

di-soric Ultrasonic Sensors US Series

Strong Performance Characteristics for Contactless Distance Measurement

di-soric ultrasonic sensors provide contactless distance measurement with IO-Link features, multiple sizes, and strong performance across applications.



US-M12, US-Q12, US-M18, US-M30

- Models up to 6m range
- High precision for stable processing
- Ensured detection of small objects due to higher sensitivity
- Simple commissioning with [POC-CDR-M12](#) through IO-Link
- Sensor multiplex operation for avoiding mutual influence
- Sensor sync operation for thickness measurements

US-M8

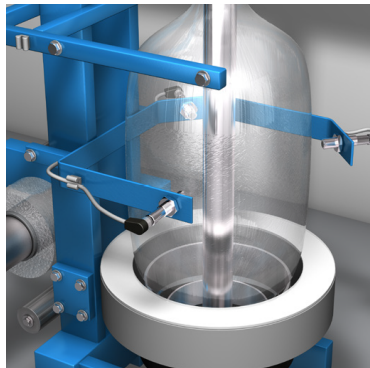
- Smallest ultrasound sensor on the market with up to 100mm range with a focused sound beam
- Transfer of distance information via IO-Link
- Configurable operating modes provide flexible use
- Stable operation with 0.1mm resolution
- Low influence from the environment due to the narrow sound beam

Example Applications

Robotics - Detection of objects in a gripper



Rubber and Plastics - Diameter control on a film extruder



Mobile Equipment - Measurement of boom height on sprayers



di-soric Ultrasonic Sensors Rectangular USQ Series



USQ12M400HPG3-T4

Overview

di-soric USQ series compact ultrasonic sensors are designed for reliable detection and measurement at short to medium ranges. These sensors are engineered for applications where object color, surface finish, or transparency make optical detection unreliable. These sensors use a small, cubic housing with minimal installation depth, making them ideal for tight mounting spaces.

Features

- IO-Link v1.1
- IP67 protection rating
- Sensing face top sensing
- Anodized aluminum housing
- Purchase cable separately



M12 (12mm) Ultrasonic Sensors Rectangular USQ Series										
Part Number	Price	Sensing Method	Sensing Range	Output	Switching Frequency	Operation Mode	Connection	Housing Size	Wiring	Drawing Link
USQ12M200G3-T4	\$245.00	Diffuse	20–200mm [0.79–7.87in]	Push-pull NPN or PNP	20 Hz	N.O./N.C. selectable output	4-pin M8 quick-disconnect	12 x 12 x 75mm body [0.48 x 0.48 x 2.95in]	Diagram 1	PDF
USQ12M200IU-T4	\$269.00	Diffuse		0–10 VDC or 4–20 mA		–			Diagram 2	PDF
USQ12M400FPG3-T4	\$258.00	Diffuse with foreground suppression	40–400mm [1.58–15.75in]	Push-pull NPN or PNP	10 Hz	N.O./N.C. selectable output		12 x 12 x 82mm body [0.48 x 0.48 x 3.23in]	Diagram 1	PDF
USQ12M400G3-T4	\$245.00	Diffuse						12 x 12 x 75mm body [0.48 x 0.48 x 2.95in]		PDF
USQ12M400HPG3-T4	\$258.00	Background suppression						12 x 12 x 82mm body [0.48 x 0.48 x 3.23in]		PDF
USQ12M400IU-T4	\$269.00	Diffuse		0–10 VDC or 4–20 mA	–	Diagram 2		PDF		
USQ12M400RG3-T4	\$245.00	Retroreflective		Push-pull NPN or PNP	N.O./N.C. selectable output	Diagram 1		PDF		

Wiring Diagrams

Diagram 1

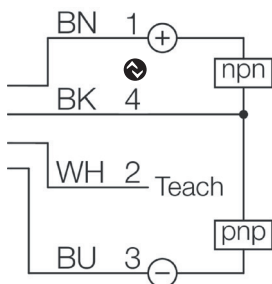
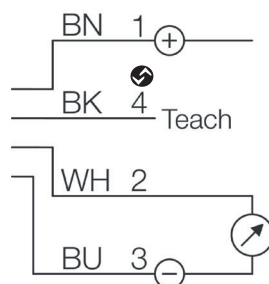
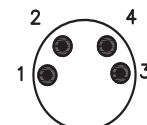


Diagram 2



Connector M8 Connector





Ultrasonic Sensors

Rectangular USQ Series

M12 (12mm) Specifications							
Part Number	USQ12M200G3-T4	USQ12M200IU-T4	USQ12M400FG3-T4	USQ12M400G3-T4	USQ12M400HPG3-T4	USQ12M400IU-T4	USQ12M400RG3-T4
Operating Voltage	18–30 VDC						
No Load Current	40 mA (24 VDC) max.						
Insulation Voltage Endurance	500V						
IO-Link	Yes (v1.1, COM2 38.4 kBd, Smart Sensor Profile)						
Functions	Teach (Pin 2), Out 1 and IO- Link (Pin 4)	Teach, Out 1, IO-Link, multiplex, synchronization (Pin 4), Analog 0–10V/ 4–20 mA/0–20 mA (Pin 2)	Teach (Pin 2), Out 1 and IO-Link (Pin 4)			Analog 0–10V/ 4–20 mA/0–20 mA (Pin 2), Teach, Out 1, IO-Link, multiplex, synchronization (Pin 4)	Teach (Pin 2), Out 1 and IO-Link (Pin 4)
Switch Current	150 mA max.						
Voltage Drop max.	2V						
Nominal Switching Distance (sn)	200mm			400mm			
Range	20–200mm			40–400mm			
Adjustment Range	20–200mm (Teach in)			40–400mm (Teach in)			
Resolution	1.0mm (IO-Link)	1.0mm (adj measuring range/4095 analog output)	1.0mm (IO-Link)			1.0mm (adj measuring range/4095 analog output)	1.0mm (IO-Link)
Switching Hysteresis	2–20mm max. (adjustable by IO-Link)						
Reproducibility	<0.5mm						
Linearity Error	–	± 0.4%	–	–	–	<0.8%	–
Measuring Frequency	–	400 Hz	–	–	–	250 Hz	–
Ultrasonic Frequency	400 kHz			300 kHz			
Switching Frequency	20 Hz			<10 Hz			
Readiness Delay	300 ms max.						
Parallel Operation	No	Yes	No	No	No	Yes	No
Inverse Polarity Protection	Yes	Yes, except for analog output Pin 2	Yes			Yes, except for analog output Pin 2	Yes
Short-circuit Protection	Yes						
Sensitivity Adjustment	Remote teach						
Display	1 green LED - status, 1 yellow LED - switching output						
Shock/Vibration Load	30g, 11 ms, 10–55 Hz, 1.0mm						
Temperature Drift	0.2%K (uncompensated), <1% Sn (compensated)						
Protection Type	IP67						
Operating Temperature	-25 to +70 °C [-13 to +158 °F]						
Weight	30g						
Connection	M8 4-pin connector						
Agency Approval	cULus listed File: E303138, CE						