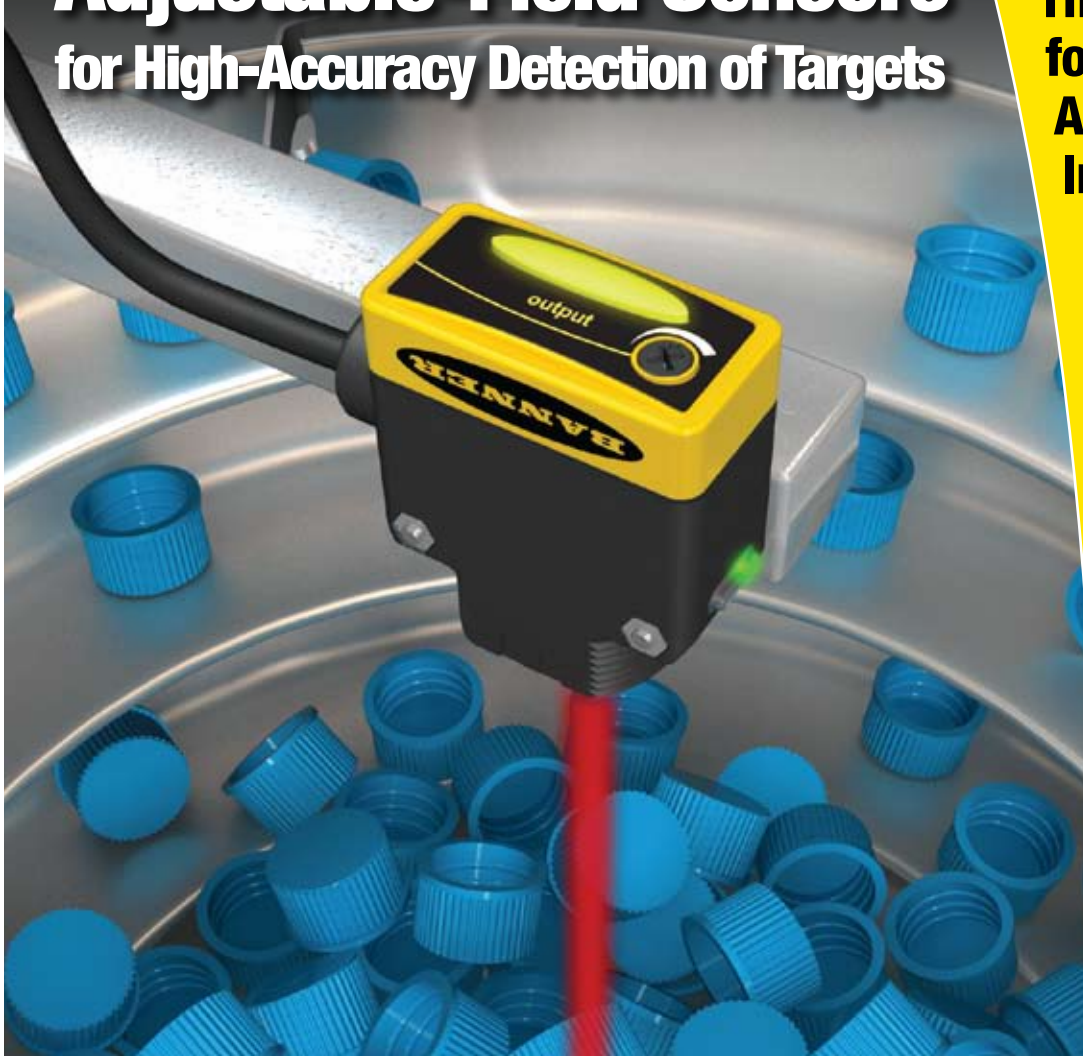


Adjustable-Field Sensors for High-Accuracy Detection of Targets



Three Housing Styles for a Wide Range of Applications and Industries



- ▶ Packaged food detection on conveyor line
- ▶ Part level monitoring in feeder bowl
- ▶ Feature and edge detection
- ▶ Label placement and cap verification in packaging
- ▶ Linen and textile detection in laundry machines
- ▶ Through-the-roller tote detection
- ▶ Product flow control
- ▶ Error-proofing

Precise and Reliable Adjustable-Field Sensing in Three Housing Styles

Banner's full line of adjustable-field background suppression sensors offer reliable detection of objects regardless of color, reflectivity, surface irregularities or background conditions. Versatile housing styles and a variety of mounting accessories make installation quick and easy, while a simple screwdriver adjustment on all models allows precise setup of sensing range. In a choice of three rugged housings, these high-performance adjustable-field sensors deliver an exceptional solution for the vast majority of tough sensing applications.

