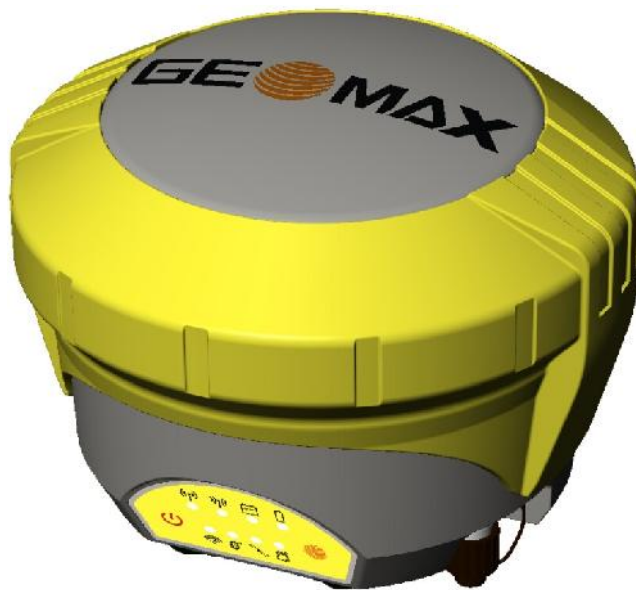# GeoMax GNSS

Zenith35 Pro Series

Installation Guide

Version 2.00
English

Tablet of Contents

1 INTRODUCTION

This guide provides complete step-by-step instructions for preparing the Zenith35 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 Zenith35 Pro system are described in this document. For further information regarding the operation of the Zenith35 Pro components, please refer to the respective User Manuals.

The User Manual for the GNSS receiver is available from the Zenith 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 BATTERY CHARGING

2.1.1 Zenith35 Pro Receiver

Before using the receiver, the included ZBA601 batteries should be charged. Insert a battery into the ZCH601 charger and plug the adapter into an AC supply. Do not disconnect from power until the indicator shows a constant green light, indicating that the battery is fully charged. Press the button on the battery itself to cross-check the power level. All four green lights should be illuminated and indicating the battery is fully charged.

2.1.2 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 INTRODUCTION GEOMAX ZENITH35 WEBMANAGER

The GeoMax Z35WebManager (web application) is comparable to the conventional "GeoMax Assistant" that allows to configure and to modify multiple settings at the Zenith35 Pro receiver. Furthermore data can be downloaded or receiver, radio, Measurement Engine (ME) and/or GSM firmware can be uploaded.

3.2 SEARCH YOUR ZENITH35 RECEIVER

Make sure that the wireless modem on your PC is turned on and you are able to search for available "WiFi connections".
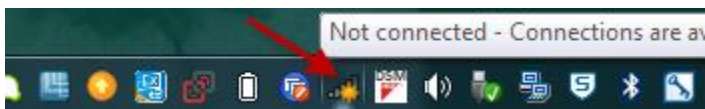
Now you can search the Zenith35 Pro WiFi (with your PC or mobile phone) which is corresponding to the serial number of the Zenith35 Pro.

3.3 CONNECTION TO YOUR PC

Once the serial number of the sensor is visible in the Wireless Network Connection list, click "Connect". The Zenith35 Pro and your PC will be connected.
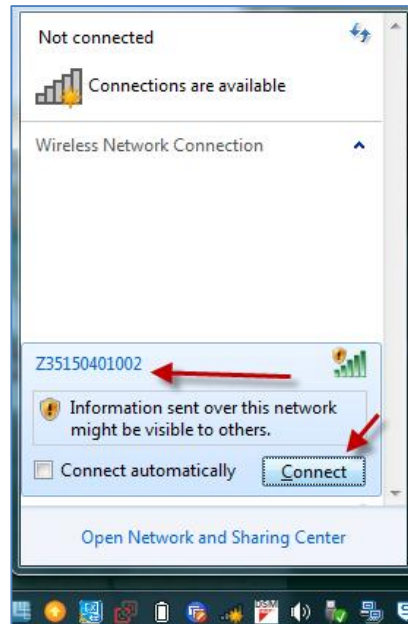
3.4 START THE GEOMAX Z35WEBMANAGER

As soon as you are connected to the receiver, start the web browser (e.g. Internet Explorer, Firefox, Chrome...) and insert the following IP address in your browser:

http://192.168.10.1

A login-window pops up.

