

GeoMax GNSS

Zenith15/25 Pro Series Installation Guide



Version 3.00
English

Zenith15/25 GNSS Series
Installation Guide

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1 INTRODUCTION

This guide provides complete step-by-step instructions for preparing the Zenith15 and Zenith25 Pro GNSS series for measuring work. The instructions cover all the required installation tasks for the Zenith GNSS receiver, Getac PS336 handheld and FieldGenius/Layout Pro software.

Only the tasks required for the initial setup of a new Zenith15/25 Pro system are described in this document. For further information regarding the operation of the Zenith15/25 Pro components, please refer to the respective User Manuals.

The User Manual for the GNSS receiver is available from the Zenith15/25 Pro CD and also from the GeoMax Partner Area. The Getac PS336 User Manual can be downloaded from Getac's website, at <http://en.getac.com/support/downloads.html>.

2 GENERAL PREPARATION

2.1 COPY ZENITH15/25 FIRMWARE ON MICROSD CARD

Visit GeoMax Downloads to check for the current versions of both System and GNSS firmware's. Download the files and store them on the provided MicroSD card in the SYSTEM folder

2.2 BATTERY CHARGING

2.2.1 Zenith15/25 receiver

Before using the receiver, the included ZBA201 batteries should be charged. Insert a battery into the ZCH201 charger and plug the adapter into an AC supply. Do not disconnect from power until the green FULL indicator flashes, indicating that the battery is fully charged.

2.2.2 Getac PS336 handheld

The PS336 handheld is supplied in a cardboard box which includes the handheld device, battery, charging adapter and EU power cable. A suitable AC power cable may need to be sourced locally to suit country specific plugs. All AC voltages are supported by the adapter.

Insert the supplied battery into the handheld's battery compartment. Charge the internal battery with the supplied adapter as shown below. While charging, the circled indicator on the front of the PS336 glows amber. Do not disconnect from power until the indicator glows green, indicating that the battery is fully charged.



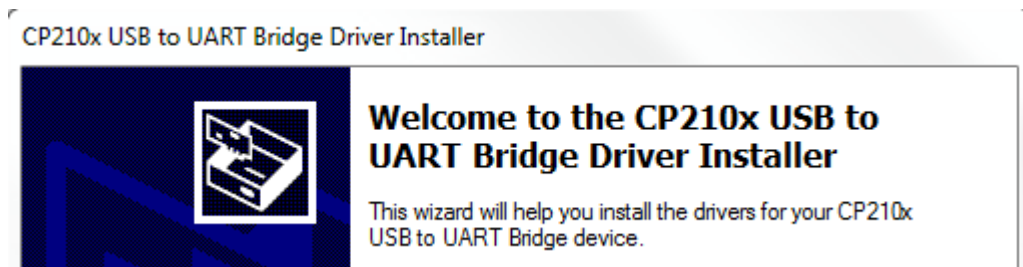
3 PREPARATION OF THE GNSS RECEIVER

3.1 CONNECTING TO THE PC

Locate the Serial-to-USB cable in the yellow container. Insert a fully charged battery into the GNSS receiver and switch it on. Connect the cable to the Lemo port of the receiver. When connecting the cable to a USB port of the PC, the cable drivers will automatically be installed. If the Windows **Found New Hardware Wizard** starts, click the Close button.



Download the USB cable driver installer CP210xVCPInstaller_x86.exe from GeoMax Downloads. For 64-bit versions of Windows use the installer named CP210xVCPInstaller_x64.exe. Run this file to install the USB port to Serial converter software by following the instructions of the Windows installer wizard.

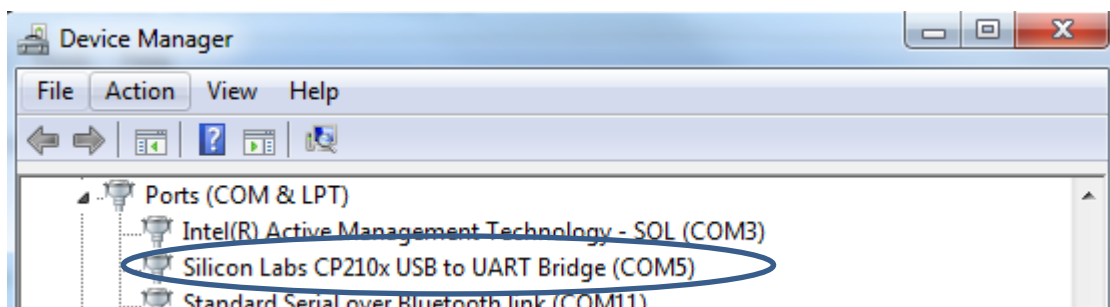


3.2 RECEIVER CONNECTION WITH GEOMAX ASSISTANT

Installation of GeoMax Assistant

Locate the GeoMax Assistant software from GeoMax Downloads in the Zenith15/25 folder and save to your PC. Run **GeoMaxAssistantZenith.exe** and following the instructions of the Windows installer wizard.