- ▶ Advanced background suppression technology to ignore objects beyond the sensing field cutoff
- ▶ Long-range models with a sensing range up to 2000 mm
- ▶ Short-range models for detecting thinner objects closer to the background
- ▶ Easy screwdriver adjustment for precise setting of cutoff
- ▶ Visible red LED or laser for easy sensor alignment
- ▶ Solid-state complementary or bipolar discrete output, or e/m relay output models
- ▶ Crosstalk immunity to allow multiple sensors in close proximity on some models
- ▶ Sealed housing and protected circuitry for rugged environments; IP67 rated
- ▶ Models with dc or ac/dc supply voltage

40-plus years of sensor design experience, quality control, sales support and cost-effective solutions:

- ▶ Banner quality products with global availability
- ▶ Rapid customization with most products shipping in 3 days or less
- ▶ Industry's largest force of application engineers to solve your toughest challenges
- ▶ More than 3,000 factory and local field representatives to serve you

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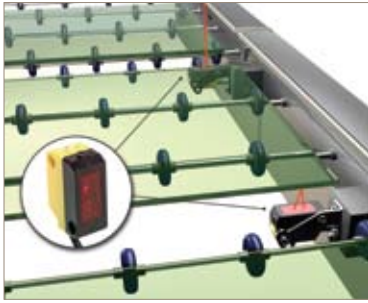
1.888.373.6767

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more sensors, more solutions

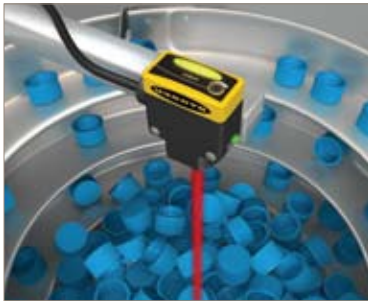
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Adjustable-Field Sensors with Background Suppression



WORLD-BEAM® QS18

- Rugged, compact housing for mounting in confined areas
- Sensing range up to 300 mm
- Laser models with a narrow effective beam for small-object detection and precise position control
- Simple multi-turn screw adjustment of cutoff distance
- Short-range models for detecting thinner objects closer to the background
- Side mount and threaded back mounts for mounting versatility



WORLD-BEAM® QS30

- Midsize right-angle housing with 30 mm threaded lens or side mount
- 128 element photo receiver for superior performance up to 600 mm
- Linear multi-turn screw adjustment of cutoff distance
- Improved temperature compensation to minimize cutoff distance variation due to ambient temperature changes



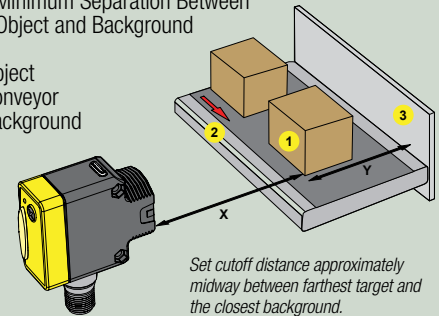
Q60

- Robust, fullsize housing with integrated side mounts
- Full-featured sensor for long-range sensing from 200 to 2000 mm
- Laser models for small part detection from long distance
- Two-turn, logarithmic adjustment of sensing cutoff point
- Easy push-button programming of light/dark operate and output timing options
- Models for dc or ac/dc operation

Background Suppression Application Setup Example

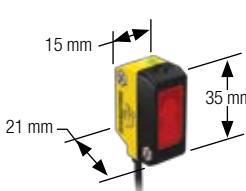
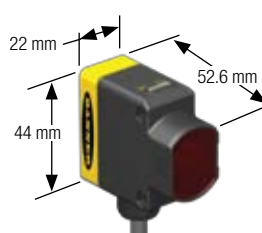

