SM30 Series 30 mm Barrel Sensor

more sensors, more solutions

Opposed-Mode Infrared Photoelectric Sensors for Especially Demanding Applications

- Stainless steel or plastic barrel models
- Very high excess gain; 150 m (500 ft) sensing range; 880 nm Infrared LED
- Positive sealing eliminates even capillary leakage; lens is quad-ring sealed; exceeds NEMA 6P (IP67) ratings – ideal for equipment wash-down environments
- EZ-BEAM® technology provides reliable sensing without the need for adjustment
- Modulation frequency "A" is standard; frequencies "B" and "C" also available for preventing crosstalk in multiple-sensor applications (emitter and opposed receiver frequencies must match)
- AC- and DC-operated receiver models available; emitters feature Universal voltage
- Range for all models: 150 m (500 ft). See page 3 for performance curves.

Modulation Frequency*			Housing	Cable**	Supply Power	Output Type
A	B	C				
Emitter Models						
SMA30PEL	SMA30PELB	SMA30PELC	Plastic	2 m (6.5') 2-wire Cable	Universal: 12 to 240V ac, 10 to 30V dc	–
SMA30PELQD	SMA30PELQDB	SMA30PELQDC		3-pin Mini-style QD†		
SMA30SEL	SMA30SELB	SMA30SELC	Stainless Steel	2 m (6.5') 3-wire Cable		
SMA30SELQD	SMA30SELQDB	SMA30SELQDC		3-pin Mini-style QD†		
DC Receivers						
SM30PRL	SM30PRLB	SM30PRLC	Plastic	2 m (6.5') 4-wire Cable	10 to 30V dc	Bi-Modal™ NPN or PNP
SM30PRLQD	SM30PRLQDB	SM30PRLQDC		4-pin Mini-style QD		
SM30SRL	SM30SRLB	SM30SRLC	Stainless Steel	2 m (6.5') 4-wire Cable		
SM30SRLQD	SM30SRLQDB	SM30SRLQDC		4-pin Mini-style QD		
AC Receivers						
SM2A30PRL	SM2A30PRLB	SM2A30PRLC	Plastic	2 m (6.5') 2-wire Cable	24 to 240V ac	SPST Solid-state, L.O.
SM2A30PRLQD	SM2A30PRLQDB	SM2A30PRLQDC		3-pin Mini-style QD†		
SM2A30SRL	SM2A30SRLB	SM2A30SRLC	Stainless Steel	2 m (6.5') 3-wire Cable		
SM2A30SRLQD	SM2A30SRLQDB	SM2A30SRLQDC		3-pin Mini-style QD†		
SM2A30PRLNC	SM2A30PRLNCB	SM2A30PRLNCC	Plastic	2 m (6.5') 2-wire Cable		SPST Solid-state, D.O.
SM2A30PRLNCQD	SM2A30PRLNCQDB	SM2A30PRLNCQDC		3-pin Mini-style QD†		
SM2A30SRLNC	SM2A30SRLNCB	SM2A30SRLNCC	Stainless Steel	2 m (6.5') 3-wire Cable		
SM2A30SRLNCQD	SM2A30SRLNCQDB	SM2A30SRLNCQDC		3-pin Mini-style QD†		

* Any emitter and receiver shown here can be used together, if they have the same modulation frequency.

** Standard 2 m (6.5 ft) cable and integral QD models are listed. A model with a QD connector requires a mating cable; see page 4. To order the 9 m (30 ft) cable: add suffix "W/30" following the Frequency suffix of any cable model (e.g., SM30PRLBW/30).

† AC models with QD require SM30CC model cables; see page 4.

WARNING . . . Not To Be Used for Personnel Protection

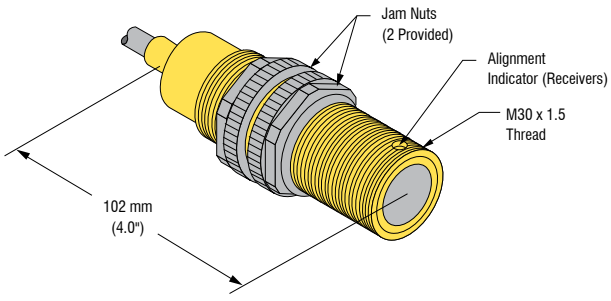
Never use these products for personnel protection. Doing so could lead to serious injury or death. These devices do NOT include the self-checking redundant circuitry necessary to allow their use in personnel safety applications. A device failure or malfunction can cause either an energized or de-energized output condition. Consult your current Banner Safety Products catalog for safety products that meet OSHA, ANSI, and IEC standards for personnel protection.

