

Multifunctional.

UMT 30 – The NEW 30 mm ultrasonic sensors with a numerical display



Ultrasonic sensors

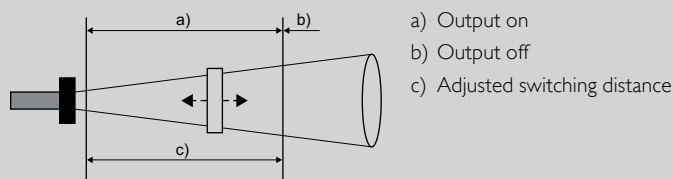
System description

Method of function

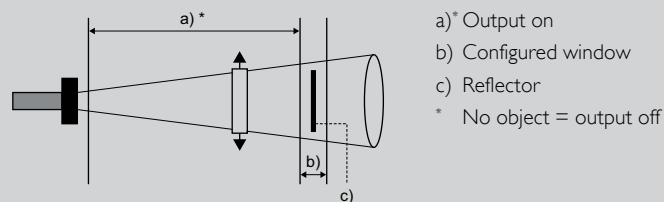
Ultrasonic proximity switches operate on the basis of echo time-of-flight measurement. An ultrasonic pulse emitted by the sensor is reflected when it hits an object. The sensor calculates the distance from the time elapsed between emission of the ultrasonic pulse and receipt of the echo. Depending on the power

amplifier, the measured distance is converted to a current or voltage signal (analogue sensor) proportional to the distance or the switching output is activated, depending on the set switching point.

Applications



- a) Output on
- b) Output off
- c) Adjusted switching distance



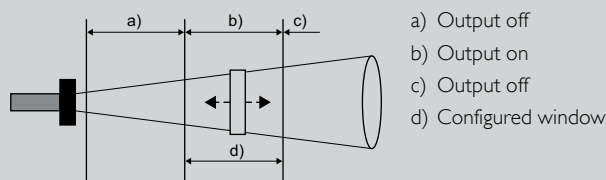
- a)* Output on
- b) Configured window
- c) Reflector
- * No object = output off

As a reflex scanner (proximity switch)

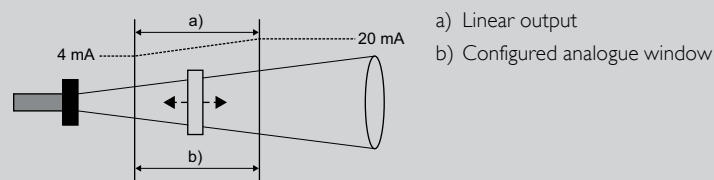
The classic operating mode uses background suppression, superior to other sensor principles. The switching output is activated when the object is located within the set switching distance. The switching point is subject to a hysteresis. This operating mode is suitable, for example, for detecting objects on a conveyor belt or for checking presence.

As a barrier or reflex switch

An ultrasonic sensor is used like a light barrier here, though no special reflector is employed (a piece of sheet metal is entirely sufficient here). For this purpose, the sensor in window mode is set in such a way that the reflector is located within the window. The ultrasonic reflex switch provides a signal as soon as an object is completely covered by the reflector. Whereby it is irrelevant whether the object absorbs the sound or even deflects it away. This operating mode is used for poorly detected material with irregular surfaces, e.g. foam.



- a) Output off
- b) Output on
- c) Output off
- d) Configured window



- a) Linear output
- b) Configured analogue window

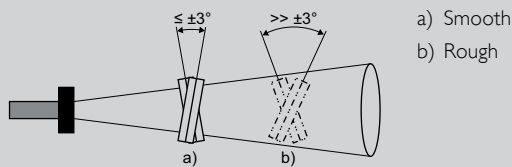
In window mode

The switching output is only activated when the object is located within a window that has been defined by setting two window limits. This can be used to monitor, for example, the correct bottle size in a crate of drinks. Bottles that are too tall or too short are diverted out.

Ultrasonic sensors with analogue output

In these models a voltage (0...10 V) or current (4...20 mA) is transmitted in proportion to the object distance. The window limits can be defined and selected between falling and rising characteristic curves.

Installation



Ultrasonic sensors can be installed and operated in any orientation. Though installation locations that could lead to contamination of the sensor surface should be avoided because water droplets and encrustation can impair functional performance. Thin layers of dust and paint droplets generally have no effect.

If smooth surfaces are to be detected, sensors should be mounted as vertically as possible, i. e. at an angle of from 87° to 93° to the surface.

Rough surfaces, on the other hand, permit considerably greater angular deviations. A surface whose valley-to-peak depth is greater than or equal to the wavelength of the ultrasonic frequency is considered rough. The sound, however, is then reflected diffusely, which can lead to a reduction of the operating scanning distance. In this case the maximum permissible angular deviation and maximum scanning distance should be determined in trials.

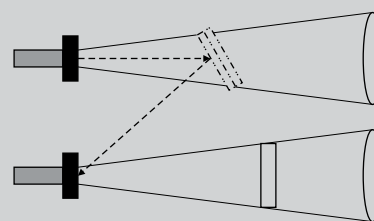
Sound-absorbing materials (such as cotton wool or foam) can further reduce the scanning distance. In contrast, liquids and solid materials are good reflectors.

Mounting distances

a) Switching distance

Sensor Range	Vertical Distance (A)	Horizontal Distance (B)
0.25 m	≥ 0.35 m	≥ 2.50 m
0.35 m	≥ 0.40 m	≥ 2.50 m
1.30 m	≥ 1.10 m	≥ 8.00 m
3.40 m	≥ 2.00 m	≥ 18.00 m
6.00 m	≥ 4.00 m	≥ 30.00 m

The table provides the minimum distances between non-synchronised ultrasonic sensors. Sensors may mutually influence one another if these distances are not observed.



The above-mentioned mounting distances are only intended as a guide. In the case of tilting, the sound can be reflected towards the neighbouring sensor. The minimum distance should then be determined by means of trials. Some sensors permit synchronisation with one another and thus allow considerably lower scanning distances.

UMT 30-350-(2)P

Ultrasonic sensor



PRODUCT HIGHLIGHTS

- Ideal for monitoring the filling levels of liquids such as fats and oils
- With one or two switching outputs as option
- Easy pre-setting of sensor via digital display – sensor immediately ready for operation
- Synchronisation of up to 10 devices in restricted spaces
- Additional features with numerous supplementary functions

