

# FARO ION

## Features, Benefits & Technical Specifications



### Features

#### Dual Distancing Systems

Catch the beam in the air and set the distance instantly with Agile ADM; perform high speed dynamic measurements or high precision in-line measurements with IFM

#### Smart Warm-Up

Accelerates the thermal stabilization time in order to minimize the initial temperature changes' impact on measurements

#### SelfComp

Automatically tunes Laser Tracker parameters to maintain system accuracy

#### Versatile Mounting Options

Mounts vertically, horizontally or upside down\*, providing versatility in tight or congested areas

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

#### Integrated Precision Level

Establishes orientation with respect to the gravity vector

#### Integrated Weather Station

Monitors and compensates for changes in temperature, air pressure and humidity

### High Precision IFM-Based Laser Tracker

The FARO Laser Tracker ION is a high precision, portable coordinate measuring machine that enables you to build products, optimize processes, and deliver solutions by measuring more quickly, simply and precisely. Replacing conventional hand tools such as tape measures, piano wire, plumb bobs, and even theodolites - the ION is a more accurate and reliable tool that allows you to streamline your processes and gain confidence in your measurement results.

When performing applications where the highest precision is crucial, such as in-line measurements, high-speed dynamic measurements, or high-accuracy machine calibration, the ION is a state-of-the-art interferometer (IFM)-based measurement system that provides the high accuracy and range you need to complete your measurement tasks.

### Benefits

- ▶ Advanced technology yet still easy for everyone to use
- ▶ Long range for easy measurement of large objects
- ▶ High accuracy gives you dependable results to remain competitive
- ▶ Solve everyday measurement challenges as well as complex problems that weren't previously possible
- ▶ Eliminate rework, which may cost more than the entire measurement system

