

# AK Series Analog Inductive Proximity Sensors



## M18 (18 mm) metal – analog output

- Voltage or current analog output
- 4 models available
- Metal housing
- Axial cable or M12 quick-disconnect models
- IP67 rated
- Purchase cable separately (for quick-disconnect model)
- Lifetime warranty



**AK Series M18 Analog Inductive Prox Selection Chart**

Part Number	Price	Sensing Range	Housing	Output	Connection	Dimensions
AK9-05-1A	\$119.00	0 to 10 mm (0-0.39 in)	Shielded	0 - 5 VDC or 1-5 mA	2 m (6.5') axial cable	Figure 1
AK9-05-1H	\$119.00				M12 (12 mm) connector	Figure 2
AK9-10-1A	\$119.00	0 to 10 mm (0-0.39 in)		0-10 VDC or 4-20 mA	2 m (6.5') axial cable	Figure 1
AK9-10-1H	\$132.00				M12 (12 mm) connector	Figure 2

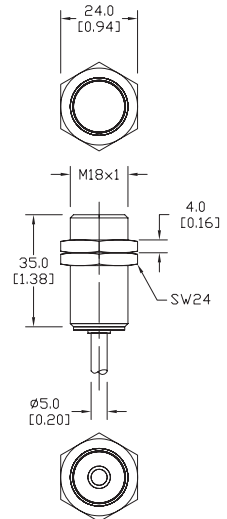
### Specifications

Mounting Type	AK9-05-1*	AK9-10-1*
Nominal Sensing Distance	0 to 10 mm (0-0.39 in)	0 to 10 mm (0-0.39 in)
Operating Distance	NA	
Material Correction Factors	See the <a href="#">Material influence table</a>	
Output Type	0-5 VDC or 1-5 mA	0-10 VDC or 4-20 mA
Current Output Max. Load / Power Supply	1 kΩ / 10 VDC; 5 kΩ / 30 VDC	0.5 kΩ / 15 VDC; 1 kΩ / 30 VDC
Voltage Output Min. Load	500 Ω	1 kΩ
Operating Voltage	10 -30 VDC	15 -30 VDC
No-load Supply Current	≤10 mA	≤12 mA
Operating (Load) Current		
Off-state (Leakage) Current	NA	
Voltage Drop	≤2.0 V	
Switching Frequency	NA	
Differential Travel (% of Nominal Distance)	NA	
Repeat Accuracy	±0.02 mm	
Ripple	≤20%	
Response Time	2 ms	
Time Delay Before Availability (tv)	≤50 ms	
Input Voltage Transient Protection	Up to 30 VDC	
Reverse Polarity Protection	Yes	
Short-Circuit Protection	Yes (switch auto-resets after overload is removed)	
Operating Temperature	-25° to +70° C (-13° to 158° F)	
Protection Degree (DIN 40050)	IEC IP67	
Indication/Switch Status	NA	
Housing Material	Chrome-plated brass	
Sensing Face Material	Polybutylene Terephthalate (PBT)	
Shock/Vibration	See <a href="#">Proximity Sensor Terminology</a>	
Tightening Torque	30 Nm (22 lb-ft)	
Weight (cable/M8 connector)	110 g (3.88 oz.) / 50 g (1.76 oz.)	
Connection	2 m (6.5') axial cable or M12 (12 mm) connector	
Agency Approvals	UL file E328811	

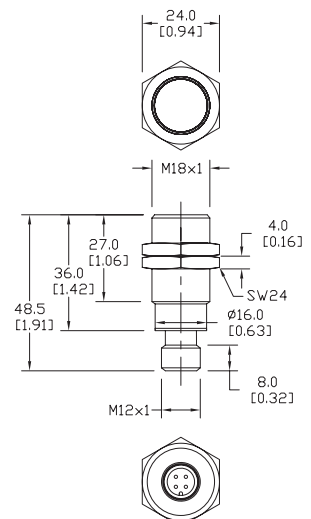
## Dimensions

mm [inches]

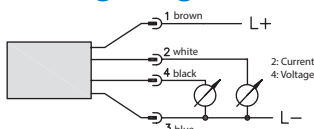
**Figure 1**



**Figure 2**



## Wiring diagram



## Connector

M12 connector



Sensors with M12 connectors must use 2M or 7M cables (4-wire).

