



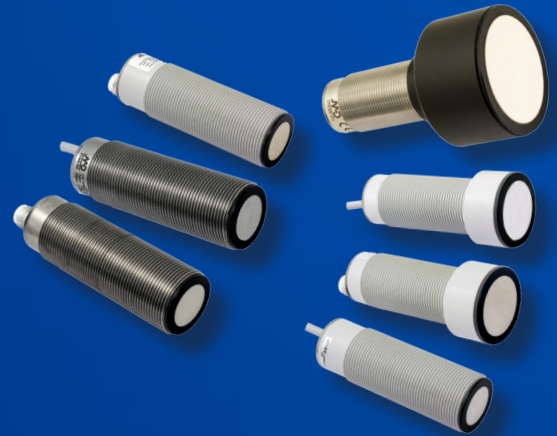
# UT series

## M30 Ultrasonic Sensor with Teach-In button



### features

- M30 ultrasonic sensor with standard housing and with large front with high performances and high sensing distances
- Adjustable hysteresis function: models with double digital programmable output specific for level detection
- Models with voltage or current output: programmable slope to optimize resolution
- Adjustable working area (window mode or object mode) by Teach-in button on all models for a quick and easy installation
- Two multifunction LEDs: orange LED for adjustment procedure and output type and green LED for target alignment
- Plastic and AISI 316L stainless steel housing, plug M12 or cable exit 5 pin



M30 with Teach-In button

### web contents



- Application notes
- Photos
- Catalogue / Manuals



### code description<sup>(\*)</sup>

	UT	1	B	/	G	4	-	0	E	SY	IO	
series	UT	M30 Ultrasonic Sensor										
function		Direct diffuse models										
housing type	1	Standard housing										
	2	Large front transducer, Ø 38.8 mm										
	5	Large front transducer Ø 61 mm										
nominal sensing distance Sn	B	250 - 3,500 mm direct diffuse										
	F	350 - 6,000 mm direct diffuse										
	L	600 - 8,000 mm direct diffuse										
adjustment	G	Sensitivity adjustment and NO/NC selection by Teach-in button										
output	4	NPN - NO/NC digital output + 4 ... 20 mA current analogue output										
	6	PNP - NO/NC digital output + 4 ... 20 mA current analogue output										
	7	PNP - NO/NC digital output + 0 ... 10 V voltage analogue output										
	9	NPN - NO/NC digital output + 0 ... 10 V voltage analogue output										
	M	NPN two digital outputs with standard window and adjustable hysteresis functions										
	W	PNP two digital outputs with standard window and adjustable hysteresis functions										
housing materials	0	Plastic housing										
	1	AISI 316L (DIN 1.4404) stainless steel housing										
cable exit / connector	A	2 m cable exit										
	E	M12 plug cable exit										
SYNK/MUX function	SY	SYNK/MUX function										
IO-Link	IO	IO-Link version										



## available models

cULus certified - Double digital output

housing	distance (mm)	output	2 X PNP (adjustable hysteresis + standard window MD)	2 X NPN (adjustable hysteresis + standard window MD)
plastic	250...3,500	M12	UT1B/GW-0ESY	UT1B/GM-0ESY
		cable	UT1B/GW-0ASY	UK1B/GM-0ASY
AISI316L		M12	UT1B/GW-1ESY	UT1B/GM-1ESY
		cable	UT1B/GW-1ASY	UT1B/GM-1ASY
plastic	350...6,000	M12	UT2F/GW-0ESY	UT2F/GM-0ESY
		cable	UT2F/GW-0ASY	UT2F/GM-0ASY
AISI 316L housing + plastic transducer	600...8,000	M12	UT5L/GW-1ESY	UT5L/GM-1ESY
		cable	UT5L/GW-1ASY	UT5L/GM-1ASY