The default values for the login are as follows:

User name: admin

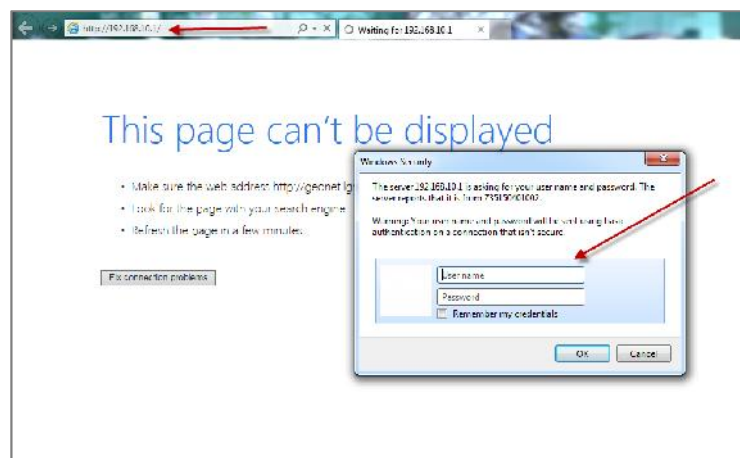Password: password

After a successful login the start screen of the GeoMax Z35WebManager will appear.

3.5 CHANGE THE LANGUAGE OF THE GEOMAX Z35WEBMANAGER

Go to the top-right corner in The GeoMax Z35WebManager and open the selection list to see the available languages (click on "English"). Once the preferred language is selected, the Z35WebManager will be automatically displayed in the chosen language.
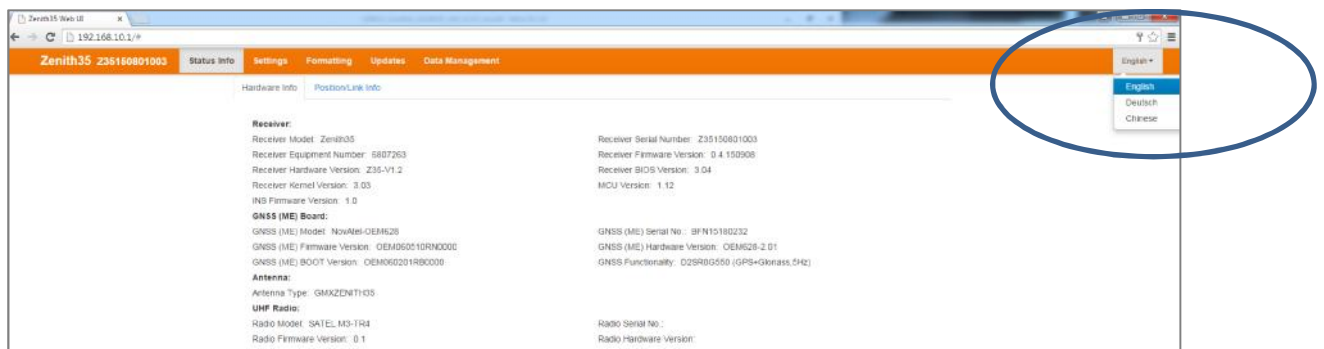
3.6 FIRMWARE UPLOAD

3.6.1 Checking the receiver firmware version

Before using the receiver, it is recommended to check the current firmware version loaded on it. Once connected with GeoMax Z35WebManager, the installed firmware versions can be seen under the Status Info → Hardware Info tab.
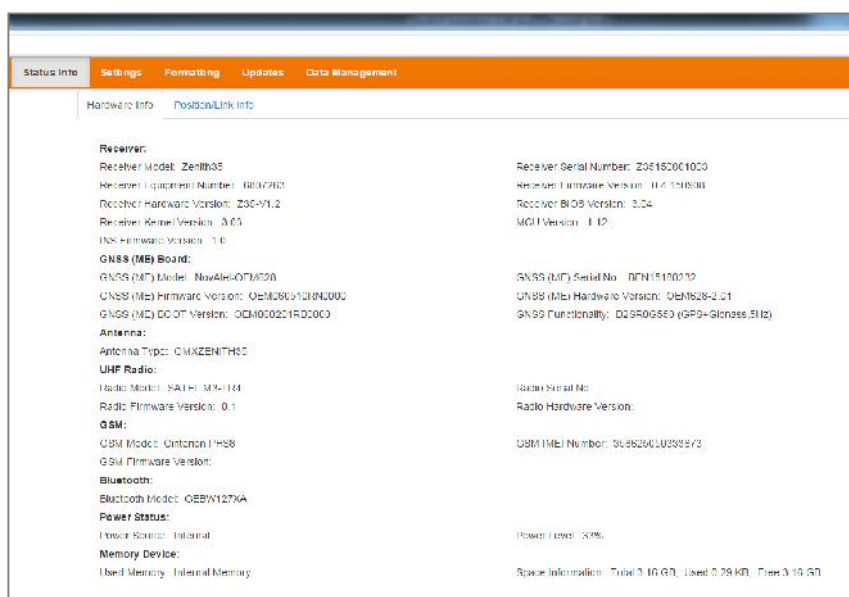
If the firmware is older than the one downloaded from the GeoMax download Area it is recommended to perform an update.

