



### Description

The 42FT is a compact, DIN rail mount fiber optic photoelectric sensor with sophisticated part detection, diagnostic, and self-teach capabilities.

Five LED indicators provide diagnostic and alignment information. A dynamic diagnostic output signals when margin levels are below a predetermined threshold for seven successive detections.

The self-teach capability allows the Bulletin 42FT to determine an optimum sensitivity and hysteresis setting for a specific application. The remote lockout feature can be used to help prevent unauthorized changes to these adjustments. A switch selectable 50ms off-delay (“pulse stretcher”) is useful in high speed applications where the output pulse must be lengthened to allow time for the machine logic to respond.

42FT sensors are designed for DIN rail mounting. For installation convenience, a stainless steel mounting bracket is supplied for separate mounting.

42FT sensors are designed for use with 2.2mm diameter plastic fiber optic cables. An adaptor is supplied with the sensor to use 1.25mm diameter plastic fiber optic cables. Fiber optic cables are held in place by a rotating collar. No tools are required to attach or remove fiber optic cables. Special glass fiber optic cables are also available. Over 40 compatible standard plastic and glass fiber optic cables are available, please refer to page 1–245.

### General Specifications

<b>Light Source</b>	Red, green, blue, by model
<b>Unit Protection</b>	Overload, short circuit, reverse polarity, false pulse
<b>Supply voltage</b>	12–24V DC
<b>Current Consumption</b>	60mA 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>	ABS resin
<b>Lens Material</b>	Not applicable
<b>LED Indicators</b>	See User Interface on page 1–102
<b>Connection Types</b>	2m 500V 5 conductor cable 3-pin pico QD (remote self-teach and diagnostic removed)
<b>Supplied Accessories</b>	Fiber optic cable adaptor, 60–2638 mounting bracket
<b>Optional Accessories</b>	Cordsets, mounting brackets—see Section 5
<b>Operating Environment</b>	NEMA 1, 4X, 12, 13; IP66 (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

- Choose from red, green, or blue light source
- Local and remote self-teach operation
- Supports 1.5mm and 1.25mm plastic fiber optic cables
- Fast 500µs response time
- Selectable pulse-stretcher
- Selectable hysteresis
- Selectable light/dark operate
- Dual “RUN” modes to prevent crosstalk with other sensors
- Both NPN and PNP outputs
- Pico QD or 2m cable connections

### General Information

Wiring Diagrams . . . . . page 1–102  
 Dimensions . . . . . page 1–102

**Sensing Mode** . . . . . page 1–103

### Accessories

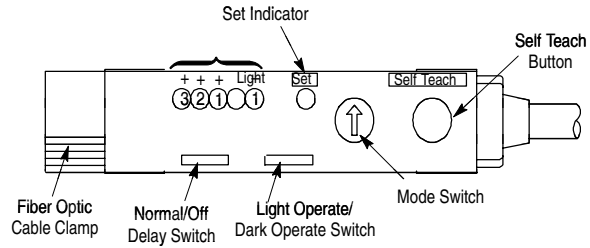
Fiber Optic Cables . . . . . page 1–245  
 Mounting Assemblies . . . . . page 1–316  
 Fiber Optic Cable Adaptors page 1–321  
 Replacement  
 Snap-on Cover . . . . . page 1–321  
 Reflectors, Reflective Tape page 1–327

# 42FT Visible Red, Blue or Green Plastic Fiber Optic

## Self-Teach

### User Interface Panel

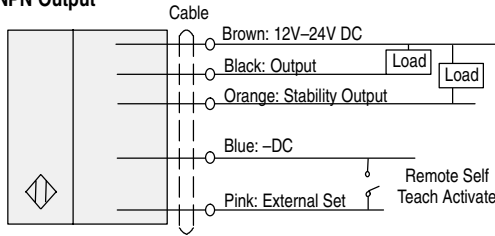
Label	Color	State	Status
Set	Green	OFF	Sensor not powered
		ON	Sensor powered, configuration verified
		Flashing	Self-teach mode active
-1... +3		ON	0.8X...1.6X margin
Light	Red	OFF	1X margin, output not activated
		ON	1X margin, output activated



