

SSF Series Fiber Photoelectric Amplifiers



M18 (18 mm) plastic with Teach function - DC

- 4 models available
- Sensitivity adjustment using Teach button
- NPN or PNP, Light-on/Dark-on selectable outputs
- Red LED with visible spot
- IP67 rated



SSF Series Fiber Photoelectric Amplifier Selection Chart							
Part Number	Price	Sensing Range	Output State	Logic	Connection	Wiring	Dimensions
SSF-ON-0A	\$45.50	Optical fiber dependent	N.O./N.C. selectable	NPN	2m (6.5') axial cable	Diagram 1	Figure 1
SSF-ON-0E	\$45.50				M12 (12mm) connector		Figure 2
SSF-OP-0A	\$45.50			PNP	2m (6.5') axial cable	Diagram 2	Figure 1
SSF-OP-0E	\$45.50				M12 (12mm) connector		Figure 2

Wiring diagrams

Diagram 1

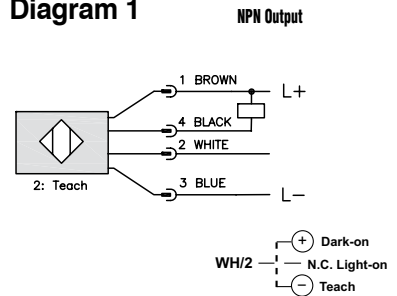
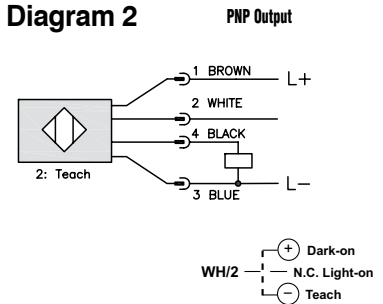


Diagram 2



Connector

M12 Connector



Specifications		
Type	SSF-ON-0*	SSF-OP-0*
Sensing Distance	See Optical Fibers Table	
Light Spot Diameter	N/A	
Emission	Red LED	
Sensitivity	Teach button	
Output Type	NPN Light On or Dark On Selectable	PNP Light On or Dark On Selectable
Operating Voltage	10-30VDC	
No-load Supply Current	≤20mA	
Load Current	≤100mA	
Leakage Current	≤10µA	
Voltage Drop	2V maximum	
Switching Frequency	800Hz	
Ripple	≤10%	
Time Delay Before Availability (tv)	150ms	
Short-Circuit Protection	Yes (switch autoresets after overload is removed)	
Temperature	-25° to +70°C (-13° to 158°F)	
Protection Degree	IP67	
LED Output Indicator	Yellow (output energized)	
Housing Material	PBT	
Lens Materials	Acrylic	
Shock/Vibration	See terminology section	
Tightening Torque	40 Nm (29l lb-ft)	
Weight (cable/connector)	100g (3.53oz)	
Connectors	2m (6.5') axial cable; M12 (12mm) connector	
Agency Approvals	CE	

Switching Element Function

	Thru-beam and Reflective Models	Diffuse Reflective Models
Light on	N.C.	N.O.
Dark on	N.O.	N.C.

Dimensions

(mm)

Figure 1

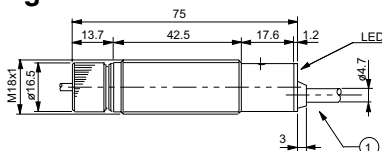
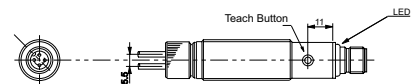
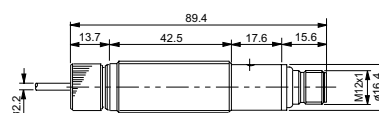


Figure 2

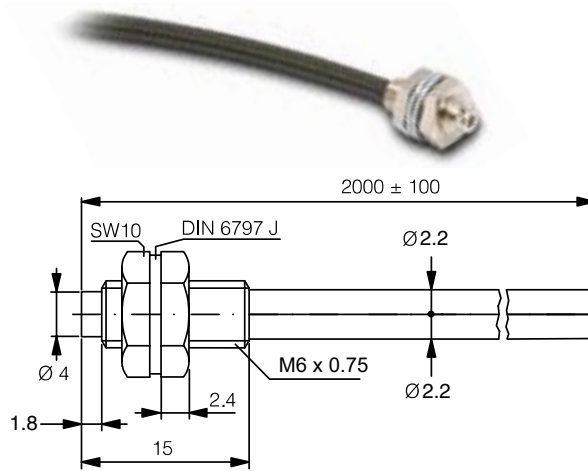


Cuttable Optical Fibers (2.2 mm Diameter)

