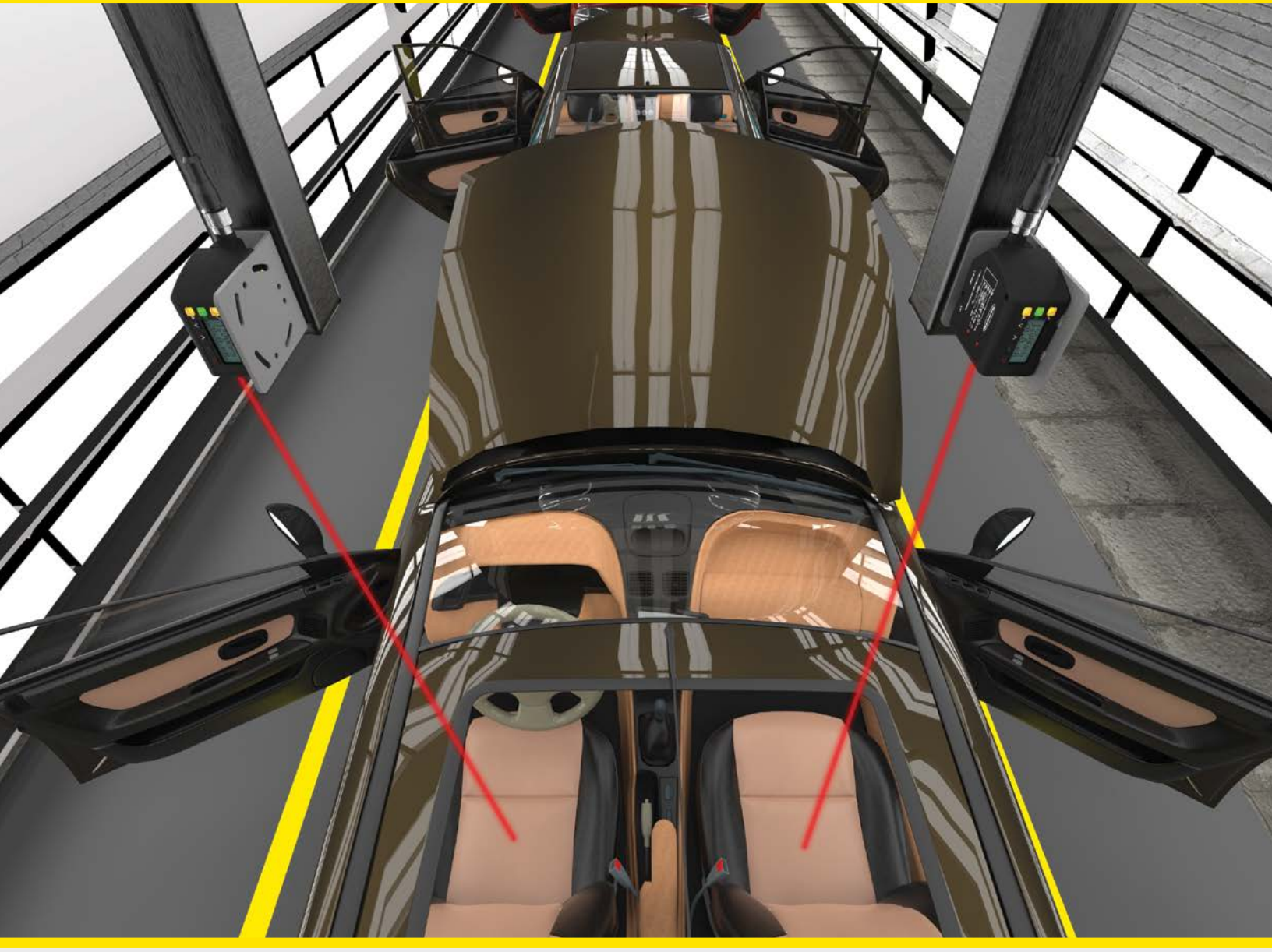
LTF Long-Range Sensors



Laser Measurement Sensor

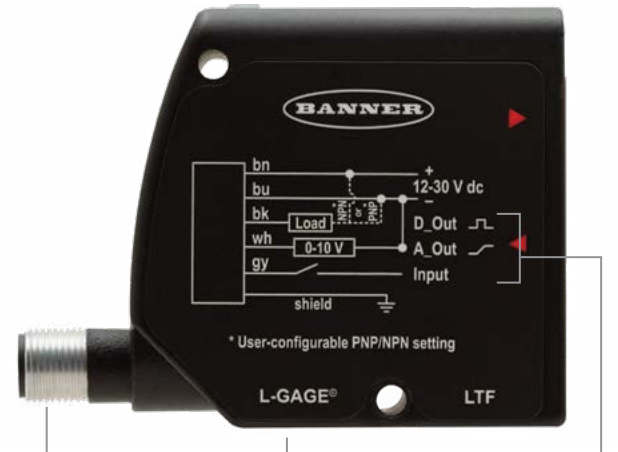
- Powerful sensor with advanced functions including:
  - Remote teach
  - Laser inhibit
  - Delay timers
  - Advanced measuring modes
- 50 to 24,000 mm sensing range
- Durable, IP67 metal housing with 100G shock rating

BANNER®

ПРОМЭЛЕКТРОНИКА/ sales@prom-elec.com

Durability and Precision Measurement

Rugged



Rotatable M12 QD for versatile mounting options

Durable IP67-rated zinc housing stands up to extreme industrial environments

Dual Discrete NPN/PNP output is user-configurable with IO-Link

Analog output is 4-20 mA or 0-10 V depending on model

Remote input enables programming at a separate interface

High Power



Class 2 laser emitter with small, highly visible spot for easy sensor alignment and high excess gain

Durable acrylic lens

Large high-performance optical receiver lens

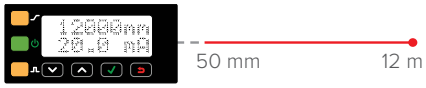
Easy to Set Up

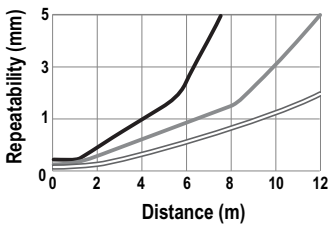


Bright LED indicators provide clear status indication for analog output, discrete output and power

Two-line, eight-character display and pushbutton programming for easy set up, troubleshooting and real-time distance measuring

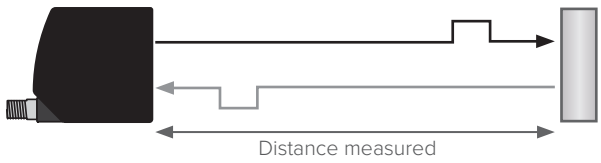