## available models

cULus certified - Double 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 PNP - NO/NC + 0...10 V	1 x NPN - NO/NC + 0...10 V
plastico	250...3,500	M12	UT1B/G6-0ESY	UT1B/G4-0ESY	UT1B/G7-0ESY	UT1B/G9-0ESY
		cable	UT1B/G6-0ASY	UT1B/G4-0ASY	UT1B/G7-0ASY	UT1B/G9-0ASY
acciaio inox AISI 316L		M12	UT1B/G6-1ESY	UT1B/G4-1ESY	UT1B/G7-1ESY	UT1B/G9-1ESY
		cable	UT1B/G6-1ASY	UT1B/G4-1ASY	UT1B/G7-1ASY	UT1B/G9-1ASY
plastico	350...6,000	M12	UT2F/G6-0ESY	UT2F/G4-0ESY	UT2F/G7-0ESY	UT2F/G9-0ESY
		cable	UT2F/G6-0ASY	UT2F/G4-0ASY	UT2F/G7-0ASY	UT2F/G9-0ASY
AISI 316L housing + plastic transducer	600...8,000	M12	UT5L/G6-1ESY	UT5L/G4-1ESY	UT5L/G7-1ESY	UT5L/G9-1ESY
		cable	UT5L/G6-1ASY	UT5L/G4-1ASY	UT5L/G7-1ASY	UT5L/G9-1ASY



	UT1B/**_****	UT2F/**_****	UT5L/**_****
maximum sensing distance	3,500 mm <sup>(1)</sup>	6,000 mm <sup>(2)</sup>	8,000 mm <sup>(3)</sup>
minimum sensing distance	250 mm	350 mm	600 mm
sensing range (Sd)	250...3,500 mm	350...6,000 mm	600...8,000 mm
beam angle	12° ± 2°	15° ± 2°	10° ± 2°
switching frequency (digital output)	1 Hz		
response time (digital output)	1 s		
hysteresis	1 % off full scale value		
repeatability	0.1 % off full scale value		1 % off full scale value
resolution	4 mm	6 mm	10 mm
linearity error	1 % off full scale value		
temperature range	- 20°C...+ 70°C		
temperature compensation	●		
operating voltage	10 - 30 Vcc		
temperature drift	± 5 %		
ripple	5 %		
leakage current	≤ 10 µA @ 30 Vcc		
output voltage drop	2.2 V max. (IL = 100 mA)		
no-load supply current	25 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	≤ 400 ms (digital output)		
power on delay	≤ 9600 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 <sup>(4)</sup>	IP67 (EN 60529) <sup>(4)</sup>	
housing material	PBT/AISI 316L	PBT	AISI 316L + PBT
active head material	epoxy-glass resin AISI 316L + PBT		
tightening torque	1.5 Nm (plastic housing) / 100 Nm	1.5 Nm	100 Nm (metallic housing)
LED	Green: ECHO - Yellow: output		
weight	plastic: 140 g connector / 200 g cable metallic: 215 g connector / 220 g cable	170 g connector / 300 g cable	400 g
storage temperature	- 30°C...+ 80° without freeze		

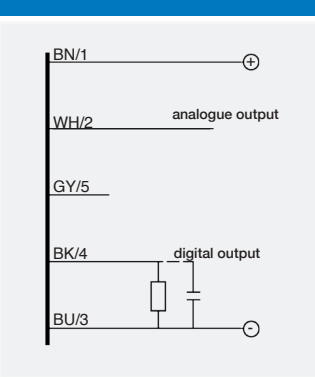
<sup>(1)</sup> Metallic target 200 x 200 mm <sup>(2)</sup> Metallic target 400 x 400 mm <sup>(3)</sup> Metallic target 1000 x 1000 mm <sup>(4)</sup> Protection guarantee only with plug cable well mounted



