



# Leica FlexLine plus Quick Guide



Version 2.0  
English

- when it has to be **right**

*Leica*  
Geosystems

# 1 Important Information about your Instrument



Read and follow the User Manual on the accompanying USB stick before using the product or the accessories delivered with the product.



Keep for future reference!

## Intended use

- Measuring horizontal and vertical angles.
- Measuring distances.
- Visualising the aiming direction and vertical axis.

## Laser products

The instruments contain the following laser products:

Laser product	Laser class
EDM (Electronic Distance Measurement) module <ul style="list-style-type: none"><li>• measurements with reflectors</li><li>• measurements without reflectors</li></ul>	Class 1 Class 3R
EGL (Electronic Guide Light)*	Exempt Group
Laser plummet	Class 2

\* optional laser product

- The classification for the EDM and Laser plummet is in accordance with IEC 60825-1 (2007-03).
  - The classification for the EGL is in accordance with IEC 62471 (2006-07).
- 

**CAUTION**

From a safety perspective, class 3R laser products should be treated as potentially hazardous.

**Precautions:**

- 1) Prevent direct eye exposure to the beam.
  - 2) Do not direct the beam at other people.
- 

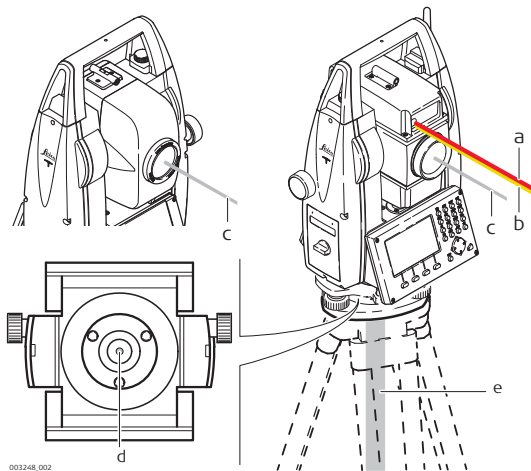
**CAUTION**

From a safety perspective, class 2 laser products are not inherently safe for the eyes.

**Precautions:**

- 1) Avoid staring into the beam.
  - 2) Avoid pointing the beam at other people.
-

### Locations of laser apertures



- a) LED beam red (EGL)
- b) LED beam yellow (EGL)
- c) Laser beam (EDM)
- d) Laser beam (Laser plummet)
- e) Exit for laser beam (Laser plummet)



The product must not be disposed with household waste.

## Conformity to national regulations



Hereby, Leica Geosystems AG, declares that the instrument is in compliance with the essential requirements and other relevant provisions of applicable European Directives. The declaration of conformity may be consulted at <http://www.leica-geosystems.com/ce>.

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## Conformity to national regulations

- FCC Part 15 (applicable in US).
- Hereby, Leica Geosystems AG, declares that the instrument with Communication side cover is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC and other applicable European Directives. The declaration of conformity may be consulted at <http://www.leica-geosystems.com/ce>.



Class 1 equipment according European Directive 1999/5/EC (R&TTE) can be placed on the market and be put into service without restrictions in any EEA Member state.

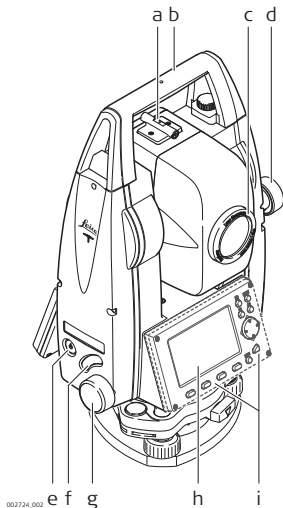
- The conformity for countries with other national regulations not covered by the FCC part 15 or European directive 1999/5/EC has to be approved prior to use and operation.
-