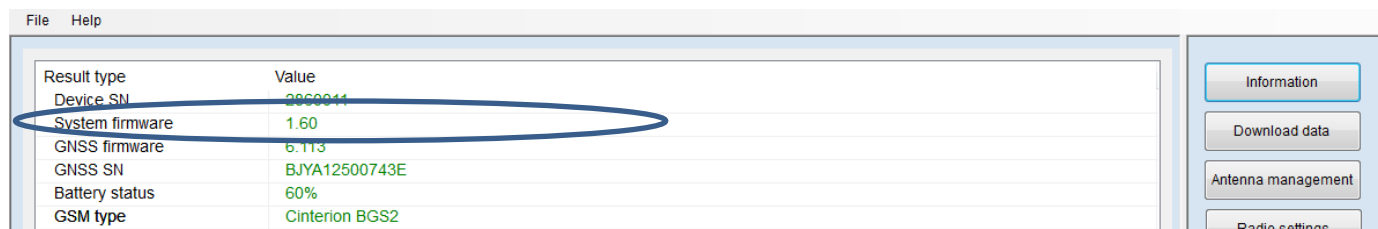
The installation of the USB cable driver converted the USB port of your PC to a Serial type. The assigned COM port number can be checked on the PC by selecting **START** → →**Control Panel** → **Device Manager**. In the Ports (COM & LPT) category, look for *Silicon Labs CP210x USB to UART Bridge*. Here the COM port number of the USB port is provided, as shown in the example below (COM5). Please remember the displayed COM port assigned to your receiver.



With the receiver connected to the PC, launch Assistant by clicking the respective icon in your Windows desktop. From the menu bar, select **File...Connect** and choose the COM port number as defined in Device Manager. The COM Port defaults are Baudrate 115`200, 8 databits, 1 Stopbit, Parity None.

3.3 CHECKING THE RECEIVER FIRMWARE VERSION

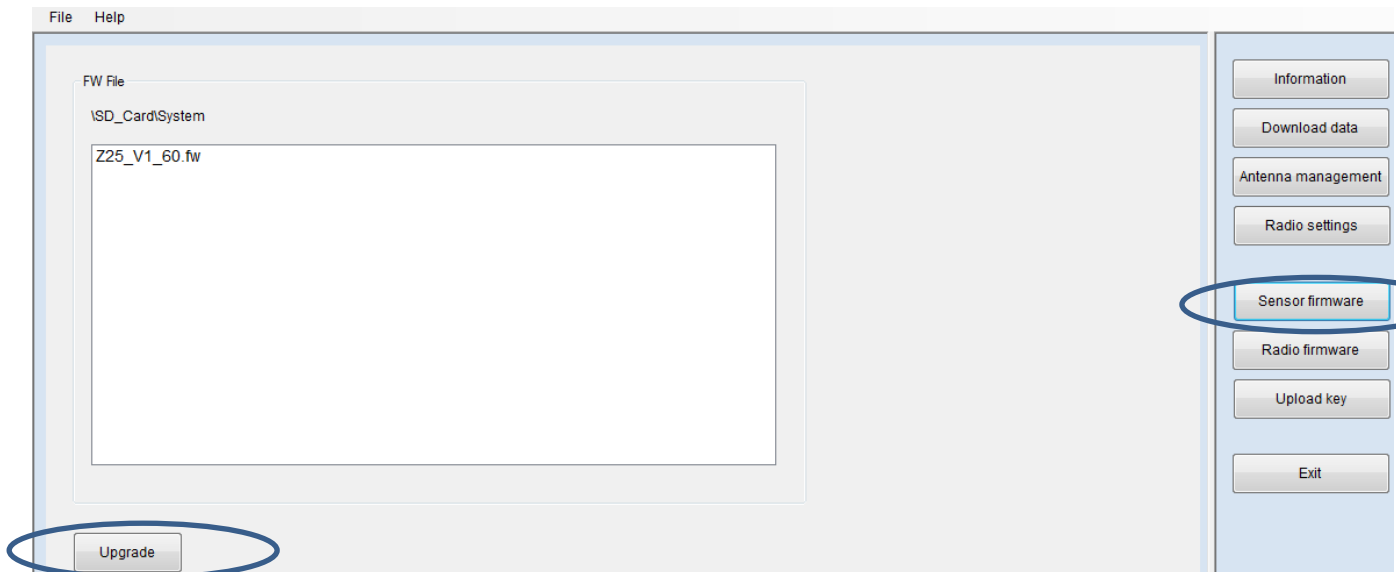
Before using the receiver, it should be checked that the loaded firmware's are the latest versions. Once connected with Assistant, the installed firmware's can be seen when selecting **Information** from the side menu.



