

# FB Series Photoelectric Sensors



## M18 (18mm) Plastic - DC

- Low cost/ high performance
- Diffuse, polarized reflective, and through-beam models
- Compact plastic housing
- M12 quick-disconnect; purchase cable separately
- Potentiometer range adjustment on diffuse models



### FB Series Photoelectric Sensors Selection Chart

Part Number		Price	Sensing Range	Output State	Logic	Connection	Wiring	Drawing Link
Diffuse								
<a href="#">FB6-LN-0E</a>		\$09vp:	70 to 400 mm [2.76 to 15.75 in]	N.O.	NPN	M12 [12mm] connector	Diagram 1	<a href="#">PDF</a>
<a href="#">FB6-LP-0E</a>		\$09vq:			PNP		Diagram 2	<a href="#">PDF</a>
<a href="#">FB6-DN-0E</a>		\$09vn:		N.C.	NPN		Diagram 1	<a href="#">PDF</a>
<a href="#">FB6-DP-0E</a>		\$09vo:			PNP		Diagram 2	<a href="#">PDF</a>
Polarized reflective*								
<a href="#">FBP-LN-0E</a>		\$09x8:	2.5m [8.2 ft]	N.C.	NPN	M12 [12mm] connector	Diagram 1	<a href="#">PDF</a>
<a href="#">FBP-LP-0E</a>		\$09x9:			PNP		Diagram 2	<a href="#">PDF</a>
<a href="#">FBP-DN-0E</a>		\$09x6:		N.O.	NPN		Diagram 1	<a href="#">PDF</a>
<a href="#">FBP-DP-0E</a>		\$09x7:			PNP		Diagram 2	<a href="#">PDF</a>
Through-beam**								
<a href="#">FBR-LN-0E</a>	Receiver	\$09xv:	8m [26.25 ft]	N.C.	NPN	M12 [12mm] connector	Diagram 1	<a href="#">PDF</a>
<a href="#">FBR-LP-0E</a>	Receiver	\$09xx:			PNP		Diagram 2	<a href="#">PDF</a>
<a href="#">FBR-DN-0E</a>	Receiver	\$.09xt:		N.O.	NPN		Diagram 1	<a href="#">PDF</a>
<a href="#">FBR-DP-0E</a>	Receiver	\$09xu:			PNP		Diagram 2	<a href="#">PDF</a>
<a href="#">FBE-00-0E</a>	Emitter	\$09xs:		–	Receiver dependent		Diagram 3	<a href="#">PDF</a>

\*Purchase reflectors separately.

\*\*Purchase one receiver and one emitter for a complete set.

## Wiring Diagrams

Diagram 1

NPN Output

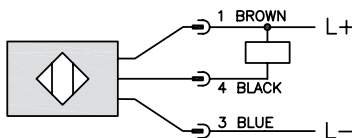


Diagram 2

PNP Output

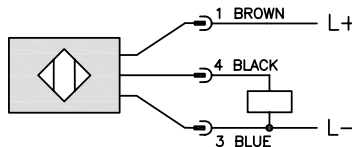
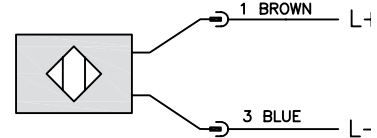


Diagram 3

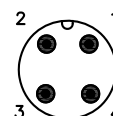
Emitter



### Switching Element Function

	Through-Beam and Reflective Models	Diffuse Models
Light-on	N.C.	N.O.
Dark-on	N.O.	N.C.

Connector  
M12 Connector



# FB Series Photoelectric Sensors

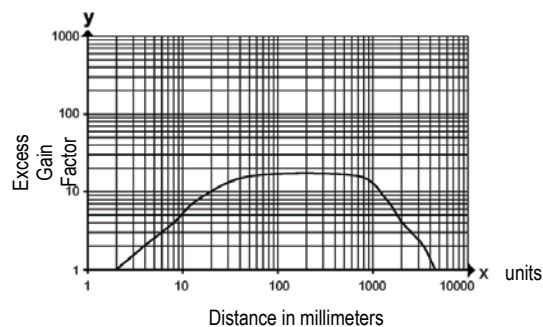
FB Series Photoelectric Sensors Specifications			
Specifications	Diffuse Models	Reflective Models	Through-Beam Models
Type	Diffuse reflection	Polarized reflection <sup>1</sup>	Through-beam <sup>2</sup>
Sensing Distance	400mm	2.5 m	8m
Light Spot Diameter	25mm at maximum range	200mm at maximum range	600mm at maximum range
Emission	Red LED (visible), 645nm		
Sensitivity	Adjustable 70 to 400 mm	Fixed	Fixed
Output Type	NPN or PNP - Light-on or Dark-on		
Operating Voltage	10-30 VDC		
No Load Supply Current	≤ 20mA	≤ 20mA	≤ mA
Operating (Load) Current	≤ 200mA		
Off-state (Leakage) Current	N/A		
Voltage Drop	< 2.5V		
Switching Frequency	1 kHz		
Ripple	N/A		
Time Delay Before Availability (tv)	N/A		
Short-Circuit Protection	Yes		
Operating Temperature Range	-25 to 60°C [-13° to 140°F]		
Protection Degree (DIN 40050)	IECIP65	IEC IP67	
LED Indicators - Switching Status	Yellow (output energized)		
Housing Material	Acrylonitrile-butadienestyrene (ABS), black		
Lens Material	Polymethyl metacrylate (PMMA)		
Shock /Vibration	EN 60947-5-2 part 7, 4, 1/EN 60947-5-2 part 7, 4, 2		
Tightening Torque	2.25 N•m [1.66 lb-ft]		
Weight	8.50 g [0.3 oz]		
Connection	M12 connector. Two mounting hex nuts included		
Agency Approvals	cULus listed, UL file E3288111, CE, RoHs		

