

Distance Sensor

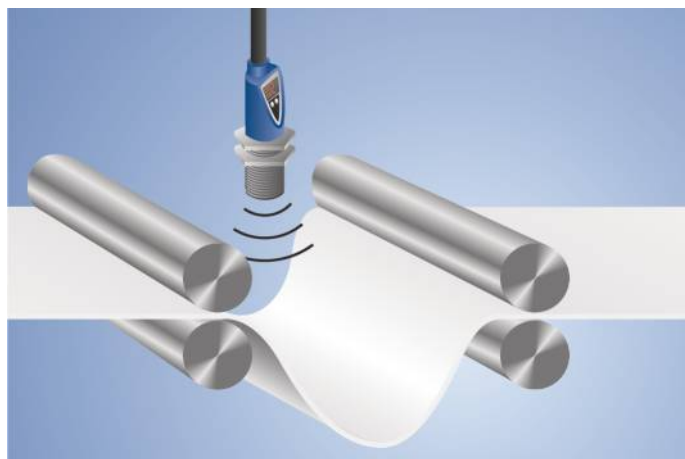
UMF402U035

Part Number



- Digital and analog output
- Stainless steel housing
- Synchronous and multiplex mode
- Temperature drift eliminable

These ultrasonic sensors evaluate the sound reflected by the object. They detect almost every object and are suited especially for the filling level monitoring of fluids or bulk material or the detection of transparent objects. The sensor detects objects independent from their material, aggregate state, color or transparency. The sensors can be adjusted easily by the 4-digit 7-segment display. Convenient programming and quick diagnosis is possible via the IO-Link interface. The sensor can only be used in reflex mode operation.



Technical Data

Ultrasonic Data

Working Range	50...400 mm
Measuring Range	350 mm
Reproducibility maximum	1 mm
Linearity Deviation	3 mm
Resolution	0,1 mm
Ultrasonic Frequency	300 kHz
Opening Angle	< 12 °
Service Life (T = +25 °C)	100000 h
Switching Hysteresis	2 mm

Electrical Data

Supply Voltage	18...30 V DC
Current Consumption (U _b = 24 V)	< 40 mA
Switching Frequency	20 Hz
Response Time	25 ms
Temperature Range	-30...60 °C
Number of Switching Outputs	1
Switching Output Voltage Drop	< 2,5 V
PNP Switching Output/Switching Current	100 mA
Analog Output	0...10 V
Synchronous Mode	up to 40 sensors
Multiplex Mode	up to 16 sensors
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Lockable	yes
Interface	IO-Link V1.0
Protection Class	III

Mechanical Data

Setting Method	Teach-In
Housing Material	Stainless Steel; Plastic
Degree of Protection	IP67
Connection	M12 × 1; 4/5-pin

Safety-relevant Data

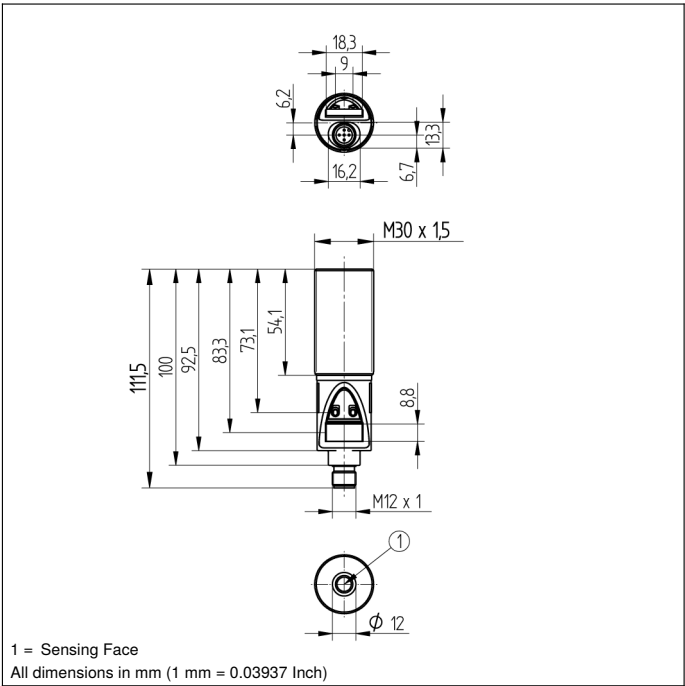
MTTFd (EN ISO 13849-1)	727,87 a
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Error Output	●
PNP NO	●
Analog Output	●
IO-Link	●