If the firmware is older as the one downloaded from the GeoMax download Area it is recommended to perform an update. To update the receiver firmware, download the

respective *.FW files, copy to the SYSTEM directory on a MicroSD card and insert it into the Zenith15/25 receiver. Select **Sensor Firmware** from the side menu. The contents of the SYSTEM directory are displayed. Choose the required file and click **Upgrade** to install the firmware onto the receiver.

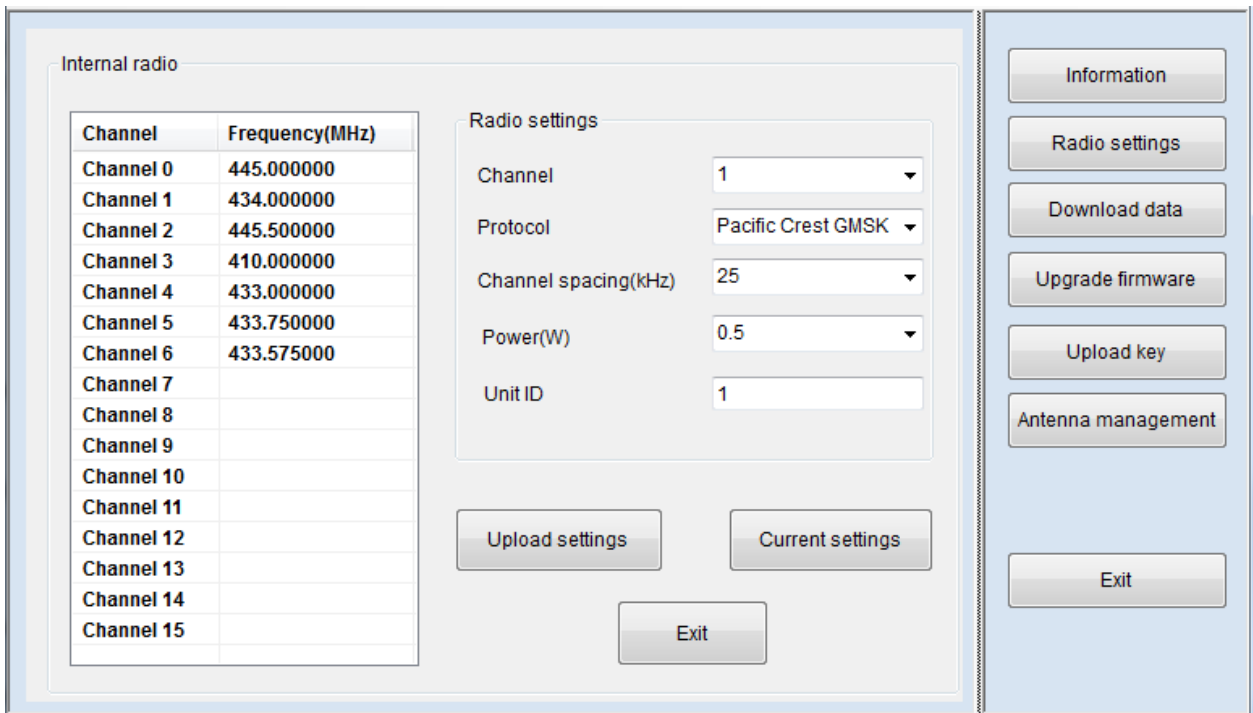
The upgrade takes a while. After the upgrade the receiver switches on and off automatically. Once this is done a message will be shown on the status panel, that the instrument is connected successfully. To check whether the latest version has been successfully installed, select **Information** on the right sidebar. The new firmware version should be displayed in the info panel.



3.4 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.

