

M18 Ultrasonic Sensor UK1

- M18
- Stainless steel AISI 316L or PBT body
- Models with digital or analogue (current or voltage) outputs
- Working area adjusting (window teach or on object teach)
- Multifunction LED indicator
- Adjustable hysteresis function in model with two digital outputs
- IP67 (EN 60529)
- Temperature compensated
- UL / cUL Certified



Options & Ordering Codes

NOTE: Not all possible options are customisable

	UK	1	A	/	E	1	-	0	A	
Body Style										Connection Type
M18 body	UK									A Pre-cabled 2m
Body Size										E M12 Connector
Standard housing		1								
Sensing Distance (Sn) mm										Housing Material
Direct diffuse 50 - 400mm			A					0		Plastic housing
Direct diffuse 100 - 900mm			C					1		Stainless steel housing AISI 316L (DIN 1.4404)
Direct diffuse 150 - 1600mm / 200 - 1500mm metal housing			D							
Direct diffuse 200 - 2200mm			F							
Sensitivity										Output
Teach-in button sensitivity adjustment					E					1 0-10V Single output
										2 4-20mA Single output
										4 NPN NO/NC + 4-20mA
										6 PNP NO/NC + 4-20mA
										7 PNP NO/NC + 0-10V
										9 NPN NO/NC + 0-10V
										N NPN NO/NC Single output
										P PNP NO/NC Single output
										W PNP 2 x NO *
										M NPN 2 x NO *

* The transition between the two functions takes place by pressing the “teach-in” button for over 8 seconds, until the status LED starts flashing fast, then upon releasing the button the flashing should slow. When the LED stops flashing, the function has changed. In the standard window function the state selection is done by reversing the wires on the plc controller (NO / NC). See the “Output curve” section

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Specifications

Models	UK1A/E*-**	UK1C/E*-**	UK1D/E*-**	UK1F/E*-0*
Maximum sensing distance	400mm ⁽¹⁾	900mm ⁽²⁾	1600mm / 150mm metal housing ⁽²⁾	2200mm ⁽²⁾
Minimum sensing distance	50mm	100mm	150mm / 200mm metal housing	200mm
Sensing range	100 - 400mm	100 - 900mm	150mm - 1600mm / 200mm - 1500mm metal housing	200 - 2200mm
Beam angle	±8°	±7°	±8° / ±7° metal body	±7°
Switching frequency (digital output)	10Hz	4Hz	2Hz / 1Hz metal body	1Hz
Response time (digital output)	500ms	≤125ms	250ms/500ms metal housing	500ms
Hysteresis	1%			
Repeat accuracy	0.5%			
Linearity error	1%			
Operating temperature	-20°C to +60°C			
Temperature compensation	Yes			
Operating voltage	15 - 30VDC			
Thermal drift	≤7%			
Ripple	5%			
Leakage current	10 µA @ 30VDC			
Output voltage drop	2.2 Vmax. (IL=100mA)			
No-load current	≤50mA			
Output current (digital output)	100mA			
Minimum load resistance (analogue V out)	3kΩ			
Adjustable set point	Teach-in button			
Time delay before availability (digital output)	≤500ms, ≤900ms (two digital output)			
Time delay before availability (analogue output)	≤900ms			
Supply electrical protection	Polarity reversal and transient			
Digital output electrical protections	Short circuit (auto reset), Overvoltage pulses			
EAnalogue output electrical protections	Overvoltage pulses			
EMC	In conformance to EC Directive 2004/108/EC requirements according to EN 60947-5-2			
Protection degree	IP67 (EN60529) ⁽³⁾			
Housing material	PBT/Stainless steel AISI 316L			PBT
Front end material	Epoxy glass resin			
Tightening torque	50Nm			
Weight	Plastic housing: 26g (connector exit), 88g (cable exit); Metal housing: 55g (connector exit), 125g (cable exit)			
Storage temperature	-35°C to +70°C without freezing			

⁽¹⁾ Metal target 100mm x 100mm

⁽²⁾ Metal target 200mm x 200mm

⁽³⁾ IP rating guaranteed only with proper connection of a cable with similar rating or higher

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Single digital output standard

