Surphaser 3D Laser Scanners

Submillimeter range noise on distances up to 150 m, practical scanning range up to 250 m, easy portability, known Surphaser accuracy and reliability. Ideal for any application where longer range, high accuracy and low noise are needed: large article dimensional control, BIM, historical preservation, architecture, forensics.

Surphaser® 400

- 3D hemispherical scanner with sub-millimeter accuracy and practical work range up to 250 m
- Weighs in at 5.8 kg (12 lb) with battery, compact and easily portable
- Class 1 laser , wavelength 1550 nm
- Built-in scan controller and battery
- Two fully integrated 5 megapixel cameras; software for automatic color data mapping is included
- WiFi connectivity
- Designed to operate in industrial and outdoors environments, can be operated in direct sunlight
- Automatic target extraction and target-based scan registration
- Rapid Preview Scan and on-screen areas of interest selection for high density scans
- Software allows export of clean and accurate data sets into PolyWorks®, Geomagic®, Cyclone®,RealWorks® and other applications for processing
- Extensive set of filters to isolate areas of interest and eliminate unreliable data



Configuration (software selectable, included with all model 400 units)	**400_HQ** 208,000 pps	**400_HS** 208,000 pps	**400_HP** 832,000 pps
Recommended Work Range (m)	1-140	1-250	1-110
Ambiguity Range (m)	180	360	180
Angular Uncertainty (arc sec)	25	25	25
Range Noise, mm; 90% reflectivity	0.07@1m-30m	0.1@1m-30m	0.2@1m-30m
Range Noise, mm; 10% reflectivity	0.15@1m-15m	0.2@1m-15m	0.4@1m-15m
Range Uncertainty, mm	<0.7@15m	<0.9@15m	<0.9@15m

Surphaser® 400
Preliminary

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

SYSTEM SPECIFICATIONS

Distance Measurement Method	Phase-shift
Laser Wavelength	1550 nm
Laser Type	CW
Laser Class: (IEC EN60825-1:2007)	Class 1
Scan Rate, software selectable(points/second)	208,000/ 832,000 pps
Internal Coordinate Representation Unit	0.001 mm
Angular position data	
Beam diameter at Aperture	3 mm
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)	12 ppd
Min. Horizontal Point Density (points/degree)	2 ppd
Max Vertical Point Density (points/degree)	360 ppd
Max Horizontal Point Density (points/degree)	90 ppd
360° Scan Time, HP mode (832,000 pps at 7200x7200 density)	1.2 min
360° Scan Time, HQ, HS modes (208,000 pps at 7200x7200 density)	4.5 min
Field-of-view (per scan, software selectable)	
Horizontal (maximum)	360°
Vertical (maximum)	270°
Physical dimensions and weight	
Weight with battery	5.8 kg
Dimensions 278mm L x 200mm H x 118mm W	



STANDARD ACCESSORIES, MODEL 400

- Built-in scan controller, allows direct scanner control and data collection without a laptop
- Wi-Fi connectivity
- Two 5MPix built-in cameras; software for automatic color data mapping is included
- Tilt sensor, dual axis
- Shipping container
- Surphaser USB 2.0 cable
- AC Adapter 110/240 AC, 14-24V DC, 3.5A
- Surphaser DC power cable
- Tripod Adapter
- Two Li-Ion 14V, 49Wh batteries, each provides 1.5 to 2 hours of operation
- 2-bay charger
- 1 year Limited Warranty and Basic Support contract

OPTIONAL ACCESSORIES

- SMR-compatible B&W targets and targets 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
- Extended Warranty contract

HOST COMPUTER REQUIREMENTS
Optional, minimum configuration

- Processor: 1.8 GHz or greater Pentium–compatible;
- System memory RAM 1GB or greater, 2GB recommended
- OS: Windows XP, Vista, Windows 7, 8 or 10; 32-bit or 64-bit editions
- USB 2.0 port

ENVIRONMENTAL

- Calibrated Operating Temperature: 5°C to 40 °C, non-condensing humidity

POWER REQUIREMENT

- 14-24V DC, 40W

Surphaser® 400 System Performance

Configuration (software selectable, available on all Surphaser 400 units)	**400_HQ**[4] 208,000 pps	**400_HS**[4] 208,000 pps	**400_HP**[4] 832,000 pps
Recommended Work Range (m)	1-140	1-250	1-110
Ambiguity Range (m)	180	360	180
Angular Uncertainty[1,3] (arc sec)	25	25	25
Range Noise[1,2], mm; 90% reflectivity	0.07@1m-30m	0.1@1m-30m	0.2@1m-30m
Range Noise[1,2], mm; 10% reflectivity	0.15@1m-15m	0.2@1m-15m	0.4@1m-15m
Range Uncertainty[3], mm	<0.7@15m	<0.9@15m	<0.9@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
[4] 400_HQ, 400_HS and 400_HP are software selectable options, all three are available on all Surphaser 400 units System parameters may be changed without notice; parameters are rated independently