



## S30 DC

### Highly Durable, DC-Operated Plastic Barrel-Mount Sensors

Epoxy-encapsulated sensors provide superior durability and reliable sensing over a long range.

- Long-range opposed mode
- Features 30 mm plastic threaded barrel
- Available in opposed, retroreflective and fixed-field modes
- Ideal for use in harsh sensing environments
- Cordsets and brackets see page 208

#### Opposed S30, 10-30 V DC

→ Infrared LED

Sensing Mode	Range	Connection	Models NPN	Models PNP
 OPPOSED	60 m	2 m	S306E Emitter	
		4-Pin Euro QD	S306EQ Emitter	
		2 m	S30SN6R	S30SP6R
		4-Pin Euro QD	S30SN6RQ	S30SP6RQ

#### Polar Retro S30, 10-30 V DC

→ Visible Red LED

Sensing Mode	Range	Connection	Models NPN	Models PNP
 POLAR RETRO	6 m†	2 m	S30SN6LP	S30SP6LP
		4-Pin Euro QD	S30SN6LPQ	S30SP6LPQ

#### Fixed-Field S30, 10-30 V DC

→ Infrared LED

Sensing Mode	Range	Connection	Models NPN	Models PNP
 FIXED-FIELD	0 - 200 mm Cutoff	2 m	S30SN6FF200	S30SP6FF200
		4-Pin Euro QD	S30SN6FF200Q	S30SP6FF200Q
	0 - 400 mm Cutoff	2 m	S30SN6FF400	S30SP6FF400
		4-Pin Euro QD	S30SN6FF400Q	S30SP6FF400Q
	0 - 600 mm Cutoff	2 m	S30SN6FF600	S30SP6FF600
		4-Pin Euro QD	S30SN6FF600Q	S30SP6FF600Q

For more specifications see page 209.

**Connection options:** A model with a QD requires a mating cordset (see page 208).

For 9 m cable, add suffix **W/30** to the 2 m model number (example, **S30SP6LP W/30**).

† Retroreflective range is specified using one model BRT-3 retroreflector.

Actual sensing range may differ, depending on the efficiency and reflective area of the retroreflector used. See Accessories for more information.



## S30 AC

### Highly Durable, AC-Operated Plastic Barrel-Mount Sensors

Epoxy-encapsulated sensors provide superior durability and reliable sensing over a long range.

- Long-range opposed mode
- Features 30 mm plastic threaded barrel
- Available in opposed, retroreflective and fixed-field modes
- Ideal for use in harsh sensing environments
- Cordsets and brackets see page 208

#### Opposed S30, 20-250 V AC

Infrared LED

Sensing Mode	Range	Connection	Models LO	Models DO
 OPPOSED	60 m	2 m	S303E Emitter	
		4-Pin Micro QD	S303EQ1 Emitter	
		2 m	S30AW3R	S30RW3R
		4-Pin Micro QD	S30AW3RQ1	S30RW3RQ1

#### Polar Retro S30, 20-250 V AC

Visible Red LED

Sensing Mode	Range	Connection	Models LO	Models DO
 POLAR RETRO	6 m†	2 m	S30AW3LP	S30RW3LP
		4-Pin Micro QD	S30AW3LPQ1	S30RW3LPQ1

#### Fixed-Field S30, 20-250 V AC

Infrared LED

Sensing Mode	Range	Connection	Models LO	Models DO
 FIXED-FIELD	0 - 200 mm Cutoff	2 m	S30AW3FF200	S30RW3FF200
		4-Pin Micro QD	S30AW3FF200Q1	S30RW3FF200Q1
	0 - 400 mm Cutoff	2 m	S30AW3FF400	S30RW3FF400
		4-Pin Micro QD	S30AW3FF400Q1	S30RW3FF400Q1
	0 - 600 mm Cutoff	2 m	S30AW3FF600	S30RW3FF600
		4-Pin Micro QD	S30AW3FF600Q1	S30RW3FF600Q1

For more specifications see page 210.













**Connection options:** A model with a QD requires a mating cordset (see page 208).


For 9 m cable, add suffix **W30** to the 2 m model number (example, **S30SP6LP W30**).

† Retroreflective range is specified using one model BRT-3 retroreflector, unless otherwise noted.





Actual sensing range may differ, depending on the efficiency and reflective area of the retroreflector used. See Accessories section for more information.


Cordsets

Euro QD (for Q models)				Micro QD (for Q1 models)			
See page 906				See page 919			
Length	Threaded 4-Pin			Length	Threaded 4-Pin		
	Straight	Right-Angle			Straight	Right-Angle	
1.83 m	 MQDC-406	 MQDC-406RA		1.83 m	 MQAC-406	 MQAC-406RA	
4.57 m	 MQDC-415	 MQDC-415RA		4.57 m	 MQAC-415	 MQAC-415RA	
9.14 m	 MQDC-430	 MQDC-430RA		9.14 m	 MQAC-430	 MQAC-430RA	

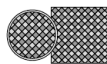

 Additional cordset information available.  
See page 902.

