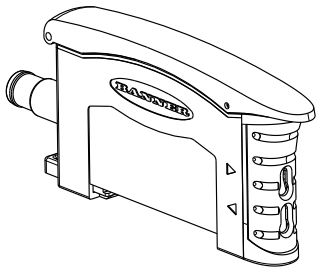
D10—Discrete Output

Datasheet

Low-cost, 10 to 30 V dc Sensor for use with Plastic Fiber Optics



- Models available with visible red (660 nm) or visible green (525 nm) LED light source
- Sleek, ultra-slim 10 mm housing, mounts to standard 35 mm DIN rail
- Solid-state, bipolar discrete outputs: one current sourcing (PNP) and one current sinking (NPN)
- High-speed models: 200-microsecond output response
- Standard models: 500-microsecond output response plus crosstalk-avoidance circuitry (for applications with multiple sensors)
- Selectable Light/Dark Operate and 40 millisecond pulse stretcher (OFF-delay), via two easy-to-operate slide switches
- 12-turn Sensitivity adjustment with relative position indicator
- LED status indicators for Power ON and Light Sensed (AID™) indication
- Models available with integral cable or Pico-style quick-disconnect

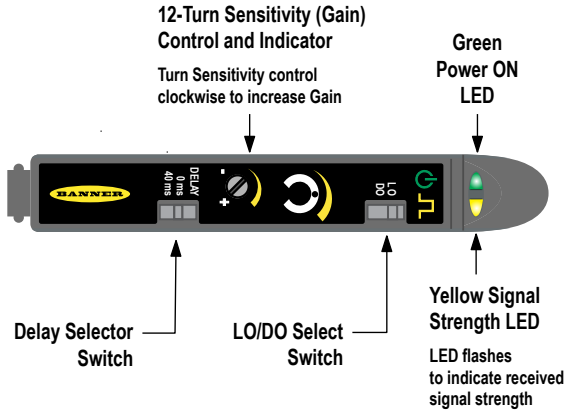
WARNING: Not To Be Used for Personnel Protection

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

Red Beam (660 nm)	Green Beam (525 nm)	Response Time	Cable[1]	Output Type
D10AFP	D10AFPG	500 microseconds	4-conductor 2 m (6.5 ft) Cable	Bipolar NPN/PNP Solid-state
D10AFPQ	D10AFPGQ		4-pin Pico-style QD	
D10AFPY	D10AFPGY	200 microseconds	4-conductor 2 m (6.5 ft) Cable	
D10AFPYQ	D10AFPGYQ		4-pin Pico-style QD	

Features

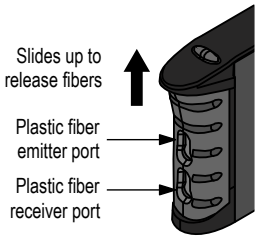


[1] To order the 9 m (30 ft) PVC cable model, add the suffix "W/30" to the cabled model number. For example, D10AFP W/30. Models with a quick disconnect require a mating cordset.

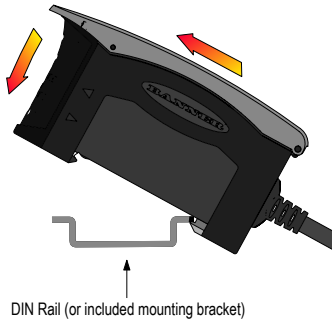
Installation

Installing Fibers and Housing

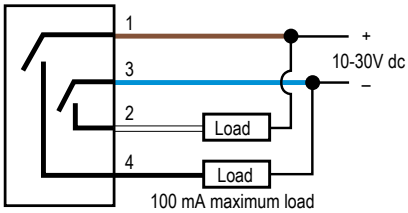
Installing Fibers



Mounting the D10 on a DIN Rail or the Mounting Bracket



Wiring Diagram



Key

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

NOTE: Quick disconnect (QD) wiring diagrams are functionally identical.

