SE Lite GNSS Receiver

User Manual

V2.0_202312

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1. Introduction

This is the user manual for STEC SE Lite GNSS receiver. It gives basic description andoperation guide which may help user to operate device properly.

1.1 Appearance

STEC SE Lite main body is designed with magnesium alloy material to provide durable usage and better heat dispersion as well as light weight 695g. The internal battery ensures up to 20 hours continuous working.

1.2 Indicator

Working status is viewable through the indicators. The meaning of each indicator:

Indicator	Color	Meaning
Satellite	Red and Green	• Off: no receiving satellites • Flash red: receiving satellites but no solution status. • Flash green: have solution but not fixed. • Solid green: fixed solution • Flash red and green alternately: main board abnormal
Data link	Green and Blue	• Solid green: datalink is ready to start. • Flash green: datalink is transmitting data normally. • Flash Blue: when raw data recording is enabled, the LED will flash according to the interval
Bluetooth	Blue	• Off: no Bluetooth connection • Solid blue: has Bluetooth connection

1.3 Interface

STEC SE Lite GNSS receive bottom interface is shown as below.

UHF Antenna Socket

1.4 Power button

The main function is as below:

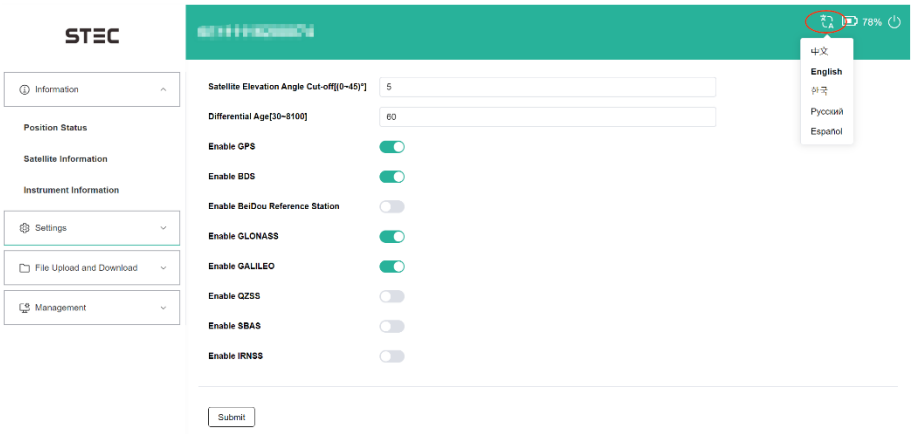
Power On	Long press button for five seconds until hear one beep and see all lights on to power on receiver.
Power Off	Long press button for three seconds then release, You will hear the voice "***Please release button, short press to power off, long press to self-check***" Then short press the button again to confirm.
Broadcast Current Working Mode	Receiver will broadcast current working mode when press the power button once.
Self-check	Long press button for three seconds then release, will hear the voice "***Please release button, short press to power off, long press to self-check***" Then long press button for three seconds then release, will hear the voice "***Start self-check***".

2. Web User Interface

User can connect to receiver WIFI hotspot with PC, smart phone or tablet. The hotspot name is the device serial number, can be found under the bottom of the device label. Open web browser and input the IP address "192.168.10.1". The default user name is "admin", password is "password". From the website, user can manage working status, change working mode, configurate basic settings, download raw data, update firmware, and register device.

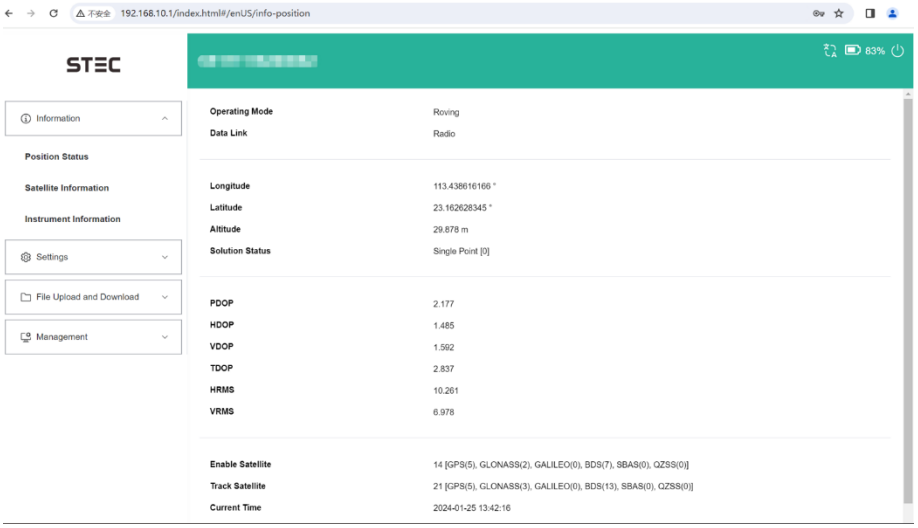
Language and intelligent voice

After entering web UI, users can configure language display and device voice via pressing following button.



