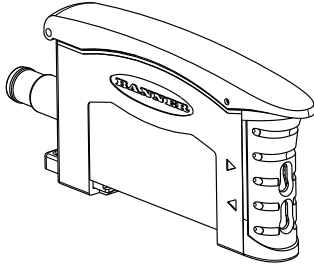


D10—Discrete Output

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



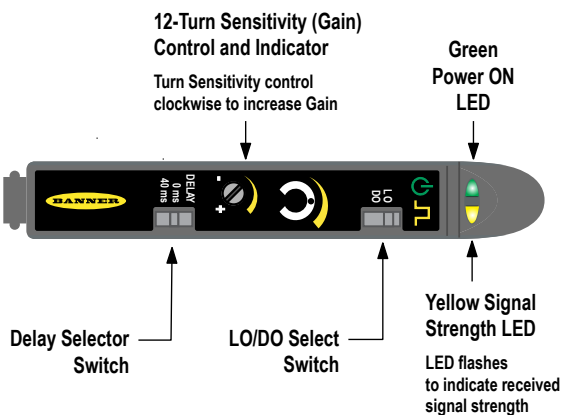
WARNING: Not To Be Used for Personnel Protection

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



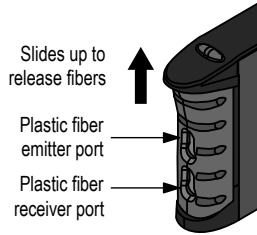
¹ To order the 9 m (30 ft) PVC cable model, add the suffix "W/30" to the cabled model number. For example, D10AFP W/30. Models with a quick disconnect require a mating cordset.



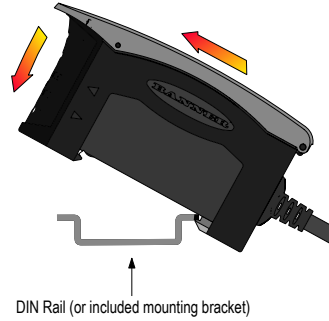
Installation

Installing Fibers and Housing

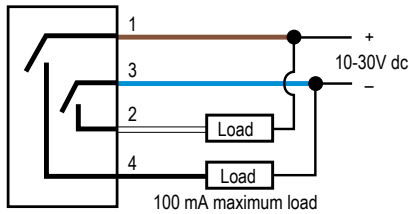
Installing Fibers



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.

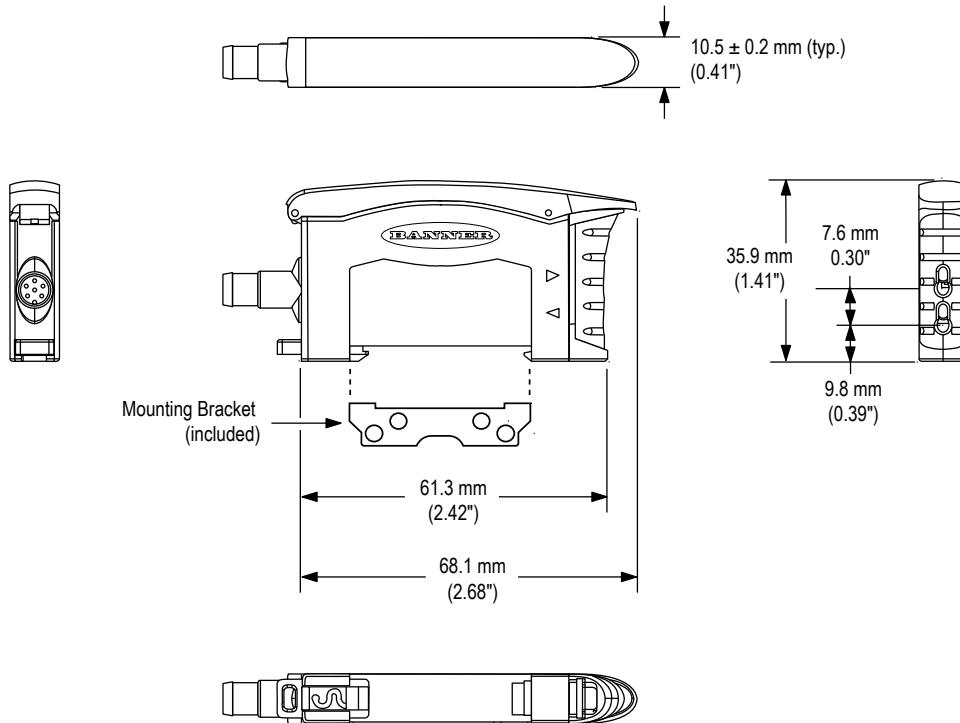
For additional product support, go to www.bannerengineering.com.