Dimension	Function	Distance	Housing	Output	Analog Output 0... 10V	Analog Output 4... 20mA	1 x PNP - NO/NC	1 x NPN - NO/NC
M18	direct diffuse	50...400mm	plastic	M12 connector	UK1A/E1-0E	UK1A/E2-0E	UK1A/EP-0E	UK1A/EN-0E
		100...900mm			UK1C/E1-0E	UK1C/E2-0E	UK1C/EP-0E	UK1C/EN-0E
		150...1600mm			UK1D/E1-0E	UK1D/E2-0E	UK1D/EP-0E	UK1D/EN-0E
		200...2200mm			UK1F/E1-0E	UK1F/E2-0E	UK1F/EP-0E	UK1F/EN-0E
		50...400mm		cable	UK1A/E1-0A	UK1A/E2-0A	UK1A/EP-0A	UK1A/EN-0A
		100...900mm			UK1C/E1-0A	UK1C/E2-0A	UK1C/EP-0A	UK1C/EN-0A
		150...1600mm			UK1D/E1-0A	UK1D/E2-0A	UK1D/EP-0A	UK1D/EN-0A
		200...2200mm			UK1F/E1-0A	UK1F/E2-0A	UK1F/EP-0A	UK1F/EN-0A

Double digital output standard

Dimension	Function	Distance	Housing	Output	2 x PNP (hysteresis function + standard window output)	2 x NPN (hysteresis function + standard window output)
M18	direct diffuse	50...400mm	plastic	M12 connector	UK1A/EW-0E	UK1A/EM-0E
		100...900mm			UK1C/EW-0E	UK1C/EM-0E
		150...1600mm			UK1D/EW-0E	UK1D/EM-0E
		200...2200mm			UK1F/EW-0E	UK1F/EM-0E
		50...400mm		cable	UK1A/EW-0A	UK1A/EM-0A
		100...900mm			UK1C/EW-0A	UK1C/EM-0A
		150...1600mm			UK1D/EW-0A	UK1D/EM-0A
		200...2200mm			UK1F/EW-0A	UK1F/EM-0A
		50...400mm	stainless steel AISI 316L	M12 connector	UK1A/EW-1E	UK1A/EM-1E
		100...900mm			UK1C/EW-1E	UK1C/EM-1E
		200...1500mm			UK1D/EW-1E	UK1D/EM-1E
		50...400mm			cable	UK1A/EW-1A
		100...900mm		UK1C/EW-1A		UK1C/EM-1A
		200...1500mm		UK1D/EW-1A		UK1D/EM-1A

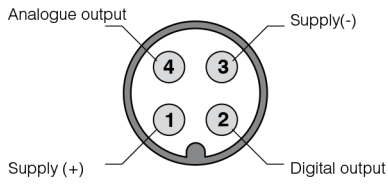
Double digital output standard

Dimension	Function	Distance	Housing	Output	1 x PNP - NO/NC + 1 x 4...20mA	1 x NPN - NO/NC + 1 x 4...20mA	1 x PNP - NO/NC + 1 x 0...10V	1 x NPN - NO/NC + 1 x 0...10V
M18	direct diffuse	50...400mm	plastic	M12 connector	UK1A/E6-0E	UK1A/E4-0E	UK1A/E7-0E	UK1A/E9-0E
		100...900mm			UK1C/E6-0E	UK1C/E4-0E	UK1C/E7-0E	UK1C/E9-0E
		150...1600mm			UK1D/E6-0E	UK1D/E4-0E	UK1D/E7-0E	UK1D/E9-0E
		200...2200mm			UK1F/E6-0E	UK1F/E4-0E	UK1F/E7-0E	UK1F/E9-0E
		50...400mm		cable	UK1A/E6-0A	UK1A/E4-0A	UK1A/E7-0A	UK1A/E9-0A
		100...900mm			UK1C/E6-0A	UK1C/E4-0A	UK1C/E7-0A	UK1C/E9-0A
		150...1600mm			UK1D/E6-0A	UK1D/E4-0A	UK1D/E7-0A	UK1D/E9-0A
		200...2200mm			UK1F/E6-0A	UK1F/E4-0A	UK1F/E7-0A	UK1F/E9-0A
		50...400mm	stainless steel AISI 316L	M12 connector	UK1A/E6-1E	UK1A/E4-1E	UK1A/E7-1E	UK1A/E9-1E
		100...900mm			UK1C/E6-1E	UK1C/E4-1E	UK1C/E7-1E	UK1C/E9-1E
		200...1500mm			UK1D/E6-1E	UK1D/E4-1E	UK1D/E7-1E	UK1D/E9-1E
		50...400mm			cable	UK1A/E6-1A	UK1A/E4-1A	UK1A/E7-1A
		100...900mm		UK1C/E6-1A		UK1C/E4-1A	UK1C/E7-1A	UK1C/E9-1A
		200...1500mm		UK1D/E6-1A		UK1D/E4-1A	UK1D/E7-1A	UK1D/E9-1A

