



### Description

42FA slim fiber optic sensors are useful for applications where a very compact sensor is required. Only 8mm x 10mm in diameter, 42FA sensors are among the smallest in the industry. These sensors offer a fast 500µs response time and generous sensing range that is comparable to other larger fiber optic sensors.

42FA sensors are available with a single NPN or PNP output that is switch selectable for Light or Dark output operation. Each sensor also has a single-turn sensitivity adjustment. Turning this adjustment clockwise will increase the sensitivity, which increases the sensing range.

42FA sensors have a red output indicator and a green stability indicator. The stability indicator is on when the detected margin level is below 0.8X or above 1.2X, indicating stable sensing operation. This indicator will turn off when the application margin is between these two levels.

42FA sensors are supplied with a DIN rail mounting bracket. For installation convenience, this bracket can also be mounted separately without the need for a DIN rail.

42FA sensors are designed for use with 2.2mm diameter plastic fiber optic cables. Adaptors are supplied with the sensor for 1.25mm diameter plastic fiber optic cables. Fiber optic cables are held in place with a small set screw that is preattached to the sensor. Special glass fiber optic cables are also available.

### General Specifications

<b>Light Source</b>	Visible red (660nm)
<b>Unit Protection</b>	Reverse polarity, false pulse, transient noise
<b>Supply voltage</b>	12–24V DC
<b>Current Consumption</b>	30mA maximum
<b>Output Type</b>	NPN or PNP by model
<b>Output Mode</b>	Light/dark operate selectable
<b>Output Rating</b>	100mA @ 24V DC
<b>Response Time</b>	500µs
<b>Housing Material</b>	Noryl®
<b>Lens Material</b>	Not applicable
<b>LED Indicators</b>	See User Interface on page 1–218
<b>Connection Types</b>	2m 500V 4 conductor cable; 3-pin pico QD
<b>Supplied Accessories</b>	61–6731, 60–2659 DIN rail mount adaptor, fiber optic cable adaptor
<b>Optional Accessories</b>	Cordsets, 35mm DIN Rail (see Section 5)
<b>Operating Environment</b>	NEMA 1, 12, 13; IP65 (IEC 529)
<b>Vibration</b>	10–55Hz, 1mm amplitude, Meets or exceeds IEC 60947–5–2
<b>Shock</b>	30g with 1ms pulse duration, Meets or exceeds IEC 60947–5–2
<b>Operating Temperature</b>	–25°C to +55°C (–13°F to +131°F)
<b>Relative Humidity</b>	5...85%
<b>Approvals</b>	UL listed, CSA certified, CE marked for all applicable directives

### Features

- Compact 8mm x 10mm size
- Dual LED indicators: output (red), stability (green)
- Fast 500µs response time
- Visible red light source
- Selectable light or dark operate
- Can be DIN rail mounted or mounted separately

### General Information

Wiring Diagrams . . . . . page 1–218  
 Dimensions . . . . . page 1–218

### Sensing Modes

Visible Red Plastic  
 Fiber Optic . . . . . page 1–220

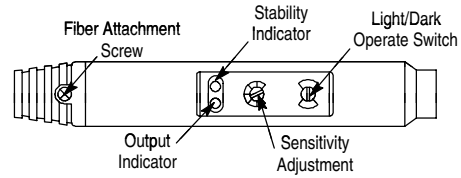
### Accessories

Fiber Optic Cables . . . . . page 1–245  
 Quick-Disconnect Cables . . . . . page 5–52  
 Mounting Assemblies . . . . . page 1–316  
 Fiber Optic Cable Adaptors page 1–321

**PHOTOSWITCH® Photoelectric Sensors**  
**42FA Visible Red Plastic Fiber Optic**

**User Interface Panel**

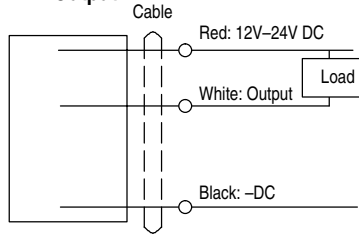
Label	Color	State	Status
STB	Green	OFF	0.8X < Margin < 1X
		ON	0.8X > Margin > 1X
OUT	Red	OFF	Output not activated
		ON	Output activated