## 2 Instrument Components

Instrument components part 1 of 2

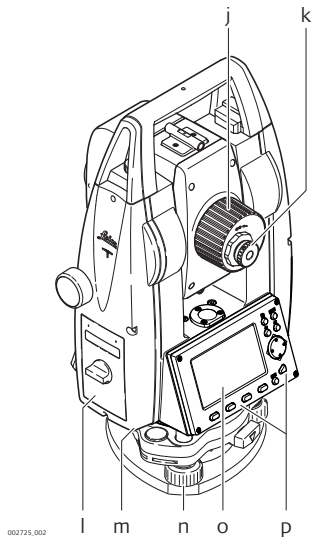


(Ergofocus telescope)



- a) Optical sight
  - b) Detachable carrying handle with mounting screw
  - c) Objective with integrated Electronic Distance Measurement (EDM). Exit for EDM laser beam
  - d) Vertical drive
  - e) On/Off key
  - f) Trigger key
  - g) Horizontal drive
  - h) Display
  - i) Second keyboard\*; identical to first keyboard
- \* Optional for TS02 plus

## Instrument components part 2 of 2

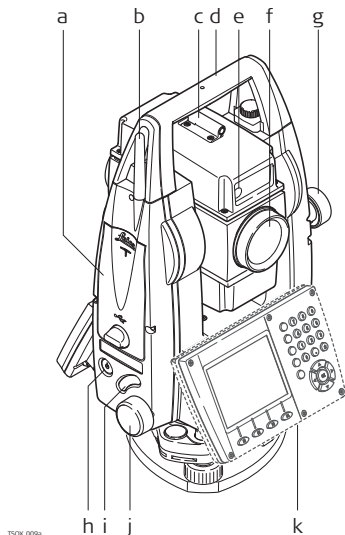


- j) Focusing telescope image
- k) Eyepiece; focusing graticule
- l) Battery cover
- m) Serial interface RS232
- n) Foot screw
- o) Display
- p) Keyboard

### Instrument components part 1 of 2



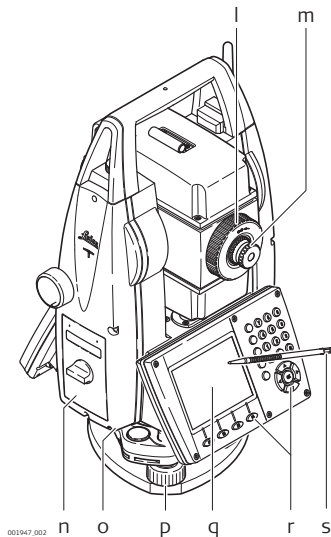
(Finefocus telescope)



- a) Compartment for USB memory stick and USB cable ports
  - b) Bluetooth antenna
  - c) Optical sight
  - d) Detachable carrying handle with mounting screw
  - e) Electronic Guide Light (EGL)\*
  - f) Objective with integrated Electronic Distance Measurement (EDM). Exit for EDM laser beam
  - g) Vertical drive
  - h) On/Off key
  - i) Trigger key
  - j) Horizontal drive
  - k) Second keyboard\*\*; identical to first keyboard
- \* Optional for TS06 plus  
 \*\* Optional for TS06 plus/TS09 plus



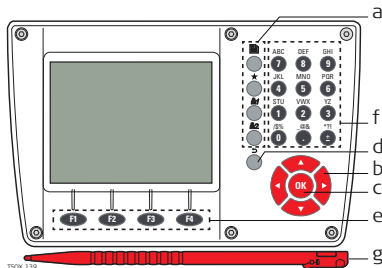
## Instrument components part 2 of 2



- l) Focusing telescope image
- m) Eyepiece; focusing graticule
- n) Battery cover
- o) Serial interface RS232
- p) Foot screw
- q) Display
- r) Keyboard, model may vary depending on instrument
- s) Stylus

