

# MS Series Photoelectric Sensors

## M18 (18 mm) plastic with back-ground suppression - DC



- 4 models available
- Diffuse reflection with background suppression
- Plastic housing
- Axial cable or M12 quick-disconnect models
- NPN, PNP, N.O./N.C. selectable output
- IP67 rated



MS Series Photoelectric Selection Chart								
Part Number	Price	Sensing Range	Output State	Logic	Connection	Wiring	Dimensions	Characteristic Curves
<b>MS0-00-0A</b>	\$61.00	50mm (1.97in)	N.O./N.C. selectable	NPN/PNP selectable	2m (6.5') axial cable	Diagram 1 or Diagram 2	Figure 1	Chart 1
<b>MS0-00-0E</b>	\$61.00				M12 (12mm) connector		Figure 2	Chart 1
<b>MS1-00-0A</b>	\$61.00	100mm (3.94in)	N.O./N.C. selectable	NPN/PNP selectable	2m (6.5') axial cable		Figure 1	Chart 2
<b>MS1-00-0E</b>	\$61.00				M12 (12mm) connector		Figure 2	Chart 2

## Wiring diagrams

Diagram 1

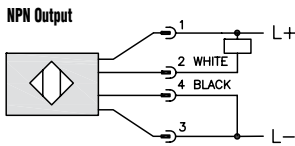
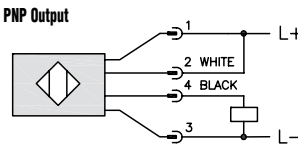


Diagram 2



Note For Diagram 1 and Diagram 2: For N.O. – Brown 1 to L+ and Blue 3 to L-  
For N.C. – Blue 3 to L+ and Brown 1 to L-

Connector



## Dimensions

in/(mm)

Figure 1

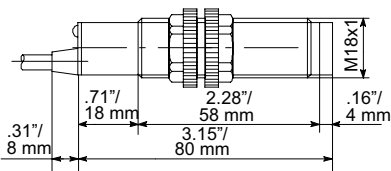
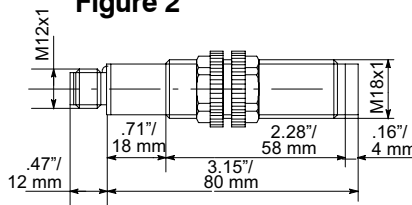


Figure 2



	Thru-beam and Reflective Models	Diffuse Reflective Models
<b>Light on</b>	N.C.	N.O.
<b>Dark on</b>	N.O.	N.C.

## Characteristic curves

Chart 1 (MS0)

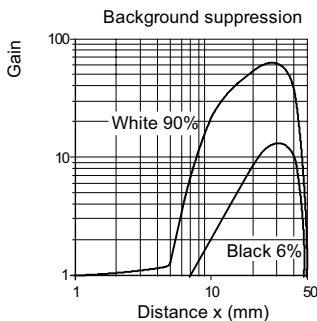
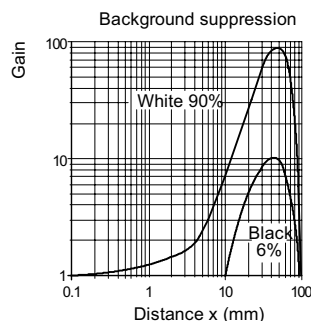


Chart 2 (MS1)



**Warning: These products are not safety sensors and are not suitable for use in personal safety applications.**

# MS Series Photoelectric Sensors

MS Series Specifications	Standard Distance	Extended Distance
<b>Type</b>	Diffuse reflection with background suppression	
<b>Sensing Distance</b>	50mm <sup>1</sup>	100mm <sup>1</sup>
<b>Light Spot Diameter</b>	0.6 mm @50 mm	0.9 mm @ 100 mm
<b>Emission</b>	Infrared (880nm)	
<b>Sensitivity</b>	Fixed	
<b>Output Type</b>	NPN/PNP selectable; N.O./N.C. selectable	
<b>Operating Voltage</b>	10-30VDC	
<b>No-load Supply Current</b>	40mA	
<b>Operating (Load) Current</b>	≤100mA	
<b>Off-state (Leakage) Current</b>	≤10µA	
<b>Voltage Drop</b>	≤1.2volt maximum at 100mA	
<b>Switching Frequency</b>	80Hz	
<b>Ripple</b>	≤10%	
<b>Time Delay Before Availability (tv)</b>	200ms	
<b>Short-Circuit Protection</b>	Yes (switch autoresets after overload is removed)	
<b>Operating Temperature</b>	-25° to + 70° C (-13° to 158° F)	
<b>Protection Degree (DIN 40050)</b>	IEC IP67	
<b>LED Indicators - Switching Status</b>	Red (output energized)	
<b>Housing Material</b>	Polybutylene Terephthalate (PBT) plastic housing, polycarbonate (PC) cable exit	
<b>Lens Material</b>	Plexiglass 7N	
<b>Shock/Vibration</b>	See terminology section	
<b>Tightening Torque</b>	1 Nm (0.74 lb-ft)	
<b>Weight</b>	150g (5.29 oz)	
<b>Connectors</b>	2m (6.5') axial cable; M12 (12mm) connector	
<b>Agency Approvals</b>	CE	

