

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

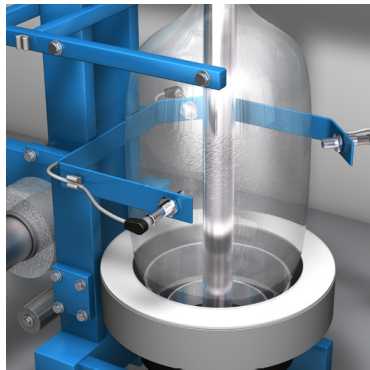
- Smallest ultrasound sensor on the market with up to 100mm range with a focused sound beam
- Transfer of distance information via IO-Link
- Configurable operating modes provide flexible use
- Stable operation with 0.1mm resolution
- Low influence from the environment due to the narrow sound beam

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





Ultrasonic Sensors Tubular US Series



Features

- IO-Link v1.1
- Mounting hardware included
- IP67 protection rating
- Nickel-plated brass housing material
- Quick-disconnect models - purchase cable separately



M8 (8mm) Diffuse Ultrasonic Sensors Tubular US Series

Part Number	Price	Sensing Range	Output	Switching Frequency	Operation Mode	Connection	Housing Size	Wiring	Drawing Link
US08M100G3-T4	\$300.00	20–100mm [0.79–3.94in]	Push-pull NPN or PNP	20 Hz	N.O./N.C. selectable output	4-pin M8 quick-disconnect	8mm diameter x 70mm body [0.315 x 2.75in]	Diagram 1	PDF

M12 (12mm) Diffuse Ultrasonic Sensors Tubular US Series

US12M150FBG3-B4	\$280.00	0–150mm [0–5.90in]	Push-pull NPN or PNP	20 Hz	N.O./N.C. selectable output	4-pin M12 quick-disconnect	12mm diameter x 84mm body [0.47 x 3.30in]	Diagram 1	PDF
US12M150FBIU-B4	\$310.00	Focused beam	0–10 VDC or 4–20 mA		–			Diagram 2	PDF
US12M200G3-B4	\$267.00	20–200mm [0.79–7.87in]	Push-pull NPN or PNP	10 Hz	N.O./N.C. selectable output	4-pin M12 quick-disconnect	12mm diameter x 65mm body [0.47 x 2.56in]	Diagram 1	PDF
US12M200IU-B4	\$296.00		0–10 VDC or 4–20 mA		–			Diagram 2	PDF
US12M400G3-B4	\$267.00	40–400mm [1.58–15.75in]	Push-pull NPN or PNP	10 Hz	N.O./N.C. selectable output	4-pin M12 quick-disconnect	12mm diameter x 65mm body [0.47 x 2.56in]	Diagram 1	PDF
US12M400IU-B4	\$296.00		0–10 VDC or 4–20 mA		–			Diagram 2	PDF

M18 (18mm) Diffuse Ultrasonic Sensors Tubular US Series

US18M800G3-B4	\$210.00	80–800mm [3.15–31.50in]	Push-pull NPN or PNP	5 Hz	N.O./N.C. selectable output	4-pin M12 quick-disconnect	18mm diameter x 55.5mm body [0.71 x 2.16in]	Diagram 1	PDF
US18M800IU-B4	\$235.00		0–10 VDC or 4–20 mA		–			Diagram 2	PDF
US18M1500G3-B4	\$210.00	150–1500mm [5.90–59.05in]	Push-pull NPN or PNP	5 Hz	N.O./N.C. selectable output	4-pin M12 quick-disconnect	18mm diameter x 55.5mm body [0.71 x 2.16in]	Diagram 1	PDF
US18M1500IU-B4	\$236.00		0–10 VDC or 4–20 mA		–			Diagram 2	PDF

M30 (30mm) Diffuse Ultrasonic Sensors Tubular US Series

US30M3000G3-B4	\$345.00	300–3000mm [11.81–118.11in]	Push-pull NPN or PNP	3 Hz	N.O./N.C. selectable output	4-pin M12 quick-disconnect	30mm diameter x 60mm body [1.18 x 2.36in]	Diagram 1	PDF
US30M3000IU-B4	\$375.00		0–10 VDC or 4–20 mA		–			Diagram 2	PDF
US30M6000G3-B4	\$410.00	600–6000mm [23.62–236.22in]	Push-pull NPN or PNP	2 Hz	N.O./N.C. selectable output	4-pin M12 quick-disconnect	30mm diameter x 78mm body [1.18 x 3.07in]	Diagram 1	PDF
US30M6000IU-B4	\$450.00		0–10 VDC or 4–20 mA		–			Diagram 2	PDF



