LTF Series

Laser Measurement Sensor

- A powerful distance measuring sensor with advanced functions including:
  - Remote teach
  - Laser inhibit
  - Delay timers
  - Advanced measuring modes
- Sensing range of 50 to 24,000 mm
- Durable metal housing rated IP67

BANNER®
Durability and Precision Measurement
The LTF laser sensor delivers both.

**Rugged**
- Rotatable M12 Euro QD for versatile mounting options
- Durable IP67-rated zinc housing stands up to extreme industrial environments

**Easy to Set Up**
- Bright LED indicators provide clear status indication for analog output, discrete output and power
- Two-line, eight-character display and pushbutton programming for easy set up, troubleshooting and real-time distance measuring

**High Power**
- Class 2 laser emitter with small, highly visible spot for easy sensor alignment and high excess gain
- Large high-performance optical receiver lens

Best-in-Class Combination of Accuracy, Repeatability, and Range

The LTF detects dark targets at 7 meters and white targets at 12 meters with repeatability <5 millimeters and accuracy from ±10 millimeters

Time-of-Flight Measurement
The LTF sensor uses time-of-flight measurement, emitting a pulsed light, measuring the amount of time for the light to reflect off the object and return to the sensor to calculate the distance. This enables sensing in long-range applications across a wide variety of targets.
Best-in-Class Performance
High excess gain. High reliability. Rugged and durable.

Applications
- Robot End Effector
- Log Dimensioning
- Automated Storage
- Palletizer
- Roll Diameter
- Transfer Press

Flexible Mounting
Consistent detection of a target at an angle

Temperature Stability
Stable performance across temperature keeps inspections running all day and night

Challenging Targets
- Shiny or metal
- Dark surface

Ambient Light Resistance
Designed to prevent errant readings due to ambient light up to and beyond 40,000 lux

Fast Response Speed
1.5ms
Measure fast moving targets with ease

Temperature Stability

Challenging Targets
- Round
- Uneven

Dynamically adjusted laser power increases output for dark targets or objects at steep angles, while reducing power for shiny targets, providing accurate measurements across a wide range of challenging targets.
**LTF Series Sensors**

**Starts Measuring Right out of the Box**
Choose from several TEACH modes and advanced settings to customize your application.

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<th>Fast and Easy Installation in Only 3 Steps</th>
<th>TEACH Modes for Any Application</th>
<th>Advanced Settings</th>
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<td>1. Mount the sensor</td>
<td><strong>2-Point Teach</strong></td>
<td><strong>Advanced Measurement Modes</strong></td>
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| Rotatable QD for flexible mounting        | Teach two targets as the end points of the analog span or discrete output window | Driven by an external trigger, the LTF can continuously measure and output values such as:
|                                           |                                 | • minimum value   |
|                                           |                                 | • maximum value   |
|                                           |                                 | • average value or more |
| 2. Align the sensor                       | **Mid-Point Teach**             | **Delay Timers** |
| Visible spot for easy alignment           | Teach a window of user-defined size around a target | The Timer option sets:
|                                           |                                 | • ON/OFF Delays   |
|                                           |                                 | • One-Shot timers between 1 to 9999 ms |
| 3. Start Measuring                        | **Switch Point Teach**          | **Cross-talk Avoidance** |
| Right out of the box the LTF provides a real-time distance measurement and the analog output measurement on an easy-to-read eight-character display | Teach target to automatically set a switching threshold in front of or behind target for background suppression or foreground suppression applications | Use Master/slave mode to eliminate any chance of cross-talk between sensor pairs. Use Laser Enable to avoid cross-talk when using more than two sensors. |
|                                           | **Push Button Adjust**          | **Invert the display** |
|                                           | Manually set analog and discrete output end points without presenting a target | Use the View option to invert the display for readability |

**Advanced Settings**

- **Invert the display**
  Use the View option to invert the display for readability

**Push Button Adjust**
Manually set analog and discrete output end points without presenting a target

**Cross-talk Avoidance**
Use Master/slave mode to eliminate any chance of cross-talk between sensor pairs. Use Laser Enable to avoid cross-talk when using more than two sensors.
Loop Control

Loop Control on a Calendering Machine

Application Challenge
Measurement of loops of material are used to adjust machine speed and avoid excessive or insufficient tension that can damage the material. The dark color and sheen of the rubber makes consistent and accurate detection at a long range difficult for most sensors.