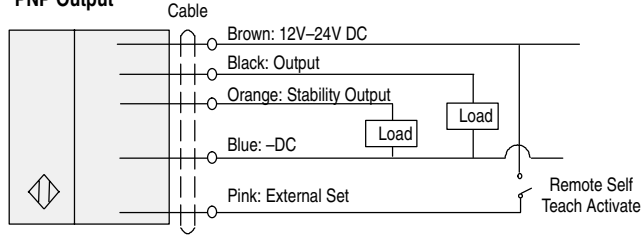
### Wiring Diagrams

#### Cable

##### NPN Output



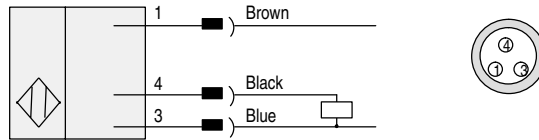
##### PNP Output



#### Quick-Disconnect



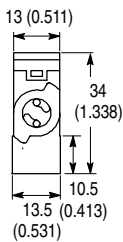
#### Pico



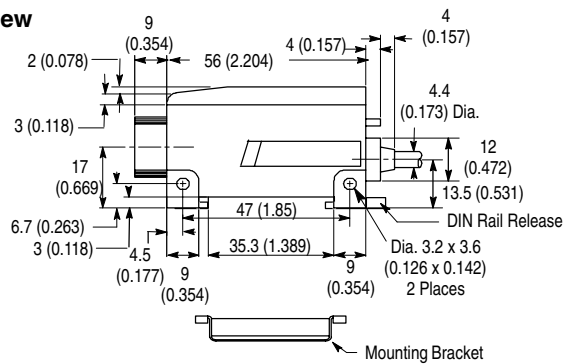
**Note:** Details regarding connection of Allen-Bradley Bulletin 42FT photoelectric sensors to Allen-Bradley Programmable Controllers can be found in publication 42-2.0.

### Dimensions—mm (inches)

#### End View



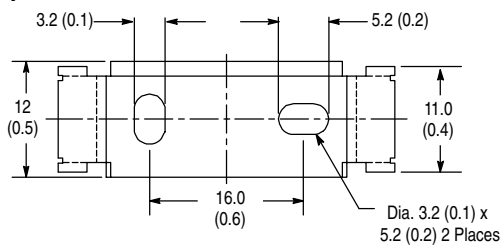
#### Side View



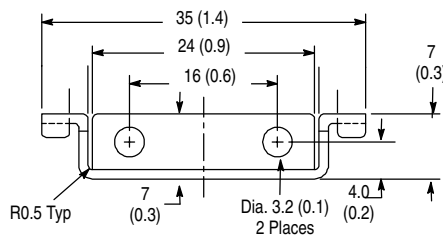
### Mounting Assembly—60-2638

Stainless steel mounting bracket for installing the 42FT without a DIN rail.

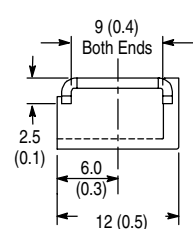
#### Top View



#### Side View

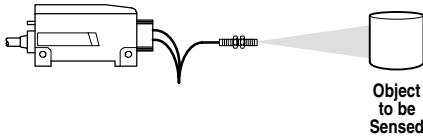


#### End View



## 42FT Visible Red, Blue or Green Plastic Fiber Optic

Self-Teach



### Specifications

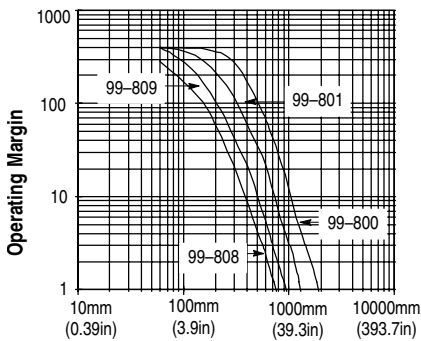
<b>Field of View</b>	Refer to Plastic Fiber Optic section page 1-245
<b>Emitter LED</b>	Visible red 660nm, Visible green 565nm or Visible blue 450nm
<b>Indicator LEDs</b>	Red: Output (4) Green: Margin 0.8X, 1.2X, 1.4X, 1.6X

