

## Model T-261 Four-Axis Simultaneous Target Model T-212 4-Axis General Purpose Target

*Simplify alignments with these 4-axis targets  
that provide both centering and  
squareness measurements*

### The T-261 Four-Axis Simultaneous Target

The T-261 4-Axis target reads horizontal and vertical centering and angular (pitch and yaw) data *simultaneously* and provides continuous, real-time information to a live graphic display, enabling the user to see changes and adjustments *as they are made*.

The target can be used with most of Hamar Laser's readouts and interfaces, both manual and computerized. Two levels on the top and bottom of the target provide accuracy in rotational positioning for our NORMin procedure. The target's .5 in. (12.7 mm) diameter mounting stud simplifies fixture design and building, and the stud can be easily removed and replaced with a custom mounting stud or fixture. A .500 in. (12.70 mm) hole reamed square to a face is all that is needed to mount the target.

The T-261 is factory-aligned to tight specifications, with a center resolution of .00001 in. (0.00025 mm) angular resolution of .00001 in/ft (0.0008 mm/m). When used with Hamar Laser's alignment software, our NORMin procedure compensates for mounting and other errors for even greater accuracy.

### The T-212 Four-Axis Target

The T-212 4-Axis Target provides both 2-axis centering and squareness (pitch and yaw) measurements with one setup. When used with the R-358 Computer Interface, the T-212 has a center resolution of .00001 in. (0.00025 mm) and an angular resolution of .00001 in/in (0.01 m/m). To switch from center mode to squareness mode, a precision lens with a 1 in. focal length is inserted into the face of the target. A .500 in. (12.7 mm) diameter stud at the rear of the target allows easy mounting and simplified fixture design, and the target can be used with a wide variety of Hamar's lasers and readouts. The target is particularly useful for aligning headstocks to tailstocks on lathes, measuring squareness on machining centers, and aligning spindles in transfer lines.



*T-261 4-Axis Target*



*T-212 4-Axis Target*



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LASER®**  
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5 Ye Olde Road, Danbury, CT 06810 • Phone: (800) 826-6185 • Fax: (203) 730-4611  
E-mail: [sales@hamarlaser.com](mailto:sales@hamarlaser.com) • Internet: <http://www.hamarlaser.com>

# Target Features and Specifications

## T-261 Applications and Specifications

### Applications for the T-261 4-Axis Target include:

- Aerospace Tooling/Fixturing
- Boring Mill Spindle-to-Part Alignment
- Printing Press Side Frames
- Pumps, Compressors, Blowers
- Rotary Dial Machine Spindle Alignment
- Spindle Alignment
- Transfer Center Spindle Alignment
- Transfer Line Spindle Alignment

<b>Size</b>	(See drawing)	<b>Target Cell Concentricity</b>	±.0005 in. to mounting stud of target
<b>Mounting Dimensions</b>	.4995 in. (12.687 mm) diameter concentric mounting stud, replaceable	<b>Lens Axis Squareness</b>	±.0005 in/ft (.043 mm/m) to rear of target
<b>Weight</b>	14 oz. (400 g)	<b>Resolution (with R-358 Interface)</b>	.00001 in. (0.00025 mm) Center .00001 in/ft (0.0008 mm/m) Angular
<b>Material</b>	Mounting Stud: 440C Stainless Rockwell RC54-58 hardness Case: Aluminum	<b>Measurement Range</b>	±.050 in. (1.27 mm) Center ±0.5 degrees Angle
<b>Cable</b>	Length: 10 feet (3.05 m) Connector: 15-pin D Connector	<b>Linearity</b>	Within ± .025 in. (0.64 mm): linearity is <1% Outside ± .025 in. (0.64 mm): linearity is <5%

