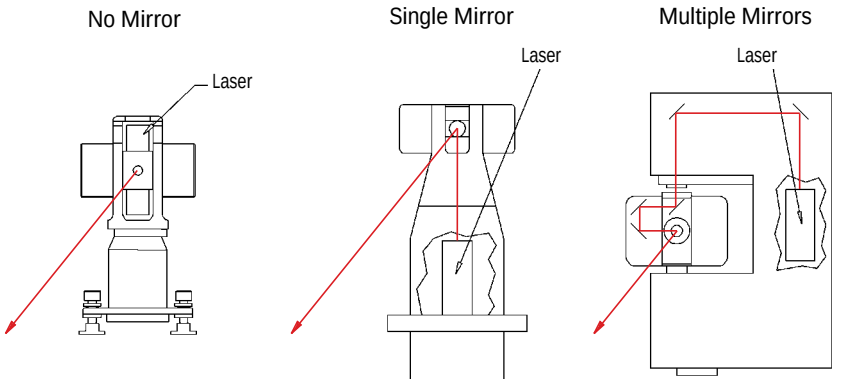
API Tracker II™

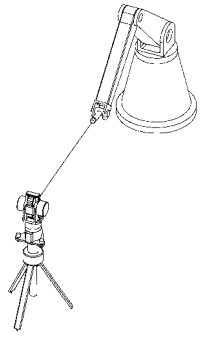
Laser Tracking System

- High Precision
- Ease of Use
- Compact Size
- Portability
- Intuitive Software

Optical Path Comparisons



API Tracker II **Competitor 1** **Competitor 2**



Precise Robotic Calibration and Feedback Control

API Laser Tracker II

Measurement accuracy of a laser tracking system depends on the stability of the light path. A very small change in mirror position is greatly magnified at the point of measurement as instrument error. This can stem from original assembly error, structural instability and thermal distortion during use.

The simplified diagrams above show API's design provides the most direct path with the least chance for structural or thermal induced errors.

The best optical path is the shortest path. API Laser Trackers use no mirrors.

Eliminating mirrors from the beam delivery path, improves system accuracy, enlarges the tracker measurement envelope, and reduces the need for periodic cleaning of mirror surfaces.

Take the straight line approach to tracker accuracy.

Laser Tracker II

The Laser Tracker II System is comprised of an advanced, compact tracker head, a controller, and cables to interconnect the system. Other accessories for laser tracker system are available from API, these include, a precision stand, spherically mounted retroreflectors (SMRs), tool kits, and MeasurePro software. Third party measurement and analysis software is also available through API from a number of major software providers.

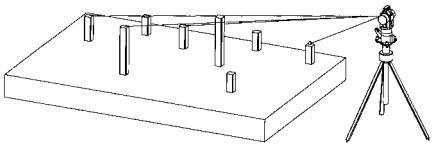
Tracker Head

Two of the key attributes that set the Laser Tracker II apart from earlier tracker systems are the size and weight of the tracker. Measuring only 43cm (17") in height, the Laser Tracker II is 1/3 the size of other trackers.

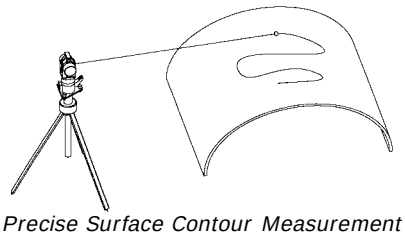
The Tracker II is the most portable laser tracker available. It is 1/4 the weight of traditional tracker systems. The entire tracker and stand weighs only 26Kg (57 lbs.)! No other tracker offers the portability, compact size, and ease-of-use as the Laser Tracker II.

Interferometer Housing

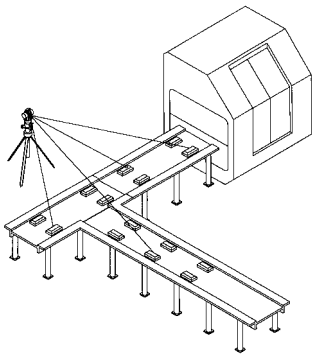
A very unique laser head design is at the heart of this advanced tracker. The laser head is actually mounted within the elevation axis of the system. The complete laser interferometer, position sensing devices and optics are housed in this assembly. The magic of this packaging is that the critical laser beam path originates and ends in this single assembly. Other tracking systems route the laser beam through a complex series of optics that are mounted in the various assemblies that make up the tracker. This subjects the laser interferometer to unnecessary errors as it passes from one assembly to another.



