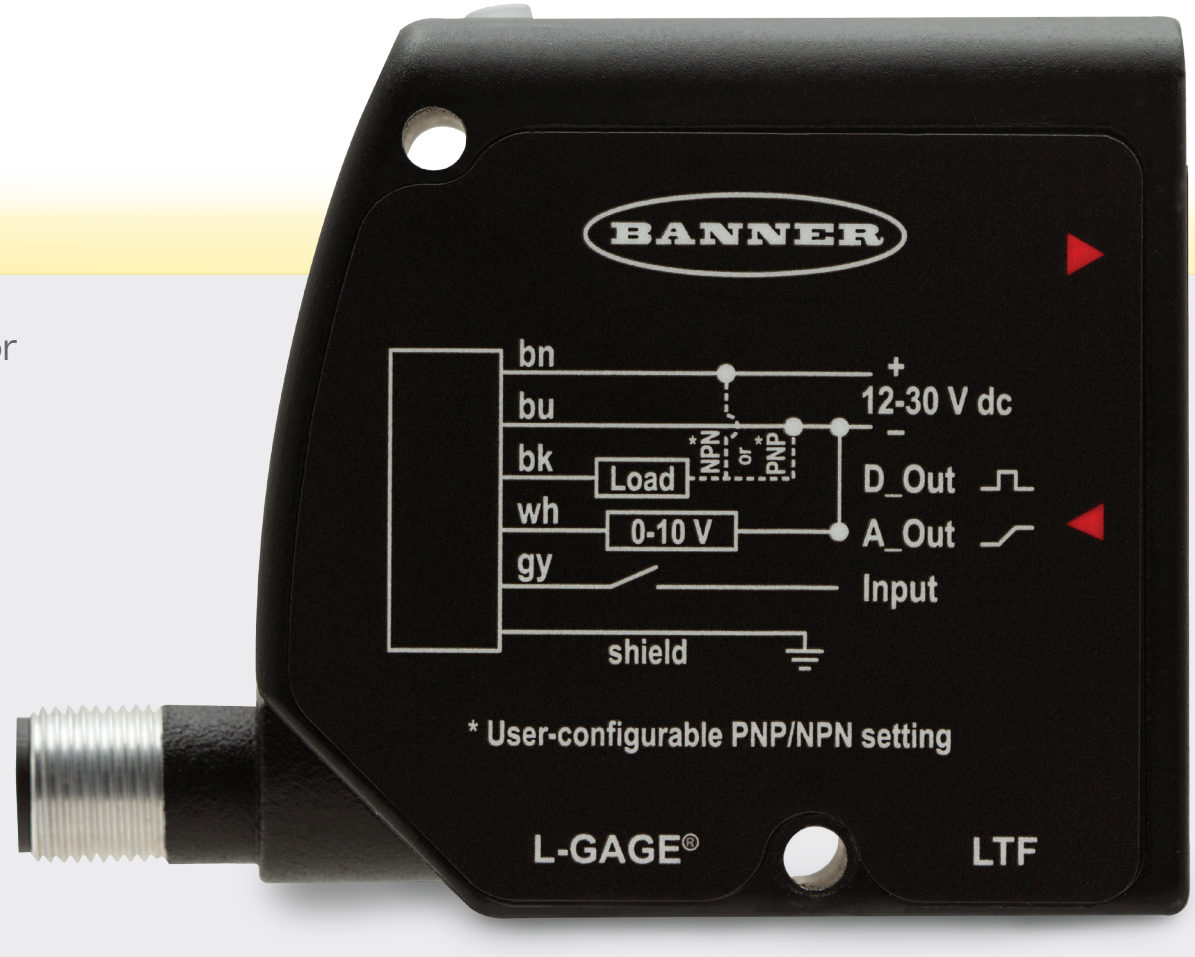
LTF Series

12 Meter Laser Measurement Sensor

BANNER®

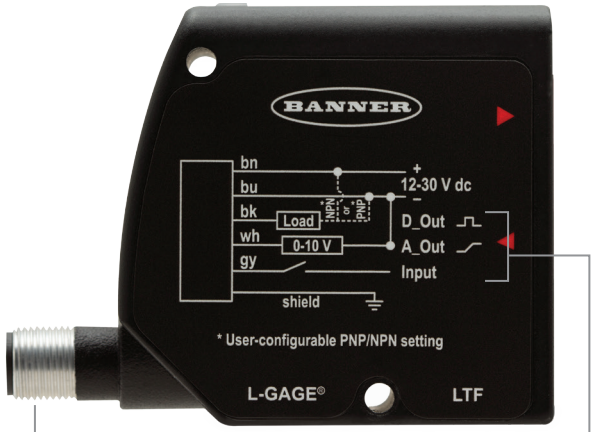


LTF Series
Sensors

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

Discrete output NPN/PNP is user-configurable

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

Remote input enables programming at a separate interface

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

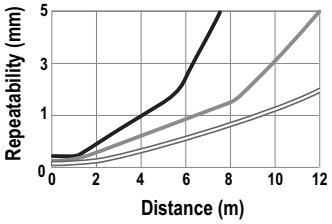
High Power

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

Large high-performance optical receiver lens

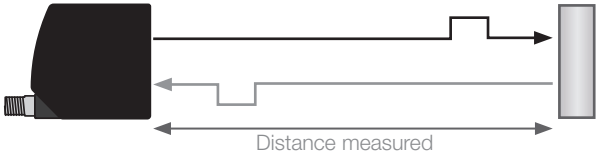
Durable acrylic lens

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 of ±10 millimeters

Time-of-Flight Measurement

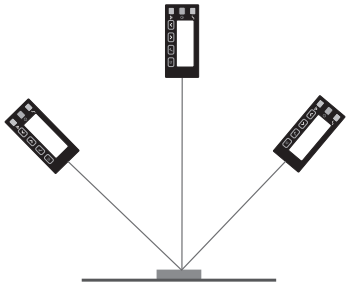


The LTF sensor uses time-of-flight measurement, emitting a pulsed light, measuring the amount of time for the light to reflect off the object and return to the sensor to calculate the distance. This enables sensing in long-range applications across a wide variety of targets.

Best-in-Class Performance

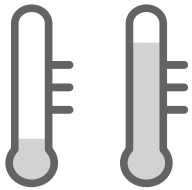
High excess gain. High reliability. Rugged and durable.

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

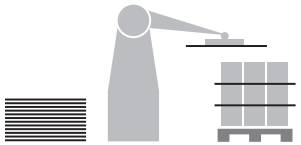
Ambient Light Resistance

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

