

M30 Ultrasonic Sensor UT and UTR

- M30 ultrasonic sensor with standard housing and large front sensing surface
- High performances and long sensing distances
- Adjustable hysteresis function
- Models with two digital programmable outputs
- Models with synchronization
- Ideal for level detection
- Models with voltage or current outputs
programmable slope to optimize resolution
- Adjustable working area (window mode or object mode) by Teach-in button available on all models for a quick and easy installation
- Two multifunction LEDs
- Plastic and AISI 316L stainless steel housing
- M12 plug or 2m cable exit



Options & Ordering Codes

Note: The feasibility of a code number does not mean the effective availability of a product

Series		Function		Housing Type		Nominal Sensing Distance		Adjustment		Cable Exit/Connector		Housing Materials		Output	
M30 Ultrasonic Sensor		UT		1		250 - 3,500 mm direct diffuse/350 - 3,500 metallic housing		Sensitivity adjustment and NO/NC selection by Teach-in button		E		0		1	
		R		2		350 - 6,000 mm direct diffuse				A		1		2	
														P	
														N	
														W	
														M	
														6	
														4	
														7	
														9	

(*) Sensitivity adjustment and status selection available by external Teach-In.

M30 Ultrasonic Sensor UT and UTR

Available Models

Single Output

Housing	Distance (mm)	Output	Analogue output 0...10 V	Analogue output 4...20 mA	1 x PNP = NO/NC	1 x NPN - NO/NC
Plastic	3,500 mm	M12	UT1B/E1-0E	UT1B/E2-0E	UT1B/EP-0E	UT1B/EN-0E
		Cable	UT1B/E1-0A	UK1B/E2-0A	UT1B/EP-0A	UT1B/EN-0A

Dual Digital Output

Housing	Distance (mm)	Output	2 X PNP (adjustable hysteresis + standard window MD)	2 X NPN (adjustable hysteresis + standard window MD)
Plastic	3,500 mm	M12	UT1B/EW-0E	UT1B/EM-0E
Stainless Steel AISI 316L		Cable	UT1B/EW-0A	UK1B/EM-0A
		M12	UT1B/EW-1E	UT1B/EM-1E
		Cable	UT1B/EW-1A	UT1B/EM-1A
Plastic	6,000 mm	M12	UT2F/EW-0E	UT2F/EM-0E
		Cable	UT2F/EW-0A	UT2F/EH-0A

Dual Mixed Output (Digital + Analogue)

Housing	Distance (mm)	Output	1 x PNP - NO/NC + 4...20 mA	1 x NPN - NO/NC + 4...20 mA	1 x NPN - NO/NC + 0...10 V	1 x NPN - NO/NC + 0...10 V
Plastic	3,500 mm	M12	UT1B/E6-0E	UT1B/E4-0E	UT1B/E7-0E	UT1B/E9-0E
Stainless Steel AISI 316L		Cable	UT1B/E6-0A	UT1B/E4-0A	UT1B/E7-0A	UT1B/E9-0A
		M12	UT1B/E6-1E	UT1B/E4-1E	UT1B/E7-1E	UT1B/E9-1E
		Cable	UT1B/E6-1A	UT1B/E4-1A	UT1B/E7-1A	UT1B/E9-1A
Plastic	6,000 mm	M12	UT2F/E6-0E	UT2F/E4-0E	UT2F/E7-0E	UT2F/E9-0E
		Cable	UT2F/E6-0A	UT2F/E4-0A	UT2F/E7-0A	UT2F/E9-0A

