

Rotating Laser Target System.



ON-TRAK[®]
Photonics, Inc.

The OT-2020. Portable, Accurate Measurement.

The OT-2020 Rotating Laser Target System, in tandem with a rotating laser, provides the fastest, most accurate way to measure flatness, squareness and straightness at distances up to 100 feet.

Battery operated for maximum field portability, the OT-2020 is proven in a wealth of applications — many by Fortune 100 companies.

A compact carrying case (standard) contains the entire system: the Model OT-2020 RS1 Remote Sensor that detects the position of the rotating laser light, the Model OT-2020 CPU Central Processing Unit that provides real-time readout of the measurement value, plus several options for additional flexibility and convenience.

Exceptional Accuracy.

Optimize precision and gain an added measure of confidence. The OT-2020 RS1 Remote Sensor provides conservatively-specified 0.001-inch resolution and accuracy via a leading-edge silicon position-sensing detector.

Fully Portable.

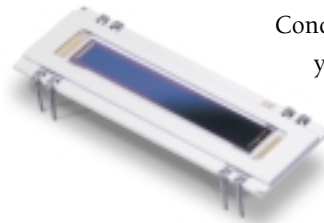
Place the RS1 Remote Sensor into the optional OT-2020 BK Bracket Kit, and conveniently make instantaneous measurements anywhere along the laser beam path. Featuring a heavy magnetic base that activates/deac-

tivates at the flip of a switch, the bracket can be firmly — and instantly — secured anywhere on the measurement surface or tool.

Ultra-Simple Operation.

Concentrate on your work, not your rotating laser system. The OT-2020's CPU is refreshingly simple to operate. Minimized, straightforward controls enable you to be up-and-running with barely a glance at the instructions.

Yet, there is no sacrifice to performance. The CPU provides all key functionality, including pulse averaging, zero offset and a serial communications port.



Silicon Position Sensing Detector.



1. Carrying Case
2. Remote Data Terminal (option)
3. Remote Sensor
4. Central Processing Unit
5. Bracket Kit (option)

Industrial Strength.

Encased in robust, custom-machined aluminum housings, the OT-2020 CPU and RS1 readily withstand the rigors of extreme industrial environments. We've seen systems scratched, dented and covered in grime — yet perform flawlessly after years of continuous service.

Compatible With All Rotating Lasers.

The OT-2020 System is plug-and-play compatible with all rotating lasers on the market. Four-level autoranging from 0.3mW to 3.0mW 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.

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 target 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.

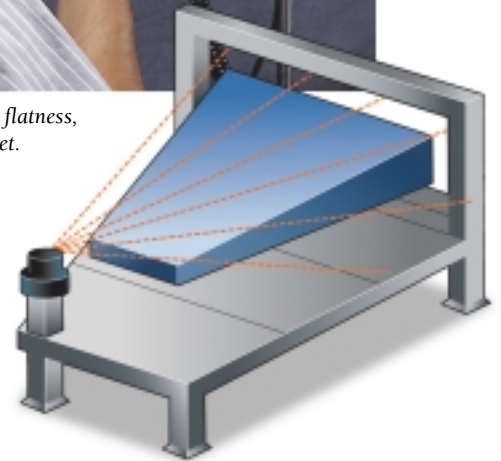
Rotating laser alignment provides significant advantages over manual alignment techniques.

- **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.



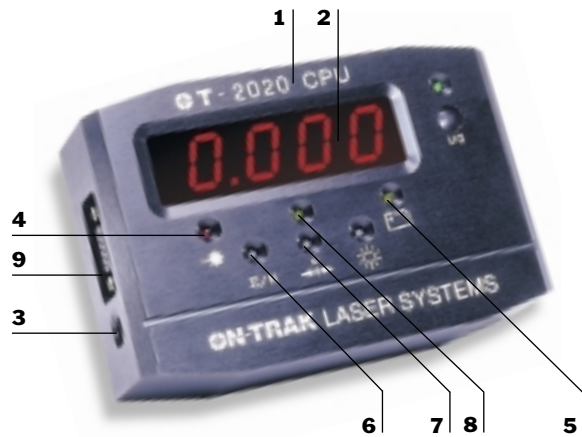
The OT-2020 Rotating Laser Target System measures flatness, squareness and straightness at distances up to 100 feet.

