Installation guide

GeoMax Zenith60 Series

English

Version 1.0

PART OF HEXAGON

Table of contents

1 Introduction

This guide provides complete step-by-step instructions for preparing the Zenith60 GNSS series for measuring work. The instructions cover all of the required installation tasks for the Zenith60 GNSS receiver.

The latest versions of GeoMax documents and software referred to in this document are available from the Technical Library of the GeoMax Partner Area in the Zenith60 folder at: www.geomax-positioning.com/partner-area

Only the tasks required for the initial setup of a new Zenith60 system are described in this document. For further information regarding the operation of the Zenith60 components, please refer to the User Manual.

- The Zenith60 Quick Guide is included with the container set. The comprehensive User Manual for the GNSS receiver is available from the USB stick that is included in the container set. Both the Quick Guide and the User Manual are also accessible from the Technical Library in the Zenith60 folder at www.geomax-positioning.com/partner-area
- The appropriate uses of the included accessories are described in the User Manual.

2 Battery Charging

2.1 Zenith60 Receiver

Before using the instrument, the included batteries should be charged. Insert the batteries into the charger and plug the adapter into an AC power supply. Once the batteries are fully charged, the charger LED will change from red to green and pushing the button on the battery will show all four power level LEDs as solid green. Once fully charged, insert the batteries into the battery compartments of the Zenith60 instrument and switch it on.

2.2 Field Controller

The Field Controller, if it is purchased, is supplied in a cardboard box which includes the device, battery, and charging adapter. Insert the supplied battery into the battery compartment of the device. Charge the internal battery with the supplied adapter. Do not disconnect from power until the battery is fully charged.

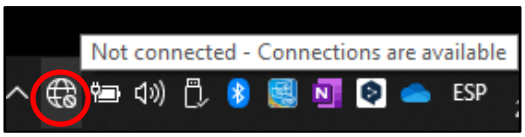
3 PREPARATION OF THE GNSS RECEIVER

3.1 Introduction to the GeoMax Zenith60 WebManager

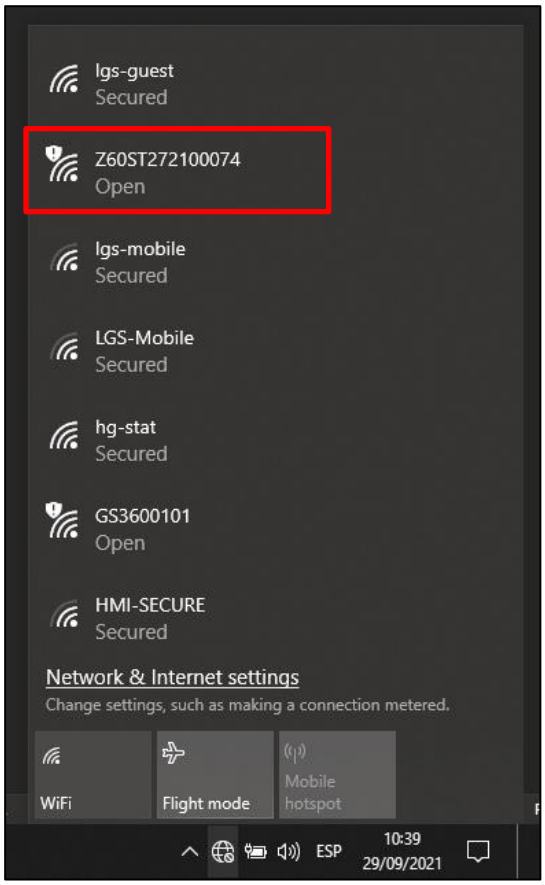
The GeoMax Z60 WebManager (web application) can be used to set up, configure and operate the instrument, download data from the instrument and microSD card, and upload licence keys and firmware.

3.2 Connect to your Zenith60 receiver via WiFi

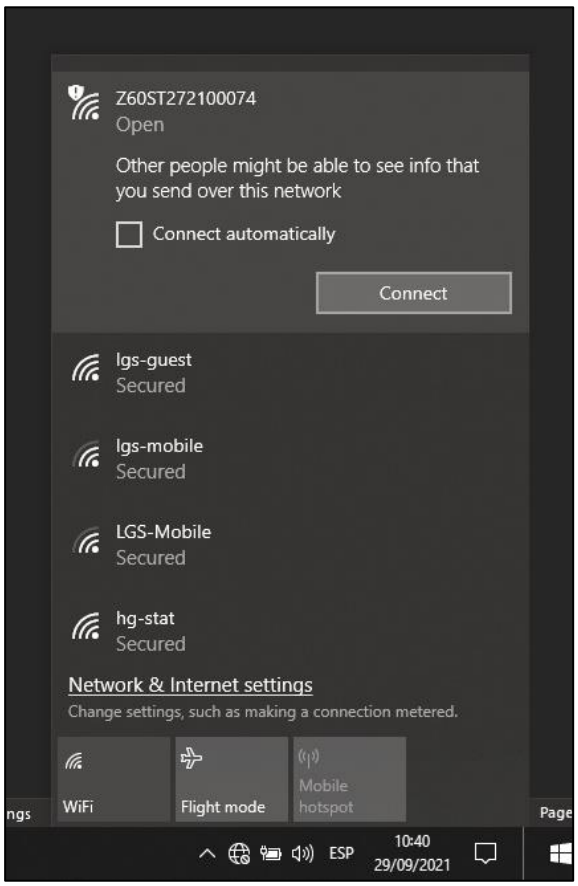
Turn on the Zenith60 sensor. Make sure that the wireless modem on the PC or WiFi enabled device is turned on and you are able to search for available "WiFi connections".