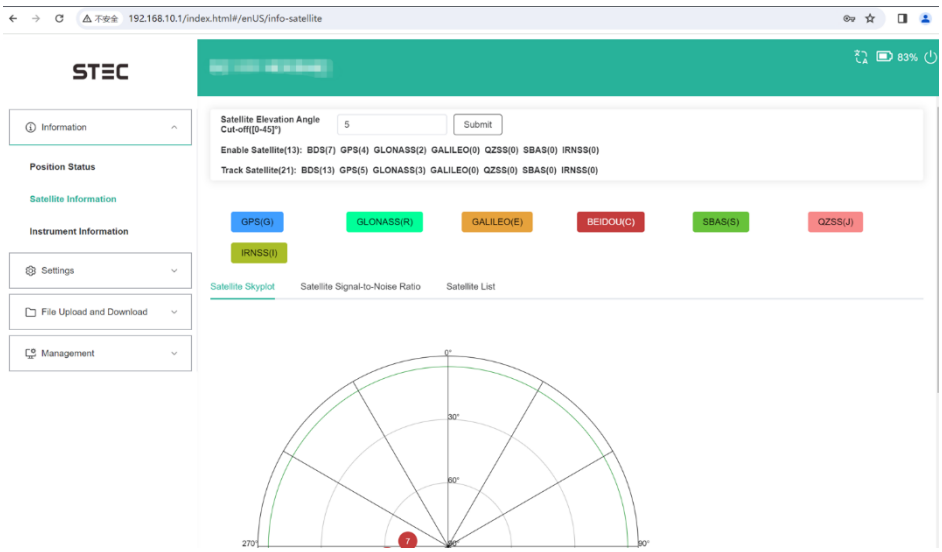
2.1 Position

View basic position information, satellite number, PDOP and time. In static mode, can start and stop recording here.



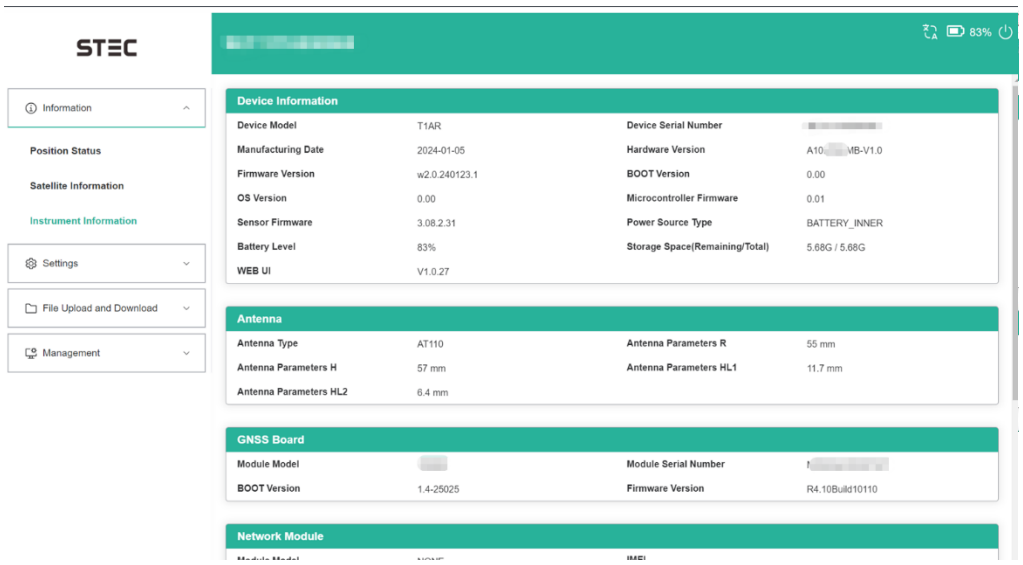
2.2 Satellites

View satellite list and satellite map, set cut-off angle.