Sensor data		Functions	
Limiting scanning distance	600 mm	Display	Parameterisation
Operating scanning distance	65 ... 350 mm	LED indicator 1	Switching output indicator
Ultrasonic frequency	~ 400 kHz	LED indicator 2	Switching output indicator
Resolution	0.18 mm	Scanning distance adjustment	Via Teach-in buttons and numerically via 7-segment display
Repeatability	± 0.15 % ¹	Teach-in modes	Mode 1: Set switching point Mode 2: Set Window Mode Mode 3: Set two-way reflex switch
Hysteresis ²	5 mm	Adjustment possibilities	N.O. / N.C. via Teach-in button Button lock via Teach-in button Default settings via Teach-in button
Temperature drift ²	≤ 2 % (0.17 % / K without compensation)	Supplementary functions	– Energy-saving Mode – Multiplex Mode, device address – Hysteresis – Multiplex Mode, highest address – Measurement value filter – Measurement range – Filter strength – Calibration display – Response delay – Detection range, sensitivity – Foreground suppression
		Default settings ³	Measurement range: limit scanning distance Switching distances: scanning distance Switching output: N.O.
		Default settings ⁴	Measurement range: limit scanning distance Switching distances: scanning distance and half scanning distance Switching output: N.O.
Electrical data		Mechanical data	
Operating voltage, +U _B	9 ... 30V DC ⁵	Dimensions	M30 x 84 mm
No-load current, I ₀	≤ 80 mA	Enclosure rating	IP 67 ⁶
Output current, I _e	200 mA	Material, housing	Brass, nickel-plated, plastic content: PBT,TPU
Protective circuits	Reverse-polarity protection U _B / Short circuit protection (Q)	Material, ultrasonic converter	Polyurethane foam, epoxy resin with glass content
Standby time	< 300 ms	Type of connection	(see selection table)
Switching output, Q	1 x PNP / 2 x PNP (see selection table)	Ambient temperature, operation	-25 ... +70 °C
Output function	N.O. / N.C.	Ambient temperature, storage	-40 ... +85 °C
Switching frequency, f (ti/tp 1:1) ²	8 Hz ³ / 12 Hz ⁴	Weight (Plug device)	150 g
Response time ²	70 ms ³ / 64 ms ⁴	Vibration and impact resistance	EN 60947-5-2
Connection, GY	Sync. / Com.		

¹ Related to current measurement value

² Parameterisable via control panel

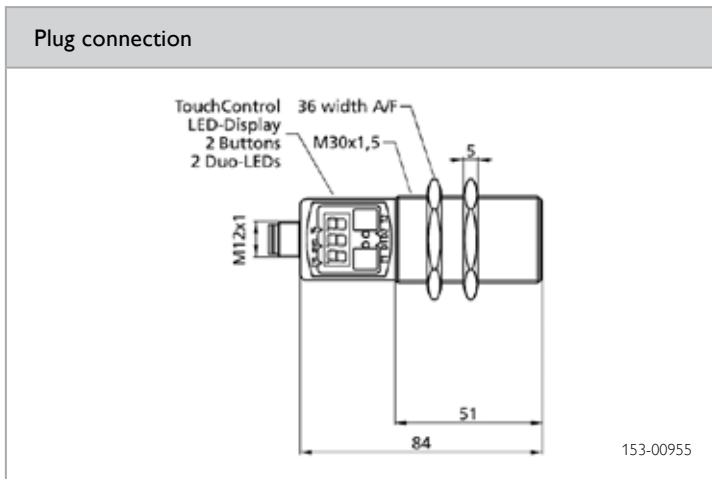
³ 1 x PNP

⁴ 2 x PNP

⁵ Max. 10 % ripple, within U_B

⁶ With connected IP 67 plug

Operating scanning distance	Switching output	Type of connection	Order reference	Part number
65 ... 350 mm	1 x PNP	Plug, M12x1, 5-pin	UMT 30-350-PSD-L5	690-51560
65 ... 350 mm	2 x PNP	Plug, M12x1, 5-pin	UMT 30-350-2PSD-L5	690-51561



5-pin connection (1 x PNP)		5-pin connection (2 x PNP)																															
<p>1 PNP switched output</p> <p>154-00322</p>	<table border="1"> <tr><td>1</td><td>+U_B</td><td>brown</td></tr> <tr><td>3</td><td>-U_B</td><td>blue</td></tr> <tr><td>4</td><td>Q</td><td>black</td></tr> <tr><td>2</td><td>-</td><td>white</td></tr> <tr><td>5</td><td>Sync/Com.</td><td>grey</td></tr> </table> <p>154-00306</p>	1	+U _B	brown	3	-U _B	blue	4	Q	black	2	-	white	5	Sync/Com.	grey	<p>2 PNP switched outputs</p> <p>154-00323</p>	<table border="1"> <tr><td>1</td><td>+U_B</td><td>brown</td></tr> <tr><td>3</td><td>-U_B</td><td>blue</td></tr> <tr><td>4</td><td>Q2</td><td>black</td></tr> <tr><td>2</td><td>Q1</td><td>white</td></tr> <tr><td>5</td><td>Sync/Com.</td><td>grey</td></tr> </table> <p>154-00307</p>	1	+U _B	brown	3	-U _B	blue	4	Q2	black	2	Q1	white	5	Sync/Com.	grey
1	+U _B	brown																															
3	-U _B	blue																															
4	Q	black																															
2	-	white																															
5	Sync/Com.	grey																															
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3	-U _B	blue																															
4	Q2	black																															
2	Q1	white																															
5	Sync/Com.	grey																															

Sound beam	Synchronisation / multiplex															
<p>155-01561</p>	<table border="1"> <tr> <th>Mounting distance</th> <th>Profile A</th> <th>Profile B</th> </tr> <tr> <td>≤ 0.40 m</td> <td>≤ 0.40 m</td> <td>≤ 2.50 m</td> </tr> <tr> <td>≤ 1.10 m</td> <td>≤ 1.10 m</td> <td>≤ 8.00 m</td> </tr> <tr> <td>≤ 2.00 m</td> <td>≤ 2.00 m</td> <td>≤ 18.00 m</td> </tr> <tr> <td>≤ 4.00 m</td> <td>≤ 4.00 m</td> <td>≤ 30.00 m</td> </tr> </table> <p>Mounting distances below which synchronisation / multiplex should be used.</p> <p>154-001580</p>	Mounting distance	Profile A	Profile B	≤ 0.40 m	≤ 0.40 m	≤ 2.50 m	≤ 1.10 m	≤ 1.10 m	≤ 8.00 m	≤ 2.00 m	≤ 2.00 m	≤ 18.00 m	≤ 4.00 m	≤ 4.00 m	≤ 30.00 m
Mounting distance	Profile A	Profile B														
≤ 0.40 m	≤ 0.40 m	≤ 2.50 m														
≤ 1.10 m	≤ 1.10 m	≤ 8.00 m														
≤ 2.00 m	≤ 2.00 m	≤ 18.00 m														
≤ 4.00 m	≤ 4.00 m	≤ 30.00 m														

