

# 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

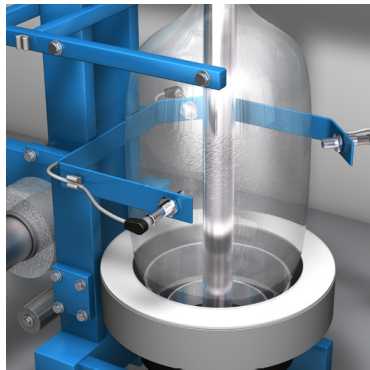
- Smallest ultrasound sensor on the market with up to 100mm range with a focused sound beam
- Transfer of distance information via IO-Link
- Configurable operating modes provide flexible use
- Stable operation with 0.1mm resolution
- Low influence from the environment due to the narrow sound beam

## 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
<a href="#"><u>US08M100G3-T4</u></a>	\$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	<a href="#">PDF</a>

### M12 (12mm) Diffuse Ultrasonic Sensors Tubular US Series

<a href="#"><u>US12M150FBG3-B4</u></a>	\$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	<a href="#">PDF</a>
<a href="#"><u>US12M150FBIU-B4</u></a>	\$310.00	Focused beam	0–10 VDC or 4–20 mA		–			Diagram 2	<a href="#">PDF</a>
<a href="#"><u>US12M200G3-B4</u></a>	\$267.00	20–200mm [0.79–7.87in]	Push-pull NPN or PNP	10 Hz	N.O./N.C. selectable output		12mm diameter x 65mm body [0.47 x 2.56in]	Diagram 1	<a href="#">PDF</a>
<a href="#"><u>US12M200IU-B4</u></a>	\$296.00		0–10 VDC or 4–20 mA		–			Diagram 2	<a href="#">PDF</a>
<a href="#"><u>US12M400G3-B4</u></a>	\$267.00	40–400mm [1.58–15.75in]	Push-pull NPN or PNP	10 Hz	N.O./N.C. selectable output			Diagram 1	<a href="#">PDF</a>
<a href="#"><u>US12M400IU-B4</u></a>	\$296.00		0–10 VDC or 4–20 mA		–			Diagram 2	<a href="#">PDF</a>

### M18 (18mm) Diffuse Ultrasonic Sensors Tubular US Series

<a href="#"><u>US18M800G3-B4</u></a>	\$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	<a href="#">PDF</a>
<a href="#"><u>US18M800IU-B4</u></a>	\$235.00		0–10 VDC or 4–20 mA		–			Diagram 2	<a href="#">PDF</a>
<a href="#"><u>US18M1500G3-B4</u></a>	\$210.00	150–1500mm [5.90–59.05in]	Push-pull NPN or PNP		N.O./N.C. selectable output			Diagram 1	<a href="#">PDF</a>
<a href="#"><u>US18M1500IU-B4</u></a>	\$236.00		0–10 VDC or 4–20 mA		–			Diagram 2	<a href="#">PDF</a>

### M30 (30mm) Diffuse Ultrasonic Sensors Tubular US Series

<a href="#"><u>US30M3000G3-B4</u></a>	\$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	<a href="#">PDF</a>
<a href="#"><u>US30M3000IU-B4</u></a>	\$375.00		0–10 VDC or 4–20 mA		–			Diagram 2	<a href="#">PDF</a>
<a href="#"><u>US30M6000G3-B4</u></a>	\$410.00	600–6000mm [23.62–236.22in]	Push-pull NPN or PNP	2 Hz	N.O./N.C. selectable output		30mm diameter x 78mm body [1.18 x 3.07in]	Diagram 1	<a href="#">PDF</a>
<a href="#"><u>US30M6000IU-B4</u></a>	\$450.00		0–10 VDC or 4–20 mA		–			Diagram 2	<a href="#">PDF</a>



# Ultrasonic Sensors Tubular US Series

## Wiring Diagrams

Diagram 1

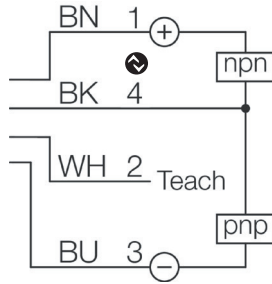
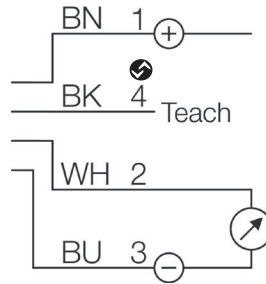
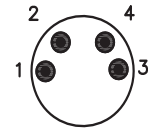


