

# UT1 Series Ultrasonic Sensors

## M30 (30mm) plastic – Discrete or analog output

- 12-30 VDC, 15 to 30 VDC (0 to 10 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



UT1B-E4-0E

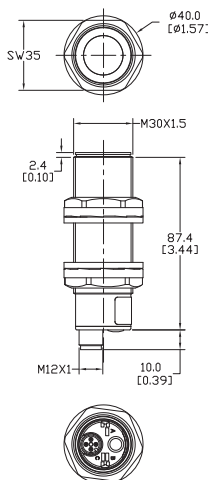


UT1B-E4-0A

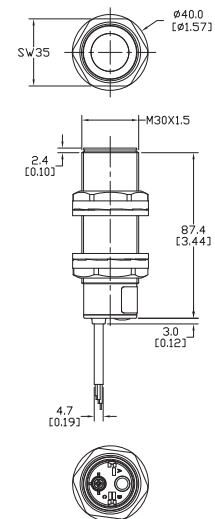
UT 1B Series Ultrasonic Discrete or Analog Output Sensor Selection Chart						
Part Number	Price	Sensing Range	Output State	Connection	Wiring	Function
UT1B-E4-0E	<--->	250 to 3500 mm (9.84 to 137.8 in)	4 to 20 mA analog output, NPN, N.O./N.C. selectable	M12 quick disconnect	Diagram 5	4
UT1B-E4-0A	<--->		4 to 20 mA analog output, NPN, N.O./N.C. selectable	2m output cable	Diagram 5	4
UT1B-E6-0E	<--->		4 to 20 mA analog output, PNP, N.O./N.C. selectable	M12 quick disconnect	Diagram 7	4
UT1B-E6-0A	<--->		4 to 20 mA analog output, PNP, N.O./N.C. selectable	2m output cable	Diagram 7	4
UT1B-E7-0E	<--->		0 to 10 VDC analog output, PNP, N.O./N.C. selectable	M12 quick disconnect	Diagram 7	4
UT1B-E7-0A	<--->		0 to 10 VDC analog output, PNP, N.O./N.C. selectable	2m output cable	Diagram 7	4
UT1B-E9-0E	<--->		0 to 10 VDC analog output, NPN, N.O./N.C. selectable	M12 quick disconnect	Diagram 5	4
UT1B-E9-0A	<--->		0 to 10 VDC analog output, NPN, N.O./N.C. selectable	2m output cable	Diagram 5	4
UT1B-EM-0E	<--->		NPN, 2 outputs, hysteresis + window functions	M12 quick disconnect	Diagram 4	5
UT1B-EM-0A	<--->		NPN, 2 outputs, hysteresis + window functions	2m output cable	Diagram 4	5
UT1B-EW-0E	<--->		PNP, 2 outputs, hysteresis + window functions	M12 quick disconnect	Diagram 6	5
UT1B-EW-0A	<--->		PNP, 2 outputs, hysteresis + window functions	2m output cable	Diagram 6	5

## Dimensions

mm [inches]



