

# Rotating Laser Multi-Target System.



# The OT-5000 RLT. Multi-Target, One Dimensional Alignment.

The OT-5000 RLT Rotating Laser Target System, in tandem with a rotating laser, is the most comprehensive way to measure flatness, squareness and straightness at distances up to 100 feet.

## Dynamically Monitor Your Entire Project.

The OT-5000 RLT enables you to monitor the position of up to twenty targets from the convenience of your laptop or desktop computer — simultaneously, and in real time.

Extensively proven in a wide range of applications worldwide, the OT-5000 is an ideal way to streamline efficiency and reduce man hours.

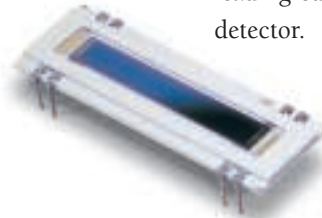
A compact carrying case (standard) houses the entire system: the OT-5000 RLT Rotating Laser Targets that detect and display the position of the rotating laser, the OT- 5000 DIM Digital Interface Module that provides power for up to twenty OT-5000 RLTs, and the cables.

## Multiple Target Capability.

Specify as few — or as many — RLT targets required for the job. Each DIM accommodates up to twenty targets in a multidrop configuration.

## Exceptional Accuracy.

Optimize precision and gain an added measure of confidence. The OT-5000 provides conservatively-specified 0.001-inch resolution and accuracy via a leading-edge silicon position sensing detector.



*Silicon Position Sensing Detector.*

## Computer Control.

Beam-Trak 5000 software makes it easy to dynamically monitor work in progress. This rich graphical interface displays the position information of all targets simultaneously. One glance at the screen, and you know the precise measurement profile of your entire project. Oversize fonts enable easy readability over great distances.

Moreover, Beam-Trak software enables you to address, control and customize each target from your computer. In fact, the complete range of software commands built into each target is fully controllable via computer.

## Compatible With All Rotating Lasers.

The OT-5000 System is plug-and-play compatible with all rotating lasers on the market. Four-level autoranging from 0.5mW to 5.0mW and compatibility with all laser tracking speeds from 1 RPM to 1,000 RPM make compatibility instantaneous. Simply plug-in the laser, adjust your targets and begin taking measurements.

1. Carrying Case
2. Applications Software
3. Rotating Laser Target
4. Digital Interface Module



# Rotating Laser Alignment At A Glance.

## How Rotating Laser Alignment Works.

The principle of rotating laser alignment is simple. A rotating laser, spinning at up to 1,000 rotations per minute, creates a solid plane of light that serves as a measurement reference. While typically leveled to gravity, the rotating laser can be mounted vertically as well as horizontally, or anywhere in-between.

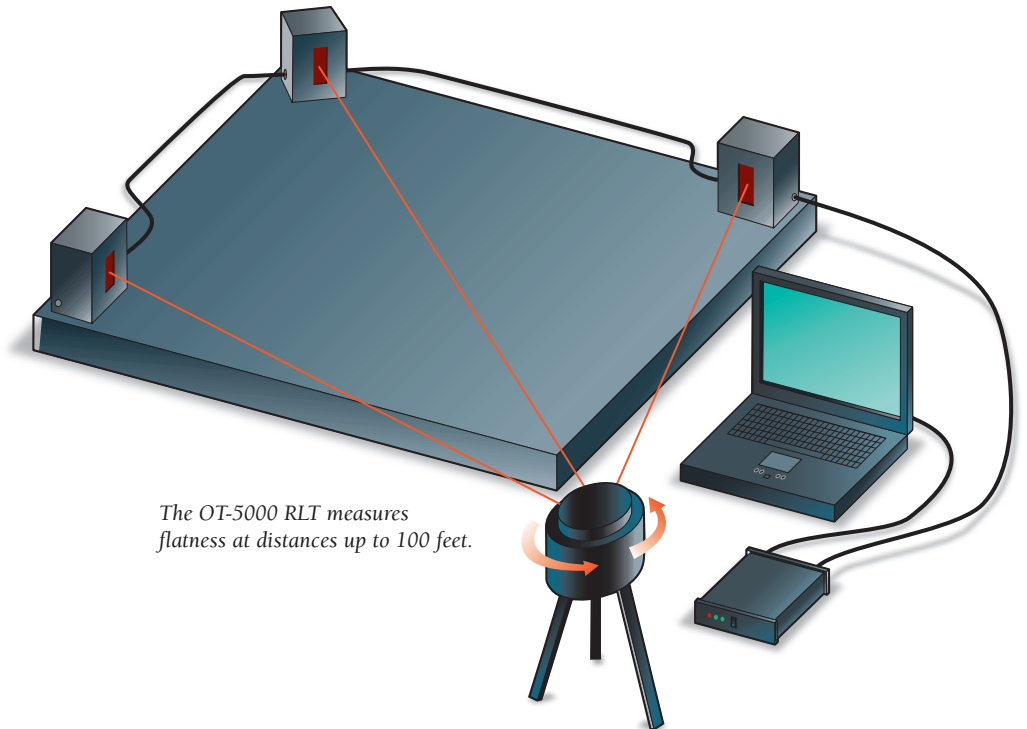
Next, a rotating-laser target, mounted to the measurement tool, senses the position of the laser light within 0.001 of an inch each time the laser sweeps by. Multiple targets can be mounted at different points along the laser path.