Brackets

S30			
See page 872	See page 872	See page 873	See page 873
SMB30A	SMB30FA..	SMB30SC	SMBAMS30P
			

 Additional brackets and information available.  
See page 852.

Other Accessories

Reflectors	Apertures
See page 932	See page 958
	






S30 DC Opposed, Polarized Retroreflective and Fixed-Field Models  
Suffix E, R, LP and FF






S30 AC Opposed, Polarized Retroreflective and Fixed-Field Models  
Suffix E, R, LP and FF

## S30 DC Specifications

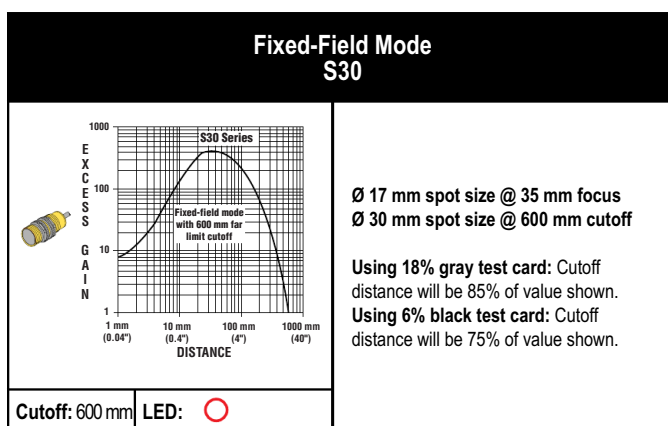
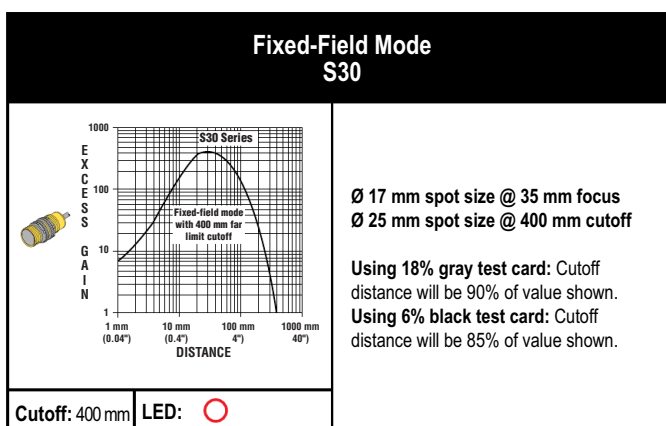
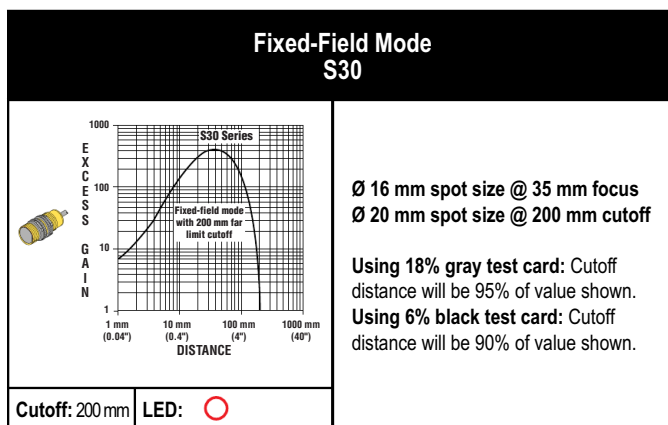
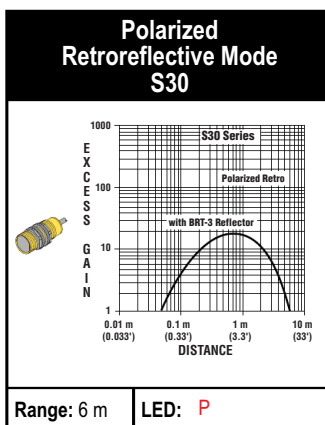
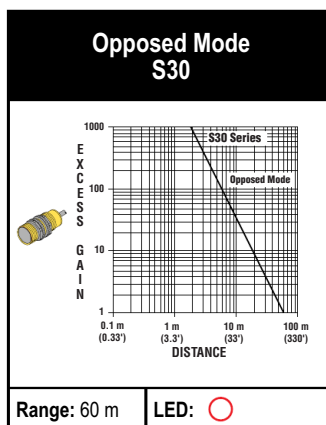
Supply Voltage and Current	10 to 30 V dc (10% max. ripple); Supply current (exclusive of load current): <b>Opposed Emitters:</b> 25 mA <b>Opposed Receivers:</b> 20 mA <b>Polarized Retroreflective:</b> 30 mA <b>Fixed-Field:</b> 35 mA
Supply Protection Circuitry	Protected against reverse polarity and transient voltages
Output Configuration	Solid-state complementary; choose NPN (current sinking) or PNP (current sourcing) models. The Dark Operate (DO) output may be wired as a normally open marginal signal alarm output, depending upon hookup to the power supply.
Output Rating	150 mA max. (each) in standard hookup; When wired for alarm output, the total load may not exceed 150 mA <b>OFF-state leakage current:</b> less than 1 $\mu$ A at 30 V dc <b>ON-state saturation voltage:</b> less than 1 V at 10 mA dc; less than 1.5 V at 150 mA dc
Output Protection Circuitry	Protected against false pulse on power-up and continuous overload or short circuit of outputs
Output Response Time	<b>Opposed:</b> 3 milliseconds ON; 1.5 milliseconds OFF <b>Polarized Retroreflective and Fixed-Field:</b> 3 milliseconds ON/OFF
Delay at Power-up	100 milliseconds; outputs are non-conducting during this time
Repeatability	<b>Opposed:</b> 375 microseconds <b>Polarized Retroreflective and Fixed-Field:</b> 750 microseconds Repeatability and response are independent of signal strength
Indicators	<b>Two LEDs:</b> <b>Solid Green:</b> Power ON <b>Flashing Green:</b> output over loaded <b>Solid Yellow:</b> Light Operate (LO) energized <b>Flashing Yellow:</b> marginal excess gain See datasheet for detailed information
Construction	Housings are thermoplastic polyester. Lenses are polycarbonate or acrylic; two jam nuts included.
Environmental Rating	Leakproof design rated NEMA 6P, IP67. QD models rated IP69K per DIN 40050-9.
Connections	2 m or 9 m attached cable, or 4-pin Euro-style quick-disconnect fitting. QD cordsets are ordered separately. See page 208.
Operating Conditions	<b>Temperature:</b> -40° to +70° C <b>Relative humidity:</b> 90% at 50° C (non-condensing)
Vibration and Mechanical Shock	All models meet Mil. Std. 202F requirements. Method 201A (Vibration; frequency 10 to 60 Hz, max., double amplitude 0.06-inch acceleration 10G). Method 213B conditions H&I (Shock: 75G with unit operating; 100G for non-operation)
Certifications	   <b>ECOLAB®</b> chemical compatibility pending on some models; contact Banner Engineering for details