Select the WiFi name that corresponds to the serial number of your Zenith60.

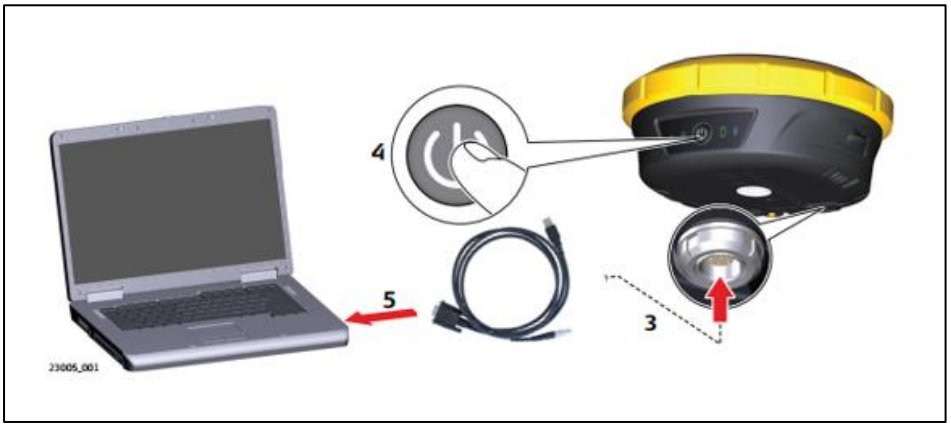


Once the serial number of the sensor is visible in the Wireless Network Connection list, select it and click “Connect”. The Zenith60 and your device will be connected.

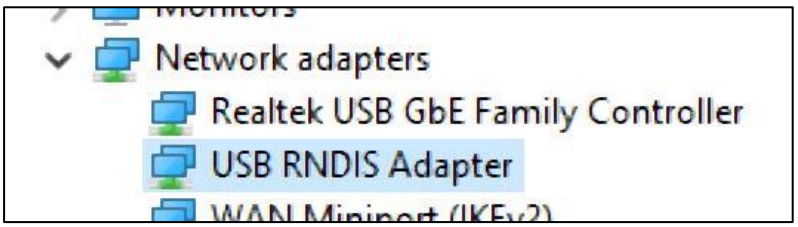


3.3 Connect to your Zenith60 via USB cable

Locate the included cable (ZDC509) in the container and plug it into the corresponding port of the Zenith60. Turn on your Zenith60. Plug the cable into the USB port of the PC.



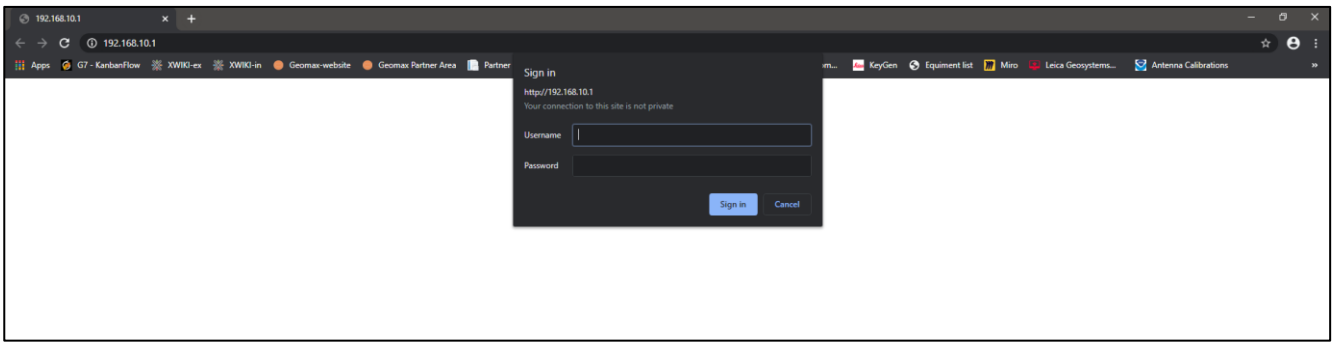
Open Windows Device Manager and double check that the device is recognized correctly as "USB RNDIS" network adapter.



If not, refer to the "How to install the driver" section of this guide.

3.4 Start the GeoMax Z60 WebManager

As soon as the connection is established, either by WiFi or by cable, start the web browser and enter the following IP http://192.168.10.1 into the address bar. A login-window will pop up.



