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 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.
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:

<table>
<thead>
<tr>
<th>Feature</th>
<th>TS09plus</th>
<th>TS09plus</th>
<th>TS09plus</th>
<th>Viva TS11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angle Measurement (Itz, V)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Accuracy **(1)</td>
<td>1° (0.3 mgon) / 2° (0.6 mgon)</td>
<td></td>
<td>1.5 mm + 2 ppm</td>
<td></td>
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<tr>
<td>Method</td>
<td>Absolute, continuous, diometrical at all models</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Display resolution</td>
<td>0.1° / 0.1 mgon / 0.01 mil</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Compensation</td>
<td>Quadruple Axis Compensation: at all models</td>
<td></td>
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<tr>
<td>Compensator Setting Accuracy</td>
<td>0.5° / 0.5° / 1° / 1.5°</td>
<td></td>
<td></td>
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<tr>
<td>Compensator range</td>
<td>0.07 gon</td>
<td></td>
<td></td>
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<tr>
<td>Endless Drives</td>
<td>Smooth movements with no delayed response time</td>
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<tr>
<td>Distance Measurement with Reflector</td>
<td></td>
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<tr>
<td>Range **(2) Round prism (Leica GPR1)</td>
<td>3.500 m</td>
<td></td>
<td></td>
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<tr>
<td>Range **(2) Prism-Long (Leica GPR1, R500/R1000)</td>
<td>&gt;10.000 m</td>
<td>&gt;10.000 m</td>
<td>&gt;10.000 m</td>
<td>&gt;10.000 m</td>
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<tr>
<td>Range **(2) Reflective tape (60 mm x 60 mm)</td>
<td>&gt;500 m</td>
<td>&gt;1000 m</td>
<td></td>
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</tr>
<tr>
<td>Accuracy **(3)</td>
<td>Precise+: 1.5 mm+2.0 ppm</td>
<td>Precise Fast: 2.0 mm+2.0 ppm</td>
<td>Tracking: 3.0 mm+2.0 ppm</td>
<td></td>
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<tr>
<td>Typical measurement time **(4)</td>
<td>1.0 s</td>
<td></td>
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<tr>
<td>Measurement time while in «Precise+» mode</td>
<td>2.4 s</td>
<td></td>
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<tr>
<td>Distance Measurement without Reflector</td>
<td></td>
<td></td>
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<tr>
<td>Range **(6) PinPoint R500 / R1000</td>
<td>&gt;500 m / &gt;1000 m</td>
<td>&gt;500 m / &gt;1000 m</td>
<td>&gt;500 m / &gt;1000 m</td>
<td>&gt;500 m / &gt;1000 m</td>
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<tr>
<td>Accuracy **(7)</td>
<td>2 mm+2 ppm</td>
<td></td>
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<tr>
<td>Laser dot size</td>
<td>At 30 m: approx. 7 x 10 mm</td>
<td>At 50 m: approx. 8 x 20 mm</td>
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<tr>
<td>Data storage / Communication</td>
<td></td>
<td></td>
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<tr>
<td>Internal memory</td>
<td>Max.: 100,000 x points</td>
<td>Max.: 60,000 measurements</td>
<td></td>
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<tr>
<td>Interfaces</td>
<td>- Serial (Baudrate up to 115200)</td>
<td>- USB Type A and mini B, Bluetooth® Wireless, class 1, 150 m</td>
<td>&gt; 1000 m (with TCP/IP)</td>
<td></td>
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<tr>
<td>Data formats</td>
<td>GSI / DXF / LandXML / CSV / user definable ASCII formats</td>
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<tr>
<td>Guide Light (EGL)</td>
<td></td>
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<tr>
<td>Working Range</td>
<td>5 m – 150 m</td>
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<tr>
<td>Refracting accuracy</td>
<td>5 cm at 100 m</td>
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</tbody>
</table>

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 > 500 m 4 mm +2 ppm
7) Single Measurement every 30 second at 25°C. Battery time may be shorter if battery is not new. Internal battery GEB222.
8) Reflectors 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 Application Programs: 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 Arcs; Reference Plane; Road 2D; COGO; Road 3D; Traverse

Included Software:
mySecurity, PIN/PUK Code

Telescope
- Magnification
  - 30 x
- Resolving power
  - 3°
- Field of View
  - 1° 30' (1.66 gon)
- Focusing range
  - 1.7 m to infinity
- Reticle
  - Illuminated; 10 brightness levels

Keyboard and Display
- Type
  - Laser point, 5 brightness levels
- Centering accuracy
  - 1.5 mm at 1.5 m Instrument height
- Battery
  - Type
    - Lithium-Ion
  - Operating time
    - approx. 30 hours
  - Battery charging time
    - 2.3 hours
- Weight
  - Total station including GEB211 and Infrach
    - 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)
  - IP55, 95%, non condensing

Leica FlexField plus Onboard Software
- mySecurity, PIN/PUK Code

Incl. Application Programs:
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 Arcs; Reference Plane; Road 2D; COGO; Road 3D; Traverse

- Full-VGA Color & Touch display, Graphics, 320 x 240 pixels (Q-VGA), key- and display illumination, 5 brightness levels

Incl. Application:
mySecurity, PIN/PUK Code

- FlexField plus (full)
- SmartWorx Viva (pro)

Model Comparison: Configurations & Options of Manual Total Stations

- FlexField plus (standard)
- FlexField plus (advanced)
- FlexField plus (full)
- SmartWorx Viva (pro)