



FARO Laser Tracker ION™



The World's Most Accurate Large Volume Laser Tracker

The FARO Laser Tracker ION is an extremely accurate, portable coordinate measuring machine that enables you to build products, optimize processes, and deliver solutions by measuring more quickly, simply and precisely than previously possible.

Replacing conventional tools such as tape measures, piano wire, plumb bobs, and even theodolites – the ION is a more accurate and reliable portable 3D measurement tool that allows you to streamline your processes and gain confidence in your measurement results.

Using our extensive knowledge of real-world measurement applications, we were able to develop the most accurate laser tracker available while still making it simple and easy to use and maintain.

Customers have come to rely on FARO Laser Trackers in applications such as alignment, machine installation, component inspection, tool building and setup, and reverse engineering. Companies of all sizes rapidly see the benefits of implementing this tool and realize a complete return on their investment – in many cases within the first 12 months!



The Future of Laser Tracker Technology

Agile Absolute Distance Meter (aADM)

FARO's Agile Absolute Distance Meter (aADM) is the latest advancement in Absolute Distance Meter (ADM) technology from FARO. This patented technology is included in the Laser Tracker ION and provides the ability to acquire a handheld target even if the target is moving.

Interferometer (IFM)-based measurement can trace its origins to the late 1800s – it was not until the invention of ADM that the laser tracker made its move from a laboratory instrument to a real-world measurement system. ADM-based systems represent the latest in laser tracker technology, and the ION's Agile ADM measuring system is the only ADM system on the market that is fast enough to allow for high density scanning without relying on an interferometer. IFM-based laser trackers also require the use of a laser tube that has a finite life, so FARO's aADM-based Laser Tracker ION does not have the additional costs associated with laser tube replacement.

Agile ADM modulates its laser beam at three slightly different frequencies. By comparing the phase of the three modulated frequencies received by the Laser Tracker, aADM eliminates any ambiguity and calculates the position of the target.

With Agile ADM comes great simplification of the system – there is no need to switch between ADM and interferometer-based systems – aADM does it all. The ION's exclusive ADM technology results in increased accuracy, ease of use, and rock-solid reliability.



"As a result of implementing the FARO Laser Tracker into our operations, we have saved approximately \$280,000 per year in rework costs."

Freightliner Custom Chassis

"Using the FARO Laser Tracker will ensure the accuracy of our product, thus keeping our tooling quality second to none."

Marine Concepts



Designed With Your Needs in Mind

The FARO Laser Tracker ION is the most advanced, state-of-the-art FARO Laser Tracker ever introduced. It provides increased accuracy, longer measurement range, lighter weight, and has the fastest, most sophisticated distance measuring system available. Additionally, the unit was designed with the end user in mind – despite all these advancements in technology, it is still easy enough for anyone to use. Whether you are already familiar with the FARO Laser Tracker, or the ION is your first introduction, it is sure to exceed your expectations.

Improved Volumetric Accuracy

The accuracy of the FARO Laser Tracker ION gives you results you can depend on – helping your company drive the innovation necessary to remain competitive. With a volumetric accuracy of .002” (.049mm) at 33 feet (10m), even the strictest tolerance measurements can be achieved. This exceeds the previous generations of FARO Laser Trackers by 27%. Why is higher accuracy important? It provides you with superior measurement certainty for your entire project. This can mean eliminating rework, which in some cases can cost more than the entire measurement system. The more the error in the measurement instrument is reduced, the more confidence you will have in the results.

Increased Measurement Range

The ION's 361-foot (110-meter)* diameter measurement range is an increase of 36% over previous generations of FARO Laser Trackers. This means the entire measurement process takes less time because of fewer movements/re-positioning of the unit when measuring very large objects. As with every FARO Laser Tracker model, it is guaranteed to operate within specification even up to the maximum range.

Lighter Weight

The ION is the lightest FARO Laser Tracker to date – 12% lighter. This makes the unit easy to handle and transport within your facility or between job sites. It is light enough for one person to carry and is simple to set up.

**With selected targets*



Realize the ION Difference

SelfComp

Compensation is normally a very time-consuming and user-intensive process, and the accuracy of any measurement system is affected by errors due to environmental changes. However, the patented SelfComp feature allows the ION to automatically maintain the highest level of system accuracy over a broad range of environmental conditions. SelfComp allows the unit to compensate for the errors while still producing the highest accuracy results.