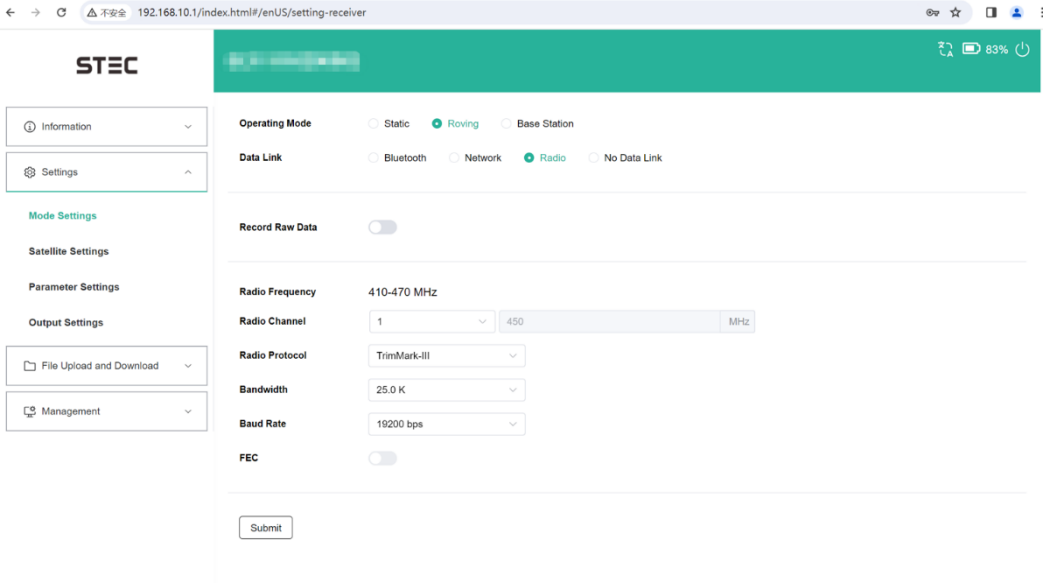
2.3 Instrument Information

View receiver information: firmware version, GNSS board, and network module.



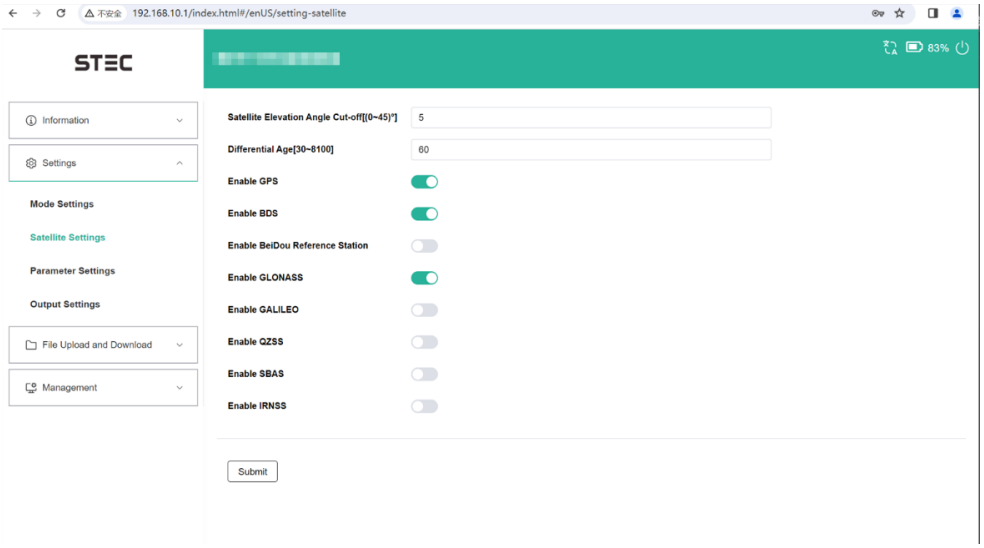
2.4 Working Mode Settings

Configure working mode: base, rover or static. Also can configure data-link parameters.