Specifications

Sensing Beam
Visible red, 660 nm or Visible green, 525 nm , depending on model

Supply Voltage
10 to 30 V dc (10% max. ripple) at less than 25 mA, exclusive of load

Supply Protection Circuitry
Protected against reverse polarity and transient voltages

Output Configuration
Bipolar: 1 current sourcing (PNP) and 1 current sinking (NPN)

Output Rating
100 mA per output with short circuit protection
OFF-state leakage current: < 10 µA sourcing; 200 µA sinking
ON-state saturation voltage:

NPN: 1.6 V at 100 mA
PNP: 2.0 V at 100 mA

Output Protection
Protected against output short-circuit and false pulse on power up

NOTE: Maximum 100 ms delay on power up; outputs do not conduct during this time

Output Response Time
Standard models (with crosstalk avoidance circuitry): 500 microseconds
High-speed models: 200 microseconds

Repeatability
Standard models: 95 microseconds
High-speed models: 50 microseconds

Adjustments
12-turn Sensitivity potentiometer with relative position indicator; LO/DO Selection switch; 0 or 40 ms off delay switch

NOTE: Use proper ESD techniques while making adjustments under cover.

Indicators
Two LEDs: Green and Amber
Green ON steady: Power ON
Amber flashing: Light Sensed Signal strength indicator (Banner's AID™ Alignment Indicating Device—the faster the flash, the more light is received)

Construction
Black ABS/polycarbonate alloy (UL94 V-0 rated) housing, clear polycarbonate cover

Environmental Rating
IEC IP50, NEMA 1

Connections
2 m or 9 m (6.5 ft or 30 ft) attached cable, or 4-pin Pico-style quick-disconnect fitting; cables for QD models are purchased separately

Operating Conditions
Operating Temperature: −10 °C to +55 °C (+14 °F to +131 °F)
Storage Temperature: −20 °C to +85 °C (−4 °F to +185 °F)
90% at +55 °C maximum relative humidity (non-condensing)

Required Overcurrent Protection

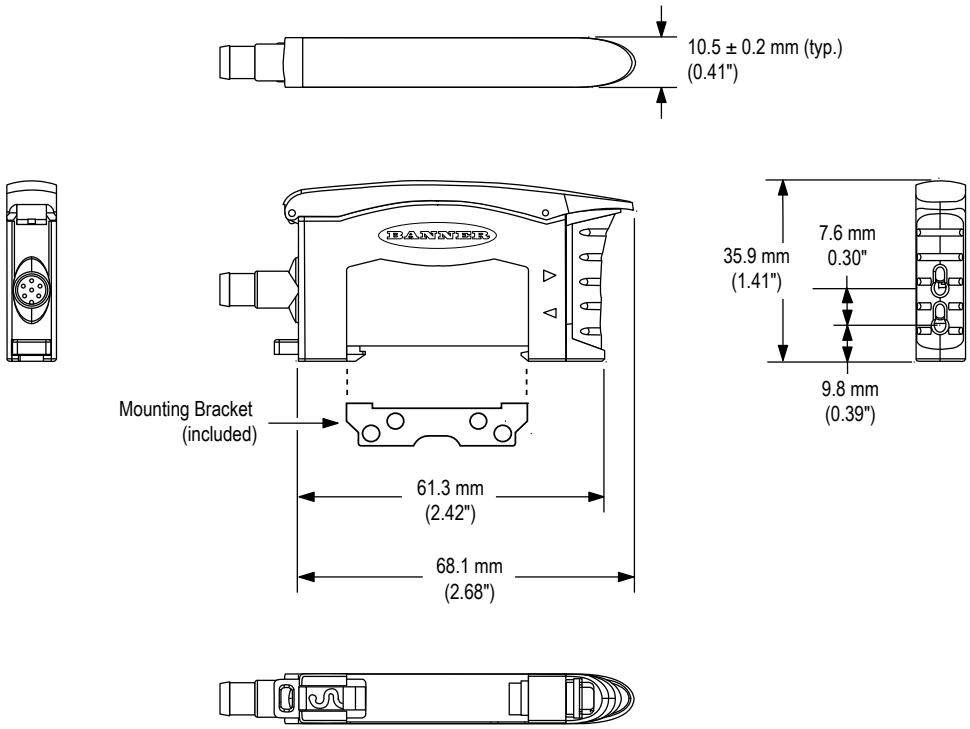
WARNING: Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

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 (Amps)
20	5.0
22	3.0
24	2.0
26	1.0
28	0.8
30	0.5