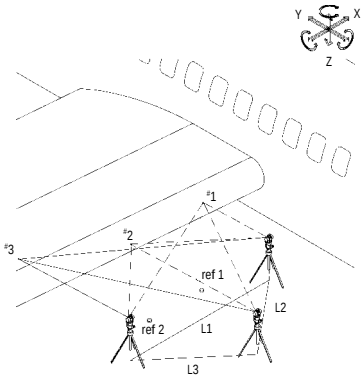
Precise Large Jig and Fixture Alignment



Precise Surface Contour Measurement



Precise Transfer Line Alignment



In-process Assembly Control

Laser Tracker Applications

The Laser Tracker II System provides precise dynamic and static coordinate and angular measurements. It is an enhanced metrology tool for precise dimensioning, alignment assembly, fabrication and reverse engineering applications.

Typical Applications

Measure tooling fixtures and jigs
Set fixture details
Error map machine tools and large CMMs
Calibrate robots
Measure surface contours
Align machines, rollers and transfer lines
Reverse engineer assemblies and parts

Laser Tracker II Features

Compact size
Easy set-up
Quick Calibration
Rapid warm-up
High accuracy
Gimbal mounted interferometer
Light weight
Rugged portable carrying case

Visit our website @ www.apisensor.com

Automated Precision, Inc.

About API

API is the inventor and developer of laser tracking systems. The Laser Tracker II represents the latest in laser tracking technology from API. No other laser tracking system can match the portability, accuracy, ease of use and reliability of the Laser Tracker II. API is the world leader in laser technology providing innovative manufacturing and metrology solutions for industrial measurement applications.

Laser Tracker II Software

MeasurePro is an intuitive measurement software package from API with a user-friendly graphical environment. MeasurePro offers a complete set of measurement, dimensioning, reporting, and reverse engineering tools. No other software offers these advanced features in such an easy-to-use Windows™ package. With MeasurePro you can easily import IGES, DXF and CATIA CAD files to speed your inspection and fixture building work.

Automated Precision maintains an open software environment for its customers. The Laser Tracker II interfaces with other advanced CMM software packages such as Build!IT, Metrologic and Spatial Analyzer.

Typical Markets Served

- Aerospace
- Automotive
- Castings
- Tire manufacturing
- Millwork
- Shipbuilding
- Tool and fixture fabrication

Specifications

Maximum lateral target speed: >3.0 meters / sec
Maximum acceleration in all directions: >2 g
Range of Measurements:

Horizontal	± 235°
Vertical	± 55°
Distance	greater than 35 meters

Angle Resolution: ± 0.14 arc second
Distance Resolution: 1µm

Absolute accuracy of a coordinate:
Static: Typical = 5 ppm (2 sigma)
0.001" (25 µm) at 16 feet (5 meters)
Dynamic: Typical = 10 ppm (2 sigma)
0.002" (50 µm) at 16 feet (5 meters)

Innovative Accessories

API offers a wide range of measurement accessories and tools that expand the capabilities of the Laser Tracker II. These accessories include:

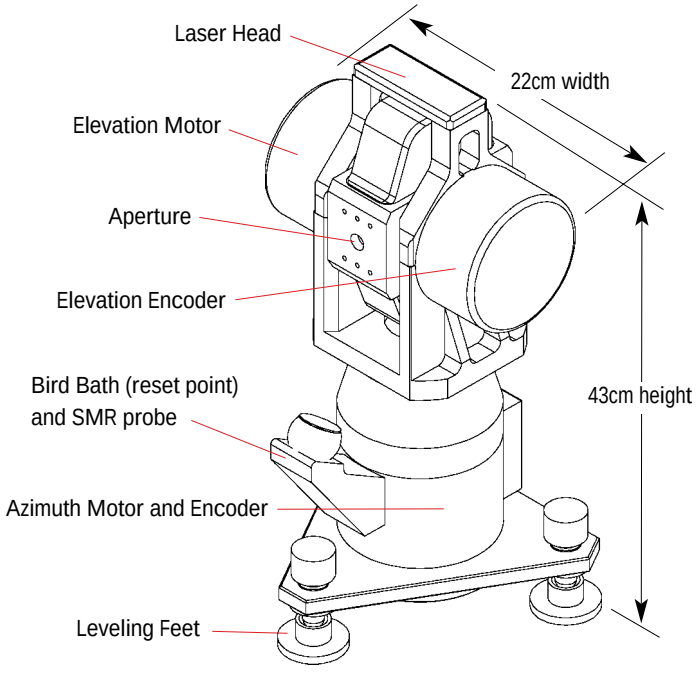
- API Portable Tripod
- Horizontal Mounting Bracket
- Calibration Accessories
- Remote Control with LCD Display
- Level Accessory
- Hidden Point Tools
- Measurement Tool Kit

CAUTION

LASER RADIATION-
DO NOT STARE INTO BEAM

Helium Neon Laser
1 milliwatt max / cw

Class II Laser product



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