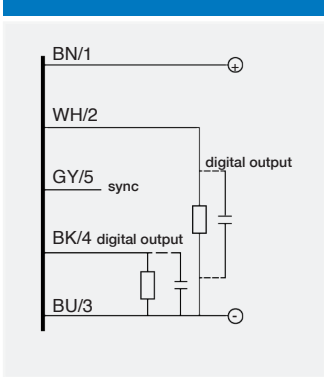
# electrical diagrams of connections

M30 with Teach-In button

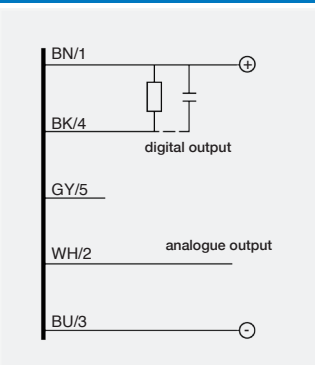
PNP NO/NC + analogue output



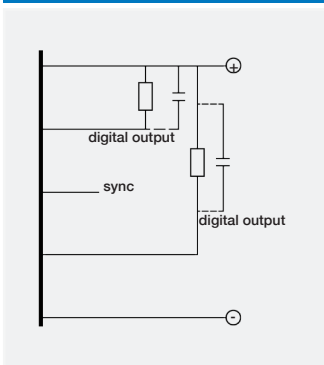
models with double PNP output



NPN NO/NC models + analogue output



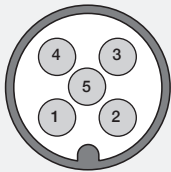
models with NPN double digital output



- BN** brown
- BU** blu
- BK** black
- WH** white
- GY** gray

## plugs

M12



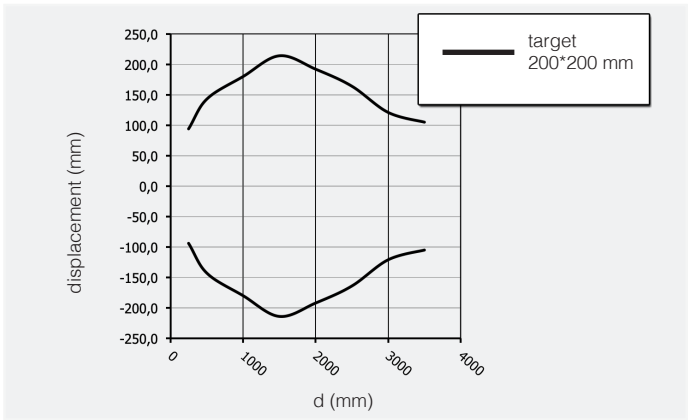
# response diagrams

direct diffuse models

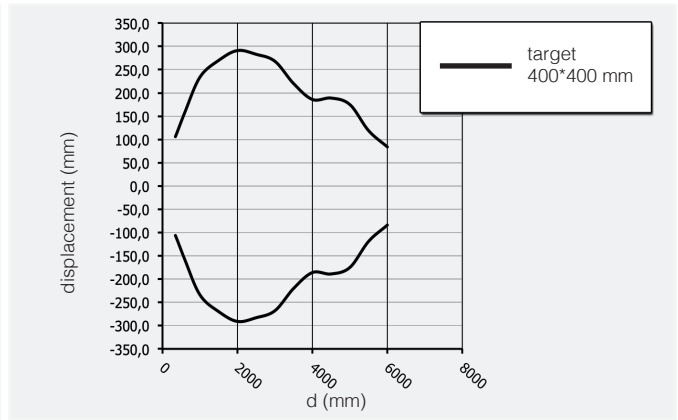


M30 with Teach-In button

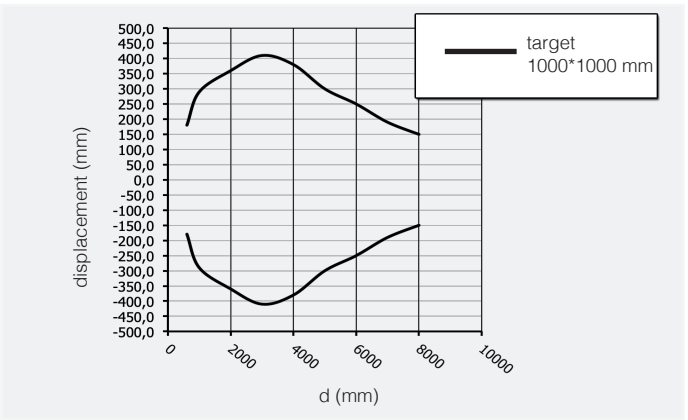
parallel displacement UT1B/\*\*-\*\*



parallel displacement UT2F/\*\*-\*\*


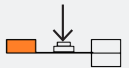
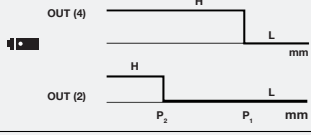
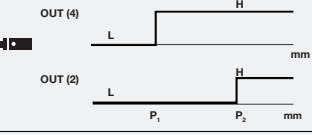
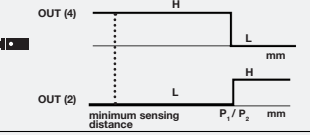
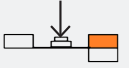
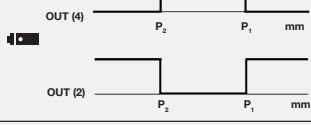
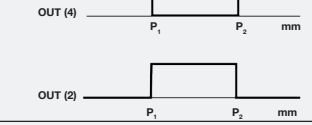