UMT 30-350-A

Ultrasonic sensor with analogue output



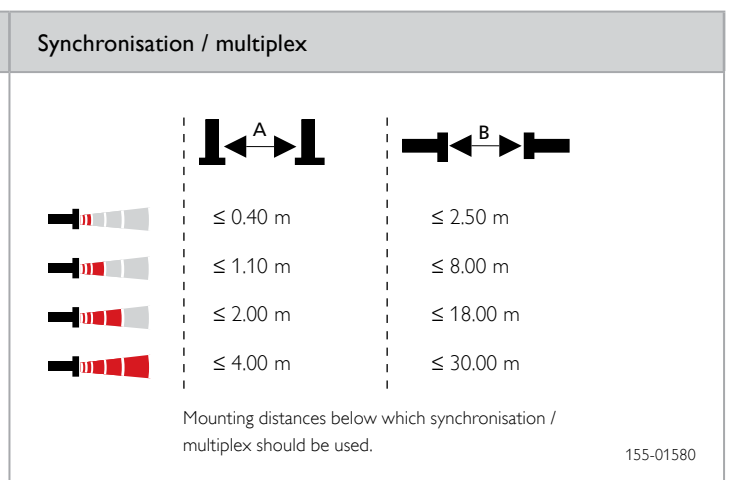
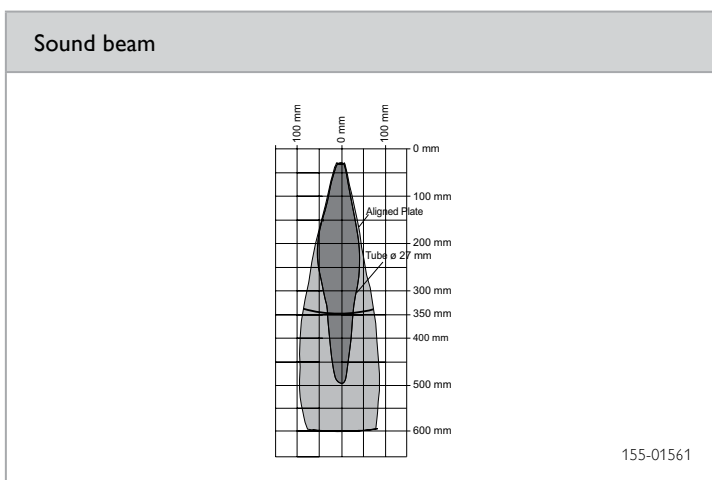
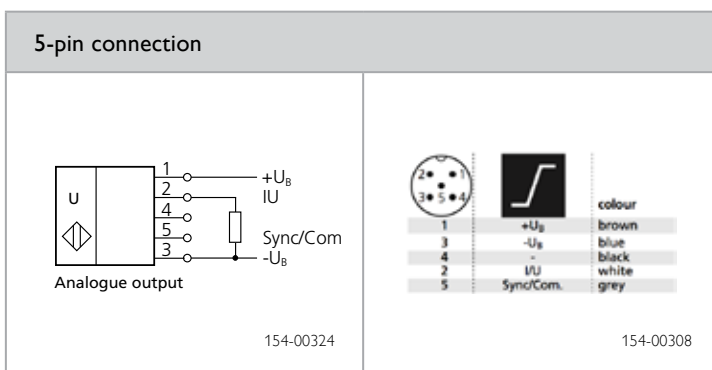
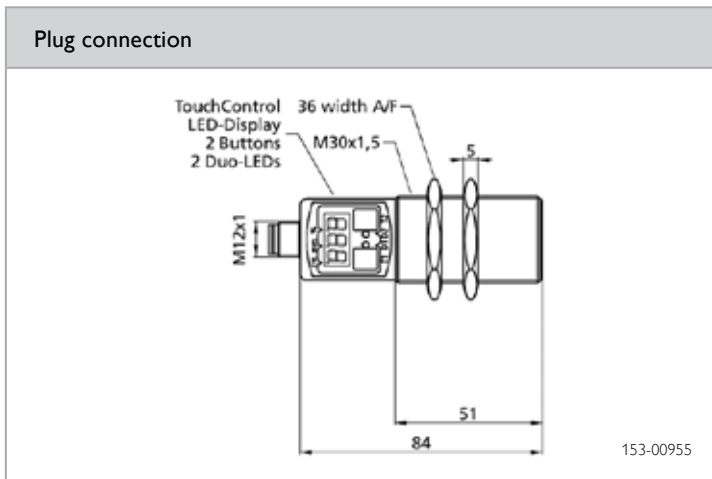
PRODUCT HIGHLIGHTS

- Automatic selection to current or voltage output
- Easy pre-setting of sensor via digital display – sensor immediately ready for operation
- Synchronisation of up to 10 devices in restricted spaces
- Additional features with numerous supplementary functions

Sensor data		Functions	
Limiting scanning distance	600 mm	Display	Parameterisation
Operating scanning distance	65 ... 350 mm	LED indicator 1	Switching output indicator
Ultrasonic frequency	~ 400 kHz	LED indicator 2	Switching output indicator
Resolution	0,18 mm	Set analogue characteristic	Via Teach-in button and numerically via 7-segment display
Repeatability	± 0,15 % ¹	Teach-in modes	Mode 1: Set window limits Mode 2: Rising / falling output characteristics
Temperature drift ²	≤ 2 % (0,17 % / K without compensation)	Adjustment possibilities	Button lock via Teach-in button Default settings via Teach-in button
		Supplementary functions	– Energy-saving Mode – Indicator Mode – Current or voltage output selection – Measurement value filter – Filter strength – Response delay – Foreground suppression – Multiplex Mode, device address – Multiplex Mode, highest address – Measurement range – Calibration display – Detection range, sensitivity
		Default settings	Measurement range: limit scanning distance Window limits, analogue signal: blind zone and scanning distance Switching output: rising analogue characteristic
Electrical data		Mechanical data	
Operating voltage, +U _b	9 ... 30V DC ³	Dimensions	M30 x 84 mm
No-load current, I ₀	≤ 80 mA	Enclosure rating	IP 67 ⁴
Current output	R _L ≤ 100 Ω with 9V ≤ U _b ≤ 20V R _L ≤ 500 Ω with U _b ≥ 20V	Material, housing	Brass, nickel-plated, plastic content: PBT,TPU
Voltage output	R _L ≥ 100 kΩ with U _b ≥ 15V	Material, ultrasonic converter	Polyurethane foam, epoxy resin with glass content
Protective circuits	Reverse-polarity protection U _b / Short circuit protection (Q)	Type of connection	(see selection table)
Standby time	< 300 ms	Ambient temperature, operation	-25 ... +70 °C
Analogue output	0 ... 10V / 4 ... 20 mA	Ambient temperature, storage	-40 ... +85 °C
Response time ²	64 ms	Weight	150 g
Connection, GY	Sync. / Com.	Vibration and impact resistance	EN 60947-5-2

¹ Related to current measurement value ² Parameterisable via control panel ³ Max. 10 % ripple, within U_b ⁴ With connected IP 67 plug

Operating scanning distance	Analogue output	Type of connection	Order reference	Part number
65 ... 350 mm	0 ... 10V / 4 ... 20 mA	Plug, M12x1, 5-pin	UMT 30-350-A-IUD-L5	690-51572



UMT 30-1300-(2)P

Ultrasonic sensor



PRODUCT HIGHLIGHTS

- Ideal for monitoring the filling levels of liquids such as fats and oils
- With one or two switching outputs as option
- Sensor adjustment via Teach-in or numerically via 7-segment display
- Synchronisation of up to 10 devices in restricted spaces
- Additional features with numerous supplementary functions

