

# UK1 Series Ultrasonic Sensors

## M18 (18mm) Plastic – Discrete or Analog Output



UK1A-GN-0E  
UK1A-GN-0A

- 10 to 30 VDC
- Discrete models available with adjustable sensitivity
- Analog output models available
- Models available with analog and discrete switching outputs
- Several units can be synchronized for multi-point inspection
- IP67 rated
- LED status indicators
- Mounting hex nuts included
- Purchase cable for M12 plug separately
- Lifetime warranty



UK1A Series Ultrasonic Discrete or Analog Output Sensor Selection Chart						
Part Number	Price	Sensing Range	Output State	Connection	Wiring	Function
UK1A-GN-0A		50 to 400 mm (1.97 to 15.75 in)	NPN, N.O./N.C. selectable	2m (6.56 ft) output cable	Diagram 1	1
UK1A-GN-0E			NPN, N.O./N.C. selectable	M12 quick-disconnect	Diagram 1	1
UK1A-GP-0A			PNP, N.O./N.C. selectable	2m (6.56 ft) output cable	Diagram 2	1
UK1A-GP-0E			PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 2	1
UK1A-GW-0A			PNP, 2 N.O./N.C. selectable	2m (6.56 ft) output cable	Diagram 3	3
UK1A-GW-0E			PNP, 2 N.O./N.C. selectable	M12 quick-disconnect	Diagram 3	3
UK1A-G1-0A			0 to 10 VDC analog output	2m (6.56 ft) output cable	Diagram 4	2
UK1A-G1-0E			0 to 10 VDC analog output	M12 quick-disconnect	Diagram 4	2
UK1A-G2-0A			4-20mA analog output	2m (6.56 ft) output cable	Diagram 4	2
UK1A-G2-0E			4-20mA analog output	M12 quick-disconnect	Diagram 4	2
UK1A-G6-0A			4-20mA analog output, PNP, N.O./N.C. selectable	2m (6.56 ft) output cable	Diagram 5	4
UK1A-G6-0E			4-20mA analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 5	4
UK1A-G7-0A			0 to 10 VDC analog output, PNP, N.O./N.C. selectable	2m (6.56 ft) output cable	Diagram 5	4
UK1A-G7-0E			0 to 10 VDC analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 5	4

UK1C Series Ultrasonic Discrete or Analog Output Sensor Selection Chart						
Part Number	Price	Sensing Range	Output State	Connection	Wiring	Function
UK1C-GN-0A		80 to 900 mm (3.15 to 35.43 in)	NPN, N.O./N.C. selectable	2m (6.56 ft) output cable	Diagram 1	1
UK1C-GN-0E			NPN, N.O./N.C. selectable	M12 quick-disconnect	Diagram 1	1
UK1C-GP-0A			PNP, N.O./N.C. selectable	2m (6.56 ft) output cable	Diagram 2	1
UK1C-GP-0E			PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 2	1
UK1C-GW-0A			PNP, 2 N.O./N.C. selectable	2m (6.56 ft) output cable	Diagram 3	3
UK1C-GW-0E			PNP, 2 N.O./N.C. selectable	M12 quick-disconnect	Diagram 3	3
UK1C-G1-0A			0 to 10 VDC analog output	2m (6.56 ft) output cable	Diagram 4	2
UK1C-G1-0E			0 to 10 VDC analog output	M12 quick-disconnect	Diagram 4	2
UK1C-G2-0A			4-20mA analog output	2m (6.56 ft) output cable	Diagram 4	2
UK1C-G2-0E			4-20mA analog output	M12 quick-disconnect	Diagram 4	2
UK1C-G6-0A			4-20mA analog output, PNP, N.O./N.C. selectable	2m (6.56 ft) output cable	Diagram 5	4
UK1C-G6-0E			4-20mA analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 5	4
UK1C-G7-0A			0 to 10 VDC analog output, PNP, N.O./N.C. selectable	2m (6.56 ft) output cable	Diagram 5	4
UK1C-G7-0E			0 to 10 VDC analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 5	4