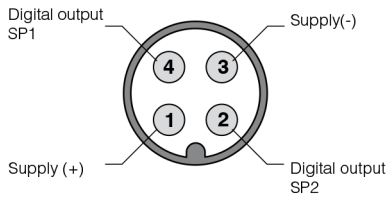
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Connection Drawings

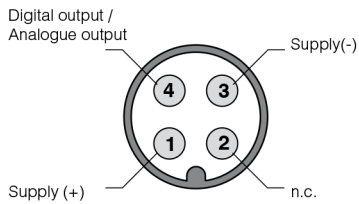
M12 Plug



UK1*/E7-*E**
UK1*/E6-*E**
UK1*/E4-*E**
UK1*/E9-*E**

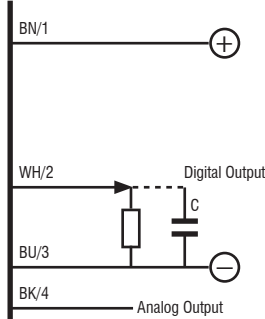


UK1*/EW-*E**
UK1*/EM-*E**

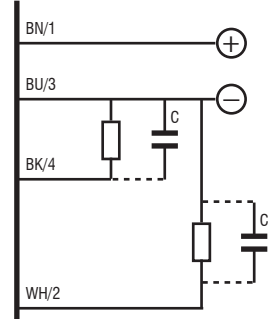


UK1*/E1-0E**
UK1*/E2-0E**
UK1*/EP-0E**
UK1*/EN-0E**

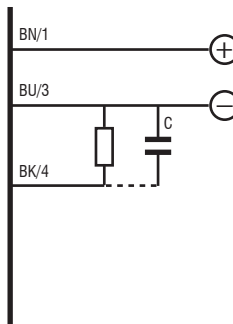
Cable exit & Pin numbers (M12 plug) PNP NO/NC + analogue output