Sensor data		Functions	
Limiting scanning distance	2000 mm	Display	Parameterisation
Operating scanning distance	200 ... 1300 mm	LED indicator 1	Switching output indicator
Ultrasonic frequency	~ 200 kHz	LED indicator 2	Switching output indicator
Resolution	0.18 mm	Scanning distance adjustment	Via Teach-in buttons and numerically via 7-segment display
Repeatability	± 0.15 % ¹	Teach-in modes	Mode 1: Set switching point Mode 2: Set Window Mode Mode 3: Set two-way reflex switch
Hysteresis ²	20 mm	Adjustment possibilities	N.O. / N.C. per Teach-in Tasten Button lock via Tach-in button Default settings Via Teach-in button
Temperature drift ²	≤ 2 % (0.17 % / K without compensation)	Supplementary functions	– Energy-saving Mode – Multiplex Mode, device address – Hysteresis – Multiplex Mode, highest address – Measurement value filter – Measurement range – Filter strength – Calibration display – Response delay – Detection range, sensitivity – Foreground suppression
		Default settings ³	Measurement range: limit scanning distance Switching distances: scanning distance Switching output: N.O.
		Default settings ⁴	Measurement range: limit scanning distance Switching distances: scanning distance and half scanning distance Switching output: N.O.
Electrical data		Mechanical data	
Operating voltage, +U _B	9 ... 30V DC ⁵	Dimensions	M30 x 84 mm
No-load current, I ₀	≤ 80 mA	Enclosure rating	IP 67 ⁶
Output current, I _e	200 mA	Material, housing	Brass, nickel-plated, plastic content: PBT,TPU
Protective circuits	Reverse-polarity protection U _B / Short circuit protection (Q)	Material, ultrasonic converter	Polyurethane foam, epoxy resin with glass content
Standby time	< 300 ms	Type of connection	(see selection table)
Switching output, Q	1 x PNP / 2 x PNP (see selection table)	Ambient temperature, operation	-25 ... +70 °C
Output function	N.O. / N.C.	Ambient temperature, storage	-40 ... +85 °C
Switching frequency, f (ti/tp 1:1) ²	6 Hz ³ / 8 Hz ⁴	Weight	150 g
Response time ²	110 ms ³ / 92 ms ⁴	Vibration and impact resistance	EN 60947-5-2
Connection, GY	Sync. / Com.		

¹ Related to current measurement value

² Parameterisable via control panel

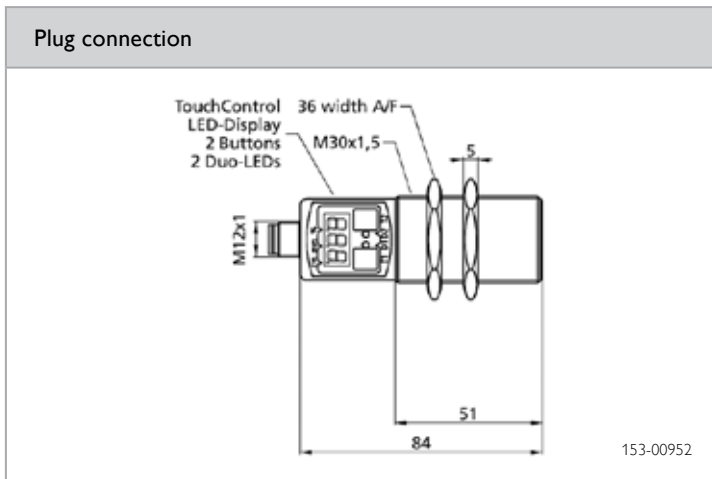
³ 1 x PNP

⁴ 2 x PNP

⁵ Max. 10 % ripple, within U_B

⁶ With connected IP 67 plug

Operating scanning distance	Switching output	Type of connection	Order reference	Part number
200 ... 1300 mm	1 x PNP	Plug, M12x1, 5-pin	UMT 30-1300-PSD-L5	690-51563
200 ... 1300 mm	2 x PNP	Plug, M12x1, 5-pin	UMT 30-1300-2PSD-L5	690-51564



5-pin connection (1 x PNP)		5-pin connection (2 x PNP)	
<p>1 PNP switched output</p> <p>154-00322</p>	<p>154-00306</p>	<p>2 PNP switched outputs</p> <p>154-00323</p>	<p>154-00307</p>

Sound beam	Synchronisation / multiplex																		
<p>155-01562</p>	<table border="1"> <thead> <tr> <th>Beam Type</th> <th>Mounting Distance</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>≤ 0.40 m</td> </tr> <tr> <td>A</td> <td>≤ 1.10 m</td> </tr> <tr> <td>A</td> <td>≤ 2.00 m</td> </tr> <tr> <td>A</td> <td>≤ 4.00 m</td> </tr> <tr> <td>B</td> <td>≤ 2.50 m</td> </tr> <tr> <td>B</td> <td>≤ 8.00 m</td> </tr> <tr> <td>B</td> <td>≤ 18.00 m</td> </tr> <tr> <td>B</td> <td>≤ 30.00 m</td> </tr> </tbody> </table> <p>Mounting distances below which synchronisation / multiplex should be used.</p> <p>155-01580</p>	Beam Type	Mounting Distance	A	≤ 0.40 m	A	≤ 1.10 m	A	≤ 2.00 m	A	≤ 4.00 m	B	≤ 2.50 m	B	≤ 8.00 m	B	≤ 18.00 m	B	≤ 30.00 m
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B	≤ 18.00 m																		
B	≤ 30.00 m																		

UMT 30-1300-A

Ultrasonic sensor with analogue output



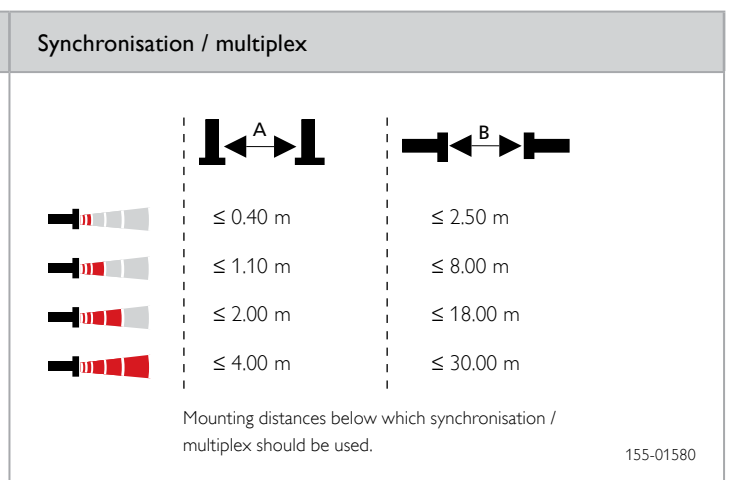
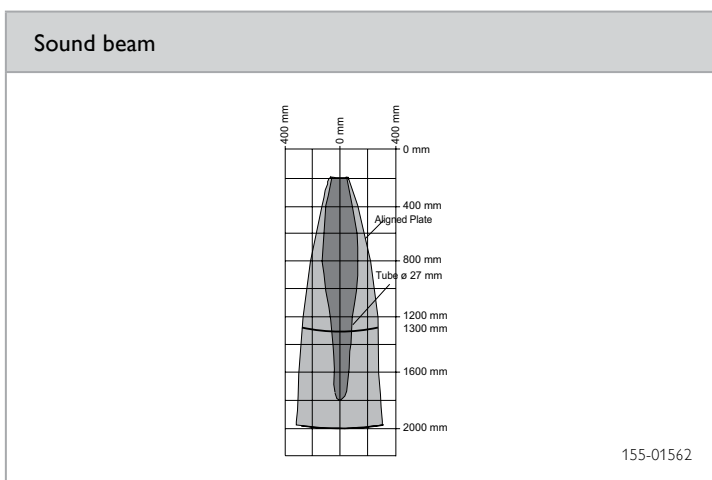
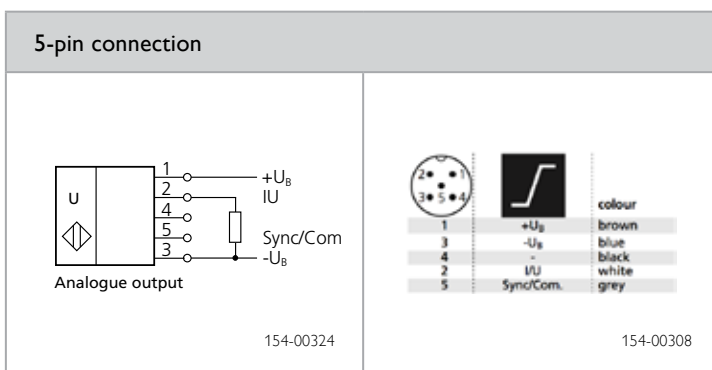
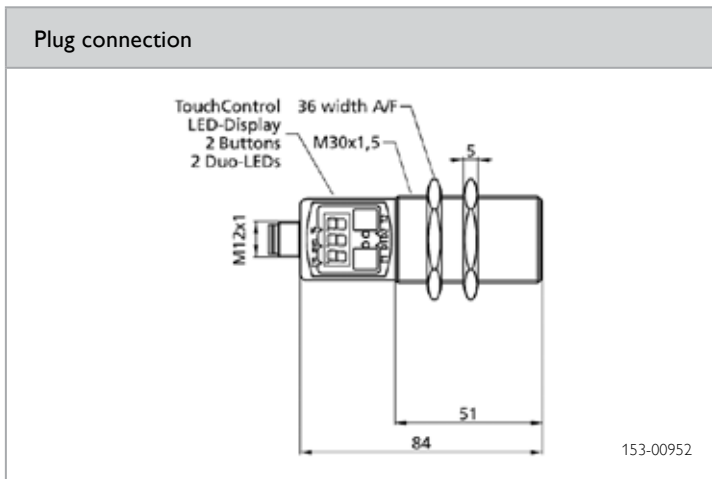
PRODUCT HIGHLIGHTS

