

Leica ScanStation P50 Product Specifications

SYSTEM ACCURACY

Accuracy of single measurement *		
Range accuracy	1.2 mm + 10ppm over full range (120 m / 270 m mode) 3 mm + 10ppm over full range (570 m / >1 km mode)	
Angular accuracy	8" horizontal; 8" vertical	
Target acquisition **	2 mm standard deviation at 50 m	
Dual-axis compensator	Liquid sensor with real-time onboard compensation, selectable on/off, resolution 1", dynamic range $\pm 5'$, accuracy 1.5"	

DISTANCE MEASUREMENT SYSTEM

Type	Ultra-high speed time-of-flight enhanced by Waveform Digitising (WFD) technology	
Wavelength	1550 nm (invisible) / 658 nm (visible)	
Laser class	1 (in accordance with IEC 60825:2014)	
Beam divergence	< 0.23 mrad (FWHM, full angle)	
Beam diameter at front window	≤ 3.5 mm (FWHM)	
Range and reflectivity	Minimum range 0.4 m	
	Maximum range mode	Reflectivity
	120 m	8%
	270 m	34%
	570 m	60%
	>1 km	80%
Scan rate	Up to 1,000,000 points per second	
Range noise *	0.4 mm rms at 10 m	
	0.5 mm rms at 50 m	
Field-of-View		
Horizontal	360°	
Vertical	290°	
Data storage capacity	256 GB internal solid-state drive (SSD) or external USB device	
Communications / Data transfer	Gigabit Ethernet, integrated Wireless LAN or USB 2.0 device	
Onboard display	Touchscreen control with stylus, full colour VGA graphic display (640×480 pixels)	
Laser plummet	Laser class 1 (IEC 60825:2014)	
	Centring accuracy: 1.5 mm at 1.5 m	
	Laser dot diameter: 2.5 mm at 1.5 m	
	Selectable ON/OFF	

IMAGING SYSTEM

Internal camera	
Resolution	4 MP per each 17°×17° colour image; 700 MP for panoramic image
Pixel size Video	2.2 μ m Streaming video with zoom; auto-adjusts to ambient lighting
White balancing HDR	Sunny, cloudy, warm light, cold light, custom Tonemapped / full range
External camera	Canon EOS 60D/70D/80D/90D supported

POWER

Power supply	24 V DC, 100 – 240 V AC
Battery type	2× Internal: Li-Ion; External: Li-Ion (connect via external port, simultaneous use, hot swappable)
Duration	Internal > 5.5 h (2 batteries) External > 7.5 h (room temp.)

ENVIRONMENTAL

Operating temperature	–20°C to +50°C / –4°F to +122°F
Storage temperature	–40°C to +70°C / –40°F to +158°F
Humidity	95 %, non-condensing
Dust/Water	Solid particle/liquid ingress protection IP54 (IEC 60529)

PHYSICAL

Scanner	
Dimensions (D×W×H)	238 mm × 358 mm × 395 mm / 9.4" × 14.1" × 15.6"
Weight	12.25 kg / 27.0 lbs, nominal (w/o batteries)
Battery (internal)	
Dimensions (D×W×H)	40 mm × 72 mm × 77 mm / 1.6" × 2.8" × 3.0"
Weight	0.4 kg / 0.9 lbs
Mounting	Upright or inverted

CONTROL OPTIONS

Full colour touchscreen for onboard scan control. Remote control: Leica CS10/CS15/CS20/CS35 controller or any other remote desktop capable device, including iPad, iPhone and other Smartphones; external simulator. Leica Cyclone FIELD 360 with tablet and Smartphone (iOS and Android). Leica Cyclone FIELDWORX with Windows® Surface tablet.	
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FUNCTIONALITY

Survey workflows and onboard registration	Quick orientation, Set azimuth, Known backsight, Resection (4 and 6 parameters), Traverse
Check & Adjust	Field procedure for checking of angular parameters, tilt compensator and range offset
Onboard target acquisition	Target selection from video, scan or red laser beam
Onboard user interface	Switchable from standard to advanced
One button scan control	Scanner operation with one button concept
Scan area definition	Scan area selection from video or scan; batch job scanning
Double scan	Automatic removal of point cloud noise introduced by moving objects