About FARO
www.faro.com

Pioneer for portable measurement

FARO develops portable devices for 3D measurement, inspection, imaging and surveying. Our focus is on simplifying our customers’ work with tools and empowering them to dramatically reduce on-site measuring time and eliminate costly errors. As the pioneer in portable measurement, we have re-invented measuring: instead of carrying your parts to the measuring machine, our systems can be deployed just where they are needed.

With FARO you have 3D measurement peace of mind.

The right product for every measurement task

No matter which accuracy and which measurement volume you want to measure - we’ve got the right portable measurement system for you!

The FARO Gage enables measurements right on the machine producing your part. With its 1.2m (48") working volume, it is the "mount-it-where-you-make-it" truly portable, cost-effective, 3D, minimal-training gages for machinists.

The FaroArm renders traditional CMMs, hand tools and other portable CMMs obsolete. It is available in different arm lengths and is ideal for inspection, reverse engineering and CAD-to-part-analysis of parts, fixtures and assemblies.

The FARO Gage enables measurements right on the machine producing your part. With its 1.2m (48") working volume, it is the "mount-it-where-you-make-it" truly portable, cost-effective, 3D, minimal-training gages for machinists.

The FARO Laser Line Probe ES is perfect for reverse engineering and can inspect to CAD and record up to 45,000 points per second.

The FARO Laser Tracker is a portable 3D measurement system for large volume which uses laser technology and Absolute Distance Meter (ADM & IVM) to effectively and accurately measure large parts, tooling and machinery.

The FARO Laser Scanner is a portable non-contact measurement system to accurately capture 3D data. The system rotates 360° and measures every point within its line of sight with a scan rate of up to 976,000 points per seconds.

FARO is certified according to ISO 9001 and accredited according to ISO/IEC 17025:2005.

Typical applications

Aerospace: Repair & refit

Tool & Die: Master rounds, tool setup

Automotive: Engine components, braking components, hydraulics and castings

Castings & Mouldmaking: Pre-cast mould, composite tooling

Watch the video online!
**FARO® Gage**

www.faro.com/gage

- **User friendliness**
  Replaces traditional hand tools and thus eliminates individual operator variability

- **Productivity**
  Increases productivity with reduced measurement and inspection times

- **Mobility**
  Mount and measure parts in manufacturing process

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**Performance specifications**

<table>
<thead>
<tr>
<th></th>
<th>Measurement range (m/ft)</th>
<th>Repeatability** (mm/inch)</th>
<th>Accuracy** (mm/inch)</th>
<th>Weight (kg/lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gage</strong></td>
<td>1.2 (4)</td>
<td>0.018 (0.0007)</td>
<td>±0.025 (±0.001)</td>
<td>9.1 (20.0)</td>
</tr>
</tbody>
</table>

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**FaroArm®**

www.measuring-arms.faro.com

- **Wireless data transfer**
  Connectivity through Bluetooth up to 10m (30ft) using Bluetooth® and Ethernet-ready* options

- **Quality**
  Meets quality standards with automatic computer-generated reports

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**Typical applications**

- **Aerospace**: Alignment, tooling & mould certification, part inspection
- **Automotive**: Tool building & certification, alignment, part inspection
- **Metal fabrication**: OMI, first article inspection, periodic part inspection
- **Moulding/tool & die**: Mould and die inspection, prototype part scanning

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**Watch the video online!**

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Your personal CMM

Small, flexible, deployable everywhere

FARO Gage is a high-precision, portable 3D coordinate measurement system with a working range of 1.2m and a measurement accuracy of 0.018mm. A variety of attachment options enable rapid deployment directly at the workplace or in a processing centre. The Gage is now equipped with the Bluetooth® wireless technology. Users can now inspect, then transmit data up to 10m (30 feet) away – even through walls – without having to use cables.
FARO® Edge
www.measuring-arms.faro.com

- **Ergonomics**: Improved weight distribution and balance, for reduced strain and ease-of-use.
- **Multi-probe capability**: Including standard, touch, FARO iProbes, and custom probes.
- **Smart sensor technology**: Warn against excessive external loads, correct for thermal variations and detect possible setup problems.

**FARO® Edge**

The world’s most innovative measurement arm

The Edge is the most advanced, state-of-the-art FaroArm ever introduced. It is the first ever smart measurement arm featuring an integrated personal measurement assistant. With its built-in touchscreen and onboard operating system, the Edge revolutionizes portable metrology by providing standalone basic measurement capability. The FARO Edge simplifies the user experience with improved performance, portability, and reliability. Improve production, quality, and reverse engineering processes by rapidly verifying or scanning parts with confidence and accuracy using the FARO Edge.

