Leica Zeno Connect
Getting Started Guide

Version 1.0
English

- when it has to be **right**

Leica
Geosystems

Table of Contents

1 Zeno Connect

1.1 Introduction

Functionality of Zeno Connect

Zeno Connect is a utility for 3rd party applications. It can be installed on a PC, for example a CS25, or directly on the Zeno 10/Zeno 15 or Zeno 5.

☞ Zeno Connect can run on a several devices and OEMs.

Functionality of Zeno Connect:
- Configure Zeno GNSS receiver
- Stream NMEA to any 3rd party software
- Log raw data
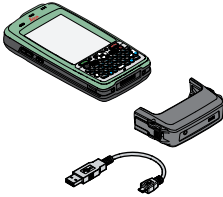- Zeno Connect can be used with Leica MobileMatriX

1.2 Installation

Installing Zeno Connect on CS10/CS15

Step	Description
1.	Download the latest Zeno Connect on CS10/CS15 installer from myWorld@Leica Geosystems (**https://myworld.leica-geosystems.com**). You can find it in this location: **myDownloads** › **Software** › Zeno Connect
2.	Copy the *Leica ZenoConnect.ARM.CAB* onto the CS10/CS15 in the Program Files folder and double click the file.
3.	The *Leica ZenoConnect.ARM.CAB* gets installed.
4.	To start Zeno Connect, double click the shortcut icon on the desktop.

Installing Zeno Connect on CS25

Step	Description
1.	Download the latest Zeno Connect on CS25 installer from myWorld@Leica Geosystems (**https://myworld.leica-geosystems.com**). You can find it in this location: **myDownloads** › **Software** › Zeno Field/Zeno Connect
2.	Copy the *Leica ZenoConnect.EXE* onto the PC in the Program Files folder and double click the file.
3.	The *Leica ZenoConnect.EXE* gets installed.
4.	To start Zeno Connect, double click the shortcut icon on the desktop.

Installing Zeno Connect/ Zeno Field on Zeno 5

Step	Description
1.	Ensure the battery is fully charged prior to use.
2.	Attach the USB SnapOn module to the Zeno 5.
3.	Plug in the microUSB to USB adaptor. 003896_001
4.	Turn on the Zeno 5.
5.	After the Zeno 5 booted up, plug in the Leica Zeno USB stick.
6.	Select your country in the upcoming screen. This will affect the installed language.

Step	Description
7.	The installation menu shows up.
8.	Select Zeno Field/Zeno Connect.
9.	After the installation has finished, plug off the Leica Zeno USB stick.
☞	For entering the USB Loader menu again, plug in the USB drive again.

1.3   Starting

Starting Zeno Connect

On Zeno 10/Zeno 15

Step	Description
1.	Start Zeno Connect on the Zeno 10/Zeno 15: Tap **Start** › **Programs** › Zeno Connect. OR Tap the Zeno Connect icon on the desktop.

On CS25

Step	Description
1.	Start Zeno Connect on the CS25: Tap **Start** › **All Programs** › Leica Geosystems › Zeno Connect. OR Tap the Zeno Connect icon on the desktop.

On Zeno 5

Step	Description
1.	Start Zeno Connect on the Zeno 5: Tap **Start** › Zeno Connect.

1.4 User Interface

1.4.1 Toolbar

User interface

Select, depending on the device, an antenna:

- The internal GNSS cap antenna on a Zeno 10/Zeno 15
- The internal Sirf sensor on a Zeno 5
- An external GG03/GG02 plus Smart-Antenna

Select settings:

- To configure a real-time source
- To connect/disconnect to a real-timesource
- To log GNSS raw observations
- To stream NMEA on internal or external port
- To show/hide the GNSS Status bar

| Icon		Description
Activate		Tap **Activate** to connect to the GNSS device and starts tracking satellites and streams NMEA to the defined COM port (either internal or external).
Connect to RTK		Tap **Connect to RTK** to connect to any configured real-time source (Beacon, Ntrip, SBAS, ...). Disabled if no antenna is active.
Disconnect RTK		Tap **Disconnect RTK** to disconnect from the RTK source. Disabled if no connection is active.
Log Raw Observations		Tap **Log Raw Observations** to start raw data logging. It can be used to setup a Zeno as reference station or as a simple way to measure points for later post-processing. Enter a point name and tap **Occupy** to start the raw observation logging. Tap **Stop** as soon as you've finished. The raw observations are stored in Leica mdb format (m00) and can be used for post-processing in Zeno Office or Leica Geo Office. Disabled if no antenna is active.
		☞ When the internal Sirf on a Zeno 5 is selected for raw data logging, record a point for at least 180 s. After 180 s, the estimated post-processed accuracy in the GNSS Status bar is displayed.
Show/Hide Status Bar		Tap **Show/Hide Status Bar** to display and hide the GNSS Status bar.

Icon		Description
Settings		Tap **Settings** to choose another antenna, define a local coordinate system, configure a new Real-time source, change NMEA streaming settings, define quality gates or view the NMEA messages.
About	-	Tap **About** to view version information, antenna type, configuration and the copyright information.
		Tab **Antenna Info** followed by **Reset Antenna** to set the antenna back to factory default. For a GG03 and the CS25 GNSS, all options set on the antenna remain after the reset.
Exit	-	Tap **Exit** to close the app.

1.4.2 GNSS Status Bar

User interface

If shown, the GNSS status bar is always in the foreground of any application. Depending on the application, some buttons may not be readable anymore. If this is case, you have to hide the GNSS status bar.

006893_001
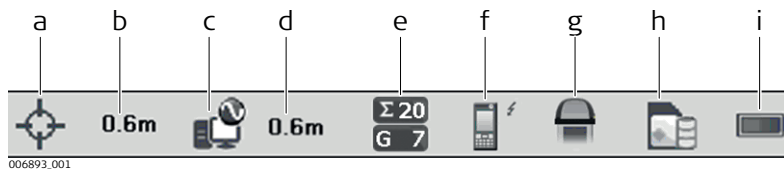
a) Position status
b) Position accuracy
c) Raw data logging on/off
d) Estimated post-processing accuracy
e) Number of satellites contributing to position solution
f) Real-time device and real-time status
g) Antenna status
h) Memory storage
i) Battery level

Position status

Icon	Description
	Navigation position available
	Code solution available
	Fixed position available

Contributing satellites

Icon		Description
Σ 9 / G 8	Σ 9 / R 1	The sum and G (GPS), R (GLONASS) or C (BeiDou) values show how many satellites are being tracked.

