

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® 105HSX

- Sub-millimeter accuracy scanners with scan rate of up to 1 million points per second and scan ranges between 1m and 130m
- Built-in scan controller, tilt sensor (optional) and battery adapter
- WiFi connectivity
- Class 1 laser , wavelength 1550 nm
- Designed to operate in industrial and outdoors environments
- Software allows export of clean and accurate data sets into PolyWorks®, RapidForm®, Geomagic®, Cyclone®, RealWorks® and other applications for processing
- Portable and easy to move around - fits into optional carrying case approved for cabin luggage for most domestic airlines
- Optional fully software-integrated camera system with the equivalent of 60 megapixel color image, includes automatic color data mapping and dynamic exposure adjustment



Configuration (software selectable)	105_HQ	105_HS
Recommended Work Range, m	1-130	1-130
Ambiguity Range, m	180	180
Angular Uncertainty, arc sec	15	15
Range Noise, 1 sigma, mm; 90% reflectivity	0.05@10m	0.16@10m
Range Noise, 1 sigma, mm; 10% reflectivity	0.21@10m	0.49@10m
Range Uncertainty, mm	<0.7@15m	<0.7@15m

Atlantis Tidal Blade System

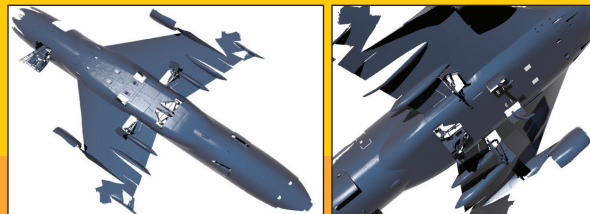


Scan time: 5 hours

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

Surphaser® 105HSX

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	1550 nm
Laser Type	CW
Laser Class: (IEC EN60825-1:2007)	Class 1
Scan Rate (points/second)	208,000 - 1,000,000
Internal Coordinate Representation Unit (mm)	0.001
Angular position data	
Beam diameter at Aperture	3mm
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 105HSX

- Built-in scan controller, allows scanner control, operation, and data collection without a laptop
- WiFi connectivity
- 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, 90Wh batteries, each provides 1.5 to 2 hours of operation
- Two battery chargers
- 1 year Limited Warranty and Basic Support contract

OPTIONAL ACCESSORIES

- SMR-compatible B&W targets and targets case
- Tilt sensor, dual axis
- 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 and dynamic exposure adjustment
- 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, 8 or 10; 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® 105HSX System Performance

Configuration (software selectable)	105_HQ ⁴	105_HS ⁴
Recommended Work Range (m)	1-110	1-130
Ambiguity Range (m)	180	180
Angular Uncertainty ^{1,3} (arc sec)	15	15
Range Noise ^{1,2} , mm; 90% reflectivity	0.05@10m	0.16@10m
Range Noise ^{1,2} , mm; 10% reflectivity	0.21@10m	0.49@10m
Range Uncertainty ³ , mm	<0.7@15m	<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

⁴ 105_HQ and 105_HS are software selectable options based on the same hardware model 105HSX. System parameters may be changed without notice; parameters are rated independently