

Version 1.0 English

- when it has to be **right**



To use the product in a permitted manner, please refer to the detailed safety instructions in the User Manual.

Hardware

Real-time reference setup



- a) GPS antenna (ATX900)
- b) Height hook
- c) Transport container
- d) RX900
- e) GFU device
- f) External battery (GEB171)

Real-time rover setup



- a) ATX900 with LED indicators
- Battery (GEB211) b)
- Telescopic carbon-fibre pole (GLS30) c)
- d) Clamp (GHT52) to attach the GHT56 holder to the pole
- e) Holder (GHT56) for attaching RX900 controller and RTK device to the pole
- f) RX900

RX900

d

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- Function keys F1-F6 a)
- Ь) QWERTY keyboard
- User-definable keys F7-F12 c)
- Arrow keys d)
- Control keys e)
- f) Numeric keys

Screen Display & Main Menu

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Icons

a) Position status







- 10m
- 0.01-0.02m
- b) Visible satellites
- c) Contributing satellites
- d) Real-time status
- e) Position mode
- f) Bluetooth
- g) Battery

Main Menu



Screen Display

- a) Screen area / Main Menu
- b) Message line
- c) Softkeys

1 Stakeout	Stakeout application.	4 Convert	Data conversion (import/export ASCII, GSI or DXF data, copy points between jobs).
2 Programs	Programs menu.	S Config	To configure parameters related to a survey, RX900 and the radio.
3 Manage	Data management (jobs, data, codelists, coordinate systems, etc.).	6 Tools	Tools (format the memory device, upload firmware and language files, manually type in or upload a licence key, etc.).

Data Transfer

Description

To transfer data to or from the office computer, the RX900 controller must be connected to the office computer (optional for RX900 controller with color screen) using Microsoft ActiveSync, which must first be installed on the office computer.



- 1. Turn on the RX900.
- 2. Connect it with the GEV161 USB cable to the PC.
- 3. The Microsoft ActiveSync program will start automatically and connect with the RX controller.
- 4. Click the Explore button in ActiveSync. The Windows Explorer opens.
- 5. Copy the DXF file and paste it into the folder Mobile Device/StorageCard/Data.
- Close the Explorer window, the ActiveSync and disconnect the GPS900 receiver from the PC. Connect the GPS900 receiver to the ATX900.

Importing Data to a Job

Description

It is possible to import ASCII, GSI or DXF data from a file stored in the internal memory (RX900) or on the CF card (RX900c) to a job on the RX900. As example for the importing procedure the import of DXF data is shown below.

Import DXF data step-by-step



- Ensure that at least one file in DXF format with the file extension *.dxf is stored in the \DATA directory of the internal memory/CF card.
- 1. Starting the DXF Importer
 - Select Main Menu...Convert.
 - Select Convert Data...Imp Data and access the Import Data to Job panel.
 - Select **DXF Import** and access the Import DXF Data to Job panel.
- 2. Accessing the Configuration.
 - Enter the Configuration panel (CONF (F2)).

17:12 DXF IMPRT 8 L1= 8	\$	5 ° ° •
Configuration		×
Block Prefix	:	B1k_
Point Prefix	÷	Pt_
Line Prefix	:	Line_
File Units Create Vertex Points Convrt White Elements	: :::::::::::::::::::::::::::::::::::::	Metre 아 No 아 Yes 아
Exclude Height	:	-9999.999
CONT		DEFLT a û

13:24 DXF IMPORT S Import DXF Data	L1=9 ↓ ☆ 3 5 ↓ L2=9 ↓ ☆ 3 5 ↓ ↓ to Job
From File To Job	: Tennis Court : Tennis Court :
Progress	:
CONT CONF	a û

3. Configuring the DXF Importer.

• Ensure that the File Units are correct.

DXF files have no defined units and therefore the units must be defined within the DXF importer.

• Confirm the configuration settings and return to the Import DXF Data to Job panel.

4. Importing the DXF data.

- Import the DXF data to the actice job (CONT (F1)).
- After importing the **DXF** data to the active job, complete the import or import another **DXF** data.

Reference Setup

Description

Setup Reference is a program to configure GPS900 as a reference station. After completing the program, the reference station is operating and RX900 switches to rover mode and can be used for all rover applications.

Configuring a GPS900 reference step-by-step

11:40 SETUP REF	+ * Li	8°∎¢1*	<i>¤</i> ↓
Reference	Begin	iak	
Jon		Jou	name
Coord Sys	tem :	coord sys	name
Codelist	:	codelist	name 🕩
CONT		DA	TA CSYS
11:38 SETUP REF Reference	: Set An	8 `` 8 * ≥8 1 &] tenna	x X
11:38 SETUP REF Reference	: Set An	tenna	×
11:38 SETUP REF Reference Antenna	: Set An	atcenna ATX900 T	× ×
11:38 SETUP REF Reference Antenna ID Addres	: Set An	-85	nipod. ↓ 1d1d1 ↓
11:38 SETUP REF Reference Antenna ID Addres Device	s :	* 8 』 (大) * * 8 』 (大) * ATX900 T 01d 1231 A	23 → ipod 4+ 1d1d1
11:38 SETUP REF Reference Antenna ID Addres Device	S Set An	atenna ATX900 T 01d 1231 A	x x x x x x x x x x
11:38 SETUP REF Reference Antenna ID Addres Device	s	⊫8 [™] # ≥8 tenna ATX900 T 01d 1231 A	x ↓ x ↓ x ↓ x ↓ x ↓ 1 ↓ ↓ 1 ↓ ↓ 1 ↓ ↓ 1 ↓ ↓ x ↓ ↓
11:38 SETUP REF Reference Antenna ID Addres Device	s :	itenna ATX900 T 01d 1231 A	nipoci 4) 1d1d1 TX900

1. Starting the Program

- Select a Job.
- Check all of the points in the selected job (DATA (F5)) and continue (CONT (F1)).

