

UK1 Series Ultrasonic Sensors

M18 (18 mm) plastic – Discrete or analog output

- 15 to 30 VDC
- Discrete models available with adjustable sensitivity
- Analog output models available
- Models available with analog and discrete switching outputs
- Complete overload protection
- IP67 rated
- LED status indicators
- Mounting hex nuts included
- Purchase cable for M12 plug separately
- Lifetime warranty



M12 Quick Disconnect



2m Output Cable

UK 1A Series Ultrasonic Discrete or Analog Output Sensor Selection Chart						
Part Number	Price	Sensing Range	Output State	Connection	Wiring	Function
UK1A-EN-0E	\$99.00	50 to 400 mm (1.97 to 15.75 in)	NPN, NO/NC selectable	M12 quick disconnect	Diagram 1	1
UK1A-EN-0A	\$104.00		NPN, NO/NC selectable	2m output cable	Diagram 1	1
UK1A-EP-0E	\$99.00		PNP, NO/NC selectable	M12 quick disconnect	Diagram 2	1
UK1A-EP-0A	\$104.00		PNP, NO/NC selectable	2m output cable	Diagram 2	1
UK1A-E1-0E	\$105.00		0 to 10 VDC analog output	M12 quick disconnect	Diagram 3	2
UK1A-E1-0A	\$110.00		0 to 10 VDC analog output	2m output cable	Diagram 3	2
UK1A-E2-0E	\$105.00		4 to 20 mA analog output	M12 quick disconnect	Diagram 3	2
UK1A-E2-0A	\$110.00		4 to 20 mA analog output	2m output cable	Diagram 3	2
UK1A-E3-0E	\$105.00		NPN, 2 NO/NC selectable	M12 quick disconnect	Diagram 4	3
UK1A-E3-0A	\$110.00		NPN, 2 NO/NC selectable	2m output cable	Diagram 4	3
UK1A-E4-0E	\$109.00		4 to 20 mA analog output, NPN, NO/NC selectable	M12 quick disconnect	Diagram 5	4
UK1A-E4-0A	\$114.00		4 to 20 mA analog output, NPN, NO/NC selectable	2m output cable	Diagram 5	4
UK1A-E5-0E	\$105.00		PNP, 2 NO/NC selectable	M12 quick disconnect	Diagram 6	3
UK1A-E5-0A	\$110.00		PNP, 2 NO/NC selectable	2m output cable	Diagram 6	3
UK1A-E6-0E	\$109.00		4 to 20 mA analog output, PNP, NO/NC selectable	M12 quick disconnect	Diagram 7	4
UK1A-E6-0A	\$114.00		4 to 20 mA analog output, PNP, NO/NC selectable	2m output cable	Diagram 7	4
UK1A-E7-0E	\$109.00		0 to 10 VDC analog output, PNP, NO/NC selectable	M12 quick disconnect	Diagram 7	4
UK1A-E7-0A	\$114.00		0 to 10 VDC analog output, PNP, NO/NC selectable	2m output cable	Diagram 7	4
UK1A-E9-0E	\$109.00		0 to 10 VDC analog output, NPN, NO/NC selectable	M12 quick disconnect	Diagram 5	4
UK1A-E9-0A	\$114.00		0 to 10 VDC analog output, NPN, NO/NC selectable	2m output cable	Diagram 5	4