CF-DB1-20 diffuse reflection

\$30.00

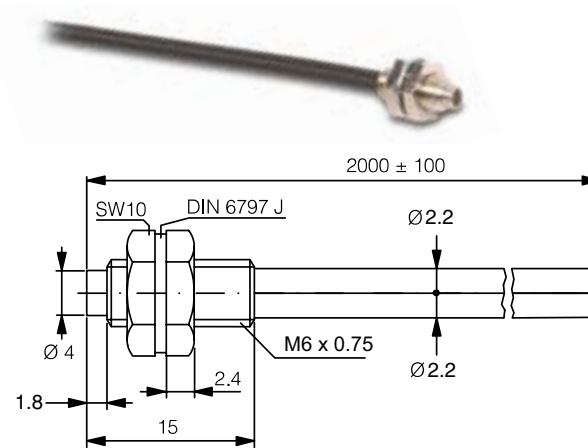
Specifications	
Optical Fiber Core Ø	1 mm (0.039in)
Sensing Distance with DFT and DFP series	200 mm (7.87in)
Fiber Length (L)	2.0 m (78.74in)
Fiber Bending Radius	25 mm (0.98in)
Free Cut	Yes
Head Size	M6
Thread Pitch	0.75 mm
Protection Degree	IEC IP67
Agency Approvals	UL file 328811
Temperature Range	-25° to +70°C (-13° to 158°F)
Fiber Materials	PMMA
Sleeve Materials	Polyethylene
Head Materials	Nickel-plated brass



CF-DB2-20 diffuse reflection

\$45.00

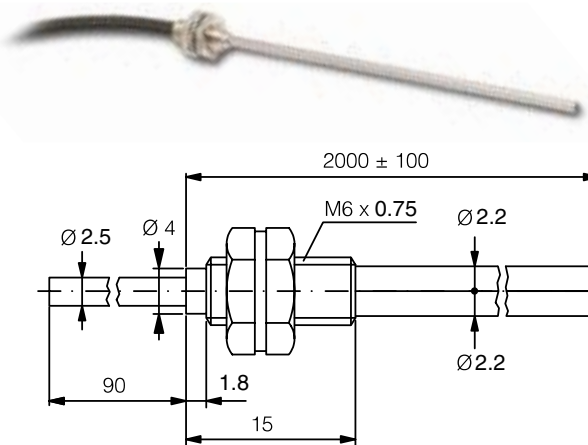
Specifications	
Optical Fiber Core Ø	1.5 mm (0.06in)
Sensing Distance with DFT and DFP Series	260 mm (10.27in)
Fiber Length (L)	2.0 m (78.74in)
Fiber Bending Radius	40 mm (1.57in)
Free Cut	Yes
Head Size	M6
Thread Pitch	0.75 mm
Protection Degree	IEC IP67
Agency Approvals	UL file 328811
Temperature Range	-25° to +70°C (-13° to 158°F)
Fiber Materials	PMMA
Sleeve Materials	Polyethylene
Head Materials	Nickel-plated brass



CF-DB3-20 diffuse reflection

\$48.50

Specifications	
Optical Fiber Core Ø	1 mm (0.039in)
Sensing Distance with DFT and DFP Series	200 mm (7.87in)
Fiber Length (L)	2.0 m (78.74in)
Fiber Bending Radius	25 mm (0.98in)
Bendable light-outlet tube	Yes, 25 mm (0.98in) radius
Free Cut	Yes
Head Size	M6
Thread Pitch	0.75 mm
Protection Degree	IEC IP67
Agency Approvals	UL file 328811
Temperature Range	-25° to +70°C (-13° to 158°F)
Fiber Materials	PMMA
Sleeve Materials	Polyethylene
Head Materials	Nickel-plated brass