Real-time device and real-time status

Icon	Description
	Internet
	Dial-up
	Radio/beacon
	SBAS
	An arrow pointing down indicates a real-time rover configuration. The arrow flashes when real-time messages are received.

Antenna status

Icon	Description
	CS25 GNSS, external L1/L2
	CS25 GNSS, external L1
	CS25 GNSS, Helix
	GG03
	GG02 plus
	AS05
	GS05/GS06
	Sirf

1.5   Settings

1.5.1   Antenna Tab

Selecting GNSS device

Selectable are:
- Internal GS05/GS06 GNSS cap. For CS10/CS15 installation only.
- GG02 plus GNSS/GIS SmartAntenna
- GG03 GNSS/GIS SmartAntenna
- CS25 GNSS device. For CS25 GNSS only.
- Internal GNSS Sirf. For Zeno 5 installation only.
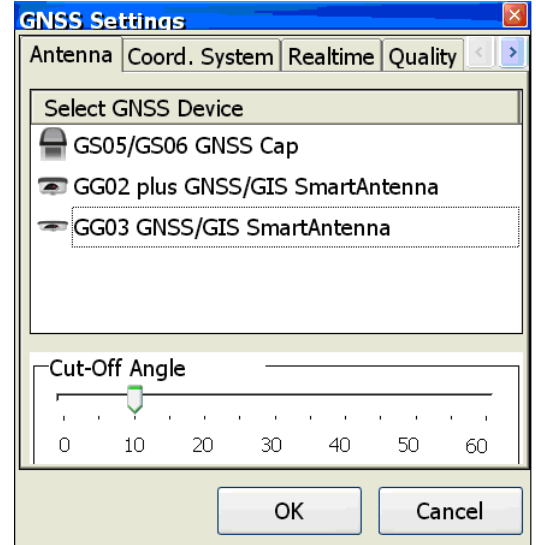
Sky View slider

Only visible when GS05/GS06 GNSS cap, GG02 plus, GG03 or Helix antenna is selected.

The Sky View slider is used to enhance the GNSS data collection process depending on the survey area. The user can define a sky view setting, for example open sky or local obstructions. Zeno Connect sets the GNSS settings to achieve the best position accuracy in areas with open sky and for maximum position availability in areas with local obstructions.

Depending on the GS05/GS06 sensor type, the sky view settings like cut off angle and channel configuration are set. The available GS05/GS06 sensor types are:
- GPS + GLONASS
- GPS only

Local obstructions	Middle	Open Sky
8 GPS	10 GPS	13 GPS
6 GLONASS	3 GLONASS	0 GLONASS
0 SBAS	1 SBAS	1 SBAS
Cut off: 5°	Cut off: 10°	Cut off: 12°

1.5.2 Coordinate Systems

Functionality

Zeno Connect allows the output of:
- local coordinates (LLQ message)
- WGS84 coordinates

This allows users of 3rd party application to benefit from the high-precision projection and transformation engines from Leica Geosystems.
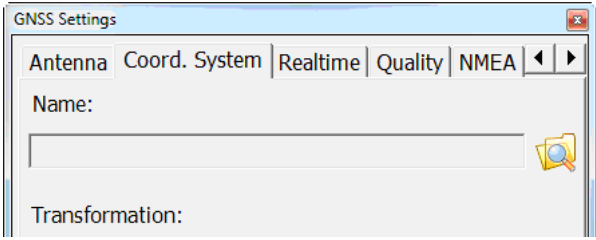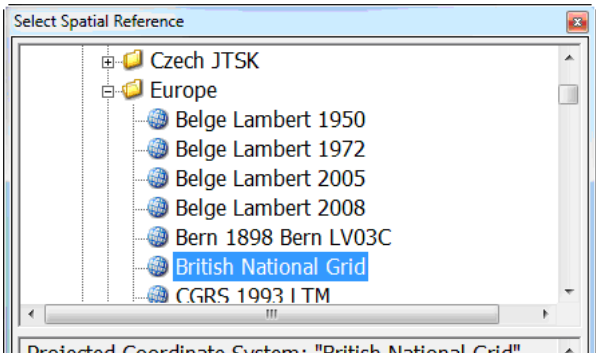
Zeno Connect comes with more than 3000 predefined coordinate systems based on the EPSG data set owned by the OGP as well as custom coordinate systems defined by Leica Geosystems for certain countries.
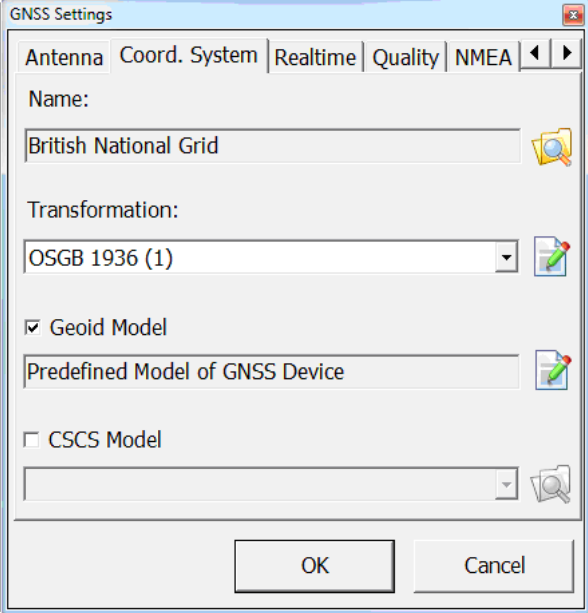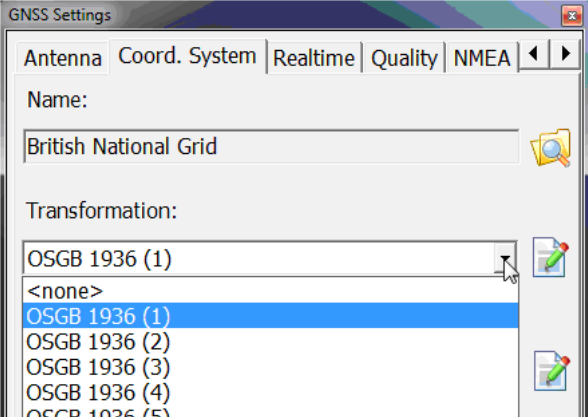
For highest accuracy, custom datum transformations can be created or grid files (Country Specific Coordinate System files (CSCS)) can be used.
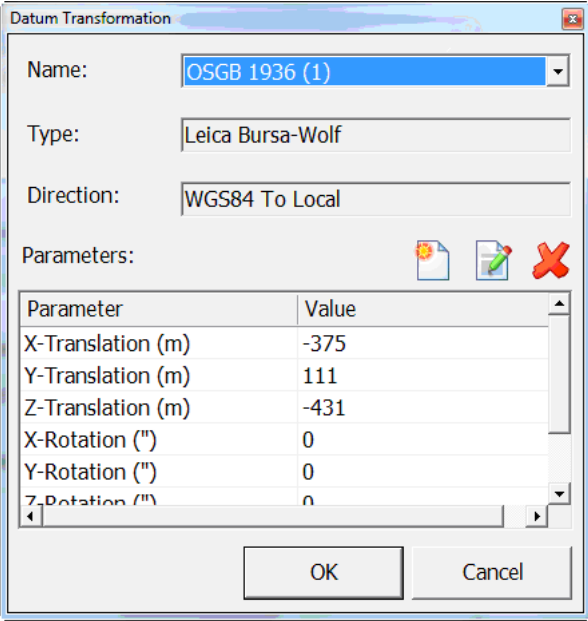
Three options are available to output orthometric heights:
- Use worldwide pre-defined geoid model
- Use own country specific geoid model
- Enter fixed geoid separation