Connection Diagram No.	184
Control Panel No.	U1
Suitable Connection Equipment No.	2 35
Suitable Mounting Technology No.	130

Complementary Products

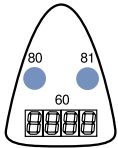
Analog Evaluation Unit AW02
Baffle Plate Z0023, Z0024
IO-Link Master
PNP-NPN Converter BG2V1P-N-2M
Software



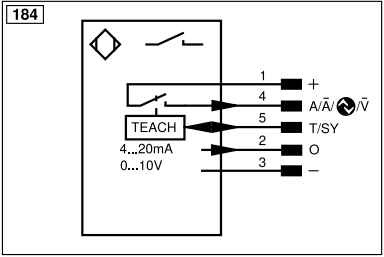
1 = Sensing Face
All dimensions in mm (1 mm = 0.03937 Inch)

Ctrl. Panel

U1



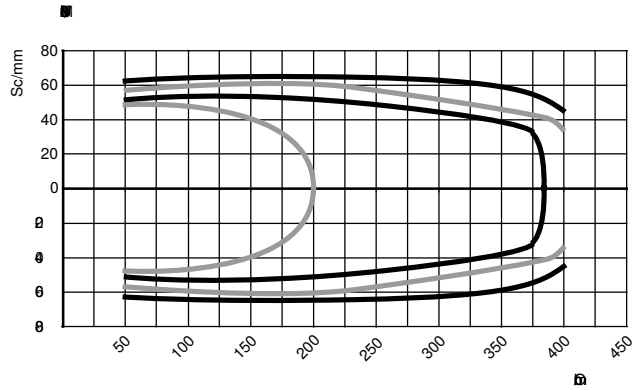
60 = display
80 = Mode Button/Switching Status Indicator
81 = Plus Button/Error Warning



Legend			
+	Supply Voltage +	nc	Not connected
-	Supply Voltage 0 V	U	Test Input
~	Supply Voltage (AC Voltage)	Ū	Test Input inverted
A	Switching Output (NO)	W	Trigger Input
Ā	Switching Output (NC)	W-	Ground for the Trigger Input
V	Contamination/Error Output (NO)	O	Analog Output
Ȳ	Contamination/Error Output (NC)	O-	Ground for the Analog Output
E	Input (analog or digital)	BZ	Block Discharge
T	Teach Input	Amv	Valve Output
Z	Time Delay (activation)	a	Valve Control Output +
S	Shielding	b	Valve Control Output 0 V
RxD	Interface Receive Path	SY	Synchronization
TxD	Interface Send Path	SY-	Ground for the Synchronization
RDY	Ready	E+	Receiver-Line
GND	Ground	S+	Emitter-Line
CL	Clock	±	Grounding
E/A	Output/Input programmable	SnR	Switching Distance Reduction
IO-Link	IO-Link	Rx+/-	Ethernet Receive Path
PoE	Power over Ethernet	Tx+/-	Ethernet Send Path
IN	Safety Input	Bus	Interfaces-Bus A(+)/B(-)
OSSD	Safety Output	La	Emitted Light disengageable
Signal	Signal Output	Mag	Magnet activation
BI_D+/-	Ethernet Gigabit bidirect. data line (A-D)	RES	Input confirmation
ENo RS422	Encoder 0-pulse 0/0 (TTL)	EDM	Contacteur Monitoring
PT	Platinum measuring resistor	ENARIS422	Encoder A/Ā (TTL)
		ENBRIS422	Encoder B/B̄ (TTL)
		ENA	Encoder A
		ENB	Encoder B
		AMIN	Digital output MIN
		AMAX	Digital output MAX
		ACK	Digital output OK
		SY In	Synchronization In
		SY OUT	Synchronization OUT
		OLT	Brightness output
		M	Maintenance
		rsv	Reserved
		Wire Colors according to DIN IEC 60757	
		BK	Black
		BN	Brown
		RD	Red
		OG	Orange
		YE	Yellow
		GN	Green
		BU	Blue
		VT	Violet
		GY	Grey
		WH	White
		PK	Pink
		GNYE	Green/Yellow

Characteristic response curve

Characteristic curves show the position of the center of the measured object (100 × 100 mm plate) at the time of switching.



Ob = Object

Sc = Sonic cone width

— Standard
— Medium-width
... Narrow
... Extra-narrow