Best-in-Class Combination of Accuracy, Repeatability, and Range





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

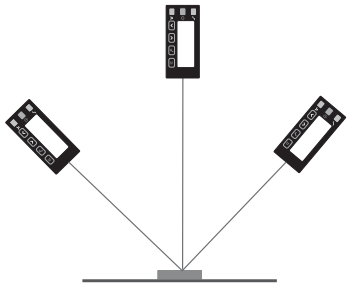


The LTF sensor uses time-of-flight measurement, emitting a pulsed light, measuring the amount of time for the light to reflect off the object and return to the sensor to calculate the distance. This enables sensing in long-range applications across a wide variety of targets.

Best-in-Class Performance

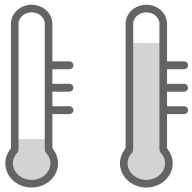
High excess gain. High reliability. Rugged and durable.

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



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

Ambient Light Resistance



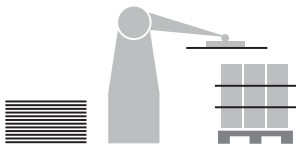
Designed to prevent errant readings due to ambient light up to and beyond 40,000 lux

Fast Response Speed



Measure fast moving targets with ease

Applications



Robot End Effector



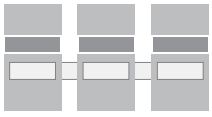
Log Dimensioning



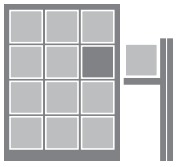
Palletizer



Roll Diameter



Transfer Press



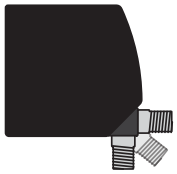
Automated Storage

Starts Measuring Right out of the Box

Choose from several TEACH modes and advanced settings to customize your application.

