

Leica FlexLine TS09plus

Full precision at
high performance



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 colour 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

my
world

The Second Plus:

Real features, true benefits



USB Stick

- For fast and easy transfer of data

Wireless Bluetooth®

- For cable-free connection to data logger



PinPoint EDM

- The most precise in its class (1.5 mm + 2 ppm)
- Extremely fast (1 second)
- > 1,000 metres without prism
- Coaxial laser pointer and measurement beam



Electronic Guide Light

- For faster stake-out



Colour & Touch Display

- Highest user-friendliness



FlexField plus

- Modern and intuitive onboard software for higher productivity



Useful tools

- A range of tools, such as a trigger key and laser plummet, speed up your work



Arctic version

- For use at -35°C (-31°F)



mySecurity

- Unique theft protection locking mechanism



The Third Plus: 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 setups 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 Leica FlexField plus on-board software and the colour and touch display.

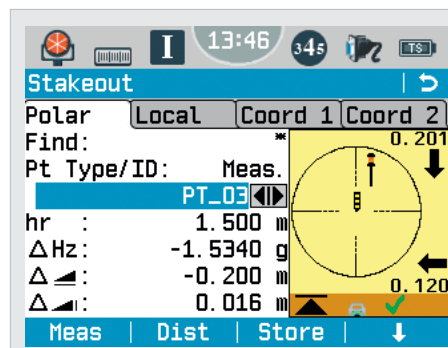
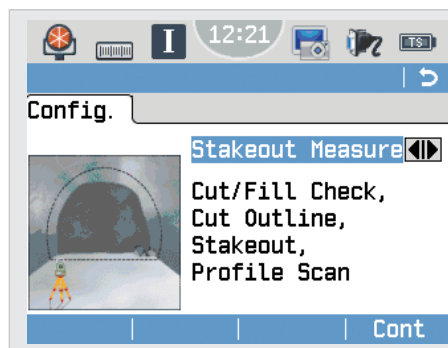
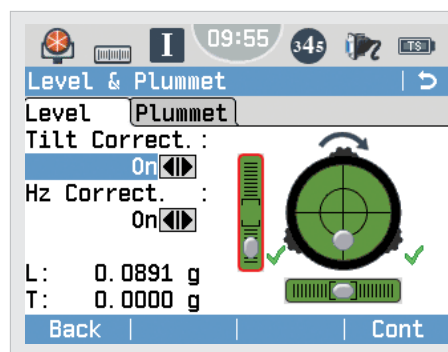
The Leica FlexField plus software is without a doubt a highlight of the FlexLine plus. Its advantages are immediately apparent with the extra large, built-in colour & touch display.



- 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 colour 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 CS20 controller or Leica CS35 tablet with Captivate software. The USB-stick enables the flexible transfer of such data as GSI, DXF, ASCII, LandXML and CSV.

FlexField plus on-board 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 TS09plus

Proven specifications, reliable instruments

ANGLE MEASUREMENT (HZ, V)	
Accuracy ¹⁾	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 ²⁾ Round prism (Leica GPR1)	3.500 m ✓
Range ²⁾ Prism-Long (Leica GPR1, R500/R1000)	>10,000 m ✓
Range ²⁾ Reflective tape (60 mm x 60 mm)	>500m ⁹⁾ >1000m ¹⁰⁾ ✓
Accuracy ³⁾	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 ⁴⁾	1.0 s ✓
Measurement time while in "Precise+" mode	2.4s ✓
DISTANCE MEASUREMENT WITHOUT REFLECTOR ⁸⁾	
Range ⁵⁾ PinPoint R500 / R1000	> 500 m / > 1000 m ✓○
Accuracy ^{3) 6)}	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 ✓ - TCPS29 (non-EU) > 1000 m ○ - TCPS30 (EU) > 500 m ○
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 Colour & 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 ✓
Centring accuracy	1.5 mm at 1.5 m instrument height ✓
BATTERY	
Type	Lithium-Ion ✓
Operating time ⁷⁾	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	
Included Application Programs:	Survey incl. Map View; Selection from map within applications; 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 ✓
Extra Application Program:	Tunnel ✓
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 Colour & Touch	Full-VGA Colour & 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

○ Optional

- Not available

Revolutionising the world of measurement and survey for nearly 200 years, Leica Geosystems creates complete solutions for professionals across the planet. Known for premium products and innovative solution development, professionals in a diverse mix of industries, such as aerospace and defence, safety and security, construction, and manufacturing, trust Leica Geosystems for all their geospatial needs. With precise and accurate instruments, sophisticated software, and dependable services, Leica Geosystems delivers value every day to those shaping the future of our world.

Leica Geosystems is part of Hexagon (Nasdaq Stockholm: HEXA B; hexagon.com), a leading global provider of information technologies that drive quality and productivity improvements across geospatial and industrial enterprise applications.



The **Bluetooth**® word mark and logos are owned by Bluetooth SIG, Inc. and any use of such marks by Leica Geosystems AG is under license.

Other trademark and trade names are those of their respective owners.

Cover picture: Shanghai Pudong Skyline

Illustrations, descriptions and technical data are not binding. All rights reserved. Printed in Switzerland. Copyright Leica Geosystems AG, Heerbrugg, Switzerland, 2016. 789503en - 05.16



**FlexLine
TS02plus**
Brochure



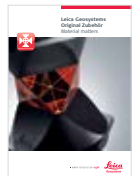
**FlexLine
TS06plus**
Brochure



FlexField plus
Brochure



Viva TS11
Brochure



**Original
Accessories**
Brochure