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UK 1C Series Ultrasonic Discrete or Analog Output Sensor Selection Chart						
Part Number	Price	Sensing Range	Output State	Connection	Wiring	Function
UK1C-EN-0E	\$112.00	100 to 900 mm (3.94 to 35.43 in)	NPN, NO/NC selectable	M12 quick disconnect	Diagram 1	1
UK1C-EN-0A	\$117.00		NPN, NO/NC selectable	2m output cable	Diagram 1	1
UK1C-EP-0E	\$112.00		PNP, NO/ NC selectable	M12 quick disconnect	Diagram 2	1
UK1C-EP-0A	\$117.00		PNP, NO/NC selectable	2m output cable	Diagram 2	1
UK1C-E1-0E	\$115.00		0 to 10 VDC analog output	M12 quick disconnect	Diagram 3	2
UK1C-E1-0A	\$120.00		0 to 10 VDC analog output	2m output cable	Diagram 3	2
UK1C-E2-0E	\$115.00		4 to 20 mA analog output	M12 quick disconnect	Diagram 3	2
UK1C-E2-0A	\$120.00		4 to 20 mA analog output	2m output cable	Diagram 3	2
UK1C-E3-0E	\$115.00		NPN, 2 NO/NC selectable	M12 quick disconnect	Diagram 4	3
UK1C-E3-0A	\$120.00		NPN, 2 NO/NC selectable	2m output cable	Diagram 4	3
UK1C-E4-0E	\$119.00		4 to 20 mA analog output, NPN, NO/NC selectable	M12 quick disconnect	Diagram 5	4
UK1C-E4-0A	\$124.00		4 to 20 mA analog output, NPN, NO/NC selectable	2m output cable	Diagram 5	4
UK1C-E5-0E	\$115.00		PNP, 2 NO/ NC selectable	M12 quick disconnect	Diagram 6	3
UK1C-E5-0A	\$120.00		PNP, 2 NO/ NC selectable	2m output cable	Diagram 6	3
UK1C-E6-0E	\$119.00		4 to 20 mA analog output, PNP, NO/NC selectable	M12 quick disconnect	Diagram 7	4
UK1C-E6-0A	\$124.00		4 to 20 mA analog output, PNP, NO/NC selectable	2m output cable	Diagram 7	4
UK1C-E7-0E	\$119.00		0 to 10 VDC analog output, PNP, NO/NC selectable	M12 quick disconnect	Diagram 7	4
UK1C-E7-0A	\$124.00		0 to 10 VDC analog output, PNP, NO/NC selectable	2m output cable	Diagram 7	4
UK1C-E9-0E	\$119.00		0 to 10 VDC analog output, NPN, NO/NC selectable	M12 quick disconnect	Diagram 5	4
UK1C-E9-0A	\$124.00		0 to 10 VDC analog output, NPN, NO/NC selectable	2m output cable	Diagram 5	4

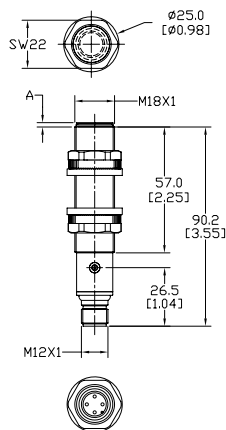
UK 1D Series Ultrasonic Discrete or Analog Output Sensor Selection Chart						
Part Number	Price	Sensing Range	Output State	Connection	Wiring	Function
UK1D-EN-0E	\$122.00	150 to 1600 mm (5.90 to 62.99 in)	NPN, NO/NC selectable	M12 quick disconnect	Diagram 1	1
UK1D-EN-0A	\$127.00		NPN, NO/NC selectable	2m output cable	Diagram 1	1
UK1D-EP-0E	\$122.00		PNP, NO/ NC selectable	M12 quick disconnect	Diagram 2	1
UK1D-EP-0A	\$127.00		PNP, NO/NC selectable	2m output cable	Diagram 2	1
UK1D-E1-0E	\$125.00		0 to 10 VDC analog output	M12 quick disconnect	Diagram 3	2
UK1D-E1-0A	\$130.00		0 to 10 VDC analog output	2m output cable	Diagram 3	2
UK1D-E2-0E	\$125.00		4 to 20 mA analog output	M12 quick disconnect	Diagram 3	2
UK1D-E2-0A	\$130.00		4 to 20 mA analog output	2m output cable	Diagram 3	2
UK1D-E3-0E	\$125.00		NPN, 2 NO/NC selectable	M12 quick disconnect	Diagram 4	3
UK1D-E3-0A	\$130.00		NPN, 2 NO/NC selectable	2m output cable	Diagram 4	3
UK1D-E4-0E	\$129.00		4 to 20 mA analog output, NPN, NO/NC selectable	M12 quick disconnect	Diagram 5	4
UK1D-E4-0A	\$134.00		4 to 20 mA analog output, NPN, NO/NC selectable	2m output cable	Diagram 5	4
UK1D-E5-0E	\$125.00		PNP, 2 NO/ NC selectable	M12 quick disconnect	Diagram 6	3
UK1D-E5-0A	\$130.00		PNP, 2 NO/ NC selectable	2m output cable	Diagram 6	3
UK1D-E6-0E	\$129.00		4 to 20 mA analog output, PNP, NO/NC selectable	M12 quick disconnect	Diagram 7	4
UK1D-E6-0A	\$134.00		4 to 20 mA analog output, PNP, NO/NC selectable	2m output cable	Diagram 7	4
UK1D-E7-0E	\$129.00		0 to 10 VDC analog output, PNP, NO/NC selectable	M12 quick disconnect	Diagram 7	4
UK1D-E7-0A	\$134.00		0 to 10 VDC analog output, PNP, NO/NC selectable	2m output cable	Diagram 7	4
UK1D-E9-0E	\$129.00		0 to 10 VDC analog output, NPN, NO/NC selectable	M12 quick disconnect	Diagram 5	4
UK1D-E9-0A	\$134.00		0 to 10 VDC analog output, NPN, NO/NC selectable	2m output cable	Diagram 5	4

