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FARO® Focus Laser Scanner

The Most Compact, Lightweight and Intuitive Laser Scanner Product Line

Laser Scanners for Short, Medium and Long Range Applications

FARO Focus Laser Scanners are specifically designed for both indoor and outdoor measurements in industries such as Architecture, Engineering, Construction, Public Safety and Forensics or Product Design. All devices capture real world information used in the digital world to analyze, collaborate and execute decisions to improve and maintain the overall project and product quality.

The Laser Scanner Focus^{S} series offers advanced functionality. In addition to increased distance, angular accuracy, and range, the Focus^{S} scanners' on-site compensation function ensures high-quality measurements, while external accessory bays and HDR functionality make the scanner extremely flexible.

Focus^{S} Series

Accuracy
Highest accuracy and range by using a combination of the most advanced sensor technologies.

On-Site Compensation
With the on-site compensation functionality users can verify and adjust the Focus^{S} compensation immediately before scanning, ensuring high-quality scan data and traceable documentation.

On-Site Registration
During on-site data capture, the laser scanner immediately transmits scan data wirelessly to FARO SCENE for real-time scan processing and registration, providing efficiency and time savings.

Focus^{S} 150/350

Rescanning of Distant Targets
The Scan Group feature identifies multiple areas to be rescanned with higher resolution to either perform accurate target detection or to capture smaller areas on interest with greater detail.

IP Rating 54 and Extended Temperature Range
With the sealed design and certified with the industry standard Ingress Protection (IP) Rating, IP54, the Focus can be used in wet weather conditions at temperatures from -20°C to 55°C.

Compact and Portable
Focus Laser Scanners are the smallest and lightest devices in their performance class.

Benefits

- Confidence and documented data-quality by traceable calibration and market-leading on-site compensation.
- Scan in challenging environments while providing protection from dust, debris and water splashes. Mount the Focus^{S} scanner in an inverted position, e.g. under a ceiling of a hall.
- The Focus Laser Scanner portfolio offers the most economic 3D scanning solution for all requirements and budgets.
- Minimum training effort is ensured by the intuitive and easy to operate touch-screen interface as well as hands-on and online tutorials.
- Efficient integration into existing software infrastructures and workflows are ensured by interfaces to various standard CAD systems.

Performance Specifications

	Focus^{S} Series S 350 | S 150 | S 70				Focus^{M} 70			
Ranging Unit								
Unambiguity interval:	614m for 122 to 488kpts/s 307m for 976kpts/s				614m for 122 to 488kpts/s			
Range1:								
90% reflectivity (white)	0.6-350m | 0.6-150m | 0.6-70m				0.6 - 70m			
10% reflectivity (dark-gray)	0.6-150m | 0.6-150m | 0.6-70m				0.6 - 70m			
2% reflectivity (black)	0.6- 50m | 0.6- 50m | 0.6-50m				0.6 - 50m			
Ranging noise[2]	@10m	@10m noise re-duced[3]	@25m	@25m noise re-duced[3]	@10m	@10m noise re-duced[3]	@25m	@25m noise re-duced[3]
	in mm							
90% reflectivity (white)	0.30	0.15	0.30	0.15	0.70	0.40	0.70	0.40
10% reflectivity (dark-gray)	0.40	0.20	0.50	0.25	0.80	0.40	0.80	0.40
2% reflectivity (black)	1.30	0.65	2.00	1.00	1.50	0.80	2.10	1.10
Measurement speed (pts/sec):	122,000 / 244,000 / 488,000 / 976,000				122,000 / 244,000 / 488,000			
Range accuracy [4]	±1mm				±3mm			
Angular accuracy[5]	19 arcsec for vertical/ horizontal angles				not specified			
3D position accuracy[6]	10m: 2mm / 25m: 3.5mm				not specified			
Color Unit								
Resolution:	Up to 165 megapixel color							
High Dynamic Range (HDR):	Exposure Bracketing 2x, 3x, 5x							
Parallax:	Minimized due to co-axial design							
Deflection Unit								
Field of view:	300° vertical[7]/ 360° horizontal							
Step size:	0.009° (40,960 3D-pixel on 360°) vertical/ 0.009° (40,960 3D-pixel on 360°) horizontal							
Max. scan speed:	97Hz (vertical)							
Laser (Optical Transmitter)								
Laser class:	Laser class 1							
Wavelength:	1550nm							
Beam divergence:	0.3mrad (1/e)							
Beam diameter at exit:	2.12mm (1/e)							
Data handling and control								
Data storage:	SD, SDHC™, SDXC™; 256GB card							
Scanner control:	Via touchscreen display and WLAN connection. Access by mobile devices with HTML5							

	Focus^{S} Series S 350 | S 150 | S 70	Focus^{M} 70
Interface Connection		
WLAN:	802.11n (150Mbit/s), as access point or client in existing networks	
Additional Features		
Dual axis compensator:	Performs a leveling of each scan with an accuracy of 19 arcsec valid within ±2°	
Height sensor:	Via an electronic barometer the height relative to a fixed point can be added to a scan.	
Compass[8]:	Electronic compass gives the scan an orientation.	
GNSS:	Integrated GPS & GLONASS	
On-site compensation:	Creates current quality report and improves compensation automatically.	-
Accessory bay:	The accessory bay connects versatile accessories to the scanner.	-
Inverse mounting:	Yes	-
Real-time, on-site registration in SCENE:	Connects to SCENE, real-time scan processing and registration, overview map	-
Electronic Automation Interface	Available as option, only at point of sale	-
Digital Hash Function	Scans are cryptographically hashed and signed by the scanner	-
General specifications		
Power supply:	19V (external supply), 14.4V (internal battery)	
Power consumption:	15W idle, 25W scanning, 80W charging	
Battery service life:	4.5 hours	
Temperature:	Operating: 5 - 40°C, extended operating[9]: -20 - 55°C, storage: -10 - 60°C	
Ingress protection (IP) rating class:	IP54	
Humidity Resistence:	Non-condensing	
Weight:	4.2kg (incl. battery)	
Size/Dimensions:	230 x 183 x 103mm	
Maintenance / calibration:	Annual	

CLASS 1
LASER PRODUCT

1 For a Lambertian scatterer. **2** Ranging noise is defined as a standard deviation of values about the best-fit plane for measurement speed of 122,000 points/sec. **3** A noise-reduction algorithm may be activated by averaging raw data. **4** Range accuracy is defined as a systematic measurement error at around 10m and 25m. **5** On-site compensation required. **6** For distances larger 25m add 0.1mm/m of uncertainty. **7** 2x150°, homogenous point spacing is not guaranteed. **8** Ferromagnetic objects can disturb the earth magnetic field and lead to inaccurate measurements. **9** Low temperature operation: scanner has to be powered on while internal temperature is at or above 15°C, high temperature operation: additional accessory required. | All accuracy specifications are one sigma, after warm-up and within operating temperature range; unless otherwise noted. Subject to change without prior notice.

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