S18 Sensors – dc-Voltage Series

Self-contained, dc-operated sensors

Installation Guide

EZ BEAM

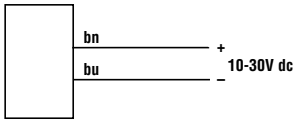


Sensing Mode		Range	LED	Output	Model*
	Opposed	20 m (66')	Infrared 950 nm	–	**S186E**
				NPN	**S18SN6R**
				PNP	**S18SP6R**
	Retro-reflective†	2 m (79")		NPN	**S18SN6L**
				PNP	**S18SP6L**
P	**Polarized Retro-reflective†**		Visible Red 680 nm	NPN	**S18SN6LP**
				PNP	**S18SP6LP**
	Diffuse	100 mm (4")	Infrared 880 nm	NPN	**S18SN6D**
				PNP	**S18SP6D**
		300 mm (12")		NPN	**S18SN6DL**
				PNP	**S18SP6DL**
	Fixed Field	25 mm (1") cutoff		NPN	**S18SN6FF25**
				PNP	**S18SP6FF25**
		50 mm (2") cutoff		NPN	**S18SN6FF50**
				PNP	**S18SP6FF50**
		100 mm (4") cutoff		NPN	**S18SN6FF100**
				PNP	**S18SP6FF100**

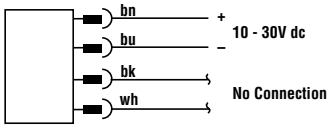
* Standard 2 m (6.5') cable models are listed.
- **9 m (30') cable:** add suffix **"W/30"** (e.g., **S186E W/30**).
- **4-pin Euro-style QD models:** add suffix **"Q"** (e.g., **S186EQ**). A model with a QD connector requires a mating cable.

† Use polarized models when shiny objects will be sensed.

Cabled Emitters

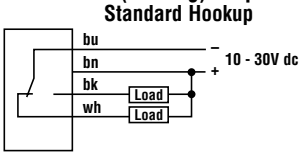


QD Emitters

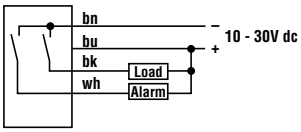


NPN (Sinking) Outputs

Standard Hookup

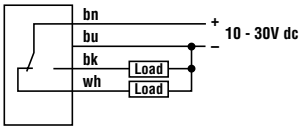


Alarm Hookup

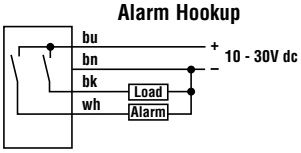


PNP (Sourcing) Outputs

Standard Hookup



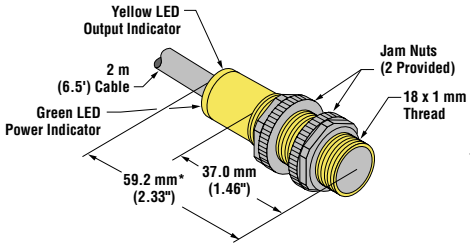
Alarm Hookup



NOTE: QD hookups are functionally identical.

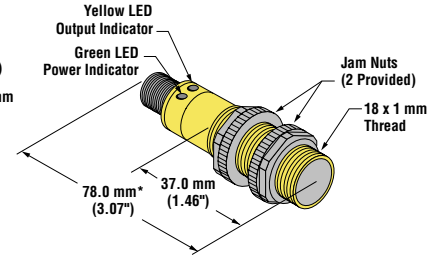
Dimensions

Cabled Models



*Polarized retro and fixed-field models = 65.0 mm (2.56")

QD Models



*Polarized retro and fixed-field models = 83.8 mm (3.30")

EZ BEAM S18 Sensors – dc-Voltage Series

Specifications

Supply Voltage and Current (exclusive of load current): 10 to 30V dc (10% max. ripple); supply current (exclusive of load current):
Emitters, Non-Polarized Retro, Diffuse: 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; Choose NPN (current sinking) or PNP (current sourcing) models
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. (normally closed) output may be wired as a normally open marginal signal alarm output, depending upon hookup to power supply (U.S. patent 5087838)

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 microamp @ 30V dc
ON-state saturation voltage: < 1V at 10 mA dc; < 1.5V 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 µs
Retro, Fixed-Field and Diffuse: 750 µs
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 1.5x) in light condition

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

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

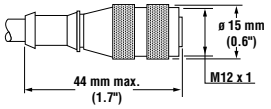
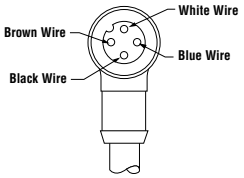
Connections
2 m (6.5') or 9 m (30') attached cable, or 4-pin Euro-style quick-disconnect fitting

Operating Conditions
Temperature: -40° to +70°C (-40° to +158°F)
Maximum relative humidity: 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" acceleration 10G). Method 213B conditions H&I (Shock: 75G with unit operating; 100G for non-operation)

Certifications

Quick-Disconnect (QD) Cables

Style	Model	Length	Dimensions	Pin-Out
4-pin Euro-style Straight	**MQDC-406** **MQDC-415** **MQDC-430**	2 m (6.5') 5 m (15') 9 m (30')		
4-pin Euro-style Right-angle	**MQDC-406RA** **MQDC-415RA** **MQDC-430RA**	2 m (6.5') 5 m (15') 9 m (30')	