3.6.2 Retrieving latest firmware versions

Visit the GeoMax Positioning website and select the Downloads option (http://www.geomax-positioning.com/Downloads.htm) to check for the current GNSS firmware versions. Download the latest firmware file and store it on your PC or WiFi-enabled device.
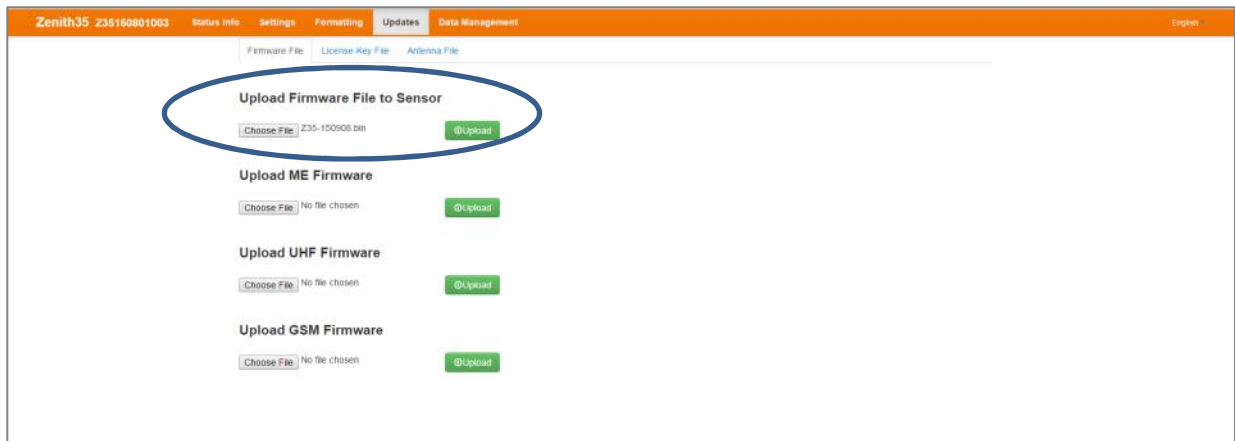
3.6.3 Zenith35 Pro Firmware update

If you need to update your receiver firmware, go to the "Updates" tab in GeoMax Z35WebManager. Click "Choose File" to browse to the latest firmware file on your PC and click "Upload".

Accept the warning message about the battery power to start the firmware upload. Once the firmware is successfully uploaded, the Z35WebManager will prompt the user about the sensor restart to utilize the new firmware.
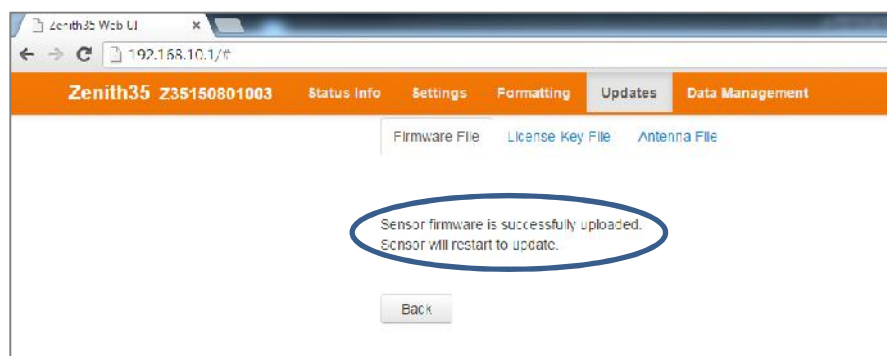
Please re-connect the receiver to the GeoMax Z35WebManager. The new firmware version should be displayed in the Hardware Info panel. To check please refer to chapter 3.6.1 "Checking the receiver firmware version".