Versatile Mounting Options

The ION can be mounted vertically, horizontally or upside down*, providing versatility in tight or congested areas.

Instant-On Laser

Begin taking measurements faster since no warm-up of the laser tube is required. This can result in a time-savings of 20 to 30 minutes!

Smart Warm-Up

This feature accelerates the stabilization time of the unit itself in order to minimize the initial temperature changes' impact on measurements.

Integrated Weather Station

Temperature, air pressure, and humidity can affect the speed that light travels through air. The integrated weather station monitors these and compensates to ensure the accuracy of the measurement results.

Integrated Precision Level

This built-in device establishes level to gravity within the measurement job. This is especially beneficial in complex alignments and equipment set-up.

**Inverted mounting requires the use of the integrated threaded ring.*



"With the use of the FARO Laser Tracker, we have been able to verify and analyze parts of our machine that we previously couldn't. It has taken our calibration, quality, and R&D to a whole new level."

WARDJet, Inc.

Advanced Targets

A laser tracker and its targets go hand in hand. Regardless of how accurate the laser tracker is, the quality of the measurements is directly affected by the precision of the target. FARO's line of spherically mounted retroreflectors (SMRs) showcases our dedication to providing a total measurement solution – by not only offering the best laser tracker, but by also providing an accurate, robust, and affordable line of targets.



Accurate, Durable, Affordable Break Resistant SMRs

- Three models:
 1. Standard Accuracy (Black Ring)
 2. Long Range (Green Ring)
 3. High Performance (Blue Ring)
- High performance model is 80% more accurate than previous FARO break resistant SMRs
- Combination of the sphere properties and the centering of the optics make the high performance model the world's most accurate break resistant SMR
- Lower cost than previous break resistant models
- Single element retroreflector with a gold coating (no separate glass panels that can shift or break over time)



Break Resistant Window SMRs

- Ultimate performance in harsh environments
- Window covering is designed to keep the reflective optics clean
- Replaceable window collar
- Single element retroreflector with a gold coating



Heavy Duty Break Resistant SMRs

- Solid stainless steel ball
- Integrated retroreflector with a gold coating
- Ability to operate at optimum performance at extreme temperatures



Glass Panel SMRs

- Protected silver coating
- Standard and high accuracy models



Repeatability Targets

- Open air corner cubes
- Ensures repeatability regardless of the pointing angle from the laser tracker
- Perfect target for ADM repeatability surveys
- Standard and long range models
- Optional protective window covering



RetroProbes

- Measure in recessed areas or small features such as holes, slots and machine faces
- Provides the functionality of an articulated arm or fixed CMM-style probing
- Easily reach into pockets, behind obstructions, and around corners
- Minimize laser tracker repositioning
- One-inch and four-inch extension models



"After having the FARO Laser Tracker for only a short time, we have already seen an improvement in alignment by 80%."

Tuftco Corporation



Real-World Applications

Alignment

- More accurate and less time-consuming than traditional methods
- Frequent measurements and proper trending of distortions
- Real-time measurement confirms tolerances and validates design

Installation

- Lay out / level machine foundation
- Prevent damage during the machine's initial run
- Reduce wear and tear on mechanical parts

Part Inspection

- Compare complex geometry, surfaces and feature positions to nominal data
- No need to move the part to a fixed inspection tool
- Reduce production waste and non-conformance costs

Tool Building

- Full volumetric accuracy tests (ensures parts are being assembled to the highest standard)
- Verify dimensional integrity and repeatability of the tool (identify or preempt tool defects)

