Reflex Sensor
with Analog Output

UMD402U035
Part Number

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

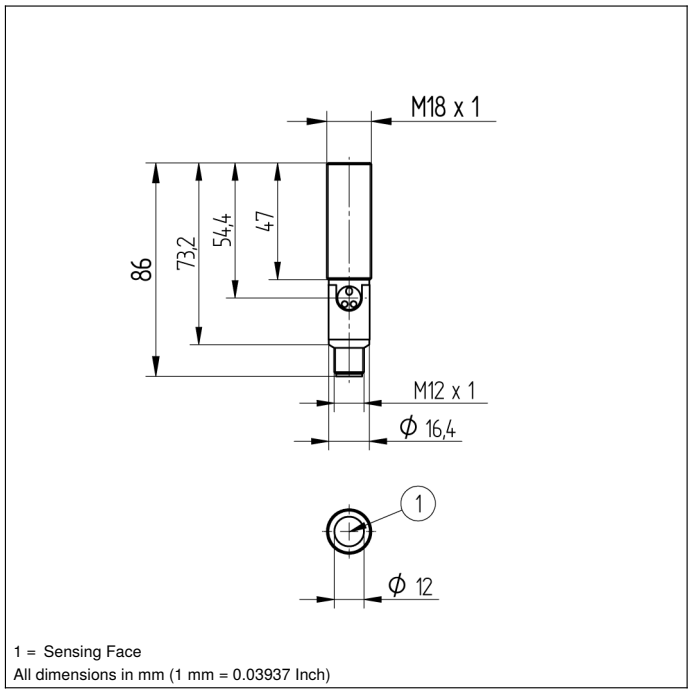
These ultrasonic sensors evaluate the sound reflected by the object. They detect almost every object and are suited especially for the filling level monitoring of fluids or bulk material or the detection of transparent objects. The sensor detects objects independent from their material, aggregate state, color or transparency. Convenient programming and quick diagnosis is possible via the IO-Link interface.

Technical Data

Ultrasonic Data	
Working Range	50...400 mm
Measuring Range	350 mm
Reproducibility maximum	1 mm
Linearity Deviation	5 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 (Ub = 24 V)	< 30 mA
Switching Frequency	20 Hz
Response Time	25 ms
Temperature Range	-25...60 °C
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
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Lockable	yes
Interface	IO-Link
IO-Link Version	1.0
Protection Class	III
Mechanical Data	
Setting Method	Teach-In
Housing Material	Stainless Steel
Full Encapsulation	yes
Degree of Protection	IP67
Connection	M12 × 1; 4/5-pin
Safety-relevant Data	
MTTFd (EN ISO 13849-1)	828,67 a
PNP NO/NC switchable	●
Analog Output	●
IO-Link	●
Connection Diagram No.	182
Control Panel No.	D12
Suitable Connection Technology No.	2 35
Suitable Mounting Technology No.	150

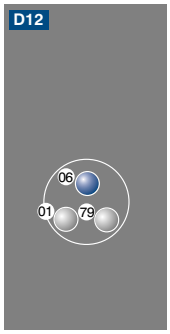
Complementary Products

Analog Evaluation Unit AW02
Deflection plate Z0021, Z0022
IO-Link Master
PNP-NPN Converter BG2V1P-N-2M

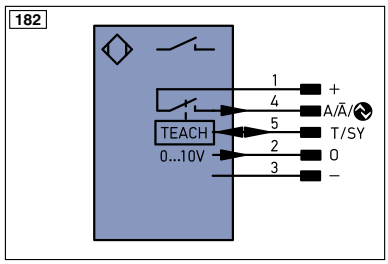


1 = Sensing Face
All dimensions in mm (1 mm = 0.03937 Inch)

Ctrl. Panel



01 = Switching Status Indicator
06 = Teach Button
79 = Run/Error Indicator



Legend

+	Supply Voltage +
–	Supply Voltage 0 V
~	Supply Voltage (AC Voltage)
A	Switching Output (NO)
Ā	Switching Output (NC)
V	Contamination/Error Output (NO)
V̄	Contamination/Error Output (NC)
E	Input (analog or digital)
T	Teach Input
Z	Time Delay (activation)
S	Shielding
RxD	Interface Receive Path
TxD	Interface Send Path
RDY	Ready
GND	Ground
CL	Clock
E/A	Output/Input programmable
	IO-Link
PoE	Power over Ethernet
IN	Safety Input
OSSD	Safety Output
Signal	Signal Output
Bl_D+/-	Ethernet Gigabit bidirect. data line (A-D)
EN0 RS422	Encoder 0-pulse 0-0̄ (TTL)
PT	Platinum measuring resistor
nc	not connected
U	Test Input
Ū	Test Input inverted
W	Trigger Input
O	Analog Output
O–	Ground for the Analog Output
BZ	Block Discharge
AMV	Valve Output
a	Valve Control Output +
b	Valve Control Output 0 V
SY	Synchronization
E+	Receiver-Line
S+	Emitter-Line
⏚	Grounding
SnR	Switching Distance Reduction
Rx+/–	Ethernet Receive Path
Tx+/–	Ethernet Send Path
Bus	Interfaces-Bus A(+)/B(–)
La	Emitted Light disengageable
Mag	Magnet activation
RES	Input confirmation
EDM	Contactor Monitoring
ENA RS422	Encoder A/Ā (TTL)
ENB RS422	Encoder B/B̄ (TTL)
ENA	Encoder A
ENB	Encoder B
AMIN	Digital output MIN
AMAX	Digital output MAX
AOK	Digital output OK
SY In	Synchronization In
SY OUT	Synchronization OUT
OLT	Brightness output
M	Maintenance

Wire Colors according to DIN IEC 757

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

Measurement of the sonic cone on a 100 × 100 mm plate

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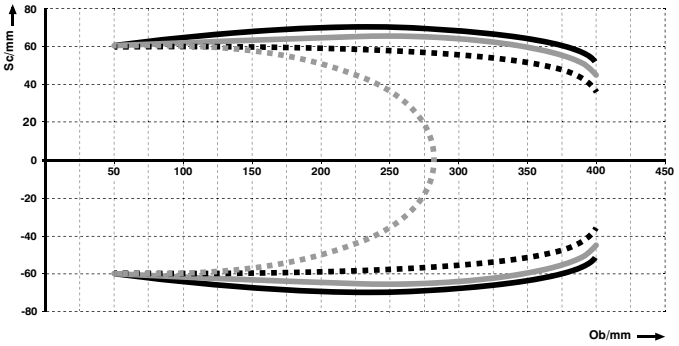

Ob = Object
Sc = Sonic cone width

Standard
Medium-width
Narrow
Extra-narrow