# UK1 Series Ultrasonic Sensors

## M18 (18mm) Plastic – Discrete or Analog Output

UK1D Series Ultrasonic Discrete or Analog Output Sensor Selection Chart						
Part Number	Price	Sensing Range	Output State	Connection	Wiring	Function
UK1D-GN-0A		150 to 1600 mm (5.90 to 62.99 in)	NPN, N.O./N.C. selectable	2m (6.56 ft) output cable	Diagram 1	1
UK1D-GN-0E			NPN, N.O./N.C. selectable	M12 quick-disconnect	Diagram 1	1
UK1D-GP-0A			PNP, N.O./N.C. selectable	2m (6.56 ft) output cable	Diagram 2	1
UK1D-GP-0E			PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 2	1
UK1D-GW-0A			PNP, 2 N.O./N.C. selectable	2m (6.56 ft) output cable	Diagram 3	3
UK1D-GW-0E			PNP, 2 N.O./N.C. selectable	M12 quick-disconnect	Diagram 3	3
UK1D-G1-0A			0 to 10 VDC analog output	2m (6.56 ft) output cable	Diagram 4	2
UK1D-G1-0E			0 to 10 VDC analog output	M12 quick-disconnect	Diagram 4	2
UK1D-G2-0A			4 to 20mA analog output	2m (6.56 ft) output cable	Diagram 4	2
UK1D-G2-0E			4 to 20mA analog output	M12 quick-disconnect	Diagram 4	2
UK1D-G6-0A			4-20mA analog output, PNP, N.O./N.C. selectable	2m (6.56 ft) output cable	Diagram 5	4
UK1D-G6-0E			4-20mA analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 5	4
UK1D-G7-0A			0 to 10 VDC analog output, PNP, N.O./N.C. selectable	2m (6.56 ft) output cable	Diagram 5	4
UK1D-G7-0E			0 to 10 VDC analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 5	4

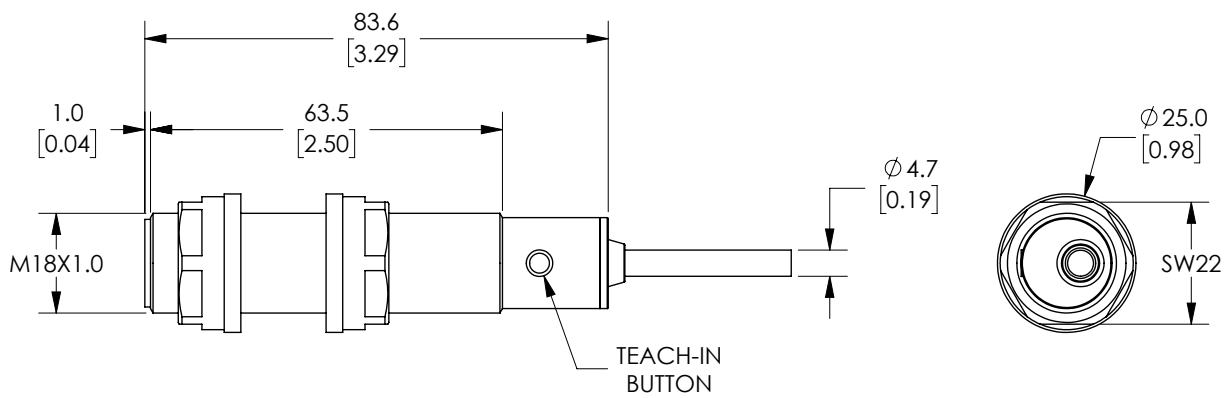
UK1F Series Ultrasonic Discrete or Analog Output Sensor Selection Chart						
Part Number	Price	Sensing Range	Output State	Connection	Wiring	Function
UK1F-GN-0A		200 to 2200 mm (7.87 to 86.61 in)	NPN, N.O./N.C. selectable	2m (6.56 ft) output cable	Diagram 1	1
UK1F-GN-0E			NPN, N.O./N.C. selectable	M12 quick-disconnect	Diagram 1	1
UK1F-GP-0A			PNP, N.O./N.C. selectable	2m (6.56 ft) output cable	Diagram 2	1
UK1F-GP-0E			PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 2	1
UK1F-GW-0A			PNP, 2 N.O./N.C. selectable	2m (6.56 ft) output cable	Diagram 3	3
UK1F-GW-0E			PNP, 2 N.O./N.C. selectable	M12 quick-disconnect	Diagram 3	3
UK1F-G1-0A			0 to 10 VDC analog output	2m (6.56 ft) output cable	Diagram 4	2
UK1F-G1-0E			0 to 10 VDC analog output	M12 quick-disconnect	Diagram 4	2
UK1F-G2-0A			4 to 20mA analog output	2m (6.56 ft) output cable	Diagram 4	2
UK1F-G2-0E			4 to 20mA analog output	M12 quick-disconnect	Diagram 4	2
UK1F-G6-0A			4-20mA analog output, PNP, N.O./N.C. selectable	2m (6.56 ft) output cable	Diagram 5	4
UK1F-G6-0E			4-20mA analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 5	4
UK1F-G7-0A			0 to 10 VDC analog output, PNP, N.O./N.C. selectable	2m (6.56 ft) output cable	Diagram 5	4
UK1F-G7-0E			0 to 10 VDC analog output, PNP, N.O./N.C. selectable	M12 quick-disconnect	Diagram 5	4