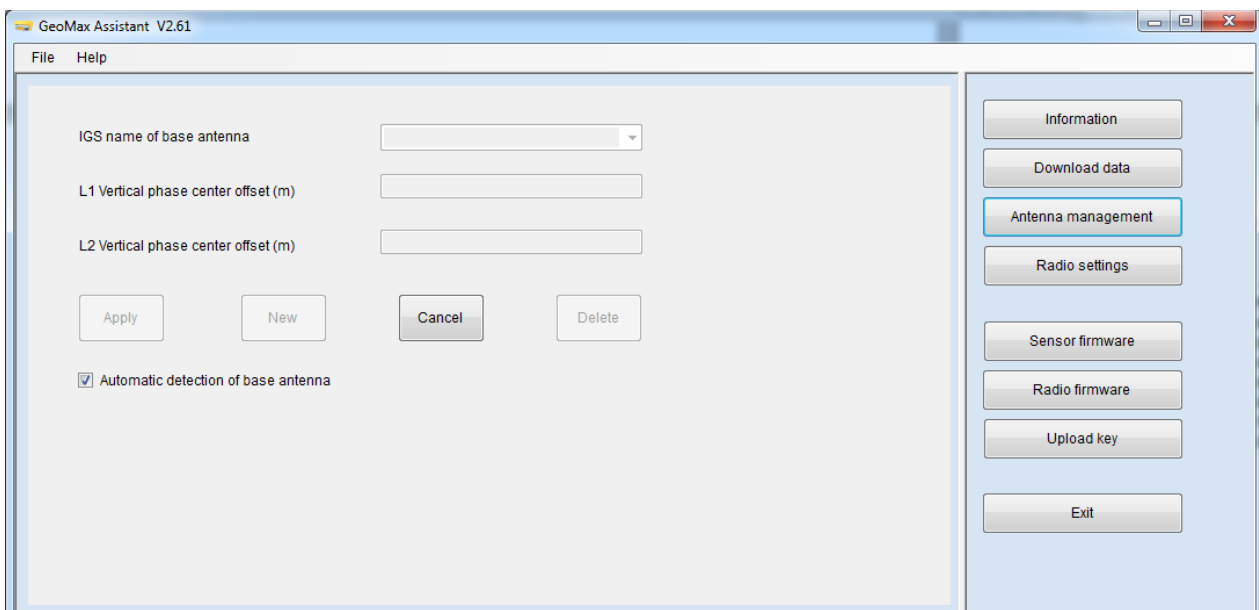
The following procedure defines the configuration of the internal UHF radio. With the receiver connected to Assistant, select **Radio Settings** from the side menu. The Internal Radio window is now displayed where up to 15 different frequencies can be set. A choice of required frequencies can be entered into the channel table. Check with your country specific local authorities, what frequencies and channel spacing may be used. At the Radio Settings field the internal radio can be configured with default channel, protocol type, channel spacing, transmission power and identifying number. Click **Upload Settings** to update the defined radio configuration onto the receiver.



3.5 ANTENNA MANAGEMENT

If you have a Base-Rover setup all available GeoMax GNSS antennas (except Zenith35/Zenith35 Pro) are currently supported in the antenna management by default. To make sure you get the correct results when you are using as base a Zenith35/Zenith35 Pro or any other antenna you need to add this specific antenna manually.

With the receiver connected to Assistant, select **Antenna Management** from the side menu.

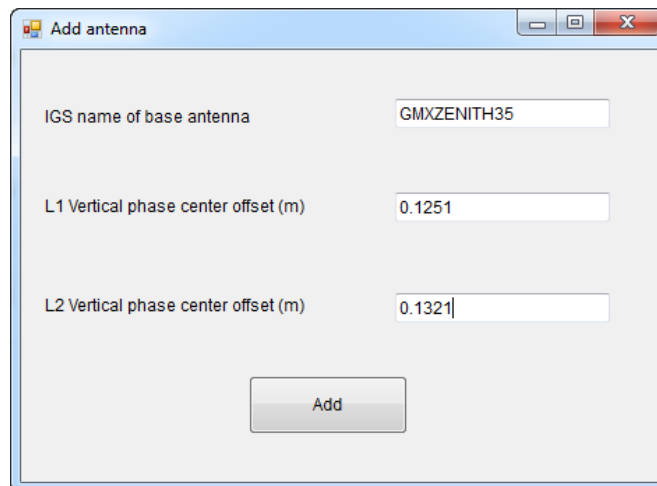


In order to add new antennas disable the function of the automatic detection of the base antenna by removing the check mark. Then click **New**. Enter the IGS name of the base antenna and the vertical phase center offset for L1 and L2 in meters (m). In order to add the currently missing GeoMax Zenith35 / Zenith35 Pro, please enter the following parameters.

IGS name for Zenith35/Zenith35 Pro: GMXZENITH35

L1 vertical PCO value in meters: 0.1251

L2 vertical PCO value in meters: 0.1321



The screenshot shows a window titled "Add antenna" with three input fields and one button. The first field is labeled "IGS name of base antenna" and contains the text "GMXZENITH35". The second field is labeled "L1 Vertical phase center offset (m)" and contains the value "0.1251". The third field is labeled "L2 Vertical phase center offset (m)" and contains the value "0.1321". At the bottom center of the window is a button labeled "Add".

Then click Add. The entered antenna is now appearing in the antenna list.

3.6 INSTALLATION OF LICENCES

If optional receiver licenses such as 20Hz output frequency were additionally ordered, they are not activated before delivery. Therefore when the equipment is first received, the licences still need to be installed onto the receiver. These options are activated by means of a NovAtel licence key file that would have been emailed to you at delivery of the Zenith15/25.