Notes: <sup>1</sup> With standard diameter 84mm [RL110](#) reflector. Purchase reflectors separately.

<sup>2</sup> An emitter and receiver pair must be ordered for a complete sensor set.

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

## Curves FBP series



# Accessories for 18mm Sensors

## Axial Mounting Bracket

Axial mounting bracket available in zinc plated steel or 316L stainless steel. Has two mounting holes (use 4mm screws) and allows for rotation of an optical axis for right-beam-angle-adaptor sensors. Hexagonal nuts not included. For use with 18mm sensors.

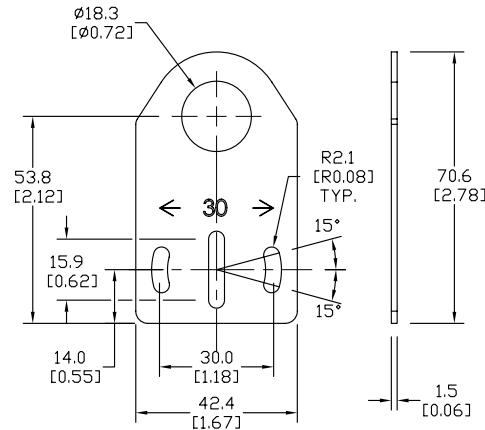
Accessories for 18mm Sensors			
Part Number	Price	Description	Weight lb [g]
<b>ST18A</b>	\$97.:	Micro Detectors mounting bracket, axial, zinc plated steel. For use with 18mm sensors.	0.06 [27.2]
<b>ST18A7W</b>	\$980:	Micro Detectors mounting bracket, axial, 316L stainless steel. For use with 18mm sensors.	0.06 [27.2]



**ST18A**

## Dimensions

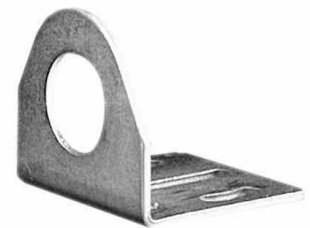
mm [inches]



## Right-angle Mounting Bracket

Right-angle mounting bracket for use with 18mm sensors. Has two mounting holes (use 4mm screws) and allows the rotation of an optical axis for axial sensors. Hexagonal nuts not included.

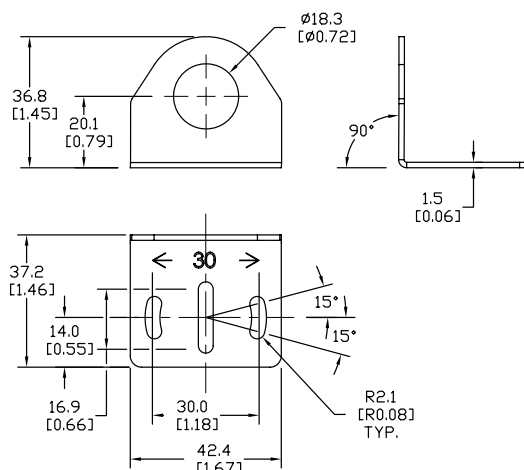
Accessories for 18mm Sensors			
Part Number	Price	Description	Weight lb [g]
<b>ST18C</b>	\$981:	Micro Detectors mounting bracket, right-angle, zinc plated steel. For use with 18mm sensors.	0.06 [27.2]
<b>ST18C7W</b>	\$982:	Micro Detectors mounting bracket, right-angle, 316L stainless steel. For use with 18mm sensors.	0.06 [27.2]



**ST18C**

## Dimensions

mm [inches]



# Accessories for 18mm Sensors

## Right-angle Fine Tune Mounting Bracket

Mounting bracket, right-angle, fine tune vertical and horizontal adjustment, nickel-plated steel. For use with 18mm sensors. Allows for fine tuning vertical and horizontal placement.

Accessories for 18mm Sensors				
Part Number	Price	Description	Drawing Link	Weight [lb]
<b>OPT2036</b>	\$-1nlk:	Wenglor mounting bracket, right-angle, fine tune vertical and horizontal adjustment, nickel plated steel. For use with 18mm sensors.	<a href="#">PDF</a>	0.02

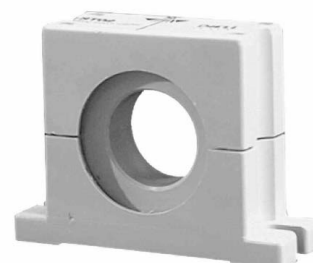


**OPT2036**

## Swivel Mounting Bracket

Mounting bracket, ball swivel, plastic. For use with 18mm sensors. Has a ball-joint and set screws to adjust sensor orientation. Allows angular orientation up to 15 degrees (from center) in all directions for photoelectric sensors (Will not work with C18 series).