3.7 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. Go to Settings and select UHF as RTK Data Source. Once you click on Advanced UHF Settings, a password is required to enter. As soon as you enter the default password "config1234", the Internal Radio window is displayed, where up to 8 different frequencies can be configured. 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, Forward Error Correction and transmission power (in base mode). Please click Save Settings to update the defined radio configuration onto the receiver.
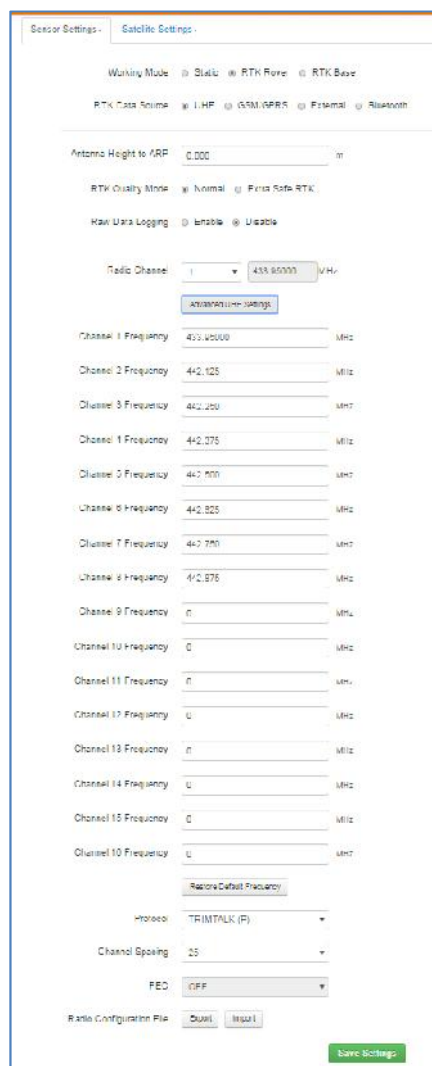
3.8 INSTALLATION OF LICENCES

If optional receiver licenses such as Galileo are additionally ordered, they will not be activated before delivery. Therefore, when the equipment is first received, the optional licences still need to be loaded onto the receiver. These options are activated by means of a NovAtel Authorization code, which is embedded in a licence key file. The license key file is obtained via email upon delivery of the Zenith35 Pro. An example of the NovAtel Authorization code is:

"ZBBPB7,WJ73FJ,DMDC36,82BPJ4,8C8WN5,CFNRNNTVN" where the first 3 digits of the last part specifies the included functionality, as follows:

DFNRNNTVN	GPS, GLONASS, all Frequencies, 20 Hz
CFNRNNTVN	GPS, GLONASS, BeiDou, all Frequencies, 20 Hz
TFNRNNTVN	GPS, GLONASS, Galileo, all Frequencies, 20 Hz
FFNRNNTVN	GPS, GLONASS, BeiDou, Galileo, all Frequencies, 20 Hz
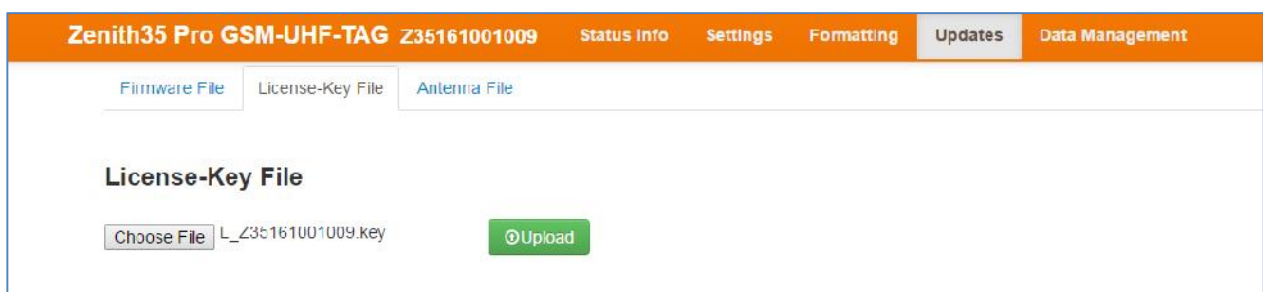
The licence key file can be installed onto the receiver by using GeoMax Z35WebManager. With the receiver connected to the GeoMax Z35WebManager, select option Updates → License-Key File. Choose the key file (for example L_xxx.key where xxx is the receiver serial number) and click Upload. A confirmation message will be shown once the option has been activated.

Note:

- A manual entry of the license key is <u>NOT</u> supported. The files must be uploaded!

3.9 DISCONNECTING FROM THE PC

Once the receiver configuration is complete, it can be disconnected from the PC. Simply close your GeoMax Z35WebManager and disconnect the WiFi-connection.