**Performance specifications**

<table>
<thead>
<tr>
<th>Measurement range (m/inch)</th>
<th>Repeatability* (mm/inch)</th>
<th>Accuracy** (mm/inch)</th>
<th>FaroArm weight (kg/lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 axes</td>
<td>7 axes</td>
<td>7 axes</td>
<td></td>
</tr>
<tr>
<td>Edge</td>
<td>1.8 (4)</td>
<td>0.024 (0.0009)</td>
<td>±0.034 (±0.0013)</td>
</tr>
<tr>
<td>Edge</td>
<td>2.7 (9)</td>
<td>0.029 (0.0011)</td>
<td>±0.041 (±0.0016)</td>
</tr>
<tr>
<td>Edge</td>
<td>3.7 (12)</td>
<td>0.064 (0.0023)</td>
<td>±0.091 (±0.0035)</td>
</tr>
</tbody>
</table>


FARO® Prime
www.measuring-arms.faro.com

- **Extended-use battery**: Integrated extended-use battery provides true “measure anywhere” capability.
- **Bluetooth® wireless operation**: Inspect and digitize wirelessly up to 10m (30ft) away.
- **Multi-probe capability**: Including various ball diameters, custom extensions and optional touch sensitive probe.
- **Temperature & overload sensors**: Located in each joint, they allow the arm to “feel” and react to thermal variations and improper handling for maximum accuracy.

**FARO Prime**

Best accuracy, best value portable CMM

Available in five working lengths and 6-axis configuration, the FARO Prime delivers the highest FaroArm accuracy at an amazing value. Equipped with Bluetooth® technology, the Prime eliminates the need to tether the device to a laptop. An extended-use battery and composite material construction ensure shop floor durability, day after day. Together, these features make the FARO Prime the ideal solution for basic measurements in inspection, reverse engineering, CAD-to-part analysis and for anything else where a high-accuracy, hard-probing measurement solution is needed.

**Performance specifications**

<table>
<thead>
<tr>
<th>Measurement range (m/inch)</th>
<th>Repeatability* (mm/inch)</th>
<th>Accuracy** (mm/inch)</th>
<th>FaroArm weight (kg/lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 axes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prime</td>
<td>1.2 (4)</td>
<td>0.016 (0.000)</td>
<td>±0.023 (±0.0009)</td>
</tr>
<tr>
<td>Prime</td>
<td>1.8 (6)</td>
<td>0.019 (0.0007)</td>
<td>±0.027 (±0.0011)</td>
</tr>
<tr>
<td>Prime</td>
<td>2.4 (8)</td>
<td>0.024 (0.0009)</td>
<td>±0.034 (±0.0013)</td>
</tr>
<tr>
<td>Prime</td>
<td>3.0 (10)</td>
<td>0.042 (0.0017)</td>
<td>±0.059 (±0.0023)</td>
</tr>
<tr>
<td>Prime</td>
<td>3.7 (12)</td>
<td>0.060 (0.0024)</td>
<td>±0.085 (±0.0033)</td>
</tr>
</tbody>
</table>
FaroArm® Fusion
www.measuring-arms.faro.com

- Universal 3.5” quick mount
  Offers ‘Mount-it-where-you-make-it’ convenience and less downtime.
- Auto sleep mode
  Automatically turns off unit to save energy and extend component life.
- Bluetooth® wireless operation
  Inspection and digitize wirelessly up to 10m (30ft) away.

Quality without compromise
To make your products and processes the best in the world, there isn’t another portable CMM that combines the precision, durability, technology and cost-effectiveness of the FaroArm Fusion. The Fusion is the economical, all-in-one portable tool for performing inspections, tool certification, CAD-to-part analysis, or reverse engineering.

Multi-probe capability
Including various ball diameters, curved and extended probes.

Internal counterbalancing
Internal counterbalancing provides comfortable stress-free usage.

Performance specifications

<table>
<thead>
<tr>
<th>Measurement range (m/ft)</th>
<th>Repeatability (mm/inch)</th>
<th>Repeatability (mm/inch)</th>
<th>FaroArm weight (kg/lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6 axes</td>
<td>7 axes</td>
<td>6 axes</td>
</tr>
<tr>
<td>Fusion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.8 (6)</td>
<td>0.036 (0.0011)</td>
<td>0.046 (0.0018)</td>
<td>±0.064 (±0.0023)</td>
</tr>
<tr>
<td>Fusion</td>
<td>2.4 (8)</td>
<td>0.043 (0.0017)</td>
<td>±0.061 (±0.0024)</td>
</tr>
<tr>
<td>Fusion</td>
<td>3.0 (10)</td>
<td>0.074 (0.0029)</td>
<td>±0.104 (±0.0041)</td>
</tr>
<tr>
<td>Fusion</td>
<td>3.7 (12)</td>
<td>0.104 (0.0041)</td>
<td>±0.147 (±0.0058)</td>
</tr>
</tbody>
</table>

Integration design
With its internal electronics and no external cables, measurements can be carried out everywhere—without restricting the arm’s infinite rotation capabilities.