X = Distance to Object
Y = Minimum Separation Between Object and Background

1. Object
2. Conveyor
3. Background






- Operates in diffuse mode, detecting light returned by the object but ignoring light returned by the background
- Provides reliable detection when conditions behind the object are changing or the object is close to a background
- Ideal where the background condition cannot be controlled, or the background makes a standard diffuse-mode sensor impractical

Background Suppression Sensor Comparison (Visible Red LED and Laser Models)

	QS18	QS30AF	Q60
Sensor			
Adjustable Range (Cutoff)	LED: 15 to 40 mm 30 to 300 mm Laser: 30 to 150 mm (Class 1) 50 to 250 mm (Class 2)	50 to 600 mm	LED: 200 to 1000 mm Laser: 200 to 1400 mm (Class 1) 200 to 2000 mm (Class 2)
Output (depends on model)	Bipolar NPN & PNP Complementary NPN or PNP	Bipolar NPN & PNP	Bipolar NPN & PNP SPDT or SPST e/m relay
Supply Voltage	10 to 30V dc	10 to 30V dc	10 to 30V dc 12 to 250V dc or 24 to 250V ac
Response Time	LED: 2.5 ms Laser: 700 μs	5.0 ms	DC models: 2.0 ms AC/DC models: 15 ms
Repeatability	LED: 250 μs Laser: 130 μs	750 μs	500 μs
Output Timing Options	—	Contact Factory	√
Crosstalk Prevention	Excellent	Excellent	Basic

WORLD-BEAM® QS18 Sensors

➔ Visible Red LED ✶ Visible Red Laser


Sensing Mode/LED	Model*	Range	Output	Connection	Voltage
	QS18VN6AF300Q5	Adjustable Cutoff: 30 to 300 mm	NPN	4-pin Euro Pigtail QD	10 to 30V dc
	QS18VP6AF300Q5		PNP		
	QS18AB6AF300Q5		Bipolar NPN & PNP		
	QS18VN6AF40Q5	Adjustable Cutoff: 15 to 40 mm	NPN		
	QS18VP6AF40Q5		PNP		
	QS18AB6AF40Q5		Bipolar NPN & PNP		
	QS18VN6LAFQ5	Adjustable Between: 30 to 150 mm	NPN		
	QS18VP6LAFQ5		PNP		
	QS18VN6LAF250Q5	Adjustable Between: 50 to 250 mm	NPN		
	QS18VP6LAF250Q5		PNP		

* QD models: A model with a QD requires a mating cordset. For a 4-pin 150 mm Pico-style PVC pigtail QD, replace Q5 with Q (example, QS18VN6AF300Q).

Cabled models: For a 2 m cable, omit suffix Q5 from the model number (example, QS18VN6AF300). For 9 m cable, add suffix W/30 to the 2 m model number (example, QS18VN6AF300 W/30).

WORLD-BEAM® QS30 Sensors

➔ Visible Red LED






Sensing Mode/LED	Model*	Range	Output	Connection	Voltage
	QS30AF600Q5	Adjustable Cutoff: 50 to 600 mm	Bipolar NPN & PNP	5-pin Euro Pigtail QD	10 to 30V dc

* QD models: A model with a QD requires a mating cordset. For a 5-pin integral Euro-style QD, replace Q5 with Q (example, QS30AF600Q).

Cabled models: For a 2 m cable, omit suffix Q5 from the model number (example, QS30AF600). For 9 m cable, add suffix W/30 to the 2 m model number (example, QS30AF600 W/30).