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

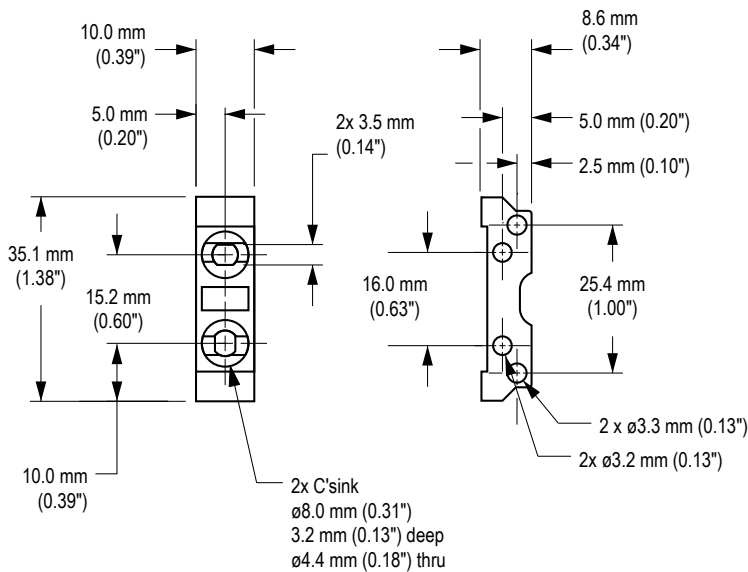


Dimensions



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