<sup>1</sup> With 100x100mm white matte paper

# FARS Series Photoelectric Sensors



## M18 (18 mm) plastic - DC

The FARS series is a direct reflection diffuse sensor with adjustable background suppression. By using an embedded linear position sensor and a microprocessor, the FARS sensor has excellent capabilities in sensing targets of all shades of color, from a 90% reflective white target, all the way to a 6% reflective black target. The sensing distance can be adjusted between 30 mm and 130 mm using the lateral trimmer.

## Features

- 8 models, diffuse with background suppression
- 30/130 mm adjustable maximum reading distance
- Cable or M12 quick disconnect
- Plastic or metal housing
- Supply voltage: 10 - 30 VDC, output current: 100 mA
- LED light status indicator
- IP67 housing protection
- Complete protection against electrical damage



18mm diameter Diffuse Sensors Selection Chart									
Part Number	Price	Voltage Range	Sensing Range	Switching Frequency	Sensing Beam	Thru-Beam Component	Output Type	Connection Type	Wiring
FARS-BN-0A	\$46.50	10 to 30 VDC	30 - 130 mm adjustable	1 kHz	Red light (660 nm)	NO/NC background suppression	NPN NO + NC complementary	2 meter axial cable	Diagram 1
FARS-BN-0E	\$46.50						NPN NO + NC complementary	M12 quick disconnect (purchase cable separately)	
FARS-BP-0A	\$46.00						PNP NO + NC complementary	2 meter axial cable	Diagram 2
FARS-BP-0E	\$46.50						PNP NO + NC complementary	M12 quick disconnect (purchase cable separately)	
FARS-ON-0A	\$46.50					NO/NC background suppression	NPN NO/NC selectable	2 meter axial cable	Diagram 3
FARS-ON-0E	\$46.50						NPN NO/NC selectable	M12 quick disconnect (purchase cable separately)	
FARS-OP-0A	\$46.50						PNP NO/NC selectable	2 meter axial cable	Diagram 4
FARS-OP-0E	\$46.50						PNP NO/NC selectable	M12 quick disconnect (purchase cable separately)	

## Wiring Diagrams

Diagram 1

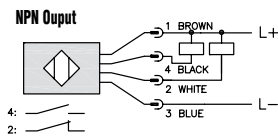
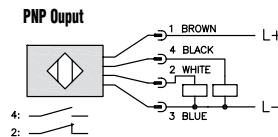


Diagram 2



## Connector

M12 Connector

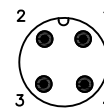


Diagram 3

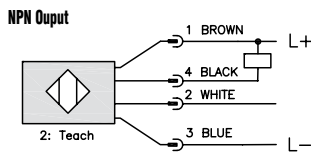
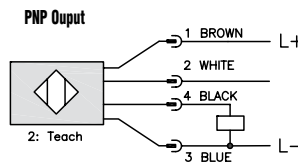
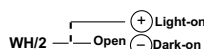
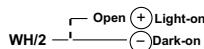


Diagram 4



<b>NO</b>	Light ON
<b>NC</b>	Dark ON



# Accessories for 18mm Sensors

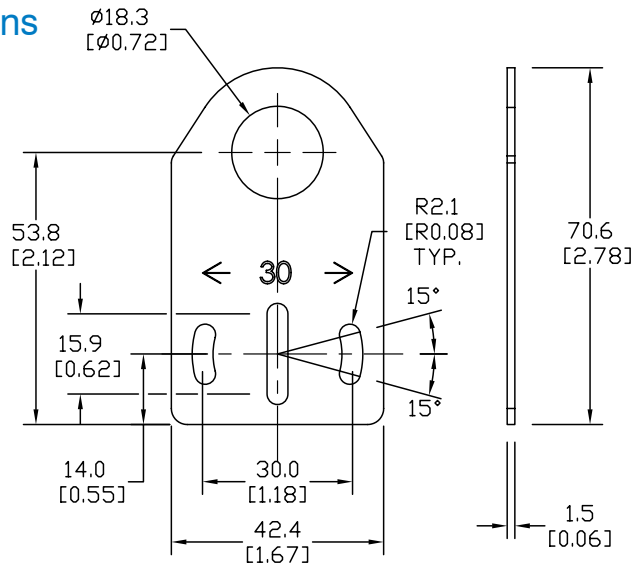
## Axial Mounting Bracket

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	\$2.00	Mounting bracket, axial, zinc-plated steel. For use with 18mm sensors. 1/pk.	0.06
ST18A7W	\$2.00	Mounting bracket, axial, 316L stainless steel. For use with 18mm sensors. 1/pk.	0.06