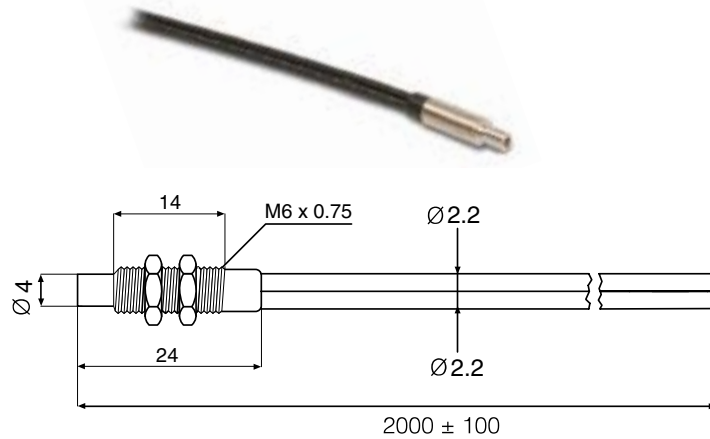


Cuttable Optical Fibers (2.2 mm Diameter)

CF-CB1-20 diffuse reflection

Specifications	
Optical Fiber Core Ø	1 mm (0.039in)
Sensing Distance with SSF Series	50 mm (1.97in)
Fiber Length (L)	2.0 m (78.74in)
Fiber Bending Radius	25 mm (0.98in)
Free Cut	Yes
Head Size	M6
Thread Pitch	0.75 mm
Protection Degree	IEC IP67
Temperature Range	-40° to +70°C (-40° to 158°F)
Fiber Materials	PMMA
Sleeve Materials	Polyethylene
Head Materials	Nickel-plated brass

\$25.00

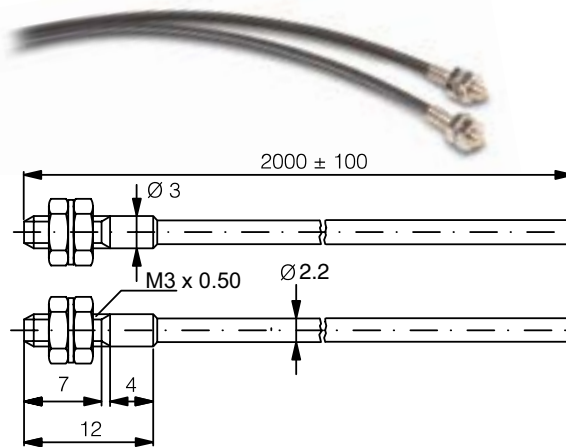


CF-TB1-20 through-beam

Specifications	
Optical Fiber Core Ø	0.5 mm (0.02in)
Sensing Distance with DFT and DFP Series	200 mm (7.87in)
Fiber Length (L)	2.0 m (78.74in) ea. piece
Fiber Bending Radius	25 mm (0.98in)
Free Cut	Yes
Head Size	M3
Thread Pitch	0.5 mm
Protection Degree	IEC IP67
Agency Approvals	UL file 328811
Temperature Range	-25° to +70°C (-13° to 158°F)
Fiber Materials	PMMA
Sleeve Materials	Polyethylene
Head Materials	Nickel-plated brass

\$30.00

Includes 2 optical fiber cables

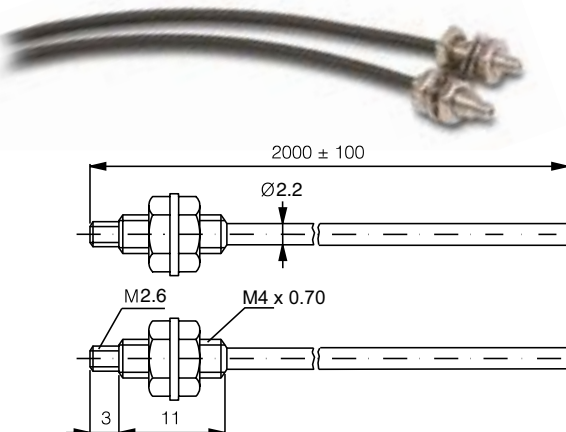


\$30.00

Includes 2 optical fiber cables

CF-TB2-20 through-beam

Specifications	
Optical Fiber Core Ø	1 mm (0.039in)
Sensing Distance with DFT and DFP Series	700 mm (27.56in)
Fiber Length (L)	2.0 m (78.74in) ea. piece
Fiber Bending Radius	25 mm (0.98in)
Free Cut	Yes
Head Size	M4
Thread Pitch	0.7 mm
Protection Degree	IEC IP67
Agency Approvals	UL file E328811
Temperature Range	-25° to +70°C (-13° to 158°F)
Fiber Materials	PMMA
Sleeve Materials	Polyethylene
Head Materials	Nickel-plated brass