Selecting a local coordinate system

Step	Description
1.	Tap **Menu** › **Settings** or tap ⚙️.
2.	Change to the **Coord. System** tab.
3.	Tap 🔍.
4.	Select your local coordinate system and tap **OK**.

Step	Description
5.	The selected local coordinate system including the default transformation is shown.
6.	Select a pre-defined transformation. OR: Tap to create a new or edit an existing datum transformation. The Datum Transformation dialog allows to create, edit and delete datum transformations.
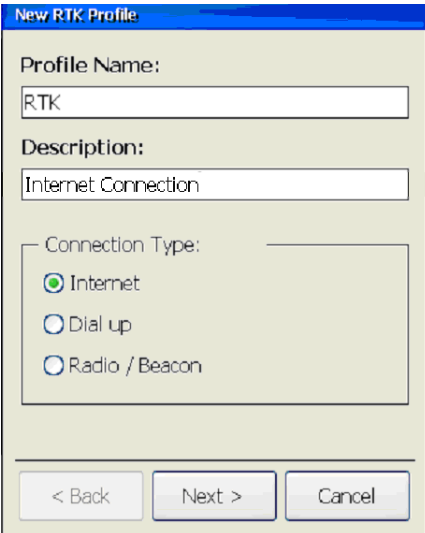
Step	Description
	Create new datum transformation
	Edit existing datum transformation
	Delete datum transformation
7. ☞	Tap next to **Geoid model** to edit the geoid model settings (optional). To output orthometric heights, it is required to know the geoid separation. The geoid separation can be provided using following options: • **Use predefined model of GNSS device**: Every Zeno GNSS sensor contains a worldwide geoid model with limited accuracy. This option is selected by default. • **Use custom model**: Here you can provide a high precision geoid model for your country/region. • **Use average geoid separation**: Enter a fixed geoid separation value in meters based on the local ellipsoid. If no geoid model is selected, Zeno Connect will output ellipsoidal heights.
8.	Check the CSCS Model check box and tap to browse for a new CSCS model (optional). Previously used CSCS Models can be selected from the drop-down list.

1.5.3 Configuring a Real-Time Source

Configuring a real-time source

There are three ways for receiving corrections for real-time survey:
- Internet
- Dial-up
- Radio/Beacon
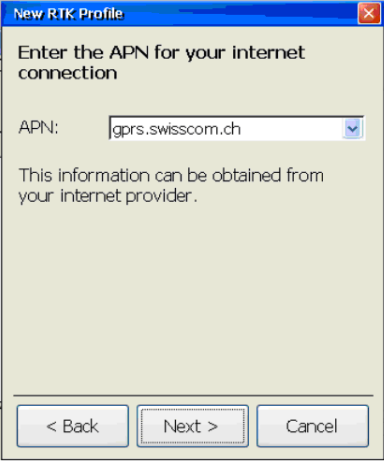
Configuring Internet connection

Step	Description	
1.	Tap ![satellite icon].	
2.	Open the Zeno Field drop down menu. Select GNSS Settings.	
3.	Tap ![icon] to start the **New RTK Profile** wizard.	
4.	Enter the profile name and a description to save the connection setup for later use.	
5.	Select **Internet** as connection type. Tap **Next**. 	
6.	Select the internet connection to be used: • **New Connection** This can be the internal modem or a wireless modem, for example Bluetooth mobile phone. Continue with 7.. • **Active Connection** This can be WIFI, LAN or any other existing Internet connection. Continue with section "Configuring RTK server".	
7.	Choose between internal or external modem. • **Internal Modem** This can be the internal modem or a wireless modem, for example Bluetooth mobile phone. • **External Modem** This can be WIFI, LAN or any other existing Internet connection.	
	For **Internal Modem**	For **External Modem**
8.	Enter the PIN code for the SIM card. Tap **Next**.	Ensure that your mobile phone is switched on, Bluetooth is enabled, and the device is ready to be found.
9.	-	Tap **Search** to search for a mobile device. All Bluetooth phones found will be listed.