Lastly, data from the target(s) is fed to a central processing unit which displays the position information in real time. When multiple targets are used, data from all targets is typically fed to a laptop computer for simultaneous display, comparison and analysis.

## The Rotating Laser Advantage.

Rotating laser alignment provides significant advantages over manual alignment techniques.

- **Ultra Precise.** Eliminates margin of error associated with subjective manual approaches.
- **Real-Time Feedback.** Enables user to make on-the-spot alignment adjustments.
- **Faster Measurement.** Reduces man hours and facilitates project efficiency.
- **Greater Range.** Perform measurements at distances up to 100 feet.

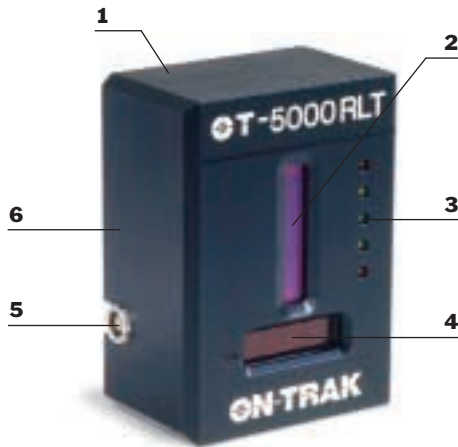


The OT-5000 RLT measures flatness at distances up to 100 feet.

- **Simultaneous Measurement.** Enables simultaneous measurement from multiple targets.
- **Data Analysis.** Position data can be monitored, stored and analyzed by a computer.

## OT-5000 Applications: Flatness, Squareness, Straightness.

- Machine Tool Alignment
- Steel Mill Alignment
- Process Mill Alignment
- Horizontal Flatness Alignment
- Turbine Pad Leveling
- Surface Leveling
- Roller Alignment
- Aircraft Assembly
- Fuselage Alignment
- Storage Bin Alignment
- Seat Track Alignment
- Floor Beam Alignment
- Body Join Alignment



OT-5000 RLT

ROTATING LASER TARGET

- 1 **ENCLOSURE.** Made from durable custom-machined aluminum.
- 2 **CAPTURE HEIGHT.** 1.2 inches.  
**Calibration.** The RLT is electronically centered and calibrated. This information is stored in non-volatile memory so the target can be rotated 180° around the center locating dowel pin to maintain zero. The detector is centered within the enclosure and works both in the horizontal and vertical position.  
**Accuracy And Linearity.** The accuracy of the beam striking the detector is  $\pm 0.001$  inches. The linearity of the detector is 0.1%. Overall measurement range is determined by the detector's length minus the laser's beam diameter.
- 3 **LASER STRIKE INDICATORS.** Three individually colored LEDs provide visual confirmation of the beam position relative to the target. This user-programmable feature comprises the following:
  - Green indicates the beam is dead center.
  - Yellow indicates the beam is within acceptable range.
  - Red indicates the beam is out of range.
- 4 **BUILT-IN POSITION DISPLAY.** A  $\pm 4$ -digit red LED display provides readout of real-time position information. Large digits ensure easy viewing — even from many feet away.
- 5 **LEMO CONNECTORS.** In/out Lemo connectors enable easy RS-485 multi-drop daisy chain configuration.



OT-5000 RLT

ROTATING LASER TARGET (CONT)

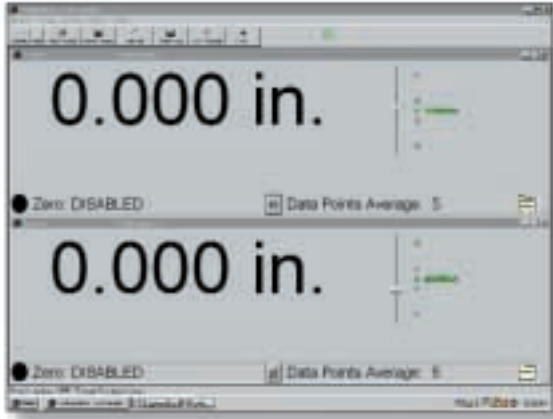
- 6 **LASER TRACKING SPEED.** Automatically detects and accurately processes rotating-laser speeds from 1 RPM to 1000 RPM. The target can be up to 100 feet from the laser source.
- 7 **MOUNTING.** Two precision locating dowel pins on the rear of the housing make it simple to mount and register the target. Tapped mounting holes ensure secure mounting.