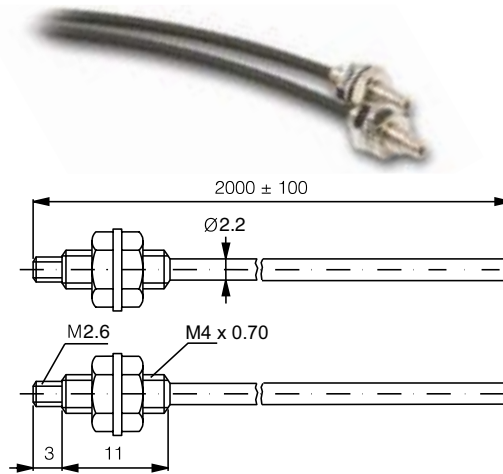


Cuttable Optical Fibers (2.2 mm Diameter)

CF-TB3-20 through-beam

\$48.50 Includes 2 optical fiber cables

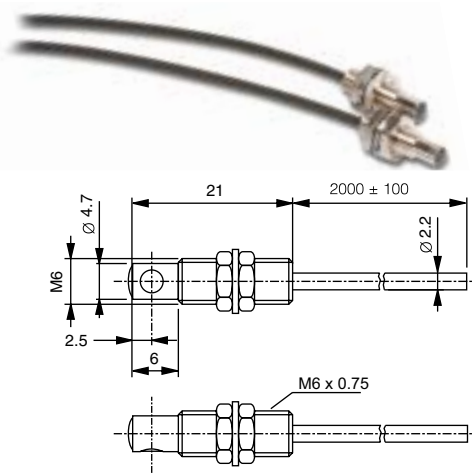
Specifications	
Optical Fiber Core Ø	1.5 mm (0.06in)
Sensing Distance with DFT and DFP Series	900 mm (35.43in)
Fiber Length (L)	2.0 m (78.74in) ea. piece
Fiber Bending Radius	40 mm (1.57in)
Free Cut	Yes
Head Size	M4
Thread Pitch	0.7 mm
Protection Degree	IEC IP67
Agency Approvals	UL file E328811
Temperature Range	-25° to +70°C (-13° to 158°F)
Fiber Materials	PMMA
Sleeve Materials	Polyethylene
Head Materials	Nickel-plated brass



CF-TB4-20 90° through-beam

\$60.00 Includes 2 optical fiber cables

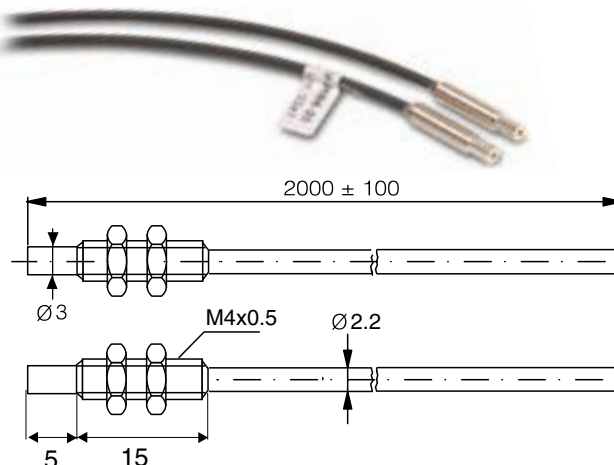
Specifications	
Optical Fiber Core Ø	1.0 mm (0.039in)
Sensing Distance with DFT and DFP Series	1800 mm (70.87in)
Fiber Length (L)	2.0 m (78.74in) ea. piece
Fiber Bending Radius	25 mm (0.98in)
Free Cut	Yes
Head Size	M6
Thread Pitch	0.75 mm
Protection Degree	IEC IP67
Agency Approvals	UL file E328811
Temperature Range	-25° to +70°C (-13° to 158°F)
Fiber Materials	PMMA
Sleeve Materials	Polyethylene
Head Materials	Nickel-plated brass