2.5 Satellite Setting

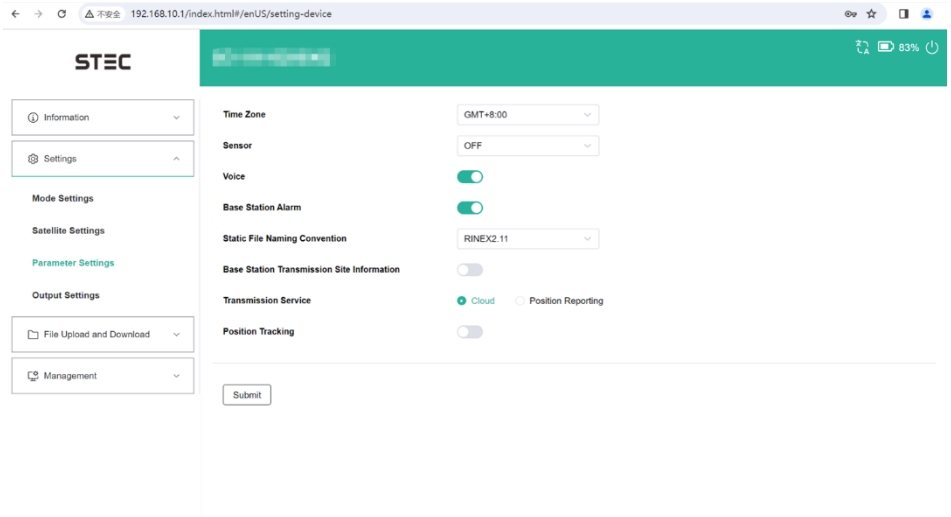
Configure the satellites to be used.



2.6 System Parameter Settings

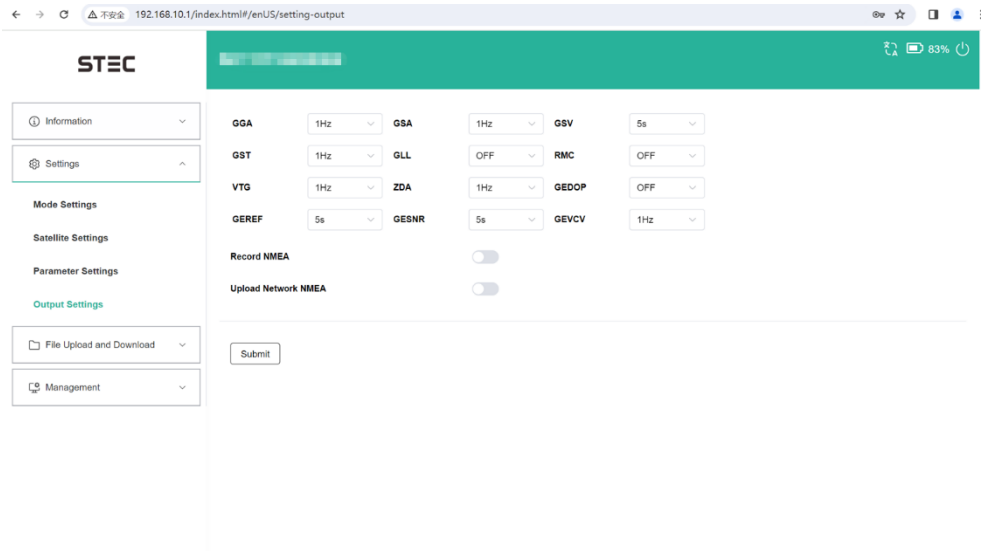
Configure receiver settings.

- User can set time zone and sensor update rate.
- Smart voice broadcast can be activated or not according to client need.
- Set the Rinex version for static data naming method.
- “Cloud service” and “Track back” is used for uploading position information to cloud/TCP server.



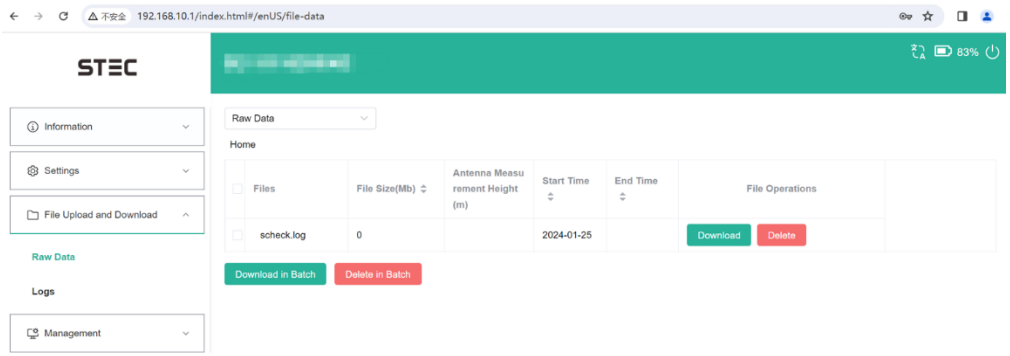
2.7 Output Settings

Configure NMEA data output through Bluetooth.