# UK1 Series Ultrasonic Sensors

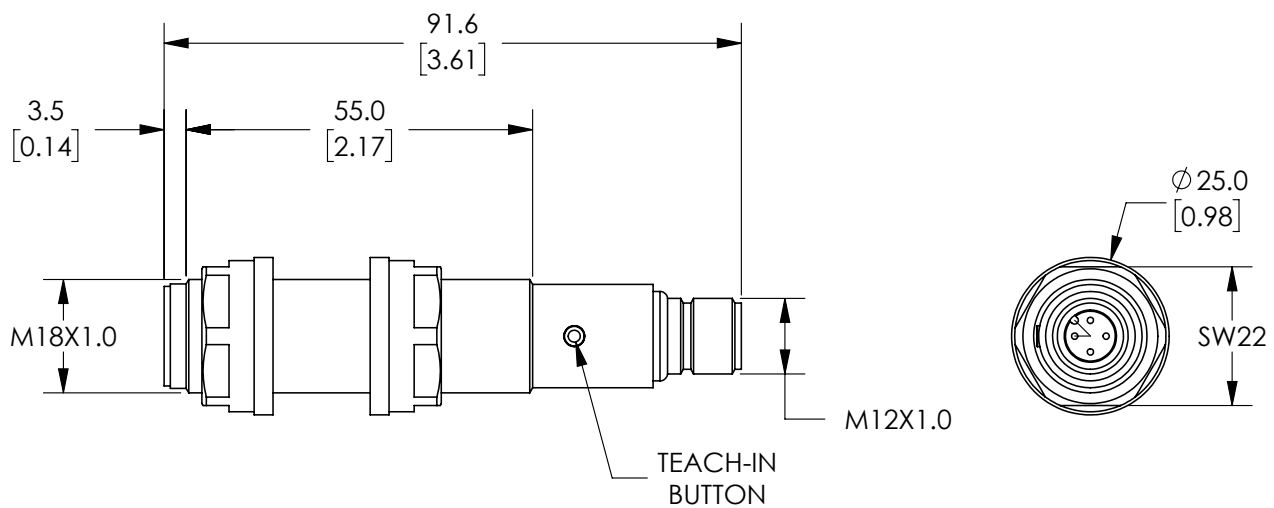
## Dimensions

mm [inches]