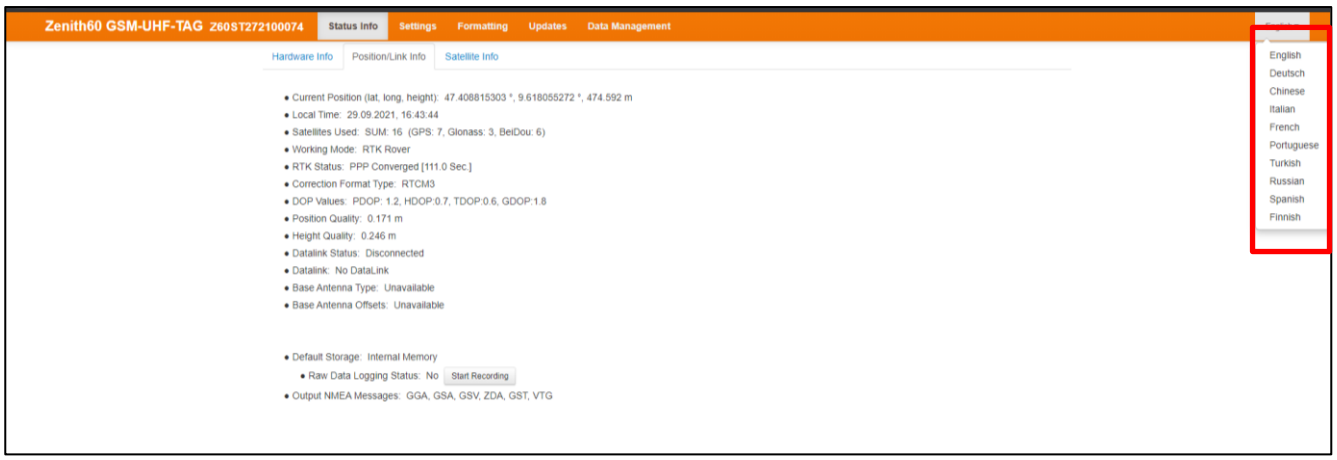
Enter the user name and password. The default values for the login are:

User name: admin
Password: password

After a successful login the start screen of the GeoMax Z60 WebManager appears, and the instrument can be accessed.

3.5 Change the language of the GeoMax Z60 WebManager

Go to the top-right corner in the GeoMax Z60 WebManager and open the selection list to see the available languages (click on the dropdown menu under "English"). Once your preferred language is selected, the Z60 WebManager will automatically be displayed in the chosen language.



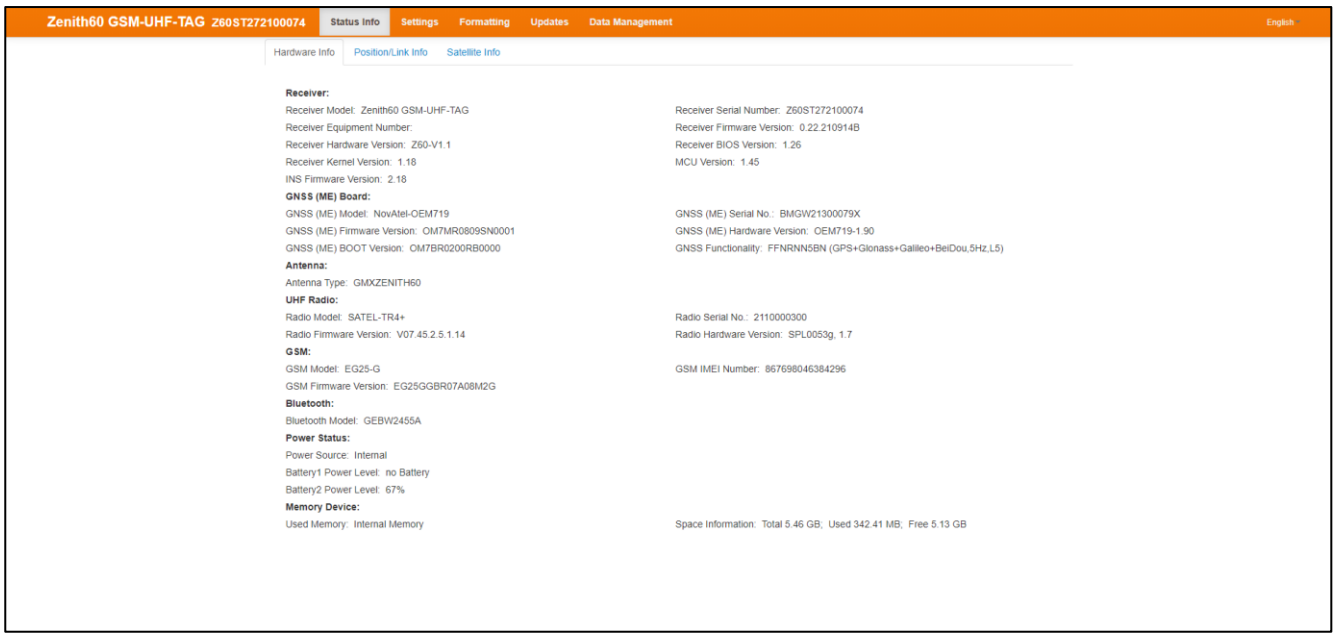
3.6 Menu functions

The main functions of the WebManager are:

- **Hardware Information** → to view information about the GNSS instrument such as firmware versions and hardware models.
- **Position/Link Information** → to view the current status of the GNSS instrument.
- **Satellite Information** → to view a list or skyplot of all currently used and tracked satellites.
- **Satellite Settings** → to enable or disable satellite systems or individual satellites.
- **Sensor Settings** → to configure the sensor settings and working mode including NMEA streaming.
- **Format Sensor** → to format the memory, reset to factory settings, perform a self-test on the instrument or restart the instrument.
- **License Key File** → to upload license key files.
- **Firmware File** → to upload instrument, ME, UHF and GSM firmware.
- **Antenna File** → to upload base antenna calibration values to the instrument.
  Data Download → to download data files from the internal memory of the instrument or the inserted microSD card in DAT or RINEX formats.