Expanded coverage and high speed
With a laser stripe that is nearly 90mm, the laser line probe produces over 45,000 points of three-dimensional data per second using advanced CMOS technology.

Non-contact measurement
Flexible due to integrated design
The FARO Edge ScanArm ES facilitates contact and non-contact measurements in one operation. It is perfectly adapted to CAD comparisons, rapid prototyping, reverse engineering and 3D modelling. It combines the portable 7-axis FARO measurement arm with a laser sensor. FARO Laser Line Probe for Edge is the smallest, lightest and fastest handheld laser scanning probe. It is very user-friendly and offers maximum freedom of movement without cumbersome external cable connections.

Points per line: 752 points/line
Scan rate: 60 frames/second x 752 points/line = 45,120 points/sec.
Laser: 660nm, CDRH Class II/IEC Class 2M
Weight: 222.4g (0.49lbs.)
Efficiency
The long range allows to perform effective measurements of up to 160m*. Integrated WLAN means no need to plug the device into the laptop computer.

Easy-to-use
Measuring around complex tooling and structures is easier with the new SmartFind function permitting the tracker to aim the beam back to the target by gesturing to the device.

Versatile usage
With the new IP52 rating you can measure in challenging surroundings. Integrated weather station maintains the highest accuracy in adverse conditions.

Portability
Lighter and smaller form factor as well as the innovative travel case system make it easy to move the device between the job-sites.

Productivity by design
The FARO Vantage is the most complete laser tracking solution. It is an extremely accurate, portable coordinate measuring machine that enables you to build products, optimize processes, and deliver solutions by measuring quickly, simply and precisely. The Vantage is the smallest and lightest FARO Laser Tracker ever built, making it incredibly easy-to-use and transport between job sites. TruADM is FARO’s 5th generation patented ADM system which uses predictive algorithms to compensate for the acceleration and velocity of a moving target.

Point-to-Point accuracy

<table>
<thead>
<tr>
<th>In-Line distance measurement*</th>
<th>Length (m/ft)</th>
<th>2-5</th>
<th>2.1-10</th>
<th>2.2-20</th>
<th>2.3-30</th>
<th>2.4-40</th>
<th>2.5-60</th>
<th>2.6-80**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance (m/ft)</td>
<td>26 (8.5)</td>
<td>76 (24.8)</td>
<td>87 (28.5)</td>
<td>97 (32.1)</td>
<td>106 (34.8)</td>
<td>118 (38.6)</td>
<td>130 (42.6)</td>
<td>143 (46.8)</td>
</tr>
<tr>
<td>MPE (mm/in)</td>
<td>0.0018 (0.0007)</td>
<td>0.0022 (0.0009)</td>
<td>0.003 (0.0012)</td>
<td>0.0038 (0.0015)</td>
<td>0.0046 (0.0018)</td>
<td>0.0046 (0.0018)</td>
<td>0.0078 (0.0031)</td>
<td>0.0078 (0.0031)</td>
</tr>
<tr>
<td>Typical (mm/in)</td>
<td>0.0026 (0.0010)</td>
<td>0.0013 (0.0005)</td>
<td>0.0015 (0.0006)</td>
<td>0.0016 (0.0006)</td>
<td>0.0019 (0.0008)</td>
<td>0.0025 (0.0010)</td>
<td>0.0009 (0.0004)</td>
<td>0.0009 (0.0004)</td>
</tr>
</tbody>
</table>

| Horizontal scale bar measurement (2.3m)* | Range (m/ft) | 2 (6.6) | 5 (16.4) | 10 (32.8) | 20 (65.6) | 30 (98.4) | 40 (131.2) | 60 (196.9) | 80** (262.5) |
|-----------------------------------------|--------------|---------|--------|--------|--------|--------|--------|---------|
| MPE (mm/in)                             | 0.0044 (0.0017) | 0.0064 (0.0025) | 0.0099 (0.0039) | 0.017 (0.0067) | 0.024 (0.0093) | 0.031 (0.0122) | 0.043 (0.0178) | 0.059 (0.0234) |
| Typical (mm/in)                         | 0.0022 (0.0009) | 0.0032 (0.0013) | 0.0049 (0.0019) | 0.0085 (0.0033) | 0.012 (0.0047) | 0.0156 (0.0061) | 0.0226 (0.0089) | 0.0297 (0.0117) |

* MPE and all accuracy specifications are calculated per ASME B89.4.19 - 2006. Variation in air temperature is not included. Specifications, descriptions, and technical data may be subject to change.