CF-RB6-20 through beam

\$25.00 Includes 2 optical fiber cables

Specifications	
Optical Fiber Core Ø	1.0 mm (0.039in)
Sensing Distance with SSF Series	120 mm (4.72in)
Fiber Length (L)	2.0 m (78.74in) ea. piece
Fiber Bending Radius	25 mm (0.98in)
Free Cut	Yes
Head Size	M4
Thread Pitch	0.50 mm
Protection Degree	IEC IP67
Temperature Range	-40° to +70°C (-40° to 158°F)
Fiber Materials	PMMA
Sleeve Materials	Polyethylene
Head Materials	Nickel-plated brass



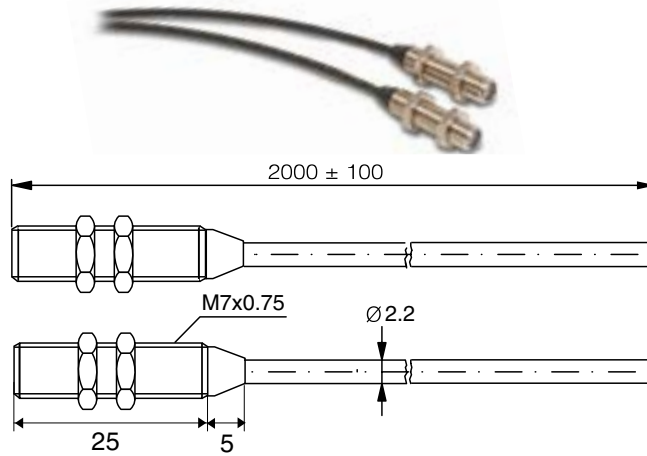
Cuttable Optical Fibers (2.2 mm Diameter)

CF-RBA-20 through-beam with lenses

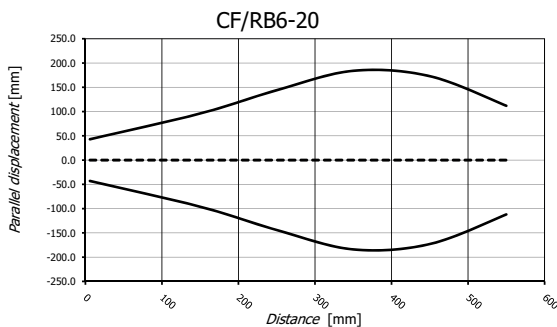
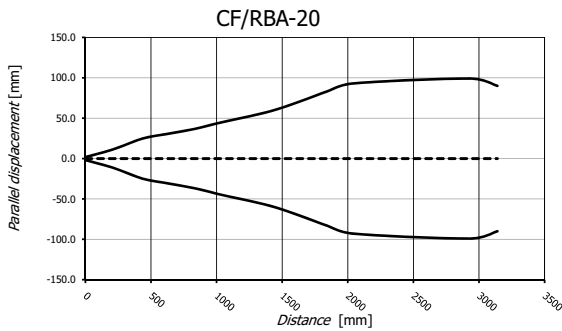
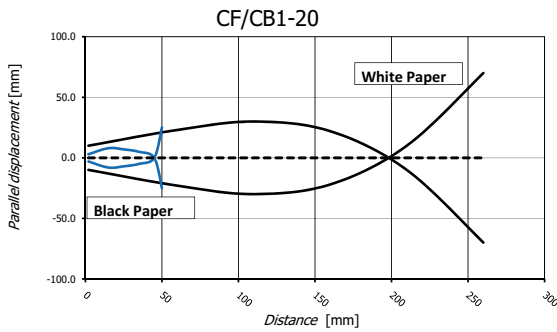
\$42.50

Includes 2 optical fiber cables

Specifications	
Optical Fiber Core Ø	1.0 mm (0.039in)
Sensing Distance with SSF series	1200 mm (47.24in)
Fiber Length (L)	2.0 m (78.74in) ea. piece
Fiber Bending Radius	25 mm (0.98in)
Free Cut	Yes
Head Size	M7
Thread Pitch	0.75 mm
Protection Degree	IEC IP67
Temperature Range	-40° to +70°C (-40° to 158°F)
Fiber Materials	PMMA
Sleeve Materials	Polyethylene
Head Materials	Nickel-plated brass