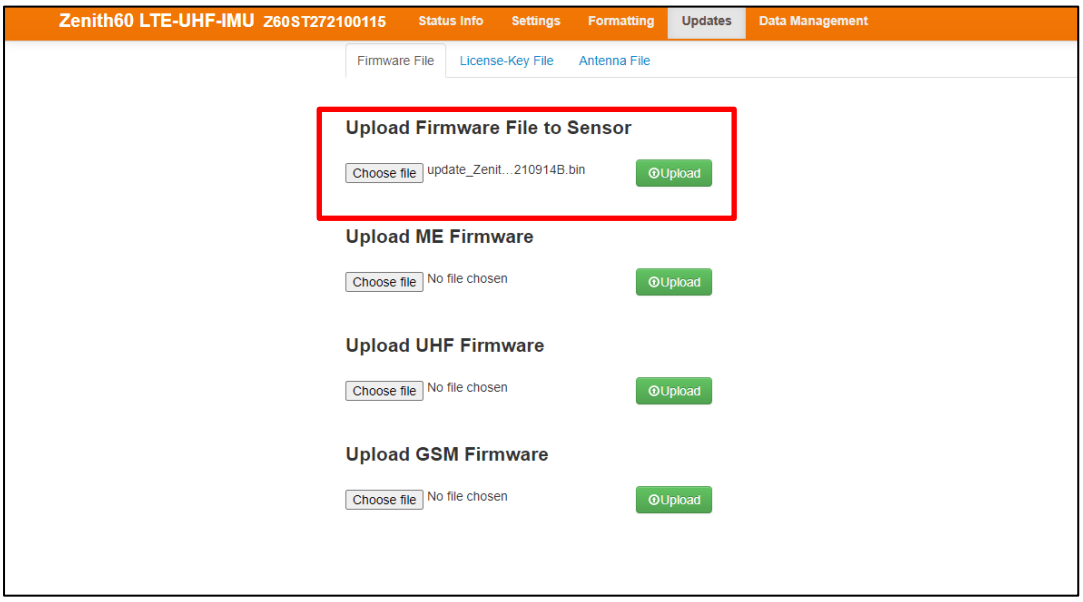
3.7 Firmware upload

Before using the receiver, it is recommended that you check the firmware version currently loaded on it. Once connected with the GeoMax Z60 WebManager, the installed firmware version can be seen under the **Status Info** → **Hardware Info** tab.



If the installed firmware is older than the latest one available in the GeoMax Partner Area, it is recommended to perform an update:

- Download the latest firmware file and store it on your PC or WiFi-enabled device.
- Go to the **Updates** tab in the GeoMax Z60 WebManager. Click 'Choose File' to select the latest firmware file from the saved location on your device and click 'Upload'.



- First, make sure that your Zenith60 has enough power to proceed with the update and accept the warning message about ensuring sufficient power supply to start the firmware

upload. Once the sensor restarts (as seen by the LEDs turning off and back on), the firmware should be installed.

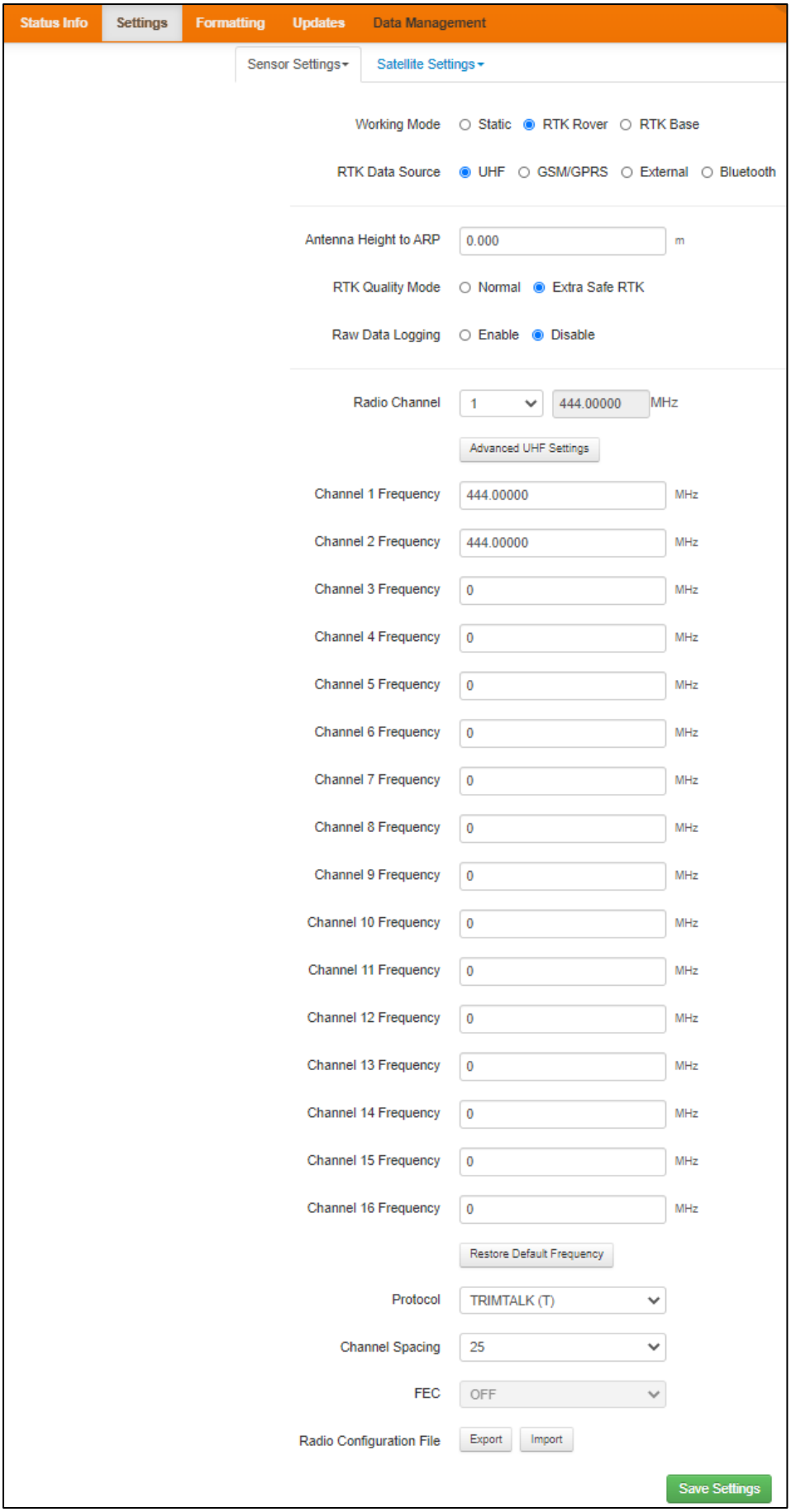
- Please re-connect the receiver to the GeoMax Z60 WebManager. Check that the new firmware version is now displayed in the Hardware Info tab.

