

FARO Vantage Features, Benefits & Technical Specifications

FARO





A breakthrough in laser tracker technology

The FARO Vantage 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. Replacing conventional tools such as piano wire, plumb bobs, layout machines, large-volume fixed CMMs, theodolites, optical transits, and total stations, the Vantage is a more accurate and reliable portable 3D measurement tool that allows you to streamline your processes and be confident in your measurement results.

The FARO Vantage creates ground-breaking efficiencies in applications such as alignment, machine installation, component inspection, tool building and setup, manufacturing and assembly integration, and reverse engineering. Companies are saving millions of dollars by completing jobs faster, reducing downtime, eliminating costly scrap, and getting accurate, consistent, and reportable measurement data. With the Vantage you can produce more competitive products, accelerate product improvement initiatives, and deliver high-performing products for today's technical marketplace.

As the world's most trusted source for 3D measurement technology, FARO has reinvented high accuracy, large volume measurement with the Vantage. Offering a breakthrough in laser tracker technology, the FARO Vantage provides the world's most complete laser tracking solution.

How the Vantage works

The operation of the Laser Tracker is easy to understand - it measures two angles and a distance. First, the Tracker sends a laser beam to a retroreflective target held against the object to be measured. Light is then reflected off the target and retraces its path, re-entering the Tracker at the same position it left. As light re-enters the Tracker, two angle encoders measure the elevation and rotational angles while a highly accurate absolute distance meter is used to determine the 3D position of the retroreflector.

Features of the Vantage

Compact Size

The smallest and lightest FARO Laser Tracker ever built is incredibly easy to use and transport between job sites.

Water and Dust Resistant IP52 Rating

The Vantage can be used in demanding industrial conditions.

New Carrying Cases

An innovative travel case system takes the concept of "portability" to a whole new level.

SmartFind

Quickly and efficiently locates and locks on to the correct target.

MultiView Cameras

This patent pending integrated two-camera system can automatically point to a specific target, and quickly and efficiently locate a target when the target is not in its normal position.

TruADM

Patented 5th generation ADM system provides the accuracy needed for everyday, real-world applications.

Integrated Wi-Fi®

Simply measure anywhere within the wireless network's range with no need to plug into a laptop computer for enhanced portability and convenience.

QuickComp

Optimizes measurements based on specific ranges to maintain high system accuracy.

TriMap Encoders

Three read head system that is self-mapping; enables faster service time in more convenient locations.

In-Line Optics

Designed for longer range; allow for measurement of even larger objects from one location.



Benefits to the end user

- Lightweight design and innovative packaging make it easy to set up and transport
- Longer range for easy measurement of large objects
- SmartFind target detection speeds up measurement jobs
- Enhanced durability due to water and dust resistant IP52 rating

Benefits to the company

- High accuracy gives you dependable results to remain competitive
- Eliminate rework, which can cost more than the entire measurement system
- Solve everyday measurement challenges as well as complex problems that weren't previously possible

Specifications

Dimensions

Head Size: 224(W) x 416(H)mm (8.8(W) x 16.4(H)in)

Head Weight: 12.6kg (28lbs)

Controller Weight: 4.8kg (10.6lbs)

Controller Size: 290(L) x 158(D) x 214(H)mm (11.4(L) x 6.2(D) x 8.4(H)in) - without filters
316(L) x 158(D) x 214(H)mm (12.4(L) x 6.2(D) x 8.4(H)in) - with filters

Range

Maximum Working Range:

80m (262.5ft) with select targets & 10°C to 35°C (50°F to 95°F) temperature range

60m (196.9ft) with standard 1.5in & 7/8in SMRs **Horizontal Envelope:** 360° - Infinite rotation

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

Vertical Envelope: 130° (+77.9° to -52.1°)

Minimum Working Range: 0m (0ft)

- Infinite rotation

Environmental

Altitude: -700 to 9,000m (-2,297 to 29,527ft)**** **Humidity:** 0 to 95% non-condensing

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

Laser Emission**

632-663 nm Laser, 1 milliwatt max/cw. Class II Laser Product

MultiView Cameras

Field of View: 30°

Single Point Repeatability

25 points @ 1.6m (5.2ft): 8µm (0.0003in)

Distance Measurement Performance***

TruADM

Resolution: 0.5µm (0.00002in)

Sample Rate: 16,000/sec

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

R0 parameter (MPE): 16µm (0.00063in)

Max Radial Acceleration: 30m/sec²

Max Radial Velocity: > 25m/s

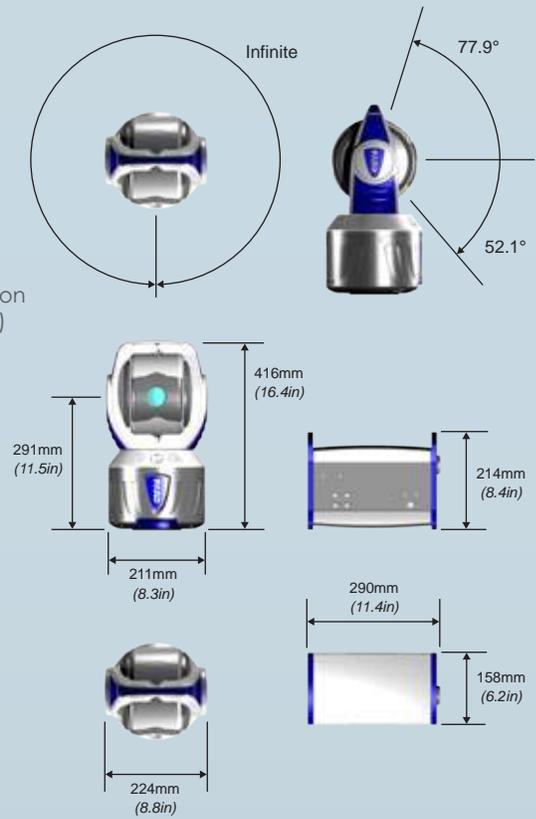
Angle Measurement Performance***

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

Precision Level Accuracy: +/- 2 arcseconds

Max Angular Acceleration: 860°/sec² (15 rads/sec²)

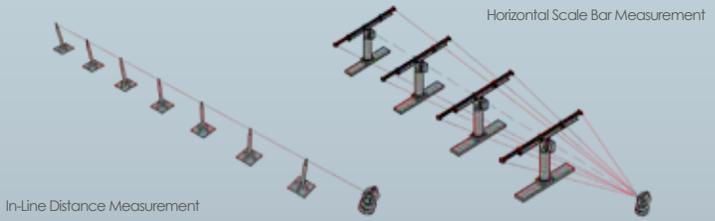
Max Angular Velocity: 180°/sec (π rads/sec)



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)	2-60m (6.6-196.9ft)	2-80*m (6.6-262.5ft)
Distance	3m (9.8ft)	8m (26.2ft)	18m (59ft)	28m (91.9ft)	38m (124.7ft)	58m (190.3ft)	78m (255.9ft)
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")

*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. Variation in air temperature is not included. Specifications, descriptions, and technical data may be subject to change. ****With integrated weather station. 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)	60m (196.9ft)	80*m (262.5ft)	
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")	0.453mm (0.0178")	0.594mm (0.0234")
	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")	0.226mm (0.0089")	0.297mm (0.0117")



For more information call 800.736.0234
or visit www.faro.com/laser-tracker