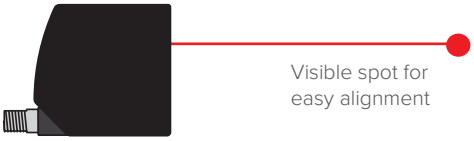
Fast and Easy Installation in Only 3 Steps

1. Mount the sensor

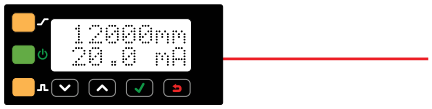


Rotatable QD for flexible mounting

2. Align the sensor



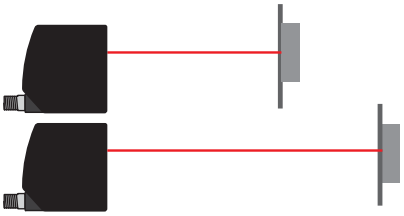
3. Start Measuring



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 Modes for Any Application

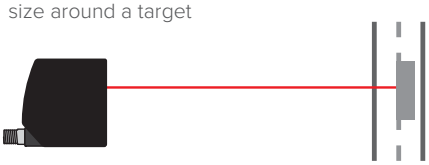
2-Point Teach
Teach two targets as the end points of the analog span or discrete output window



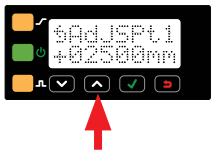
Switch Point Teach
Teach target to automatically set a switching threshold in front of or behind target for background suppression or foreground suppression applications



Mid-Point Teach
Teach a window of user-defined size around a target



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



Advanced Settings

Advanced Measurement Modes

Driven by an external trigger, the LTF can continuously measure and output values such as:

- minimum value
- maximum value
- average value or more

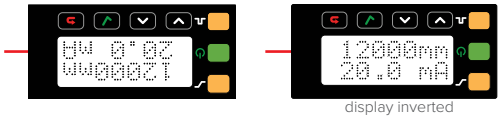
Delay Timers

The Timer option sets:

- ON/OFF Delays
- One-Shot timers between 1 to 9999 ms

Invert the display

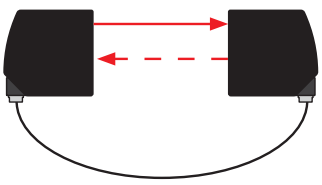
Use the View option to invert the display for readability