3.8 Changing the UHF radio settings

To meet country radio licence requirements, the internal UHF radio must be set before use to legally allowed local frequencies as defined by local or governmental authorities. Use of forbidden frequencies may lead to prosecution and penalties.

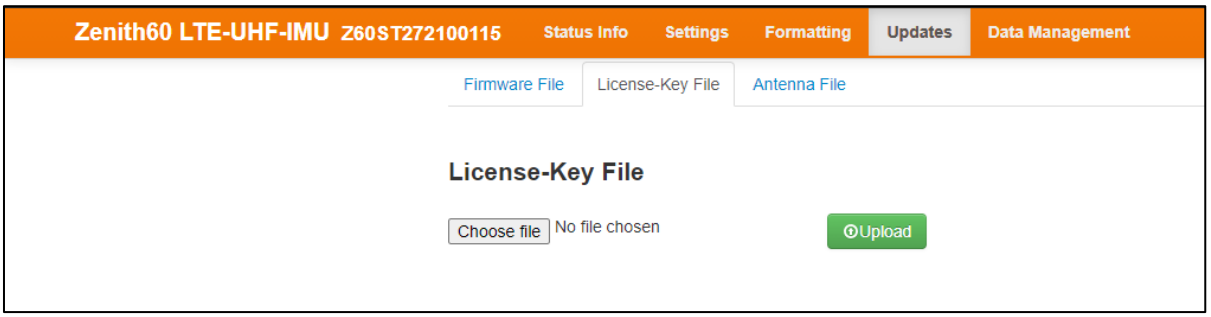
The internal radio can be configured with a channel, protocol type, and channel spacing. Various required frequencies can be entered into the channel table and assigned to a specific channel number.

The following procedure defines the configuration of the internal UHF radio. Go to **Settings** and select UHF as the RTK Data Source. Once you click on 'Advanced UHF Settings', a password is required to enter. As soon as you enter the default password, the Internal Radio window, where various required frequencies can be entered into the channel table and assigned to specific channel numbers, is displayed. Check with your country specific local authorities on what frequencies and channel spacings may be used. In the Radio Settings field, the internal radio can be configured with default channel, protocol type, channel spacing, Forward Error Correction (FEC), and transmission power (in base mode). Click 'Save Settings' to configure the defined radio configuration on the receiver.


Status Info
Settings
Formatting
Updates
Data Management
Sensor Settings
Satellite Settings
Working Mode
Static
RTK Rover
RTK Base
RTK Data Source
UHF
GSM/GPRS
External
Bluetooth
Antenna Height to ARP
0.000
m
RTK Quality Mode
Normal
Extra Safe RTK
Raw Data Logging
Enable
Disable
Radio Channel
1
444.00000
MHz
Advanced UHF Settings
Channel 1 Frequency
444.00000
MHz
Channel 2 Frequency
444.00000
MHz
Channel 3 Frequency
0
MHz
Channel 4 Frequency
0
MHz
Channel 5 Frequency
0
MHz
Channel 6 Frequency
0
MHz
Channel 7 Frequency
0
MHz
Channel 8 Frequency
0
MHz
Channel 9 Frequency
0
MHz
Channel 10 Frequency
0
MHz
Channel 11 Frequency
0
MHz
Channel 12 Frequency
0
MHz
Channel 13 Frequency
0
MHz
Channel 14 Frequency
0
MHz
Channel 15 Frequency
0
MHz
Channel 16 Frequency
0
MHz
Restore Default Frequency
Protocol
TRIMTALK (T)
Channel Spacing
25
FEC
OFF
Radio Configuration File
Export
Import
Save Settings