Step	Description	
10.	-	Select your phone. Tap **Next**.
11.	-	Provide any passkey, for example 123. Tap **Next**. Confirm the passkey in the mobile device.
12.	A message will show you that your connection was successful. Tap **Next**.	
13.	Select the type of Internet connection you want to use. You have the choice between: • GPRS/CDMA. Refer to "Configuring GPRS/CDMA connection". • Dial-up CSD. Refer to "Configuring Dial-up (CSD) Internet connection".	
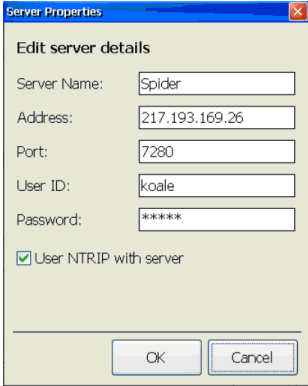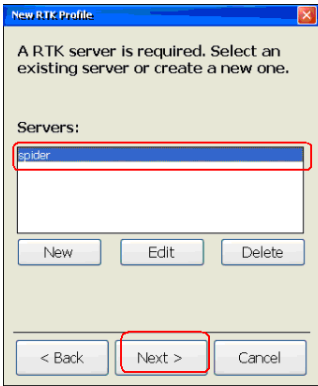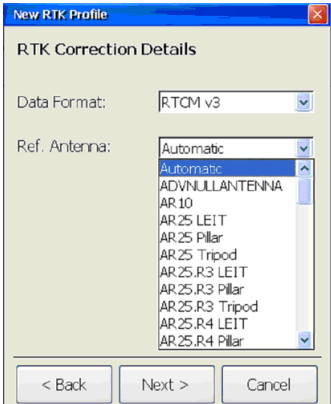
Configuring GPRS/CDMA connection
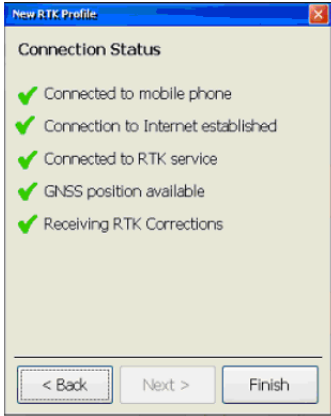
Step	Description
1.	Select **Using GPRS/CDMA Internet connection**. Tap **Next**.
☞	Depending on your mobile phone, it can be necessary to confirm the connection on the phone. Add your device to the known device list on your phone will prevent this in most cases.
2.	Enter the APN of your internet service provider, for example gprs.swisscom.ch. Tap **Next**. New RTK Profile Enter the APN for your internet connection APN: gprs.swisscom.ch This information can be obtained from your internet provider. < Back Next > Cancel
3.	Enter your user ID and password for your Internet connection. Tap **Next**. New RTK Profile Enter the internet connection settings ☑ Use user ID and password User ID: Sunrise Password: ******** < Back Next > Cancel
4.	Continue with section "Configuring RTK server".

Configuring Dial-up (CSD) Internet connection

Step	Description
1.	Select **Using dial-up (CSD) Internet connection**. Tap **Next**.
2.	Provide a name to save the dial-up station information for later use. Enter the Internet provider phone number and the type of protocol used for connection. Tap **Next**.
3.	Enter your user ID and password for your Internet connection. Tap **Next**. The dial-up station details can be obtained from your RTK service provider. You can also edit or delete an existing dial-up station.
4.	Enter the **User ID** and **Password** for your dial-up internet connection. Tap **Next**.
5.	Continue with section "Configuring RTK server".

Configuring RTK server

Step	Description
1.	Tap **New** to create a new server. ☞ Or, if available, select an existing RTK server of the list. Refer to 3..
2.	Enter the RTK server details. Check **NTRIP** if you would like to use NTRIP. Tap **Next**. **Server Properties** Edit server details Server Name: Spider Address: 217.193.169.26 Port: 7280 User ID: koale Password: ***** ☑ User NTRIP with server OK Cancel ☞ The sever details can be obtained from your RTK service provider. ☞ You can also edit or delete an existing RTK server configuration.
3.	Highlight the new created server. Tap **Next**. **New RTK Profile** A RTK server is required. Select an existing server or create a new one. Servers: spider New Edit Delete < Back Next > Cancel
4.	Either select the mountpoint from a list or enter it manually. Tap **Next**.
5.	Select the RTK data format for the RTK server based on the required configuration from your RTK service provider. Select an antenna type for the reference antenna. This information can be obtained from the correction network provider. Most correction networks or reference stations are configured to eliminate antenna offsets. In these cases, the ADVNULLANTENNA can be selected. Tap **Next**. **New RTK Profile** RTK Correction Details Data Format: RTCM v3 Ref. Antenna: Automatic Automatic ADVNULLANTENNA AR10 AR25 LEIT AR25 Pillar AR25 Tripod AR25.R3 LEIT AR25.R3 Pillar AR25.R3 Tripod AR25.R4 LEIT AR25.R4 Pillar < Back Next > Cancel

Step	Description
6.	The connection status dialog appears checking all required parts of the configuration. • Tap **Finish** after a successful connection test. • Tap **Back** to correct any mistakes in your configuration. **New RTK Profile** Connection Status ✔ Connected to mobile phone ✔ Connection to Internet established ✔ Connected to RTK service ✔ GNSS position available ✔ Receiving RTK Corrections [< Back] [Next >] [Finish]
☞	For highest position accuracy it is recommended to use GG03/GG02 plus SmartAntenna.

1.5.4 Quality Gates

Setting quality gates

The **Quality** tab allows to define quality limits based on PDOP, HDOP, position accuracy, height accuracy and solution type. The GGA and GSA NMEA messages streamed indicate exceeded quality gates like following:
- GGA: GPS Quality Indicator = 0. Fix not available or invalid.
- GSA: Mode = 1. Fix not available.

GNSS Settings
Antenna | Quality | Realtime | NMEA | Data View
— DOP Limits —
PDOP: [ ]   HDOP: [ ]
— Position Limits —
Position: [ ] m   Height: [ ] m
Solution: Navigated ▼
— Warnings —
☐ No Position   Windows Battery (🔊 📂
☑ Solution Changed   Windows Ding.wav 🔊 📂
☐ DGPS Solution Lost   Windows Ding.wav 🔊 📂
[OK]   [Cancel]
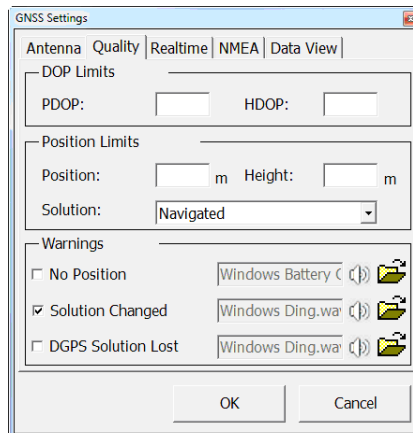
Acoustic warnings

Acoustic warnings can be defined for following cases:
- **No Position**:
  Warning if the GNSS sensor cannot compute a position.
- **Solution Changed**:
  Warning as soon as the position status changes either when changing to a less accurate position status or when changing to a more accurate position status. Example: From phase fixed to code or from navigated to code.
- **DGPS Solution lost**:
  Warning as soon as the position status changes to a less accurate position status.
  Example: From phase fixed to code or from code to navigated.