3.10 CONNECTING TO THE PC VIA USB

Plug the included cable into the port of the sensor. Turn on your sensor. Plug the cable into the USB port of your PC. The driver will be installed automatically.
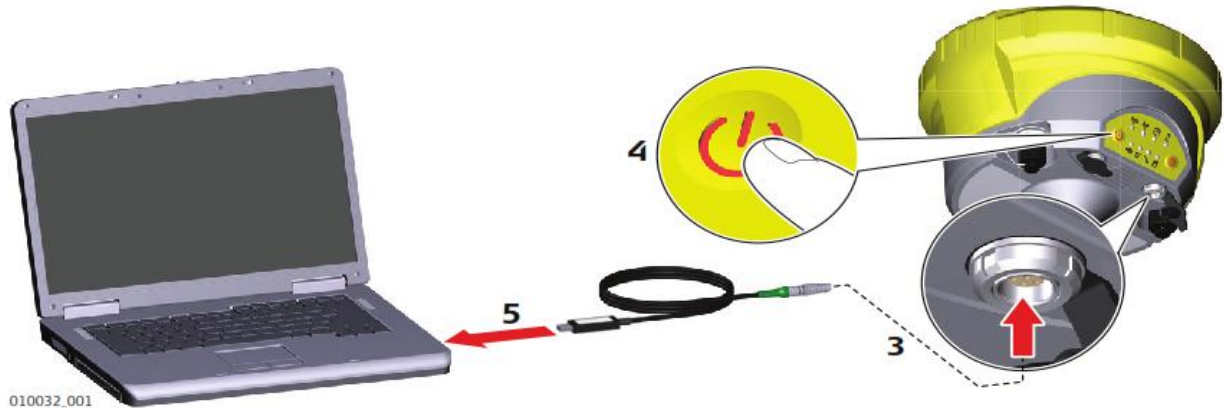

After the successful installation your hardware can be used as a mass storage device. Files can now be uploaded and/or downloaded to the Zenith35 Pro.

3.11 CONNECTING TO THE PC VIA RS232

Plug the included cable into the port of the sensor. Turn on your instrument. Plug the cable into the RS232 port of your PC. The driver will be installed automatically.

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 the used COM port number or e.g. Prolific USB-to-Serial if you are using a converter. 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.
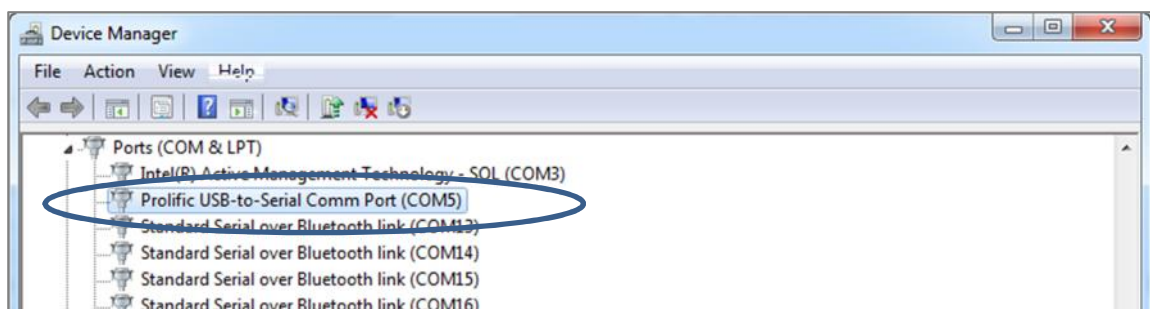
The COM Port defaults are Baudrate 115' 200, 8 databits, 1 Stopbit, Parity None.

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 PS336 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. This software 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 GEOMAX FIELDGENIUS/ LAYOUT PRO

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

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

With the handheld connected to your PC, run the installer file geomax-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 6.1 to 6.5 or higher.
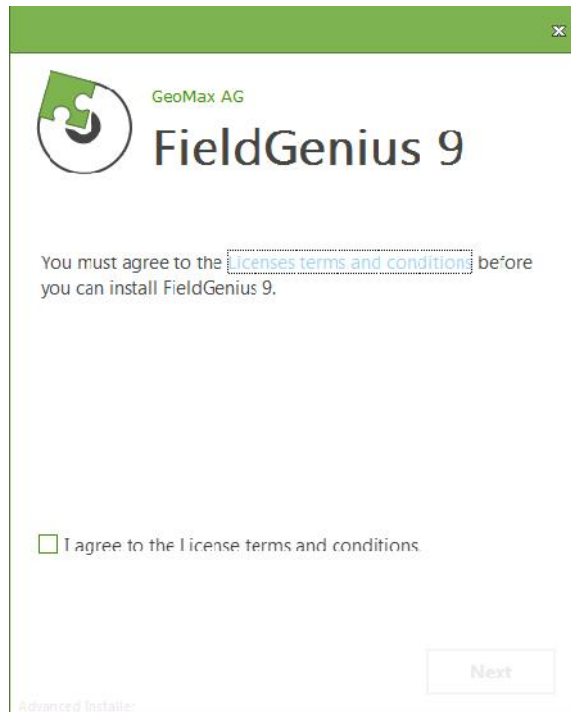

When prompted by the handheld for where to install, choose Device. Once the installation process is completed, the FieldGenius/ Layout Pro software can be started by selecting it from the Windows Mobile Start Menu.