### QD Cordsets and Accessories

Description	Catalog/Page Number
Pico QD Cordset, Straight, 3-pin, 2m	<b>889P-F3AB-2</b>
Fiber Optic Cables	1-245
Mounting Assemblies	1-316
Fiber Optic Cable Adaptors	<b>61-6731</b>
76mm (3in) Diameter with Center Mount Hole	<b>92-39</b>
32mm (1.25in) Diameter with Center Mount Hole	<b>92-47</b>

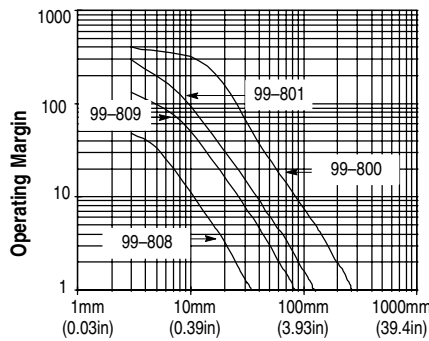
### Typical Response Curves for Visible Red LED

#### Retroreflective



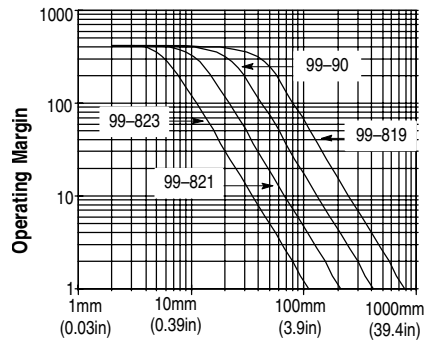
Distance to 76mm Reflector Model 92-39

#### Diffuse



Distance to White Target

#### Transmitted Beam



Operating Distance

### Typical Glass Fiber Optic Cable Selection—mm (in)

LED	Sensing Mode	Plastic Fiber Diameter	Typical Fiber Model	Maximum Range
Red	Diffuse (Bifurcated Fiber)	1 (0.040)	<b>99-94</b>	110 (4.3)
		0.5 (0.020)	<b>99-808</b>	30 (1.2)
	Transmitted Beam (Individual Fiber)	1 (0.040)	<b>99-90</b>	350 (13.2)
		0.5 (0.020)	<b>99-822</b>	95 (3.7)
Green	Diffuse (Bifurcated Fiber)	1 (0.040)	<b>99-94</b>	13 (0.5)
	Transmitted Beam (Individual Fiber)		<b>99-90</b>	35 (1.4)
Blue	Diffuse (Bifurcated Fiber)		<b>99-94</b>	18 (0.7)
	Transmitted Beam (Individual Fiber)		<b>99-90</b>	60 (24)

AB Drives

## 42FT Visible Red, Blue or Green Plastic Fiber Optic

Self-Teach

### Selection Guide

Operating Voltage Supply Current	Max Sensing Distance @ 1X Margin	Output Energized	Emitter LED	Output Type Capacity Response Time	Max Leakage Current	Connection Type	Catalog Number
12-24V DC ±10% 60mA	Depends on Fiber Optic Cable Selected	Light/Dark Selectable	Red 660nm	PNP Output: 100mA Stability: 50mA 500µs	0.5mA	2m 500V cable	42FT-F2LPA-A2
						3-pin pico QD	42FT-F2LPA-Y3
			Green 565nm			2m 500V cable	42FT-F3LPA-A2
						3-pin pico QD	42FT-F3LPA-Y3
			Blue 450nm			2m 500V cable	42FT-F6LPA-A2
						3-pin pico QD	42FT-F6LPA-Y3
12-24V DC ±10% 50mA	Depends on Fiber Optic Cable Selected	Light/Dark Selectable	Red 660nm	NPN Output: 100mA Stability: 50mA 500µs	0.5mA	2m 500V cable	42FT-F2LNA-A2
						3-pin pico QD	42FT-F2LNA-Y3
			Green 565nm			2m 500V cable	42FT-F3LNA-A2
						3-pin pico QD	42FT-F3LNA-Y3
			Blue 450nm			2m 500V cable	42FT-F6LNA-A2
						3-pin pico QD	42FT-F6LNA-Y3