2. Selecting the Antenna

- Select the antenna.
- Start searching for the antenna via Bluetooth (SRCH (F4)) and continue (CONT (F1)).



3. Setting the Radio Channel

Enter the radio channel, scan (SCAN (F5)) for the radio at the reference and continue (CONT (F1)).

Ensure that the radio at the reference and the radio at the rover are set to the same frequency.

4. Selecting the Reference Point

- Select the **Point ID** of the known point and enter the antenna height.
- Press HERE (F4) to use the current navigated position for the setup and continue (CONT (F1)).
 - When setting the reference point for the setup, the selected point must be able to be viewed as WGS1984 coordinates.

5. Completing the Setup

• Finish (FNSH (F1)) the setup and return to the Main Menu screen.

The RX900 disconnect itself from the reference antenna. The BT connection to the reference antenna will be broken.

GPS Resection

Description

GPS Resection is used to orientate and calibrate the active job. The program is designed to provide an orientation to a GPS job in a similar method to a TPS resection.

Starting up with GPS Resection step-by-step

	1. Starting the Program
GPS Resection Begin	 Type in a Name for the resection, select a Job and continue (CONT
Name : GPS Resection	(F1)).
CONT CONT	
17:12 4 ⁴ ^{L1=8} t ¹ [*]	2. Measuring the local points
GPS RESEC 1 9 L2×8 X31 143 ∰ Step 1: Measure Control Pt	 Select Point ID of the known local point and occupy it.
Point ID : local_001	Hold the GPS real-time rover steady.
Easting 500 0000 a	• Start measuring the point (OCUPY (F1)).
Northing : 500.0000 m	 End measuring the point (STOP (F1))
Ortho Ht : 100.0000 m	
Hatch Type : Por & Height (b)	 Store the measured point (STORE (F1)).
3D CQ : 0.0091 m	
VV011	

17:14 GPS RESEC ♣ 9	L1=8 [*] * • •
Step 2: Match F	Points 🗵
Points	Match
loca1_001	Pos & Height
1oca1_002	Pos & Height
CALC ADD	DEL MATCH
17:12	all= 9 *
17:12 GPS RESEC 9	L1= 9 * * •
17:12 GPS RESEC 9 Step 3: Check F	L1=9 L2=9 Residuals
17:12 GPS RESEC Stop 3: Check F Points	L1=9 L2=9 Residuals East[n] North[n]
17:12 GPS RESEC Step 3: Check R Points local_001	L1=9 L2=9 siduals East[n] North[n] -0,000 0.000
17:12 GPS RESEC Step 3: Check F Points local_001 local_002	Last[n] -0.000 0.000 0.000 0.000
17:12 GPS RESEC Step 3: Check F Points local_001 local_002	Lie 9 A Lie 9 cosiduals X East[n] North[n] -0.000 0.000 0.000 0.000
17:12 GPS RESEC Step 3: Check F Points local_001 local_002	L1-9 L2-9 L3 L2-9 L3 L2-9 L3 L2-9 L2-9<
17:12 GPS RESEC 9 Step 3: Check F Points local_001 local_002	Lt-9 AT T Cost Cost Cost Cost Cost Cost Cost Cost
17:12 GPS RESEC 9 Step 3: Check F Points Iocal 001 Iocal_002	L:0
T7:12 BPS RESEC ⊕ 9 Step 3: Check F Points local_001 local_002	Ling (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)
T7:12 GPS RESEC ⊕ s Step 3: Check F Points loca1_001 loca1_002	Los duals East[n] North[n] -0.000 0.000 0.000 0.000

3. Matching the local points to WGS84 coordinates for position and/or height

- Select the type of match between the measured WGS84 and the known local point (MATCH (F5)).
- Survey another WGS84 point (ADD (F2)).
- Confirm the selections and compute the transformation (CALC (F1)).

4. Checking the calculated residuals

- Check the calculated residuals.
- Press MORE (F5) to display information about height residuals.
- If the residuals are unacceptable, return to **Step 2 (ESC**) where you can edit, delete or temporarily points from the list and recalculate the transformation.
- Save the coordinate system and attach it to the active job (**STORE** (F1)).

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Leica Geosystems AG, Heerbrugg, Switzerland, has been certified as being equipped with a quality system which meets the International Standards of Quality Management and Quality Systems (ISO standard 9001) and Environmental Management Systems (ISO standard 14001).

Ask your local Leica Geosystems dealer for more information about our TQM program.

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