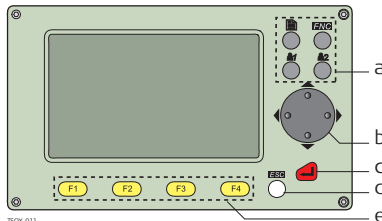
Keyboard

Color&Touch keyboard



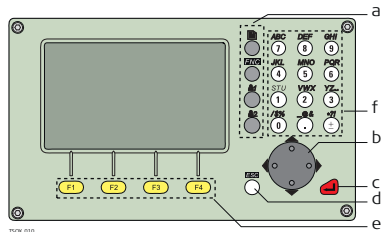
TSOK\_139

Standard keyboard



TSOK\_011









Alphanumeric keyboard



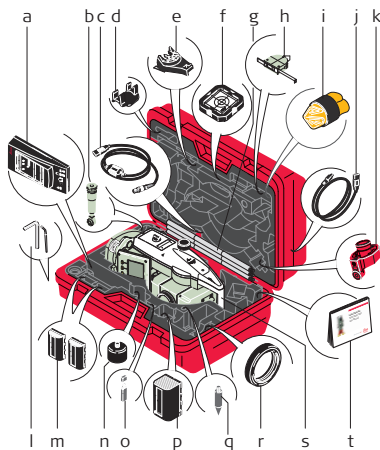
TSOK\_010

- a) Fixed keys
- b) Navigation key
- c) **ENTER** key
- d) **ESC** key
- e) Function keys **F1** to **F4**
- f) Alphanumeric keypad
- g) Stylus

## Keys

Key	Description
	Page key. Displays the next screen when several screens are available.
	<b>FNC</b> /Favourites key. Quick-access to measurement supporting functions.
	User key 1/User key 2. Programmable with a function from the <b>Favourites</b> menu.
	Navigation key. Controls the focus bar within the screen and the entry bar within a field.
	<b>ENTER</b> key. Confirms an entry and continues to the next field. Turns off the instrument, when held for 3 seconds.
	<b>ESC</b> key. Quits a screen or edit mode without saving changes. Returns to next higher level.
	Function keys <b>F1</b> to <b>F4</b> that are assigned the variable functions displayed at the bottom of the screen.
	Alphanumeric keys for entry of text and numerical values.

## Container contents



- a) Battery charger\*
  - b) Diagonal eyepiece\*
  - c) Data cable (USB-RS232)\*
  - d) Clip-on bubble\*
  - e) Holder for height meter\*
  - f) Flat prism\*
  - g) Mini prism pole\*
  - h) Height meter\*
  - i) Protective cover / Lens hood /  
Cleaning cloth
  - j) Data cable (USB-mini USB)\*
  - k) Mini prism\*
  - l) Adjustment tools
  - m) Batteries\*
  - n) Flat or mini prism adapter\*
  - o) Leica industrial grade USB memory  
stick\*
  - p) Battery\*
  - q) Tip for mini prism pole\*
  - r) Counterweight (diagonal eyepiece\*)
  - s) Instrument
  - t) Manuals
- \* Optional

### 3

## Technical Data

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### Environmental specifications

#### Temperature

Operating temperature [°C]	Storage temperature [°C]
-20 to +50	-40 to +70

#### Protection against water, dust and sand

IP55 (IEC 60529)

#### Humidity

Max 95 % non condensing.

The effects of condensation are to be effectively counteracted by periodically drying out the instrument.

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**4****Care and Transport**

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**Care and transport**

- Carry the product in its original container or carry the tripod with its legs splayed across your shoulder, to protect the product against shock and vibration.
  - Periodically carry out test measurements and perform the field adjustments indicated in the User Manual, particularly after the product has been dropped, stored for long periods or transported.
- 



The target line of the visible laser can drift during the product lifetime. Inspect the target line visually on a regular base. If necessary, visit an authorised Leica Service Centre for adjustment.

