

# FARO® Focus<sup>S</sup> Laser Scanner

The world's most popular terrestrial laser scanner with ultra-high accuracy and ingress protection

# FARO®



## Accuracy

The Focus<sup>S</sup> now captures environments with increased accuracy and distance with dual-axis compensator and angular measurement.



## Temperature

Extended temperature range allows scanning in challenging environments. The Focus<sup>S</sup> can operate in temperatures as low as -4°F (-20°C) and up to 131°F (55°C).



## On-site Compensation

With the on-site compensation functionality users can verify and adjust the Focus<sup>S</sup> compensation on-site, ensuring high quality scan data.



## IP Rating - Class 54

With the sealed design and certified with the industry standard Ingress Protection (IP) Rating, IP54, the Focus<sup>S</sup> can be used in high particulate and wet weather conditions.



## HDR Photo Overlay

The HDR camera easily captures detailed imagery while providing a natural color overlay to the scan data captured under extreme brightness gradients.



## Accessory Bay

The accessory bay allows users to connect additional 3D laser scanning accessories to support a variety of projects.

## Value-Added Laser Scanners for Mid-to-Long Range Applications

Compact, lightweight and intuitive, the FARO® Focus<sup>S</sup> Laser Scanner is the latest advancement in 3D scanning. The Focus<sup>S</sup> is available in two versions depending on your scanning range requirement: a long-range version (350m scanning radius) and a mid-range version (150m scanning radius).

The Focus<sup>S</sup> is the next-generation of laser scanners. It combines the hallmark features of the FARO® Focus<sup>3D</sup> product line with significant technological innovations such as Ingress Protection Rating (IP54), increased scanning accuracy, an internal accessory bay and a built-in compensation on-site routine.

The Focus<sup>S</sup> provides users with a truly mobile, intuitive, and reliable laser scanning solution for both indoor and outdoor environments, across a wide range of industries such as Construction BIM-CIM and Public Safety - Forensics.

## Benefits

- Scan in challenging environments while providing protection from dust, debris and water splashes
- Be confident in data quality with the on-site compensation functionality
- Close the gap between digital documentation and reality with improved scan data from increased distance and angular accuracy improvements
- Customize the scanner with the internal accessory bay
- Handle the scanner control with ease through its large and luminous touch-screen

# Performance Specifications

## Ranging Unit

Unambiguity interval: 614m for 122 to 488 kpts/s  
307m for 976 kpts/s

| Reflectivity               | 90% (white) | 10% (dark-gray) | 2% (black) |
|----------------------------|-------------|-----------------|------------|
| Range <sup>1</sup> (150 m) | 0.6-150 m   | 0.6-150 m       | 0.6-50 m   |
| Range <sup>1</sup> (350 m) | 0.6-350 m   | 0.6-150 m       | 0.6 m-50 m |

| Ranging Noise <sup>2</sup> | @10m  | @10m - noise reduction <sup>3</sup> | @25m  | @25m - noise reduction <sup>3</sup> |
|----------------------------|-------|-------------------------------------|-------|-------------------------------------|
| 90% reflectivity           | 0.3mm | 0.15mm                              | 0.3mm | 0.15mm                              |
| 10% reflectivity           | 0.4mm | 0.2mm                               | 0.5mm | 0.25mm                              |
| 2% reflectivity            | 1.3mm | 0.65mm                              | 2mm   | 1mm                                 |

Measurement speed (pts/sec): 122,000 / 244,000 / 488,000 / 976,000

Ranging error<sup>4</sup>: ±1mm

Angular accuracy<sup>5</sup>: 19 arcsec for vertical/horizontal angles

3D position accuracy<sup>6</sup>: 10m: 2mm / 25m: 3.5mm

## 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 (vertical<sup>7</sup>/horizontal): 300° / 360°  
Step size (vertical/horizontal): 0.009° (40,960 3D-Pixel on 360°) / 0.009° (40,960 3D-Pixel on 360°)

Max. vertical scan speed: 97Hz

## Laser (Optical Transmitter)

Laser class: Laser class 1  
Wavelength: 1550nm  
Beam divergence: 0.3mrad (1/e)  
Beam diameter at exit: 2.12mm (1/e)

## General

Power supply voltage: 19V (external supply)  
14.4V (internal battery)  
Power consumption: 15W idle, 25W scanning,  
80W charging  
Battery service life: 4.5 hours  
Operating temperature: 5° - 40°C  
Extended operating temperature<sup>9</sup>: -20° - 55°C  
Storage temperature: -10° - 60°C  
Ingress Protection: IP54

## Data Handling and Control

Data storage: SD™, SDHC™, SDXC™; 32GB card  
Scanner control: Via touchscreen display and WLAN connection. Access by mobile devices with HTML5

## Interface Connection

WLAN: 802.11n (150Mbit/s), as Access Point or client in existing networks

## Integrated Sensors

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 detected and added to a scan.

Compass<sup>8</sup>: The electronic compass gives the scan an orientation.

GNSS: Integrated GPS & GLONASS

On-site Compensation Creates a current quality report and provides the option to improve the device's compensation automatically.

## Accessory Bay

The accessory bay is located on top of the laser scanner and is used to connect versatile accessories to the scanner.

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

SD, SDHC and SDXC are trademarks of SD-3C, LLC.

Humidity: Non-condensing  
Weight incl. battery: 4.2kg  
Size: 230 x 183 x 103mm  
Maintenance / calibration: Annual

For more information,  
call 800.736.0234 or visit [www.faro.com](http://www.faro.com)