- Ideal for monitoring the filling levels of liquids such as fats and oils
- Automatic selection to current or voltage output
- Easy pre-setting of sensor via digital display – sensor immediately ready for operation
- Synchronisation of up to 10 devices in restricted spaces
- Additional features with numerous supplementary functions

Sensor data		Functions	
Limiting scanning distance	2000 mm	Display	Parameterisation
Operating scanning distance	200 ... 1300 mm	LED indicator 1	Switching output indicator
Ultrasonic frequency	~ 200 kHz	LED indicator 2	Switching output indicator
Resolution	0.18 mm	Set analogue characteristic	Via Teach-in buttons and numerically via 7-segment display
Repeatability	± 0.15 % ¹	Teach-in modes	Mode 1: Set window limits Mode 2: Rising / falling output characteristics
Temperature drift ²	≤ 2 % (0.17 % / K without compensation)	Adjustment possibilities	Button lock via Teach-in button Default settings via Teach-in button
		Supplementary functions	– Energy-saving Mode – Indicator Mode – Current or voltage output selection – Measurement value filter – Filter strength – Response delay – Foreground suppression – Multiplex Mode, device address – Multiplex Mode, highest address – Measurement range – Calibration display – Detection range, sensitivity
		Default settings	Measurement range: limit scanning distance Window limits, analogue signal: blind zone and scanning distance Switching output: rising analogue characteristic
Electrical data		Mechanical data	
Operating voltage, +U _b	9 ... 30V DC ³	Dimensions	M30 x 84 mm
No-load current, I ₀	≤ 80 mA	Enclosure rating	IP 67 ⁴
Current output	R _L ≤ 100 Ω with 9V ≤ U _b ≤ 20V; R _L ≤ 500 Ω with U _b ≥ 20V	Material, housing	Brass, nickel-plated, plastic content: PBT,TPU
Voltage output	R _L ≥ 100 kΩ with U _b ≥ 15V	Material, ultrasonic converter	Polyurethane foam, epoxy resin with glass content
Protective circuits	Reverse-polarity protection U _b / Short circuit protection (Q)	Type of connection	(see selection table)
Standby time	< 300 ms	Ambient temperature, operation	-25 ... +70 °C
Analogue output	0 ... 10V / 4 ... 20 mA	Ambient temperature, storage	-40 ... +85 °C
Response time ²	92 ms	Weight	150 g
Connection, GY	Sync. / Com.	Vibration and impact resistance	EN 60947-5-2

¹ Related to current measurement value ² Parameterisable via control panel ³ Max. 10 % ripple, within U_b ⁴ With connected IP 67 plug

Operating scanning distance	Analogue output	Type of connection	Order reference	Part number
200 ... 1300 mm	0 ... 10V / 4 ... 20 mA	Plug, M12x1, 5-pin	UMT 30-1300-A-IUD-L5	690-51562



UMT 30-3400-(2)P

Ultrasonic sensor



PRODUCT HIGHLIGHTS

- With one or two switching outputs as option
- Sensor adjustment via Teach-in or numerically via 7-segment display
- Synchronisation of up to 10 devices in restricted spaces
- Additional features with numerous supplementary functions

Sensor data		Functions	
Limiting scanning distance	5000 mm	Display	Parameterisation
Operating scanning distance	350 ... 3400 mm	LED indicator 1	Switching output indicator
Ultrasonic frequency	~ 120 kHz	LED indicator 2	Switching output indicator
Resolution	0.18 mm	Scanning distance adjustment	Via Teach-in buttons and numerically via 7-segment display
Repeatability	± 0.15 % ¹	Teach-in modes	Mode 1: Set switching point Mode 2: Set Window Mode Mode 3: Set two-way reflex switch
Hysteresis ²	50 mm	Adjustment possibilities	N.O. / N.C. via Teach-in button Button lock via Teach-in button Default settings via Teach-in button
Temperature drift ²	≤ 2 % (0.17 % / K without compensation)	Supplementary functions	– Energy-saving Mode – Multiplex Mode, device address – Hysteresis – Multiplex Mode, highest address – Measurement value filter – Measurement range – Filter strength – Calibration display – Response delay – Detection range, sensitivity – Foreground suppression
		Default settings ³	Measurement range: limit scanning distance Switching distances: scanning distance Switching output: N.O.
		Default settings ⁴	Measurement range: limit scanning distance Switching distances: scanning distance and half scanning distance Switching output: N.O.
Electrical data		Mechanical data	
Operating voltage, +U _B	9 ... 30V DC ⁵	Dimensions	M30 x 102 mm
No-load current, I ₀	≤ 80 mA	Enclosure rating	IP 67 ⁶
Output current, I _e	200 mA	Material, housing	Brass, nickel-plated, plastic content: PBT,TPU
Protective circuits	Reverse-polarity protection U _B / Short circuit protection (Q)	Material, ultrasonic converter	Polyurethane foam, epoxy resin with glass content
Standby time	< 300 ms	Type of connection	(see selection table)
Switching output, Q	1 x PNP / 2 x PNP (see selection table)	Ambient temperature, operation	-25 ... +70 °C
Output function	N.O. / N.C.	Ambient temperature, storage	-40 ... +85 °C
Switching frequency, f (ti/tp 1:1) ²	3 Hz ³ / 4 Hz ⁴	Weight	210 g
Response time ²	180 ms ³ / 172 ms ⁴	Vibration and impact resistance	EN 60947-5-2
Connection, GY	Sync. / Com.		