Fast Response Speed

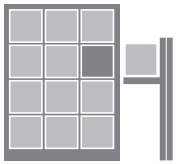
Measure fast moving targets with ease

Applications



Robot End Effector

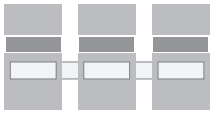
Log Dimensioning



Automated Storage

Palletizer

Roll Diameter



Transfer Press

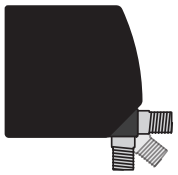
LTF Series
Sensors

Starts Measuring Right out of the Box

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

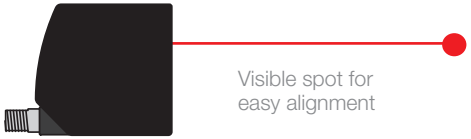
Fast and Easy Installation in Only 3 Steps

1. Mount the sensor



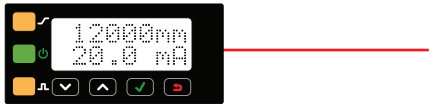
Rotatable QD for flexible mounting

2. Align the sensor



Visible spot for easy alignment

3. Start Measuring

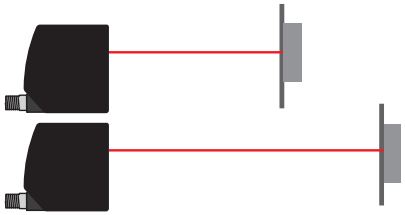


Right out of the box the LTF provides a real-time distance measurement and the analog output measurement on an easy-to-read eight-character display

TEACH Modes for Any Application

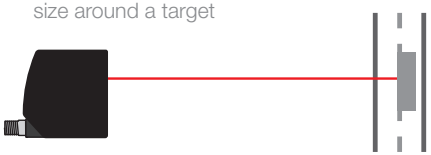
2-Point Teach

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



Mid-Point Teach

Teach a window of user-defined size around a target

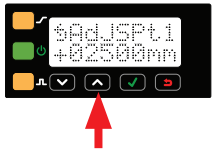


Switch Point Teach

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

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

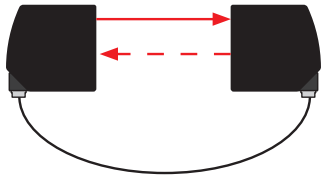
Delay Timers

The Timer option sets:

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

Cross-talk Avoidance

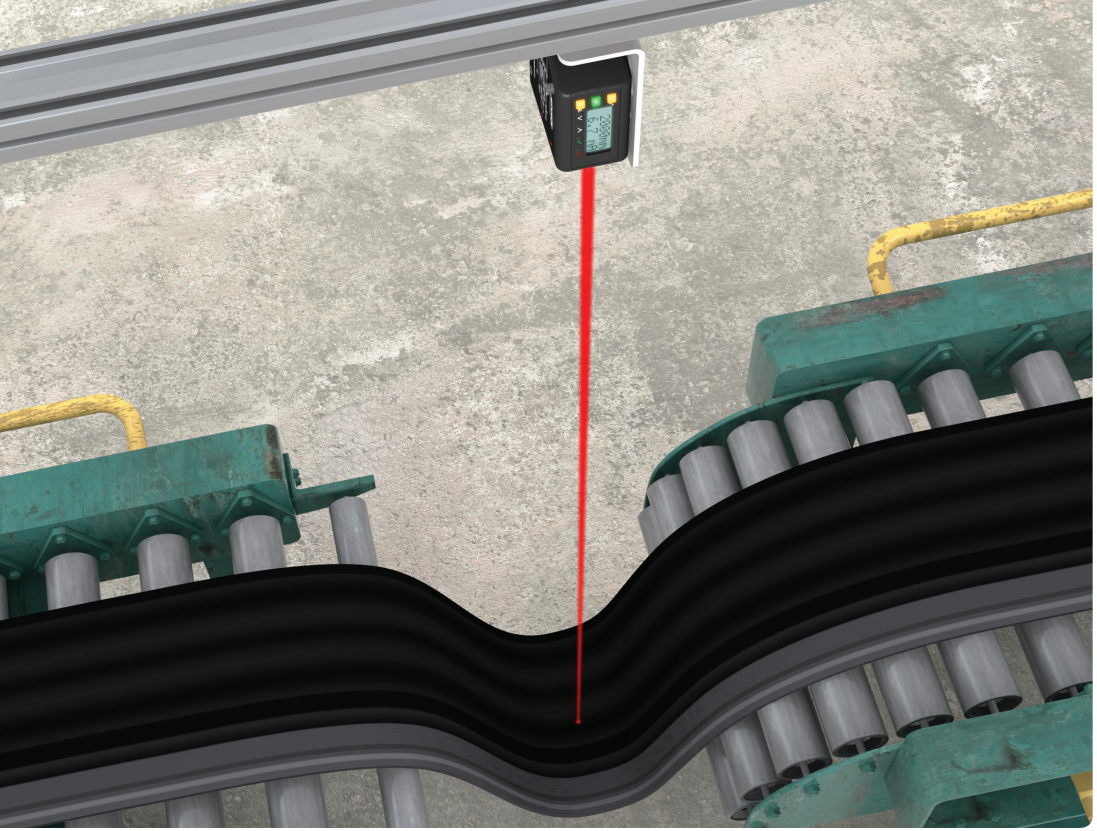
Use Master/slave mode to eliminate any chance of cross-talk between sensor pairs. Use Laser Enable to avoid cross-talk when using more than two sensors.



Invert the display

Use the View option to invert the display for readability

display inverted



Loop Control

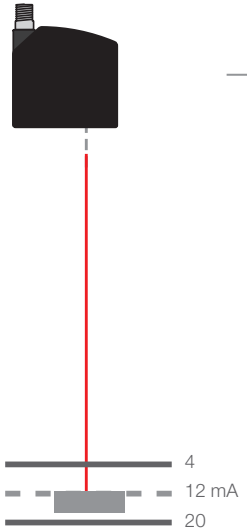
Loop Control on a Calendering Machine

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

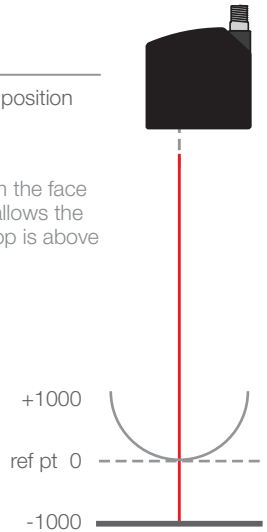
Teach an analog window around the ideal loop position using midpoint teach.

