Leica GS09
Quick Guide

Version 1.0
English

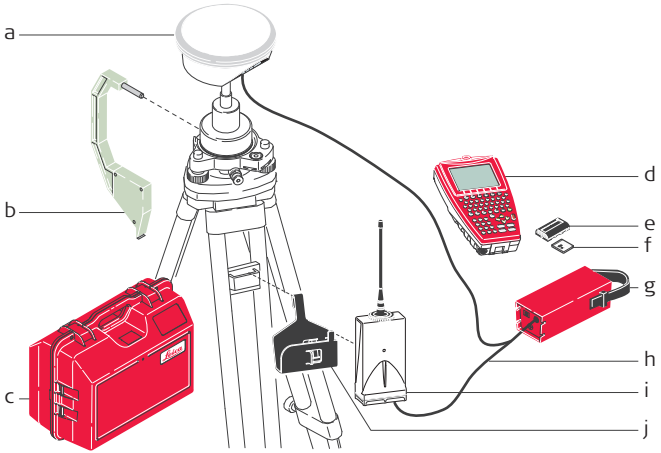
- when it has to be **right**

Leica Geosystems

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

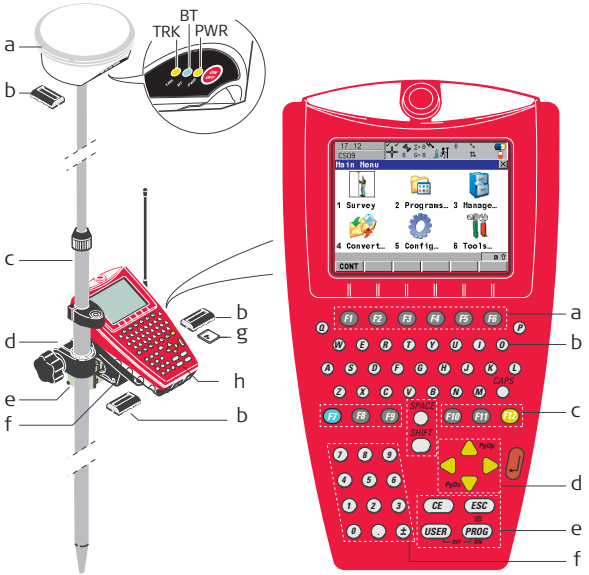
Hardware

Real-time reference setup



a) GNSS antenna (GS09)
b) Height hook
c) Transport container
d) CS09 field controller
e) Battery (GEB211/GEB212)
f) CompactFlash card
g) External battery (GEB171)
h) Y-cable (GEV205)
i) GFU device
j) GHT58 tripod bracket

Real-time rover setup



Rover setup

a) GS09 GNSS antenna with LED indicators
b) Battery (GEB211/GEB212)
c) Telescopic pole
d) Clamp (GHT63) to attach the GHT56 holder to the pole
e) GFU device
f) Holder (GHT56) for attaching CS09 field controller and RTK device to the pole
g) CompactFlash card
h) CS09 field controller

CS09 field controller

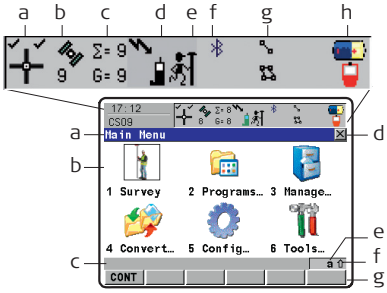
a) Function keys **F1**-**F6**
b) QWERTY keyboard
c) User-definable keys **F7**-**F12**
d) Arrow keys
e) Control keys
f) Numeric keys

Screen Display & Main Menu

Icons

a) Position status

b) Visible satellites
c) Contributing satellites
d) Real-time status
e) Position mode
f) Bluetooth
g) Data management
h) Battery & Memory



Screen Display

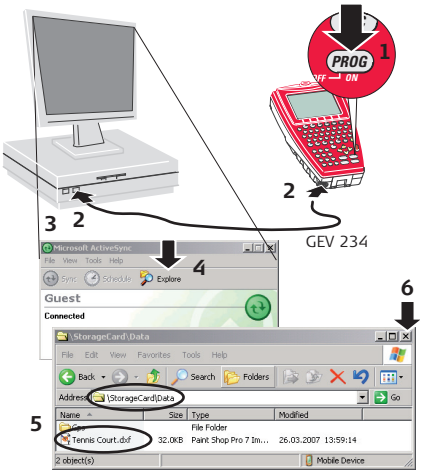
a) Title
b) Screen area / Main Menu
c) Message line
d) ESC ☒
e) CAPS
f) SHIFT icon
g) Softkeys

Main Menu

1 Survey	Survey application.	4 Convert…	Data conversion (import/export ASCII, GSI or DXF data, copy points between jobs).
2 Programs…	Programs menu (menu of all loaded applications).	5 Config…	To configure parameters related to a survey, CS09 field controller 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

To transfer data to or from the office computer, connect the CS09 field controller with cable to the office computer using Microsoft ActiveSync (Windows XP) or Windows Mobile Device Center (Windows Vista). The CompactFlash card can also directly be used in an OMNI drive as supplied by Leica Geosystems. As example for the data transfer procedure the transfer of DXF data is shown following.



1. Turn on the CS09 field controller.
2. Connect it with the GEV234 USB cable to the office computer.
3. The Microsoft ActiveSync program will start automatically and connect with the CS09 field controller.