### Dimensions

mm [inches]



ST18A

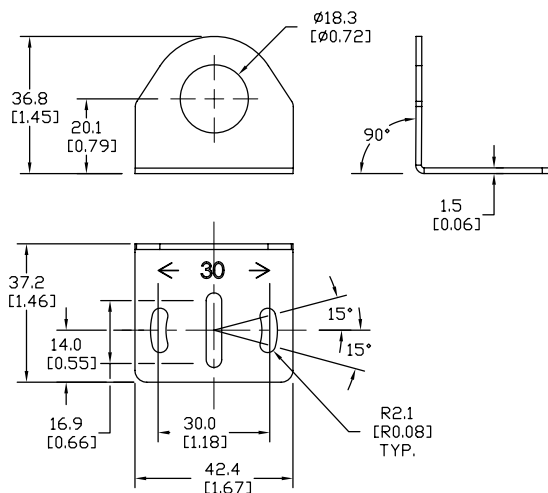
## Right-angle Mounting Bracket

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	\$2.00	Mounting bracket, right angle, zinc-plated steel. For use with 18mm sensors. 1/pk.	0.06
ST18C7W	\$2.00	Mounting bracket, right angle, 316L stainless steel. For use with 18mm sensors. 1/pk.	0.06

### Dimensions

mm [inches]



ST18C

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# Accessories for 18mm Sensors

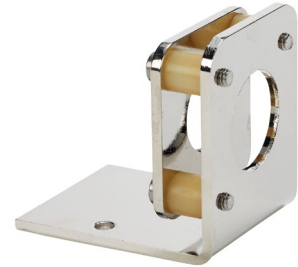
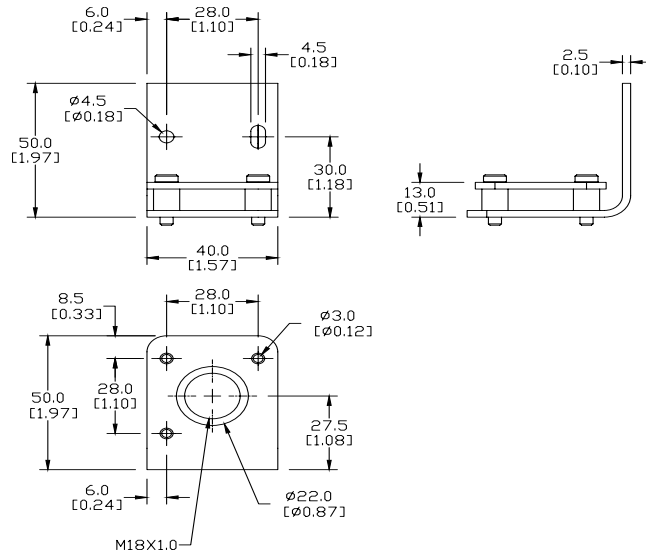
## Right-angle Fine Tune Mounting Bracket

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	Weight [lb]
OPT2036	\$30.50	Mounting bracket, right-angle, fine tune vertical and horizontal adjustment, nickel-plated steel. For use with 18mm sensors.	0.02

### Dimensions

mm [inches]



OPT2036

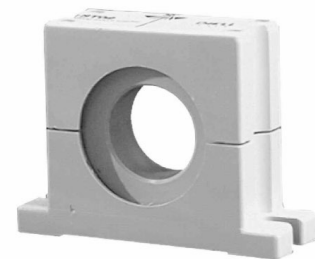
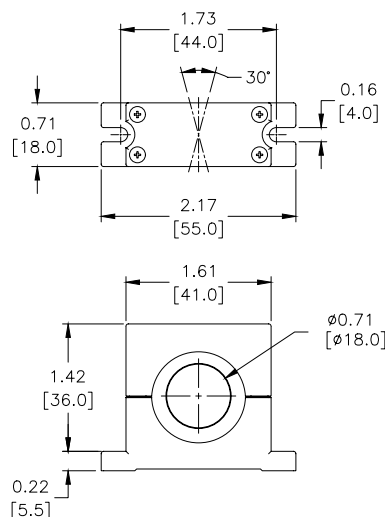
## Swivel Mounting Bracket

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]
ST02	\$2.00	Mounting bracket, ball swivel, plastic. For use with 18mm sensors.	0.06

### Dimensions

mm [inches]



ST02

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# 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.