UT1 Series M12 Quick Disconnect



UT1 Series 2m Cable

# UK1/UT1 Series Ultrasonic Sensors

Specifications					
Model	UK1A	UK1C	UK1D	UK1F	UT1B
<b>Nominal Sensing Distance</b>	50 to 400 mm (1.97 to 15.75 in)	100 to 900 mm (3.94 to 35.43 in)	150 to 1600 mm (5.90 to 62.99 in)	200 to 2200 mm (7.87 to 86.61 in)	250 mm to 3500 mm (9.84 in to 137.80 in)
<b>Operating Distance (Sensing Range)</b>	100 to 400 mm (3.94 to 15.75 in)	100 to 900 mm (3.94 to 35.43 in)	150 to 1600 mm (5.90 to 62.99 in)	200 to 2200 mm (7.87 to 86.61 in)	250 mm to 3500 mm (9.84 in to 137.80 in)
<b>Output Type</b>	See "Output State" column in selection chart				
<b>Operating Voltage</b>	15 to 30 VDC				12 to 30 VDC, 15 to 30 VDC (0 to 10 VDC)
<b>No-load Supply Current</b>	≤50 mA				
<b>Operating (Load) Current</b>	100 mA				
<b>Off-state (Leakage) Current</b>	10 µA @ 30 VDC				<10 µA (VDC max)
<b>Analog Output</b>	Voltage: minimum load is 3 kOhms / Current: maximum load is 500 Ohms at 24 VDC supply				
<b>Voltage Drop</b>	2.2 volts max@ 100 mA				
<b>Switching Frequency</b>	10 Hz	4 Hz	2 Hz	1 Hz	2 Hz
<b>Repeat Accuracy</b>	0.5%				0.2%
<b>Time Delay Before Availability (tv)</b>	≤500 ms; ≤900 ms (UK1*-E5/E3-0*)				≤300 ms; <900 ms for UT1B-EM/W-0*
<b>Reverse Polarity Protection</b>	Yes				
<b>Short-Circuit Protection</b>	Yes				
<b>Linearity Error</b>	<1%				0.5%
<b>Ultrasonic Frequency</b>	400 kHz	300 kHz	230 kHz	200 kHz	112 kHz
<b>Ultrasonic Beam Angle</b>	±8°	±7°	±8°	±7°	12° ±2°
<b>Max. Response Time (digital output)</b>	50 ms	125 ms	250 ms	500 ms	250 ms
<b>Sensitivity Adjustment</b>	Yes, via teach-in button				
<b>Input Voltage Transient Protection</b>	Yes				
<b>Operating Temperature</b>	-20° to 60°C (-4° to 140°F)				-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>	See Terminology Section				
<b>Tightening Torque</b>	1 Nm (0.737 lb-ft)				
<b>Weight</b>	35g (1.23 oz) (plug exit) 88g (3.10 oz) (cable exit)				90g (3.17 oz) (plug exit) 160g (5.64 oz) (cable exit)
<b>Connection</b>	M12 (12 mm) connector or 2m prewired output cable				
<b>Agency Approvals</b>	CE, cULus file E187310, RoHS				

## Wiring Diagrams

Diagram 1

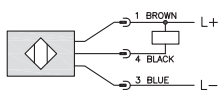


Diagram 2

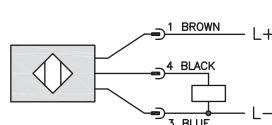


Diagram 3

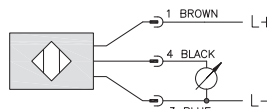


Diagram 4

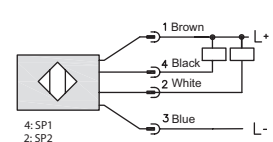


Diagram 5

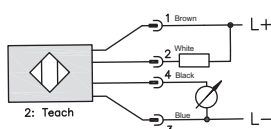


Diagram 6

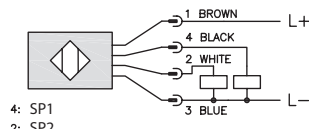
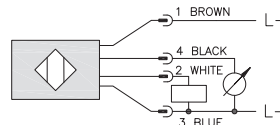
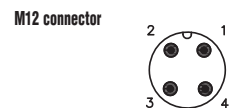