## S30 AC Specifications

Supply Voltage and Current	20 to 250 V ac (50/60 Hz). <b>Average current:</b> 20 mA <b>Peak current:</b> 200 mA at 20 V ac, 500 mA at 120 V ac, 750 mA at 250 V ac
Supply Protection Circuitry	Protected against transient voltages
Output Configuration	Solid-state ac switch; three-wire hookup; choose Light Operate (LO) or Dark Operate (DO) models; <b>Light Operate:</b> Output conducts when the sensor sees its own (or the emitter's) modulated light <b>Dark Operate:</b> Output conducts when sensor sees dark
Output Rating	300 mA max. (continuous) <b>Fixed-Field:</b> derate 5 mA/° C above +50° C <b>Inrush capability:</b> 1 amp for 20 milliseconds, non-repetitive <b>OFF-state leakage current:</b> less than 100 µA <b>ON-state voltage drop:</b> 3 V at 300 mA ac; 2 V at 15 mA ac
Output Protection Circuitry	Protected against false pulse on power-up
Output Response Time	<b>Opposed:</b> 16 milliseconds ON; 8 milliseconds OFF <b>Polarized Retroreflective and Fixed-Field:</b> 16 milliseconds ON/OFF
Delay at Power-up	100 milliseconds
Repeatability	<b>Opposed:</b> 2 milliseconds <b>Polarized Retroreflective and Fixed-Field:</b> 4 milliseconds Repeatability and response are independent of signal strength
Indicators	<b>Two LEDs:</b> <b>Solid Green:</b> Power ON <b>Solid Yellow:</b> Light Operate (LO) energized <b>Flashing Yellow:</b> marginal excess gain See datasheet for detailed information
Construction	Housings are thermoplastic polyester. Lenses are polycarbonate or acrylic; two jam nuts included
Environmental Rating	Leakproof design rated NEMA 6P, IP67. QD models rated IP69K per DIN 40050-9
Connections	2 m or 9 m attached cable, or 4-pin Micro-style quick-disconnect fitting QD cordsets are ordered separately. See page 208.
Operating Conditions	<b>Temperature:</b> -40° to +70° C <b>Relative humidity:</b> 90% at 50° C (non-condensing)
Vibration and Mechanical Shock	All models meet Mil. Std. 202F requirements. Method 201A (Vibration; frequency 10 to 60 Hz, max, double amplitude 0.06-inch acceleration 10G). Method 213B conditions H&I (Shock: 75G with unit operating; 100G for non-operation).
Certifications	   <b>ECOLAB®</b> chemical compatibility pending on some models; contact Banner Engineering for details

## Excess Gain Curves (Fixed-Field mode performance based on 90% reflectance white test card)

○ = Infrared LED    P = Visible Red LED Polarized



## Beam Patterns

○ = Infrared LED    P = Visible Red LED Polarized