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Technical Specification

	UT1B/E*-**	UT2F/E*-0*
Maximum sensing distance	 3,500 mm ⁽¹⁾	 6,000 mm ⁽²⁾
Minimum sensing distance	250 mm / 350 mm metallic housing	350 mm
Sensing range (Sd)	250...3.500 mm (plastic) / 350...3.500 mm (metallic)	350...6.000 mm
Beam angle	$\pm 7^\circ$	$\pm 9^\circ$
Switching frequency (digital output)	2 Hz / 1 Hz metallic housing	1 Hz
Response time (digital output)	250 ms	500 ms
Response time (analogue output)	600 ms	600 ms
Hysteresis	1 % off full scale value	
Repeatability	1 % off full scale value	0.5 % off full scale value
Resolution	4 mm	6 mm
Linearity error	1 % off full scale value	
Temperature range	- 20°C... + 70°C	
Temperature compensation	●	
Operating voltage	12 - 30 Vcc; 15 - 30 Vcc: for model with analog voltage output (0 - 10 V)	
Temperature drift	$\pm 8 \%$ (digital output); $\pm 5 \%$ (analogue output)	
Ripple	5 %	
Leakage current	$\leq 10 \mu A @ 30 Vcc$	
Output voltage drop	2.2 V max. (IL = 100 mA)	
No-load supply current	$\leq 50 mA$	
Output current (digital output)	100 mA	
Minimum load resistance (analog voltage output)	3 k Ω	
Set point adjustment	Teach-In button	
Power on delay	$\leq 500 ms$ (digital output)	
Power on delay	$\leq 900 ms$ (analogue output)	
Power supply protections	polarity reversal, transient	
Digital output electrical protection	short circuit (auto reset), overvoltage pulses	
Analog output electrical protections	overvoltage pulses	
EMC	conforming to EMC Directive, according to EN 60947-5-2	
Protection degree	IP67 (EN60529); NEMA 4X ⁽³⁾	IP67 (EN 60529) ⁽³⁾
Housing material	PBT/AISI 316L	PBT
Active head material	epoxy-glass resin	
Tightening torque	1.5 Nm (plastic housing) / 100 Nm (metallic housing)	1.5 Nm
Weight	plastic version: 140 g connector / 200 g cable metallic version: 215 g connector / 220 g cable	170 g connector / 300 g cable
Storage temperature	- 35°C... + 70° without freeze	

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Available Models

Retroreflective

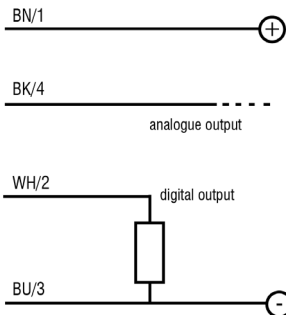
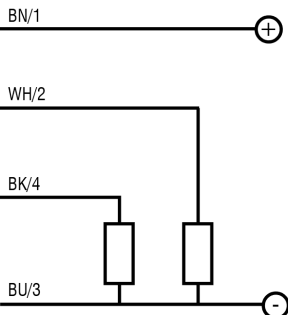
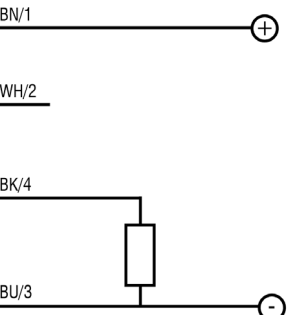
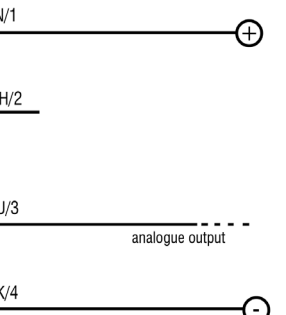
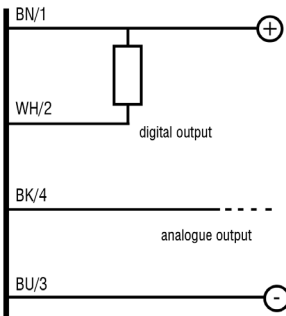
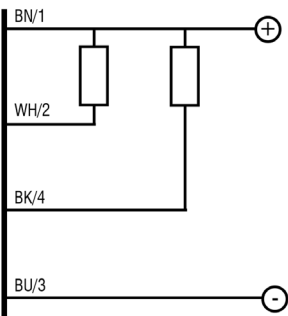
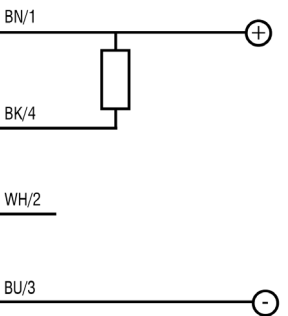
Housing	Function	Portata (mm)	Output	PNP - NO/NC	NPN - NO/NC
Plastic	Retroreflective	250...3,500	M12	UTR1B/EP-0E	UTR1B/EN-0E
		350...6,000		UTR2F/EP-0E	UTR2F/EN-0E
		250...3,500	Cable	UTR1B/EP-0A	UTR1B/EN-0A
		350...6,000		UTR2F/EP-0A	UTR2F/EN-0A