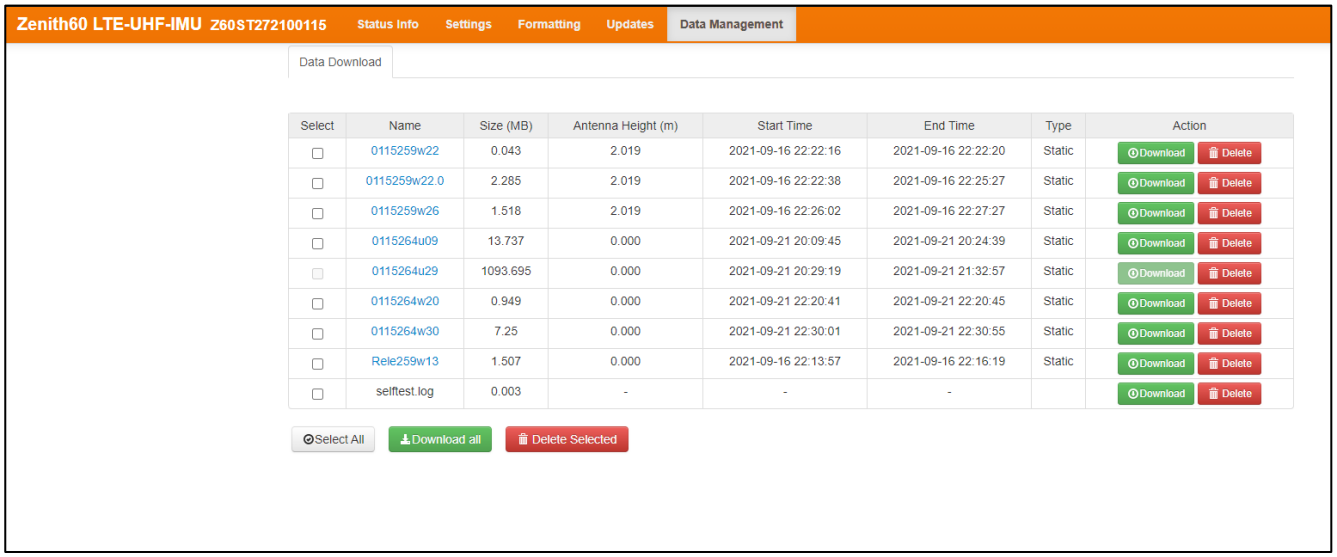
3.9 Installation of licenses

Optional GNSS smart antenna licences can be activated with a key file. In the **License-Key File** tab of the **Updates** menu, browse for the key file on the PC (for example L_xxx.key where xxx is the receiver serial number), select it and click 'Upload'. A confirmation message is shown once the option has been activated.



3.10 Data management

To download data files from the internal memory of the instrument or the inserted microSD card, go to the **Data Management** tab and select the file that you want to download. Both .DAT and Rinex files can be downloaded directly. The raw data is then transferred from the instrument to the PC where it can be processed using the GeoMax X-PAD Fusion office software.



3.11 Disconnecting from the PC

Once the receiver configuration is complete, it can be disconnected from the PC. Simply close the GeoMax Z60 WebManager and disconnect from the WiFi-connection or unplug the cable from both the instrument and the PC.

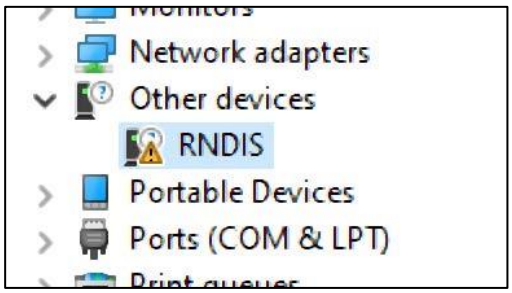
3.12 Accessing the internal storage of your Zenith60 from the PC

Locate the included cable (ZDC509) in the container and plug it into the corresponding port of the Zenith60. Turn on your Zenith60. Plug the cable into the USB port of the PC. Windows recognizes it as a USB device and the instrument's internal storage becomes available in Windows Explorer and can be accessed. No special USB driver is necessary to access the internal storage of the Zenith60.

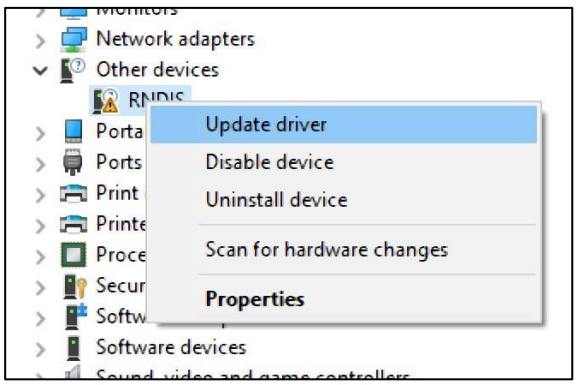
3.13 How to install the driver

Once Zenith60 is connected by cable to the PC:

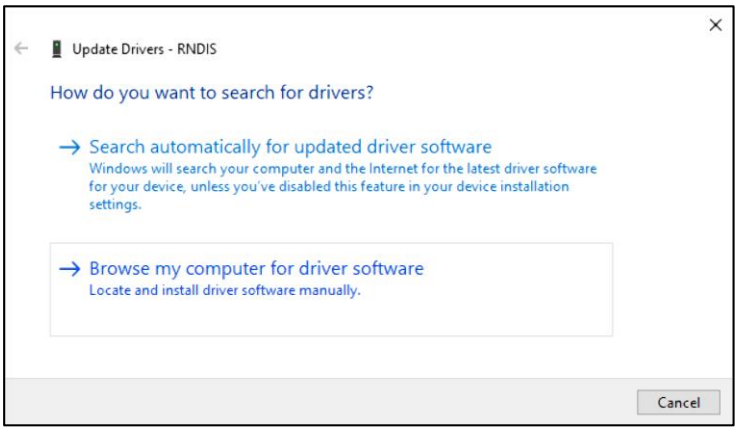
- Open Windows Device Manager, an unknown RNDIS device will be shown.



