

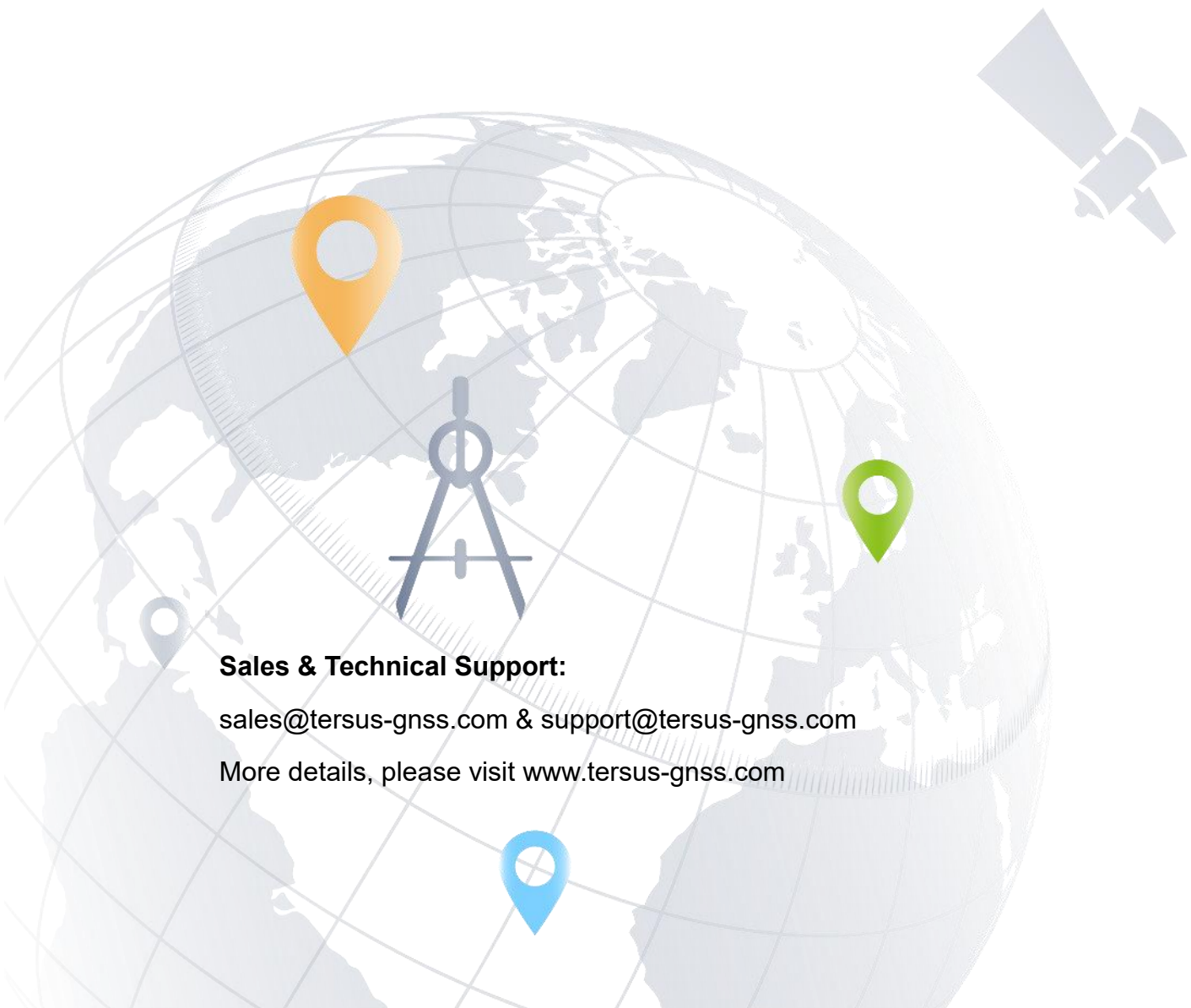
Guide

Version V1.0 - 20251211



TS20 & TS21 GNSS Receiver Firmware Upgrade Guide

©2025 Tersus GNSS Inc. All rights reserved.



Sales & Technical Support:

sales@tersus-gnss.com & support@tersus-gnss.com

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

Table of Content

Table of Content	- 1 -
1. Interfaces of TS20 & TS21	- 2 -
2. Firmware Upgrade	- 3 -
2.1 View TS20 & TS21 firmware version	- 3 -
2.2 Upgrade the firmware through the built-in storage of the host	- 4 -





1. Interfaces of TS20 & TS21

The bottom of TS20 & TS21 receiver is shown as below.



Figure 1 Bottom of TS20 & TS21

Table 1 Interfaces on the bottom side

Icon	Name	Connections
	Serial port & external power	Device, computer, USB drive, external power, communication, external radio
	SIM slot	Nano SIM card
	TNC port	410-470MHz radio antenna
	Screw hole	5/8" x 11 UNC-2B connector for corresponding connector and pole.

2. Firmware Upgrade

2.1 View TS20 & TS21 firmware version

When TS20 or TS21 GNSS receiver is powered on, go to [Device] -> [Connect] in Nuwa App, and select [TS20] as the Device Type. Tap [Connect Config] to search for and connect to the TS20 or TS21's WiFi. Then click [Connect] to enable the communication between controller and the device.