Technical Specification

	UTR1B/E*-0*	UTR2F/E*-0*
Nominal sensing distance S_n	 3,500 mm ⁽¹⁾	 6,000 mm ⁽²⁾
Reflector minimum sensing distance	250 mm	350 mm
Beam angle	$\pm 7^\circ$	$\pm 8^\circ$
Switching frequency	1 Hz	1 Hz
Operating voltage	15 - 30 Vdc	
Max. ripple content	5 %	
Output type	PNP o NPN NO/NC selectable	
Output current	100 mA	
Output voltage drop	$\leq 2.2 \text{ V (@ } I = 100\text{mA)}$	
No-load supply current	$\leq 50 \text{ mA @ } V_{al}=24\text{V}$	
Leakage current	$\leq 10 \mu\text{A @ } 30\text{V}$	
Power on delay	$\leq 500 \text{ ms}$	
Temperature range	$-20^\circ\text{C} \dots +70^\circ\text{C}$	
Temperature drift of S_r	$\leq 5 \%$	
Short-circuit protection	● (autoreset)	
Induction protection	●	
Voltage reversal protection	●	
LEDs	yellow: output green: alignment	
Protection degree	IP67	
EMC	conforming to EMC Directive according to EN 60947-5-2	
Housing material	PBT	
Active head material	epoxy glass resin	
Connection	M12 plug cable exit, 2 m cable exit	

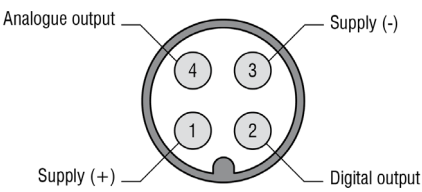
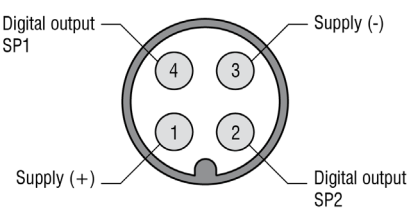
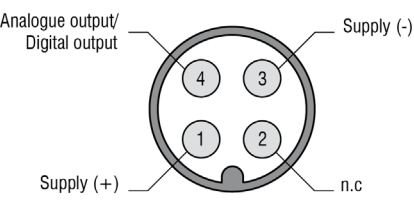
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Wiring Connections And Outputs

PNP NO/NC + analogue output	Two PNP outputs	PNP NO/NC single output	Single analogue output
			
NPN NO/NC + analogue output	Two NPN digital outputs	NPN NO/NC single digital output	
			

BN Brown
BU Blue
BK Black
WH White

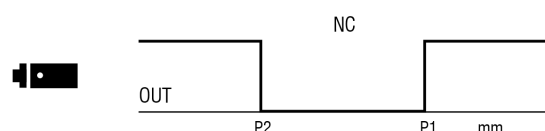
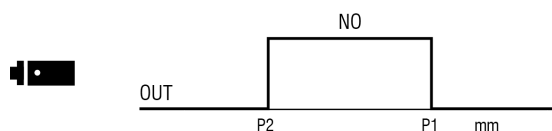
Plugs

M12 UT**/E4 - E UT**/E6 - E UT**/E7 - E UT**/E9 - E	M12 UT**/EM - E UT**/EW - E	M12 UT**/E1 - E UT**/E2 - E UT**/EP - E UT**/EN - E
		

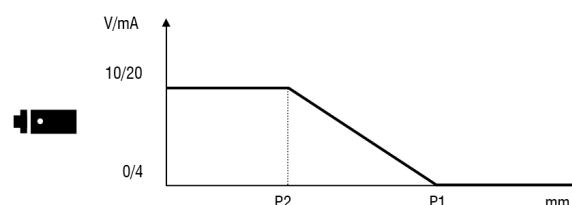
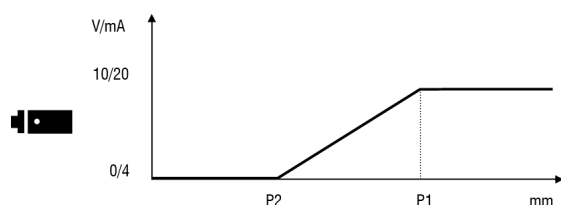
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Available Outputs

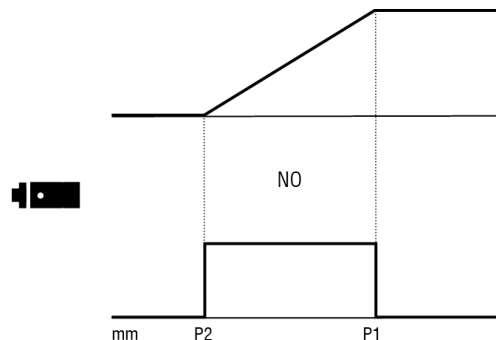
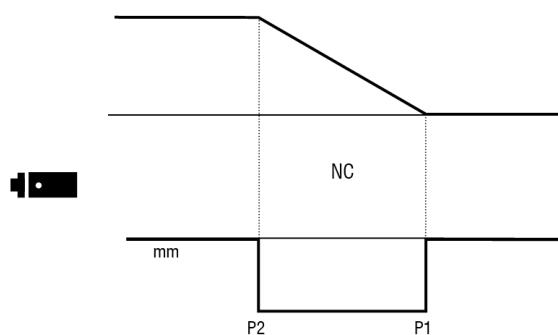
Models with single digital output