UK1 Series Ultrasonic Sensors

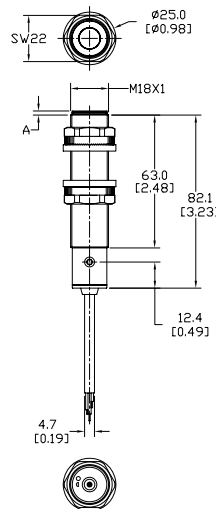
UK 1F Series Ultrasonic Discrete or Analog Output Sensor Selection Chart						
Part Number	Price	Sensing Range	Output State	Connection	Wiring	Function
UK1F-EN-0E	\$135.00	200 to 2200 mm (7.87 to 86.61 in)	NPN, NO/NC selectable	M12 quick disconnect	Diagram 1	1
UK1F-EN-0A	\$140.00		NPN, NO/NC selectable	2m output cable	Diagram 1	1
UK1F-EP-0E	\$135.00		PNP, NO/ NC selectable	M12 quick disconnect	Diagram 2	1
UK1F-EP-0A	\$140.00		PNP, NO/NC selectable	2m output cable	Diagram 2	1
UK1F-E1-0E	\$139.00		0 to 10 VDC analog output	M12 quick disconnect	Diagram 3	2
UK1F-E1-0A	\$144.00		0 to 10 VDC analog output	2m output cable	Diagram 3	2
UK1F-E2-0E	\$139.00		4 to 20 mA analog output	M12 quick disconnect	Diagram 3	2
UK1F-E2-0A	\$144.00		4 to 20 mA analog output	2m output cable	Diagram 3	2
UK1F-E3-0E	\$139.00		NPN, 2 NO/NC selectable	M12 quick disconnect	Diagram 4	3
UK1F-E3-0A	\$144.00		NPN, 2 NO/NC selectable	2m output cable	Diagram 4	3
UK1F-E4-0E	\$144.00		4 to 20 mA output, NPN, NO/NC selectable	M12 quick disconnect	Diagram 5	4
UK1F-E4-0A	\$149.00		4 to 20 mA output, NPN, NO/NC selectable	2m output cable	Diagram 5	4
UK1F-E5-0E	\$139.00		PNP, 2 NO/ NC selectable	M12 quick disconnect	Diagram 6	3
UK1F-E5-0A	\$144.00		PNP, 2 NO/ NC selectable	2m output cable	Diagram 6	3
UK1F-E6-0E	\$144.00		4 to 20 mA analog output, PNP, NO/NC selectable	M12 quick disconnect	Diagram 7	4
UK1F-E6-0A	\$149.00		4 to 20 mA analog output, PNP, NO/NC selectable	2m output cable	Diagram 7	4
UK1F-E7-0E	\$144.00		0 to 10 VDC analog output, PNP, NO/NC selectable	M12 quick disconnect	Diagram 7	4
UK1F-E7-0A	\$149.00		0 to 10 VDC analog output, PNP, NO/NC selectable	2m output cable	Diagram 7	4
UK1F-E9-0E	\$144.00		0 to 10 VDC analog output, NPN, NO/NC selectable	M12 quick disconnect	Diagram 5	4
UK1F-E9-0A	\$149.00		0 to 10 VDC analog output, NPN, NO/NC selectable	2m output cable	Diagram 5	4

Dimensions

mm [inches]



DRAWING NO.	DIM A
UK1A and UK1C	1.0 [0.04]
UK1D	1.5 [0.06]
UK1F	2.5 [0.08]



DRAWING NO.	DIM A
UK1A and UK1C	1.0 [0.04]
UK1D	1.5 [0.06]
UK1F	2.5 [0.08]