¹ Related to current measurement value

² Parameterisable via control panel

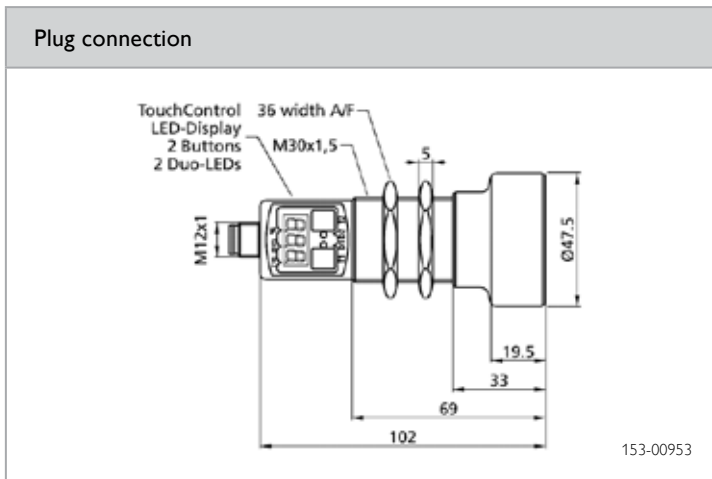
³ 1 x PNP

⁴ 2 x PNP

⁵ Max. 10 % ripple, within U_B

⁶ With connected IP 67 plug

Operating scanning distance	Switching output	Type of connection	Order reference	Part number
350 ... 3400 mm	1 x PNP	Plug, M12x1, 5-pin	UMT 30-3400-PSD-L5	690-51563
350 ... 3400 mm	2 x PNP	Plug, M12x1, 5-pin	UMT 30-3400-2PSD-L5	690-51564



5-pin connection (1 x PNP)		5-pin connection (2 x PNP)	
<p>1 PNP switched output</p> <p>154-00322</p>	<p>154-00306</p>	<p>2 PNP switched outputs</p> <p>154-00323</p>	<p>154-00307</p>

Sound beam	Synchronisation / multiplex												
<p>155-01563</p>	<table border="0"> <tr> <td style="text-align: center;">A</td> <td style="text-align: center;">B</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;"> </td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;"> </td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;"> </td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;"> </td> </tr> <tr> <td style="text-align: center;"> $\leq 0.40 \text{ m}$ $\leq 1.10 \text{ m}$ $\leq 2.00 \text{ m}$ $\leq 4.00 \text{ m}$ </td> <td style="text-align: center;"> $\leq 2.50 \text{ m}$ $\leq 8.00 \text{ m}$ $\leq 18.00 \text{ m}$ $\leq 30.00 \text{ m}$ </td> </tr> </table> <p>Mounting distances below which synchronisation / multiplex should be used.</p> <p>154-001580</p>	A	B									$\leq 0.40 \text{ m}$ $\leq 1.10 \text{ m}$ $\leq 2.00 \text{ m}$ $\leq 4.00 \text{ m}$	$\leq 2.50 \text{ m}$ $\leq 8.00 \text{ m}$ $\leq 18.00 \text{ m}$ $\leq 30.00 \text{ m}$
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UMT 30-3400-A

Ultrasonic sensor with analogue output



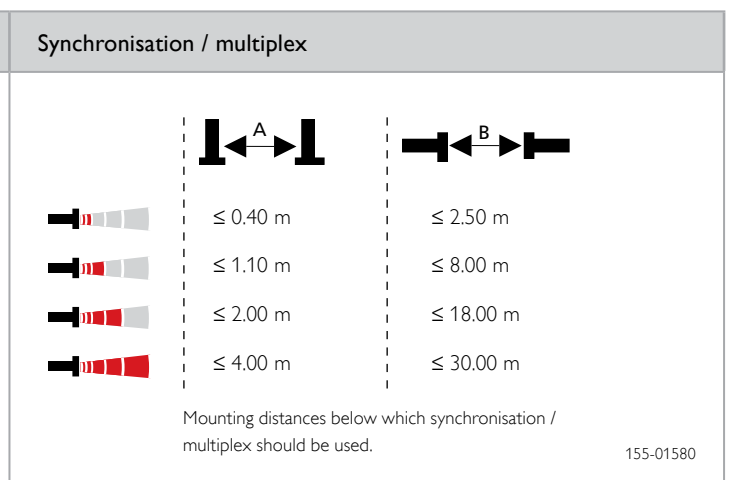
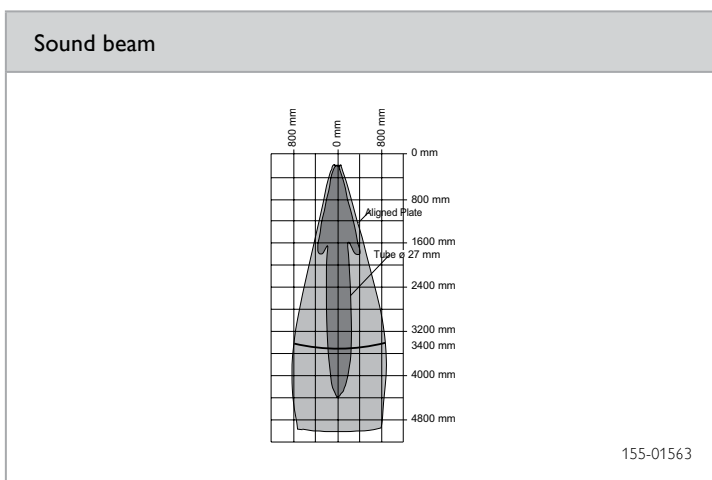
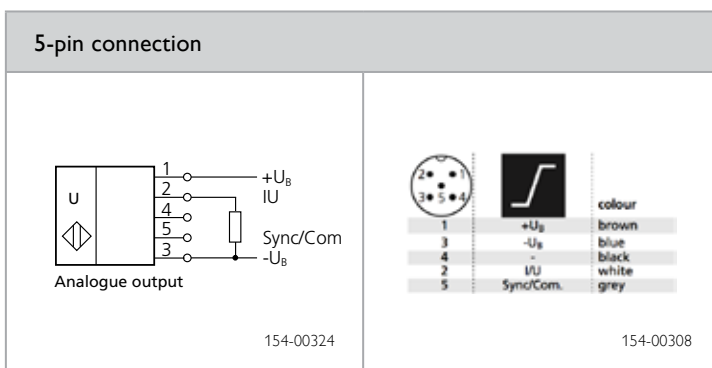
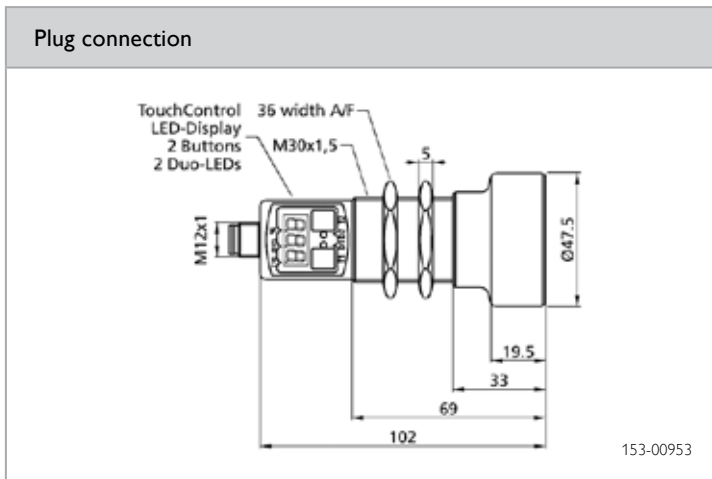
PRODUCT HIGHLIGHTS