### UK1 Series Plastic 2m Cable



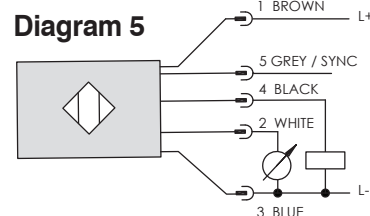
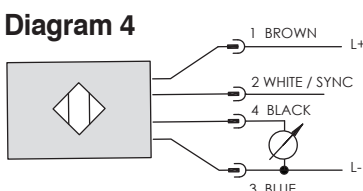
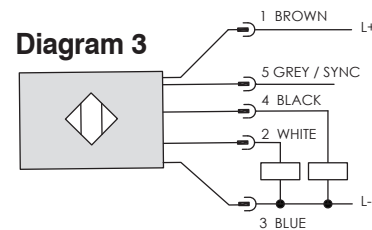
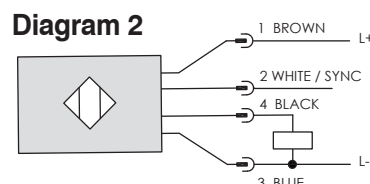
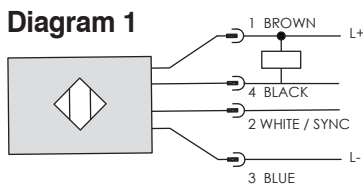
### UK1 Series Plastic M12 Quick Disconnect



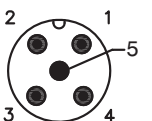
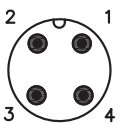
# UK1 Series Ultrasonic Sensors

Specifications				
Model	UK1A	UK1C	UK1D	UK1F
<b>Nominal Sensing Distance</b>	50-400 mm (1.97 to 15.75 in)	80 to 900 mm (3.15 to 35.43 in)	150-1600 mm (5.90 to 62.99 in)	200-2200 mm (7.87 to 86.61 in)
<b>Operating Distance (Sensing Range)</b>	100-400 mm (3.94 to 15.75 in)	100-900 mm (3.94 to 35.43 in)	150-1600 mm (5.90 to 62.99 in)	200-2200 mm (7.87 to 86.61 in)
<b>Output Type</b>	See "Output State" column in selection chart			
<b>Operating Voltage</b>	10 to 30 VDC			
<b>No-load Supply Current</b>	≤ 50mA			
<b>Operating (Load) Current</b>	100mA			
<b>Off-state (Leakage) Current</b>	10µA @ 30 VDC			
<b>Analog Output</b>	Voltage: minimum load is 3kΩ / Current: maximum load is 500Ω at 24VDC supply			
<b>Voltage Drop</b>	2.2 V max @ 100mA			
<b>Switching Frequency</b>	10Hz	4Hz	3Hz	1Hz
<b>Repeat Accuracy</b>	0.5%			
<b>Time Delay Before Availability (tv)</b>	≤300ms			
<b>Reverse Polarity Protection</b>	Yes			
<b>Short-Circuit Protection</b>	Yes			
<b>Linearity Error</b>	<1%			
<b>Ultrasonic Frequency</b>	300kHz	300kHz	230kHz	200kHz
<b>Ultrasonic Beam Angle</b>	10°±2°	10°±2°	7°±2°	8°±2°
<b>Max. Response Time (digital output)</b>	500ms	500ms	500ms	500ms
<b>Sensitivity Adjustment</b>	Yes, via teach-in button			
<b>Input Voltage Transient Protection</b>	Yes			
<b>Operating Temperature</b>	-20° to 70°C (-4° to 158°F)			
<b>Temperature Compensation</b>	Yes			
<b>Protection Degree</b>	IEC IP67			
<b>Indication/Switch Status</b>	Multi-function LED indicator			
<b>Housing Material</b>	Polybutylene Terephthalate (PBT)			
<b>Shock/Vibration</b>	IEC 69047-5-2/7.4			
<b>Tightening Torque</b>	1 N•m (0.737 lb•ft)			
<b>Weight</b>	30g (1.06 oz) (plug exit) 100g (3.53 oz) (cable exit)			
<b>Connection</b>	M12 (12 mm) connector or 2m (6.56 ft) prewired output cable			
<b>Agency Approvals</b>	CE, cULus file E187310			