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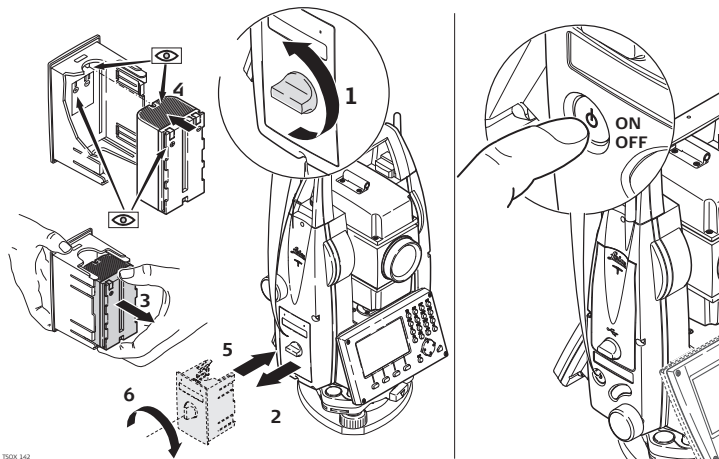
# 5

## Operation

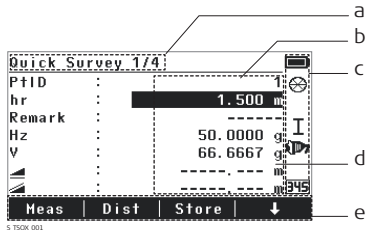


The battery must be charged before using it for the first time.

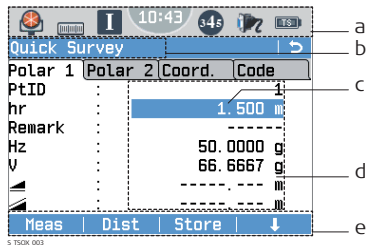
### Turning on and off the instrument



## Screen



- a) Title of screen
- b) Focus in screen. Active field
- c) Status icons
- d) Fields
- e) Softkeys










- a) Status icons
- b) Title of screen
- c) Focus in screen. Active field
- d) Fields
- e) Softkeys



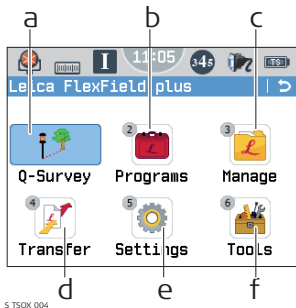
Tap on an icon, field or tab to run a function.



## Icons

Icon	Description
	<p>Displays the selected prism icon, the EDM measurement activity icon or the active laser pointer icon. For C&amp;T: Tapping the icon opens the <b>EDM Settings</b> screen.</p>
	<p>Displays the telescope position (face I or face II) or the compensator status (on, off or out of range). For C&amp;T: Tapping the icon opens the <b>Level &amp; Plummet</b> screen.</p>
	<p>Displays the keypad mode (numeric or alphanumeric). The icon is displayed when an editable field is highlighted. For C&amp;T: Tapping the icon switches the keypad mode.</p>
	<p>Displays the communication port icon (RS232, Bluetooth or USB) or auto detect communication icon. For C&amp;T: Tapping the icon opens the <b>Interface Settings</b> screen.</p>
	<p>Displays the status of the battery. For C&amp;T: Tapping the icon opens the <b>Info</b> screen.</p>
	<p>Displays that offset is active.</p>
	<p>Horizontal angle is set to left side angle measurement.</p>

## Main Menu



- a) Quick Survey program to begin measuring immediately.
- b) To select and start programs.
- c) To manage jobs, data, codelists, formats and USB memory stick files.
- d) To export and import data.
- e) To change EDM configurations, communication parameters and general instrument settings.
- f) To access instrument-related tools such as check and adjust, personal startup settings, PIN code settings, licence keys, system memory information and firmware upload.



Despite an automatic defragmentation, the memory gets fragmented after a while. Please format the internal memory periodically to maintain the instrument performance.