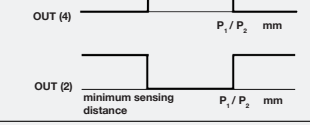

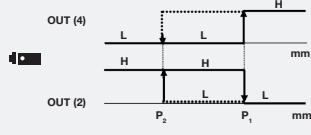
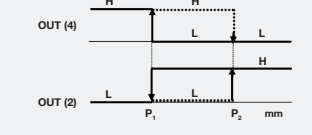
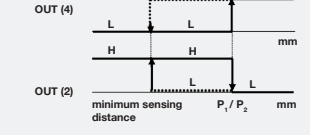


parallel displacement UT5L/\*\*-\*\*


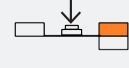
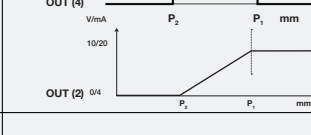
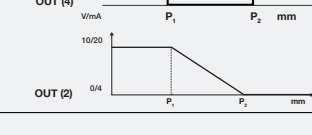
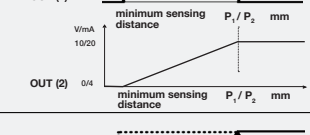
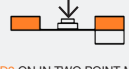
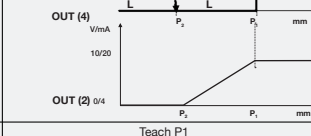
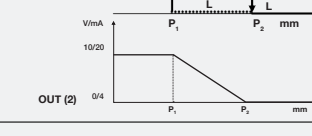
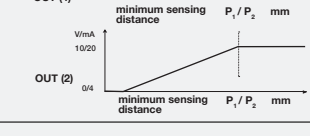
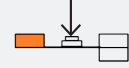
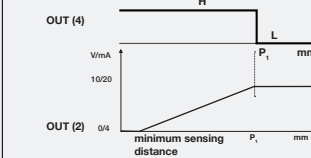




double digital output models

CONFIGURATION STATE	OUTPUT STATE		
 <p>HOLD PUSH BUTTON FOR 8 SECONDS TO CHOOSE CONFIGURATION LD1, LD2 START BLINKING @ 6 Hz UNTIL RELEASE LD1, LD2 BLINK FOR 3 @ 3.5 Hz TO CONFIRM THE CHANGE</p>	<p>P1 &gt; P2 NO LOGIC</p>	<p>P1 &lt; P2 NC LOGIC</p>	<p>P1 = P2 NO LOGIC</p>
 <p>LD1 ON IN SINGLE POINT MODE</p>			
 <p>LD2 ON IN WINDOW MODE</p>			
 <p>LD1, LD2 ON IN TWO POINT MODE</p>			