1.5.5   Streaming NMEA 0183 Messages

Functionality   Zeno Connect supports a number of protocols for communicating with GPS receivers. One of them is the NMEA 0183 version 4.0 standard protocol defined by the National Marine Electronics Association. The NMEA 0183 standard definition is available from **https://www.nmea.org**.

NMEA 0183 standard   The NMEA 0183 standard defines messages that are used to transmit data. These messages consist of printable ASCII text plus carriage return and line feed.
Each message consists of the following data sequence:
1) $ - Always at the beginning of an NMEA 0183 message
2) Two-letter talker ID, for example "GP" for global positioning system receiver
3) Three-letter message ID, for example GGA.
4) Several data fields separated by commas
5) Optional checksum to terminate the message and a carriage return or line feed.

The NMEA 0183 standard allows individual manufacturers to define proprietary message formats. These messages start with $P, then a three-letter manufacturer ID, followed by data from the manufacturer that follows the general format of the standard messages.

Example   Sample NMEA 0183 message for the GPS fix data:
$GPGGA,121505,4807.038,N,01131.324,E,1,08,0.9,133.4,M,46.9,M, , *42

Field	Description
$GPGGA	NMEA 0183 message ID for the GPS fix data
121505	Time of token fix: 12:15:05 UTC
4807.038,N	Latitude 48° 07.038' N
01131.324,E	Longitude 11° 31.324' E
1	Position quality indicator
	0 = Fix not available or invalid
	1 = No real-time position, navigation fix
	2 = Real-time position, ambiguities not fixed
	3 = Valid fix for GNSS**P**recise **P**ositioning **S**ervice mode, for example WAAS
	The NMEA 0183 version 3.0 standard adds additional values for the $GPGGA fix quality, which Zeno Field recognizes:
	4 = Real-time position, ambiguities fixed
	5 = Real-time kinematic (RTK) float solution
	6 = Estimated dead reckoning
	7 = Manual input
	8 = Simulation mode
08	Number of satellites in use, 00 to 26
0.9	HDOP (**H**orizontal **D**ilution **O**f **P**osition)
133.4,M	Altitude of position marker above/below mean sea level in metres.
46.9,M	Geoidal separation in metres. The Geoidal separation is the difference between the WGS 1984 earth ellipsoid surface and mean sea level.
Empty field	Age of differential GNSS data, empty when DGPS not used
Empty field	Differential base station ID, 0000 to 1023
*42	Checksum

NMEA messages supported by Zeno Connect	Zeno Connect streams the NMEA 0183 version 2.0 or higher messages listed in the table:

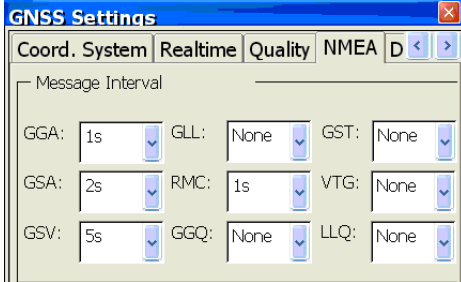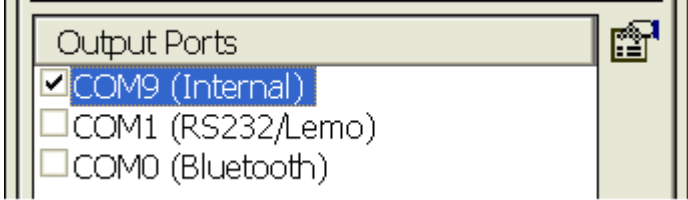| Message	Description
GGA	Global Positioning System Fix Data
GGQ	Real-Time Position with CQ
GLL	Geographic Position Latitude/Longitude
GSA	GNSS DOP and Active Satellites
GST	Pseudo range error statistics (2D + 1D quality)
GSV	GNSS Satellites in View
LLQ	Leica Local Position and Quality
RMC	Recommended Minimum Specific GNSS Data
VTG	Course Over Ground and Ground Speed

Configuring NMEA output

☞ It is recommended to use the LEMO connector module, when streaming NMEA data to another PC.

Recommended cables:
- GEV218: LEMO to USB
- GEV162: LEMO-1, 8 pin, 135° / 9 pin, RS232 serial

Step	Description
1.	Tap **Menu** › **Settings** or tap 🔧 .
2.	Change to the **NMEA** tab.
3.	Define the interval for NMEA message streaming: None, 0.2 s, 1 s, 2 s, 5 s or 10 s. ☞ 0.2 s is only available for sensors with 5 Hz option. ☞ Use the default settings for best performance. ☞ The required messages depend on the application, which will use the NMEA stream. ☞ You can stream NMEA messages to multiple ports at the same time.
4.	Activate the desired output port(s) by checking the check box.

Step	Description
	For Zeno 10/Zeno 15:

Port	Description	Use
COM9	Internal port	To stream NMEA messages to any application installed on the Zeno 10/Zeno 15, for example Zeno Field.
COM1	Physical serial RS232 or LEMO port depending on the connector module of the Zeno 10/Zeno 15	• To stream NMEA messages to another PC, such as a TabletPC. • A 3rd party application, for example Leica MobileMatriX, can use these messages to get positions from the Zeno 10/Zeno 15.
COMx (Bluetooth)	Predefined Bluetooth port	

In **Data View**, you can see the streamed NMEA messages.

For CS25:

Port	Description	Use
COM66	Internal port	To stream NMEA messages via Zeno Connect to a 3rd party application or Leica MobileMatriX on the same device. ☞ You must use port COM66 or the next free port if port COM66 is already used on the device.
COMx	Internal port	To stream NMEA messages via Zeno Connect to a 3rd party application or Leica MobileMatriX from one device to another. Use any of the listed output ports.