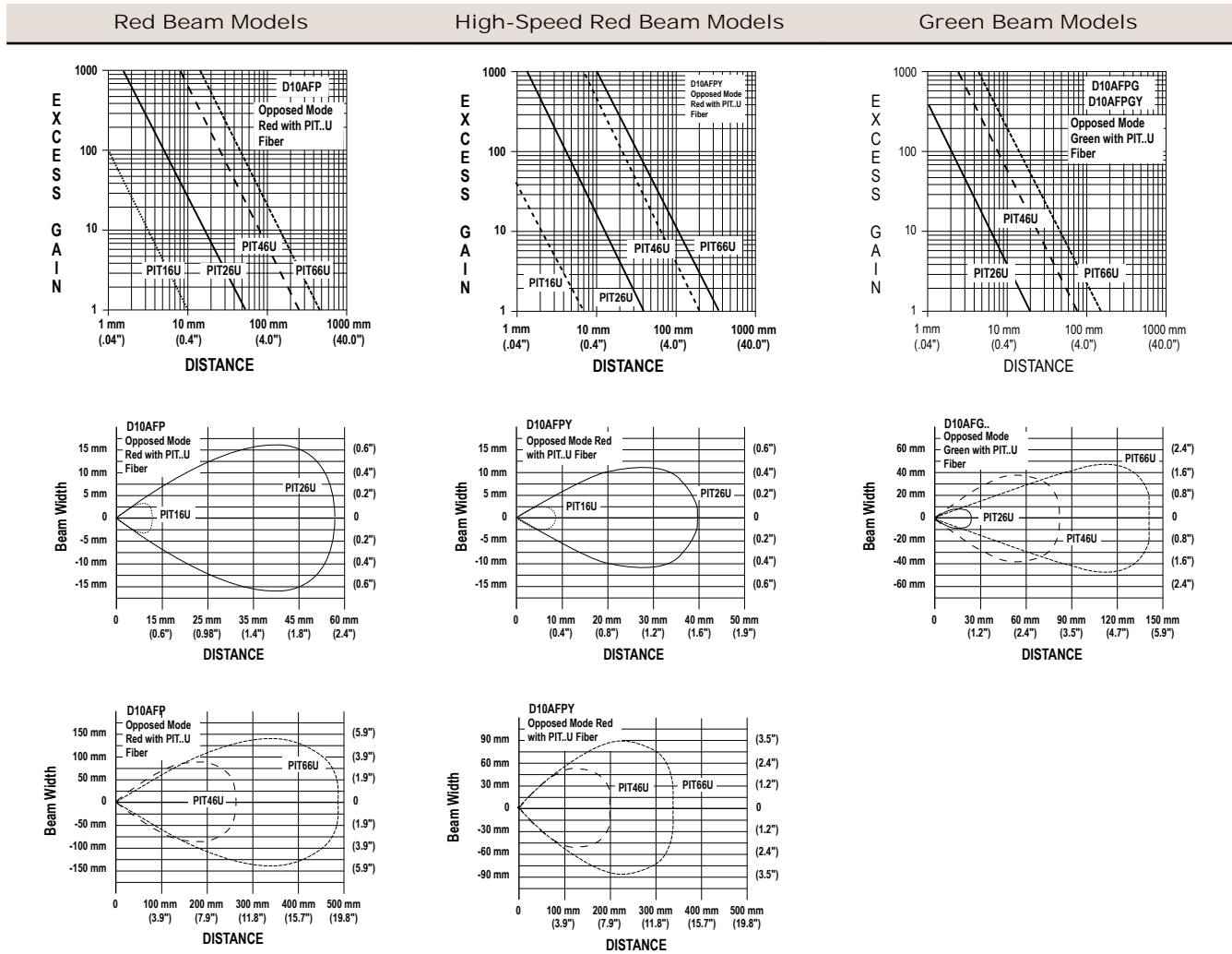
Included Bracket Dimensions



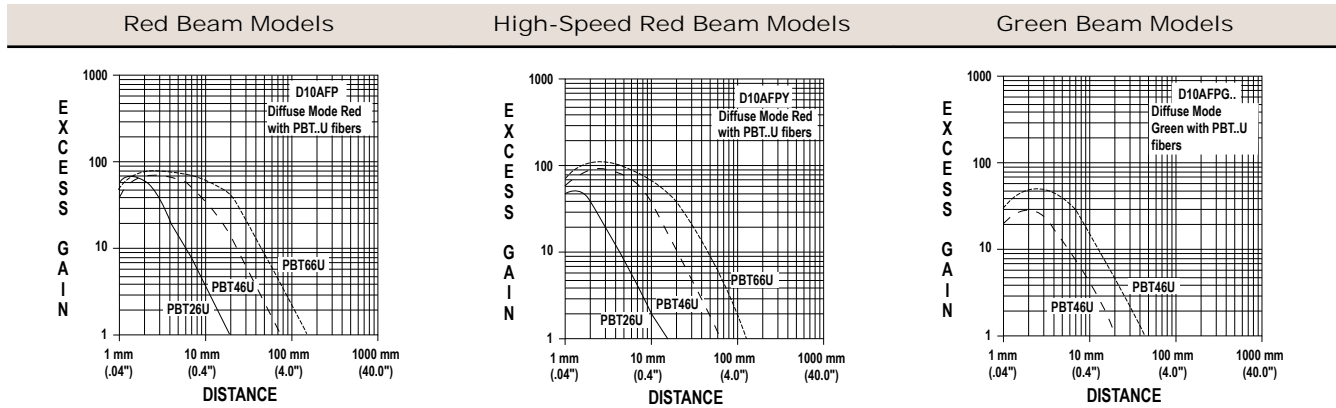
- M3 Hardware included:
 Lock Washer (2)
 Flat Washer (2)
 Screws (2)
 Hex Nuts (2)

