# 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.

# 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) |
| **DISTANCE MEASUREMENT** | | |
| Range [2] | ■ Prism (GPR1, GPH1P) [3]<br>■ Non-Prism / Any surface [4,9] | 0.9 m to 3,500 m<br>R500: 0.9 m to >500 m<br>R1000: 0.9 m to >1,000 m |
| Accuracy / Measurement time | ■ Single (prism) [2,5]<br>■ Single (prism fast) [2,5]<br>■ Single (any surface) [2,4,5,6] | 1 mm + 1.5 ppm / typically 2.4 s<br>2 mm + 1.5 ppm / typically 1.5 s [11]<br>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<br>■ Field of view<br>■ Frame rate | 5 megapixel CMOS sensor<br>19.4°<br>Up to 20 frames per second |
| **AUTOMATIC AIMING - ATRplus** | | |
| Target aiming range[2] / Target locking range[2] | ■ Circular prism (GPR1, GPH1P)<br>■ 360° prism (GRZ4, GRZ122) | ■ 1,500 m / 1,000 m<br>■ 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<br>■ Darkness: 65 mm @300 m | 250 m<br>500 m |
| **POWERSEARCH** | | |
| Range / Search time | 360° prism (GRZ4, GRZ122) | 300 m / typically 5 s |
| **GUIDE LIGHT (EGL)** | | |
| Working range / Accuracy | | 5 - 150 m / typically 5 cm @ 100 m |
| **GENERAL** | | |
| Operating System / Field Software | Windows EC7 / Leica Captivate with apps | |
| Processor | TI OMAP4430 1GHz Dual-core ARM® Cortex™- A9 MPCore™ | |
| AutoHeight module for automatic instrument height measurement | ■ Distance accuracy<br>■ Distance range | 1.0 mm (1 Sigma)<br>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<br>■ Dust & Water (IEC 60529) / Humidity | –20°C to +50°C<br>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.



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

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- when it has to be **right**

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