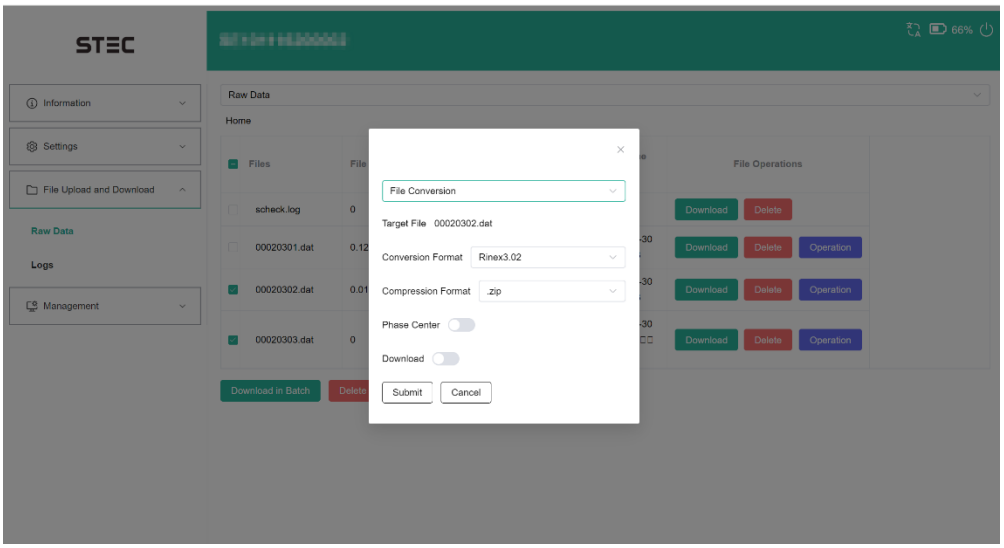
2.8 Raw Data

Download raw data or convert data to RINEX format. User can use check box, then



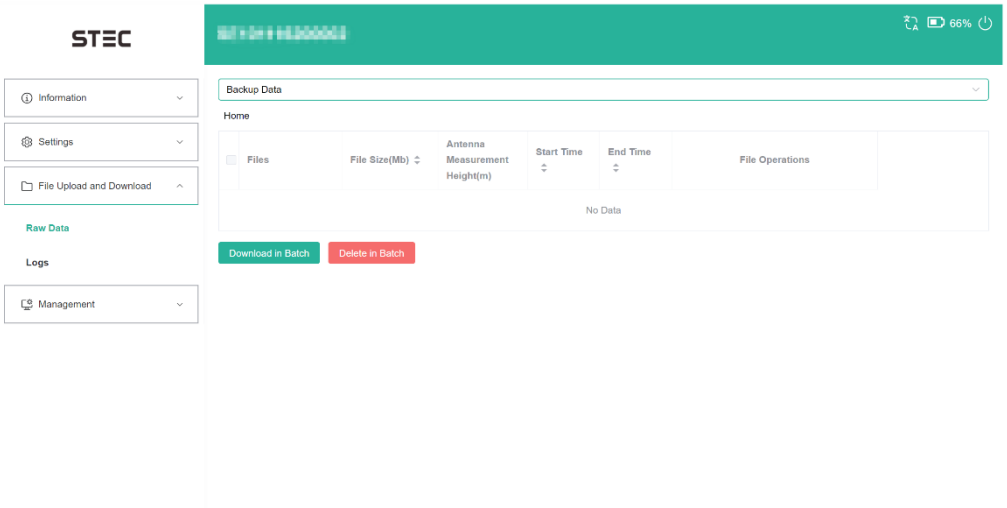
click “Download choose” button to download multiple files.

The default static file type is *.dat, if users want to convert the file type to Rinex format, you can select one file, then press “Modify” button, it will pop up a dialog, select “convert” from drop-down menu, then choose required Rinex format version, press submit, it will generate a new file package in the file list.



