Leica
GEOSYSTEMS

Leica TS20

The TS20 is the robotic total station that sets the standard for productivity and accuracy in everyday surveying. Unique AI-powered automation, IP66 rating, and seamless connectivity ensure outstanding performance across conditions. Combined with an optimised user experience and proven Leica Geosystems quality, the TS20 empowers surveyors to master their measurement and layout work.

Be ready for every survey with the Leica TS20 robotic total station

- Ready for the widest variety of measurement tasks and applications, including one- or two-person surveying and stakeout.
- Enhanced automation for faster setup and flexible, accurate measuring. AutoHeight, Leica AP20 AutoPole, PowerSearch, Dynamic Lock and advanced prism-type detection reduce downtime and mistakes.
- Built for all weather conditions. The IP66-rated design, AI-powered ATR, and PowerSearch ensure highest performance in challenging environments.
- Real-time data transfer with cloud connectivity. The wireless connection to GeoCloud services supports smooth, secure workflows.
- Future-ready with continuous software enhancements and cutting-edge hardware. Adapting to evolving needs, the TS20 offers long-term value and steady peak performance.

HEXAGON

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] Non-Prism / any surface [4]	0.8 m to >10'000 m R800: 0.8 m to >800 m; LC2 R1600: 0.8 m to >1600 m; LC3R
Accuracy / Measurement time	Single (prism) [2,5] Single (any surface) [2,4,5,6]	1 mm + 1.0 ppm / typically 1.3 s 2 mm + 2.0 ppm / typically 1.7 s [6]
Laser dot size	At 50 m	12 mm x 18 mm
Measurement technology	Wave Form Digitizer	Coaxial, visible red laser (658 nm)
Automatic aiming - ATR		
Target aiming range [2] / Target locking range [2]	Circular prism (GPR1, GH1P) 360° prism (GRZ4, GRZ122) Reflective tape (GZM37)	2000 m / 1000 m 1000 m / 1000 m 50 m / -
Accuracy [1,2] / Measurement time	ATR angle accuracy Hz, V	1'' (0.3 mgon), 2'' (0.6 mgon), 3'' (1 mgon), 5'' (1.5 mgon) / typically 3-4 s
PowerSearch		
Range	Circular prism (GPR1, GH1P) 360° prism (GRZ4, GRZ122) 360° Mini prism (GRZ101) Reflective tape (GZM37)	600 m 500 m 300 m 50 m
Motorisation		
Direct drives, BLDC technology	Rotation speed Time to change face	Maximum 200 gon (180°) / s Typically 1.9 s
AutoHeight		
	Distance accuracy 1.0 mm (1 sigma)	Distance range 0.7 m to 2.7 m
Imaging		
Overview camera	Sensor Angle of view Frame rate	20 MP CMOS 21.8° x 16.4° (27° diagonal) ≤ 20 frames per second
Guide light (EGL)		
Working range / Accuracy		5-150 m / typically 5 cm @ 100 m
Mobile connectivity (GMI01)		
Sensor and data services	Network: integrated 4G LTE with eSIM support	
GeoCloud Protect	Theft protection service	Outdoor & indoor positioning (GNSS, WLAN, Cellular), Battery life duration: up to 5 days
General		
Field software	Leica Captivate with apps	
Display and keyboard	5" WVGA colour display with multi-touch	37 keys, illumination
Processor	NXP I.MX 8M Plus, integrated Neural Processing Unit (NPU)	Operating system: Linux®
Autofocus telescope	Magnification 30x	Focus range 1.45 m to infinity
Power management	Exchangeable Lithium-Ion battery	Operating time up to 5 h
Data storage	Internal memory / Removable memory	32 GB / USB-C stick 16 GB
Interfaces	Ethernet, USB-C®, Bluetooth®, WLAN	
Weight	Total station Total station with tribrach and battery	4.97 kg 6.03 kg
Environmental specifications	Working temperature range Dust / Water (IEC 60529) Humidity (MIL-STD-810H Method 507.6.)	-20 °C (-35 °C Arctic version) to +50 °C IP66 100%, non-condensing

[1] Standard deviation ISO 17123-3
[2] Overcast, no haze, visibility about 40 km, no heat shimmer
[3] 0.8 m to 2000 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 > 500 m: Accuracy 4 mm + 2 ppm, Measurement time typically 4 s

Laser radiation, avoid direct eye exposure. R1600 Class 3R laser product and R800 Class 2 laser product in accordance with IEC 60825-1 (2014-05).