## Wiring Diagrams



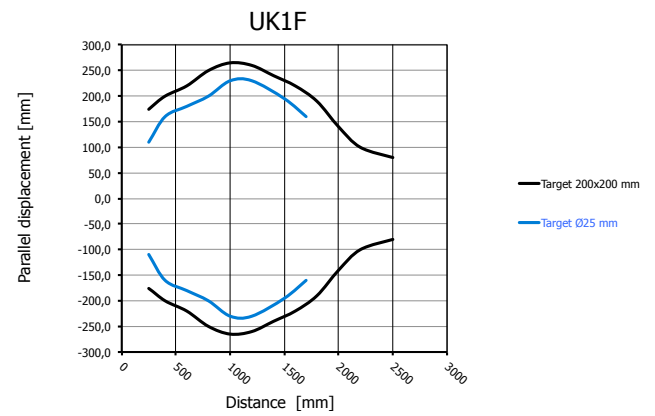
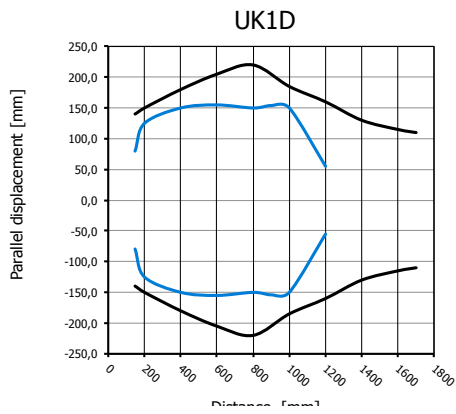
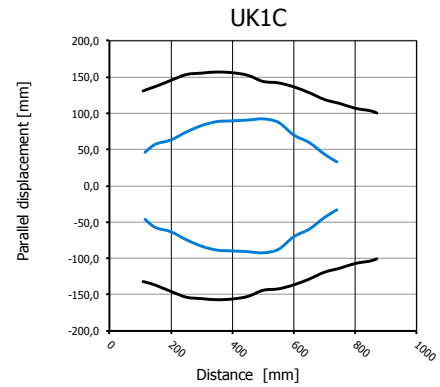
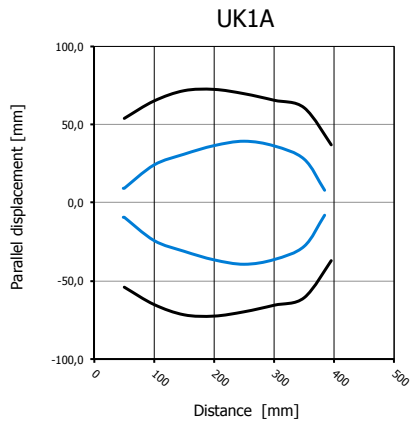
## Connector