The included Auth Code always consists of only one number, even if several options are to be activated. An example of such a code is

7JKRC3,GNK55W,3ZKMP5,23DC2B,B58JG6,G2SB0G550 where the last part specifies the included functionality, as follows:

G2SB0G550: GPS tracking at 5Hz

G2SB0GTT0: GPS tracking at 20Hz

D2SB0G550: GPS & GLONASS tracking at 5Hz

- CDSB0G550:** GPS, GLONASS, BeiDou tracking at 5Hz *
- D2SB0GTT0:** GPS & GLONASS tracking at 20Hz *
- CDSB0GTT0:** GPS, GLONASS, BeiDou tracking at 20Hz*

** Not applicable to Zenith15*

The licence key file can be installed onto the receiver by using GeoMax Assistant. With the receiver connected to Assistant, select **Upload Key** from the side menu. Select the key file (for example *L_xxx.key* where *xxx* is the receiver serial number) and click **Upload**. A confirmation message will be shown once the option has been activated.

Note:

- The MicroSD card must be in the receiver when uploading the key file.
- A manual entry of the license key is **NOT** supported. The files must be uploaded!

3.7 DISCONNECTING FROM THE PC

Once the receiver is completely configured, it can be disconnected from the PC. From the Assistant menu bar, select **File...Disconnect**. The USB cable may now be removed and the Zenith15/25 is ready for use.

4 PREPARATION OF THE HANDHELD

4.1 SETTING UP WINDOWS MOBILE

Once the battery is fully charged or while connected to AC power, press the power button of the handheld. Follow the steps of the wizard to setup Windows Mobile. The Windows Mobile software on the supplied Getac PS236 is only available in English language. Microsoft restricts the installation of alternative languages with this operating system.

4.2 CONNECTING TO THE PC

To establish communication between the handheld and your PC, the Windows Mobile Device Centre needs to be installed. For Windows XP the communication software Microsoft ActiveSync is required. These software's can be downloaded from Microsoft's website. After the software installation, connect the handheld to your PC with the USB cable supplied with the Getac as shown below.



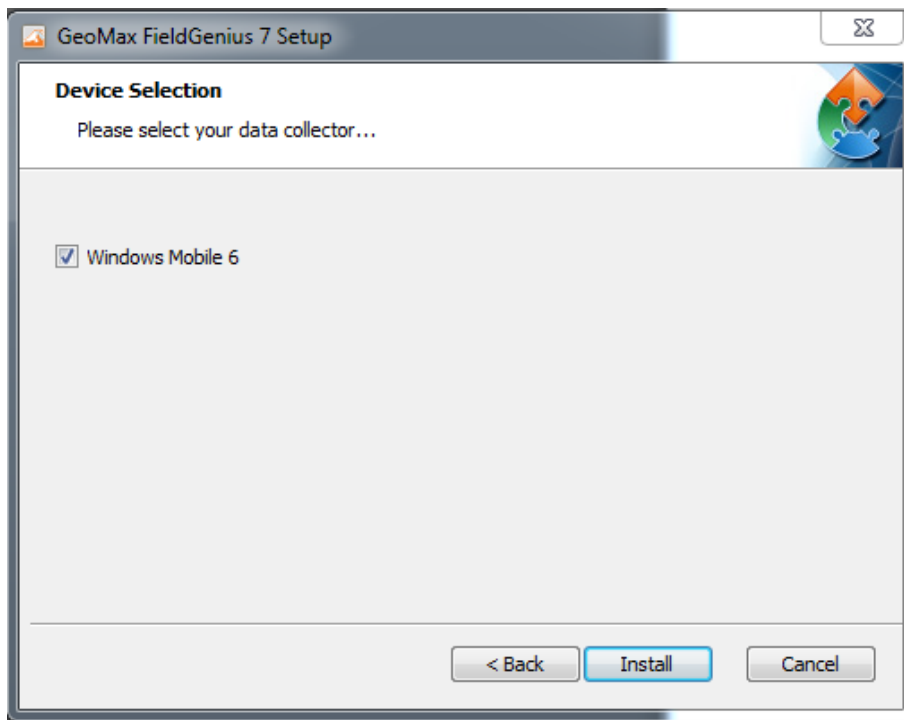
The device drivers will now automatically be installed. If the Windows **Found New Hardware Wizard** starts, click the Close button. After the drivers are installed, the Mobile Device Centre or ActiveSync will automatically start. The contents of the PS236 internal memory can be seen with Windows Explorer and are defined as a drive named **Portable Device**.

4.3 INSTALLATION OF FIELDGENIUS

Download the latest version of GeoMax FieldGenius from GeoMax Website at <http://www.geomax-positioning.com/Downloads.htm?cid=15613>

Here the latest installation version and Release Notes of FieldGenius is available. Download the *Devices Installation* and save onto your PC.

With the handheld connected to your PC, run the installer file *fieldgenius-devices-v.v.v.v-xxu.exe* where *v.v.v.v* is the version number and *xx* the language. The PC will attempt to connect to the handheld and install the FieldGenius/ Layout Pro software. Follow the instructions of the Windows installation wizard. At the Device Selection window, select the data collector type as **Windows Mobile 6**.