UK1 Series Ultrasonic Sensors

Specifications				
Model	UK1A	UK1C	UK1D	UK1F
Nominal Sensing Distance	50-400 mm (1.97 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)
Operating Distance (Sensing Range)	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)
Output Type	See "Output State" column in selection chart			
Operating Voltage	15 to 30 VDC			
No-load Supply Current	≤50 mA			
Operating (Load) Current	100 mA			
Off-state (Leakage) Current	10 µA @ 30 VDC			
Analog Output	Voltage: minimum load is 3 kOhms / Current: maximum load is 500 Ohms at 24 VDC supply			
Voltage Drop	2.2 volts max @ 100 mA			
Switching Frequency	10 Hz	4 Hz	2 Hz	1 Hz
Repeat Accuracy	0.5%			
Time Delay Before Availability (tv)	≤500 ms; ≤900 ms (UK1*-E5/E3-0*)			
Reverse Polarity Protection	Yes			
Short-Circuit Protection	Yes			
Linearity Error	<1%			
Ultrasonic Frequency	400 kHz	300 kHz	230 kHz	200 kHz
Ultrasonic Beam Angle	±8°	±7°	±8°	±7°
Max. Response Time (digital output)	50 ms	125 ms	250 ms	500 ms
Sensitivity Adjustment	Yes, via teach-in button			
Input Voltage Transient Protection	Yes			
Operating Temperature	-20° to 60°C (-4° to 140°F)			
Temperature Compensation	Yes			
Protection Degree	IEC IP67			
Indication/Switch Status	Multi-function LED indicator			
Housing Material	Polybutylene Terephthalate (PBT)			
Shock/Vibration	See Proximity Sensor Terminology			
Tightening Torque	1 Nm (0.737 lb-ft)			
Weight	35 g (1.23 oz) (plug exit) 88 g (3.10 oz) (cable exit)			
Connection	M12 (12 mm) connector or 2 m prewired output cable			
Agency Approvals	CE, cULus file E187310, RoHS			

Wiring Diagrams

Diagram 1

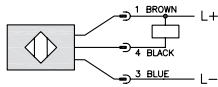


Diagram 2

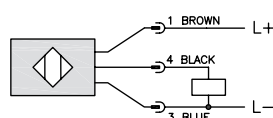


Diagram 3

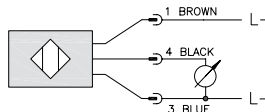


Diagram 4

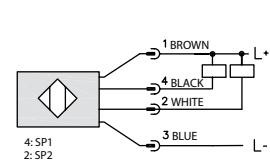


Diagram 5

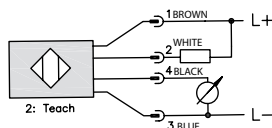


Diagram 6

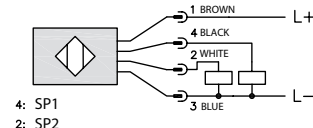
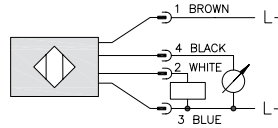
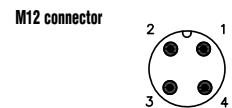


Diagram 7



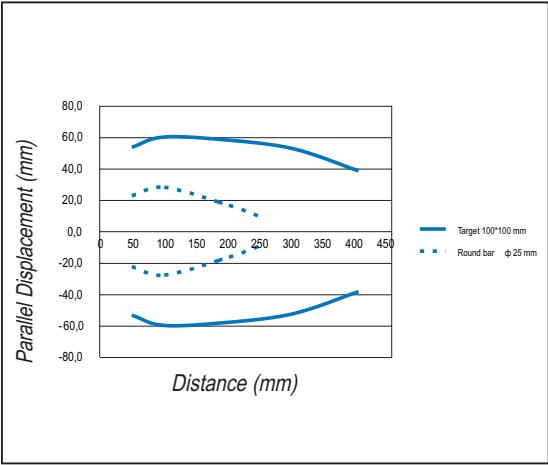
Connector



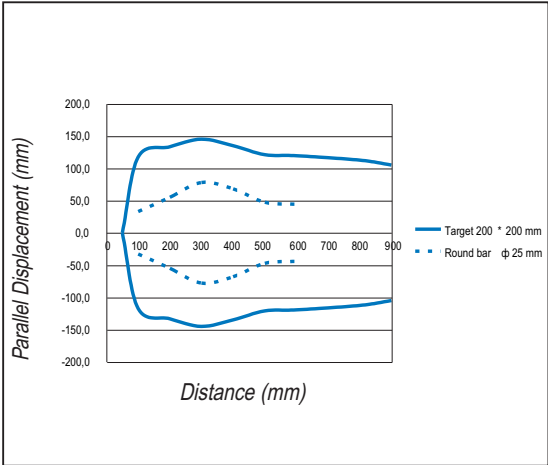
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Characteristic Curves