Diagram 7



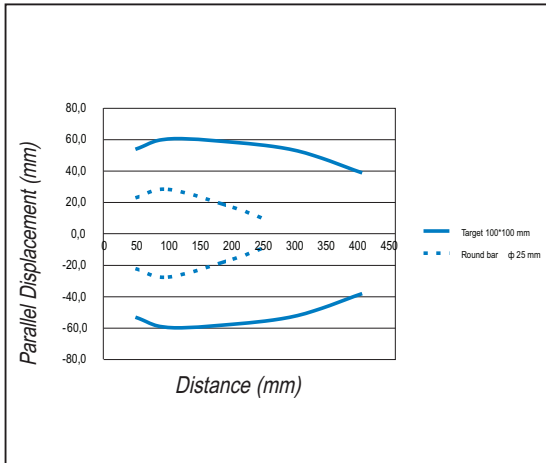
Connector



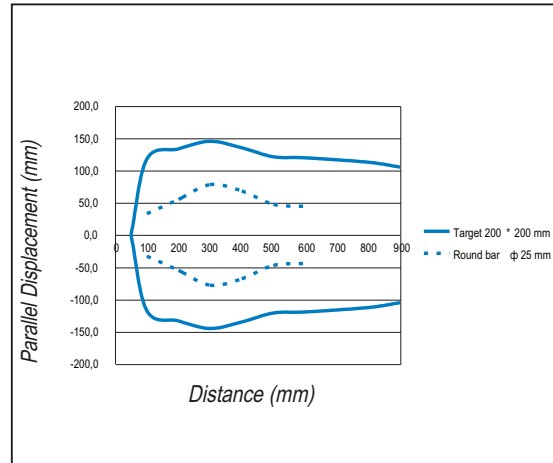
# UK1/UT1 Series Ultrasonic Sensors

## Characteristic Curves

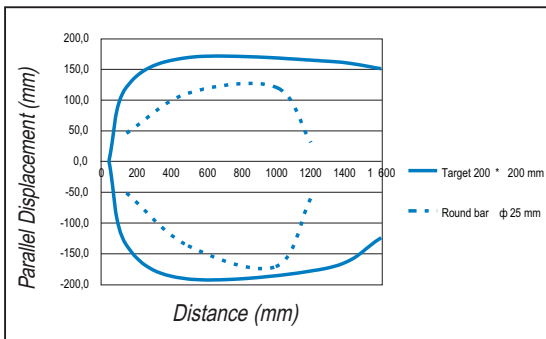
### UK1A models



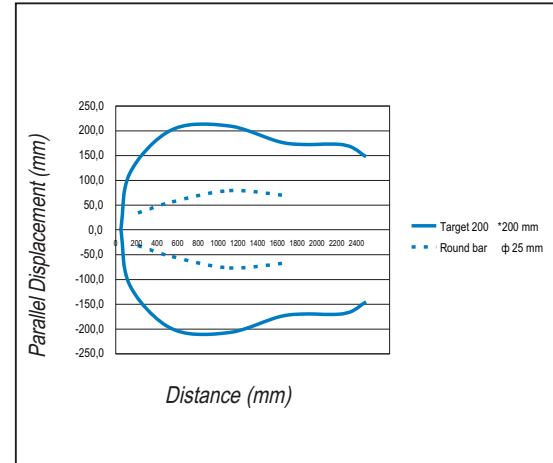
### UK1C models



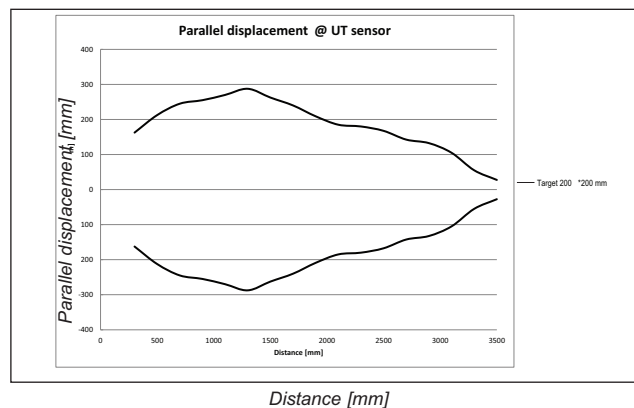
### UK1D models



### UK1F models



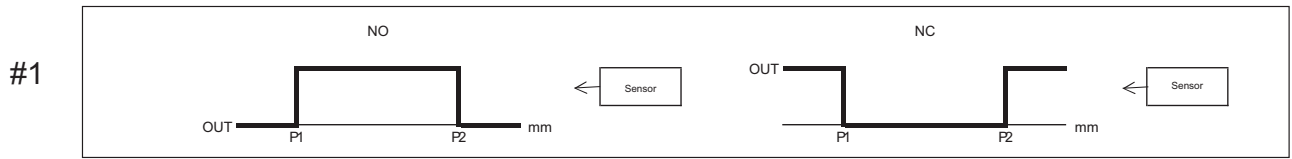