mixed digital + analog models <sup>(1)</sup>

CONFIGURATION STATE	OUTPUT STATE		
 <p>HOLD PUSH BUTTON FOR 8 SECONDS TO CHOOSE CONFIGURATION LD1, LD2 START BLINKING @ 6 Hz UNTIL RELEASE LD1, LD2 BLINK FOR 3 @ 3.5 Hz TO CONFIRM THE CHANGE</p>	<p>P1 &gt; P2 NO LOGIC - Positive slope</p>	<p>P1 &lt; P2 NC LOGIC - Negative slope</p>	<p>P1 = P2 NO LOGIC - Positive slope</p>
 <p>LD2 ON IN WINDOW MODE</p>			
 <p>LD1, LD2 ON IN TWO POINT MODE</p>			
 <p>LD1 ON IN SINGLE POINT MODE</p>	<p>Teach P1 NO LOGIC - Positive slope</p> 		

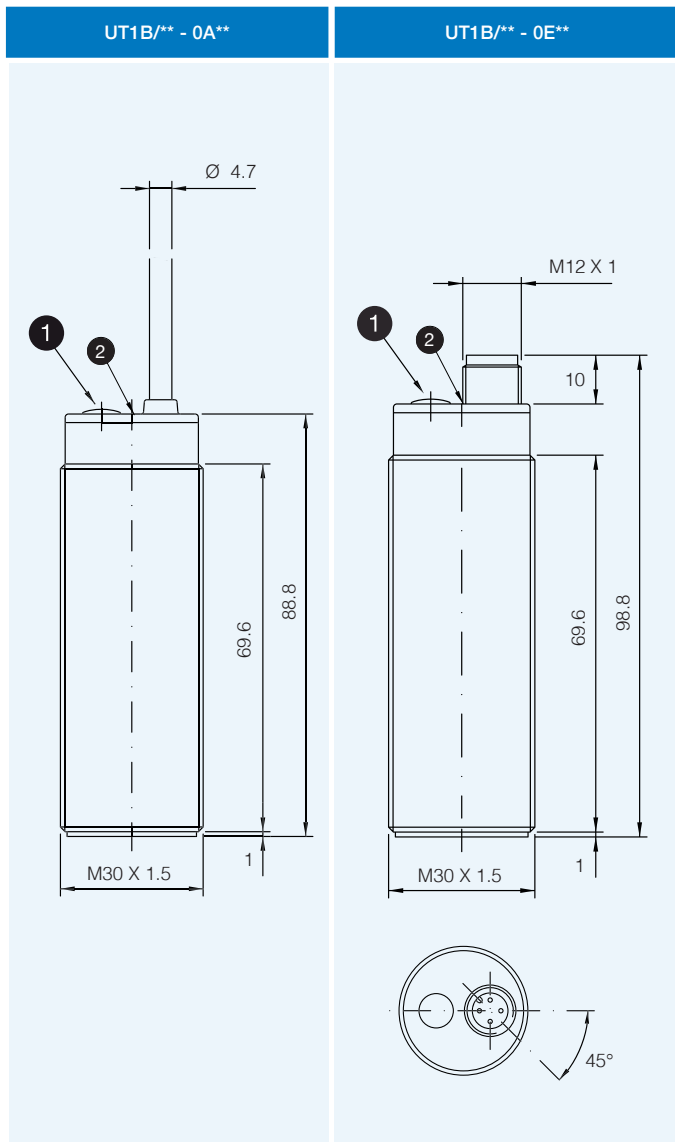
<sup>(1)</sup> Suitable, also, as single model output.