- Automatic selection to current or voltage output
- Easy pre-setting of sensor via digital display – sensor immediately ready for operation
- Synchronisation of up to 10 devices in restricted spaces
- Additional features with numerous supplementary functions
- Choice of brass or stainless steel housings

Sensor data		Functions	
Limiting scanning distance	5000 mm	Display	Parameterisation
Operating scanning distance	350 ... 3400 mm	LED indicator 1	Switching output indicator
Ultrasonic frequency	~ 120 kHz	LED indicator 2	Switching output indicator
Resolution	0.18 mm	Set analogue characteristic	Via Teach-in buttons and numerically via 7-segment display
Repeatability	± 0.15 % ¹	Teach-in modes	Mode 1: Set window limits Mode 2: Rising / falling output characteristics
Temperature drift ²	≤ 2 % (0.17 % / K without compensation)	Adjustment possibilities	Button lock via Teach-in button Default settings via Teach-in button
		Supplementary functions	– Energy-saving Mode – Indicator Mode – Current or voltage output selection – Measurement value filter – Filter strength – Response delay – Foreground suppression – Multiplex Mode, device address – Multiplex Mode, highest address – Measurement range – Calibration display – Detection range, sensitivity
		Default settings	Measurement range: limit scanning distance Window limits, analogue signal: blind zone and scanning distance Switching output: rising analogue characteristic
Electrical data		Mechanical data	
Operating voltage, +U _b	9 ... 30V DC ³	Dimensions	M30 x 102 mm
No-load current, I ₀	≤ 80 mA	Enclosure rating	IP 67 ⁴
Current output	R _L ≤ 100 Ω with 9V ≤ U _b ≤ 20V; R _L ≤ 500 Ω with U _b ≥ 20V	Material, housing	(see selection table) Plastic content: PBT,TPU
Voltage output	R _L ≥ 100 kΩ with U _b ≥ 15V	Material, ultrasonic converter	Polyurethane foam, epoxy resin with glass content
Protective circuits	Reverse-polarity protection U _b / Short circuit protection (Q)	Type of connection	(see selection table)
Standby time	< 300 ms	Ambient temperature, operation	-25 ... +70 °C
Analogue output	0 ... 10V / 4 ... 20 mA	Ambient temperature, storage	-40 ... +85 °C
Response time ²	172 ms	Weight	210 g
Connection, GY	Sync. / Com.	Vibration and impact resistance	EN 60947-5-2

¹ Related to current measurement value ² Parameterisable via control panel ³ Max. 10 % ripple, within U_b ⁴ With connected IP 67 plug

Operating scanning distance	Analogue output	Material, housing	Type of connection	Order reference	Part number
350 ... 3400 mm	0 ... 10V / 4 ... 20 mA	Brass, nickel-plated	Plug, M12x1, 5-pin	UMT 30-3400-A-IUD-L5	690-51565
350 ... 3400 mm	0 ... 10V / 4 ... 20 mA	Stainless steel, 1.4571	Plug, M12x1, 5-pin	UMT 30-3400-AE-IUD-L5	690-51566



UMT 30-6000-(2)P

Ultrasonic sensor



PRODUCT HIGHLIGHTS

- Long scanning range of 6 m
- With one or two switching outputs as option
- Sensor adjustment via Teach-in or numerically via 7-segment display
- Additional features with numerous supplementary functions

Sensor data		Functions	
Limiting scanning distance	8000 mm	Display	Parameterisation
Operating scanning distance	600 ... 6000 mm	LED indicator 1	Switching output indicator
Ultrasonic frequency	~ 80 kHz	LED indicator 2	Switching output indicator
Resolution	0.18 mm	Scanning distance adjustment	Via Teach-in buttons and numerically via 7-segment display
Repeatability	± 0.15 % ¹	Teach-in modes	Mode 1: Set switching point Mode 2: Set Window Mode Mode 3: Set two-way reflex switch
Hysteresis ²	100 mm	Adjustment possibilities	N.O. / N.C. via Teach-in button Button lock via Teach-in button Default settings via Teach-in button
Temperature drift ²	≤ 2 % (0.17 % / K without compensation)	Supplementary functions	– Energy-saving Mode – Multiplex Mode, device address – Hysteresis – Multiplex Mode, highest address – Measurement value filter – Measurement range – Filter strength – Calibration display – Response delay – Detection range, sensitivity – Foreground suppression
		Default settings ³	Measurement range: limit scanning distance Switching distances: scanning distance Switching output: N.O.
		Default settings ⁴	Measurement range: limit scanning distance Switching distances: scanning distance and half scanning distance Switching output: N.O.
Electrical data		Mechanical data	
Operating voltage, +U _B	9 ... 30V DC ⁵	Dimensions	M30 x 105 mm
No-load current, I ₀	≤ 80 mA	Enclosure rating	IP 67 ⁶
Output current, I _e	200 mA	Material, housing	Brass, nickel-plated, plastic content: PBT,TPU
Protective circuits	Reverse-polarity protection U _B / Short circuit protection (Q)	Material, ultrasonic converter	Polyurethane foam, epoxy resin with glass content
Standby time	< 300 ms	Type of connection	(see selection table)
Switching output, Q	1 x PNP / 2 x PNP (see selection table)	Ambient temperature, operation	-25 ... +70 °C
Output function	N.O. / N.C.	Ambient temperature, storage	-40 ... +85 °C
Switching frequency, f (ti/tp 1:1) ²	2 Hz ³ / 3 Hz ⁴	Weight	270 g
Response time ²	240 ms	Vibration and impact resistance	EN 60947-5-2
Connection, GY	Sync. / Com.		

¹ Related to current measurement value

² Parameterisable via control panel

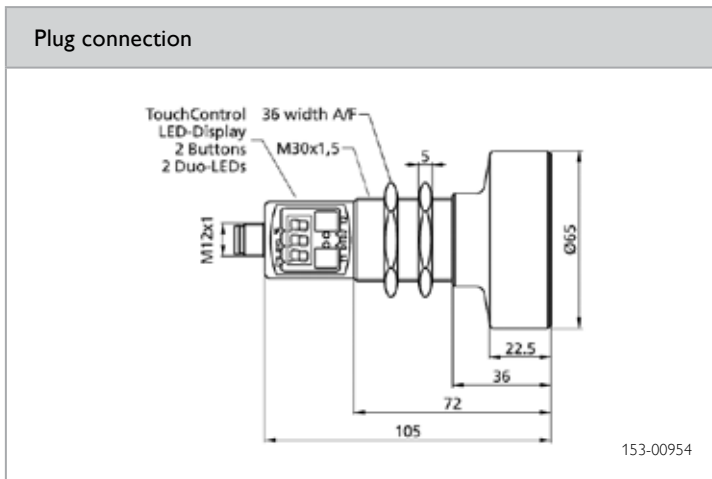
³ 1 x PNP

⁴ 2 x PNP

⁵ Max. 10 % ripple, within U_B

⁶ With connected IP 67 plug

Operating scanning distance	Switching output	Type of connection	Order reference	Part number
600 ... 6000 mm	1 x PNP	Plug, M12x1, 5-pin	UMT 30-6000-PSD-L5	690-51570
600 ... 6000 mm	2 x PNP	Plug, M12x1, 5-pin	UMT 30-6000-2PSD-L5	690-51571



5-pin connection (1 x PNP)		5-pin connection (2 x PNP)	
<p>1 PNP switched output</p> <p>154-00322</p>	<p>154-00306</p>	<p>2 PNP switched outputs</p> <p>154-00323</p>	<p>154-00307</p>