Diagram 2

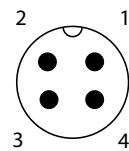


**For sensors with N.O./N.C. Selectable Outputs; Connect Teach PIN 2 (WH) with +V PIN 1 (BN) >6s to change the operating mode.**

Connectors  
M8 Connector



M12 Connector





# Ultrasonic Sensors Tubular US Series

M18 (18mm) Specifications				
Part Number	<u>US18M800G3-B4</u>	<u>US18M800IU-B4</u>	<u>US18M1500G3-B4</u>	<u>US18M1500IU-B4</u>
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)	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)	0–10V, 4–20 mA, 0–20 mA (Pin 2), Teach, Out 1, IO-Link, multiplex, synchronization (PIN 4)
Switch Current	150 mA max.			
Voltage Drop max.	2V			
Nominal Switching Distance (sn)	800mm		1500mm	
Range	80–800mm		150–1500mm	
Adjustment Range	80–800mm (Teach in)		150–1500mm (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)
Switching Hysteresis	2–20mm max. (adjustable up to 20mm by IO-Link)		6 mm max. (adjustable up to 20mm via IO-Link)	
Reproducibility	<1mm			
Linearity Error	–	<0.5%	–	<0.5%
Measuring Frequency	–	100 Hz	–	100 Hz
Ultrasonic Frequency	200 kHz			
Switching Frequency	<5 Hz			
Readiness Delay	300 ms max.			
Parallel Operation	No	Yes	No	Yes
Inverse Polarity Protection	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			
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
<a href="#"><u>US-UW-12</u></a>	\$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	<a href="#"><u>PDF</u></a>
<a href="#"><u>US-UW-18</u></a>	\$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	<a href="#"><u>PDF</u></a>
<a href="#"><u>US-UW-30</u></a>	\$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	<a href="#"><u>PDF</u></a>

# Accessories for 18mm Sensors

## Axial Mounting Bracket

Axial mounting bracket available in zinc-plated steel or 316L stainless steel. Has two mounting holes (use 4mm screws) and allows for rotation of an optical axis for right-beam-angle-adaptor sensors. Hexagonal nuts not included. For use with 18mm sensors.

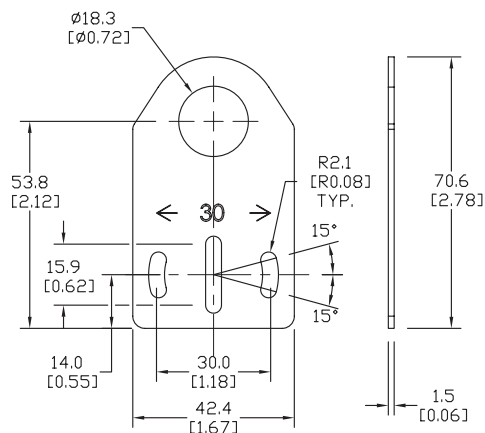


**ST18A**

Accessories for 18mm Sensors			
Part Number	Price	Description	Weight lb [g]
<b>ST18A</b>	\$2.75	Micro Detectors mounting bracket, axial, zinc plated steel. For use with 18mm sensors.	0.06 [27.2]
<b>ST18A7W</b>	\$9.75	Micro Detectors mounting bracket, axial, 316L stainless steel. For use with 18mm sensors.	0.06 [27.2]

## Dimensions

mm [inches]



## Right-angle Mounting Bracket

Right-angle mounting bracket for use with 18mm sensors. Has two mounting holes (use 4mm screws) and allows the rotation of an optical axis for axial sensors. Hexagonal nuts not included.



**ST18C**

Accessories for 18mm Sensors			
Part Number	Price	Description	Weight lb [g]
<b>ST18C</b>	\$2.75	Micro Detectors mounting bracket, right-angle, zinc plated steel. For use with 18mm sensors.	0.06 [27.2]
<b>ST18C7W</b>	\$9.75	Micro Detectors mounting bracket, right-angle, 316L stainless steel. For use with 18mm sensors.	0.06 [27.2]

## Dimensions

mm [inches]

