

SURPHASER® — 3D LASER SCANNERS

AND OEM PRODUCTS FOR LASER SCANNER MANUFACTURERS

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® 100HSX

- Sub-millimeter accuracy scanners with scan rate of up to 1 million points per second and scan ranges between 1m and 50m
- Designed to operate in industrial and outdoors environments
- Software allows export of clean and accurate data sets 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
- Optional built-in scan controller and battery adapter
- Optional camera system with 60 megapixel equivalent color image, includes automatic color data mapping

FOR 3D SCANNER DEVELOPERS AND MANUFACTURERS:

OEM products based on advanced Surphaser technology. Options include everything for rapid development of customized 3D laser scanner system best suited for particular application.

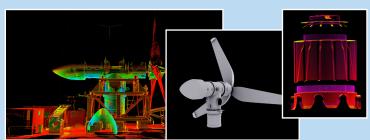
SURPHASER® SR, IR 100 CONFIGURATION OPTIONS

| Configuration | SR_100 | IR_100HQ* | IR_100HS* |
|--|----------|-----------|-----------|
| Recommended Work Range, m | 1-7 | 1-35 | 1-50 |
| Ambiguity Range, m | 90 | 90 | 90 |
| Angular Uncertainty, arc sec | 15 | 15 | 15 |
| Range Noise, 1 sigma, mm; 90% reflectivity | 0.024@4m | 0.07@10m | 0.16@10m |
| Range Noise, 1 sigma, mm; 10% reflectivity | 0.088@4m | 0.41@10m | 0.3@10m |
| Range Uncertainty, mm | <0.3@3m | 0.35@5m | <0.7@15m |

^{*}IR 100HQ and IR 100HS are software selectable options based on the same hardware model IR 100



ATLANTIS TIDAL BLADE SYSTEM



mages courtesy of MD3D, Digital Surveys, and Atlantis Resources Corporation

Scan time: 5 hours

Software used: Cyclone® for registration, Inventor® 2013 (full turbine model), Geomagic®

(female stub)

Processing time: 8 days

BOEING 747 FUSELAGE SURFACE MODELING







12 scans, 380 millions points

Scan time: 3 hours

Processing time: 5 hours polygon model creation; 6 hours CAD modeling fuselage skin

from scan data

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

Surphaser® SR, IR_100HSX

Scanner Type

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

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 | |

LASER LIGHT
AVOID DIRECT EYE EXPOSURE
CLASS 3R LASER PRODUCT
PER IEC/EN 60825—1/Ed 2:2007
<1 mW ave in 28 µJ pulses at 685 nm

STANDARD ACCESSORIES, MODEL 100HSX

- Shipping container
- Surphaser USB 2.0 cable
- AC Adapter 110/240 AC, 14-24V DC, 3.5A
- Surphaser DC power cable
- Tripod Adapter
- 2 Li-lon 14V, 90Wh batteries, each provides 1.5 to 2 hours of operation
- · 2 Battery chargers
- 1 year Warranty and Basic Support contract

OPTIONAL ACCESSORIES

- SMR-compatible B&W targets and target case
- Tilt Sensor, dual axis
- Built-in scan controller, allows scanner control, operation, and data collection without a laptop
- WiFi connectivity
- 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
- 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, noncondensing humidity

POWER SUPPLY

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

Surphaser® SR, IR_100 System Performance

| Configuration | SR_100 | IR_100HQ⁴ | IR_100HS⁴ |
|---|----------|-----------|-----------|
| Recommended Work Range (m) | 1-7 | 1-35 | 1-50 |
| Ambiguity Range (m) | 90 | 90 | 90 |
| Angular Uncertainty ^{1,3} (arc sec) | 15 | 15 | 15 |
| Range Noise ^{1,2} , mm; 90% reflectivity | 0.024@4m | 0.07@10m | 0.16@10m |
| Range Noise ^{1,2} , mm; 10% reflectivity | 0.088@4m | 0.41@10m | 0.3@10m |
| Range Uncertainty ³ , mm | <0.3@3m | <0.35@5m | <0.7@15m |

¹All noise and uncertainty figures are for 1 sigma level ² Range noise -- local (short term) range variation,

⁴IR_100HQ and IR_100HS are software selectable options based on the same hardware model IR_100HSX System parameters may be changed without notice; parameters are rated independently

Lambertian surface

³ Evaluated with contrast target best fit at data rate of 208,000 points per sec