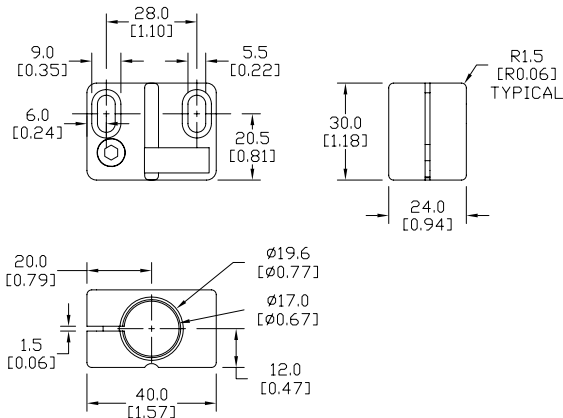
Accessories for 18mm Sensors				
Part Number	Price	Description	Weight [lb]	
<b>OPT2104</b>	\$8.25	Mounting bracket, right-angle, fixed insertion stop adjustment, plastic. For use with 18mm sensors.	0.06	
<b>OPT2105</b>	\$8.25	Mounting bracket, right-angle, plastic. For use with 18mm sensors.	0.06	



**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]
<b>OPT2116</b>	\$9.25	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
<b>OPT2117</b>	\$16.50	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

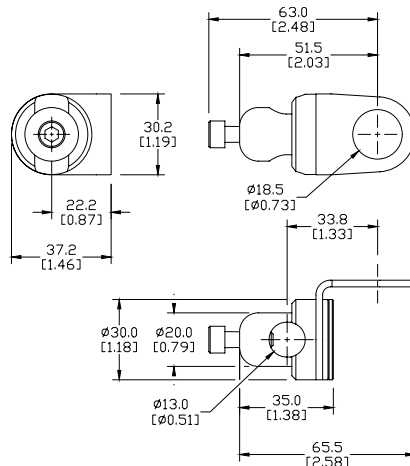
**Note: 304 Stainless steel mounting rods sold separately: OPT2109 (200mm length), OPT2110 (300mm length), and OPT2111 (500mm length).**



**OPT2116, OPT2117**

## Dimensions

mm [inches]



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# Mounting Rods

## Mounting Rods

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

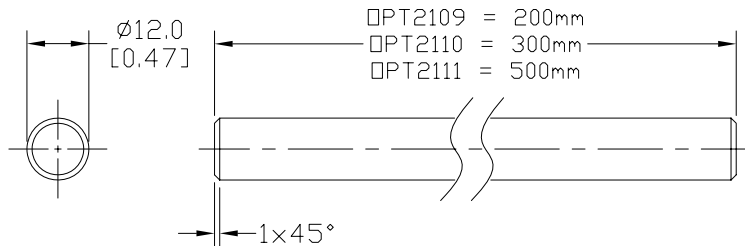
Mounting Rods for OPT2112-2127 Swivel Mounting Brackets			
Part Number	Price	Description	Weight [lb]
<b>OPT2109</b>	\$10.50	Mounting rod, 12mm diameter, 200mm length, 304 stainless steel.	0.41
<b>OPT2110</b>	\$12.50	Mounting rod, 12mm diameter, 300mm length, 304 stainless steel.	0.60
<b>OPT2111</b>	\$16.50	Mounting rod, 12mm diameter, 500mm length, 304 stainless steel.	0.98



**OPT2109, OPT2110, OPT2111**

## Dimensions

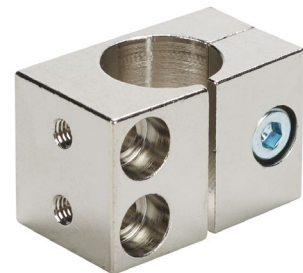
mm [inches]



## Right-angle Mounting Bracket

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

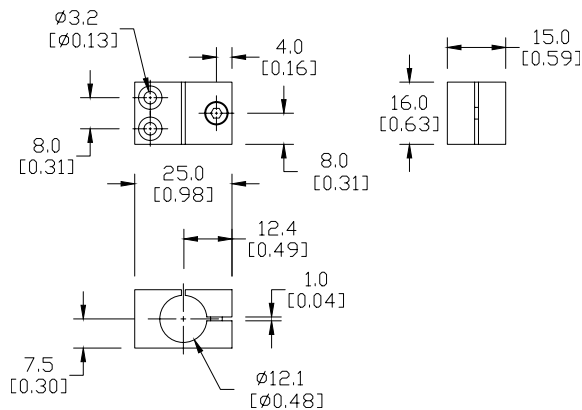
Accessories for 12mm Sensors			
Part Number	Price	Description	Weight [lb]
<b>OPT2108</b>	\$12.50	Mounting bracket, right-angle, nickel-plated brass. For use with 12mm mounting rods OPT2109, OPT2110 & OPT2111.	0.07



**OPT2108**

## Dimensions

mm [inches]



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