Automated Precision Inc.
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Smart^{TRAK} ™ Sensor

The Smart^{TRAK} ™ Sensor for the Laser Tracker II $^{PLUS!}$ ™ is a major breakthrough for large scale measurement and alignment applications. This enabling measurement tool can be used to determine the position (x, y, z) and rotational orientation (pitch, yaw, roll) with a single tracker. No longer is it necessary to use three trackers to determine real-time part orientation.

Applications

- Large assembly alignment
- Machine tool calibration, 5-axis
- CMM calibration
- Robot calibration
- Hidden point measurement

Portable

Weighing only 1.4kg (3.1lbs), the compact Smart^{TRAK}™ Sensor makes it ideal for direct mounting on alignment fixtures and robot arms.

Smart^{TRAK} ™ In Operation

A motorized receiver within the Smart^{TRAK} ™ Sensor tracks the laser beam providing object pitch and yaw information in real-time. A proprietary roll detection system provides object roll angle. The Smart^{TRAK} ™ Sensor greatly simplifies instrument and software complexity to perform intricate alignment tasks.

Use the Smart^{TRAK} ™ Sensor with the Laser Tracker II$^{PLUS!}$ ™ to perform complex alignment tasks. This option expands the capability of the standard Tracker II$^{PLUS!}$ ™ to perform alignment tasks in real-time. The Smart^{TRAK} ™ Sensor can be added to the Laser Tracker II$^{PLUS!}$ ™ at any time.

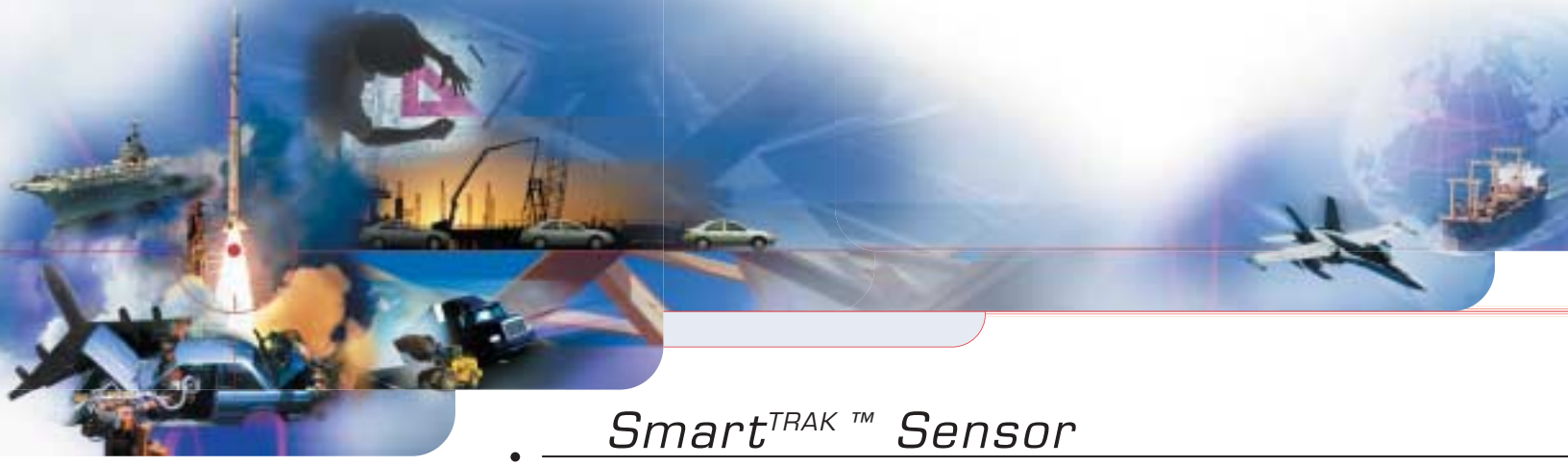
Any Laser Tracker II or II$^{PLUS!}$ ™ can be upgraded to a Smart^{TRAK} ™ 6D Laser Tracker

Laser Tracker II$^{PLUS!}$ ™

Designed with the user in mind, the Laser Tracker II$^{PLUS!}$ ™ advanced optical design translates to precise accuracy and measurement reliability. The Tracker II$^{PLUS!}$ ™ is designed to operate where the most benefit is realized.....on the shop floor.

Superior Accuracy

No other tacker can match the accuracy and reliability of the Laser Tracker II$^{PLUS!}$ ™. It is the most versatile laser tracker available for dimensioning, tool building, alignment, and reverse engineering applications.



SmartTRAK ™ Sensor

Specifications

SmartTRAK ™ Sensor

Pitch:	± 55°
Yaw:	± 155°
Roll:	± 30°
Angular resolution SmartTRAK ™Sensor:	± 3 arc-sec
Weight:	1.4kg (3.1lbs)

6D Laser Tracker IIPLUS! ™

Maximum lateral target speed: > 3.0 meters/sec (120″/sec)
Maximum acceleration in all directions: > 2 g
Range of Measurements:

Horizontal:	± 300° (600° end-to-end)
Vertical:	+ 80°
	- 60°
Distance:	greater than 40 meters
Angle Resolution:	0.14 arc second

Interferometer Mode:

Distance Resolution:	± 1 µm
Repeatability:	± 2.5 ppm (2 sigma)

Absolute Accuracy in 3D Spatial Measurement:

Static:	± 5 ppm (2 sigma)
	0.001″ (25 µm) at 16 feet (5 meters)
Dynamic:	± 10 ppm (2 sigma)
	0.002″ (50 µm) at 16 feet (5 meters)

ADM Mode:

Distance Resolution:	± 1 µm
Repeatability:	± 25 µm
Accuracy	± (25 µm + 2.5ppm)

Weight of Tracker Head:	8.5kg (18.5lbs)
Weight of Controller:	3.2kg (7lbs)
Total Package Weight:	23kg (50lbs) (includes carrying case, tracker, controller, tools, cable, accessories)

All above stated accuracy and repeatability are in compliance with ASME-B89 Dimensional Measuring Standards

Absolute Distance Measurement (ADM)

The Absolute Distance measurement (ADM) option greatly expands the measurement capabilities of the Laser TrackerIIPLUS! ™. Use ADM to quickly measure inaccessible targets or to automate repetitive measurement tasks. With ADM you can quickly measure remote points in seconds. The ADM technology is based upon API's new innovative repetitive time-of-flight technique(pat. pend.) (RTOF) offering fast response, superior stability and accuracy, in an industrial environment.

Unmatched Portability

The Laser TrackerIIPLUS! ™ sets the standard in tracker portability. Weighing only 8.2kg (18lbs), measuring 36cm (14in) in height, and 19cm (7.5in) in width, it is the most portable tracker available.

Service Excellence

API's commitment to excellence extends beyond technology and underlies our dedication to quality in product, technical support, service, and customer satisfaction. This commitment, coupled with our expertise in metrology and laser technology, enables API to serve the world's leading manufacturing firms and research institutions.