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



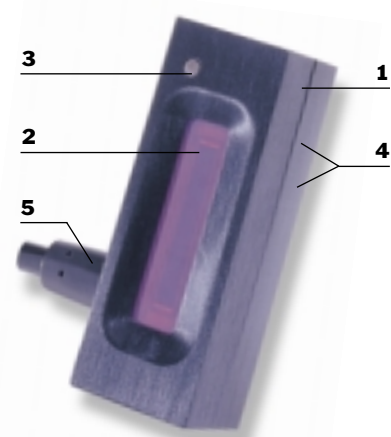
OT-2020 Applications: Flatness, Squareness, Straightness.

- 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-2020 CPU | **CENTRAL PROCESSING UNIT**

- 1 **ENCLOSURE.** Measures 6 x 4 x 1.75 inches (H x W x D). Made from durable custom-machined aluminum.
- 2 **DISPLAY.** A ± 4 digit LED with 0.8-inch high digits provides easy readout. 7-level programmable brightness (plus off) conserves battery life.
- 3 **POWER.** An internal rechargeable NiCAD battery pack provides 4 to 6 hours of continuous use, depending on LED brightness. Alternately, the included AC wall charger provides system power while simultaneously recharging the batteries.
 - Sleep Mode.** Shuts off the CPU after five minutes of continuous inactivity (laser pulse acquisition, key entry, serial port communications) to maximize battery life. All current settings are saved.
- 4 **LASER INDICATOR.** A red LED flashes whenever the laser strikes the detector.
 - Laser Tracking Speed.** Automatically detects and accurately processes rotating-laser speeds from 1 RPM to 1000 RPM. The target can be as far 100 feet from the light source without affecting the accuracy of the output signal.
- 5 **LOW BATTERY INDICATOR.** A yellow LED flashes continuously when batteries are low.
- 6 **PULSE AVERAGING.** Enables user to adjust the number of laser pulses to be averaged, from 1 to 50.
- 7 **ZERO OFFSET ADJUST.** Allows the user to set the zero at any point on the detector other than the mechanical/electrical zero.
- 8 **ZERO OFFSET ENGAGED.** A yellow LED illuminates continuously when the zero offset adjustment is engaged.
- 9 **SERIAL COMMUNICATIONS.** Collect data and perform calibration tasks via the CPU's RS-232 serial communications port.



OT-2020 RS1 | **1" REMOTE SENSOR**

- 1 **ENCLOSURE.** Measures 2.75 x 1 x 1 inches (H x W x D). Made from durable custom-machined aluminum.
- 2 **CAPTURE HEIGHT.** 1 inch.
 - Calibration.** The RS1 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 ± 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 INDICATOR.** A red LED flashes whenever the laser strikes the detector.
- 4 **MOUNTING.** Two locating dowel pins are provided on the back of the housing. Additionally, tapped mounting holes ensure secure mounting.
- 5 **COIL CORD.** A 12 foot stretched coil cord with strain relief and DB-15 connectors links the RS1 Remote Sensor with the CPU Central Processing Unit.

Optional Tooling Sphere Configuration. Working with tooling spheres? Select the optional Model OT-2020 TS1



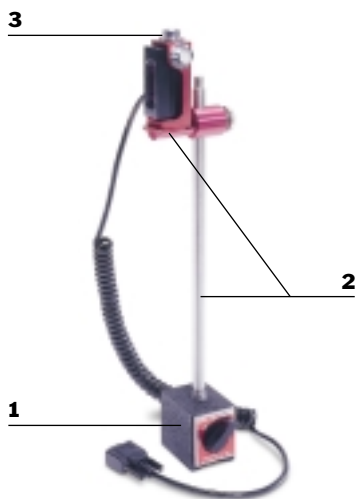
Tooling Sphere Sensor. It provides identical performance to the RS1 Remote Sensor in a package that fits any standard tooling sphere. Custom configurations are also available.



