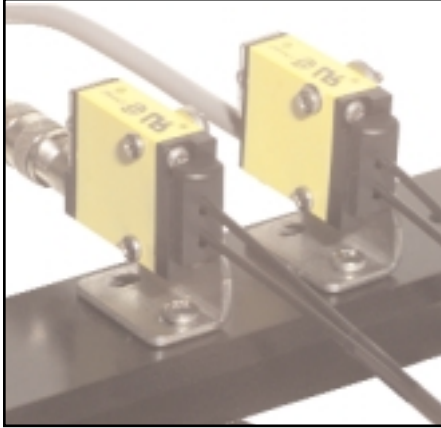




MINI-BEAM® Plastic Fiber Optic Sensors

Self-contained DC-operated Sensors for use with Banner Plastic Fiber Optics

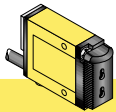
MINI-BEAM Plastic Fiber Optic Sensor Features



- Compact, modulated, self-contained visible red fiber optic sensors for 10-30V dc operation
- Useable in opposed and diffuse fiber optic modes with Banner plastic fiber optic assemblies
- Switch-selectable for light operate or dark operate
- Includes Banner's *exclusive* AID™ alignment system
- Highly-repeatable 1 millisecond response
- Both sourcing and sinking outputs (150 mA max. each); continuous overload and short-circuit protected
- Rugged, epoxy-encapsulated construction: meets NEMA standards 1, 2, 3, 3S, 4, 4X, 6, 12 and 13; IEC IP67



U.S. Patent 4356393



Visible red, 650 nm

MINI-BEAM Plastic Fiber Optic Models

Models*	Range	Cable**	Supply Voltage	Output Type	Excess Gain	Beam Pattern
					Diffuse mode performance based on 90% reflectance white test card	
SM312FP SM312FPQD	Range varies by sensing mode and fiber optics used	2 m (6.5') 4-Pin Euro-style QD	10-30V dc	Bipolar NPN/PNP		

* 9 m (30') cables are available by adding suffix "W/30" to the model number of any cabled sensor (e.g., SM312FP W/30). A 150 mm (6") long pigtail cable with attached QD connector is available by adding suffix "QDP" to the model number of any MINI-BEAM sensor (e.g., SM312FPQDP). See page 4 for more information.

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).

** A model with a QD connector or QD pigtail requires an accessory mating cable. See page 5 for more information.

MINI-BEAM® Plastic Fiber Optic Sensors – DC Models

MINI-BEAM Operation

The sensor's Gain adjustment and Light/Dark Operate switch are located under the gasketed acrylic cover. Loosen the screw to access these adjustments and use a small screwdriver to adjust.

Gain adjustment:

Turn clockwise to increase gain (sensitivity); 15-turn Gain potentiometer is clutched at both ends of travel.

Light/Dark operate selection:

- Turn switch *fully* clockwise for light operate (sensor outputs conduct when object is absent)
- Turn switch *fully* counterclockwise for dark operate (sensor outputs conduct when object is present)

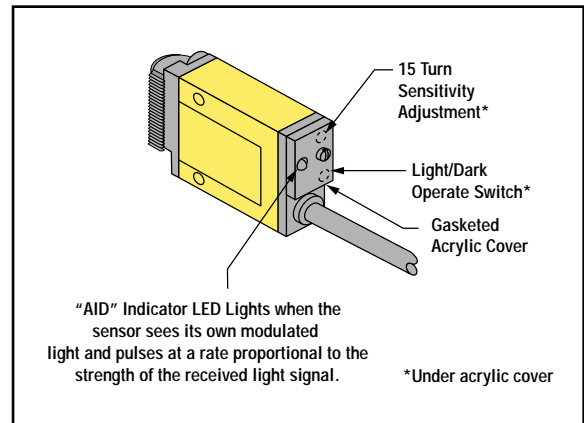


Figure 1. MINI-BEAM Plastic Fiber Optic sensor features

Unterminated Plastic Fiber Cutting Procedure

Unterminated plastic fibers are designed to be cut by the user to the length required for the application. To facilitate cutting, a Banner model PFC-1 cutting device is supplied with the fiber. Cut the fiber as follows:

- 1) Locate the "control end" of the fiber (the unfinished end). Determine the length of fiber required for the application. If using a bifurcated fiber, separate the two halves of the fiber at least 2" beyond the fiber cutting location. Lift the top (blade) of the cutter to open the cutting ports. Insert one of the control ends through one of the cutting ports on the PFC-1 cutter so that the excess fiber protrudes from the back of the cutter.
- 2) Double-check the fiber length, and close the cutter until the fiber is cut. Using a different cutting port, cut the second control end to the required length. **To ensure a clean cut each time, do not use a cutting port more than once.**
- 3) Gently wipe the cut ends of the fiber with a clean, dry cloth to remove any contamination. **Do not use solvents or abrasives on any exposed optical fiber.**

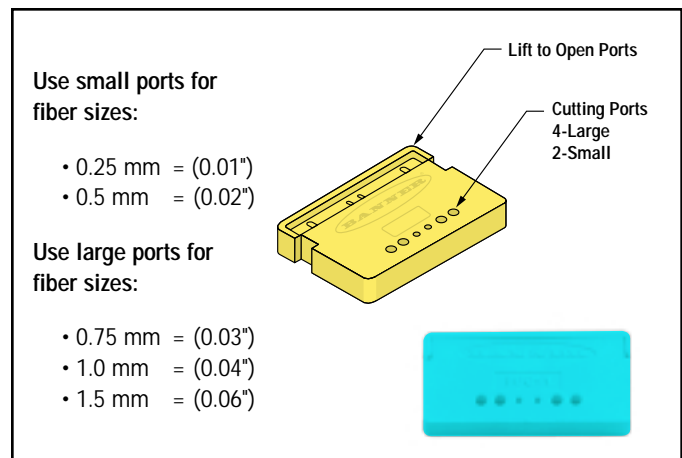


Figure 2. PFC-1 plastic fiber cutter (supplied with fiber)

MINI-BEAM Fiber Installation

- 1) Unlock the fiber gripper as shown in figure 3. If 0.25 mm or 0.5 mm core fibers are being used, insert the small fiber adapter into the ports.
- 2) Gently insert the prepared plastic fiber ends into the ports, as far as they will go.
- 3) Slide the fiber gripper in to lock, as shown in figure 3.

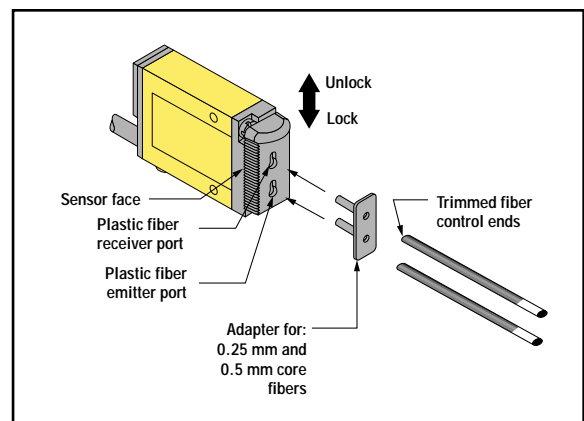


Figure 3. Installing fibers into the MINI-BEAM Plastic Fiber Optic sensor