Settings> System> Clean Boot**, to restore factory default settings according to the guide.

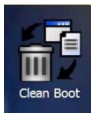


Figure 3-5: Clean Boot

NOTE: The password is “1234”. Restoring factory settings will clear the system configuration, please be cautious.

3.6. PWConfig

Select **Start> Settings> System> PWConfig**.

NOTE: While on **Screen off** mode, the device won’t hibernate.

Figure 3-6: PWConfig

4. Accessories

4.1. Standard Accessories

Table 4-1, Stardand Accessories

Item	Name	Description	Quantity
1	DC Adapter	220V/DC5V/2A	1

2	USB cable	USB to B-TYPE USB cable	1
3	Serial cable	DB9 serial cable	1
4	Li-ion Battery	3.7V/6500mAh	1
5	Strap	Black, 180*12mm	1
6	Stylus	Black, 127mm	1
7	Screen protection film	57*76mm, 3H & Screen Microfiber Cloth	2
8	User guide	Size,14*21cm	1

4.2. Optional Accessories

Table 4-2, Optional Accessories

Item	Name	Description	Quantity
1	TF card	Memory Capacity: 8G	1
2	External battery charger	5V/2A	1
3	Mounting bracket and Pole (Claw) Clamp	HW-02	1
4	External GNSS antenna	GPS L1, BD B1, Glonass G1 Gain: 40dB TNC Connector	1
5	External antenna cable	Fischer to TNC cable	1
6	TNC to TNC cable	TNC male to TNC male cable, 3m long	1
7	Centering rod	Centering rod	1

5. Environmental Specifications

a) Operating ambient temperature: -20℃ to +60℃
b) Non operating temperature: -30℃ to +70℃
c) Drop: 1.5m drop tested on all surfaces
d) Water and Resistant: Rated IP65 under IEC 60529
e) Relative humidity: 5% ~ 95% , non-condensing

6. Warranty Terms

HowayGIS T21 Series are guaranteed against defective material and workmanship under normal use and application consistent with this Guide. The equipment is guaranteed for the period indicated, on the warranty card accompanying the product, starting from the date that the product is sold to the original purchaser by HowayGIS' Authorized Dealers.

During the warranty period, HowayGIS will, at its option, repair or replace this product at no additional charge. Repair parts and replacement products will be furnished on an exchange basis

and will be either reconditioned or new. This limited warranty does not include service to repair damage to the product resulting from an accident, disaster, misuses, abuse or modification of the product.

Warranty service may be obtained from an authorized HowayGIS warranty service dealer. If this product is delivered by mail, purchaser agrees to insure the product or assume the risk of loss or damage in transit, to prepay shipping charges to the warranty service location and to use the original shipping container or equivalent. A letter should accompany the package furnishing a description of the problem and/ or defect.

The purchaser's sole remedy shall be replacement as provided above. In no event shall HowayGIS be liable for any damages or other claim including any claim for lost profits, lost savings or other incidental or consequential damages arising out of the use of, or inability to use, the product.

NOTE: Please use the original factory parts.

7. Contact information

HowayGIS Infotech Co, Shanghai, China
Address: Room 230, Focus Building, Lane No.1985, Chunshen Road, Minhang District, Shanghai 201102 China
Telephone: +86-21-56383139
Email: supports@howaygis.com

8. Appendix – Product Safety Warnings

Safety and compliance information

- Use responsibly –Read all instructions and safety information before use to avoid injury.

Battery safety

- Charge battery only in temperature ranging from 32℉ to 140℉ (0℃ to 50℃)
- CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type of battery recommended by the manufacturer.
- The maximum operating ambient temperature of the switching power supply declared by the manufacturer is 50℃.
- Dispose of used batteries according to battery manufacturer's instructions.

Wi-Fi safety

- Turn Wi-Fi off in areas where Wi-Fi use is prohibited or when it may cause interference or danger, such as in airplanes while flying.

Care and maintenance

T21 is an electronic product and should be treated with care. To reduce the risk of fire, electronic shock, or product damage take the following advice:

- Do not expose this device to rain, moisture, or any type of liquid that corrodes electronic circuits. If your device gets wet, immediately turn the power off. Allow the device to dry completely before using it again.

- Clean the display with a soft cloth, and be careful not to wipe the display with anything abrasive.
- Do not expose your device to extreme heat (60℃) or cold (-20℃). For example, do not leave it in the trunk of your car in high heat conditions.
- Do not attempt to open the device other than as instructed in this manual.
- Rough handling can break internal circuitry.
- Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the device.
- Use only the recommended accessories.

CAUTION!

CONNECTION TO A USB INTERFACE MUST BE LIMITED

TO USB2.0 VERSION OR HIGHER

CONNECTION TO “POWER USE” MODE IS PROHIBITED.