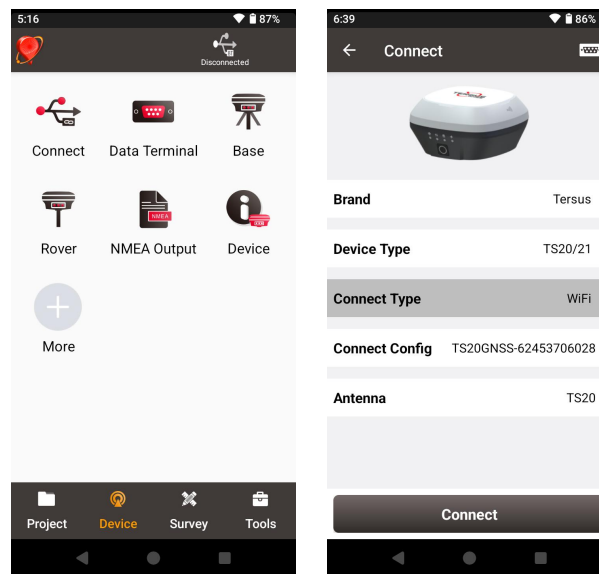


Figure 2 Connect to TS20 or TS21 via WiFi

Click [Device] -> [Device], the TS20 or TS21 info is shown as below. You can view firmware version.

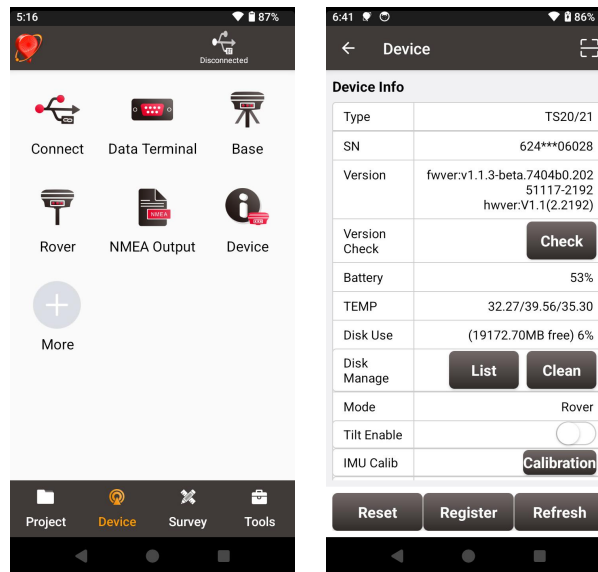


Figure 3 View TS20 & TS21 firmware version

2.2 Upgrade the firmware through the built-in storage of the host

The detailed steps are as follows.

- 1) Download the latest firmware file from Tersus website

<https://tersus-gnss.com/software/gnss-smart-antennas>

Please be noted that the downloaded file is a .zip file, unzip this file to find the firmware file of .BIN format.

- 2) Prepare a Type-C USB cable, when TS20 or TS21 is turned on, connect the Type-C port of TS20 or TS21 to the computer with a Type-C USB cable.



Figure 4 Type-C USB cable connect the computer and TS20 or TS21

3) The computer interface will automatically pop up two removable disks. As shown in the figure below.



Figure 5 Two Removable Disks

4) Choose the Update removable disk and put the firmware file in the .BIN format on this removable disk. As shown in the figure below, copy the firmware to the Update drive.

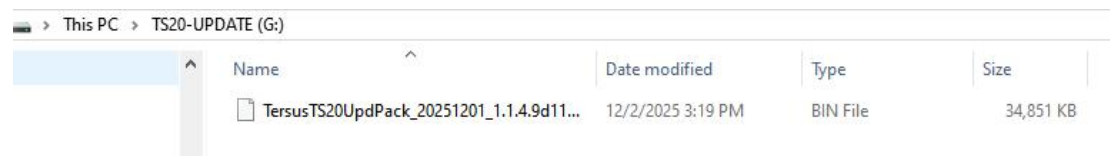


Figure 6 The FW is placed in the Update removable disk

5) Unplug the Type-C USB cable, press and hold the power button to shut down TS20 or TS21 .

6) Make sure that device is turned off, then press and hold the power button to turn on TS20 or TS21.

Firmware upgrade includes system upgrade and board upgrade. The system upgrade is automatically performed upon startup, the four LED indicators are all on during system upgrade. After the system upgrade is completed, the indicator lights are all off, and the host automatically restarts. The host program automatically upgrades the board. During the board upgrade, the lights will be turned on one by one. After completing the board upgrade, the satellite light will flash. You can connect to the controller to view the firmware version. If the firmware version is consistent with the latest firmware version in the removable disk, it means the upgrade is successful.



Figure 7 Upgrading

Note: Please make sure the battery has enough power for the firmware upgrade. The GNSS board inside TS20 or TS21 will upgrade when the firmware is upgrading, any forced power failure will cause the system crash.

Proprietary Notice

All Information in this document is subject to change without notice and does not reflect the commitment on Tersus GNSS Inc. No part of this manual may be reproduced or transmitted by all means without authorization of Tersus GNSS Inc. The software described in this document must be used in terms of the agreement. Any modification without permission from Tersus GNSS Inc. is not allowed.