

API

Integrated Laser Tracker (iLT)





Introducing iLT A GAME-CHANGING TECHNOLOGICAL BREAKTHROUGH

The Integrated Laser Tracker (iLT), API's 6th generation Laser Tracker, represents the pinnacle of Laser Tracker technology refinement. iLT has been engineered to be the most portable, user-friendly Laser Tracker ever designed and features several improvements over the previous generation.

iLT reduces the weight of Radian, already the lightest Laser Tracker on the market, by 50%, weighing just 4.9kg with the hot swappable battery included. That battery, along with on board controller and Wi-Fi, creates a fully integrated unit that allows for cableless operation and the most portable measurements ever, even in confined spaces without hazard.

iLT Game-Changing Enhancements

iLT's improvements also include performance enhancements. The high accuracy Absolute Distance Measurement (ADM) laser provides data feedback 4x faster than the previous generation, giving faster measurement data and more dense point-clouds. iLT also features an improved 8MP camera with wide-angle iVision™ fast auto-lock for rapid recapture of beam loss and effortless usability in difficult to access line-of-sight measurements. And the traditional CPU has been upgraded to an AI-enhanced GPU that processes data and images faster for rapid results.

iLT is API's most On Demand tracker yet. Measure absolutely anywhere with the smallest, lightest, fastest, most accurate Laser Tracker ever made.



THE SMALLEST, LIGHTEST, FASTEST, MOST ACCURATE LASER TRACKER EVER!

- **Absolute Distance Measurement (ADM)** - iLT and iLTx use a high-accuracy ADM laser, with a data acquisition rate of 1Khz.
- **8MP iVision Camera with Live Streaming** - iLT's 8MP camera with iVision improves on the previous IR camera for better target selection and Autolock functionality for beam recapture and confined measurements.
- **Size and Weight** - iLT is half the size and weight of our current Radian tracker models, due to the significant reduction in size and weight there are endless application possibilities.
- **Dual Level Design** - The dual level construction (instead of single level models) allows for dynamic accessory use.
- **Portability and Flexibility** - At less than 5 kg, iLT can be mounted in any orientation and fits in a small carry-on case.
- **Fully Integrated Unit** - The integrated controller and cableless operation allows for measurement in more confined spaces without hazard.
- **On-Board Wireless Technology** - Integrated Wi-Fi reduces set-up time and eliminates fuss.
- **Battery Operation** - iLT can measure for up to 4 hours (per hot-swappable battery) without an AC power source. Additional external batteries can extend measurement time.
- **Environmental Compensation** - onboard weather station ensures accuracy in different operating conditions from -10° C to 45° C.
- **GPU "AI Enhanced"** - Traditional CPU has been replaced with the state-of-the-art latest graphic processing unit for faster data and image processing.



Backpack Portability

UNPARALLELED PORTABILITY, ENDLESS APPLICATIONS

iLT continues API's legacy of continuous innovation for industrial dimensional metrology equipment, a constant effort to provide the most speed, reliability, and ease of use in Quality Assurance measurements, proving that there is truly Nothing Beyond Measure.

iLT's extreme portability can be transported in a backpack small enough to be carried on to a plane. And with accuracies equal to that of Radian, iLT is perfect for any measurement application needed for manufacturing across Automotive, Aerospace, Shipbuilding, Energy, Heavy Industry, Machine Tools, Tooling, and more. And with productions becoming more heavily integrated with Industry 4.0 automation, iLT was designed to be the Automated Tracker, with integrated controller, wireless operation, MeasurePro Software for programming, and unprecedented measurement speed.



iLT Measurement Applications

- Adaptive Control
- Robot Tracking
- Jigs, Fixture & Tooling Inspection
- Reverse Engineering
- Alignment & Calibration
- Part Measurement
- 6DoF Positional Tracking
- Measurement Cells

iLT MEASUREMENT ACCESSORIES

iLT works with all Radian Laser Tracker accessories (including vProbe, iScan3D, and i360), and it introduces a new accessory to the API family: iProbe.



iProbe

iProbe is an easy-to-use, handheld tactile probe with ergonomic grip and flexible stylus and button locations for measurements in every orientation. iProbe will work exclusively with iLT, providing a low-cost option for capturing difficult line-of-sight measurements without time-consuming tracker repositioning.

Measurement Softwares

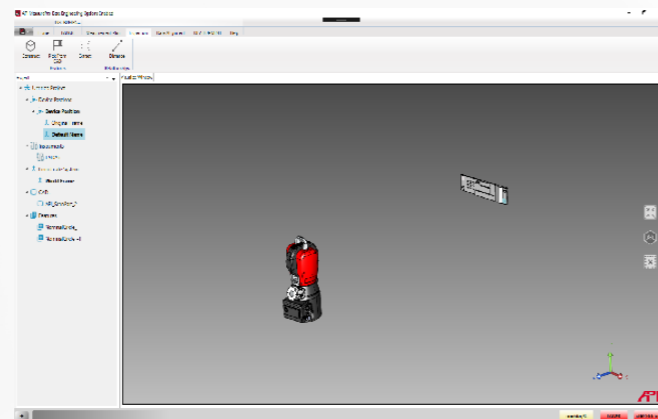
API MeasurePro

API's MeasurePro software was designed to be the complete automation software, capable of controlling 9D LADAR, Radian, i360, Industrial Robots, and other elements of the automation cell from one location to reduce manhours and increase throughput. This single simulation environment means that inspection paths are automatically generated from CAD part data with interactive robot measurement path definition based on optimum sensor angle and standoff.