OT-5000 DIM

DIGITAL INTERFACE MODULE

- 1 **POWERS UP TO TWENTY TARGETS.** Provides power for up to twenty OT-5000 RLT Rotating Laser Targets in a multidrop configuration.
- 2 **CONVERTS RS-485 TO RS-232.** The DIM maximizes operating ease by converting the RS-485 output from each RLT target into RS-232 serial output.



OT-5000

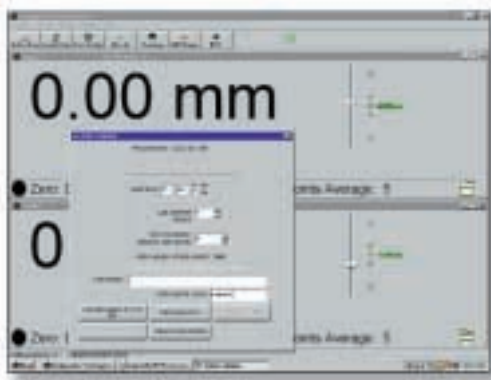
BEAM-TRAK 5000 SOFTWARE (OPTION)

**SIMULTANEOUSLY VIEW ALL TARGETS.** View position information of each target simultaneously and in real time.

**CUSTOMIZE PARAMETERS.** Select measurement units, set resolution, toggle zero offset and customize display with desired fonts and font sizes. Then save all settings for instant recall.

**COMMUNICATE WITH TARGETS.** Assign and change target name, and set the internal target address. Then save these settings for instant recall.

**INTUITIVE OPERATION.** Minimal, straightforward controls ensure simple operation and a fast learning curve.



A data logging feature enables you to select the start time and duration of data capture. Then, save data to a unique file name and add comments.



Portable, Accurate Single-Axis Measurement:  
**OT-200**

The OT-200 Rotating Laser Target System provides a portable and accurate way to measure flatness, squareness and straightness at distances up to 100 feet.

- **Fully Portable.** Rechargeable NiCad batteries provide up to 6 hours of continuous operation.
- **Ultra Precise.** Advanced silicon position sensing detector provides  $\pm 0.001$  inch resolution and accuracy.
- **Fast, Flexible Measurement.** An optional bracket kit with heavy magnetic base enables instant measurement anywhere on beam path.
- **Rugged.** Key components are encased in robust custom-machined aluminum housings.
- **Simple Operation. Optimized for Operating Ease.** Key functions include pulse averaging, zero offset and a serial communications port.
- **Compatible With All Rotating Lasers.** 4-level autoranging and laser tracking speeds from 1 to 1000 RPM ensure instant compatibility.

For complete information on the OT-200, please contact On-Trak today.



Since 1992, On-Trak Photonics, Inc. has provided advanced position sensing and alignment solutions to companies ranging from Fortune 500 corporations to small industry start-ups. We pride ourselves not only on superior product, but exemplary service and support that goes the extra mile. Before, during and after the sale.

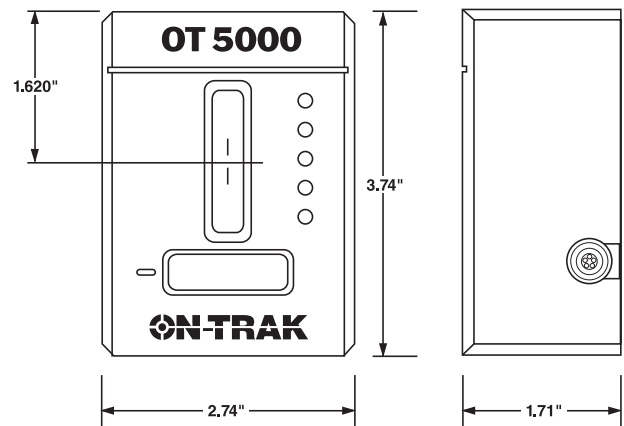
Please contact us today for more information on the OT-5000 RLT System, and for details on our complete line of solutions for laser-based alignment.

## OT-5000 System Specifications

### OT-5000 RLT And OT-5000 DIM

|                             |  |
|-----------------------------|--|
| <b>Resolution</b>           | 0.001 inches   |
| <b>Power</b>                | 500mA/12V DC wall charger                                    |
| <b>Power Range</b>          | 0.1 mW to 5 mW   |
| <b>Rotational Speed</b>     | 0-1000 RPM   |
| <b>Distance</b>             | 0-100 feet   |
| <b>Communication</b>        | RS-485 Multidrop (RS-485 to RS-232 converter in OT-5000 DIM) |
| <b># Of Targets In Loop</b> | Up To Twenty OT-5000 RLT Targets Per Each OT-5000 DIM        |
| <b>Display</b>              | LED 4 digit  |
| <b>Communication</b>        | RS-232 ASCII format  |
| <b>Operating Temp.</b>      | 25° to 125° F  |
| <b>Storage Temp.</b>        | -10° to 149° F   |

### OT-5000 RLT Dimensions



### OT-5000 RLT Mounting Pattern