<sup>(2)</sup> In the double digital output model with the standard window and adjustable hysteresis functions if the target is removed from sensor detection range, the output type switches. These models are not forsen 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)

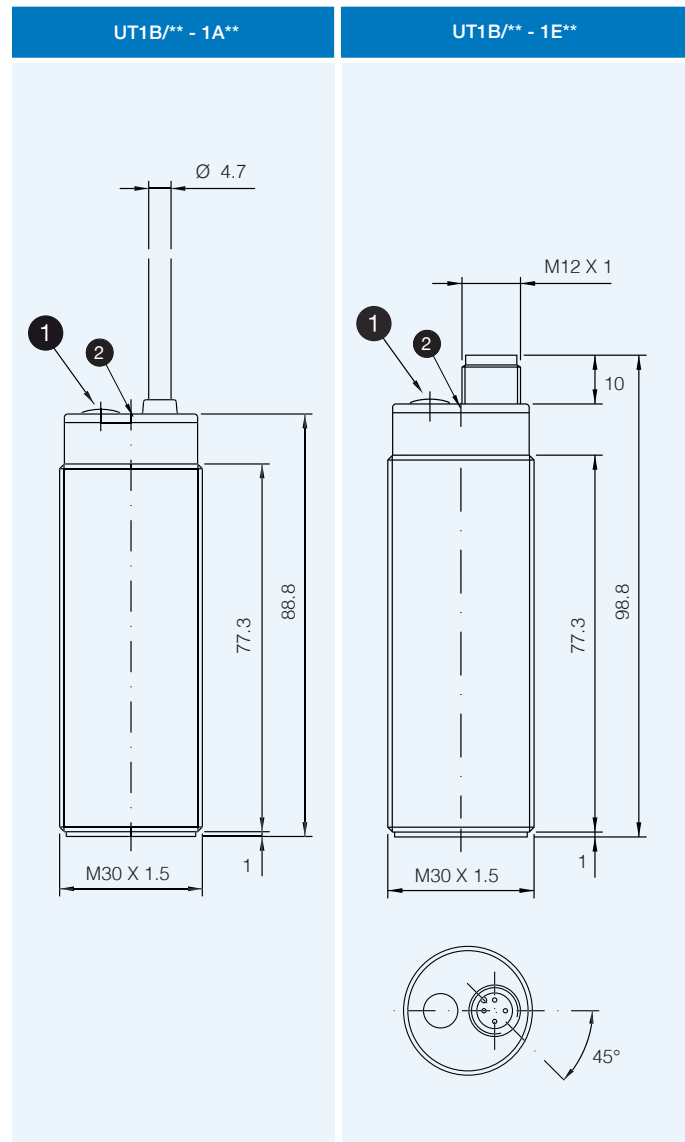
plastic models



1 Teach-In button 2 LED

## dimensions (mm)

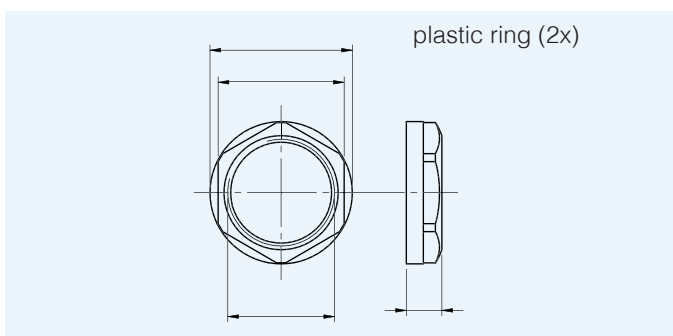
metallic models



M30 with Teach-In button

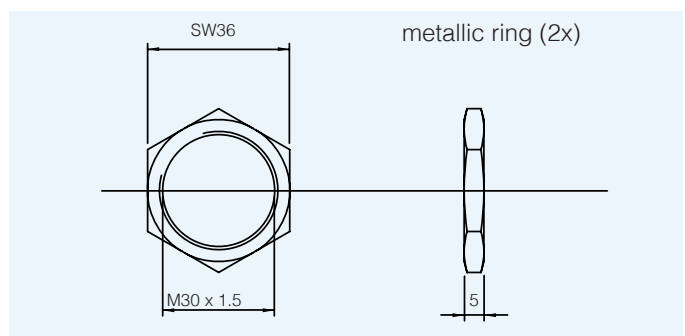
## dimensions (mm)

