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# Leica FlexLine TS09plus

Full Precision at  
High Performance



- when it has to be **right**

**Leica**  
Geosystems

# The First Plus: Original Leica Geosystems Quality



For most, “quality” is relative. Not so at Leica Geosystems. To ensure our instruments meet the highest precision and quality requirements, we manufacture them in state-of-the-art facilities around the world. Swiss technology combines with exceptional craftsmanship to provide best-in-class devices. And this quality also applies to all of our procedures – moving Leica Geosystems towards business excellence to meet our customers’ needs and expectations in every way. The Leica FlexLine TS09plus Manual Total Station is ideal for mid- to high-accuracy applications. The brilliant color display with touch operation, built-in Bluetooth, USB host and device board offer the highest performance and ease of use.

Welcome to the world of Leica Geosystems. Welcome to a world of people, technologies, services and devices that you can completely rely on.

ACTIVE customer care 

**myworld**  
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# The Third Plus: Full Precision, Superior Convenience and Performance

## Electronic Distance Measurement:

Wherever high-distance measurement accuracy is required, you can face the challenge of this demanding task with the TS09plus. It provides the most accurate Electronic Distance Measurement.

## Prism Mode

- .. Precision+ (1.5 mm + 2 ppm)
- .. Speed (1 second)

## Non-Prism Mode

- .. Precision (2 mm + 2 ppm)
- .. PinPoint EDM with coaxial, small laser pointer and measurement beam for accurate aiming and measuring
- .. Fewer set-ups required, because targets on which it is not possible to set up a reflector can be measured using reflectorless measurement up to 1,000

## Work productively with the new Leica FlexField plus on-board software and the new color & touch display.

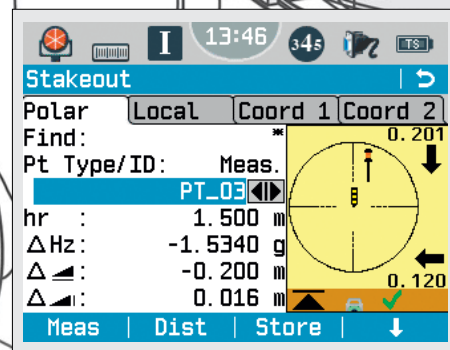
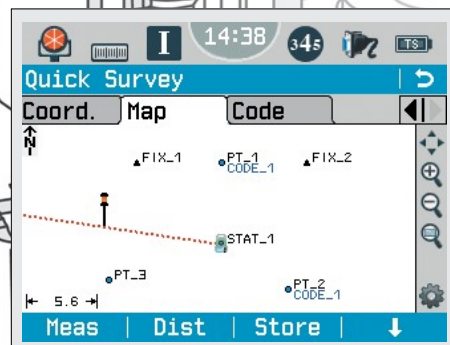
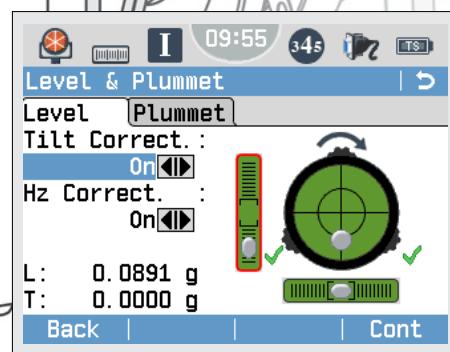
The new Leica FlexField plus software is without a doubt a highlight of the FlexLine plus. Its advantages are immediately apparent with the extra large, built-in color & touch display.



- .. Low learning curve due to guided workflows
- .. Easy to understand graphics and icons
- .. Icons to quickly verify instrument status
- .. Fast navigation inside the software via touch screen, tabs and icons
- .. High resolution color display to show all information without misinterpretation
- .. Larger font size for fast and clear readability
- .. Fast operation through graphic guidance

The Leica FlexLine TS09plus Communication Side Cover enables cable-free connection to any data collector via Bluetooth, for example the field-controllers Leica Viva CS10 or Leica Viva CS15 with SmartWorks Viva software. The USB-stick enables the flexible transfer of such data as GSI, DXF, ASCII, LandXML and CSV.

**FlexField plus Onboard Software:** Easy to use due to its graphical guidance and intuitive workflows.



## Leica Geosystems - mySecurity

mySecurity gives you total peace of mind. If your instrument is ever stolen, a locking mechanism is available to ensure that the device is disabled and can no longer be used.