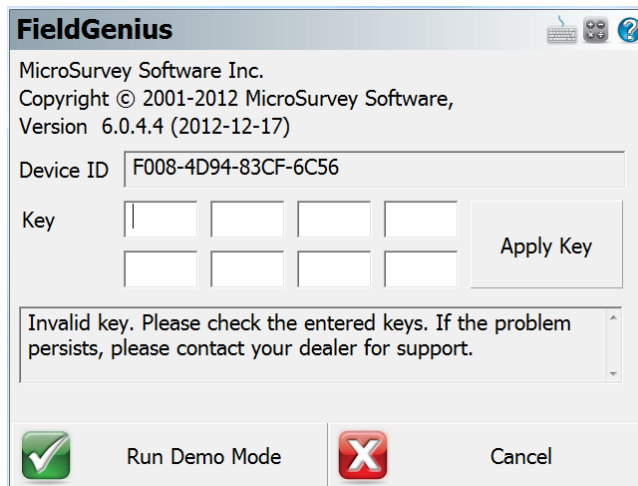


When prompted by the handheld for where to install, choose **Device**. Once the installation process is completed, the FieldGenius/ Layout Pro software can be started by selecting it from the Windows Mobile Start Menu.

4.4 REGISTRATION OF FIELDGENIUS

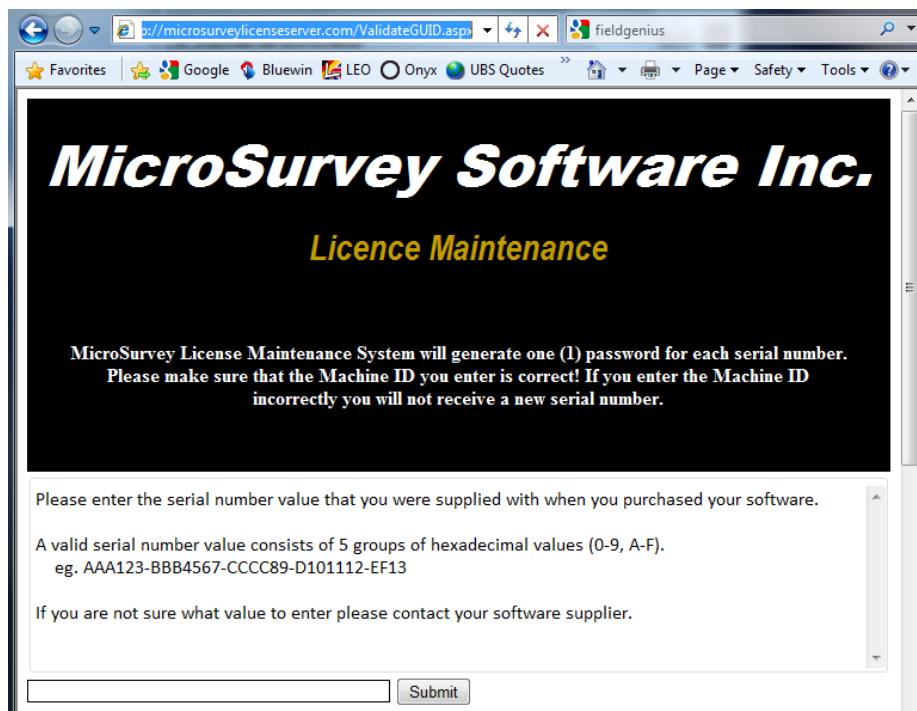
When FieldGenius is started, a registration window with the Device ID is displayed as shown below. It is possible to use FieldGenius without registration by tapping **Run Demo Mode**. This provides full functionality, but is limited to the storage of 30 points.

To register your version of FieldGenius/ Layout Pro, an activation key needs to be entered. The displayed Device ID together with the GUID (**G**lobal **U**nique **I**Dentity) is used to obtain the key. The GUID can be found on the printed FieldGenius card that was supplied together with your Zenith15/25 equipment.



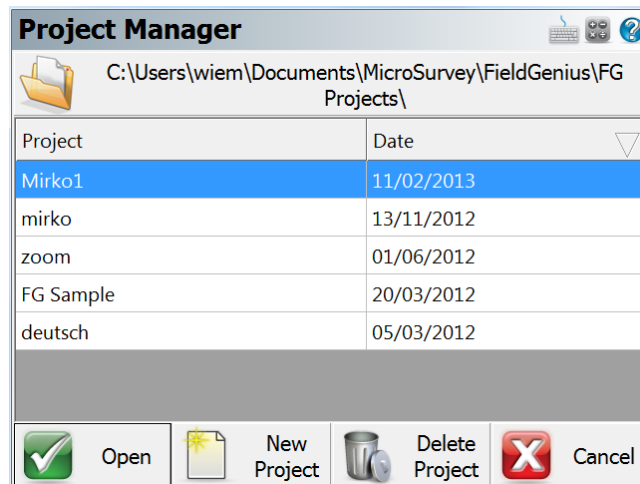
The activation key can be generated by using MicroSurvey's web portal, at the link <http://microsurveylicenseserver.com/ValidateSerialNumber.aspx>. This web portal is shown in the screenshot below. At the blank serial number field, enter your GUID and click **Submit**. At the next screen, enter the Device ID shown on the handheld. The activation key will then be displayed in the password field. Enter this key into the handheld at the provided fields and click **Apply Key**.

