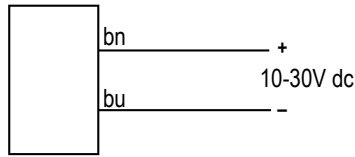
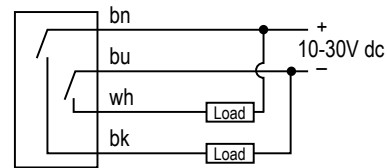


Wiring Diagrams

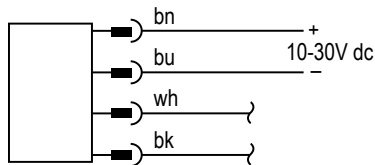
Emitters with Attached Cable



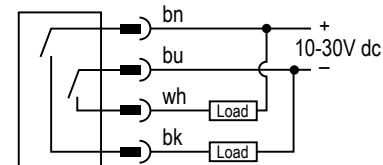
All Other Models with Attached Cable



Emitters with Quick Disconnect (4-pin Euro-Style)



All Other Models with Quick Disconnect (4-pin Euro-Style)



The output type for all models is Bipolar NPN/PNP; load 150 mA max., each output.

Specifications

Supply Voltage and Current

10 to 30 V dc (10% maximum ripple) at less than 25 mA (exclusive of load)

Supply Protection Circuitry

Protected against reverse polarity and transient voltages

Output Configuration

Bipolar: One current sourcing (PNP) and one current sinking (NPN) open-collector transistor

Output Rating

150 mA maximum each output at 25 °C, derated to 100 mA at 70 °C (derate ≈ 1 mA per °C)

Off-state leakage current: < 1 microamp

Output saturation voltage (PNP output): < 1 volt at 10 mA and < 2 volts at 150 mA

Output saturation voltage (NPN output): < 200 millivolts at 10 mA and < 1 volt at 150 mA

Output Protection Circuitry

Protected against false pulse on power-up and continuous overload or short-circuit of outputs

Output Response Time

Sensors will respond to either a "light" or a "dark" signal of 1 millisecond or longer duration, 500 Hz max. 0.3 millisecond response modification is available. See note below.

(100 millisecond delay on power-up; outputs do not conduct during this time.)

To order dc MINI-BEAMS with 0.3 millisecond on/off response, add the suffix "MHS" to the model numbers (e.g. SM31EMHS & SM31RMHS). This modification reduces sensing range (and excess gain).

Adjustments

LIGHT/DARK OPERATE select switch, and 15-turn slotted brass screw GAIN (sensitivity) adjustment potentiometer (clutched at both ends of travel). Both controls are located on rear panel of sensor and protected by a gasketed, clear acrylic cover.

Indicators

Exclusive, patented Alignment Indicating Device system (AID™, US patent #4356393) lights a rear-panel mounted red LED indicator whenever the sensor sees a "light" condition, with a superimposed pulse rate proportional to the light signal strength (the stronger the signal, the faster the pulse rate).

Construction

Reinforced thermoplastic polyester housing, totally encapsulated, o-ring sealing, acrylic lenses, and stainless steel screws.

Environmental Rating

Meets NEMA standards 1, 2, 3, 3S, 4, 4X, 6, 12, and 13; IEC IP67

Connections

PVC-jacketed 4-conductor 2 m (6.5 ft) or 9 m (30 ft) cables, or 4-pin Euro-style quick disconnect (QD) fitting are available. QD cables are ordered separately.

Operating Temperature

Temperature: -20 °C to +70 °C (-4 °F to +158 °F)

Maximum relative humidity: 90% at 50 °C (non-condensing)

Application Notes

The NPN (current sinking) output of dc MINI-BEAM sensors is directly compatible as an input to Banner logic modules, including all non-amplified MAXI-AMP and MICRO-AMP modules. MINI-BEAMS are TTL compatible.

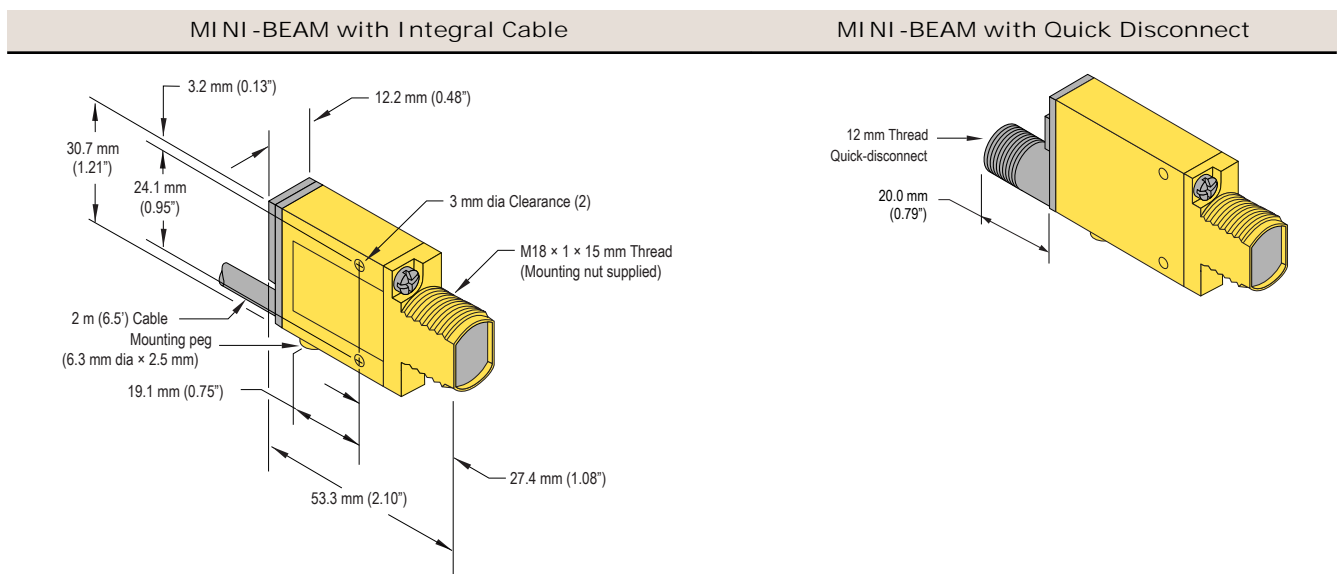
Certifications



MINI-BEAM Model Modifications

Model Suffix	Modification	Description	Example of Model Number
W/30	9 meter (30 ft) cable	All MINI-BEAM sensors may be ordered with an integral 9 m (30 ft) cable in place of the standard 2 m (6.5 ft) cable	SM31E W/30
MHS	Modified for High Speed	Standard dc MINI-BEAM sensors with 1 millisecond output response may be modified for 0.3 millisecond (300 μs) response. NOTE: Faster response comes at the expense of lower excess gain. Also, the operating temperature range becomes -20 °C to +50 °C (-4 °F to +122 °F)	SM31EMHS NOTE: Emitter and receiver must both have MHS modification
QDP	Pigtail Quick Disconnect	All MINI-BEAMS may be built with a 150 mm (6 inch) long integral cable terminated with the appropriate QD connector.	SM31EQDP

Dimensions



Accessories

Replacement Lens Assemblies

UC-300E

- Replacement lens for the E/R models

UC-300EL

- Replacement lens for the EL/RL models
- Or extends the range of the E/R models