### UT1B models



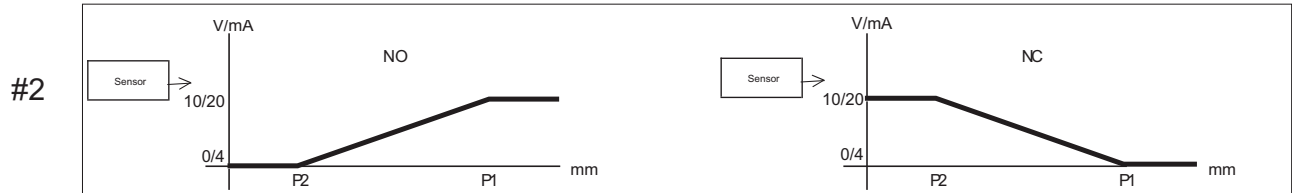
# UK1/UT1 Series Ultrasonic Sensors

## Functions

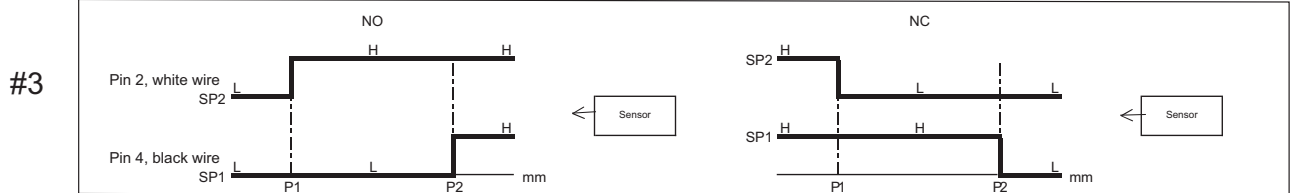
Function Models with single digital output



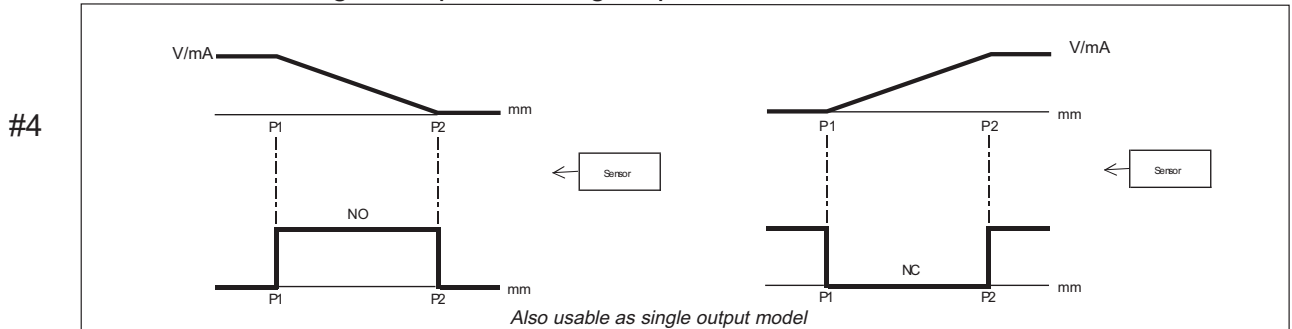
Models with single analog output



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

Models with double digital output, hysteresis, + standard window

