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D10 — Discrete Output

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

Features

- 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

Models

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

* 9 m (30') cables are available by adding suffix **"W/30"** to the model number of any cabled sensor (e.g., **D10AFP W/30**). A model with a QD connector requires a mating cordset (see page 4).

⚠ WARNING . . . Not To Be Used for Personnel Protection

Never use these products as sensing devices for personnel protection. Doing so could lead to serious injury or death.

These sensors do NOT include the self-checking redundant circuitry necessary to allow their use in personnel safety applications. A sensor failure or malfunction can cause either an energized or de-energized sensor output condition. Consult your current Banner Safety Products catalog for safety products which meet OSHA, ANSI and IEC standards for personnel protection.

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Specifications

Sensing Beam	660 nm visible red or 525 nm visible green, depending on model
Supply Voltage	10 to 30V dc (10% max. ripple) @ 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:** 1.6V @ 100 mA **PNP:** 2.0V @ 100 mA
Output Protection	Protected against output short-circuit and false pulse on power up (max. 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 Yellow **Green ON steady**: Power ON **Yellow 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' or 30') attached cable, or 4-pin Pico-style quick-disconnect fitting; cables for QD models are purchased separately
Operating Conditions	**Temperature:** −10° to +55° C (+14° to 131° F) **Storage:** −20° to +85° C (−4° to +185° F) **Relative Humidity:** 90% @ 55° C (non-condensing)
Certifications	CE cULus

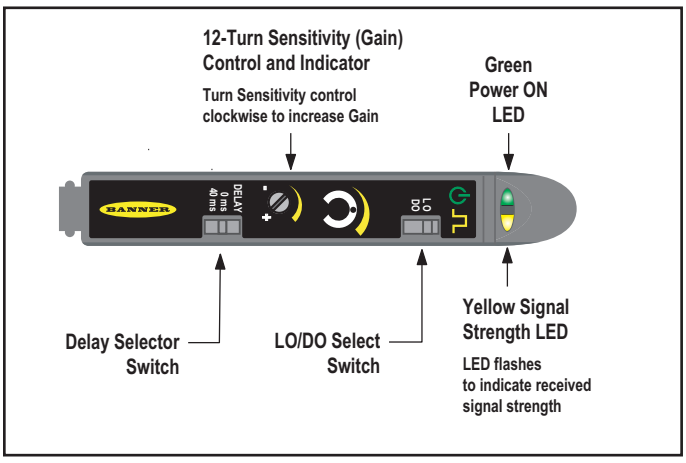

Figure 1. D10 Bipolar Discrete sensor features

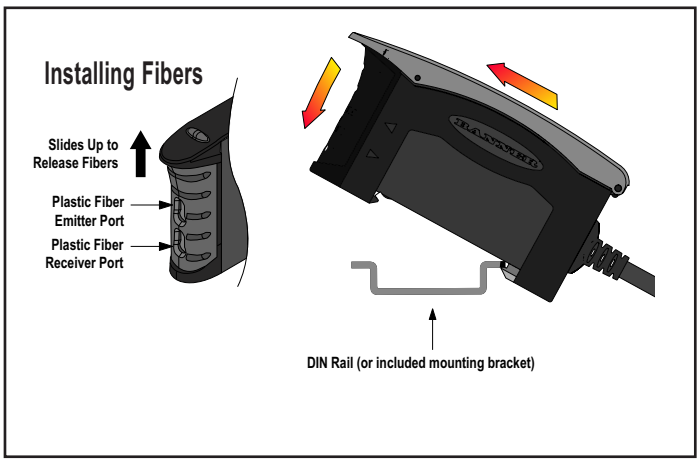

Figure 2. Installing D10 fibers and housing

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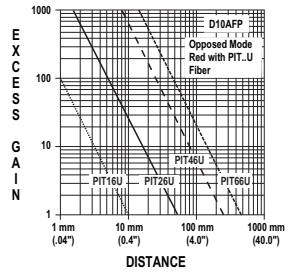
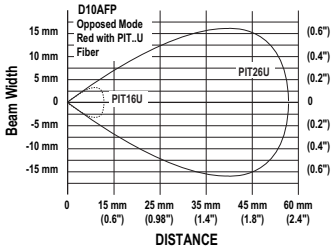
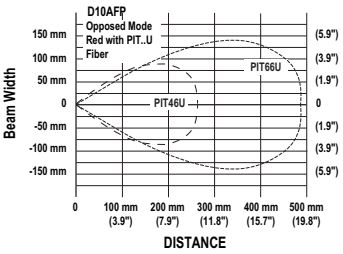
Performance Curves