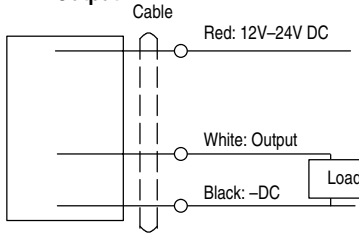
**Wiring Diagrams**

**Cable Version**

**NPN Output**

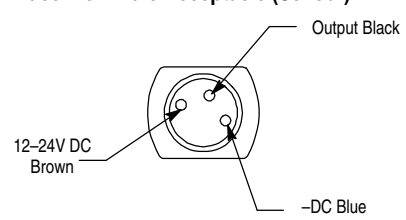


**PNP Output**



**Pico Quick-Disconnect Versions**

**Face View Male Receptacle (Sensor)**

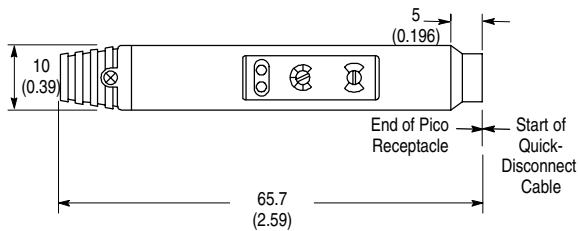


**Note:** Details regarding connection of Allen-Bradley Bulletin 42FA photoelectric sensors to Allen-Bradley Programmable Controllers can be found in publication 42-2.0.

