


MINI-BEAM[®] Plastic Fiber Optic Sensors – DC Models

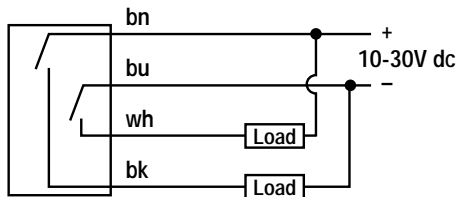
MINI-BEAM DC Plastic Fiber Optic Sensor Specifications

Supply Voltage and Current	10 to 30V 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	150mA maximum each output at 25°C, derated to 100 mA at 70°C (derate ≈1 mA per °C) Off-state leakage current less than 1 microamp Output saturation voltage (PNP output) less than 1 volt at 10 mA and less than 2 volts at 150 mA Output saturation voltage (NPN output) less than 200 millivolts at 10 mA and less than 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. NOTE: DC MINI-BEAMS may be ordered with 0.3 millisecond ON/OFF response by adding suffix "MHS" to the model number (e.g., SM312FPMHS). This modification reduces sensing range (and excess gain).
Repeatability	0.3 milliseconds. Response time and repeatability specifications are independent of signal strength.
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') or 9 m (30') cables, 4-pin Euro-style quick-disconnect (QD) fitting or 150 mm (6") pigtail are available. QD cables are ordered separately. See page 5.
Operating Conditions	Temperature: -20° to +70°C (-4° 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	

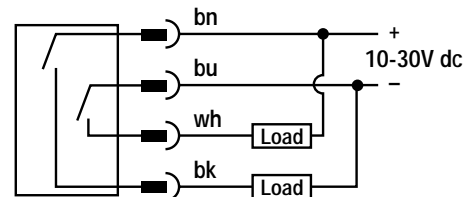
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MINI-BEAM DC Plastic Fiber Optic Sensor Hookups

DC Sensors with Attached Cable

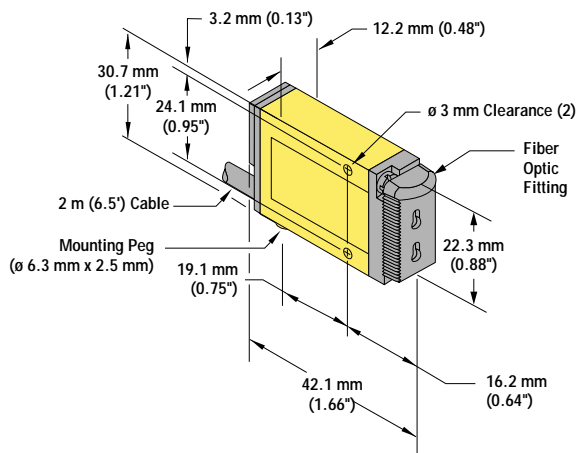


DC Sensors with Quick-Disconnect (4-Pin Euro-Style)

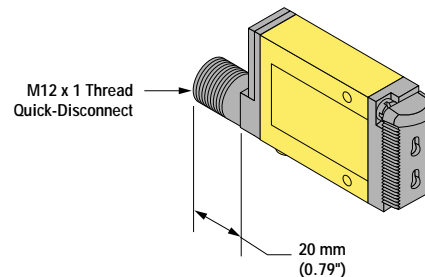


MINI-BEAM DC Plastic Fiber Optic Sensor Dimensions

MINI-BEAM Models with Integral Cable



MINI-BEAM Models with Quick-Disconnect



Accessories

MINI-BEAM Modifications

Model Suffix	Modification	Description	Example of Model Number
W/30	9 m (30') cable	All MINI-BEAM sensors may be ordered with an integral 9 m (30') cable in place of the standard 2 m (6.5') cable	SM312FP 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, operating temperature range becomes -20° to +50°C (-4° to +122°F).	SM312FPMHS
QDP	Pigtail Quick-Disconnect	All MINI-BEAMS may be built with a 150 mm (6") long integral cable, terminated with the appropriate QD connector.	SM312FPQDP

