



3D Laser Scanners

Known for its unsurpassed accuracy and scan quality, the Surphaser line of scanners offers both short range and medium range models ideal for use in reverse engineering, dimensional control, BIM, historical preservation, architecture, and forensics.

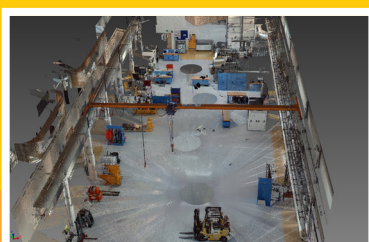
Surphaser® 50HS

- Entry level scanner with sub-millimeter accuracy and full range of capabilities
- Built-in scan controller, tilt-sensor, and battery adapter
- WiFi connectivity
- Designed to operate in industrial and outdoors environments
- Software allows export of clean and accurate datasets into PolyWorks®, Geomagic®, Cyclone®, RealWorks® and other applications for processing
- Easy to set up and move, fits into optional carrying case approved for cabin luggage for most domestic airlines
- Optional camera system with 60 megapixel equivalent color image, includes automatic color data mapping



Recommended Work Range, m	1.5-100
Ambiguity Range, m	180
Angular Uncertainty, arc sec	15
Range Noise, 1 sigma, mm; 90% reflectivity	0.25@10m
Range Noise, 1 sigma, mm; 10% reflectivity	0.6@10m
Range Uncertainty, mm	<0.7@15m

Sample scan with color data mapped to point cloud



Scan time: 2 hours, 5 stations, 400 million points
Software used: Surphaser software for registration and color mapping
Processing time: 1.5 hours

Images courtesy of MD3D and Mimic Studios, Inc.

Basis Software, Inc. | 18103 NE 68th St, C-100, Redmond, WA 98052

E-mail: info@surphaser.com | Telephone: 425-861-9390 | Fax: 425-861-9311 | www.surphaser.com

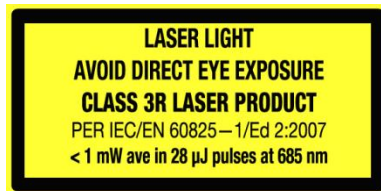
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Surphaser® 50HS

Scanner Type	Phase Shift, Hemispherical Scanner with 360° x 270° field of view
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SYSTEM SPECIFICATIONS

Distance Measurement Method:	Phase-shift
Laser Wavelength	685 nm
Laser Type	CW
Laser Class: (IEC EN60825-1:2007)	Class 3R
Scan Rate (points/second)	208,000 - 1,200,000
Internal Coordinate Representation Unit (mm)	0.001
Angular position data	
Internal Vertical Angular Representation Unit	1 arc sec
Internal Horizontal Angular Representation Unit	1 arc sec
Scan density control: software selectable	
Min. Vertical Point Density (points/degree)	24
Min. Horizontal Point Density (points/degree)	10
Max Vertical Point Density (points/degree)	90
Max Horizontal Point Density (points/degree)	90
Full Volume Scan Time (minutes, at 7200x7200 density)	4.5
Field-of-view (per scan, software selectable)	
Horizontal (maximum)	360°
Vertical (maximum)	270°
Physical dimensions and weight	
Weight (kg)	11
Dimensions 381mm L x 219mm H x 120mm W	



STANDARD ACCESSORIES, MODEL 50HS

- Built-in scan controller, allows scanner control, operation, and data collection without a laptop
- WiFi connectivity
- Built-in dual axis tilt sensor
- Shipping container
- Surphaser USB 2.0 cable
- AC Adapter 110/240 AC, 19-24V DC, 3.5A
- Surphaser DC power cable
- Tripod Adapter
- Li-Ion 14V, 90Wh, 2.2lb battery with charger, provides 1.5 to 2 hours of operation
- 1 year Warranty and Basic Support contract

OPTIONAL ACCESSORIES

- SMR-compatible B&W targets and target case
- Scanner carrying case, size approved for most domestic airlines cabin requirements, weight restrictions vary, please check with airline(s) for up-to-date regulations
- Tripod
- Quick release adapter for Brunson stands and tripods
- Camera system with 60 megapixel equivalent color image, includes automatic color data mapping
- Extended Warranty contract

HOST COMPUTER REQUIREMENTS

Optional for Model with Built-In Controller, minimum configuration

- Processor: 1.8 GHz or greater Pentium-compatible;
- System memory RAM 1GB or greater, 2GB recommended
- OS: Windows XP, Vista, Windows 7, Windows 8; 32-bit or 64-bit editions
- USB 2.0 port

ENVIRONMENTAL

- Calibrated Operating Temperature: 5°C to 45 °C, non-condensing humidity

POWER SUPPLY

- 14-24V DC, 45W (No Built-in Controller)
- 14-24V DC, 55W (With Built-in Controller)

Surphaser® 50HS System Performance

Configuration	50HS
Recommended Work Range (m)	1.5-100
Ambiguity Range (m)	180
Angular Uncertainty ^{1,3} (arc sec)	15
Range Noise ^{1,2} , mm; 90% reflectivity	0.25@10m
Range Noise ^{1,2} , mm; 10% reflectivity	0.6@10m
Range Uncertainty ³ , mm	<0.7@15m

¹ All noise and uncertainty figures are for 1 sigma level

² Range noise -- local (short term) range variation, Lambertian surface

³ Evaluated with contrast target best fit at data rate of 208,000 points per sec
System parameters may be changed without notice; parameters are rated independently