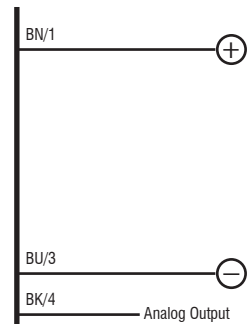
PNP double output



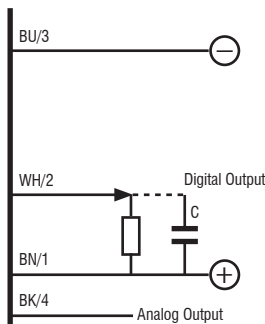
PNP NO/NC with single digital output



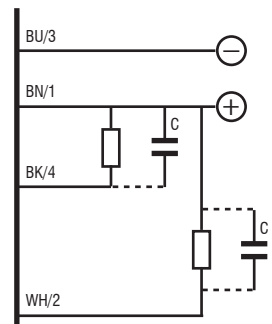
Analogue single output



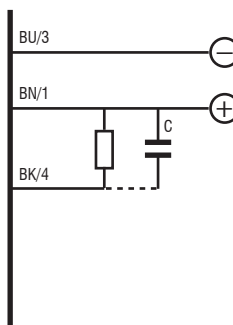
NPN NO/NC + analogue output



NPN double output



NPN NO/NC with single digital output



BN = Brown
BU = Blue
BK = Black
WH = White

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Outputs

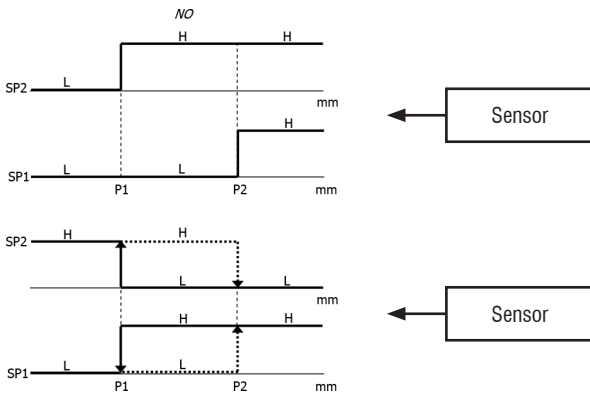
Single digital



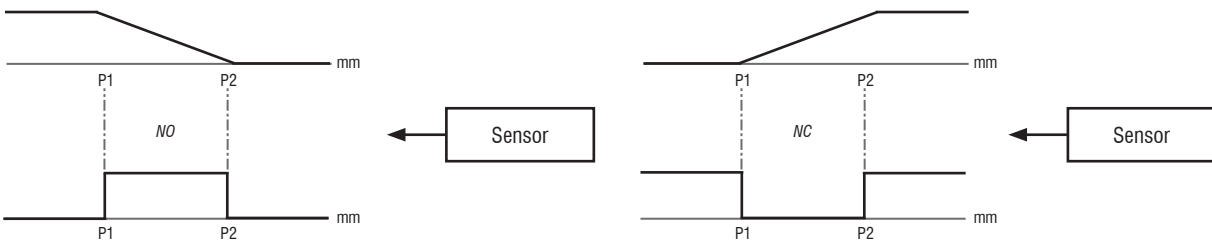
Single analogue



Two digital outputs-standard window and adjustable hysteresis



Digital + analogue

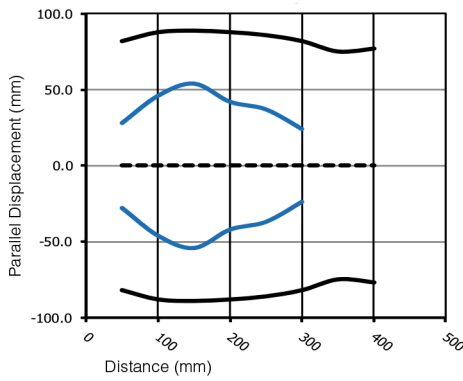


P1 = First point to select = maximum selected distance
 P2 = Second point to select = minimum selected distance

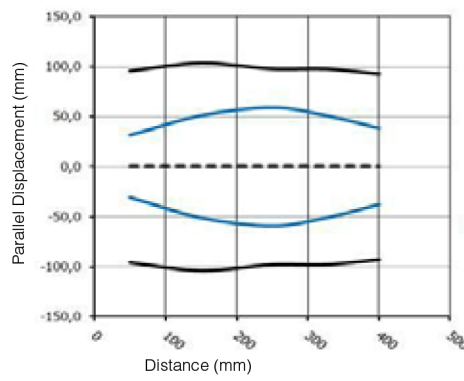
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Response Graphs