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

Advanced Settings

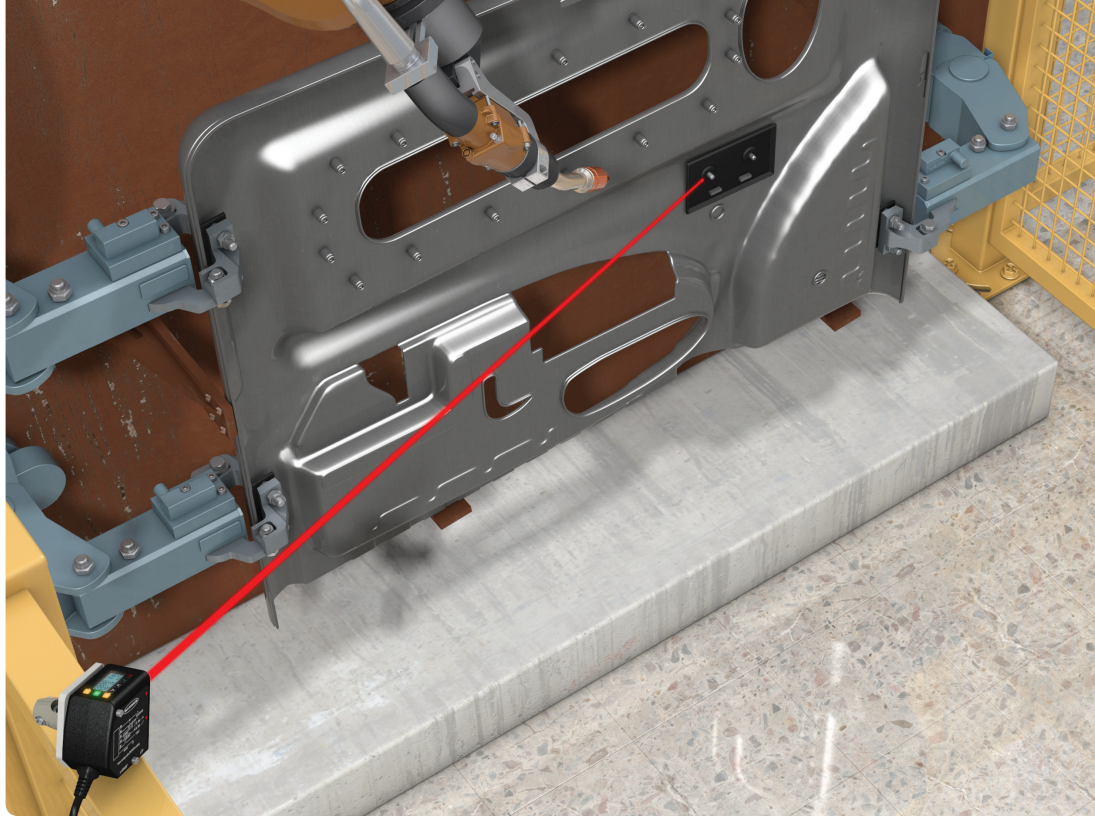
Set the reference point to zero at the midpoint to show the loop position measurement on the LTF display.

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.