M12 connector

# UK1 Series Ultrasonic Sensors

## Characteristic Curves



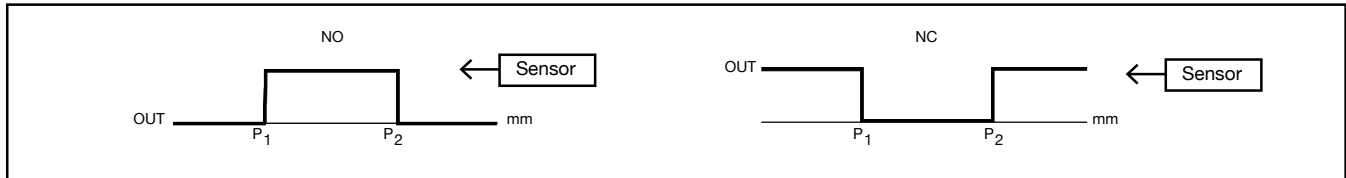
# UK1 Series Ultrasonic Sensors

## M18 (18mm) Plastic – Discrete or Analog Output

### Functions

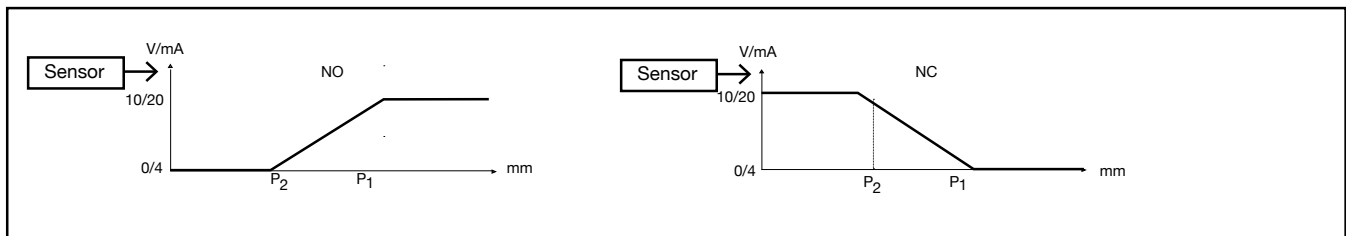
#### Models with single digital output

#1



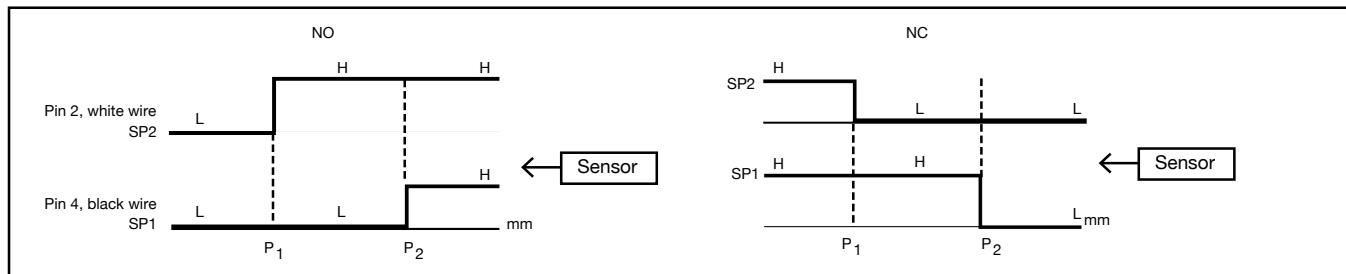
#### Models with single analog output

#2



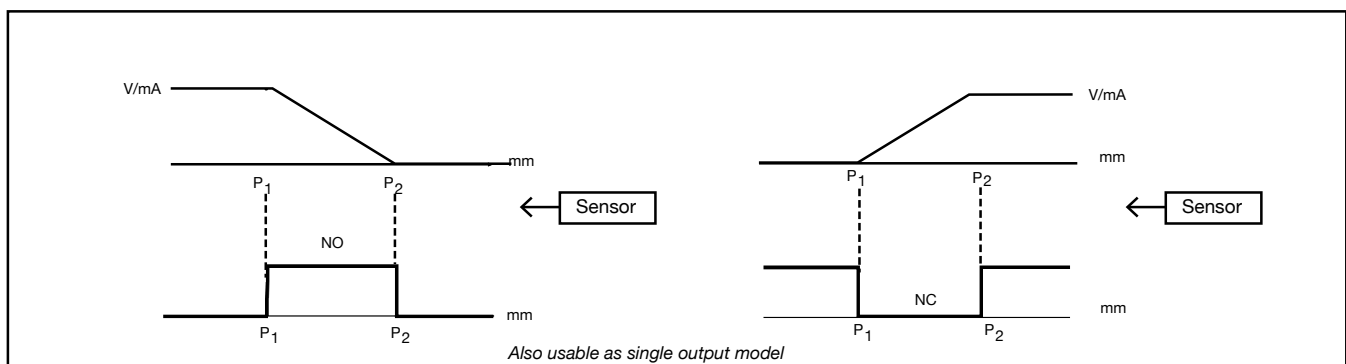
#### Models with double digital output

#3



#### Models with digital output + analog output

#4



**Note:** P1 maximum selected working distance and first point to select  
P2 minimum selected working distance and second point to select

# 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.

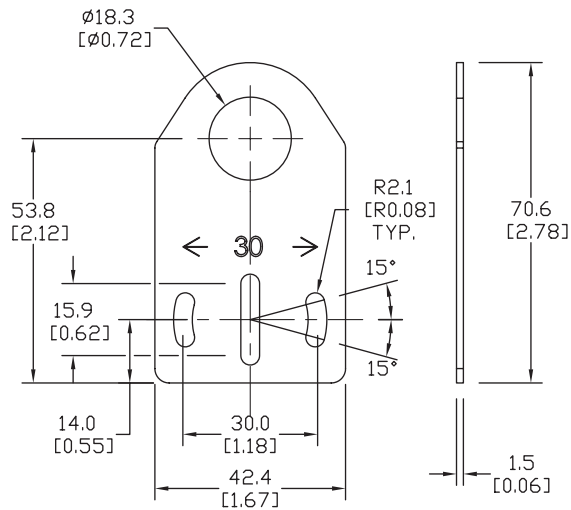


ST18A

Accessories for 18mm Sensors			
Part Number	Price	Description	Weight lb (g)
<b>ST18A</b>		Mounting bracket, axial, zinc plated steel. For use with 18mm sensors.	0.06 (27.2)
<b>ST18A7W</b>		Mounting bracket, axial, 316L stainless steel. For use with 18mm sensors.	0.06 (27.2)