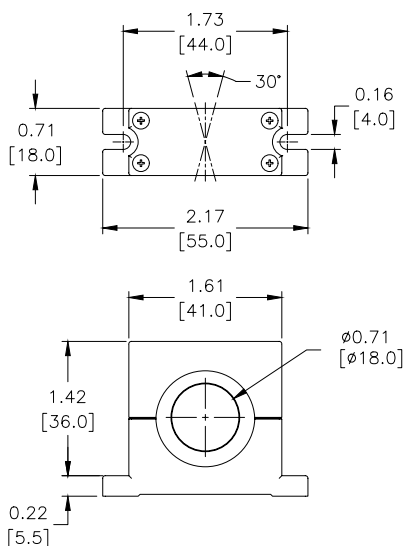
Accessories for 18mm Sensors			
Part Number	Price	Description	Weight [lb]
<b>ST02</b>	\$05h#:	Micro Detectors mounting bracket, ball swivel, plastic. For use with 18mm sensors.	0.06



**ST02**

## Dimensions

mm [inches]



# Accessories for 18mm Sensors

## Right-angle Mounting Brackets

Mounting bracket, right-angle, fixed insertion stop adjustment, plastic. For use with 18mm sensors. Available with or without fixed insertion stop.

Accessories for 18mm Sensors				
Part Number	Price	Description	Drawing Link	Weight lb [g]
<a href="#">OPT2104</a>	\$;-1nlt:	Wenglor mounting bracket, right-angle, fixed insertion stop adjustment, plastic. For use with 18mm sensors.	<a href="#">PDF</a>	0.06 [27.2]
<a href="#">OPT2105</a>	\$;-1nlu:	Wenglor mounting bracket, right-angle, plastic. For use with 18mm sensors.	<a href="#">PDF</a>	0.06 [27.2]



[OPT2104](#), [OPT2105](#)

## Right-angle Swivel Mounting Systems

Mounting bracket, right-angle swivel, 360 degree vertical and horizontal adjustment, 12mm rod mount. For use with 18mm sensors. Available in all 304 stainless steel or with an aluminum head and a stainless steel mounting plate.

Accessories for 18mm Sensors						
Part Number	Price	Description	Mounting Head	Mounting Plate	Drawing Link	Weight lb [g]
<a href="#">OPT2116</a>	\$;-1n#:	Wenglor mounting bracket, right-angle swivel, 360 degree vertical and horizontal adjustment, aluminum, 12mm rod mount. For use with 18mm sensors.	Aluminum	304 Stainless steel	<a href="#">PDF</a>	0.15 [68.0]
<a href="#">OPT2117</a>	\$;-1nll:	Wenglor mounting bracket, right-angle swivel, 360 degree vertical and horizontal adjustment, 304 stainless steel, 12mm rod mount. For use with 18mm sensors.	304 Stainless steel	304 Stainless steel	<a href="#">PDF</a>	0.28 [127.0]



[OPT2116](#), [OPT2117](#)

Note: 304 Stainless steel mounting rods sold separately: [OPT2109](#) (200mm [7.87 in] length), [OPT2110](#) (300mm [11.81 in] length), and [OPT2111](#) (500mm [19.69 in] length).

# Mounting Rods and Brackets

## Mounting Rods

304 Stainless steel rods for mounting swivel brackets [OPT2112](#) - [OPT2127](#). Available in three lengths: 200mm, 300mm, and 500mm. 12mm diameter.

Mounting Rods for OPT2112-2127 Swivel Mounting Brackets				
Part Number	Price	Description	Drawing Link	Weight lb (g)
<a href="#">OPT2109</a>	\$1nn9:	Wenglor mounting rod, 12mm diameter, 200mm length, 304 stainless steel.	<a href="#">PDF</a>	0.41 [185.97]
<a href="#">OPT2110</a>	\$1nna:	Wenglor mounting rod, 12mm diameter, 300mm length, 304 stainless steel.	<a href="#">PDF</a>	0.60 [272.16]
<a href="#">OPT2111</a>	\$1nnb:	Wenglor mounting rod, 12mm diameter, 500mm length, 304 stainless steel.	<a href="#">PDF</a>	0.98 [444.52]



## Right-angle Mounting Bracket

Mounting bracket, right-angle, nickel-plated brass. For use with 12mm mounting rods [OPT2109](#), [OPT2110](#) & [OPT2111](#).

Right-angle Mounting Brackets for 12mm Sensors				
Part Number	Price	Description	Drawing Link	Weight lb [g]
<a href="#">OPT2108</a>	\$-1nly:	Wenglor mounting bracket, right-angle, nickel-plated brass. For use with 12mm mounting rods OPT2109, OPT2110 & OPT2111.	<a href="#">PDF</a>	0.07 [31.8]