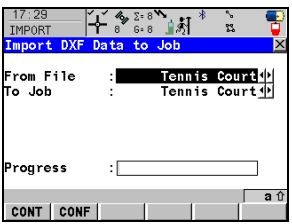
   Microsoft ActiveSync must first be installed on the office computer.
4. Click the Explore icon in ActiveSync. The Windows Explorer opens.
5. Copy the DXF file and paste it into the folder Mobile Device/StorageCard/Data.
6. Close the Explorer window, the ActiveSync and disconnect the CS09 field controller from the office computer. Connect the CS09 field controller to the GS09 GNSS antenna.

Importing Data to a Job

Description

It is possible to import ASCII, GSI or DXF data from a file stored on the CF card to a job on the CS09 field controller. As example for the importing procedure the import of DXF data is shown following.

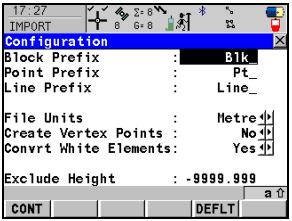
Import DXF data step-by-step



Ensure that at least one file in DXF format with the file extension *.dxf is stored in the \DATA directory of the CF card.

1. **Starting the DXF Importer**
   - Select **Main Menu...Convert**.
   - Select **Convert Data...Imp Data** and access the **Import Data to Job** screen.
   - Select **Import DXF** and access the **Import DXF Data to Job** screen.

2. **Accessing the Configuration.**
   - Enter the **Configuration** screen (**CONF (F2)**).

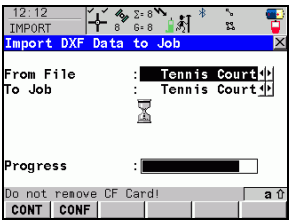


3. Configuring the DXF Importer.

- 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** screen.



4. Importing the DXF data.

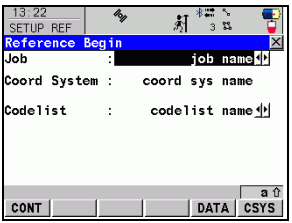
- Import the **DXF** data to the active job (**CONT** (**F1**)).
- After importing the **DXF** data to the active job, complete the import or import another **DXF** data.

Real-time Reference Setup

Description

Setup Reference is a program to configure GS09 as a real-time reference station. After completing the program, the reference station is operating and CS09 field controller switches to rover mode and can be used for all rover applications.

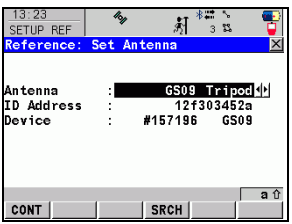
Configuring a GS09 real-time reference step-by-step



1. Starting the Program

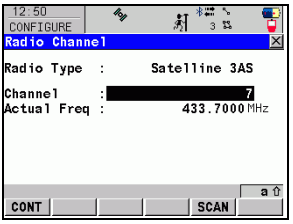
- Select **Main Menu...Programs**.
- Select **Setup Reference** and access the **Reference Begin** screen.
- Select a **Job**.

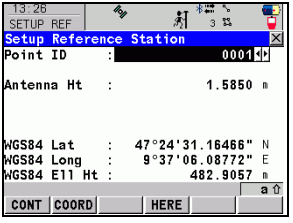
Press **DATA (F5)** to check all of the points in the selected job.

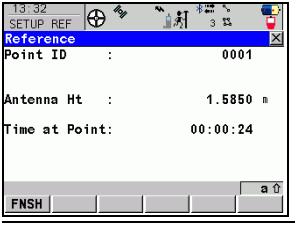


2. Selecting the Antenna

- 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 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. If an incorrect radio type is displayed, exit the program, connect the radio to the GHT56 holder and the CS09 field controller and configure the radio.

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

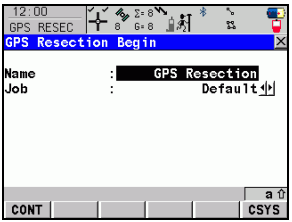
- Finish (**FNSH (F1)**) the setup and return to the Main Menu screen.

The CS09 field controller disconnects itself from the reference antenna. The BT connection to the reference antenna will be broken.

GPS Resection

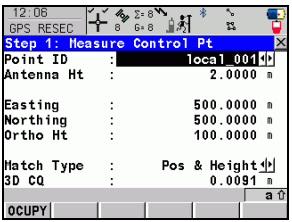
Description
GPS Resection is used to orientate and calibrate the active job. The program is designed to provide an orientation to a GPS job in a similar method to a TPS resection.

Starting up with GPS Resection step-by-step



1. Starting the Program

- Select **Main Menu...Programs**.
- Select **GPS Resection** and access the **GPS Resection Begin** screen.
- Type in a **Name** for the resection, select a **Job** and continue (**CONT (F1)**).

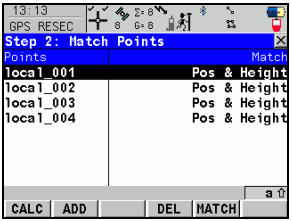


2. Measuring the local points

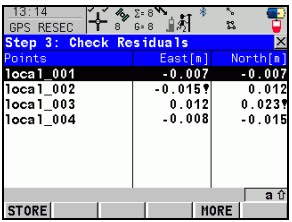
- Select **Point ID** of the known local point and occupy it.

Hold the GPS real-time rover steady.

- Start measuring the point (**OCUPY (F1)**).
- End measuring the point (**STOP (F1)**).
- Store the measured point (**STORE (F1)**).



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 or temporarily delete 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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