Step	Description
5.	Tap on the desired port to highlight it. This enables the COM port settings button 🖼. Tap on it.
6.	Define the required COM port settings, for example baud rate or parity. Tap **OK**.
7.	Tap **OK** to close the GNSS **Settings** dialog.
8.	Tap **Activate** GPS. The NMEA messages get streamed.
9.	Tap **Connect RTK** to connect to a real-time source and to stream high accurate positions (optional).
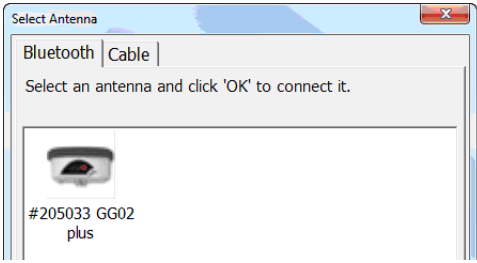
Streaming NMEA messages via Bluetooth

Step	Description
1.	The Bluetooth Manager in Zeno Tools includes a pre-configured serial port to stream data. This is COM0. To review the port settings, tap in the **Bluetooth Manager**. Open the serial port properties.
2.	Configure the Zeno for NMEA output. Refer to "1.5.5 Streaming NMEA 0183 Messages".
3.	Now you are able to connect from your external device, for example a Tablet PC or PC, to this NMEA stream coming from the Zeno.
☞	The following steps can vary depending on the used Bluetooth stack. Refer to the Bluetooth stack user guide for details.
4.	Search for Bluetooth devices in range. The Zeno will be found and the device name is shown, for example CS10 and the serial number.
5.	Pair the two devices using the passkey '0000'. You have to confirm the passkey on the Zeno.
6.	Search for the available services.
7.	Connect to the serial Bluetooth port.
8.	A COM port will be shown to which your device has connected to the Zeno.
9.	Now you can connect to this COM port from any application. You can use the Zeno, for example: • as a GNSS sensor to work in Leica MobileMatriX • to connect to the port in a terminal program to view the incoming NMEA messages.

Connecting to a GG03/GG02 plus

Step	Description
1.	Select GG03/GG02 plus GNSS SmartAntenna as GNSS device in the GNSS **Settings**.
2.	Switch the GG03/GG02 plus on. Connect it with a cable if you don't want to use Bluetooth (optional).
3.	Tap .
4.	The following dialogue displays all antennas in range. If your antenna is connected via cable switch to the **Cable** tab.
5.	Select your antenna. It will be automatically paired and connected.
6.	A message will tell you that the connection was successful.
☞	The connection of the antenna must be done only once at the first time or when switching the antenna. The antenna will be used as default device when activating GPS the next time.
☞	For switching from one SmartAntenna to another just make sure that the previous connected antenna is off. Switch on the new Smart Antenna and activate GPS. The search dialogue for selecting the new antenna will appear.

2　Zeno Tools

2.1　Introduction

Functionality of Zeno Tools

Zeno Tools consists of apps to configure:
*   Zeno 5
*   Zeno 10/Zeno 15
*   CS25
*   CS25 GNSS
*   GG02 plus
*   GG03

Depending on the hardware on which Zeno Tools is installed, the following apps can be used:

Installation on	
Zeno 5	• Licence Manager

Zeno 10/Zeno 15	• Bluetooth Manager to connect external Bluetooth devices such as laser rangefinder
	• Change the System Settings
	  Example: Font size
	• Add new licence keys
	  Example: New maintenance key or a Glonass key for the GS05/GS06
	• Uploading a new firmware for the GS05/GS06 caps

CS25	• Upload a new firmware on a GG03/GG02 plus • Upload upgrade keys on a GG03/GG02 plus or CS25 GNSS

2.2 Zeno Tools on Zeno 10/Zeno 15
2.2.1 Using the System Settings Manager

Functionality

In the System Settings Manager, you can
- Change the font sizes
- Reset the GS05/GS06 cap to factory defaults. The reset deletes the almanac and re-initializes the cap.
- Define the USB speed

Changing the system font size

Use this tool to set the system font size for the Zeno handheld device. The available font sizes are small, medium, large, and Zeno optimized fonts.

☞ Using larger font sizes will also resize dialog boxes. Some dialogs will not be fully visible anymore.

Step	Description
1.	Start System Settings Manager on your Zeno 10/Zeno 10: Tap **Start** › **Programs** › Zeno Tools › **System Settings Manager**.
2.	Select the preferred text size.
3.	Tap **OK**. A dialog box will ask you to restart the system. Tap **Yes** and the system will restart with the new text size settings.

Changing USB settings

The USB speed can be changed from USB Full Speed to the faster USB High Speed setting. The setting is required, because some computers do not support USB High Speed.

Step	Description
1.	Start System Settings Manager on the Zeno 10/Zeno 15: Tap **Start** › **Programs** › Zeno Tools › **System Settings Manager**.
2.	Change to the **USB Settings** tab.
3.	Select the preferred USB speed.
4.	Tap **OK**. A dialog box will ask you to restart the system. Tap **Yes** and the system will restart with the new USB speed setting.

Resetting GS05/GS06 GNSS cap

The reset function for the GS05/GS06 resets to the factory default. This means that, for example, the almanac gets deleted. A reset can be helpful for faster position acquisition after the Zeno device was moved a long distance.

Step	Description
1.	Start System Settings Manager on your Zeno 10/Zeno 15: Tap **Start** › **Programs** › Zeno Tools › **System Settings Manager**.
2.	Change to the **Reset** tab.
3.	Tap **Reset**.
4.	Tap **OK** to close the System Settings Manager.

2.2.2　Using the GS05/GS06 Firmware Loader

Functionality　Use Firmware Loader to upload new firmware to the GS05/GS06.

☞ Always ensure that you have enough battery power during the firmware upload.

☞ To upload a new firmware, a valid CCP key may be required. Prior to browsing and uploading, the new firmware needs to be copied onto the Zeno.