Solution
The LTF takes advantage of high excess gain, superior signal processing and automatic adaptive laser power control to enable the sensor to reliably detect challenging dark and reflective targets from a distance and at an angle.

Advanced Settings
Set the reference point to zero at the midpoint to show the loop position measurement on the LTF display.

TEACH Mode
Teach an analog window around the ideal loop position using midpoint teach.

Teaching the ideal loop position at the mid point quickly sets the analog window to cover the full range of loop motion.

Shifting the zero reference from the face of the sensor to the midpoint allows the operator to determine if the loop is above or below the ideal position.
Weld Cell Error Proofing

Application Challenge
The presence and position of the component must be verified before the weld can be made. If the component is missing or incorrectly placed, the panel will be unusable.

Solution
The exceptional linearity, repeatability and resolution offered by the LTF ensure that the part will be detected in the correct position and any variations will result in an output sent to stop the robot before welding begins.

TEACH Mode
Set a single switchpoint for background suppression.

Advanced Settings
Laser enable

The remote input is used to turn OFF the emitter when workers are in the cell.
Discovery Mode

Easily identify which sensor on the factory floor requires maintenance by sending a signal via IO-Link to have all three lights flash.

Monitoring Levels Inside a High-Volume Hopper

Application Challenge
Dust and other debris generated during the processing of peanuts can accumulate on the face of a sensor. Gradually this can negatively affect a sensor’s performance and may result in unscheduled downtime for maintenance.

Solution
An LTF Series sensor with IO-Link communicates configuration and application trending data via an IO-Link master device to a controller on an industrial network. Monitoring data such as excess gain can help identify debris build-up and assists in preventative maintenance and maximizing machine uptime. If the sensor is ever damaged and requires replacement, configuration data saved on the IO-Link master will automatically update the new sensor.
LTF Series
Sensors

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<th>Family</th>
<th>Range (m)</th>
<th>Output</th>
<th>Laser Class</th>
<th>Sensing Mode</th>
<th>Connector</th>
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<td>12</td>
<td>I</td>
<td>C2</td>
<td>LD</td>
<td>Q</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td></td>
<td>4 to 20 mA analog</td>
<td>Laser diffuse</td>
<td>Rotatable M12 Euro QD</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td></td>
<td>and (1) NPN/PNP discrete</td>
<td></td>
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</table>

Q = Rotatable M12 Euro QD
QD models require mating cordset

Order Now

Accessories

- SMBLTFFA includes 3/8" bolt for mounting
- SMBLTFFAM10 includes 10 mm bolt for mounting
- SMBLTFFAM12 Clamps directly onto industry standard bracket systems of 1/2" or 12 mm rods
- RWAMSLTF
- SMBAMSLTIP
- Kit includes 1 mounting plate and 2 replacement windows
- SMBAMSLTFP
- Kit includes 1 mounting plate and 2 replacement windows

Power: 12 to 30 V dc
Range: 50 mm to 24000 mm (1.97 in to 472.44 in)
Response Time:
- Fast: 1.5 ms
- Standard: 8 ms
- Medium: 32 ms
- Slow: 256 ms
Operating Conditions:
- −4 °F to +131°F
- −20 °C to +55 °C
Construction:
- Housing: Die-cast zinc
- Window: Acrylic
Environmental Rating:
- IEC IP67
Repeatability (1σ):
- ± 0.15 to 2 mm
Beam Spot Size:
- 6.5 mm at 50 mm
- 10 mm at 7500 mm
- 12.5 mm at 15000 mm
- 35 mm at 24000 mm
Certifications:
- 3TJJ IND. CONT. EQ.

Type | Length | Model
--- | --- | ---
5-Pin M12/Euro-Style with Shield | 2 m (6 ft) | MQDEC2-506
| 5 m (15 ft) | MQDEC2-515
| 9 m (30 ft) | MQDEC2-530
| 15 m (50 ft) | MQDEC2-550
For right-angle models add RA to the model number. Example: MQDEC2-506RA

Type | Length | Model
--- | --- | ---
Double-ended 4-pin M12/Euro-Style (for use with IO-Link models) | 2 m (6 ft) | MQDEC-406SS
| 4 m (12 ft) | MQDEC-412SS
| 6 m (20 ft) | MQDEC-420SS
| 9 m (30 ft) | MQDEC-430SS

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