** With selected targets.
Versatility
Seamless combination of two portable CMMs into one complete large volume solution.

No line of sight limitations
6DOF capabilities with no hidden point restrictions.

Stand-alone capability
Each system can also be used independently when needed, improving efficiency.

Cost effective
Large volume measurement at a fraction of the cost of comparable systems.

Ease of use
Quickly synchronize devices by collecting points in space.

Wireless freedom
Ultimate portability with cable-free operation.

Measure anywhere
World’s most complete laser tracking solution

The FARO TrackArm is the most versatile portable 3D measurement system. It brings together the long range and high accuracy capabilities of FARO’s Laser Tracker with the flexibility and consistency of the FaroArm. Best of all, the FaroArm and Laser Tracker are stand-alone portable CMMs that can be used independently or in combination to create the multipurpose FARO TrackArm system.

TrackArm specifications

- Typical measurement performance: 80μm + 5 μm/m
- Accuracy up to:
  - FaroArm (Prime): 0.016mm
  - FARO Vantage: 0.015mm @ 2-20m*
- Tracker range: 80m
- TruADM instant beam acquisition
- 6-Degrees-of-Freedom Probe

Software options

Compatible with numerous software solutions
All FARO measurement systems can be used in conjunction with a broad range of third party software.

Some of our software partners
Aberlink, Carl Zeiss, Delcam, Dynalog, Geomagic, InnovMetric Software, INUS Technology & Rapidform, metaLabs, Metrologic, Metromec, New River Kinematics, Robert McNeel & Associates (Rhino3d), Q-DAS, SolidWorks, TeZet, Verisurf Software

For the latest specifications please visit www.faro.com
**CAM2 SmartInspect**
www.faro.com/smartinspect

**Measurement software for everybody**

Engineered for simplicity, FARO’s CAM2 SmartInspect is the perfect software for any user that is looking for non-CAD based inspection. The software design is simple and intuitive. Even users without any 3D metrology background can be easily trained.

**Software versions**

- **Basic: Picture-based measurements**
  Combine real pictures of your component with every measurement process providing the user an image-based support for measurement guidance.

- **Pro: Picture-based and Live on screen 3D view measurements**
  Interactions with the live view provide an intuitive platform to creating the necessary dimensions and constructions that cannot be measured directly to support the measurement process.

**Additional features**

- **Smart suggestion box**
  Suggestions are always available to the user on what he can do next with the objects that he has selected. This allows new users to get hints on the capabilities which are available to them while Expert users can exploit this feature to speed up their workflow.

- **Repeated part measurement**
  Once a part has been measured, the measurement can be repeated with a single click. Using the Image View mode, the second measurement can be performed by any user.

- **QuickTool import**
  The QuickTools functionality permits to import and use QuickTools programs generated in the FARO CAM2 Measure 10 software.

**Typical applications**

Architecture, BIM, civil engineering and surveying: Excavation control, deformation control, façade inspection, structural analysis and maintenance, free-form components inspection, construction progress monitoring

Process industry and digital factory: Conversions and extensions, offshore production, asset management, site supervision

Inspection and reverse engineering: Interior fixtures and fittings, manufacturing documentation, quality control

Other Applications: Heritage, forensics and accident scenes, shipbuilding, tunnel & mining, facility management, automation & mobile mapping

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**FARO® Laser Scanner Focus3D**
www.faro.com/focus

Watch the video online!
For the latest specifications please visit www.faro.com

SCENE software

SCENE is specifically designed for all FARO laser scanners. The software processes and manages scanned data both efficiently and easily by using the automatic object recognition and scan registration.

SCENE is an extremely user-friendly software that allows scans to be automatically combined. The resulting point cloud can be viewed in three dimensions. All the scans are available in colour and as high-contrast intensity images.

Features
- Automated target-less scan registration
- SCENE WebShare Cloud integration
- Super-crisp visualisation, improved colour balancing
- Easy processing of large scan projects
- Homogenisation of point clouds
- Plug-ins in 3D App Center for extended functionality

Data sharing without limits

With SCENE WebShare Cloud, FARO offers a comprehensive service to provide users with simple access to 3D documentation. Neither technical training nor specialist skills in 3D laser scanning are necessary to work with the intuitive user interface.