## Specifications

### Dimensions

**Head size:** 311 (W) x 556 (H) mm (12.2 (W) x 21.9 (H) in)

**Head weight:** 19.5 kg (43 lbs)

**Controller size:** 282 (L) x 158 (D) x 214 (H) mm (11.1 (L) x 6.2 (D) x 8.4 (H) in)

**Controller weight:** 5.2 kg (11.5 lbs)

### Range

**Maximum working range:**

55m (180.4ft) with select targets

40m (131.2ft) with standard 1.5in & 7/8in SMRs

30m (98.4ft) with standard 1/2in SMR

**Minimum working range:** 0m (0ft)

**Horizontal envelope:** +/- 270°

**Vertical envelope:** 125° (+72.5° to -52.5°)

### Environmental

**Altitude:** -700 to 2,450m (-2,297 to 8,038ft) with integrated weather station

**Humidity:** 0 to 95% non-condensing

**Operating temperature:** -15°C to 50°C (5°F to 122°F)

### Laser Emission\*\*

633-635 nm Laser, 1 milliwatt max/cw. Class II Laser Product

### Distance Measurement Performance\*\*\*

#### AgileADM

**Resolution:** 0.5µm (0.00002in)

**Accuracy (MPE):** 16µm + 0.8µm/m  
(0.00063in + 0.0000096in/ft)

**Sample rate:** 10,000/sec

**R0 parameter (MPE):** 16µm (0.0006in)

#### Interferometer

**Resolution:** 0.158µm (0.000006in)

**Accuracy (MPE):** 4µm + 0.8µm/m  
(0.00016in + 0.0000096in/ft)

**Maximum radial velocity:** 4m/sec (13.1ft/sec)

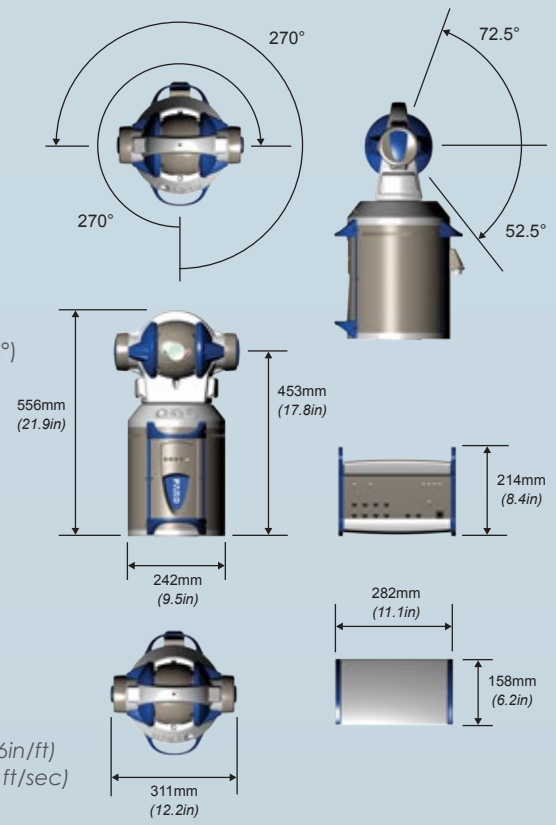
**R0 parameter (MPE):** 16µm (0.00063in)

### Angle Measurement Performance\*\*\*

**Angular accuracy (MPE):** 20µm + 5µm/m (0.00079in + 0.00006in/ft)

**Precision level accuracy:** +/- 2 arcseconds

**Maximum angular velocity:** 180°/sec



## Point to Point Accuracy\*\*\*

In-Line Distance Measurement							
Length	2-5m (6.6-16.4ft)	2-10m (6.6-32.8ft)	2-20m (6.6-65.6ft)	2-30m (6.6-98.4ft)	2-40m (6.6-131.2ft)	2-50*m (6.6-164ft)	2-55*m (6.6-180.4ft)
Distance	3m (9.8ft)	8m (26.2ft)	18m (59ft)	28m (91.9ft)	38m (124.7ft)	48m (157.5ft)	53m (173.9ft)
ADM	MPE	0.018mm (0.0007")	0.022mm (0.0009")	0.030mm (0.0012")	0.038mm (0.0015")	0.046mm (0.0018")	0.078mm (0.0031")
	Typical	0.009mm (0.0004")	0.011mm (0.0004")	0.015mm (0.0006")	0.019mm (0.0008")	0.023mm (0.0009")	0.031mm (0.0012")
IFM	MPE	0.006mm (0.0003")	0.010mm (0.0004")	0.018mm (0.0007")	0.026mm (0.0010")	0.034mm (0.0014")	0.046mm (0.0018")
	Typical	0.003mm (0.0001")	0.005mm (0.0002")	0.009mm (0.0004")	0.013mm (0.0005")	0.017mm (0.0007")	0.021mm (0.0008")

\*With selected targets. \*\*Product complies with radiation performance standards under the food, drug, and cosmetics act and international standard IEC 60825-1 2001-08.  
 \*\*\*MPE and all accuracy specifications are calculated per ASME B89.4.19 - 2006. Typical Accuracy shown is half the Maximum Permissible Error (MPE). Variation in air temperature is not included. Specifications, descriptions, and technical data may be subject to change.  
 Protected by U.S. patents: 7,327,446 7,352,446 7,466,401 7,701,559 8,040,525 8,120,780



Horizontal Scale Bar Measurement (2.3m, 7.55ft)								
Range	2m (6.6ft)	5m (16.4ft)	10m (32.8ft)	20m (65.6ft)	30m (98.4ft)	40m (131.2ft)	50*m (164ft)	55*m (180.4ft)
ADM	MPE	0.044mm (0.0017")	0.064mm (0.0025")	0.099mm (0.0039")	0.170mm (0.0067")	0.240mm (0.0095")	0.311mm (0.0122")	0.417mm (0.0164")
	Typical	0.022mm (0.0009")	0.032mm (0.0013")	0.049mm (0.0019")	0.085mm (0.0033")	0.120mm (0.0047")	0.156mm (0.0061")	0.209mm (0.0082")
IFM	MPE	0.042mm (0.0017")	0.063mm (0.0025")	0.099mm (0.0039")	0.170mm (0.0067")	0.240mm (0.0095")	0.311mm (0.0122")	0.417mm (0.0164")
	Typical	0.021mm (0.0008")	0.032mm (0.0012")	0.049mm (0.0019")	0.085mm (0.0033")	0.120mm (0.0047")	0.156mm (0.0061")	0.209mm (0.0082")



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