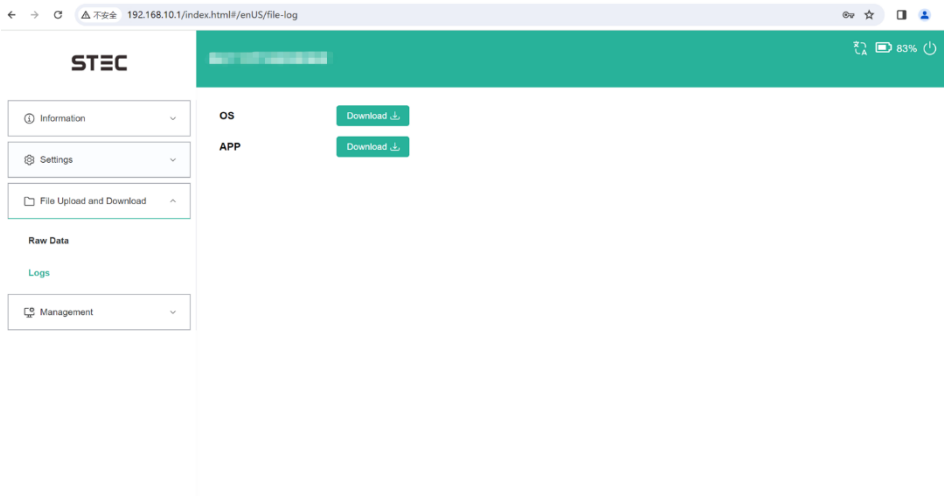
Backup data

The points collected in SurPad4.x will be backup in receiver storage automatically to avoid data loss. Can restore the data to SurPad software.



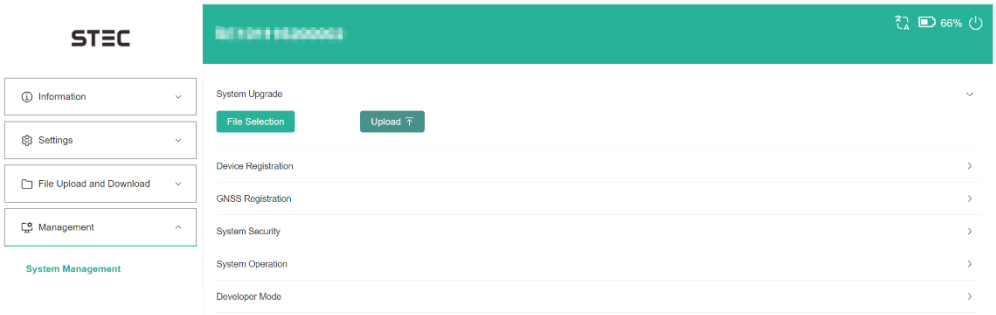
2.9 Log

The log files can be used to diagnose issues. Click “download” to download the files.



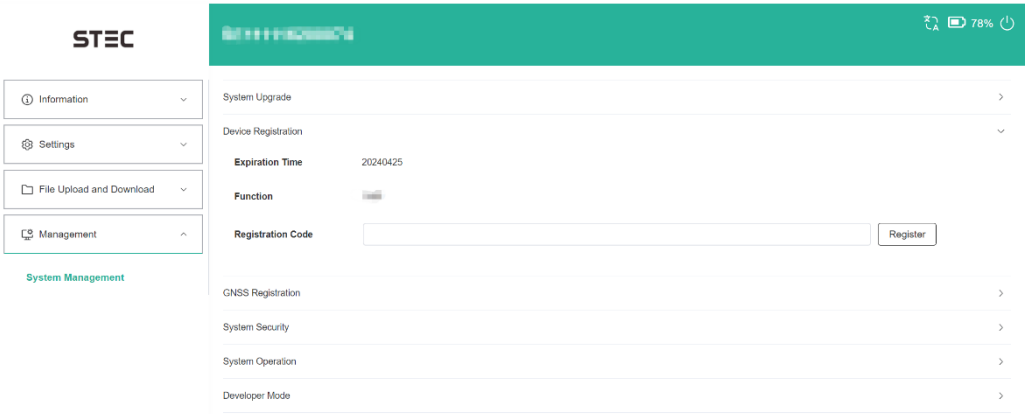
2.10 System Management

User can update receiver and GNSS firmware as well as register device, format internal disk, restore factory setting, restart device. To update the firmware, click “Choose File” to import the firmware, then click “Upload File” to start updating.



