

# S30 Sensors DC-Voltage Series



## Quick Start Guide

Self-Contained, DC-Operated Sensors

For additional technical information about this product, including complete instructions, dimensions, accessories, and specifications, see <http://www.bannerengineering.com> and search 121520.



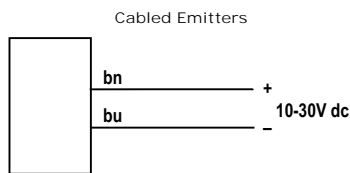
### WARNING: Not To Be Used for Personnel Protection

Never use this device as a sensing device for personnel protection. Doing so could lead to serious injury or death. This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A sensor failure or malfunction can cause either an energized or de-energized sensor output condition.

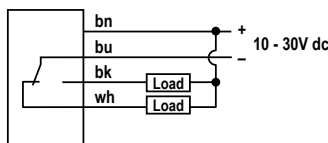
## Models

Sensing Mode	Model <sup>1</sup>	Output	Range	LED
 OPPOSED	S306E	—	60 m (196.8 ft)	Infrared, 950 nm
	S30SN6R	NPN		
	S30SP6R	PNP		
 POLAR RETRO	S30N6LP	NPN	6 m (19.7 ft)	Visible red, 680 nm
	S30SP6LP	PNP		
 FIXED-FIELD	S30SN6FF200	NPN	200 mm (7.9 in) cutoff	Infrared, 880 nm
	S30SP6FF200	PNP		
	S30SN6FF400	NPN	400 mm (15.7 in) cutoff	
	S30SP6FF400	PNP		
	S30SN6FF600	NPN	600 mm (23.6 in) cutoff	
	S30SP6FF600	PNP		

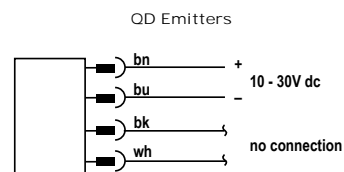
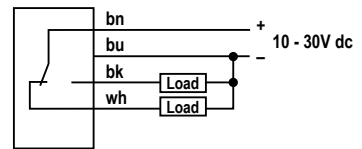
## Wiring Diagrams



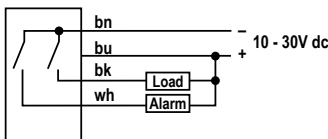
NPN (Sinking) Outputs Standard Hookup



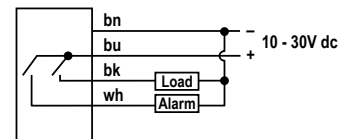
PNP (Sourcing) Outputs Standard Hookup



NPN (Sinking) Outputs Alarm Hookup



PNP (Sourcing) Outputs Alarm Hookup



<sup>1</sup> Standard 2 m (6.5 ft) cable models are listed.

- 9 m (30 ft) cable: add suffix "W/30" (for example, S306E W/30).
- 4-pin Euro-style QD models: add suffix "Q" (for example, S306EQ). A model with a QD connector requires a mating cable.





NOTE: Cabled hookups are shown. QD hookups are functionally identical.

## Specifications

### Supply Voltage and Current

10 V dc to 30 V dc (10% max. ripple); supply current (exclusive of load current):

Emitters, Non-Polarized, Retro: 25 mA

Receivers: 20 mA

Polarized Retroreflective: 30 mA

Fixed-Field: 35 mA

### Supply Protection Circuitry

Protected against reverse polarity and transient voltages

### Output Configuration

SPDT solid-state dc switch; NPN (current sinking) or PNP (current sourcing) outputs, depending on model

Light Operate: N.O. output conducts when sensor sees its own (or the emitter's) modulated light

Dark Operate: N.C. output conducts when the sensor sees dark; the N.C. output may be wired as a normally open marginal signal alarm output, depending upon hookup to power supply

### Environmental Rating

Leakproof design rated NEMA 6P, DIN 40050 (IEC IP69K)

### Construction

PBT polyester housing; polycarbonate (opposed-mode) or acrylic lens

### Required Overcurrent Protection

**WARNING:** Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

Overcurrent protection is required to be provided by end product application per the supplied table.

Overcurrent protection may be provided with external fusing or via Current Limiting, Class 2 Power Supply.

Supply wiring leads &lt; 24 AWG shall not be spliced.

For additional product support, go to <http://www.bannerengineering.com>.

Supply Wiring (AWG)	Required Overcurrent Protection (Amps)
20	5.0
22	3.0
24	2.0
26	1.0
28	0.8
30	0.5

### Output Rating

150 mA maximum (each) in standard hookup. When wired for alarm output, the total load may not exceed 150 mA.

OFF-state leakage current: < 1  $\mu$ A at 30 V dc

ON-state saturation voltage: &lt; 1V at 10 mA dc; &lt; 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

Opposed mode: 3 ms ON, 1.5 ms OFF

Retro, Fixed-Field and Diffuse: 3 ms ON and OFF



NOTE: 100 ms delay on power-up; outputs do not conduct during this time.

### Repeatability

Opposed mode: 375  $\mu$ sRetro, Fixed-Field and Diffuse: 750  $\mu$ s

Repeatability and response are independent of signal strength.

### Indicators

Two LEDs (Green and Yellow)

Green ON steady: power to sensor is ON

Green flashing: output is overloaded

Yellow ON steady: N.O. output is conducting

Yellow flashing: excess gain marginal (1 to 1.5 times) in light condition

### Connections

2 m (6.5 ft) or 9 m (29.5 ft) attached cable or 4-pin Euro-style quick-disconnect fitting

### Operating Conditions

Temperature: -40 °C to +70 °C (-40 °F to +158 °F)

Humidity: 90% at +50 °C maximum relative humidity (non-condensing)

### Vibration and Mechanical Shock

All models meet Mil. Std. 202F requirements. Method 201A (Vibration; frequency 10 Hz to 60 Hz, max., double amplitude 0.06 inch acceleration 10G). Method 213B conditions H&amp;I. (Shock: 75G with unit operating; 100G for non-operation)

### Certifications



## Banner Engineering Corp. Limited Warranty

Banner Engineering Corp. warrants its products to be free from defects in material and workmanship for one year following the date of shipment. Banner Engineering Corp. will repair or replace, free of charge, any product of its manufacture which, at the time it is returned to the factory, is found to have been defective during the warranty period. This warranty does not cover damage or liability for misuse, abuse, or the improper application or installation of the Banner product.

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