Q25 DC Voltage Series Sensor Quick Start Guide

Features

Self-contained, DC-operated sensors

For complete technical information about this product, including installation instructions, application requirements and guidelines, technical specifications, and accessories, go to www.bannerengineering.com and search 121518.



WARNING:
- **Do not use this device for personnel protection**
- Using this device for personnel protection could result in serious injury or death.
- This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A device failure or malfunction can cause either an energized (on) or de-energized (off) output condition.

Models

Opposed mode sensors

Model	Output	Range	Connections
Q256E	—	20 m (65.6 ft)	2 m (6.5 ft) cable
Q25SN6R	NPN		2 m (6.5 ft) cable
Q25SP6R	PNP		2 m (6.5 ft) cable

Polarized retroreflective mode sensors

Model	Output	Range	Connections
Q25SN6LP	NPN	2 m (6.6 ft)	2 m (6.5 ft) cable
Q25SP6LP	PNP		2 m (6.5 ft) cable

Fixed-field mode sensors

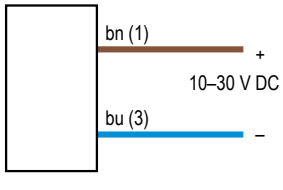
Model	Output	Range	Connections
Q25SP6FF25Q	PNP	25 mm (0.9 in) cutoff	4-pin M12 male quick disconnect
Q25SN6FF50	NPN	50 mm (1.9 in) cutoff	2 m (6.5 ft) cable
Q25SP6FF50	PNP		2 m (6.5 ft) cable
Q25SN6FF100Q	NPN	100 mm (3.9 in) cutoff	4-pin M12 male quick disconnect
Q25SP6FF100	PNP		2 m (6.5 ft) cable

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

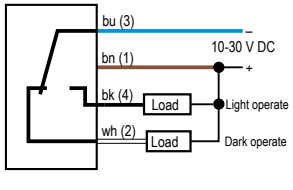
- To order the 4-pin M12 male quick disconnect model, add the suffix "Q" (for example, Q256EQ).
- A model with a quick disconnect connector requires a mating cable.

Wiring Diagrams

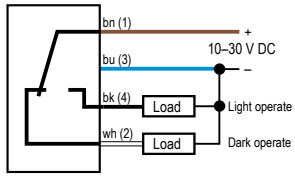
Cabled emitters



NPN standard



PNP standard



Key:
1 = Brown
2 = White
3 = Blue
4 = Black

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Original Instructions
13-May-26

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116165
p/n: 116165 Rev B

ПРОМЭЛЕКТРОНИКА/ sales@prom-elec.com

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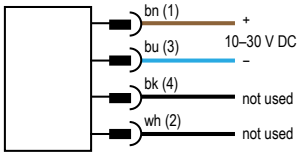
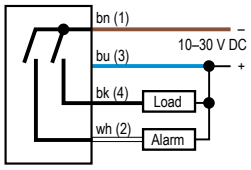
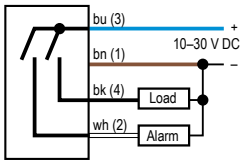
Quick disconnect emitters



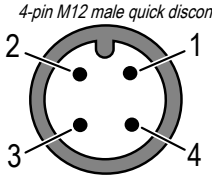
NPN alarm



PNP alarm



4-pin M12 male quick disconnect



In light operate (LO) mode, the output is ON when the target returns the same or more light to the sensor and OFF when the sensor detects less light than the configured/taught target. In **opposed and retroreflective sensing modes**, light operate is active when the beam is unblocked. In **diffuse, fixed field, and adjustable field sensor modes**, light operate is active when the target is present.

In dark operate (DO) mode, the output is ON when the target returns less light to the sensor than the configured target and OFF when the sensor detects more light than the configured/ taught target. In **opposed and retroreflective sensing modes**, dark operate is active when the beam is blocked. In **diffuse, fixed field, and adjustable field sensor modes**, dark operate is active when the target is absent.

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

Sensing Beam (LED)

Opposed mode models: Infrared, 950 nm

Polarized retroreflective models: Visible red, 680 nm

Fixed-field models: Infrared, 880 nm

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 (IP69K per ISO 20653)

Construction

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

Indicators

Two LEDs (Green and Amber)

Green ON steady: Power to the sensor is ON

Green flashing: The 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) attached cable, 9 m (29.5 ft) attached cable, or 4-pin M12 quick-disconnect fitting

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

Operating Conditions

–40 °C to +70 °C (–40 °F to +158 °F)

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

Vibration and Mechanical Shock

All models meet MIL-STD-202F, Method 201A (Vibration: 10 Hz to 60 Hz maximum, 0.06 inch (1.52 mm) double amplitude, 10G acceleration) requirements. Method 213B conditions H&I. (Shock: 75G with device operating; 100G for non-operation)

Certifications

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1831 Diegem, BELGIUM

Turck Banner LTD Blenheim House
Blenheim Court
Wickford, Essex SS11 8YT
GREAT BRITAIN

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 www.bannerengineering.com.

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

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