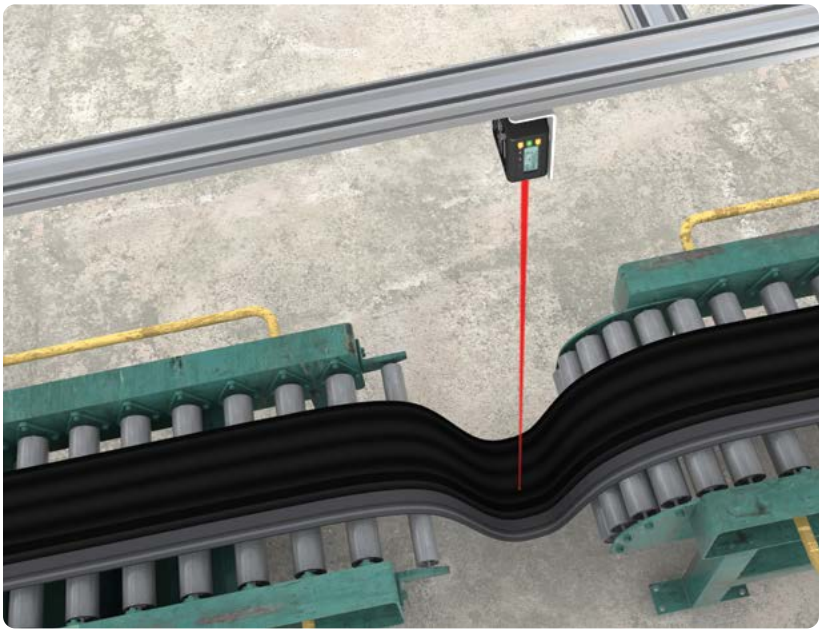


display inverted

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

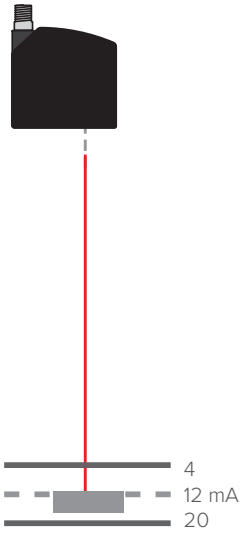
Loop Control on a Calendering Machine

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.



TEACH Mode

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



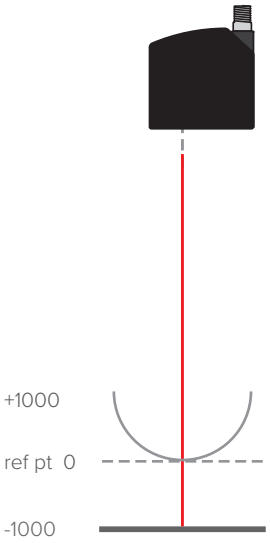
Teaching the ideal loop position at the mid point quickly sets the analog window to cover the full range of loop motion.

Advanced Settings

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



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.



Part Presence or Absence

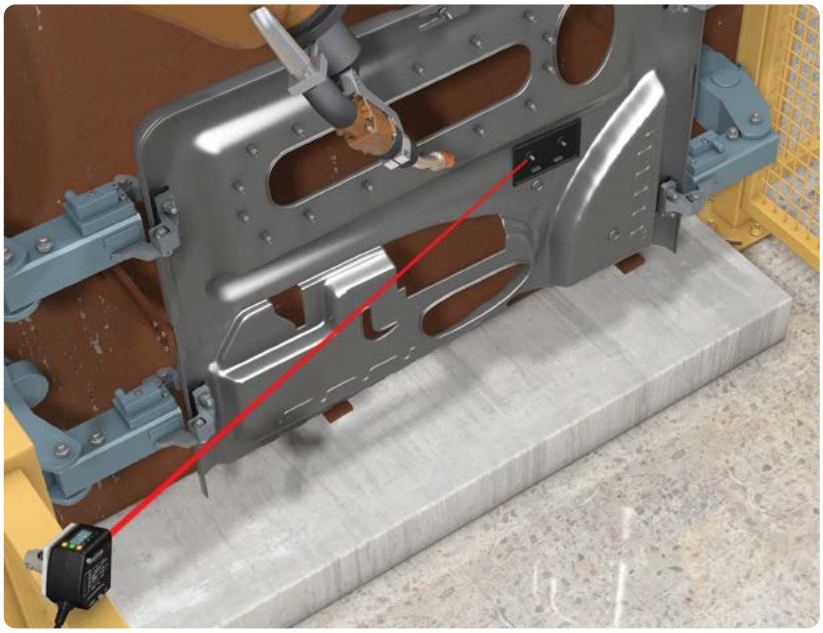
Weld Cell Error Proofing

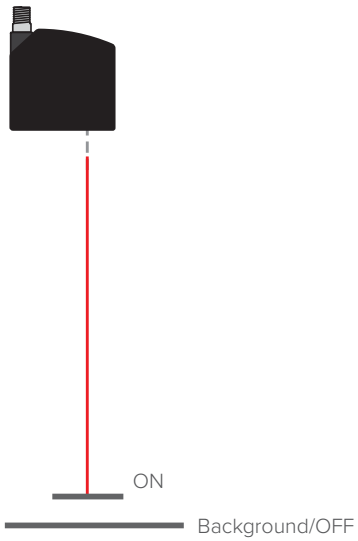
Application Challenge

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.



In single switchpoint mode, the background is taught and the placed object is detected.

Advanced Settings

Laser enable



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



Fill Level

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.