Characteristic Curves



Accessories for 18mm Sensors

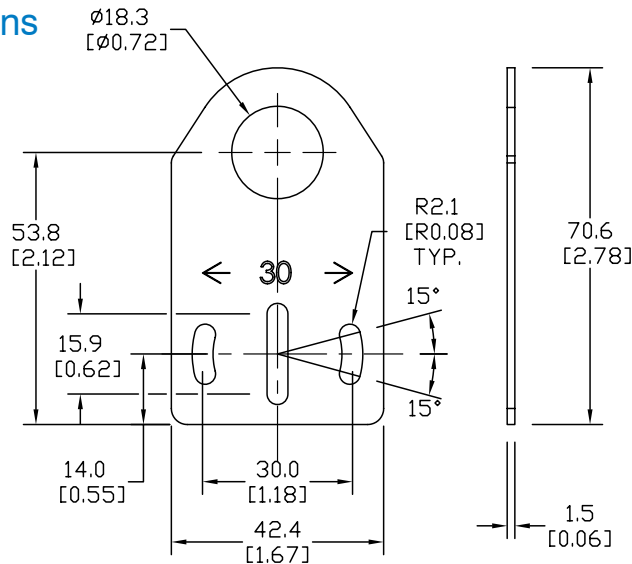
Axial Mounting Bracket

Axial mounting bracket for use with 18mm sensors. 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.

Accessories for 18mm Sensors			
Part Number	Price	Description	Weight [lb]
ST18A	\$1.25	Mounting bracket, axial, zinc-plated steel. For use with 18mm sensors. 1/pk.	0.06
ST18A7W	\$6.00	Mounting bracket, axial, 316L stainless steel. For use with 18mm sensors. 1/pk.	0.06

Dimensions

mm [inches]



ST18A

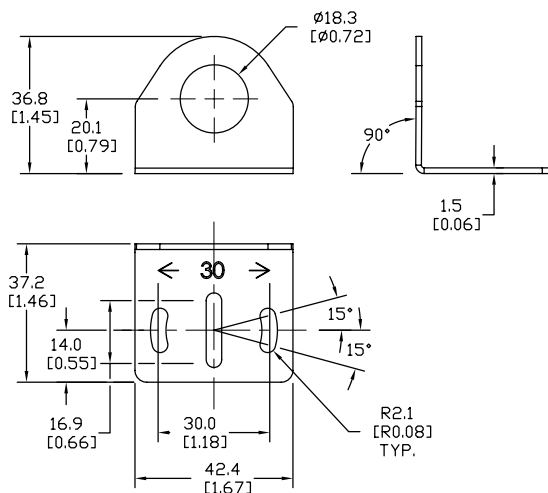
Right-angle Mounting Bracket

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]
ST18C	\$1.25	Mounting bracket, right angle, zinc-plated steel. For use with 18mm sensors. 1/pk.	0.06
ST18C7W	\$6.00	Mounting bracket, right angle, 316L stainless steel. For use with 18mm sensors. 1/pk.	0.06

Dimensions

mm [inches]



ST18C

See our website: www.AutomationDirect.com for complete engineering drawings

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.

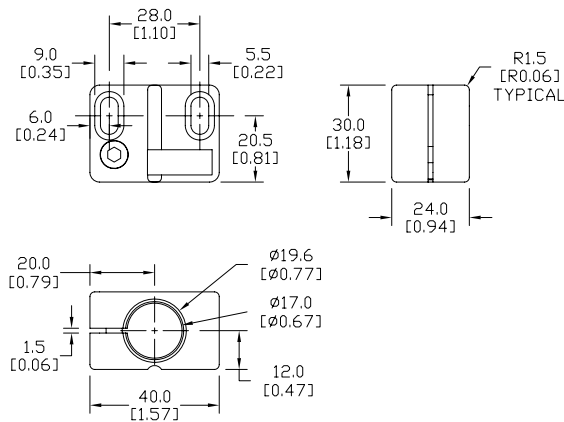
Accessories for 18mm Sensors				
Part Number	Price	Description	Weight [lb]	
OPT2104	\$8.00	Mounting bracket, right-angle, fixed insertion stop adjustment, plastic. For use with 18mm sensors.	0.06	
OPT2105	\$8.00	Mounting bracket, right-angle, plastic. For use with 18mm sensors.	0.06	



