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)

<table>
<thead>
<tr>
<th></th>
<th>105_HQ</th>
<th>105_HS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommended Work Range, m</td>
<td>1-130</td>
<td>1-130</td>
</tr>
<tr>
<td>Ambiguity Range, m</td>
<td>180</td>
<td>180</td>
</tr>
<tr>
<td>Angular Uncertainty, arc sec</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Range Noise, 1 sigma, mm; 90% reflectivity</td>
<td>0.05@10m</td>
<td>0.16@10m</td>
</tr>
<tr>
<td>Range Noise, 1 sigma, mm; 10% reflectivity</td>
<td>0.21@10m</td>
<td>0.49@10m</td>
</tr>
<tr>
<td>Range Uncertainty, mm</td>
<td>&lt;0.7@15m</td>
<td>&lt;0.7@15m</td>
</tr>
</tbody>
</table>

**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**

- Scan time: 3 hours
- Processing time: 5 hours polygon model creation; 6 hours CAD modeling fuselage skin from scan data

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## SYSTEM SPECIFICATIONS

<table>
<thead>
<tr>
<th>Distance Measurement Method</th>
<th>Phase-shift</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laser Wavelength</td>
<td>1550 nm</td>
</tr>
<tr>
<td>Laser Type</td>
<td>CW</td>
</tr>
<tr>
<td>Laser Class: (IEC EN60825-1:2007)</td>
<td>Class 1</td>
</tr>
<tr>
<td>Scan Rate (points/second)</td>
<td>208,000 - 1,000,000</td>
</tr>
<tr>
<td>Internal Coordinate Representation Unit (mm)</td>
<td>0.001</td>
</tr>
</tbody>
</table>

### 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
- 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

## CLASS 1 LASER PRODUCT

## Surphaser® 105HSX System Performance

<table>
<thead>
<tr>
<th>Configuration (software selectable)</th>
<th>105_HQ⁴</th>
<th>105_HS⁴</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommended Work Range (m)</td>
<td>1-110</td>
<td>1-130</td>
</tr>
<tr>
<td>Ambiguity Range (m)</td>
<td>180</td>
<td>180</td>
</tr>
<tr>
<td>Angular Uncertainty¹,³ (arc sec)</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Range Noise¹,², mm; 90% reflectivity</td>
<td>0.05@10m</td>
<td>0.16@10m</td>
</tr>
<tr>
<td>Range Noise¹,², mm; 10% reflectivity</td>
<td>0.21@10m</td>
<td>0.49@10m</td>
</tr>
<tr>
<td>Range Uncertainty², mm</td>
<td>&lt;0.7@15m</td>
<td>&lt;0.7@15m</td>
</tr>
</tbody>
</table>

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

## 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 6 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)