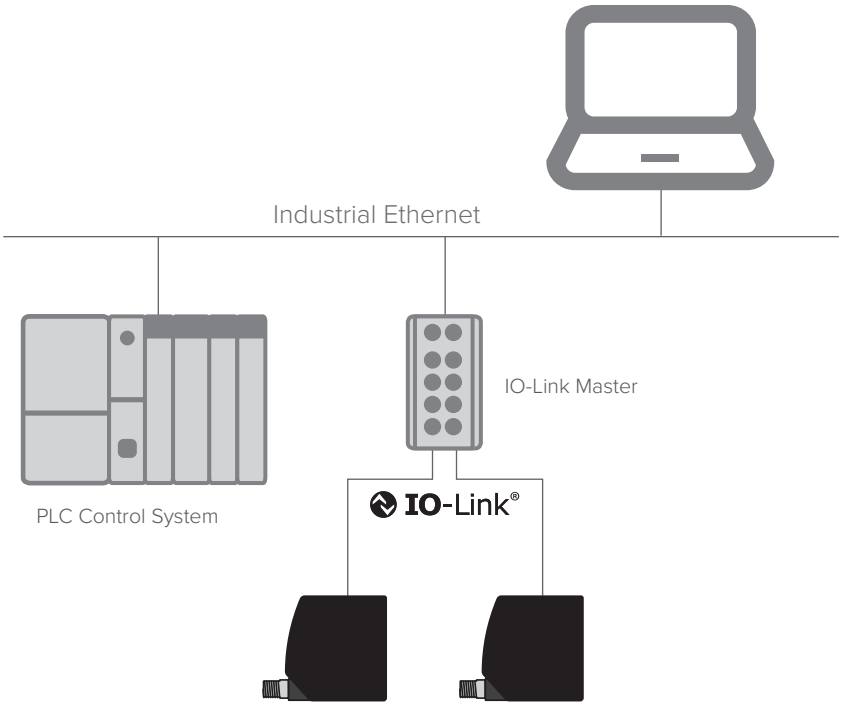
Solution

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.

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





LTF Series Sensor

Series	Range (m)	Output	Laser Class	Sensing Mode	Connector
LTF	**12**	**I**	**C2**	**LD**	**Q**
	12 **24**	**I** = 4 to 20 mA analog and (1) NPN/PNP discrete **U** = 0 to 10 V analog and (1) NPN/PNP discrete **K** = Dual discrete (NPN/PNP configurable) with IO-Link	**C2** = Class 2	**LD** = Laser diffuse	**Q** = Rotatable M12 QD QD models require mating cordset

Specifications



Power	12 to 30 V DC
Range	50 to 24000 mm (1.97 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 12000 mm 35 mm at 24000 mm
Certifications	CE cULus LISTED 3TJJ IND. CONT. EQ.

Accessories



SMBLTFL



SMBLTFU



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

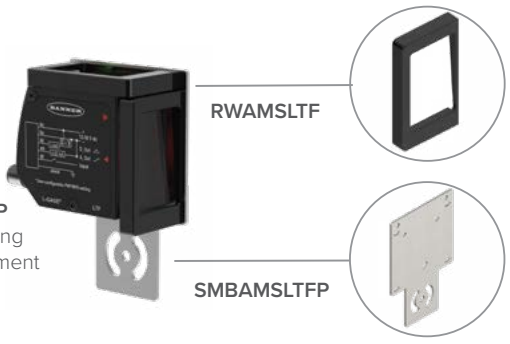


Type	Length	Models
5-Pin M12 QD with Shield	2 m (6 ft)	**MQDEC2-506**
	5 m (15 ft)	**MQDEC2-515**
	9 m (30 ft)	**MQDEC2-530**
	15 m (50 ft)	**MQDEC2-550**

For right-angle models add **RA** to the model number. Example: **MQDEC2-506RA**



Type	Length	Models
Double-ended 4-pin M12 QD (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**



RWAMSLTF

SMBAMSLTFP

SMBAMSLTFIP
Kit includes 1 mounting plate and 2 replacement windows



The RSD1QP remote display is designed to provide easy sensor configuration and monitoring. It can be used for initial setup by equipment manufacturers with the ability to copy settings across many sensors.

Visit our website for more information.

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