

# Leica ScanStation P50

Because every detail matters



## The right choice

Whether you have to 3D capture the world's tallest buildings, document the widest infrastructure objects or scan the biggest open pit mines, you know long range scanning will be essential for your job. Adding long range scanning capability to the market leading ScanStation P-Series the new Leica ScanStation P50 is the right choice, because every detail matters.



## Scan inaccessible places

The ScanStation P50 delivers highest quality 3D data and HDR imaging at an extremely fast scan rate of up to 1 mio points per second and ranges of more than 1 km. Unsurpassed range and angular accuracy paired with low range noise and survey-grade dual-axis compensation form the foundation for highly detailed 3D color point clouds mapped in realistic clarity.



## Complete scanning solution

Leica Geosystems offers the new ScanStation P50 as an integrated part of a complete scanning solution including hardware, software, service, training and support. 3D laser scanner data can be processed in the industry's leading 3D point cloud software suite, which consists of Leica Cyclone stand-alone software, Leica JetStream, Leica CloudWorx plug-in tools for CAD systems and the cost-free Leica TruView.

- when it has to be **right**

**Leica**  
Geosystems

# 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 **	2mm standard deviation at 50m
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 Digitizing (WFD) technology	
Wavelength	1550nm (invisible) / 658nm (visible)	
Laser class	1 (in accordance with IEC 60825:2014)	
Beam divergence	< 0.23 mrad (FWHM, full angle)	
Beam diameter at front window	$\leq 3.5$ 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 10m	
	0.5 mm rms at 50m	
<b>Field-of-View</b>		
Horizontal	360°	
Vertical	290°	
Data storage capacity	256GB 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 color VGA graphic display (640x480 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°x17° color image; 700 MP for panoramic image
Pixel size Video	2.2 $\mu$ 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 supported

## POWER

Power supply	24 V DC, 100 – 240 V AC
Battery type	2x 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

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

## CONTROL OPTIONS

Full color 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.

## 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 or scan
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

## ORDERING INFORMATION

Contact your local Leica Geosystems representative or an authorized Leica Geosystems dealer.

All specifications are subject to change without notice.  
All accuracy specifications are one sigma unless otherwise noted.  
\* At 78% albedo  
\*\* Algorithmic fit to planar HDS 4.5" B&W targets

Scanner: Laser class 1 in accordance with IEC 60825:2014  
Laser plummet: Laser class 1 in accordance with IEC 60825:2014

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Leica ScanStation  
P30/P40



Leica RTC360  
3D Reality Capture  
Solution



Leica Cyclone  
REGISTER 360