LTF Series
Sensors

Part Presence or Absence



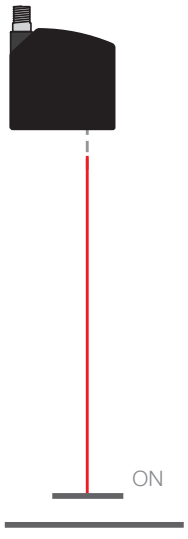
Weld Cell Error Proofing

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

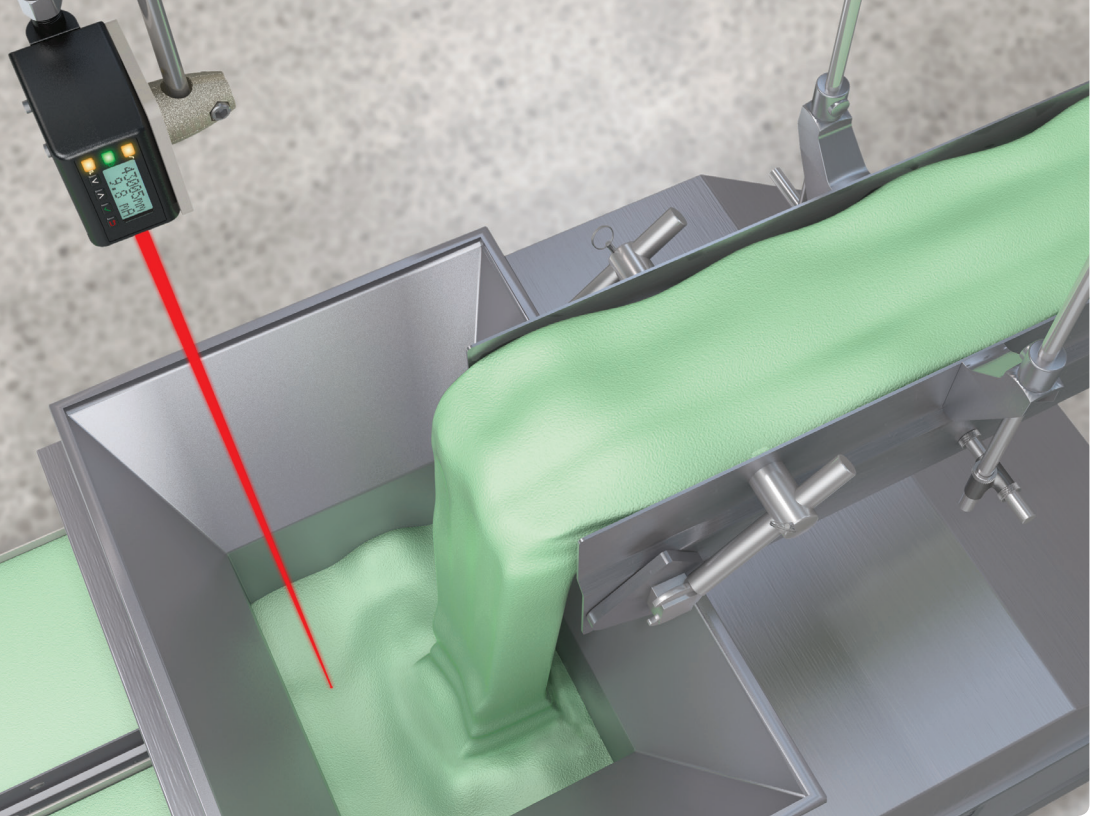
Set a single switchpoint for background suppression.

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

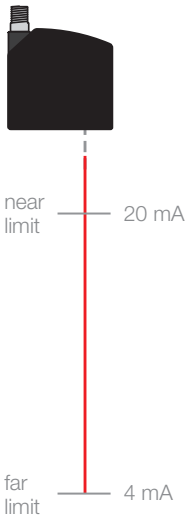
Monitoring Levels Inside a High-Volume Hopper

Application Challenge

The color and texture of moving material at a long distance makes it difficult to detect and avoid too low/too high or empty/overflow conditions.

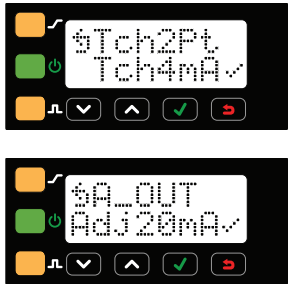
Solution

The LTF offers exceptional long range accuracy, providing a solution that can easily be mounted both away from the fill material and where it will not interfere with operators maintaining the equipment.



TEACH Mode

Teach the far limit and manually adjust the near limit. This enables setting an analog window while the hopper is empty.



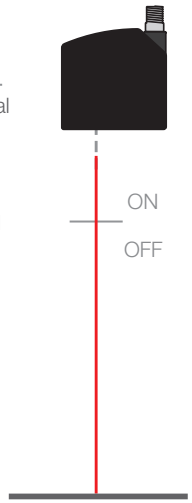
A variety of teach methods can be used to set the LTF analog window.

In this sample application, while the hopper is empty, teach the analog far limit at 4 mA, then manually set the near limit at 20 mA.

Advanced Settings

Teach or set an additional discrete set point to signal an empty or potential overflow condition.

Use the discrete output, with the output mode set to switch, to signal a potential overflow.



LTF Series Sensors

Order Now

Family	Range (m)	Output	Laser Class	Sensing Mode	Connector
LTF	12	I	C2	LD	Q
	12	**I** = 4 to 20 mA analog and (1) NPN/PNP discrete **U** = 0 to 10 V analog and (1) NPN/PNP discrete	**C2** = Class 2	**LD** = Laser diffuse	**Q** = Rotatable M12 Euro QD QD models require mating cordset

IO-LINK® and Dual Discrete models coming soon

Power	12 to 30 V dc
Range	50 mm to 12000 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	0.3 to 3 mm
Beam Spot Size	6.5 mm at 50 mm 10 mm at 7500 mm 12.5 mm at 12000 mm
Certifications	CE UL pending

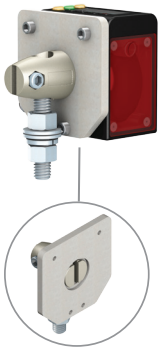
Accessories

Brackets

SMBLTFL

SMBLTFU

SMBAMSLTFP



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

Cordsets

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**

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