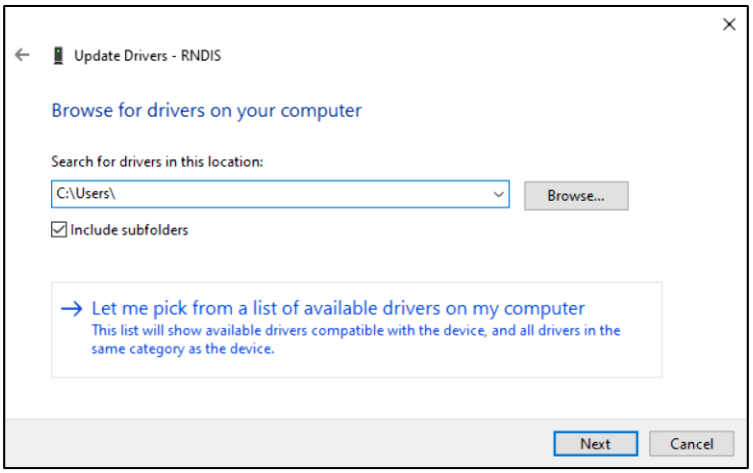
- Rightclick on the unknown RNDIS device and choose “update driver”.



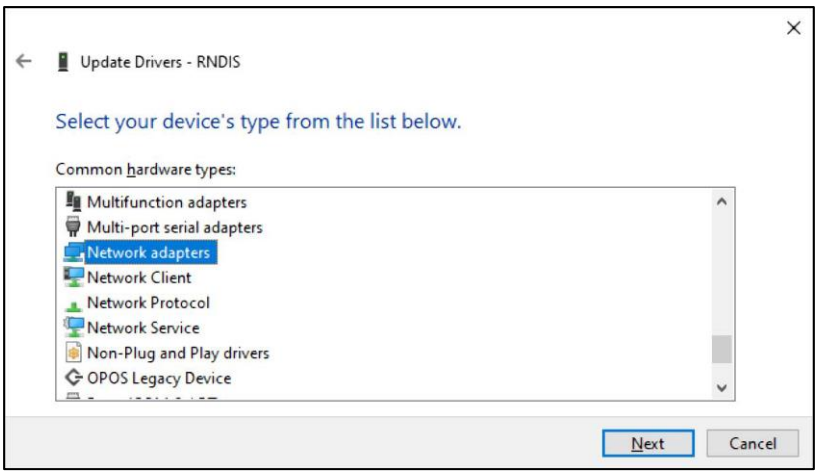
- Choose the second option, “Browse my computer for drive software”.



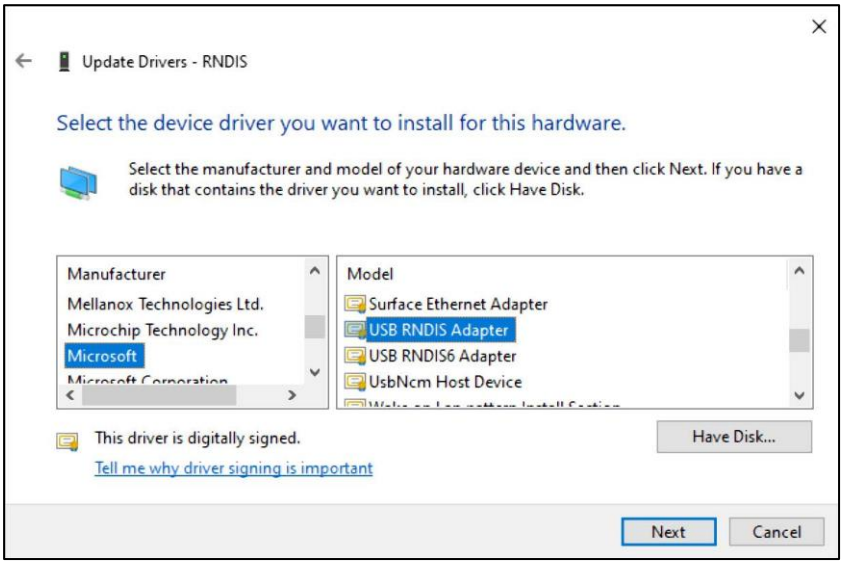
- Choose the second option, “Let me pick from a list …”.



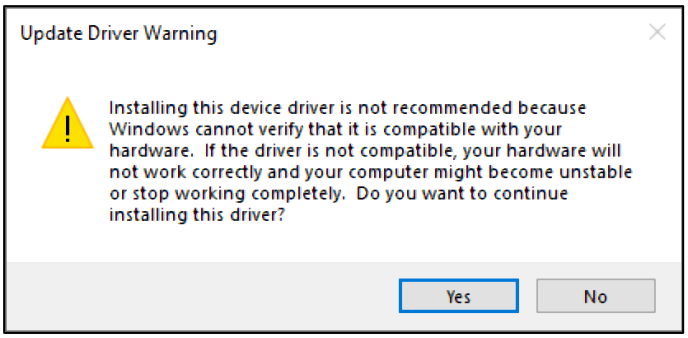
- Scroll down (or press “n”) and choose “Network adapters”.