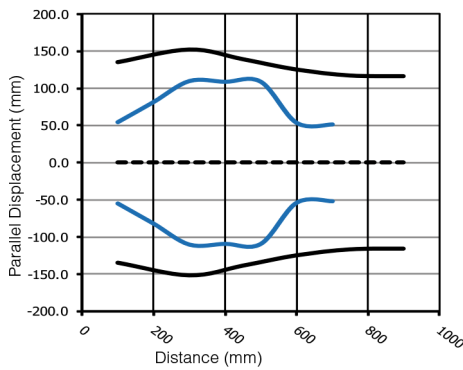
UK1A/**-0*



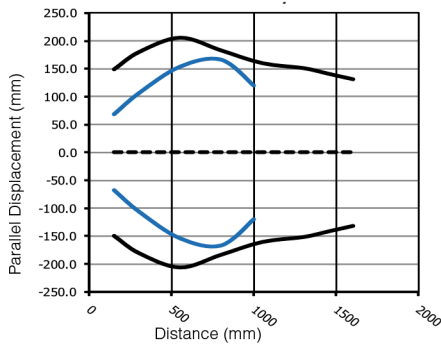
UK1A/**-1*



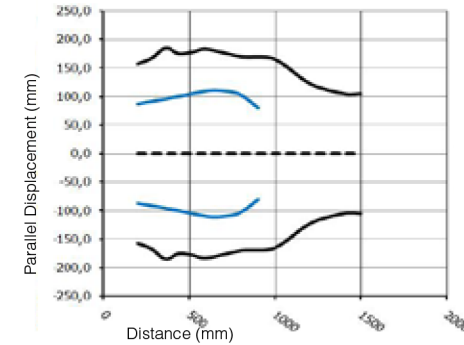
UK1C/**-**



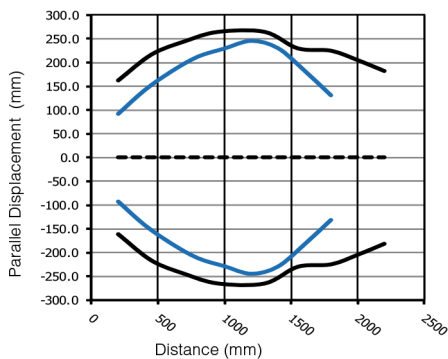
UK1D/**-0*



UK1D/**-1*



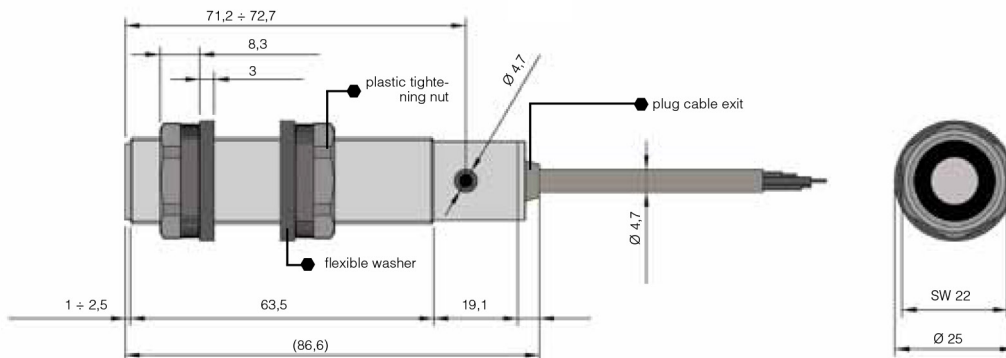
UK1F/**-**



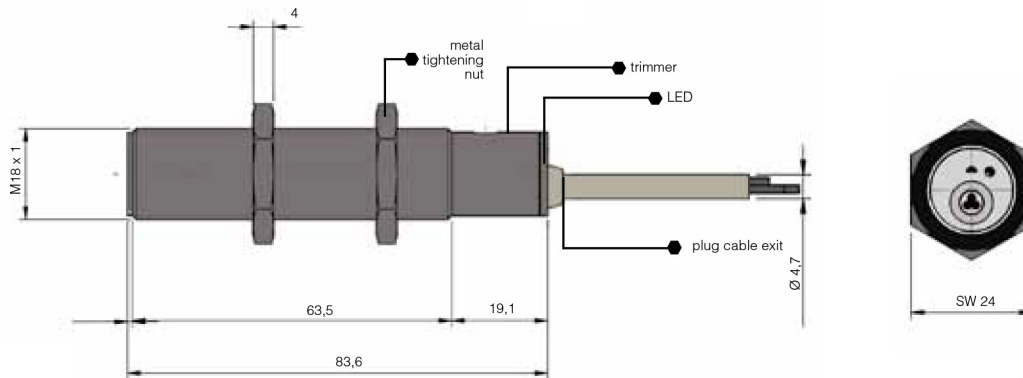
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Dimensions (mm)

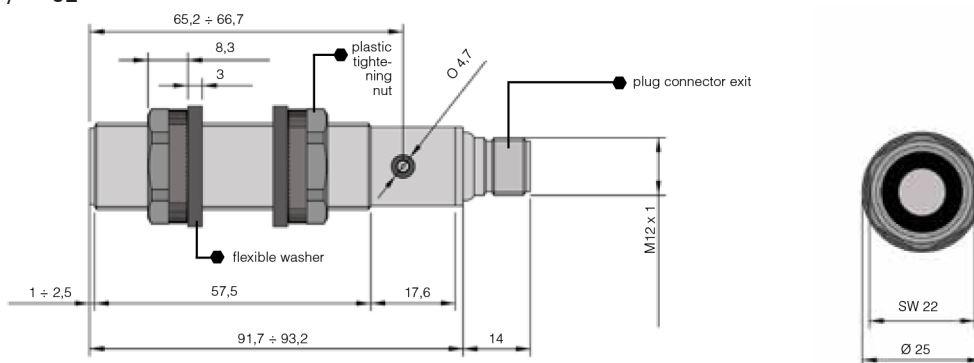
UK1*/**-0A



UK1*/**-1A



UK1*/**-0E



UK1*/**-1E