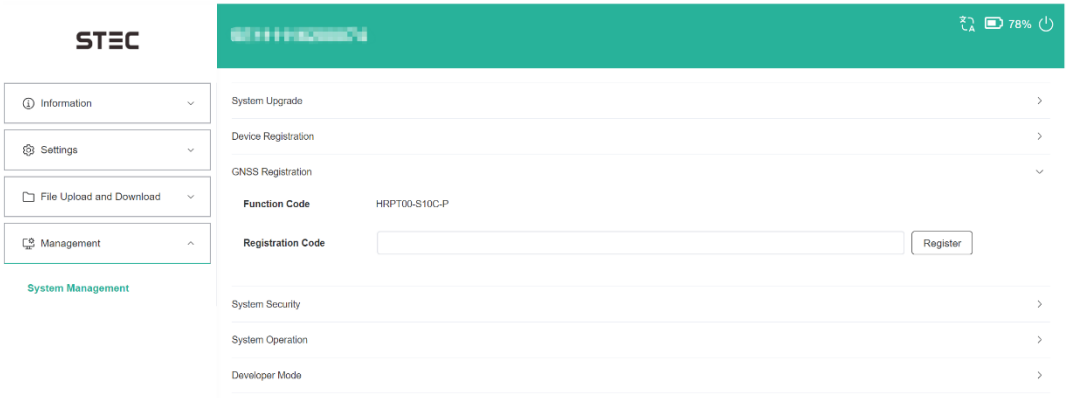
Device Registration

This menu is used for registering permanent or temporary license.



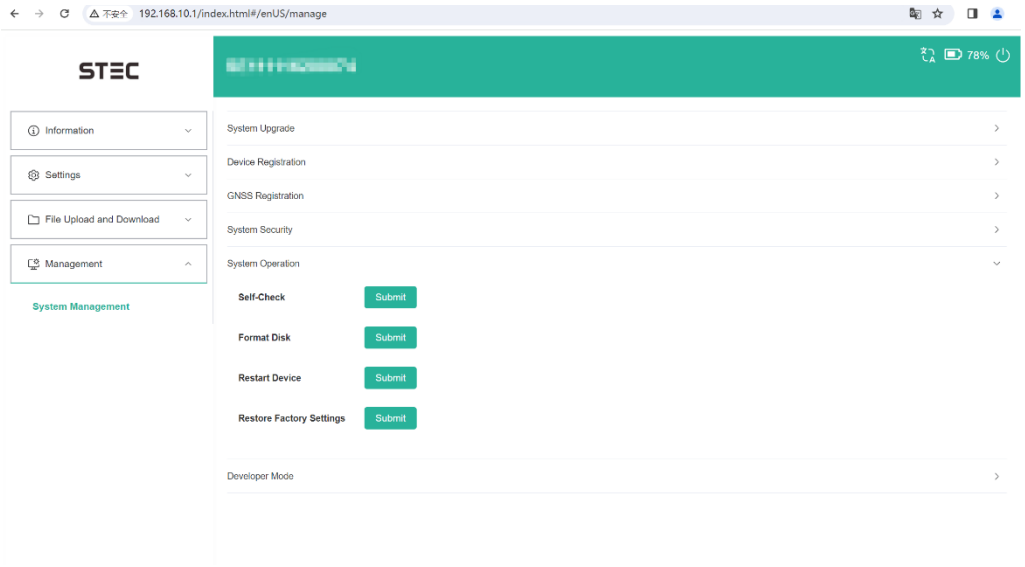
GNSS Registration

This menu is used for open different module functions.



System Operation

In this menu, users can make the four kinds of operation, self-check, format disk, restart device, factory reset.



3. Basic Operation

This part shows user some basic operations to start working.

3.1 Charge the battery

SE Lite is equipped with Type-C charger which support maximum 45w PD quick charge. Fully charge the battery will take 4 hours typically. The battery indicator is red when charging, will turn green when fully charged.

3.2 Measure antenna height

To get correct elevation value, we need to know the correct phase center height of the receiver. However, it is almost not possible to measure the phase center directly. Normally, the software will read the receiver antenna offset parameters. Once user input the measurement height, software will calculate the phase center height automatically. Typically, there are two ways to measure the height:

A: Slant height (to measurement line)

- Centering and leveling the tripod on known point, then measure slant height from the ground point to the arrow at the side of the receiver.

