Surphaser® 80HSX – Class 1 Ultra Short Range

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 (points/second)	208,000, 832,000
Internal Coordinate Representation Unit (mm)	0.001
Angular position data	
Beam diameter, mm	1.4mm @1.1 m 2.5mm @2.5 m
Beam diameter at aperture, mm	2mm
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 (lines/degree)	7 lpd
Max Vertical Point Density (points/degree)	360 ppd
Max Horizontal Point Density (lines/degree)	60 lpd
Full Volume Scan Time (minutes, at 20 ppd x 20 lpd density)	4.5
Field-of-view, per scan, software selectable	
Horizontal (maximum)	360º
Vertical (maximum)	270º
Physical dimensions and weight	
Weight with battery (kg)	6.2
Dimensions 278mm L x 250mm H x 118mm W	

CLASS 1 LASER PRODUCT

STANDARD ACCESSORIES, MODEL 80HSX

- Built-in scan controller, allows scanner control, operation, and data collection without a laptop, can be removed upon request
- Wi-Fi connectivity, can be removed upon request
- 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 about 1.5 hours of operation
- 2-Bay battery charger
- Shipping case
- 1-year Limited Warranty and Basic Support contract

OPTIONAL ACCESSORIES

- One panoramic or two fully integrated cameras; software for automatic color data mapping and dynamic exposure adjustment
- SMR-compatible targets and targets' carrying 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
- External hot-swappable extended battery solution, allows uninterrupted scanning
- 12 months Extended Warranty contract

HOST COMPUTER REQUIREMENTS

Optional, minimum configuration

- Processor: 2.4 GHz or greater Pentium–compatible;
- System memory RAM 16GB or greater, 32GB recommended for processing
- OS: Windows 11
- USB 2.0 port or fully compliant USB 3.0 port

ENVIRONMENTAL

- Calibrated operating temperature: 5°C to 40 °C, non-condensing humidity

POWER REQUIREMENT

- 14-24V DC, 90W

Surphaser® 80HSX System Performance

Configuration (software selectable, available on all Surphaser 80HSX units)	**80_HQ[4] 208,000 pps**	**80_HP[4] 832,000 pps**
Recommended Work Range (m)	0.25-7	0.25-7
Ambiguity Range (m)	180	180
Angular Uncertainty[1,3] (arc sec)	25	25
Range Noise[1,2], mm; 90% reflectivity	0.045mm @ 0.3m-4m	0.11mm @ 0.3m-4m
Range Noise[1,2], mm; 10% reflectivity	0.14mm @ 0.3m-4m	0.30mm @ 0.3m-4m
Range Uncertainty[3], mm	<0.25 @1.5m	<0.35 @1.5m

[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] 80_HQ and 80_HP are software selectable options; both are available on all Surphaser 80HSX units
System parameters may be changed without notice; parameters are rated independently

©2002-2026 Basis Software Inc. All rights reserved Basis Software, Inc.
18103 NE 68th St, C-100, Redmond, WA 98052 ◦ Phone: 1-425-861-9390 ◦ email: info@surphaser.com ◦ web: www.surphaser.com