## T-212 Applications and Specifications

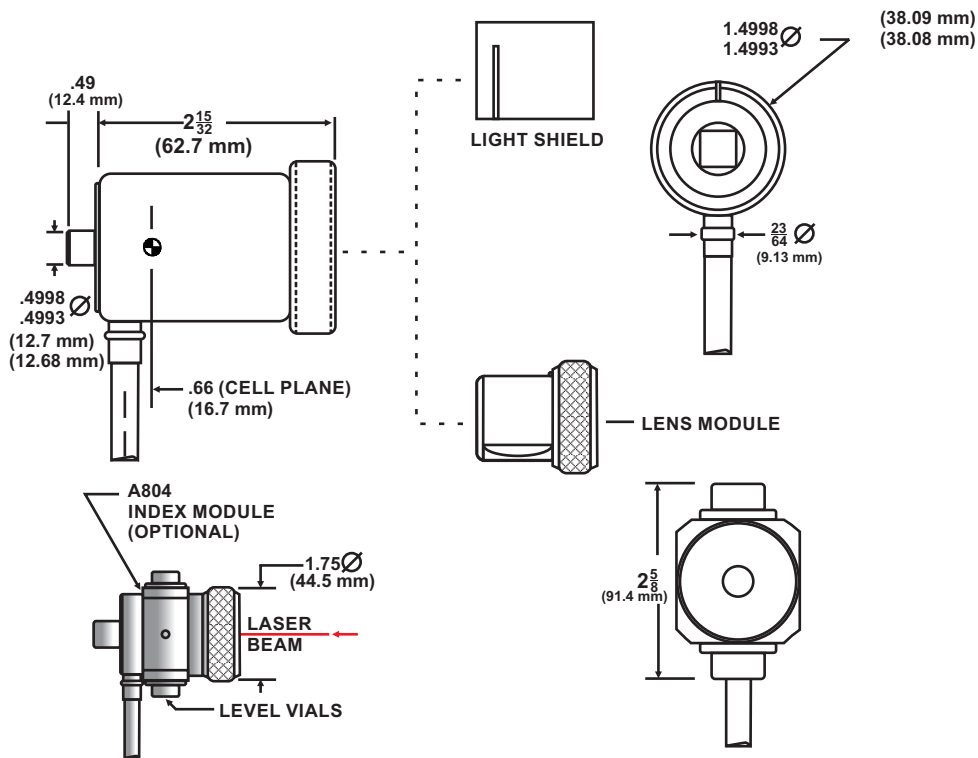
### Applications for the T-212 4-Axis Target include:

- Bar Feeders
- Boring Bar Bearings
- Lathe Alignment
- Printing Press Side Frames
- Rotary Dial Machines
- Transfer line spindle alignment
- Vertical/Horizontal Machining Centers

<b>Weight</b>	14 oz. (400 g)	<b>Repeatability of Lens System</b>	±.0001 in/in (0.1 mm/m)
<b>Material Hardness</b>	400C stainless Rockwell RC55-60	<b>Measurement Range</b>	±.150 in. (3.8 mm) in both axes
<b>Target Cell Concentricity</b>	.0005 in/in (0.5 mm/m) T.I.R. to stud of target	<b>Linearity</b>	Within ± .025 in. (0.64 mm): linearity is <1% Outside ± .025 in. (0.64 mm): linearity is
<b>Lens Axis Squareness</b>	.0005 in/in (0.5 mm/m) T.I.R. to face of target	<b>Cord Dimensions</b>	Target to connector 10 ft. (3 m)
<b>Resolution (with R-1307 Readout)</b>	Center: .00004 in. (0.001 mm) .00002 in. (0.0005 mm with Bore9/Lathe9 Angular: .00004 in./in. (0.04 mm/m) .00002 in./in. (0.02 mm/m with Bore9/Lathe9	<b>Mounting Dimensions</b>	1.500 in. (38.1 mm) O.D. with .500 in. (12.7 mm) diameter concentric mounting stud

# Target Drawings

## T-212 Four-Axis Target



## T-261 Four-Axis Target