Q60 Sensors

➔ Visible Red LED ✶ Visible Red Laser

Sensing Mode/LED	Model*	Range	Output	Connection	Voltage
	Q60BB6AFV1000Q	Adjustable Cutoff: 200 to 1000 mm	Bipolar NPN & PNP	5-pin Euro QD	10 to 30V dc
	Q60VR3AFV1000Q1		SPST e/m relay	4-pin Micro QD	12 to 250V dc or 24 to 250V ac
	Q60BB6LAF1400Q	Adjustable Cutoff: 200 to 1400 mm	Bipolar NPN & PNP	5-pin Euro QD	10 to 30V dc
	Q60BB6LAF2000Q	Adjustable Cutoff: 200 to 2000 mm	Bipolar NPN & PNP	5-pin Euro QD	10 to 30V dc
	Q60VR3LAF1400Q1	Adjustable Cutoff: 200 to 1400 mm	SPST e/m relay	4-pin Micro QD	12 to 250V dc or 24 to 250V ac
	Q60VR3LAF2000Q1	Adjustable Cutoff: 200 to 2000 mm	SPST e/m relay	4-pin Micro QD	12 to 250V dc or 24 to 250V ac

* QD models: A model with a QD requires a mating cordset.

Cabled models: DC: For 2 m cable, omit suffix Q from model number (example, Q60BB6AFV1000). For 9 m cable, add suffix W/30 to the 2 m model number (example, Q60BB6AFV1000 W/30).

AC: Cabled models have an SPDT e/m relay output. For 2 m cable, omit suffix Q1 from model number (example, Q60VR3LAF1400). For 9 m cable, add suffix W/30 to the 2 m model number (example, Q60VR3LAF1400 W/30).

Adjustable-Field Sensors with Foreground Suppression

- Reliable detection of objects of varying color and size when background is fixed
- Available in two popular WORLD-BEAM housings
 - Compact QS18 with a choice of 40 or 200 mm sensing range
 - Midsize QS30 with an extended sensing range up to 400 mm
- Visible red LED for easy sensor alignment
- Fluorescent light and crosstalk immunity for reliable sensing
- Sealed housing and protected circuitry for rugged environments; IP67 rated

Also Available



WORLD-BEAM® QS18


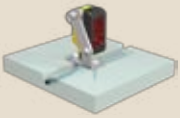



WORLD-BEAM® QS30


Visit www.bannerengineering.com or call 1-888-373-6767 for additional information.

Brackets




WORLD-BEAM® QS18 Sensors

	SMBQS18A <ul style="list-style-type: none"> Nickel-plated die-cast zinc Wrap-around bracket
	SMBQS18AF <ul style="list-style-type: none"> 14-ga. 304 stainless steel Right-angle mounting bracket
	SMBQS18YL <ul style="list-style-type: none"> Heavy-duty die-cast bracket for industrial protection Replaceable window M18 vertical mount option Includes nuts and lockwasher For Class 2 laser models only

Q60 Sensors

	SMBQ60 <ul style="list-style-type: none"> Right-angle bracket 14-ga. 304 stainless steel
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WORLD-BEAM® QS30 Sensors



	SMBQS30L <ul style="list-style-type: none"> Right-angle bracket for cable models Clearance for M4 (#8) hardware ± 12° tilt adjustment 14-ga. stainless steel
	SMBQS30LT <ul style="list-style-type: none"> Tall right-angle bracket for QD models ± 8° tilt adjustment 14-ga. stainless steel
	SMBQS30Y <ul style="list-style-type: none"> Heavy-duty die-cast bracket M18 vertical mount option ± 8° tilt adjustment with cabled units Includes nuts and lockwasher





Additional brackets and information available on www.bannerengineering.com

Quick-Disconnect (QD) Cordsets





M8/Pico-Style Snap-On QD

Style	Model	Length	Used With
	PKG4-2	2 m	QS18
	PKW4Z-2		

Micro-Style Threaded QD

Style	Model	Length	Used With
	MQAC-406	2 m	Q60
	MQAC-415	5 m	
	MQAC-430	9 m	
	MQAC-406RA	2 m	
	MQAC-415RA	5 m	
	MQAC-430RA	9 m	

M12/Euro-Style Threaded QD

Style	Model	Length	Used With
	MQDC-406	2 m	QS18
	MQDC-415	5 m	
	MQDC-430	9 m	
	MQDC-406RA	2 m	
	MQDC-415RA	5 m	
	MQDC-430RA	9 m	
	MQDC1-506	2 m	QS30
	MQDC1-515	5 m	
	MQDC1-530	9 m	
	MQDC1-506RA	2 m	
	MQDC1-515RA	5 m	
	MQDC1-530RA	9 m	

Banner Engineering Corp.

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