Q25 DC Sensors

Quick Start Guide

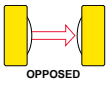
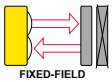
Self-Contained, DC-Operated Sensors

For additional technical information about this product, including complete instructions, dimensions, accessories, and specifications, see *http://www.bannerengineering.com* and search 121518.

WARNING: Not To Be Used for Personnel Protection

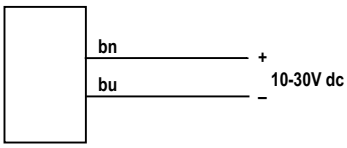
Never use this device as a sensing device for personnel protection. Doing so could lead to serious injury or death. This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A sensor failure or malfunction can cause either an energized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

Models

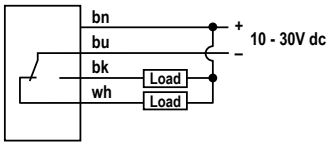
Sensing Mode	Model[1]	Output	Range	LED
 OPPOSED	Q256E	—	20 m (65.6 ft)	Infrared, 950 nm
	Q25SN6R	NPN		
	Q25SP6R	PNP		
 POLAR RETRO	Q25SN6LP	NPN	2 m (6.6 ft)	Visible red, 680 nm
	Q25SP6LP	PNP		
 FIXED-FIELD	Q25SN6FF25	NPN	25 mm (0.9 in) cutoff	Infrared, 880 nm
	Q25SP6FF25	PNP		
	Q25SN6FF50	NPN	50 mm (1.9 in) cutoff	
	Q25SP6FF50	PNP		
	Q25SN6FF100	NPN	100 mm (3.9 in) cutoff	
	Q25SP6FF100	PNP		

Wiring Diagrams

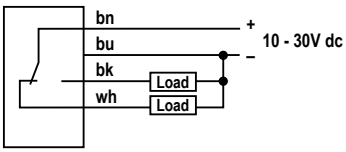
Cabled Emitters



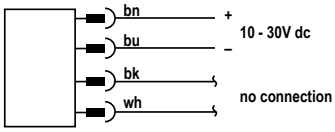
NPN (Sinking) Outputs Standard Hookup



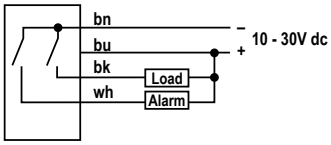
PNP (Sourcing) Outputs Standard Hookup



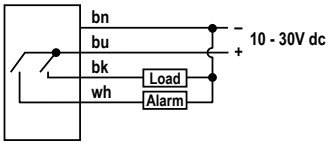
QD Emitters



NPN (Sinking) Outputs Alarm Hookup



PNP (Sourcing) Outputs Alarm Hookup



[1] Standard 2 m (6.5 ft) cable models are listed.

- 9 m (30 ft) cable: add suffix "W/30" (for example, Q256E W/30).
- 4-pin Euro-style QD models: add suffix "Q" (for example, Q256EQ). 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: 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. (normally open) output conducts when sensor sees its own (or the emitter's) modulated light
Dark Operate: N.C. (normally closed) 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 < 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 µA at 30 V dc
ON-state saturation voltage: < 1 V at 10 mA dc; < 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 µs
Retro, Fixed-Field and Diffuse: 750 µs
Repeatability and response are independent of signal strength

Indicators
Two LEDs (Green and Amber)
Green ON steady: power to sensor is ON
Green flashing: output is overloaded
Amber ON steady: N.O. output is conducting
Amber 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&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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