Reverse Engineering

- Acquire high accuracy digital scan data
- Eliminate the need for hard masters



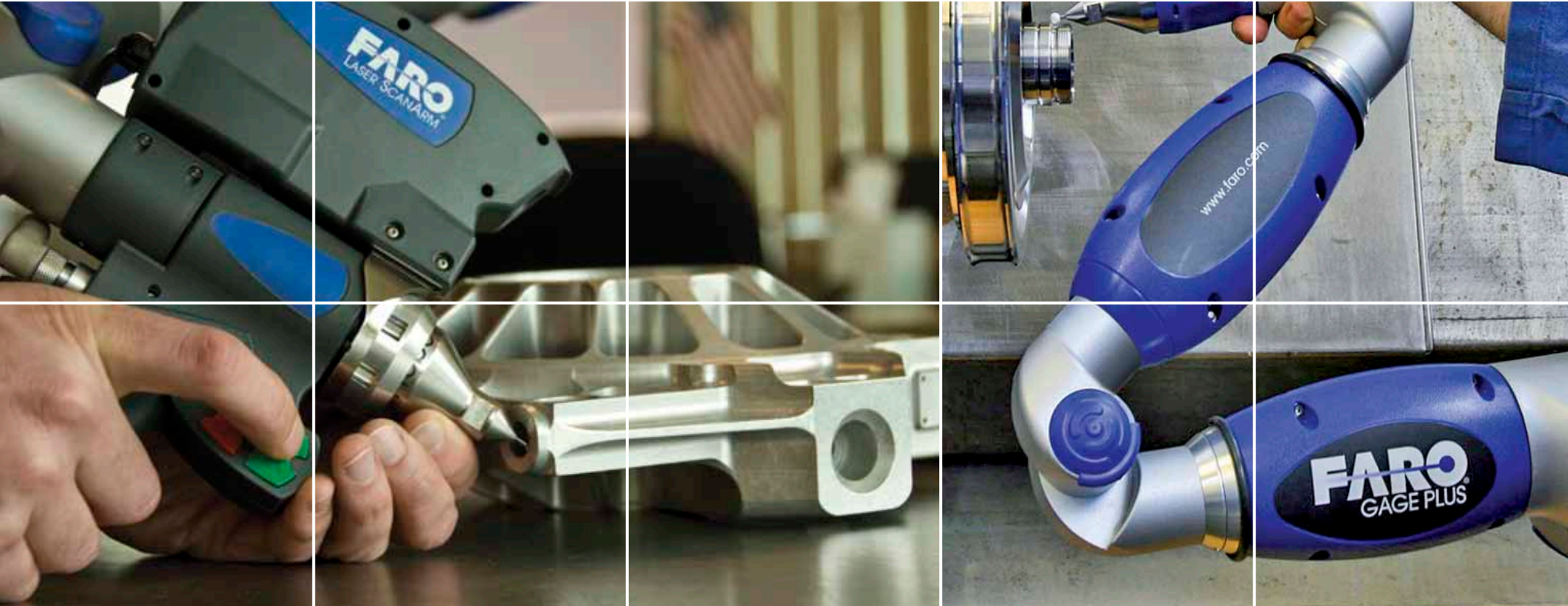
About FARO

FARO is a global technology company that develops portable 3D measurement instruments for inspection, imaging, reverse engineering, and surveying. Our focus is on simplifying our customers' work with tools that empower them to dramatically reduce their on-site measuring time and lower their overall costs.

As the pioneer in portable computer-aided measurement, we apply our unique knowledge and understanding of our clients' business goals to help them succeed. We empower our clients to exceed the demands placed upon them by applying the latest advances in technology to make FARO's industry-leading product offerings more accurate, reliable, and easier to use.

Our commitment to our customers extends well beyond product performance – with FARO you have 3D measurement peace of mind. Each FARO team member is completely focused on simplifying our customers' work, championing their innovation and ours, so our customers and their businesses can be more prosperous.







"One of the biggest reasons that we keep returning to FARO for solutions is because of the support that has been provided to us over the years. This support has been unsurpassed."

MAG Cincinnati

The FARO Experience

Your purchase is just the beginning of your partnership with FARO. Our employees are known for building relationships – visiting your facility, getting to know your business, your processes, and providing measurement plans and training to help you get the most out of your FARO system.

FARO operates service and calibration facilities around the world and all are ISO 9001:2001 certified and ISO-17025 laboratory registered to service FARO's products. Each center provides warranty and post-warranty services. At FARO, our goal is to service, inspect, calibrate, and return your equipment within a timely manner.

FARO's training equips you with the knowledge necessary to execute measurements with confidence. From product setup, basic measurements, working with alignments and nominals, to advanced procedures and programming, we offer basic and advanced level classes at a FARO training center, or at your own facility. FARO also has experienced customer service representatives who offer telephone support for equipment or application-related questions.

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