Leica GEOSYSTEMS

Leica RTC Series laser scanners

The performance behind faster field-to-deliverable workflows.

Speed and accuracy, with confidence.

Leica RTC laser scanners are the fastest and most accurate in terrestrial laser scanning, offering up to 3.5x faster capture and more than 35% greater accuracy than the closest competitor. Scanning up to 2,000,000 points per second, and with a range of up to 270 metres, IP55-rated robustness, and automatic self-calibration, RTCs give surveyors, engineers, and construction teams the right scanner for every project.

Connected workflow intelligence.

The Leica RTC series connects capture, collaboration, and delivery into one continuous workflow, so teams can make decisions while work is still unfolding. Livelink connectivity in Leica Cyclone FIELD 360 shares data in real time between field and office. VIS technology auto-registers scans on site. From single-scanner setups to coordinated multi-scanner operations, RTC's workflow intelligence scales with your projects for ultimate performance.

HEXAGON

General	
3D laser scanner	High-speed 3D laser scanner with integrated High-Dynamic Range (HDR) spherical imaging system, cloud connectivity, highly accurate tilt compensation and Visual Inertial System (VIS) for real-time registration

Imaging	
Camera	72 MP 6-camera system captures 432 MPx of raw HDR data for a calibrated 360° x 300° spherical image in 174 MPx resolution
Speed	30 s full spherical tone-mapped image in any lighting
Acquisition	5 bracket tone-mapped HDR spherical imagery with auto exposure and auto white balance

Operation	
On scanner	4.3" capacitive touchscreen, 480 × 800 colour display
Mobile devices	Leica Cyclone FIELD 360 app (iOS/Android) for full remote scanner control, tagging, surveying workflows, and more.
Wireless	Integrated WLAN (802.11 a/b/g/n/ac/ax WLAN) 2.4 GHz and 5 GHz Band
Data storage	512 GB internal solid-state drive (SSD)
Data transfer	USB-C (USB 3.2 Gen2) interface to an external storage device

Performance	RTC300	RTC500	RTC700
Data acquisition	Up to 1M pts/sec at 85 m range ~2 minutes 30 seconds for a complete full dome scan and spherical HDR image at 6 mm @ 10 m resolution	Up to 2M pts/sec at 130/270 m range ~1 minute 40 seconds for a complete full dome scan and spherical HDR image at 6 mm @ 10 m resolution	
Surveying workflows (only via Leica Cyclone FIELD 360)	30 s colour acquisition Resection with targets from a full dome scan		Setup over known point, Known backsight, Resection, Traverse, Target measurements to 75 m, Targets from a full dome scan Area scan
Cloud collaboration (Livelink)	Real-time field-to-office and crew-to-crew connectivity in Cyclone FIELD 360 and Hexagon GeoCloud. Enables remote project collaboration and multi-unit coordination.		
Area Scan	X	X	Up to 0.8 mm @ 10 m
Automatic self-calibration	Automatic self-calibration during normal operation — no user interaction or targets required. Status viewable in scanner GUI.		

Scanning	RTC300			RTC500			RTC700		
Distance measurement	High-speed, high-dynamic time-of-flight enhanced by Waveform Digitising (WFD) technology								
Laser class	Laser class 1 in accordance with IEC 60825-1 (2014-05)								
Laser wavelength	1550 nm (invisible)								
Beam divergence Beam diameter at front window	0.5 mrad (1/e², full angle) 6 mm (1/e²)								
Field-of-view	360° (horizontal) / 300° (vertical)								
Range	Minimal range 0.5 m Maximum range and minimal albedo								
	85 m	130 m	270 m	85 m	130 m	270 m	85 m	130 m	270 m
	3.5%	X	X	3.5%	8%	X	3.5%	8%	32%
Speed	Up to 1,000,000 points per second			Up to 2,000,000 points per second					
Resolution	3, 6, 12, 25 mm @ 10 m			3, 6, 12, 25 mm @ 10 m			1.6, 3, 6, 12, 25 mm @ 10 m Area scan: 0.8 mm @ 10 m		
Angular accuracy	10"								
Range accuracy *	1.2 mm + 10 ppm								
Range noise * **	0.2 mm @ 10 m 0.4 mm @ 50 m			0.2 mm @ 10 m 0.4 mm @ 50 m			0.2 mm @ 10 m 0.4 mm @ 50 m		
3D point accuracy *	1.5 mm @ 10 m 3.8 mm @ 50 m			1.5 mm @ 10 m 3.8 mm @ 50 m			1.5 mm @ 10 m 3.8 mm @ 50 m		

Sensors	
Visual Inertial System (VIS)	Video-enhanced inertial measuring system tracks scanner position and movements in real time
Tilt	IMU-based with automatic self-calibration Accuracy: 3'' (upright/inverted, ±10° inclination) Accuracy: 1' (any other inclination)
Additional sensors	GNSS, shock sensor

Environmental	
Operating temperature	-20°C to +50°C
Storage temperature	-40°C to +70°C
Dust/water ***	IP55 when upright (±15° inclination) IP55 when inverted with protection cover (±15° inclination)
Humidity	95%, non-condensing

Design & Physical	
Housing	Aluminium frame and side covers, ergonomic handle on top
Dimensions	121 mm x 240 mm x 254 mm / 4.76'' x 9.45'' x 10.0''
Weight	5.5 kg / 11.7 lbs, nominal (without batteries)
Mounting mechanism	Quick mounting on 5/8" stub on lightweight Leica GST80 tripod, optional adapter for mounting on topographic tripod with 5/8" screw, optional survey tribrach adapter available

Power	
Internal battery	2 x Leica GEB461 internal, rechargeable Li-Ion batteries Duration: Typically up to 4 hours Weight: 340 g / 0.7 lbs per battery
External	Leica GEB282 AC power supply

All specifications are subject to change without notice.
All accuracy specifications are on a level of confidence of 68% according to the Guide of the Expression of Uncertainty in Measurement (JCGM100:2008) unless otherwise noted.

* At 89% albedo.
** For single shot measurements.
*** For upright and upside-down setups with a ±15° inclination.

Scanner: Laser class 1 in accordance with IEC60825:2014.
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