## 4.4 REGISTRATION OF FIELDGENIUS/ LAYOUT PRO

When FieldGenius/Layout Pro is started, a registration window with the Device ID is displayed as shown below. It is possible to use FieldGenius/Layout Pro 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 (Global Unique IDentity) is used to obtain the key. The GUID can be found on the printed FieldGenius/ Layout Pro card that was supplied together with your Zenith35 Pro equipment.
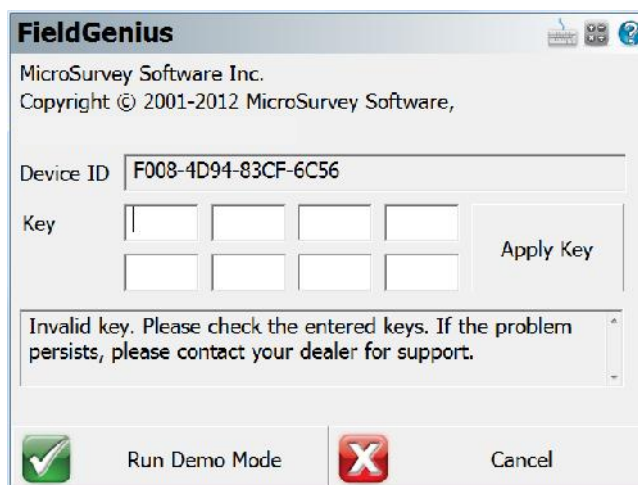
The activation key can be generated by using MicroSurvey's webportal, at the link http://microsurveylicenseserver.com/ValidateSerialNumber.aspx. This webportal is shown in the screenshot below. At the blank serial number field, enter your GUID and click Submit. At the next screen, enter the Device ID 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.
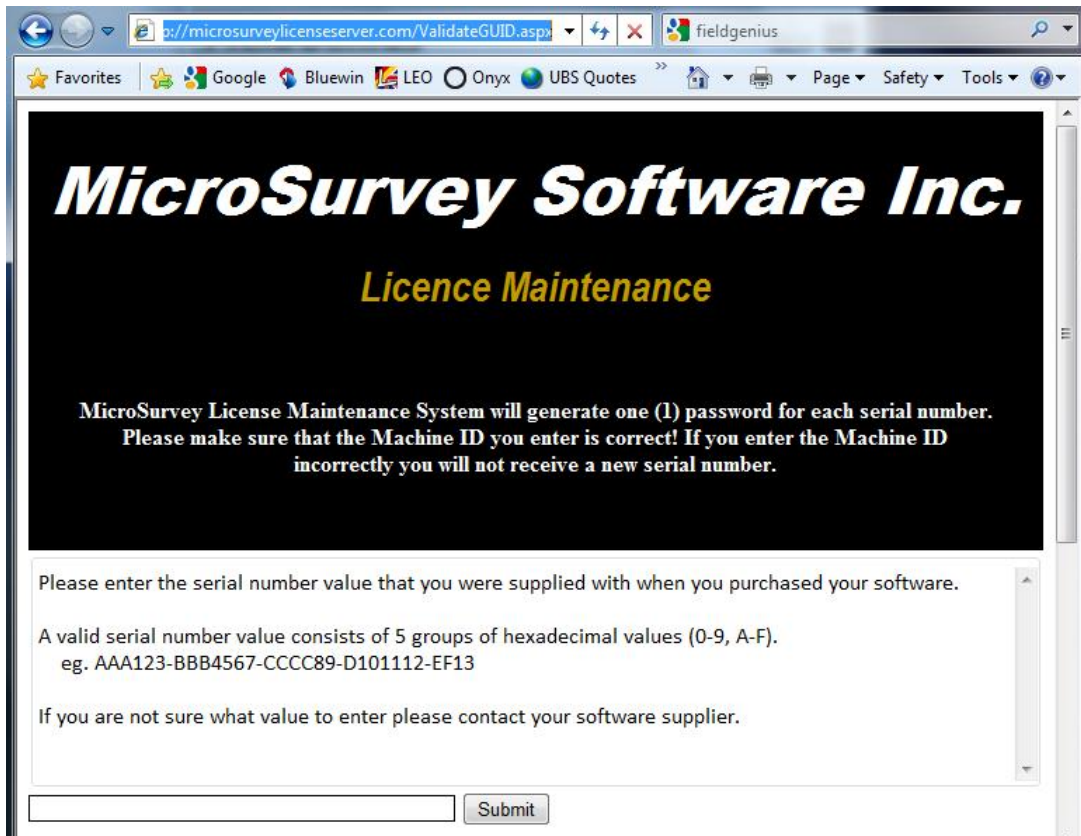
4.5 CONNECTION TO THE GNSS RECEIVER