Specifications

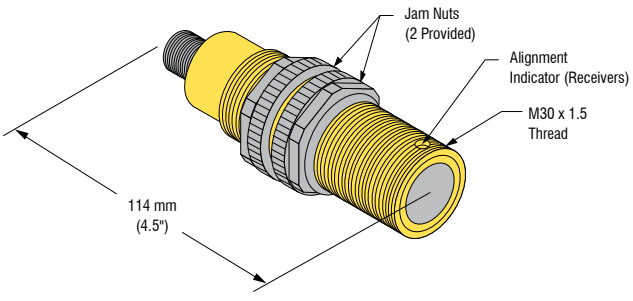
Supply Voltage and Current	Emitters: 12 to 240V ac (50/60 Hz) or 10-30V dc at 20 mA, 10% maximum ripple DC Receivers: 10 to 30V dc at 10 mA maximum (exclusive of load); 10% maximum ripple AC Receivers: 24 to 240V ac (50/60 Hz)
Supply Protection Circuitry	Protected against reverse polarity and transient voltages
Output Configuration	DC Receivers: Bi-Modal™ output (PNP sourcing or NPN sinking). Selection of light/dark operate and sourcing or sinking configuration dependent on hookup. AC Receivers: SPST solid-state switch; light operate (LO) or dark operate (DO) dependent on model.
Output Rating	DC Receivers: 250 mA continuous Output saturation voltage (PNP & NPN configuration) < 1 volt at 10 mA and < 2 volts at 250 mA Off-state leakage current < 10 microamps AC Receivers: Maximum steady-state load capability is 500 mA Inrush capability: 10 amps for 1 second (non-repeating) Off-state leakage: current < 1.7 mA rms On-state voltage drop: < 3.5 volts rms across a 500 mA load; < 5 volts rms across a 15 mA load
Output Protection Circuitry	Outputs of dc receivers are short circuit protected
Output Response Time	10 milliseconds on/off
Repeatability	"A" frequency models: 1 ms "B" frequency models: 1.5 ms "C" frequency models: 2.3 ms
Indicators	Internal red LED, visible through the lens or from side of the sensor. Emitters: Red "Power ON" indicator LED DC Receivers: Lights whenever receiver sees its modulated light source AC Receivers: Lights whenever receiver's output is conducting
Construction	Fully epoxy-encapsulated tubular threaded housing, positive sealed at both ends, quad-ring sealed acrylic lens. Plastic models: 30 mm diameter thermoplastic polyester housing and jam nuts. Stainless Steel models: 30 mm diameter 303 stainless steel housing and jam nuts.
Environmental Rating	Exceeds NEMA 6P and IEC IP67 standards
Connections	PVC-jacketed 2 m or 9 m cables or Mini-style quick-disconnect (QD) fitting are available. QD cables are ordered separately. See page 4.
Operating Conditions	Temperature: -40° to +70° C (-40° to +158° F) Relative humidity: 90% at 50° C (non-condensing)
Certifications	

Dimensions

Cabled Models



QD Models



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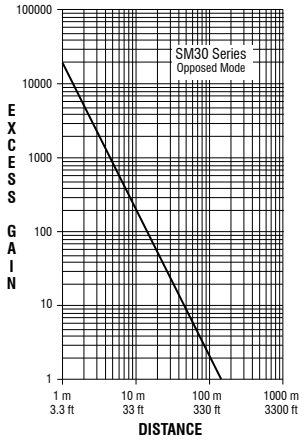
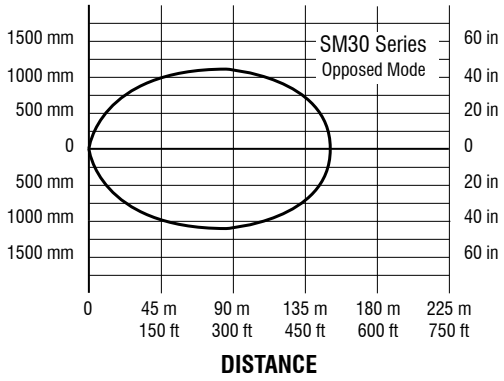
Performance Curves