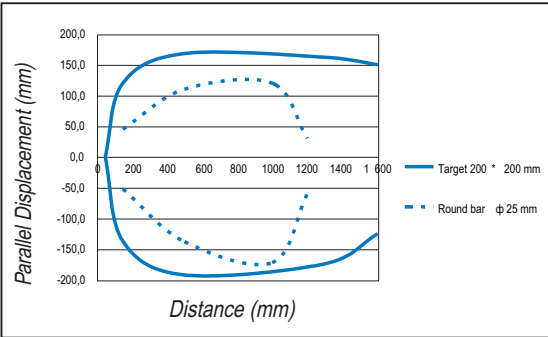
UK1A models



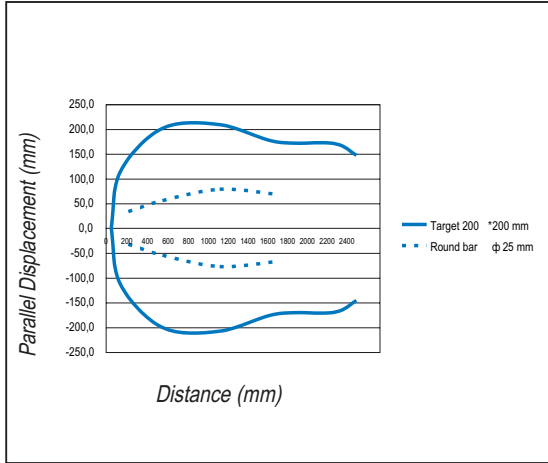
UK1C models



UK1D models



UK1F models



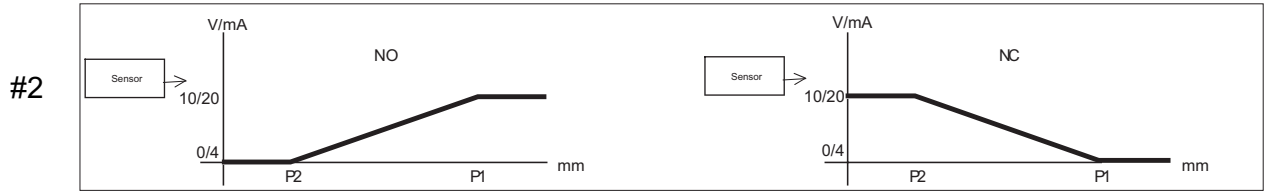
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Functions

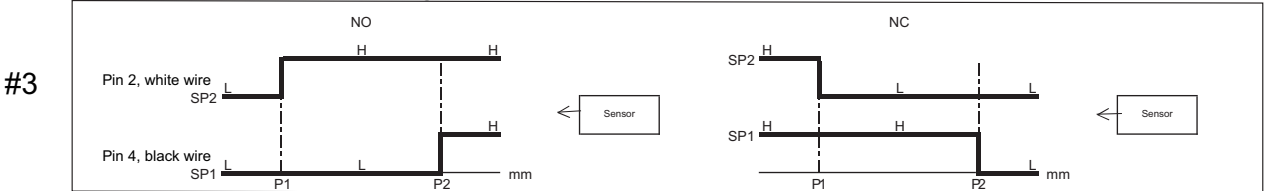
Models with single digital output



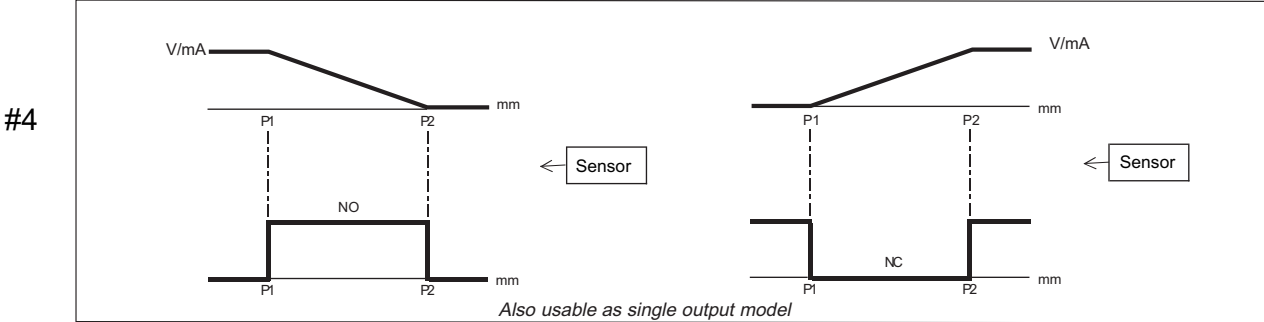
Models with single analog output



Models with double digital output



Models with digital output + analog output



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