accessories included in all metallic models



## dimensions (mm)

accessories included in all metallic models



UT



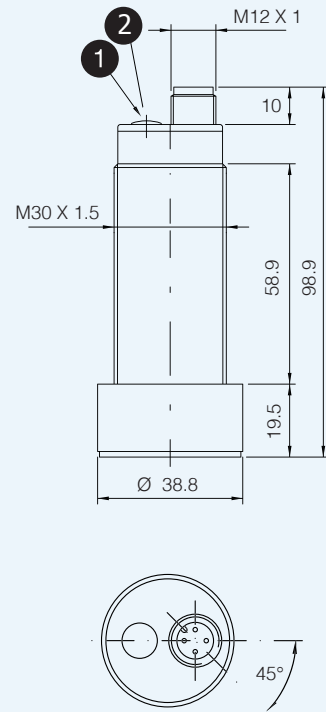
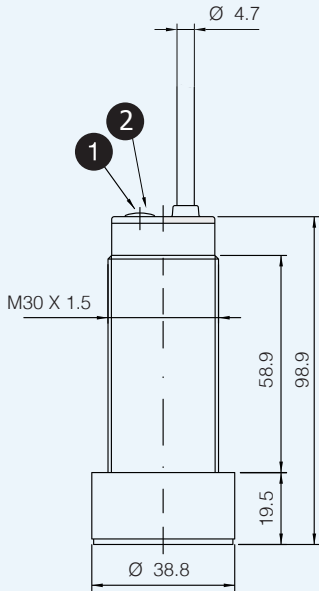
# dimensions (mm)