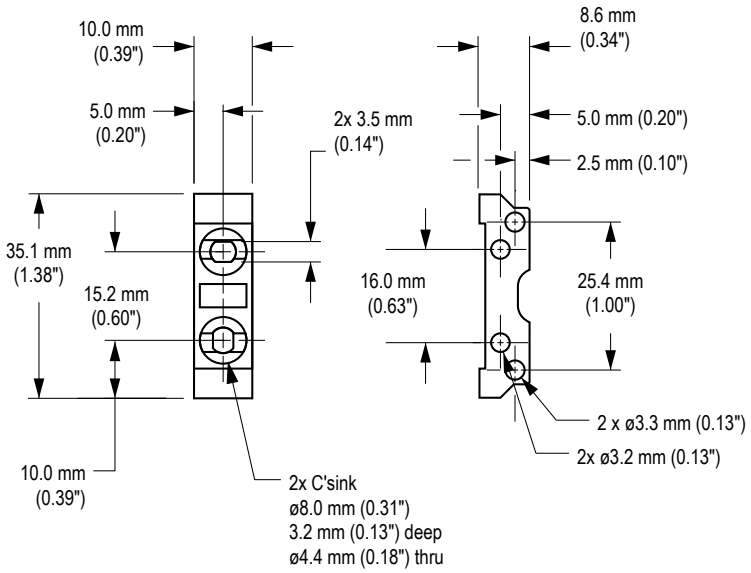
Certifications

Dimensions



All measurements are listed in millimeters [inches], unless noted otherwise.

Included Bracket Dimensions

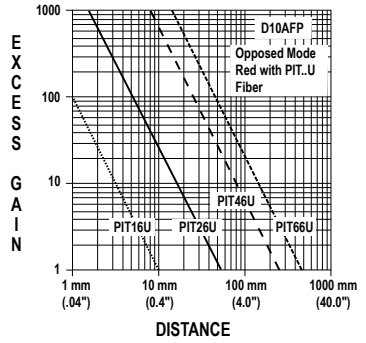


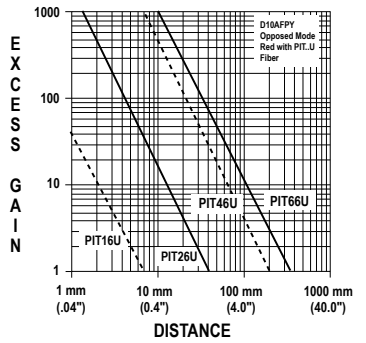
M3 Hardware included:
- Lock Washer (2)
- Flat Washer (2)
- Screws (2)
- Hex Nuts (2)

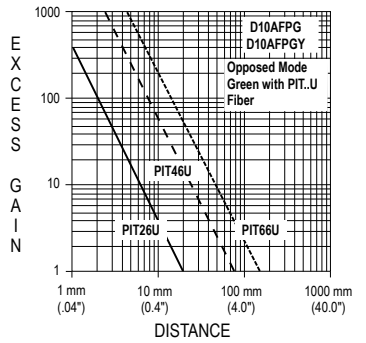
Performance Curves

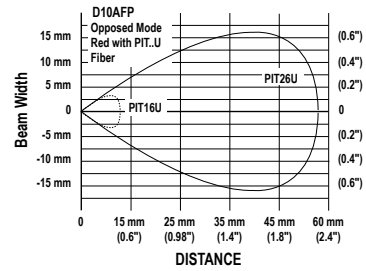
Opposed Mode

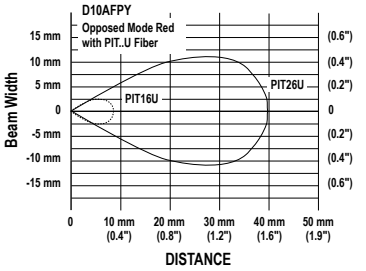
Red Beam Models	High-Speed Red Beam Models	Green Beam Models