Sound beam	Synchronisation / multiplex																		
<p>155-01564</p>	<table border="1"> <thead> <tr> <th>Beam Profile</th> <th>Mounting Distance</th> </tr> </thead> <tbody> <tr> <td>Profile A (Narrow)</td> <td>≤ 0.40 m</td> </tr> <tr> <td>Profile B (Wide)</td> <td>≤ 2.50 m</td> </tr> <tr> <td>Profile A (Medium)</td> <td>≤ 1.10 m</td> </tr> <tr> <td>Profile B (Wide)</td> <td>≤ 8.00 m</td> </tr> <tr> <td>Profile A (Wide)</td> <td>≤ 2.00 m</td> </tr> <tr> <td>Profile B (Wide)</td> <td>≤ 18.00 m</td> </tr> <tr> <td>Profile A (Very Wide)</td> <td>≤ 4.00 m</td> </tr> <tr> <td>Profile B (Very Wide)</td> <td>≤ 30.00 m</td> </tr> </tbody> </table> <p>Mounting distances below which synchronisation / multiplex should be used.</p> <p>154-00307</p>	Beam Profile	Mounting Distance	Profile A (Narrow)	≤ 0.40 m	Profile B (Wide)	≤ 2.50 m	Profile A (Medium)	≤ 1.10 m	Profile B (Wide)	≤ 8.00 m	Profile A (Wide)	≤ 2.00 m	Profile B (Wide)	≤ 18.00 m	Profile A (Very Wide)	≤ 4.00 m	Profile B (Very Wide)	≤ 30.00 m
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Profile B (Very Wide)	≤ 30.00 m																		

UMT 30-6000-A

Ultrasonic sensor with analogue output



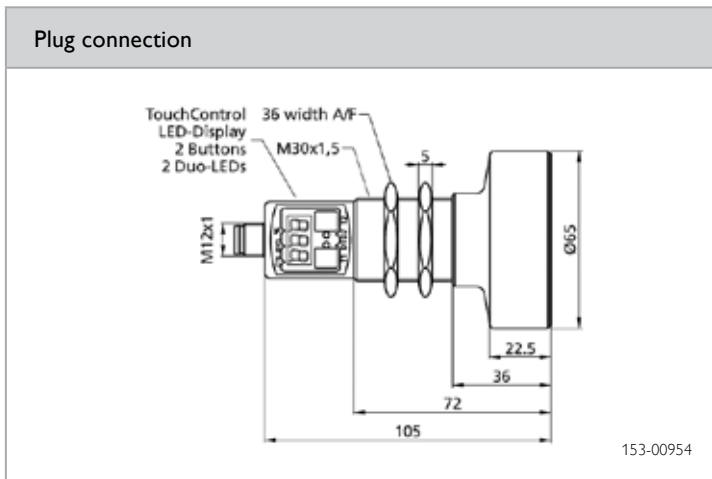
PRODUCT HIGHLIGHTS

- Long scanning range of 6 m
- Automatic selection to current or voltage output
- Easy pre-setting of sensor via digital display – sensor immediately ready for operation
- Synchronisation of up to 10 devices in restricted spaces
- Additional features with numerous supplementary functions

Sensor data		Functions	
Limiting scanning distance	8000 mm	Display	Parameterisation
Operating scanning distance	600 ... 6000 mm	LED indicator 1	Switching output indicator
Ultrasonic frequency	~ 80 kHz	LED indicator 2	Switching output indicator
Resolution	0.18 mm	Set analogue characteristic	Via Teach-in buttons and numerically via 7-segment display
Repeatability	± 0.15 % ¹	Teach-in modes	Mode 1: Set window limits Mode 2: Rising / falling output characteristics
Temperature drift ²	≤ 2 % (0.17 % / K without compensation)	Adjustment possibilities	Button lock via Teach-in button Default settings via Teach-in button
		Supplementary functions	– Energy-saving Mode – Indicator Mode – Current or voltage output selection – Measurement value filter – Filter strength – Response delay – Foreground suppression – Multiplex Mode, device address – Multiplex Mode, highest address – Measurement range – Calibration display – Detection range, sensitivity
		Default settings	Measurement range: limit scanning distance Window limits, analogue signal: blind zone and scanning distance Switching output: rising analogue characteristic
Electrical data		Mechanical data	
Operating voltage, +U _b	9 ... 30V DC ³	Dimensions	M30 x 105 mm
No-load current, I ₀	≤ 80 mA	Enclosure rating	IP 67 ⁴
Current output	R _L ≤ 100 Ω with 9V ≤ U _b ≤ 20V; R _L ≤ 500 Ω with U _b ≥ 20V	Material, housing	Brass, nickel-plated, plastic content: PBT,TPU
Voltage output	R _L ≥ 100 kΩ with U _b ≥ 15V	Material, ultrasonic converter	Polyurethane foam, epoxy resin with glass content
Protective circuits	Reverse-polarity protection U _b / Short circuit protection (Q)	Type of connection	(see selection table)
Standby time	< 300 ms	Ambient temperature, operation	-25 ... +70 °C
Analogue output	0 ... 10V / 4 ... 20 mA	Ambient temperature, storage	-40 ... +85 °C
Response time ²	240 ms	Weight	270 g
Connection, GY	Sync. / Com.	Vibration and impact resistance	EN 60947-5-2

¹ Related to current measurement value ² Parameterisable via control panel ³ Max. 10 % ripple, within U_b ⁴ With connected IP 67 plug

Operating scanning distance	Analogue output	Type of connection	Order reference	Part number
600 ... 6000 mm	0 ... 10V / 4 ... 20 mA	Plug, M12x1, 5-pin	UMT 30-6000-A-IUD-L5	690-51569



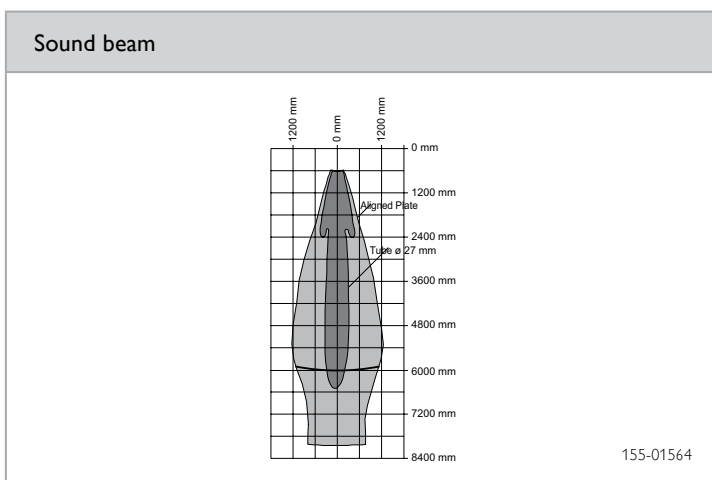
Anschluss 5-polig

Analogue output

154-00324

Pin	Signal	colour
1	+U _B	brown
3	-U _B	blue
4	IU	black
2	IU	white
5	Sync/Com.	grey

154-00308



Synchronisation / multiplex

≤ 0.40 m

≤ 1.10 m

≤ 2.00 m

≤ 4.00 m

≤ 2.50 m

≤ 8.00 m

≤ 18.00 m

≤ 30.00 m

Mounting distances below which synchronisation / multiplex should be used.

155-01580

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