Opposed Mode

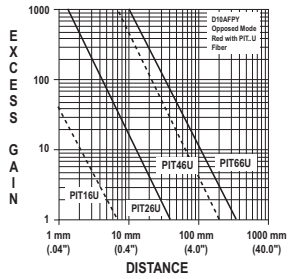
Red Beam Models

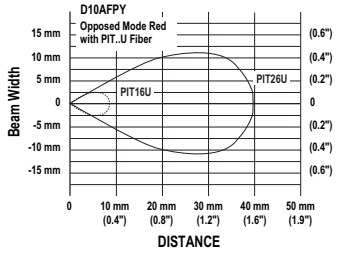


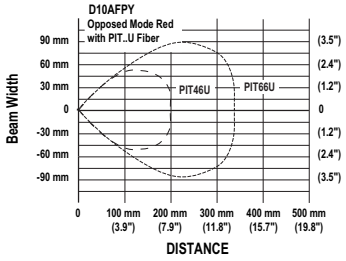




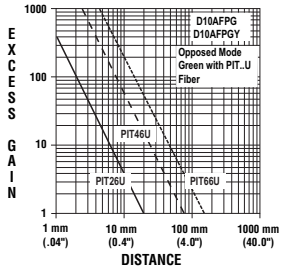
High-Speed Red Beam Models

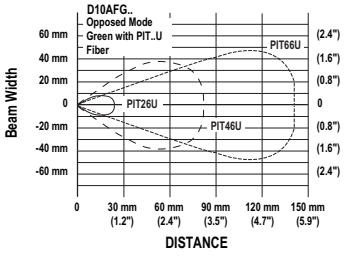






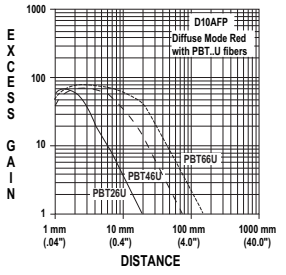
Green Beam Models

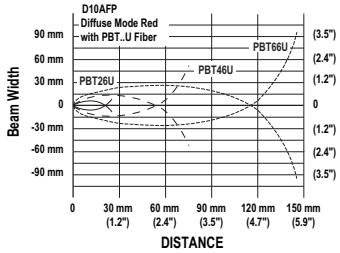




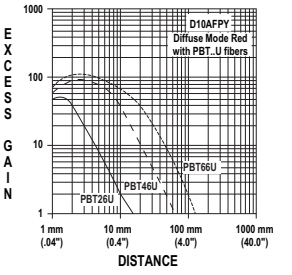
Diffuse Mode

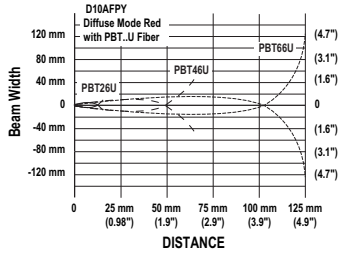
Red Beam Models



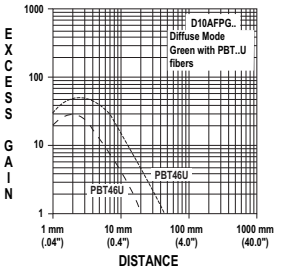


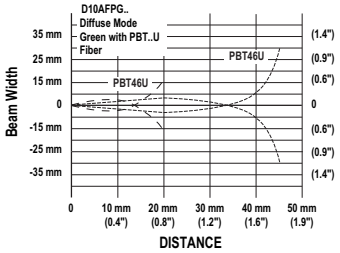
High-Speed Red Beam Models





Green Beam Models

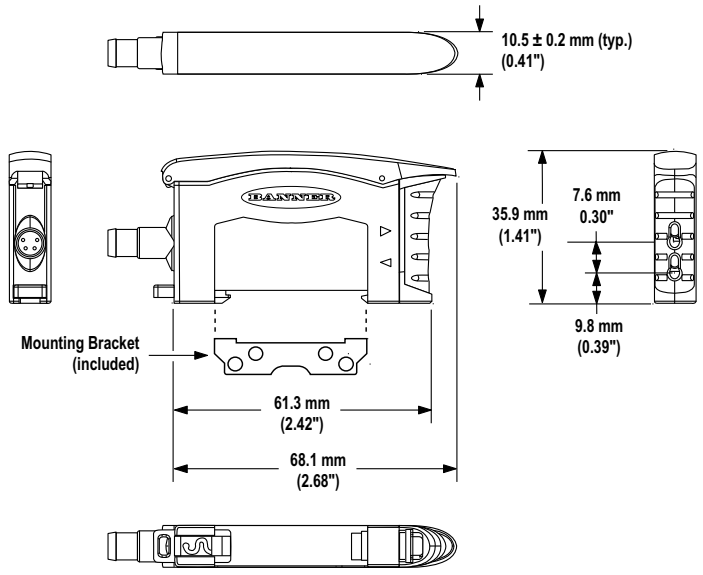




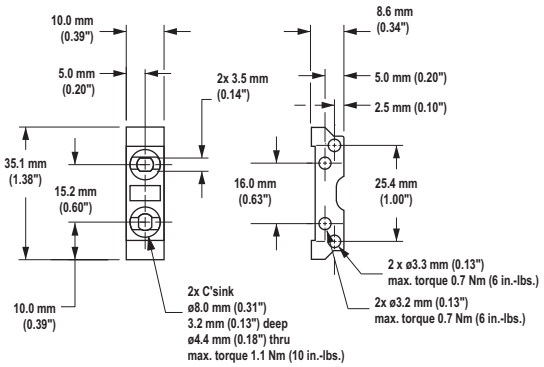
D10 — Discrete Output

Dimensions

Sensor



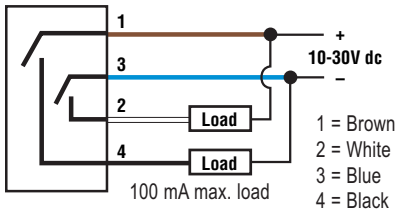
Included Bracket



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

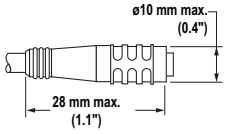
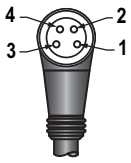
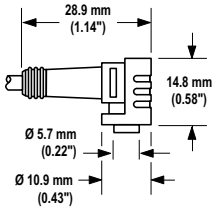
Hookups

Cabled Models



NOTE: QD hookups are functionally identical.

Accessories

Quick-Disconnect Cordsets				
Style	**Model**	**Length**	**Dimensions**	**Pinout**
4-pin Straight, Snap-on	**PKG4-2**	2 m (6.5')		 1 = Brown 2 = White 3 = Blue 4 = Black
4-pin Right-angle, Snap-on	**PKW4Z-2**	2 m (6.5')		

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