**Dimensions—mm (inches)**

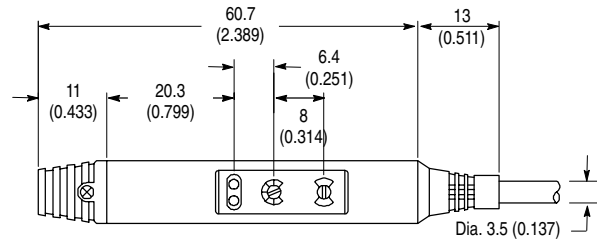
**Pico Quick-Disconnect Versions**

**42FA-F2LPA-P3**  
**42FA-F2LNA-P3**

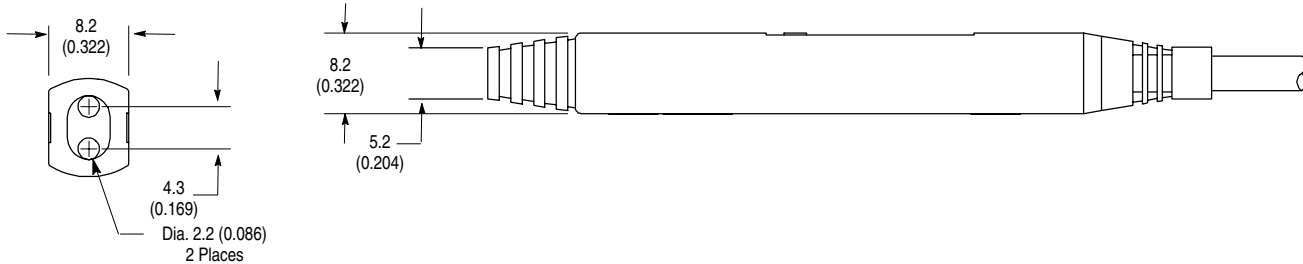


**Cable Versions**

**42FA-F2LPA-A2**  
**42FA-F2LNA-A2**



**End, Side, Bottom View for Both Pico Quick-Disconnect and Cable Versions**

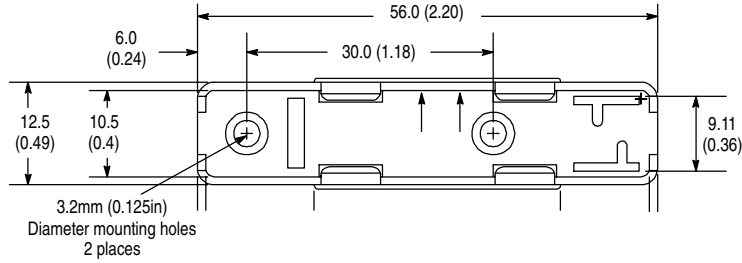


**DIN Rail Mounting Assembly—60-2639 (included with sensor)**

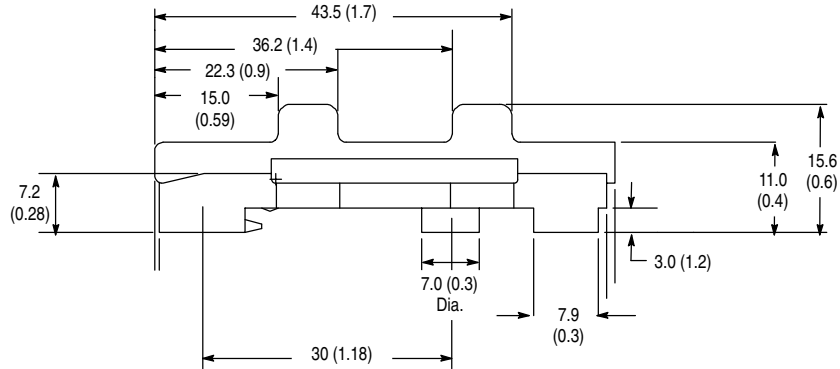
Mounting bracket and hardware for DIN rail mounting.

**Dimensions—mm (inches)**

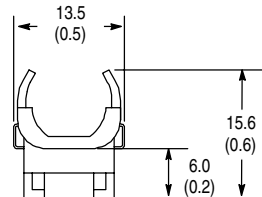
**Top View**



**Side View**



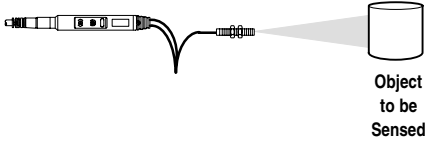
**End View**



**Note:** Replacement mounting assembly and fiber optic cable adaptors are available on page 1-316.

# 42FA Visible Red Plastic Fiber Optic

## Slim Fiber Optic



### QD Cordsets and Accessories

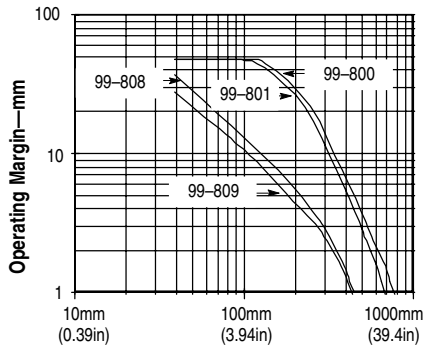
Description	Page Number
2m (6.5ft) 3-pin Pico QD Cordset	889P-F3AB-2
Other Cordsets Available	5-52
Plastic Fiber Optic Cables	1-250
Adaptor for 1.25mm Fiber Optic Cables	61-6731
DIN Rail Mounting Bracket	60-2639

### Specifications

Field of View	Refer to Fiber Optic section page 1-245
Emitter LED	Visible red 660nm

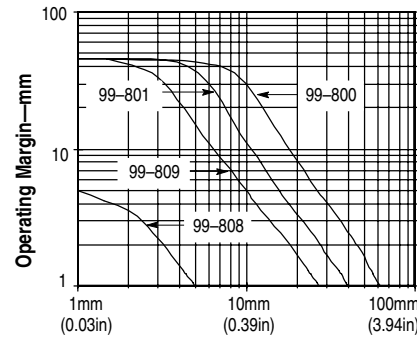
### Typical Response Curves

#### Retroreflective



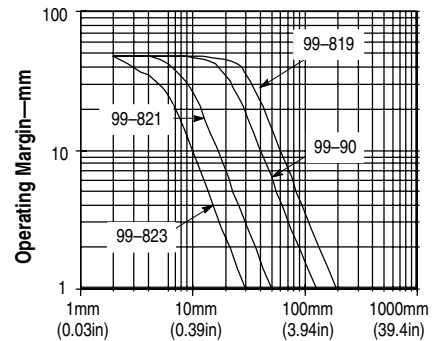
Distance to 76mm Reflector Model 92-39

#### Diffuse



Distance to White Target

#### Transmitted Beam



Operating Distance

### Selection Guide

Operating Voltage Supply Current	Sensing Distance	Output Energized	Output Type Capacity Response Time	Max Leakage Current	Connection Type	Catalog Number
12-24V DC ±10% 25mA	Depends on Plastic Fiber Optic Cable Selected	Light/Dark Selectable	NPN 100mA 500µs	0.5mA	2m 500V cable	42FA-F2LNA-A2
					3-pin pico QD	42FA-F2LNA-P3
12-24V DC ±10% 30mA			2m 500V cable		42FA-F2LPA-A2	
					3-pin pico QD	42FA-F2LPA-P3