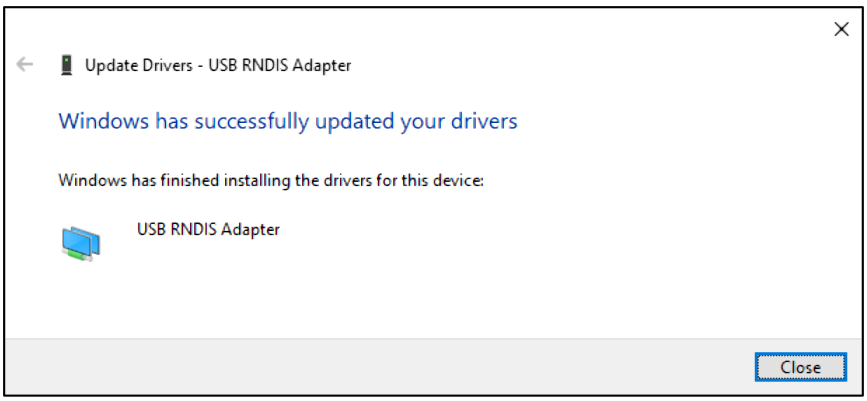
- Left box: scroll down (or press “m”) and choose “Microsoft”.
  Right box: scroll down (or press “u”) and choose “USB RNDIS Adapter”.



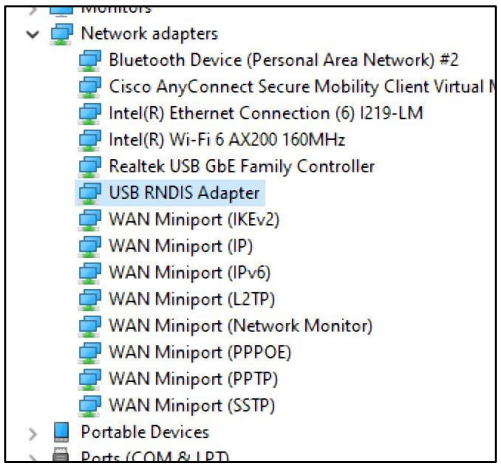
- Accept the warning by pressing “Yes”.



- Windows updates (assigns) the driver automatically.



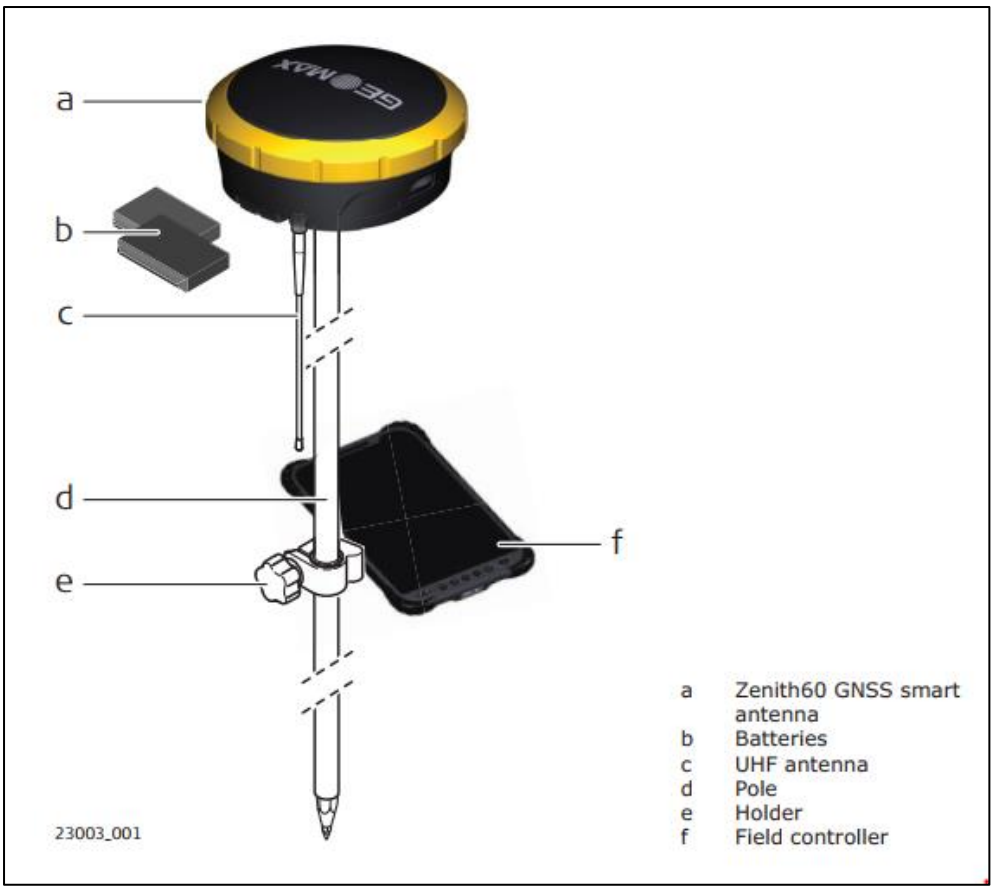
- The instrument will automatically be recognized correctly as “USB RNDIS” network adapter.



4 EQUIPMENT SETUP

4.1 Setting Up as a Real-Time Rover

The following equipment setup is used for real-time rover.



1. Attach the field controller to the pole. Clip the field controller into the holder and lock it by tightening the screw on the holder.
2. Turn on the field controller.
3. Insert the batteries into the GNSS smart antenna.
4. Connect the UHF antenna to the GNSS smart antenna. This connection is only required when using the internal radio.
5. Press ON/OFF button on the GNSS smart antenna for 2 s to switch on the GNSS smart antenna.
6. Screw the GNSS smart antenna on to the top of the pole.
7. Connect the field controller to the GNSS smart antenna through Bluetooth or WLAN.

GEOMAX

1.0.0en

GeoMax AG
Espenstrasse 135
9443 Widnau
Switzerland

geomax-positioning.com