Models with single analogue output

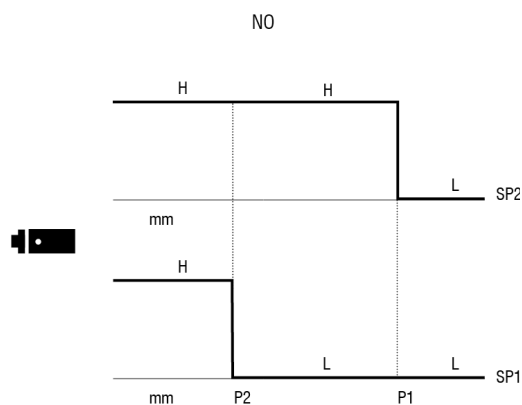
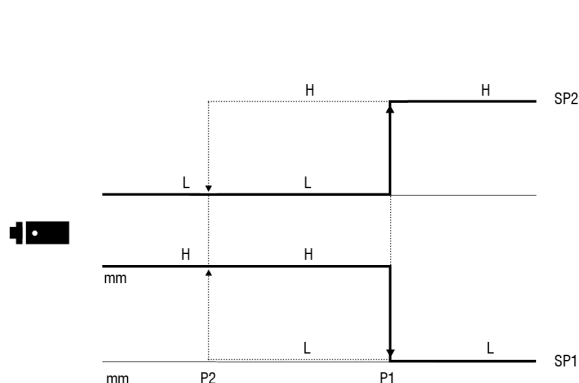


Models with digital output + analogue output ⁽¹⁾



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Models with two outputs, hysteresis + standard window ⁽²⁾



⁽¹⁾ Suitable, also, as a single model output.

⁽²⁾ Models with two digital outputs, standard window and adjustable hysteresis function if the target is removed from sensor detection range, the output type switches. These models are not available with NO/NC function.

P1 maximum selected working distance and first point to select

P2 minimum selected working distance and second point to select

Dimensions (mm)

Plastic Body

Dimensions (mm)

Metal Body

UT1B*/** - 0A	UT1B*/** - 0E	UT1B*/** - 1A	UT1B*/** - 1E

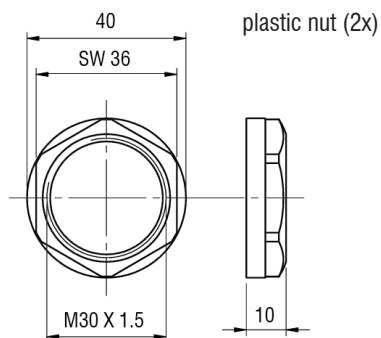
1 Teach-In button

2 LED

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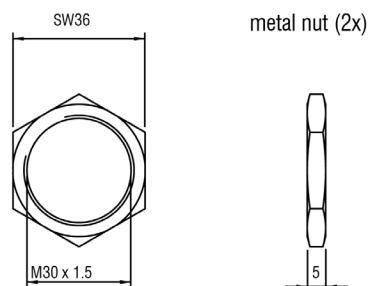
Dimensions (mm)

Included with all plastic body models



Dimensions (mm)

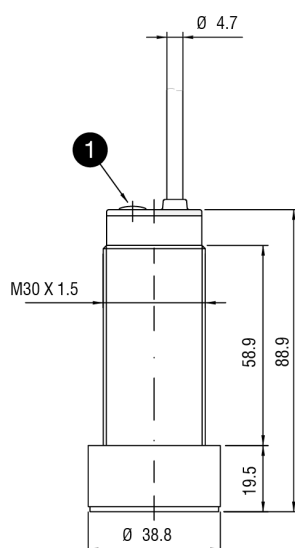
Included with all metal body models



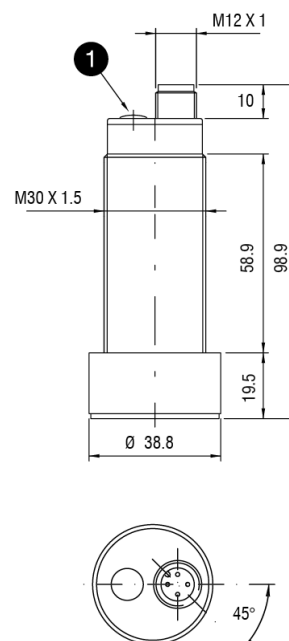
Dimensions (mm)

Plastic body

UT2F** - 0A



UT2F** - 0E



1 Teach-In button