Excess Gain Curve

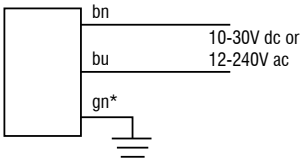


Beam Pattern

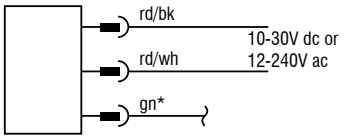


Hookups

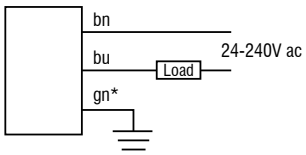
Emitters – Cabled



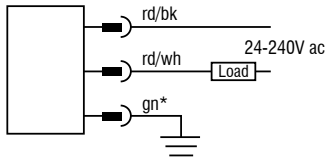
Emitters – QD



AC Receivers – Cabled



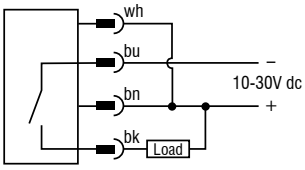
AC Receivers – QD



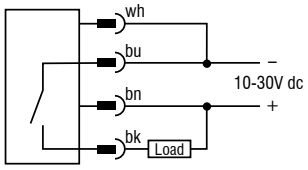
NOTE: AC emitters are not polarity-sensitive when powered by dc voltage. For QD emitters, use SM30CC model cables listed on page 4 in order to match cable colors.

*Connect green wire to earth ground whenever a stainless steel model is powered by ac voltage. (Cabled plastic models have no green wire.)

DC Receivers – NPN

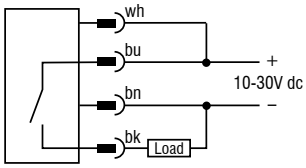


Light Operate

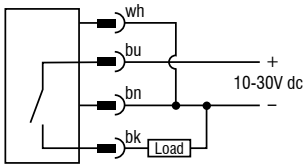


Dark Operate

DC Receivers – PNP



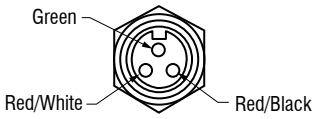
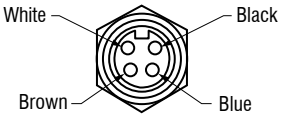
Light Operate



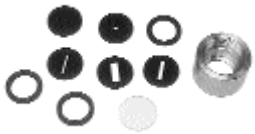
Dark Operate

NOTE: Where QD hookups only are shown, cabled model hookups are functionally identical.

Quick-Disconnect (QD) Cables

Style	Model	Length	Connector	Use with	Pinout
3-pin Mini-Style	**SM30CC-306** **SM30CC-312**	2 m (6.5') 4 m (12')	Straight	Emitters and AC receivers	
4-pin Mini-Style	**MBCC-406** **MBCC-412** **MBCC-430**	2 m (6.5') 4 m (12') 9 m (30')		DC receivers	

Apertures

Model	Description		
APG30S	**Kit includes: a thread-on stainless steel housing, a flat glass lens, two quad-ring seals, plus 3 round and 3 slotted aperture disks**		

Mounting Brackets

	**SMB30A**	• 30 mm, 12-gauge, stainless steel, right-angle bracket with a curved mounting slot for versatile orientation • Clearance for M6 (1/4") hardware
	SMB30C	• 30 mm split clamp bracket • Black reinforced thermoplastic polyester • Includes stainless steel mounting hardware
	**SMB30MM**	• 30 mm, 12-gauge, stainless steel, right-angle bracket with curved mounting slots for versatile orientation • Clearance for M6 (1/4") hardware
	**SMB30SC**	• 30 mm swivel bracket • Black reinforced thermoplastic polyester • Includes stainless steel mounting and swivel locking hardware

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