Note: Please make certain that the Device ID is entered correctly first time, since an activation key cannot be generated again with a different ID.

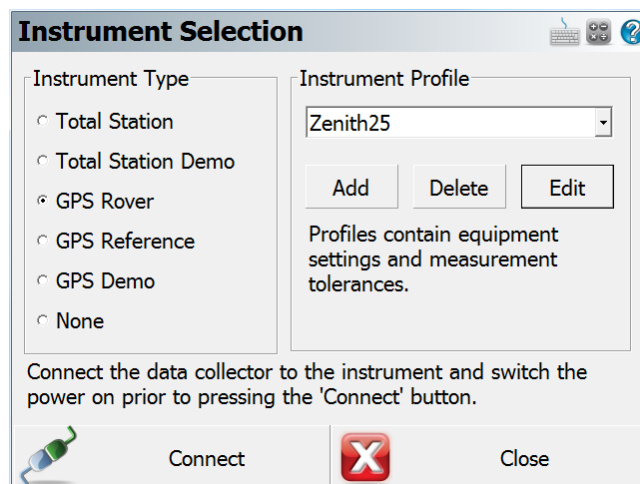


4.5 CONNECTION TO THE GNSS RECEIVER

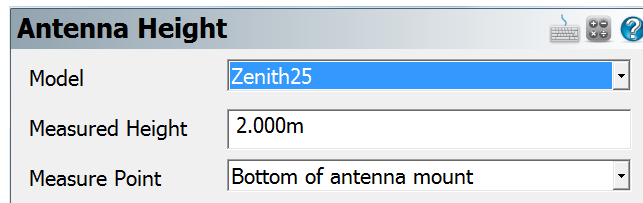
When starting FieldGenius, the *Project Manager* screen is displayed each time. Create a new project by tapping the appropriate icon and enter a project name. The onscreen keyboard can always be accessed by double tapping on the editable field. The screens that follow are used to set the default settings for this project.



At the *Instrument Selection* screen that follows, a connection to the receiver can be made. Ensure that the receiver is switched on and select either **GPS Rover** or **GPS Reference**. In the Instrument Profile window, tap Add and enter a name for your receiver. Save the name and then tap Edit to configure the profile.



To ensure that measured heights are computed correctly, it is important to define the receiver type. At the *Antenna Height* panel, choose the Model as **Zenith15/25**. The Measured Height is the default length of the telescopic pole.

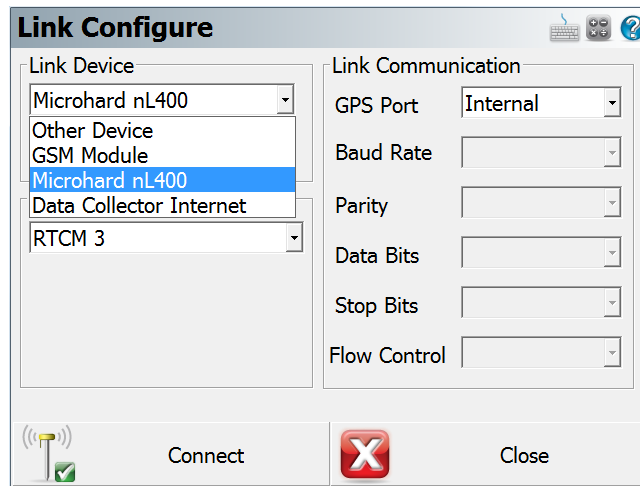


At the *Model & Communication* panel, select the Make as **GeoMax**, Model as **Zenith15/25** and Port as **Bluetooth**. Tap Bluetooth Search to find all available devices and choose the required receiver by its serial number. Once a connection has been made, you will be prompted for a PIN which is **0000**.