Ultrasonic Sensors Tubular US Series

Wiring Diagrams

Diagram 1

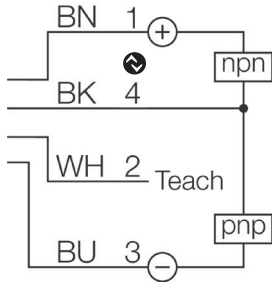
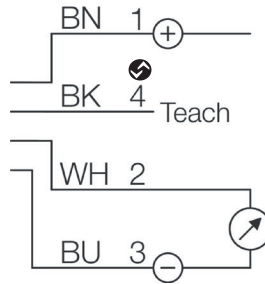
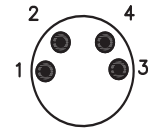


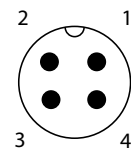
Diagram 2



Connectors
M8 Connector



M12 Connector



For sensors with N.O./N.C. Selectable Outputs; Connect Teach PIN 2 (WH) with +V PIN 1 (BN) >6s to change the operating mode.



Ultrasonic Sensors Tubular US Series

M12 (12mm) Specifications						
Part Number	US12M150FBG3-B4	US12M150FBIU-B4	US12M200G3-B4	US12M200IU-B4	US12M400G3-B4	US12M400IU-B4
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)	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)	Teach, Out 1, IO-Link, multiplex, synchronization (Pin 4), Analog 0–10V/ 4–20 mA/0–20 mA (Pin 2)
Switch Current	150 mA max.					
Voltage Drop max.	2V					
Nominal Switching Distance (sn)	150mm		200mm		400mm	
Range	0–150mm		20–200mm		40–400mm	
Adjustment Range	0–150mm (Teach in)		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)	1.0mm (adj measuring range/4095 analog output)
Switching Hysteresis	2–20mm max. (adjustable by IO-Link)					
Reproducibility	<0.5mm				<1.5mm	
Linearity Error	–	± 0.4%	–	± 0.4%	–	± 0.4%
Measuring Frequency	–	400 Hz	–	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	Yes	No	Yes
Inverse Polarity Protection	Yes	Yes, except for analog output Pin 2	Yes	Yes, except for analog output Pin 2	Yes	Yes, except for analog output Pin 2
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			18g		
Connection	M12 4-pin connector					
Agency Approval	cULus listed File: E303138, CE					



Ultrasonic Sensor Accessories US Series



Ultrasonic Sensor Accessories US Series						
Part Number	Price	Description	Diameter	Color	Weight	Drawing Link
<u>US-UW-12</u>	\$29.00	di-soric right-angle beam adapter, polyoxymethylene (POM), 12mm. For use with di-soric 12mm ultrasonic sensors. Allows 90 degree sound deflection, threads on to head of sensor.	15mm	Black	2g	<u>PDF</u>
<u>US-UW-18</u>	\$28.00	di-soric right-angle beam adapter, polyoxymethylene (POM), 18mm. For use with di-soric 18mm ultrasonic sensors. Allows 90 degree sound deflection, threads on to head of sensor.	22mm		6g	<u>PDF</u>
<u>US-UW-30</u>	\$36.00	di-soric right-angle beam adapter, polyoxymethylene (POM), 30mm. For use with di-soric 30mm ultrasonic sensors. Allows 90 degree sound deflection, threads on to head of sensor.	36mm		28g	<u>PDF</u>

Accessories for 12mm Sensors

Axial Mounting Bracket

Mounting bracket, axial, available in zinc-plated steel or 316L stainless steel. For use with 12mm sensors. Has two mounting holes (use 3mm screws) and allows the rotation of an optical axis for right-angle adapter sensors. Hexagonal nuts not included.

Accessories for 12mm Sensors				
Part Number	Price	Description	Drawing Link	Weight lb [g]
ST12A	\$2.75	Micro Detectors mounting bracket, axial, zinc plated steel. For use with 12mm sensors.	PDF	0.03 [13.6]
ST12A7W	\$9.75	Micro Detectors mounting bracket, axial, 316L stainless steel. For use with 12mm sensors.	PDF	0.03 [13.6]



[ST12A](#)

Right-angle Mounting Bracket

Mounting bracket, right-angle, zinc-plated steel or 316L stainless steel. For use with 12mm sensors. Has two mounting holes (use 3mm screws) and allows the rotation of an optical axis for axial sensors. Hexagonal screws not included.

Accessories for 12mm Sensors				
Part Number	Price	Description	Drawing Link	Weight lb [g]
ST12C	\$2.75	Micro Detectors mounting bracket, right-angle, zinc plated steel. For use with 12mm sensors.	PDF	0.03 [13.6]
ST12C7W	\$9.75	Micro Detectors mounting bracket, right-angle, 316L stainless steel. For use with 12mm sensors.	PDF	0.03 [13.6]



[ST12C](#)