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.
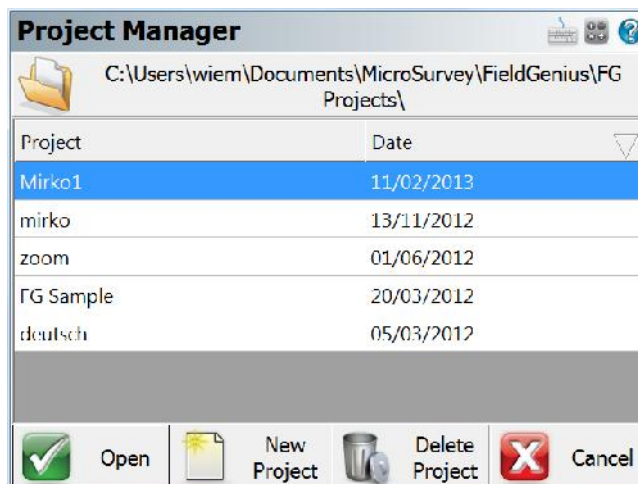
At the Instrument Selection screen that follows, a connection to the receiver can be made. Ensure that the receiver is switched on and select either GPS Rover or GPS Reference. In the Instrument Profile window, tap Add and enter a name for your receiver. Save the name and then tap Edit to configure the profile.
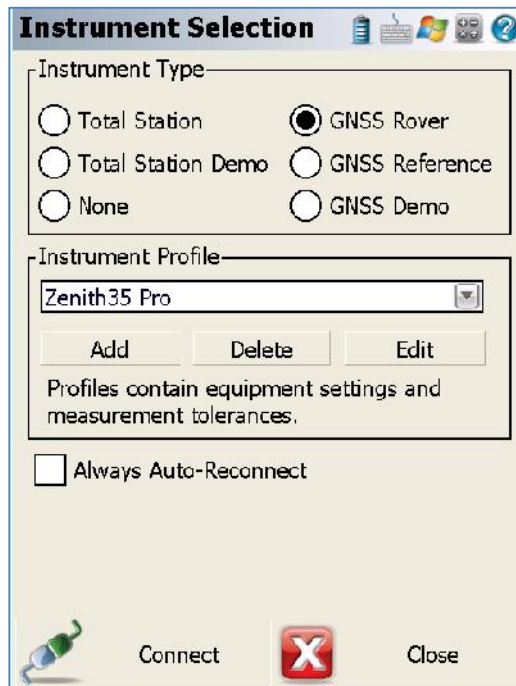
To ensure that measured heights are computed correctly, it is important to define the receiver type. At the Antenna Height panel, choose the Model as Zenith35 Pro. The Measured Height is the default length of the telescopic pole.
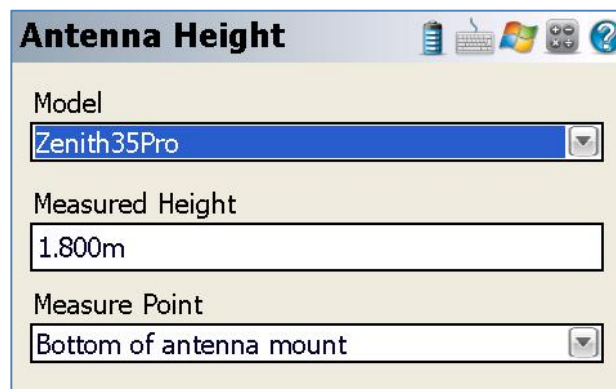

At the Model & Communication panel, select the Make as GeoMax, Model as Zenith35 Pro and Port as Bluetooth. Tap Bluetooth Search to find all available devices and choose the required receiver by its serial number.