MeasurePro captures the generated sensor point cloud data in real-time with dynamic on-screen representation. Physical part alignment, imported CAD part feature extraction, and measurement analysis are seamlessly generated. Geometrical analysis of features and surfaces from point cloud data can be performed directly in MeasurePro along with the creation of a digital twin of the measured part by direct comparison with nominal part CAD data. Different functional groups within the software are laid out in different sub-menus across the top of the screen to compartmentalize the various hardware components of your inspection cell. The entire automated measurement path (and each group's role within it) is listed in the side panel, along with the various layers of real-time measurement data, for easy manipulation of

the entire automation setup. Measurement selections can be made using the data plane or 9D LADAR high-definition camera for simple, streamlined feature selection. Data in the plane can also be rotated or zoomed in any orientation, with easy right-click menu options available for additional measurement features, reporting, or to repeat the measurement path.

With API's MeasurePro in a fully integrated automation cell, a single person at a computer can perform the quality inspection process for a rotary cell, in-line or assembly line spur, or large rail verification in a fraction of the time it used to take a team of people.



iLT and iLTx Laser Tracker

Product Specifications		
Range of Measurements	iLT	iLTx
Linear Range (Diameter)	25m Radial	80m Radial
Minimum Measurement Distance	0m	0m
Azimuth Range	± 320° (640° end to end)	± 320° (640° end to end)
Elevation Range	-59° to 79°	-59° to 79°
Internal Level Range	± 5°	± 5°
3D Measurement Performance		
Volumetric Accuracy	±15 µm + 10 µm/m*	±15 µm + 5 µm/m*
Angular Performance		
Axial Angular Accuracy	3.5 µm/m**	3.5 µm/m**
Maximum Angular Speed	180° / sec	180° / sec
Maximum Angular Acceleration	180° / sec ²	180° / sec ²
Internal Level Accuracy	± 2 arcseconds	± 2 arcseconds
Linear Performance		
Accuracy	±15 µm + 2µm/m*	±15 µm + 0.7µm/m*
Autolock Performance		
Field of View	30° (diagonal)	30° (diagonal)
Acquisition Range	2m to 25m	2m to 40m
Environmental		
Operating Temperature	-10°C to 45°C	-10°C to 45°C
Relative Humidity	10-95% non-condensing	10-95% non-condensing
Altitude	-700m to 3000m	-700m to 3000m
Dimensions		
Tracker Weight	4.9 kg (11lbs) with battery	4.9 kg (11lbs) with battery
Tracker Size	330mm x 152mm x 152 mm (13in x 6in x 6in)	330mm x 152mm x 152 mm (13in x 6in x 6in)

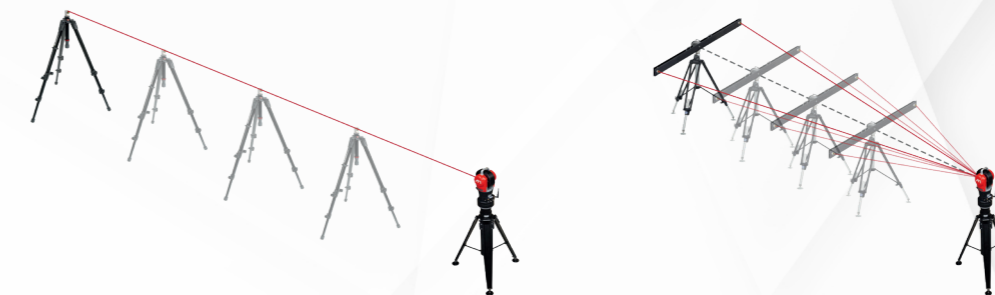


VOLUMETRIC ACCURACY (MPE)

*Measurement of a ScaleBar per ASME B89.4.19-2006
 **Specifications are listed in MPE
 ***Capable of hot-switching with External battery
 Laser Safety: Class II (IEC60825-1)

Already Integrated with a 3rd party software?

All of API's iM equipment is already integrated with all major 3rd part software programs, including Metrologic, Polyworks, and Spatial Analyzer.



Range	MPE iLT	MPE iLTx	Range	MPE iLT	MPE iLTx
2 to 5 m	0.025 mm	0.018 mm	2 m	0.070 mm	0.035 mm
2 to 10 m	0.035 mm	0.022 mm	5 m	0.114 mm	0.057 mm
2 to 25 m	0.065 mm	0.033 mm	10 m	0.184 mm	0.092 mm
2 to 50 m	--	0.050 mm	25 m	0.326 mm	0.163 mm
			50 m	--	0.375 mm

The **ASME B89.4.19-2006 standard** prescribes a series of tests for evaluating the performance of spherical measurement systems. These values represent the Maximum Permissible Error (MPE) between a verified Scale Bar and the expected performance of the instrument.

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