## Q-Survey program

Quick Survey			
Polar 1	Polar 2	Coord.	Code
PtID	:		1
hr	:	1.500	m
Remark	:	-----	
Hz	:	50.0000	g
V	:	66.6667	g
▲	:	-----	m
▲	:	-----	m
Meas	Dist	Store	↓

After switching on and setting up correctly, the instrument is immediately ready for measuring.

**Meas**

To start measurements and save the measured values.

**Dist**

To start measurements and display the measured values.

**Store**

To save the displayed values.

↓ **Code**

To find/enter codes. Available on page 4/4 or **Code**. Or, on any page, press the **FNC/Favourites** key and select **Coding**.

↓ **Station**

To enter station data and set the station.

↓ **Set Hz**


To set the orientation to a user defined horizontal direction.

↓ **Hz ← / Hz →**

To set the horizontal angle reading to the left (anticlockwise) or to the right (clockwise).

## EDM Settings

## EDM mode

<b>P-Precise+</b>	Fine measuring mode for highest precision measurements with prisms (1.5 mm + 2 ppm).
<b>P-Precise &amp; Fast</b>	Quick measuring mode with prisms, with higher measuring speed and high accuracy (2 mm + 2 ppm).
<b>P-Tracking</b>	For continuous distance measurements with prisms (3 mm + 2 ppm).
<b>Tape</b>	For distance measurements using Retro reflective targets (3 mm + 2 ppm).
<b>P-Long (&gt;4.0 km)</b>	For long range distance measurements with prisms (5 mm + 2 ppm). Available for  instruments.
<b>NP-Precise</b>	For distance measurements without prisms (2 mm + 2 ppm; >500 m: 4 mm + 2 ppm).
<b>NP-Tracking</b>	For continuous distance measurements without prisms (5 mm + 3 ppm).

## Prism type

<b>Round (GPR)</b>	<b>Leica Const.:</b> 0.0 mm
<b>Mini (GMP)</b>	<b>Leica Const.:</b> +17.5 mm
<b>Mini0 (GMP111-0)</b>	<b>Leica Const.:</b> 0.0 mm
<b>Jp Mini (SMP222)</b>	<b>Leica Const.:</b> +34.4 mm
<b>360° (GRZ4)</b>	<b>Leica Const.:</b> +23.1 mm
<b>360°Mini(GRZ101)</b>	<b>Leica Const.:</b> +30.0 mm
<b>Tape (GZM)</b>	<b>Leica Const.:</b> +34.4 mm
<b>None</b>	<b>Leica Const.:</b> +34.4 mm
<b>User 1 / User 2</b>	<p>For any prism modes, the user can define two of their own prisms.            Constants can be entered in mm in either <b>Leica Const.</b> or <b>Abs. Const.</b>. For example:</p> <p>User prism constant = -30.0 mm  <b>Leica Const.</b> = +4.4 mm (34.4 + -30 = 4.4)  <b>Abs. Const.</b> = -30.0 mm</p>

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**Menu Tree**

- |-- Q-Survey
  - |
  - |-- Programs
    - | |-- Station Setup, Survey, Stakeout, Tie Distance, COGO, Area & DTM Volume,
    - | |-- Remote Height, Traverse, Reference Line, Reference Arc,
    - | |-- Reference Plane, Road 2D, Road 3D
  - |-- Manage
    - | |-- Job, Fixpoints, Meas.Data, Codes, Formats, Del.Data, USB-Stick
  - |-- Transfer
    - | |-- Export, Import
  - |-- Settings
    - | |-- Work, Regional, Data, Screen..., EDM, Interface
  - |-- Tools
    - | |-- Adjust, Startup, Info, Licence, PIN, Load FW
-



**Total Quality Management: Our commitment to total customer satisfaction.**



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/sales representative for more information about our TQM program.**

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807171-2.0.0en

Original text  
Printed in Switzerland  
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