### 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.

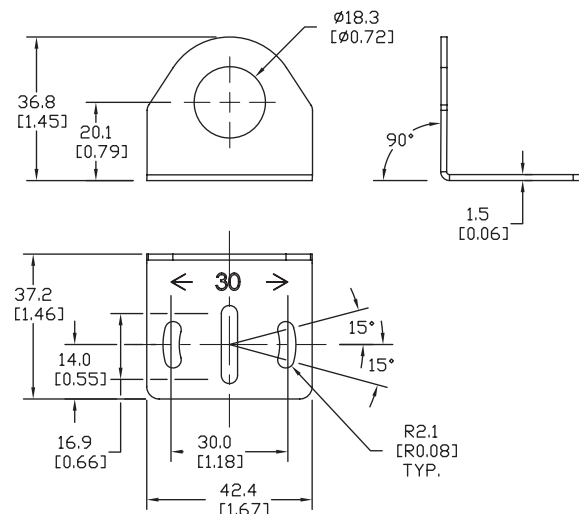


ST18C

Accessories for 18mm Sensors			
Part Number	Price	Description	Weight lb (g)
<b>ST18C</b>		Mounting bracket, right-angle, zinc plated steel. For use with 18mm sensors.	0.06 (27.2)
<b>ST18C7W</b>		Mounting bracket, right-angle, 316L stainless steel. For use with 18mm sensors.	0.06 (27.2)

### 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>		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>		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>		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>		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>		Wenglor mounting rod, 12mm diameter, 200mm length, 304 stainless steel.	<a href="#">PDF</a>	0.41 (185.97)
<a href="#">OPT2110</a>		Wenglor mounting rod, 12mm diameter, 300mm length, 304 stainless steel.	<a href="#">PDF</a>	0.60 (272.16)
<a href="#">OPT2111</a>		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>		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)