# Accessories for 18mm Sensors

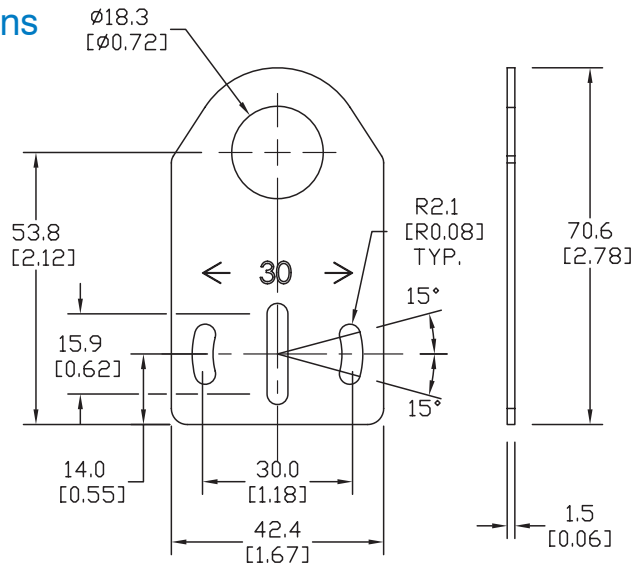
## Axial Mounting Bracket

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

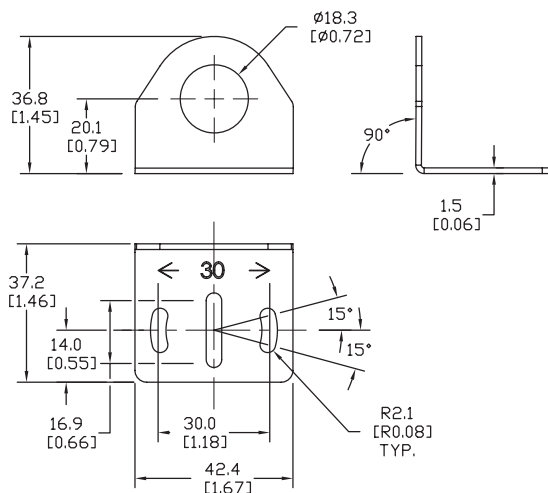
## Right-angle Mounting Bracket

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](http://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.

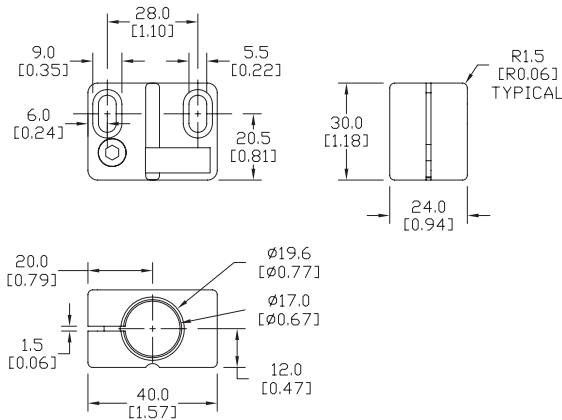
Accessories for 18mm Sensors				
Part Number	Price	Description	Weight [lb]	
<b>OPT2104</b>	\$8.00	Mounting bracket, right-angle, fixed insertion stop adjustment, plastic. For use with 18mm sensors.	0.06	
<b>OPT2105</b>	\$8.00	Mounting bracket, right-angle, plastic. For use with 18mm sensors.	0.06	



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

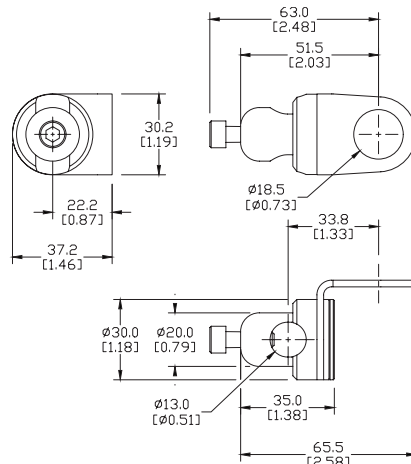
**Note: 304 Stainless steel mounting rods sold separately: OPT2109 (200mm length), OPT2110 (300mm length), and OPT2111 (500mm length).**



**OPT2116, OPT2117**

## Dimensions

mm [inches]



See our website: [www.AutomationDirect.com](http://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.

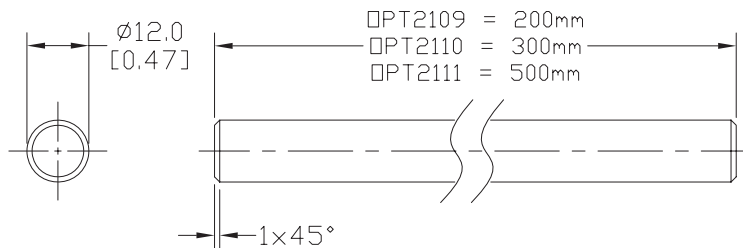
Mounting Rods for OPT2112-2127 Swivel Mounting Brackets			
Part Number	Price	Description	Weight [lb]
<b>OPT2109</b>	\$10.00	Mounting rod, 12mm diameter, 200mm length, 304 stainless steel.	0.41
<b>OPT2110</b>	\$12.00	Mounting rod, 12mm diameter, 300mm length, 304 stainless steel.	0.60
<b>OPT2111</b>	\$16.00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



**OPT2109, OPT2110, OPT2111**

## Dimensions

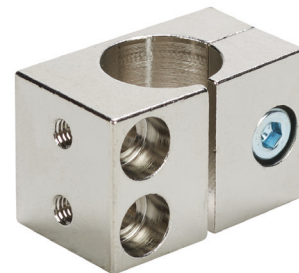
mm [inches]



## Right-angle Mounting Bracket

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

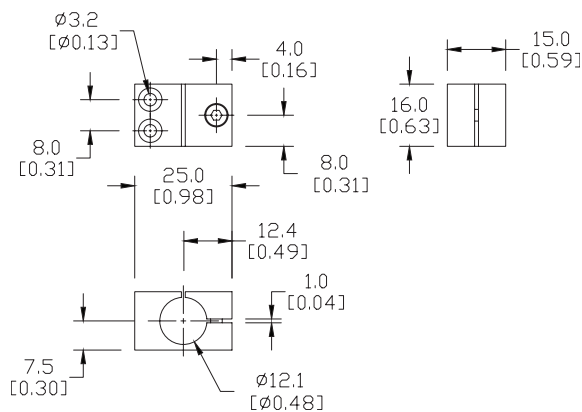
Accessories for 12mm Sensors			
Part Number	Price	Description	Weight [lb]
<b>OPT2108</b>	\$12.00	Mounting bracket, right-angle, nickel-plated brass. For use with 12mm mounting rods OPT2109, OPT2110 & OPT2111.	0.07



**OPT2108**

## Dimensions

mm [inches]



See our website: [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete engineering drawings