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

- None: Continue without any link device

- Other Device: When connecting an external radio by cable

- Data Collector Internet: To receive RTK data using the PS336 3G handheld or MiFi device

- GSM Module: For network rover using the internal GSM

- UHF Radio Module: When using the internal radio with base or rover mode
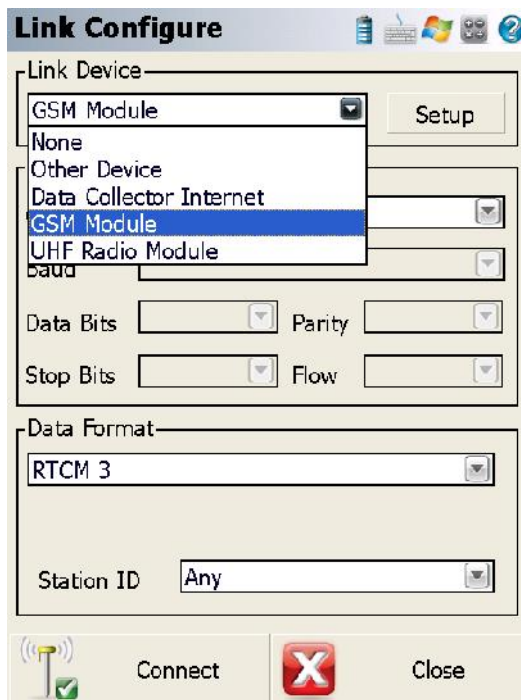
Set the Data Format with the required RTK base message type. When selecting GSM Module or Data Collector Internet, tap Setup to define the NTRIP parameters. Once an internet connection is established, a suitable mountpoint can be selected.

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

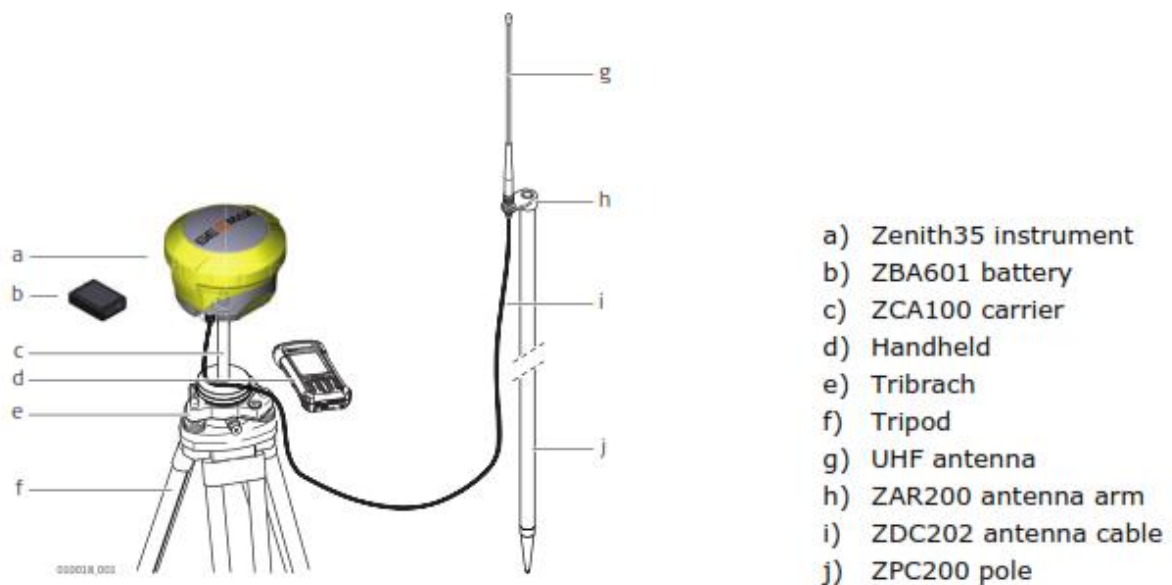For a RTK rover, the Zenith35 Pro equipment can be setup on a pole as shown below.
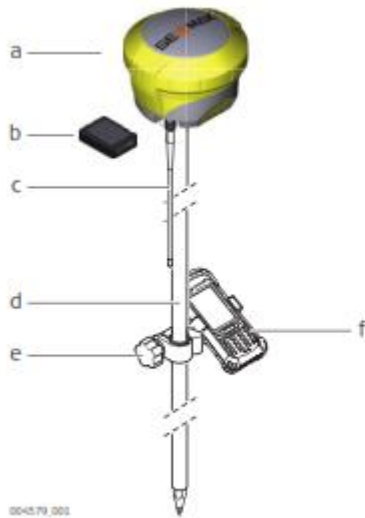
a) Zenith35 instrument
b) ZBA601 battery
c) UHF antenna
d) ZPC200 pole
e) ZHR200 holder
f) Handheld

When working with the UHF radio, ensure the correct frequency and protocol are set as described in section 3.8. 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 Zenith35 Pro equipment can also be setup as a base station for the transmission of RTK corrections as shown below.

a) Zenith35 instrument
b) ZBA601 battery
c) ZCA100 carrier
d) Handheld
e) Tribrach
f) Tripod
g) UHF antenna
h) ZAR200 antenna arm
i) ZDC202 antenna cable
j) ZPC200 pole

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 Zenith35 Pro 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 792382 ZDC221 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.