# FARO® Focus Laser Scanner

## The most compact lightweight and intuitive laser scanner product line


FOCUS$^S$ SERIES

### ACCURACY
The Focus$^S$ captures environments with increased accuracy and distance with dual-axis compensator and angular measurement.

### ON-SITE COMPENSATION
With the on-site compensation functionality users can verify and adjust the Focus$^S$ compensation on-site, ensuring high quality scan data.

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

### TEMPERATURE
Extended temperature range allows scanning in challenging environments. The Focus can operate in temperatures as low as -20°C and up to 55°C.

### IP RATING - CLASS 54
With the sealed design and certified with the industry standard Ingress Protection (IP) Rating, IP54, the Focus can be used in high particulate and wet weather conditions.

### COMPACT AND PORTABLE
The Focus Laser Scanners measure at 230 x 183 x 103mm and weigh at 4.2kg making them the smallest and most light weight scanners in the market. The devices are equipped with a waterproof transport and ergonomic carrying case for maximum portability.

## 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 into the digital world to deliver information used to analyze, collaborate and execute better decisions to improve and maintain the overall project and product quality. All Focus$^S$ and Focus$^M$ scanners are equipped with recognizable features, such as Ingress Protection (IP) Rating, extended temperature range, HDR functionality, all in an ultra portable size.

The Laser Scanner Focus$^S$ Series offers more advanced functionality in addition. Besides an increased distance and angular accuracy all Focus$^S$ scanners are equipped with an internal accessory bay and an on-site compensation function quality verification. When utilized with SCENE Software, the Focus$^S$ supports real time, on-site registration which enables 3D scan data to be wirelessly transmitted, processed, aligned and registered directly to an on-site mobile device/PC in real time.

## BENEFITS

- Confidence and documented data quality by traceable vendor calibration and market leading on-site compensation.
- Scan in challenging environments while providing protection from dust, debris and water splashes.
- 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 online tutorials.
- Efficient integration into existing software infrastructures and workflows are ensured by interfaces into various standard CAD systems.

# FARO® Focus Laser Scanners

## PERFORMANCE SPECIFICATIONS

| | FOCUS$^S$ SERIES S 350 \| S 150 \| S 70 | | | | FOCUS$^M$ | | | |
|---|---|---|---|---|---|---|---|---|
| **RANGING UNIT** | | | | | | | | |
| Unambiguity interval: | 614m for 122 to 488kpts/s<br>307m for 976 kpts/s | | | | not specified | | | |
| **RANGE[1] :** | | | | | | | | |
| 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 reduction[3] | @25m | @25m noise reduction[3] | @10m | @10m noise reduction[3] | @25m | @25m noise reduction[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 | | | |
| Ranging error[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 (vertical[7]/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) | | | | | | | |
| **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 | | | | | | | |

| | FOCUS$^S$ SERIES S 350 \| S 150 \| S 70 | FOCUS$^M$ |
|---|---|---|
| **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[8]: | 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 devices 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. | - |
| Real-time, on-site registration in SCENE | Connects to SCENE via WLAN. Processing of scan data, registration and creation of overview map in SCENE in real-time. | - |

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|---|---|
| **GENERAL SPECIFICATIONS** | |
| 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[9]: | -20 - 55°C |
| Storage temperature: | -10 - 60°C |
| Ingress protection (IP) rating class: | IP54 |
| Humidity Resistence: | Non-condensing |
| Weight incl. battery: | 4.2kg |
| 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** Ranging error 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, 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.

ISO 9001 BUREAU VERITAS Certification · ANAB ACCREDITED · GSA Contract Holder

To learn more, visit: www.faro.com/LaserScanner/sg

**FARO Singapore Pte Ltd (Asia Pacific Headquarters)**
No. 3 Changi South Street 2, #01-01 Xilin Districentre Building B,
Singapore 486548
Tel: +65.65111350 Fax: +65.65430111
Email: asia@faro.com

**FARO Business Technologies India Pvt Ltd**
E-12, B-1 Extension, Mohan Cooperative Industrial Estate,
Mathura Road, New Delhi-110044, India
Tel: +91.11.46465656 Fax: +91.11.46465660 Toll-free: 1800.102.8456
Email: india@faro.com



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