Digital data, such as 3D documentation, often has to be available to many different project partners. Previously, users having their own internet server, could use SCENE WebShare to present their laser scan projects to clients or project partners. Now FARO goes considerably further, offering the SCENE WebShare Cloud solution, a hosting service with various packages at different prices.

Check it out on our demo server at: www.websharecloud.com

3D App Center for Laser Scanning Apps

FARO’s 3D App Center offers you best-in-class stand-alone and plug-in apps for your laser scanning applications.

3d-app-center.faro.com

Performance specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Range</th>
<th>Integrated colour camera</th>
<th>Measurement speed</th>
<th>Ranging error</th>
<th>Ranging noise</th>
<th>Multi-Sensor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus® X 330</td>
<td>0.6 – 330m</td>
<td>Up to 70 mio. pixel</td>
<td>up to 976,000 points/second</td>
<td>±2mm**</td>
<td>±0.3mm</td>
<td>Compass, GPS*, Height Sensor, Dual Axis Compensator</td>
</tr>
<tr>
<td>Focus® S 20</td>
<td>0.6 – 20m</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Focus® S 120</td>
<td>0.6 – 120m</td>
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</tr>
</tbody>
</table>

**Focus® X 330:** Ranging error is defined as a systematic measurement error at around 10m and 25m, one sigma.

Indoor & Outdoor Scanning in 3D

Simply at your fingertips!

The FARO Laser Scanner Focus® is the perfect instrument for all kinds of 3D documentation and surveying projects. The technology behind enables the user to quick create of accurate three-dimensional colour images – so-called point clouds – of large buildings, components, excavations, building sites or crime scenes, etc.

The Focus® product line is small and portable and offers various scanning ranges - up to 330m, integrated GPS for easy positioning of scans, exceptional ease of use, high scanning speed and excellent image quality - even in colour. It also has an intuitive touch screen display and an integrated quick-charge battery.

WLAN

WLAN remote control permits you to start, stop, view or download scans at a distance.

Stand-alone solution

The ultraportable design combined with SD card storage and powerful built-in battery allows for operation without any external device.

Multi-Sensor

The integrated Compass, GPS*, the Height Sensor and the Dual Axis Compensator dramatically minimize manual efforts.

Small and compact

The Focus® is the smallest and most compact laser scanner ever built.

Extended range* - 330m

Due to the extra-long range of Focus® X 330, laser scanning of high or long objects has become possible.

Outdoor scanning - in direct sunlight*

Extreme flexibility to perform outdoor scanning projects every time, everywhere. Even in the brightest sunlight.
FARO offers training courses and workshops to show you how our products are employed most efficiently. Depending on your knowledge level, we offer basic or advanced training. Training is carried out in small groups at FARO or – if you wish – at your facilities.

Expand your possibilities
In addition to our hardware and software, we also offer a broad range of supplementary equipment and accessories: probes, targets (SMR), mounting options, tripods, measurement tables, computers, cables, adapters, tools, protective covers, transport cases, and many more.

Always there for you
On the phone: Our customer service staff are available from 8 am to 5 pm (CEST) from Monday to Friday. Free call number: 00 800 3276 7378
E-Mail: support@faroeurope.com
Online-Support Center: www.faro.com/support
On-site: Our application engineers will help you on-site.

The service contract includes maintenance, inspection, and calibration by our experts. In addition, customers with a service contract will receive a 10% discount on all accessories and free re-certification, repair, and advice.

News, tips, tricks and emerging trends
Hear from industry experts on emerging trends in 3D documentation, advancements in 3D metrology and portable CMMs and best practices without ever leaving the office. If you are unable to attend any of our live webinars, they are all recorded and uploaded as podcasts here and are searchable by broadcast date. Check it out on our website: www.faro.com/webinar

Our FARO videos speak louder than words and highlight all the great features of every single FARO product. Watch in seconds how to measure complex parts in production or document a challenging surveying task. All videos are available in several European languages. Watch the video online at: www.faro.com

Find out about upcoming events to meet the FARO team.
www.faro.com/uk/events
www.faro.com/distribution/events

We measure your parts on-site and show you how measuring tasks can be solved with portable 3D systems.
www.faro.com/demo

Free white papers
Improve your knowledge about measurement and 3D documentation.
www.faro.com/whitepaper

E-Newsletter to receive interesting news and tips & tricks on how to measure more efficiently.
www.sc.faro-europe.com

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