B: Pole height (straight height to device bottom)

- Read the straight pole height

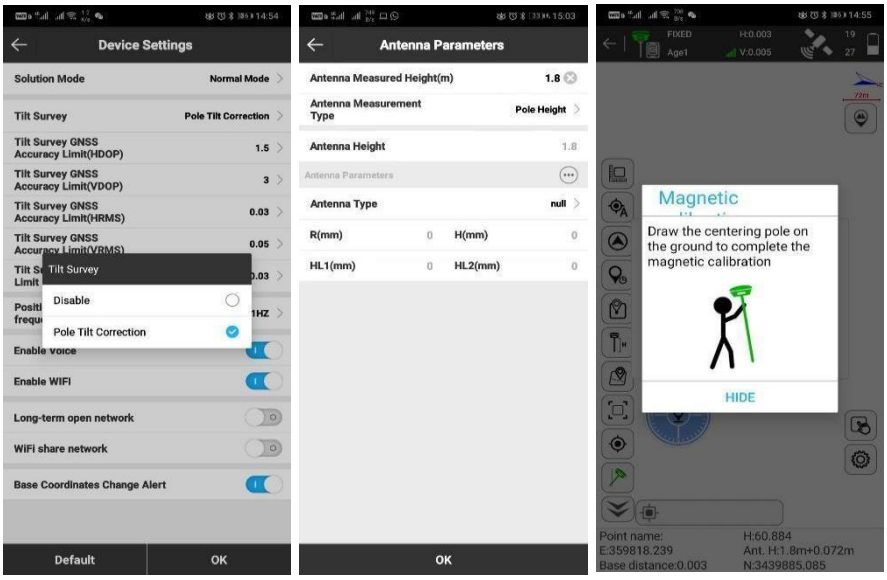
3.3 IMU Sensor

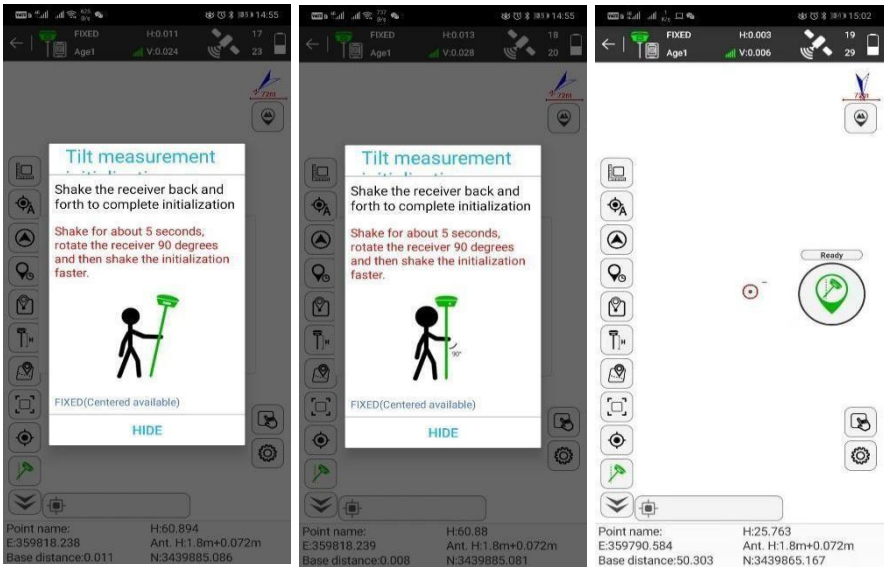
STEC SE Lite is integrated with powerful calibration-free IMU sensor to give better experiencein the real field work.

3.4.2 IMU Tilt Survey

To initialize the IMU sensor, receiver must be in Fixed solution.
In SurPad4.0 software, connect device and click “Device” -> “Device Settings”, enable “Pole Tilt Correction” function. Then, go to “Survey” -> “Point Survey” page. The software will guide user to calibrate the sensor.

- Input the correct pole height.
- Draw circle on the ground using the pole.
- Follow the guide and shake the pole back and forth for around 5-10 seconds or walk in straight line around 10 meters until it shows “Ready”





FCC Warning

15.19 Labeling requirements.

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.

15.21 Information to user.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

15.105 Information to the user.

Note: 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.

FCC RF Radiation Exposure Statement:

1.This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

2.This equipment complies with RF radiation exposure limits set forth for an uncontrolled environment.

This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.