Loading firmware

Step	Description
1.	Download the most recent GS05/GS06 firmware file from **https://myworld.leica-geosystems.com**.
2.	Copy the GS05/GS06 firmware file into a folder on the Zeno 10/Zeno 15, SD card, Leica Compact Flash card or USB stick via ActiveSync or mobile Device Center, USB memory stick or SD Card.
3.	Start GS05/GS06 Firmware Loader on the Zeno 10/Zeno 15: Tap **Start** › **Programs** › Zeno Tools › GS05/GS06 **Firmware Loader**.
4.	Tap the folder icon on the load firmware dialog.
5.	Browse to the directory of the GS05/GS06 firmware file.
6.	Select the GS05/GS06 firmware file and start the upload.

2.2.3　Using the Licence Manager

Licencing Zeno Field/ Zeno Connect

For using Zeno Field and Zeno Connect, a valid licence is required.

In the **Licence Manager**, you can register licences for:
- Zeno Field: Zeno Field licence, Zeno GIS key, CCP keys
- Zeno Connect: Zeno Connect licence, Zeno GIS key, CCP keys
- GS05/GS06: Add GPS and GLONASS licences to GS05/GS06
- GG02 plus: GLONASS option

All Zeno devices are shipped with pre-installed licence keys. Additionally, you receive the keys in printed form. In some cases it is necessary to register new licence keys, for example if the key for a CCP licence has expired.

How to register a licence for Zeno Field

Step	Description
1.	Start **Licence Manager** on your CS10/CS15 by taping **Start\Programs\Zeno Tools\Licence Manager**.
2.	Enter your licence keys in the according fields in the Zeno Field tab. Or tap **Browse** and browse for you licence file. This will fill in all included keys automatically. These are: • Zeno GIS Key: Enables the CS10/CS15 for Zeno Field • Zeno Field Key: Licence for Zeno Field • CCP Key: Maintenance key for Zeno Field

How to register a licence for Zeno Connect

Step	Description
1.	Start **Licence Manager** on your CS10/CS15 by taping **Start\Programs\Zeno Tools\Licence Manager**.
2.	Enter your licence keys in the according fields in the Zeno Connect tab. Or tap **Browse** and browse for you licence file. This will fill in all included keys automatically. These are: • Zeno GIS Key: Enables the CS10/CS15 for Zeno Connect • Zeno Connect Key: Licence for Zeno Connect • CCP Key: Maintenance key for Zeno Connect

Licences for the Zeno Field GNSS cap GS05/GS06

There are two types of licences for the GNSS cap, which the user can request when purchasing the product:
　a) GPS only
　b) GPS and GLONASS

Step	Description
1.	Start **Licence Manager** on your Zeno 10/Zeno 15 by taping **Start\Programs\Zeno Tools\Licence Manager**.
2.	Enter you licence keys in the according fields in the **GS05/06** tab. Or tap **Browse** and browse for you licence file. This will fill in all included keys automatically.

GLONASS Option for GG02 plus SmartAntenna

In the **Licence Manager** you also can add a GLONASS option for GG02 plus.

Step	Description
1.	Start **Licence Manager** on your CS10/CS15 by taping **Start\Programs\Zeno Tools\Licence Manager**.
2.	Enter you licence keys in the according fields in the GG02 plus tab and enter your GLONASS licence in the according field. Or tap **Browse** and browse for you licence file. This will fill in all included keys automatically.

2.2.4 Using the Bluetooth App

Functionality
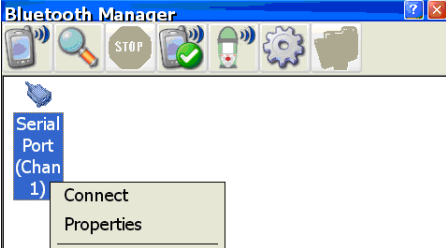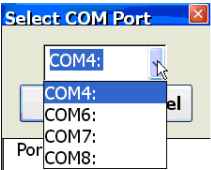
The Bluetooth app is used to configure Bluetooth connections to external Bluetooth devices. This can be a laser rangefinder, which can be used in Zeno Field or a PC to which NMEA should be streamed wireless.
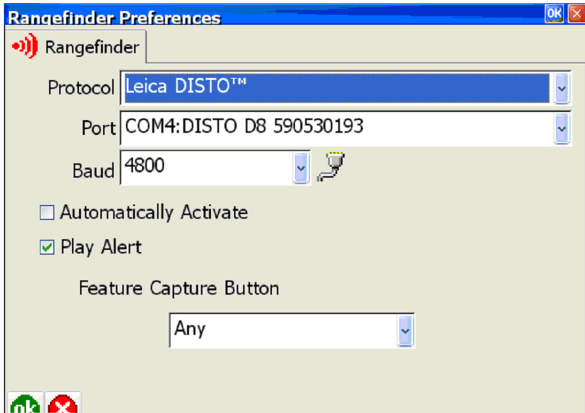
The Bluetooth Manager configures the Bluetooth connection and all required ports and services. The actual Bluetooth connection gets established automatically, as soon as an application like Zeno Field opens the according COM port.

Bluetooth user interface

Icon	Description
	Shows Bluetooth devices in range.
	Searches for Bluetooth devices in range.
	Stops search for Bluetooth devices in range.
	Registered devices Shows devices which where connected in the past are shown here.
	Local services Provides services to remote devices, for example serial port to stream NMEA to a PC.
	Properties

Connecting an external Bluetooth device

Step	Description
☞	The screenshots shown belong to a DISTO. Depending on your device, the menus may vary.
1.	Start the Bluetooth app on the Zeno 10/Zeno 15: Tap **Start** › **Programs** › Zeno Tools › **Bluetooth Manager**.
2.	Tap 🔍 to search for Bluetooth devices in the range. ☞ Ensure, that the Bluetooth on the device is turned on and ready to be found. After the search, new devices are found.
3.	Tap on the new device to be used. Select **Open** in the context menu. The services of the device are shown.
	☞ If pairing is required or not depends on the device. Refer to the user guide of the Bluetooth device for information and the passkey to be used.
	If pairing is required:
4.	Tap **Pair** to pair the device.
5.	Tap **Serial Port Service** › **Connect** in the context menu.
6.	Select the COM port to be assigned to the device. In this case: COM4
7.	Tap **OK**.
	Pairing is finished
8.	Now the device and the Zeno are connected. Tap 📲 to see all connections to devices including the COM port details.

Step	Description
9.	Tap to close the Bluetooth Manager.
10.	Go to Zeno Field. Open the Rangefinder Preferences in Zeno Field.
11.	Select the according protocol and COM port to which your device is connected. The device name is written behind the COM port number.
12.	Now you can work with the connected device.