# Leica FlexLine Plus

## Proven Specifications, Reliable Instruments

### Leica FlexLine TS09plus specifications:

Angle Measurement (Hz, V)		
Accuracy <sup>1)</sup>	1" (0.3 mgon) / 2" (0.6 mgon) 3" (1 mgon) / 5" (1.5 mgon)	☞
Method	Absolute, continuous, diametrical: at all models	☞
Display resolution	0.1" / 0.1 mgon / 0.01 mil	☞
Compensation	Quadruple Axis Compensation: at all models	☞
Compensator Setting Accuracy	0.5" / 0.5" / 1" / 1.5"	☞
Compensator range	0.07 gon	☞
Endless Drives	Smooth movements with no delayed response time	☞
Distance Measurement with Reflector		
Range <sup>2)</sup> Round prism (Leica GPR1)	3.500 m	☞
Range <sup>2)</sup> Prism-Long (Leica GPR1, R500/R1000)	>10.000 m	☞
Range <sup>2)</sup> Reflective tape (60 mm x 60 mm)	>500 m <sup>9)</sup> >1000 m <sup>10)</sup>	☞
Accuracy <sup>2)</sup>	Precise+: 1.5 mm+2.0 ppm Precise Fast: 2.0 mm+2.0 ppm Tracking: 3.0 mm+2.0 ppm	☞
Typical Measurement time <sup>4)</sup>	1.0 s	☞
Measurement time while in «Precise+» mode	2.4 s	☞
Distance Measurement without Reflector <sup>8)</sup>		
Range <sup>5)</sup>	> 500 m / > 1000 m	☞ ☑
PinPoint R500 / R1000	2 mm+2 ppm	☞
Accuracy <sup>6)</sup>	2 mm+2 ppm	☞
Laser dot size	At 30 m: approx. 7 x 10 mm At 50 m: approx. 8 x 20 mm	☞
Data storage / Communication		
Internal memory	Max.: 100'000 fixpoints, Max.: 60'000 measurements	☞
Interfaces	- Serial (Baudrate up to 115'200) - USB Type A and mini B, - Bluetooth® Wireless, class 1, 150 m - > 1000 m (with TCPS29)	☞ ☞ ☞ 
Data formats	GSI / DXF / LandXML / CSV / user definable ASCII formats	☞
Guide Light (EGL)		
Working Range (average atmospheric conditions)	5 m – 150 m	☞
Positioning accuracy	5 cm at 100 m	☞

Telescope		
Magnification	30 x	☞
Resolving power	3"	☞
Field of View	1° 30' (1.66 gon) 2.7 m at 100 m	☞
Focusing range	1.7 m to infinity	☞
Reticle	Illuminated, 10 brightness levels	☞
Keyboard and Display		
Keyboard and Display	Full Alpha-numerical keyboard with Color & Touch display, Graphics, 320 x 240 pixels (Q-VGA), key- and display illumination, 5 brightness levels	☞
Position	Face I, Face II	☞ ☑
Operating System		
Windows CE	5.0 Core	☞
Laserplummet		
Type	Laser point, 5 brightness levels	☞
Centering accuracy	1.5 mm at 1.5 m Instrument height	☞
Battery		
Type	Lithium-Ion	☞
Operating time <sup>7)</sup>	approx. 30 hours	☞
Battery charging time	2.3 hours	☞
Weight		
Total station including GEB211 and tribrach	5.1 kg	☞
Environmental		
Temperature range (operation)	-20° C to +50° C (-4° F to +122° F) Arctic Version -35° C to 50° C (-31° F to +122° F)	☞ 
Dust / Water (IEC 60529) Humidity	IP55, 95%, non condensing	☞
Leica FlexField plus Onboard Software		
<b>Included Application Programs:</b>	Survey incl. Map View; Stake Out; Station Setup including: Resection, Local Resection, Helmert Resection, Orientation (Angles & Coordinates), Height Transfer; Area (Plan & Surface); DTM Volume calculation; Tie Distance (MLM); Remote Height; Hidden Point; Backsight Check; Offset; Reference Line; Reference Arc; Reference Plane; Road 2D; COGO; Road 3D; Traverse	☞
Theft protection		
mySecurity, PIN/PUK Code		☞ ☞

### Model Comparison: Configurations & Options of Manual Total Stations

	TS02plus	TS06plus	TS09plus	Viva TS11
1" angular accuracy	-			
Enhanced measurement accuracy to prism	1.5 mm + 2 ppm	1.5 mm + 2 ppm	1.5 mm + 2 ppm	1.0 mm + 1.5 ppm
Reflectorless measurement range	500 m option	500 m included/1000 m option	500 m included/1000 m option	500 m included/1000 m option
Display with graphics and display illumination	Black & White high resolution	Black & White high resolution	Q-VGA Color & Touch	Full-VGA Color & Touch
Full alpha-numerical keyboard with function keys	-	☞	☞	☞
Second Keyboard				
Keyboard illumination	-	-	☞	☞
Electronic Guide Light	-		☞	☞
USB Type A and mini B	-	☞	☞	☞
Bluetooth® Wireless	-	☞	☞	☞
SD Card	-	-	-	☞
Imaging capability	-	-	-	
Smart Station GNSS capability	-	-	-	
Onboard software (package content)	FlexField plus (standard)	FlexField plus (advanced)	FlexField plus (full)	SmartWorx Viva (pro)

#### Legend:

- 1) Standard deviation ISO-17123-3
- 2) Overcast, no haze, visibility about 40 km; no heat shimmer.
- 3) Standard deviation ISO-17123-4
- 4) Prism Precise Fast mode

- 5) Under optimal conditions on Kodak Grey Card (90% reflective). Maximum range varies with atmospheric conditions, target reflectivity and surface structure.
- 6) Range > 500m 4mm+2ppm
- 7) Single Measurement every 30 second at 25° C. Battery time may be shorter if battery is not new. Internal battery GEB222.

- 8) Reflectorless measurement time may vary according to measuring objects, observation situations and environmental conditions.
- 9) with R500 option using Non-prism mode
- 10) with R1000 option using Non-prism mode

- ☞ Included
- | Option
- Not available