

# FARO Laser Tracker Vantage and Vantage<sup>E</sup>

Features, Benefits, & Technical Specifications

**FARO**<sup>®</sup>



[www.faro.com/LaserTracker/sg](http://www.faro.com/LaserTracker/sg)

# Vantage and Vantage<sup>E</sup>

**FARO**



**VANTAGE**

Short-to-long range measurement applications up to 80m

**VANTAGE<sup>E</sup>**

Short-to-medium range measurement applications up to 25m

## A Breakthrough in Laser Tracker Technology

The FARO Vantage Laser Tracker product family consists of the Vantage and Vantage<sup>E</sup>. They are extremely accurate, portable coordinate measuring machines that enable 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 Vantage is intended for short-to-long range measurement applications of up to 80 meters, while the new Vantage<sup>E</sup> supports short-to-medium-range applications of up to 25 meters. Both products include well-proven features and capabilities including high-speed dynamic measurement.

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 using the Vantage are saving millions of dollars by completing jobs faster, reducing downtime, eliminating costly scrap, and getting accurate, consistent, and actionable 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.

## How the Vantage Works

The operation of the Vantage 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.

# Vantage and Vantage<sup>E</sup>

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## Features

### 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.

### Lightweight 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

Patented 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<sup>®</sup>

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.



## 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

# Vantage and Vantage<sup>E</sup>



## 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

Working Range	Vantage	Vantage <sup>E</sup>
Maximum with select targets	80m (262.5ft) <sup>1</sup>	25m (82.0ft)
Maximum with 1.5in & 7/8in SMRs	60m (196.9ft)	25m (82.0ft)
Maximum with 1/2in SMRs	30m (98.4ft)	25m (82.0ft)
Minimum	0m (0ft)	0m (0ft)

<sup>1</sup>80m range requires 10°C to 35°C (50°F to 95°F) temperature range

### Line of Sight (LOS) and Rotational Envelope

Horizontal LOS: 360° - Infinite rotation

Vertical LOS: 130° (+77.9° to -52.1°) - Infinite rotation

### Environmental

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

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

### Laser Emission\*\*

632-663nm 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)

**Accuracy (MPE):** 16µm + 0.8µm/m (0.00063in + 0.000096in/ft)

**Max Radial Acceleration:** 30m/sec<sup>2</sup>

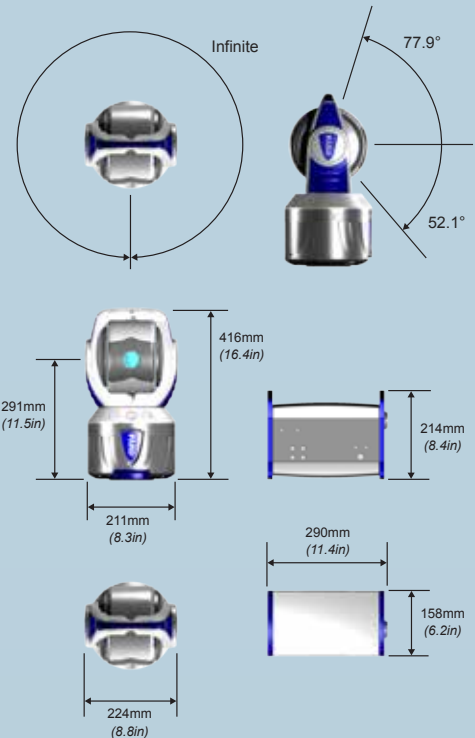
**Max Radial Velocity:** > 25m/sec

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

**Angular accuracy (MPE):** 20µm + 5µm/m (0.00079in + 0.0006in/ft)

**Precision Level Accuracy:** +/- 2 arcseconds

**Max Angular Acceleration:** 860°/sec<sup>2</sup> (15 rads/sec<sup>2</sup>) **Max Angular velocity:** 180°/sec (π rads/sec)

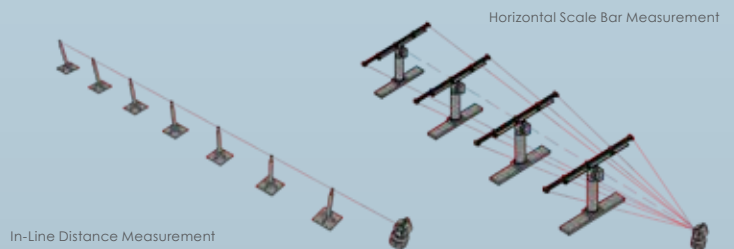


## Point to Point Accuracy

### 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. 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. \*\*\*\*With integrated weather station. \*\*\*\*\*Lengths and distances of over 25m are not applicable to Vantage<sup>E</sup>. 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")

To learn more, visit: [www.faro.com/LaserTracker/sg](http://www.faro.com/LaserTracker/sg)

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