Using a Leica DISTO via Bluetooth
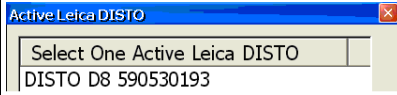
A Bluetooth enabled Leica DISTO can connected to a Zeno with the Leica DISTO Transfer PPC software. You can download Leica DISTO Transfer PPC from myWorld@Leica Geosystems (**https://myworld.leica-geosystems.com**).
The DISTO Transfer PPC software can be used to transfer values to Zeno Field or any other application.

Installing Leica DISTO Transfer PPC software on the Zeno
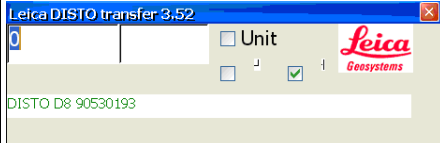
Step	Description
1.	Download the Leica DISTO Transfer PPC software from **https://myworld.leica-geosystems.com**. Copy the *SetupDistoPPC.exe* on a PC.
2.	Connect the Zeno to the PC using ActiveSync or Windows Mobile Device center.
3.	Run the *SetupDistoPPC.exe* on the PC.
4.	Select your language and click **OK**. The DISTO Transfer PPC Setup Wizard starts.
5.	Click **I agree to accept the licence agreement**. The installation starts.
6.	Click **Yes** to install DISTO Transfer PPC in the standard application path on the Zeno.

Connecting a DISTO the first time to DISTO Transfer PPC

Step	Description
1.	Switch the DISTO on. Ensure, that Bluetooth is enabled. ☞ Pressing the Bluetooth key switches Bluetooth on and off.
2.	Start DISTO Transfer PPC on the Zeno: Tap **Start** › **Programs** › DISTO **Transfer**.
3.	Select the desired language and tap **OK**.

Step	Description
4.	A dialog appears showing all active DISTOs in range. Select your DISTO and tap **OK**.
☞	The next time, DISTO Transfer PPC will connect to your DISTO automatically.

Using DISTO Transfer PPC to transfer values to Zeno Field

Step	Description
1.	Switch the DISTO on. Ensure, that Bluetooth is enabled. ☞ Pressing the Bluetooth key switches Bluetooth on and off.
2.	Start DISTO Transfer PPC on the Zeno: Tap **Start** › **Programs** › DISTO **Transfer**.
3.	DISTO Transfer PPC starts and connects to your DISTO automatically.
4.	It is recommended to use following settings:
5.	Click into the field into which the DISTO measurement should be entered. ☞ You can send a measured value to any editable field of any application. In Zeno Field this can be either the distance field in the offset point dialog, or an attribute field, for example the depth of a manhole.
6.	Take a distance measurement with the DISTO.
7.	Press the Bluetooth key on the DISTO to transfer the value to the selected edit field.

2.3 Zeno Tools on CS25

Uploading firmware for GG03/GG02 plus
With Zeno Tools installed on the CS25 you are able to upload new firmware to the GG03/GG02 plus.

Step	Description
1.	Connect GG03/GG02 plus to your PC by using Bluetooth or the GEV162 cable.
2.	Start the Firmware Loader Tool on your CS25 by taping **Start** › **All Programs** › Leica Geosystems › Leica Zeno Tools › **Firmware Loader GG0X**.
3.	Switch on the GG03/GG02 plus.
4.	Click the COM Port drop-down arrow to select the serial port on the CS25 which is connected with the GG03/GG02 plus. The Bluetooth COM port number can be found on the **Hardware** tab of the **Bluetooth Device Properties**.
5.	Browse for the new firmware.
6.	Check that the version number of the new firmware is higher than the current version.
7.	Click **Upload** to start the firmware update.
8.	Click **Close** when the upload is done.

Uploading firmware for CS25 GNSS

With Zeno Tools installed on the CS25 you are able to upload new firmware to the CS25 GNSS.

Step	Description
1.	Start the Firmware Loader Tool on your CS25 by taping **Start** › **All Programs** › Leica Geosystems › Leica Zeno Tools › **Firmware Loader GG0X**.
2.	Click the COM Port drop-down arrow to select the COM port with the description CS25 GNSS **device**.
3.	Browse for the new firmware.
4.	Check that the version number of the new firmware is higher than the current version.
5.	Uploading additional options to a GG03/CS25 GNSS is possible with the GNSS Upgrade Key Tool. Click **Upload** to start the firmware update.
6.	Click **Close** when the upload is done.

Uploading GNSS upgrade keys on GG03

With Zeno Tools installed on the CS25 you are able to upload new firmware to the GG03.

Step	Description
1.	Connect GG03 to your PC by using Bluetooth or the GEV162 cable.
2.	Start the Leica Zeno GNSS Upgrade Key Tool on your CS25 by taping **Start** › **All Programs** › Leica Geosystems › Leica Zeno Tools › GNSS **Upgrade Key**.
3.	Switch on the GG03.
4.	Click the COM Port drop-down arrow to select the serial port on the CS25 which is connected with the GG03. The Bluetooth COM port number can be found on the **Hardware** tab of the **Bluetooth Device Properties**.
5.	Enter the Authorization Code. The code is printed on your invoice and can also be downloaded from the device details in myWorld@Leica Geosystems (**https://myworld.leica-geosystems.com**).
6.	Click **OK**.

Uploading GNSS upgrade keys on CS25 GNSS

With Zeno Tools installed on the CS25 you are able to upload new firmware to the CS25 GNSS.

Step	Description
1.	Start the Leica Zeno GNSS Upgrade Key Tool on your CS25 GNSS by taping **Start** › **All Programs** › Leica Geosystems › Leica Zeno Tools › GNSS **Upgrade Key**.
2.	Click the COM Port drop-down arrow to select the COM port with the description CS25 GNSS **device**.
3.	Enter the Authorization Code. The code is printed on your invoice and can also be downloaded from the device details in myWorld@Leica Geosystems (**https://myworld.leica-geosystems.com**).
4.	Click **OK**.

2.4   Zeno Tools on Zeno 5

Functionality

With Zeno Tools installed on a Zeno 5, you can licence your software through Licence Manager.

- when it has to be **right**

Geosystems