OPT2104, OPT2105

Dimensions

mm [inches]



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	Weight [lb]
OPT2116	\$9.00	Mounting bracket, right-angle swivel, 360 vertical and horizontal adjustment, aluminum, 12mm rod mount. For use with 18mm sensors.	Aluminum	304 Stainless Steel	0.15
OPT2117	\$16.00	Mounting bracket, right-angle swivel, 360 vertical and horizontal adjustment, 304 stainless steel, 12mm rod mount. For use with 18mm sensors.	304 Stainless Steel	304 Stainless Steel	0.28

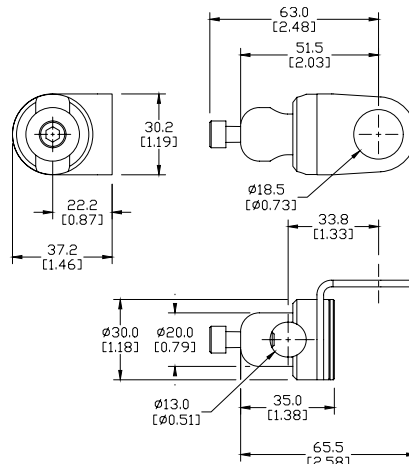
Note: 304 Stainless steel mounting rods sold separately: OPT2109 (200mm length), OPT2110 (300mm length), and OPT2111 (500mm length).



OPT2116, OPT2117

Dimensions

mm [inches]



See our website: www.AutomationDirect.com for complete engineering drawings

Mounting Rods

Mounting Rods

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

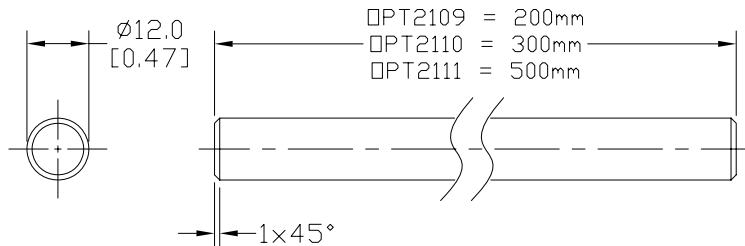
Mounting Rods for OPT2112-2127 Swivel Mounting Brackets			
Part Number	Price	Description	Weight [lb]
OPT2109	\$10.00	Mounting rod, 12mm diameter, 200mm length, 304 stainless steel.	0.41
OPT2110	\$12.00	Mounting rod, 12mm diameter, 300mm length, 304 stainless steel.	0.60
OPT2111	\$16.00	Mounting rod, 12mm diameter, 500mm length, 304 stainless steel.	0.98



OPT2109, OPT2110, OPT2111

Dimensions

mm [inches]



Right-angle Mounting Bracket

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

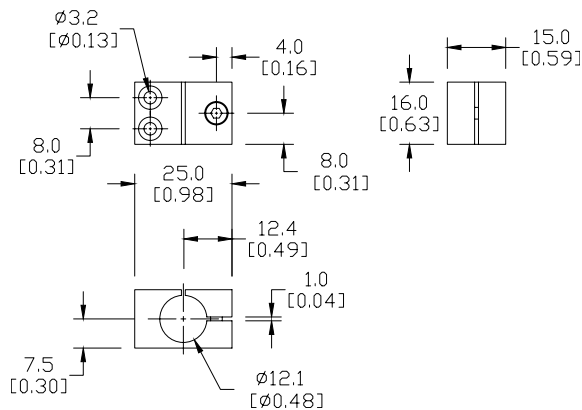
Accessories for 12mm Sensors			
Part Number	Price	Description	Weight [lb]
OPT2108	\$12.00	Mounting bracket, right-angle, nickel-plated brass. For use with 12mm mounting rods OPT2109, OPT2110 & OPT2111.	0.07



OPT2108

Dimensions

mm [inches]



See our website: www.AutomationDirect.com for complete engineering drawings