OT-2020 RDT

REMOTE DATA TERMINAL (OPTION)

- 1 **ENCLOSURE.** Measures 7.7 x 4.2 x 1.6 inches (H x W x D). Impact resistant black ABS.
- 2 **DISPLAY.** 4-line by 20-character supertwist backlit display.
- 3 **FUNCTION KEYS.** Pulse average, zero offset, display brightness and status.
- 4 **CABLE.** Operate remotely up to 50 feet away from the CPU Central Processing Unit.



OT-2020 BK

BRACKET KIT (OPTION)

- 1 **HEAVY MAGNETIC BASE.** Firmly secures the bracket kit. An on/off switch activates/deactivates the magnet.
- 2 **FLEXIBLE ADJUSTMENT.** 22-inch vertical adjustment and 360° tilt enable the user to place the sensor in a wide variety of positions.
- 3 **LEVEL INDICATORS.** Built-in bubble vials provide adjustment with 0.5° accuracy.

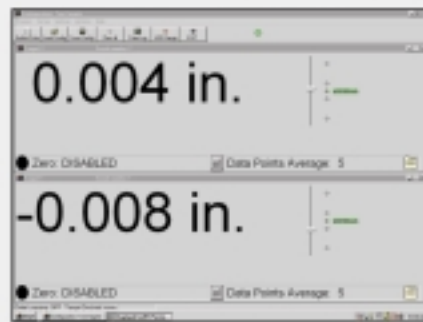


Additional Laser Alignment Solution:

OT-5000 RLT

The OT-5000 RLT Rotating Laser Target is ideal for rotating laser applications requiring simultaneous measurement of multiple targets. Simultaneously measure up to 20 targets in a multi-drop loop; all data is transmitted over RS485 cable for real-time data analysis and readout via simple-yet-sophisticated Windows-based software.

- Real-time data analysis and display via dedicated Windows-based software.
- Data logging capability.
- Bright LED position display on target.
- High/low/center LEDs.
- Exceptional ± 0.001 inch resolution and accuracy.
- Data logging capability.



Windows-based Beam-Trak 5000 software.

For complete information on the OT-5000 RLT, 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-2020 Rotating Laser Target System, and for details on our complete line of solutions for laser-based alignment.

OT-2020 System Specifications

OT-2020 CPU Central Processing Unit

Resolution	0.001 inches
Power	Rechargeable NiCad batteries 500mA/12V DC wall charger
Battery Life	4 to 6 hours, depending on display brightness setting
Display	LED 4 digit, programmable bright- ness of 8 levels. 0.8 inches high
Communication	RS-232 ASCII format
Operating Temp.	25° to 125° F
Storage Temp.	-10° to 149° F
Weight	30 oz.
Dimensions	4 x 6 x 1.75 inches (H x W x D)
Mounting	Six 8-32 tapped holes on back of CPU housing

OT-2020 RS1 1" Remote Sensor

Repeatability	0.001 inches
Capture Height	1.0 inches
Accuracy	0.001 inches
Linearity	0.1%
Operating Temp.	25° to 125° F
Storage Temp.	-10° to 149° F
Weight	9 oz.
Dimensions	2.75 x 1 x 1 inches (H x W x D)
Mounting	2 locating dowel pins. Three 8-32 tapped holes on back of RS1 housing

OT-2020 RDT Remote Data Terminal

Display	4 x 20 Supertwist LCD backlight
Communication	RS-232
Power	6AA Alkaline
Battery Life	45 hours
Operating Temp.	25° to 125° F
Storage Temp.	-10° to 149° F
Weight	20 oz.
Dimensions	7.7 x 4.2 x 1.6 inches (H x W x D)

RS1 Mounting Pattern