The *Link Configure* panel is displayed next. In the *Link Device* field, the following choices are available:

- **Other Device:** When connecting an external radio by cable
- **GSM Module:** For network rover using the internal GSM
- **Microhard nL400:** When using the internal radio with base or rover mode
- **Data Collector Internet:** To receive RTK data using the PS236 3G handheld



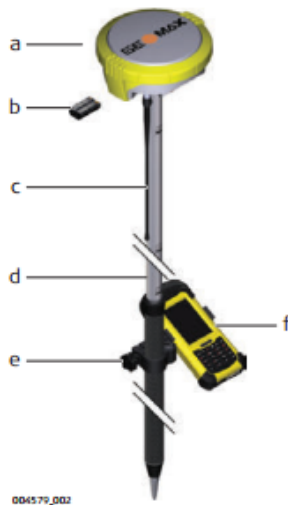
Set the Data Format with the required RTK base message type. When selecting **GSM Module** or **Data Collector Internet**, tap Setup to define the NTRIP parameters. Once an internet connection is established, a suitable mountpoint can be selected.

When everything has been configured as required, tap Connect. The map view is shown next and you are ready to measure. For further information on using FieldGenius/ Layout Pro for GNSS measurements, refer to the FieldGenius/ Layout Pro instruction manual in the GPS REFERENCE chapter.

5 EQUIPMENT SETUP

5.1 ROVER SETUP

For a RTK rover, the Zenith15/25 equipment can be setup on a pole as shown below.



- a) Zenith15/25 Pro instrument
- b) ZBA201 battery
- c) UHF antenna
- d) ZPC200 pole
- e) ZHR200 holder
- f) Getac handheld

To use as a network rover, a SIM card needs be inserted into the slot located in the battery compartment.

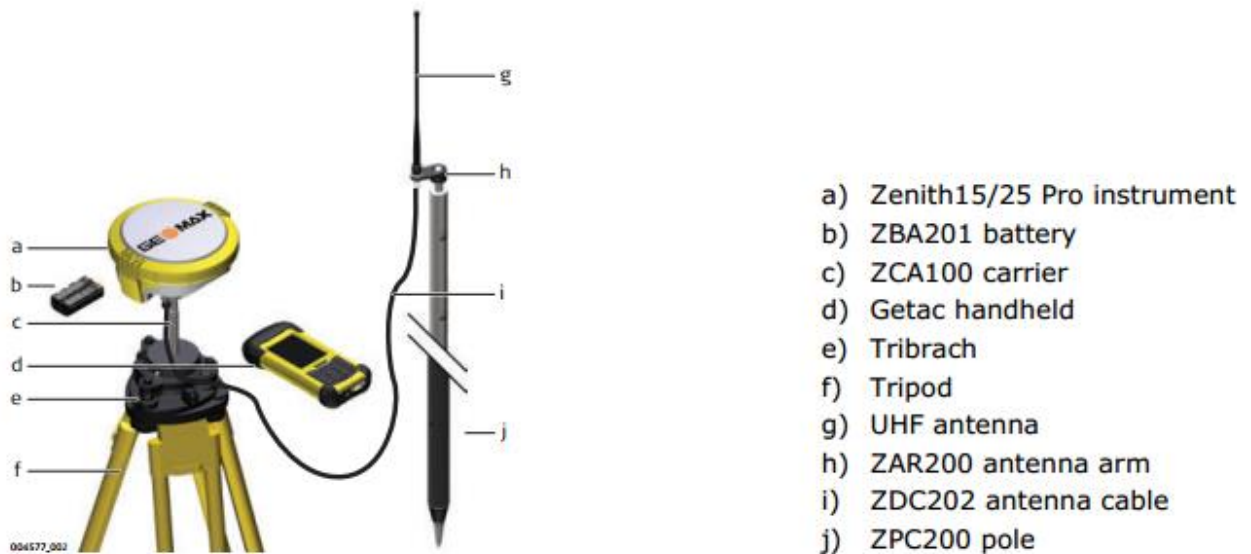
Note: The PIN must be disabled before using the SIM card.

When working with the UHF radio, ensure the correct frequency and protocol are set as described in section 3.5. Attach a radio antenna suitable for the set frequency. The following UHF antennas can be ordered from GeoMax:

760259 ZRA100, Gainflex UHF Antenna - frequency range 435-470 MHz
766906 ZRA101, Gainflex UHF Antenna - frequency range 400-435 MHz.

5.2 BASE SETUP

The Zenith15/25 equipment can also be setup as a base station for the transmission of RTK corrections as shown below.



Attach the UHF radio antenna to the 760275 ZAR200 antenna arm. The arm has a 5/8" thread for mounting onto a telescopic pole or a tripod setup with threaded carrier. The antenna is connected to the Zenith15/25 using the 760266 ZDC202 cable. The required RTK output message can be configured using GeoMax Assistant or FieldGenius.

For long range RTK, a high powered radio can be used at the base station. Available from GeoMax is the 789359 Satel EASyPro 35W radio. This radio is connected to the receiver and an external power supply, with the 797024 ZDC225 cable. The cable needs to be connected to the Lemo port of the receiver. When other UHF radio types are used, a suitable cable needs to be obtained from the respective radio supplier.