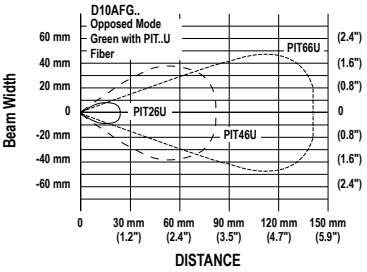


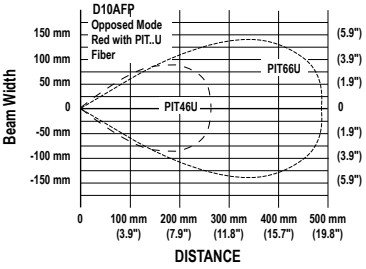


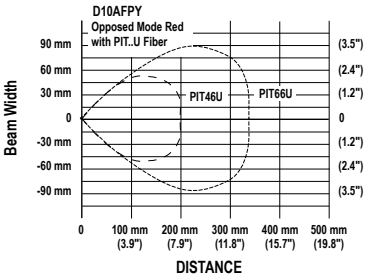






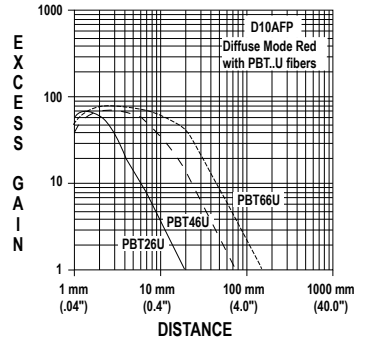


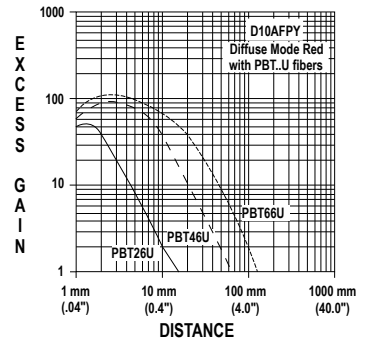


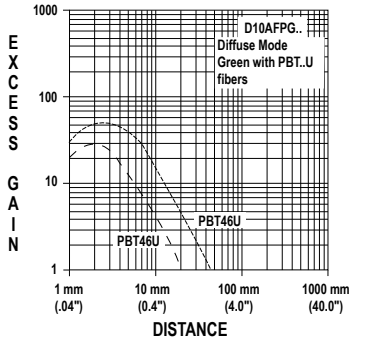


Diffuse Mode

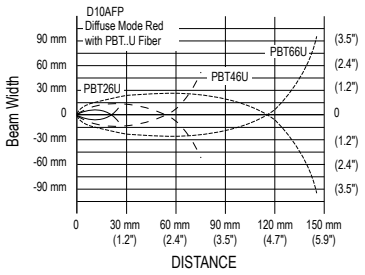
Red Beam Models	High-Speed Red Beam Models	Green Beam Models

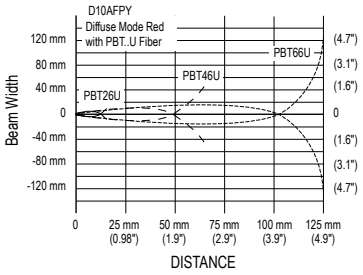


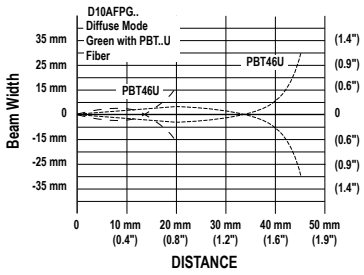




Red Beam Models	High-Speed Red Beam Models	Green Beam Models

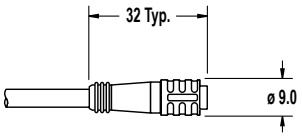
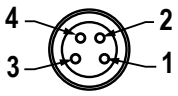
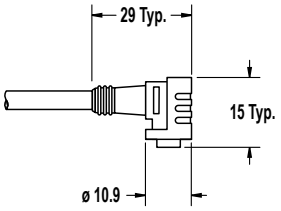






Accessories

4-Pin Snap-on M8/Pico-Style Cordsets

Model	Length	Style	Dimensions	Pinout (Female)
PKG4-2	2 m (6.56 ft)	Straight		 1 = Brown 2 = White 3 = Blue 4 = Black
PKW4Z-2	2 m (6.56 ft)	Right-Angle		

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