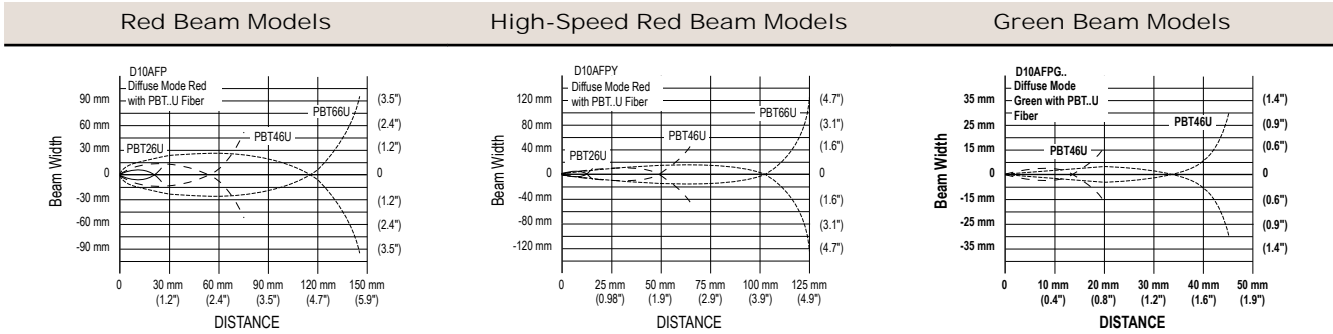
Performance Curves

Opposed Mode



Diffuse Mode





Accessories

4-Pin Snap-on M8/Pico-Style Cordsets				
Model	Length	Style	Dimensions	Pinout (Female)
PKG4-2	2 m (6.56 ft)	Straight		<p>1 = Brown 2 = White 3 = Blue 4 = Black</p>
PKW4Z-2	2 m (6.56 ft)	Right-Angle		

Banner Engineering Corp. Limited Warranty

Banner Engineering Corp. warrants its products to be free from defects in material and workmanship for one year following the date of shipment. Banner Engineering Corp. will repair or replace, free of charge, any product of its manufacture which, at the time it is returned to the factory, is found to have been defective during the warranty period. This warranty does not cover damage or liability for misuse, abuse, or the improper application or installation of the Banner product.

THIS LIMITED WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES WHETHER EXPRESS OR IMPLIED (INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE), AND WHETHER ARISING UNDER COURSE OF PERFORMANCE, COURSE OF DEALING OR TRADE USAGE.

This Warranty is exclusive and limited to repair or, at the discretion of Banner Engineering Corp., replacement. IN NO EVENT SHALL BANNER ENGINEERING CORP. BE LIABLE TO BUYER OR ANY OTHER PERSON OR ENTITY FOR ANY EXTRA COSTS, EXPENSES, LOSSES, LOSS OF PROFITS, OR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES RESULTING FROM ANY PRODUCT DEFECT OR FROM THE USE OR INABILITY TO USE THE PRODUCT, WHETHER ARISING IN CONTRACT OR WARRANTY, STATUTE, TORT, STRICT LIABILITY, NEGLIGENCE, OR OTHERWISE.

Banner Engineering Corp. reserves the right to change, modify or improve the design of the product without assuming any obligations or liabilities relating to any product previously manufactured by Banner Engineering Corp. Any misuse, abuse, or improper application or installation of this product or use of the product for personal protection applications when the product is identified as not intended for such purposes will void the product warranty. Any modifications to this product without prior express approval by Banner Engineering Corp will void the product warranties. All specifications published in this document are subject to change; Banner reserves the right to modify product specifications or update documentation at any time. Specifications and product information in English supersede that which is provided in any other language. For the most recent version of any documentation, refer to: www.bannerengineering.com.