plastic models

M30 with Teach-In button

UT2F/\*\* - 0A\*\*

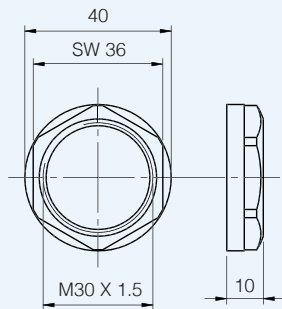
UT2F/\*\* - 0E\*\*



- 1 Teach-In button
- 2 LED

# dimensions (mm)

accessories included in all metallic models

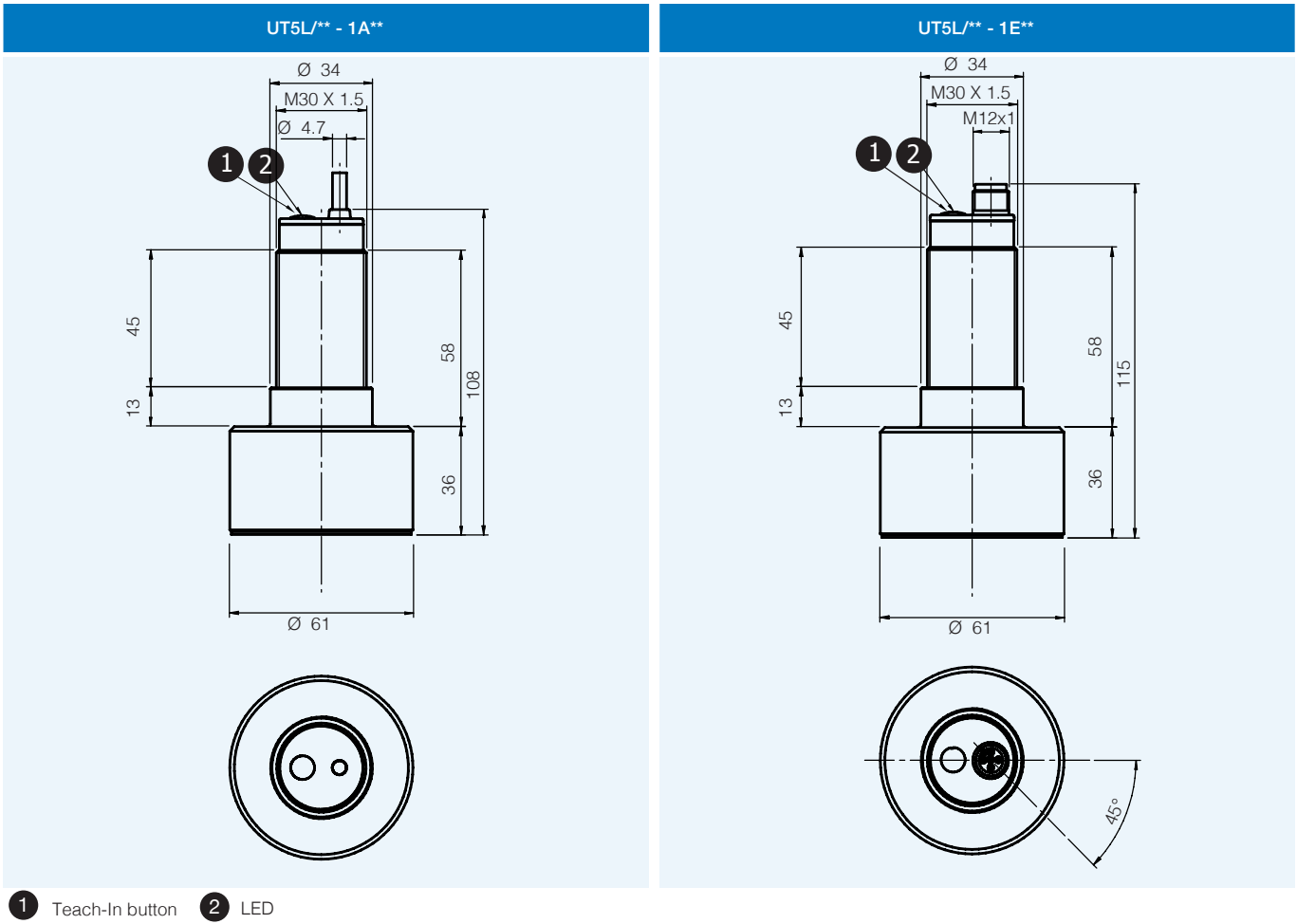


plastic ring (2x)



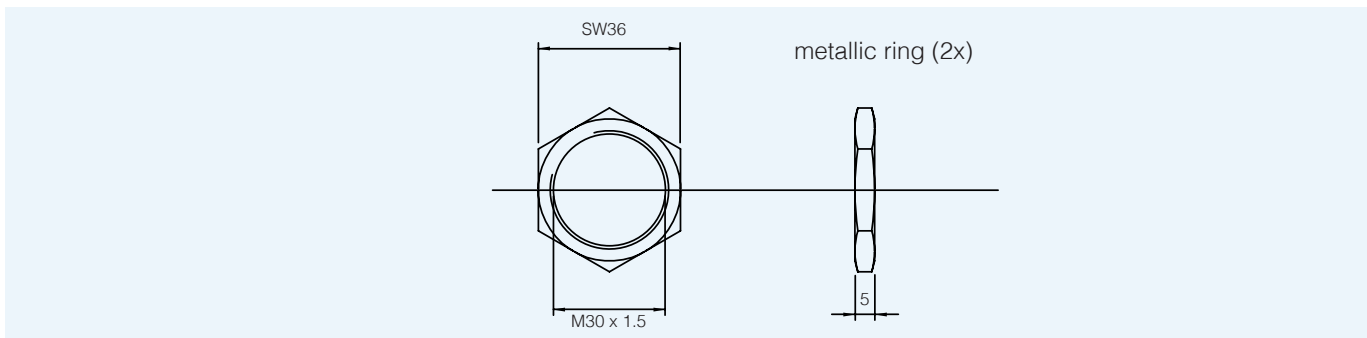
## dimensions (mm)

metallic models



## dimensions (mm)

accessories included in all metallic models



M30 with Teach-In button