

Leica TS16

Data sheet



Leica TS16 robotic total station is a self-learning hard worker, just like yourself. It combines the engaging **Leica Captivate field software**, **ATRplus** for a robust targeting performance, **PowerSearch** for prism fast search, a **camera** for image-assisted surveying and documentation. You can keep your instrument safe by adding **LOC8**, our theft deterrence and location solution. **AutoHeight** and the optional **DynamicLock** feature can make your work even more efficient. The TS16 is the key to absolute control over any surveying situation or environmental condition.

LEICA TS16 ROBOTIC TOTAL STATION: SURVEY IT.

- **Best-in-class automated total station for the widest variety of measurement tasks and applications:** including one-person or two-person instrument operation for surveying and stakeout.
- **Topographic surveying to create digital reality for mapping:** control point measurements, adjustments, computations, and data collection with powerful coding and line work routines.
- **Highest efficiency and productivity for stakeout and construction measurements:** stakeout design data, as-built checks, BIM and clearance checks.
- **Site preparation and machine guidance in heavy construction projects:** site control, surveying, layout of design data, as-built checks, machine guidance, and road, rail and tunnel focused workflows.
- **Quick and reliable monitoring of locations, buildings, and objects in real-time in any environment:** perfect for campaign monitoring and scaling up to an automated monitoring solution.

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- when it has to be **right**

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Leica TS16 Total Station

ANGLE MEASUREMENT

Accuracy ¹ Hz and V	■ Absolute, continuous, diametrical	1" (0.3 mgon), 2" (0.6 mgon), 3" (1 mgon), 5" (1.5 mgon)
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DISTANCE MEASUREMENT

Range ²	■ Prism (GPR1, GPH1P) ³ ■ Non-Prism / Any surface ^{4,9}	0.9 m to 3,500 m R500: 0.9 m to >500 m R1000: 0.9 m to >1,000 m
Accuracy / Measurement time	■ Single (prism) ^{2,5} ■ Single (prism fast) ^{2,5} ■ Single (any surface) ^{2,4,5,6}	1 mm + 1.5 ppm / typically 2.4 s 2 mm + 1.5 ppm / typically 1.5 s ¹¹ 2 mm + 2 ppm / typically 2 s ⁷
Laser dot size	At 50 m	8 mm x 20 mm
Measurement technology	System analyser	Coaxial, visible red laser

IMAGING

Overview camera	■ Sensor ■ Field of view ■ Frame rate	5 megapixel CMOS sensor 19.4° Up to 20 frames per second
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AUTOMATIC AIMING - ATRplus

Target aiming range ² / Target locking range ²	■ Circular prism (GPR1, GPH1P) ■ 360° prism (GRZ4, GRZ122)	■ 1,500 m / 1,000 m ■ 1,000 m / 1,000 m
Accuracy ^{1,2} / Measurement time	ATRplus angle accuracy Hz, V	1" (0.3 mgon), 2" (0.6 mgon), 3" (1 mgon), 5" (1.5 mgon) / typically 3-4 s

LASER GUIDE

Spot Size ⁸ / Range	■ Daylight: 30 mm @250 m ■ Darkness: 65 mm @300 m	250 m 500 m
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POWERSEARCH

Range / Search time	360° prism (GRZ4, GRZ122)	300 m / typically 5 s
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GUIDE LIGHT (EGL)

Working range / Accuracy		5 - 150 m / typically 5 cm @ 100 m
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GENERAL

Field Software	Leica Captivate with apps	
Processor	TI OMAP4430 1GHz Dual-core ARM® Cortex™- A9 MPCore™	
AutoHeight module for automatic instrument height measurement	■ Distance accuracy ■ Distance range	1.0 mm (1 Sigma) 0.7 m to 2.7 m
Display and keyboard	5" (inch), WVGA, colour, touch, face I standard / face II optional	37 keys, illumination
Power management	Exchangeable Lithium-Ion battery	Operating time up to 8 h
Data storage	Internal memory / Memory card	2 GB / SD card 1 GB or 8 GB
Interfaces	RS232, USB, Bluetooth®, WLAN	
Weight	Total station including battery	5.1 - 5.8 kg
Environmental specifications	■ Working temperature range ■ Dust & Water (IEC 60529) / Humidity	-20°C to +50°C IP55 / 95%, non-condensing

LEICA TS16 TOTAL STATIONS	TS16 M	TS16 A	TS16 G ¹⁰	TS16 P	TS16 I
Angular measurement	✓	✓	✓	✓	✓
Distance measurement to prism	✓	✓	✓	✓	✓
Distance measurement to any surface	✓	✓	✓	✓	✓
Automatic target aiming (ATRplus)	✗	✓	✓	✓	✓
Laser Guide	✗	✗	✓	✗	✗
PowerSearch (PS)	✗	✗	✗	✓	✓
Overview camera	✗	✗	✗	✗	✓
Guide Light (EGL)	✓	✓	✗	✓	✓

¹ Standard deviation ISO 17123-3

² Overcast, no haze, visibility about 40 km, no heat shimmer

³ 0.9 m to 2,000 m for 360° prisms (GRZ4, GRZ122)

⁴ Object in shade, sky overcast, Kodak Gray Card (90% reflective)

⁵ Standard deviation ISO 17123-4

⁶ Distance > 500m: Accuracy 4mm+2ppm, Measurement time typ. 6s

⁷ Up to 50m; max. measurement time 15 s for full range.

⁸ Typical laser beam diameter on white, smooth surfaces with intensity 100%

⁹ TS16G R30: 0.9 m to 30 m

¹⁰ Angle accuracies 1" to 3", PinPoint R30 & R1000 variants available

¹¹ Initial measurement time typically 2 s



Laser radiation, avoid direct eye exposure.
Class 3R laser product in accordance with IEC 60825-1:2014.

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Integrate with LOC8 - Lock & Locate
For more information visit: leica-geosystems.com/LOC8

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