



TOPOSENS

ECHO ONE[®]

3D Ultrasonic Echolocation and Ranging Sensor



Data Sheet V1.0 | 07/2022

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The most recent version of this document can be found at toposens.com/downloads

Technical Data

Features

Technology	3D Ultrasonic Echolocation and Ranging
Detection Range	Up to 3000 mm*
Field-of-View	±55° Horizontal (±80° when Target <100 cm) ±55° Vertical (±80° when Target <100 cm)
Range Resolution	Typical Accuracy: 1 cm Typical Precision: ±2.5 cm
Positional Resolution (Azimuth and Elevation)	±0.2 cm per Degree
Signal Source	40 kHz

* Target: 75 mm pole centered in front of the sensor

Electrical

Nominal Supply Voltage	12 V DC
Operating Voltage Range	10V - 30 V DC
Current Consumption typ. (12 V)	170 mA
Peak Current Consumption (12V)	700 mA
Power Consumption avg. (12V)	2.0 W

Performance

Response Time	< 100 ms
Startup Delay	< 5000 ms

Interface

Proprietary Private CAN	ISO 11898-2:2016 / CAN 2.0A
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Environmental

Ambient operating temperature	-10 °C to 50 °C
Storage temperature	-20 °C to 70 °C
Enclosure rating	IP67, Front and Back (pending)
Connector rating (mated)	IP67

Compliance

EMC	EN 55011 Group 1 Class A EN 61326-1:2021 EN 61000-4-2 EN 61000-4-3 EN 61000-4-4 EN 61000-4-6 FCC 47CFR Part 15: Subpart B - Class A ICES-003 Issue 7
Declaration of conformity	CE, FCC, RoHS
Protection class	III (EN 61140)
Product Safety	EN 61010-1:2010 (pending)

Resources

Additional Documentation and Software	https://toposens.com/members/
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Dimensions

Outline Dimensions [LWH]	125 mm x 56 mm x 42 mm (excl. Cable)
Weight	160 g (excl. Cable)

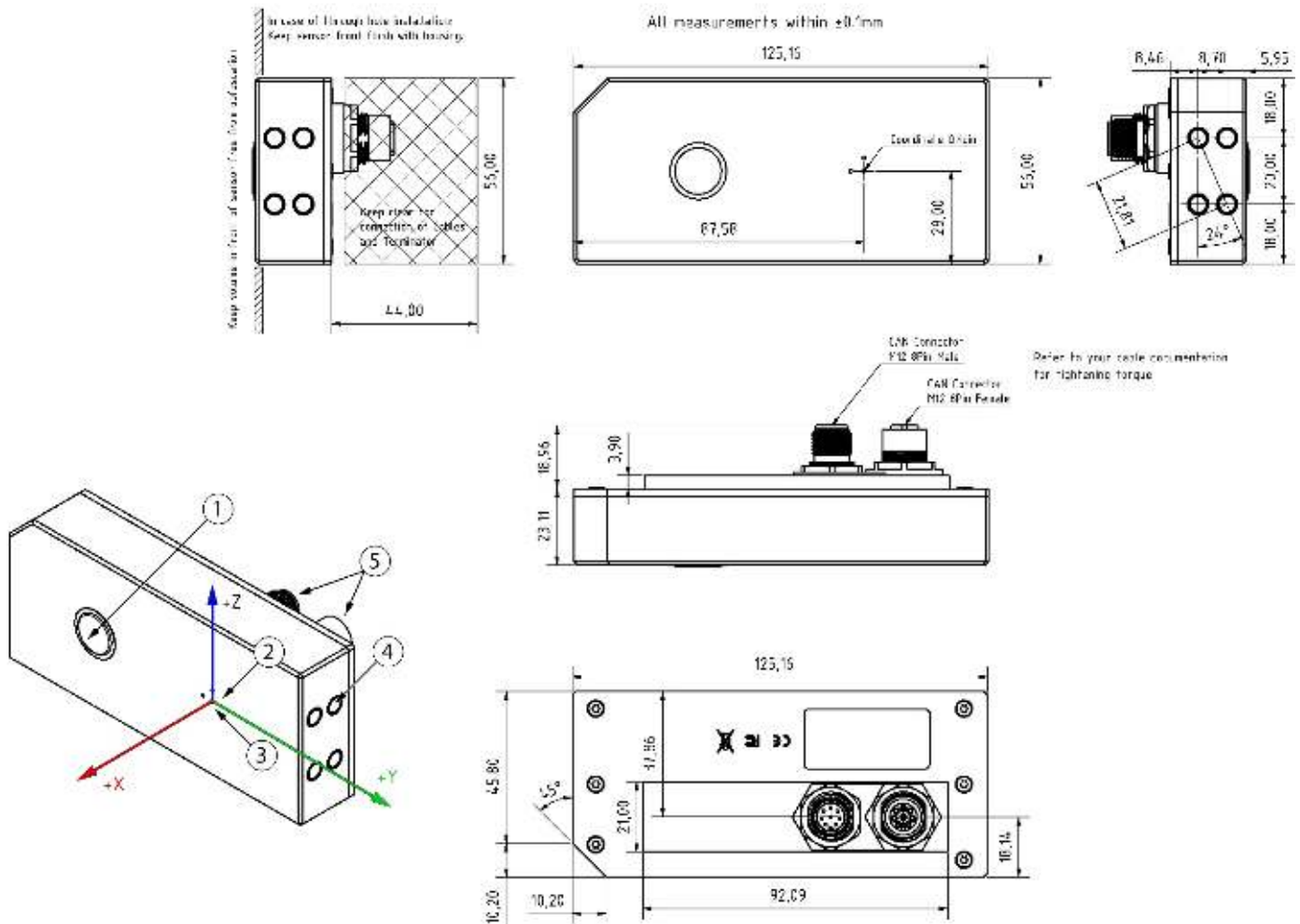
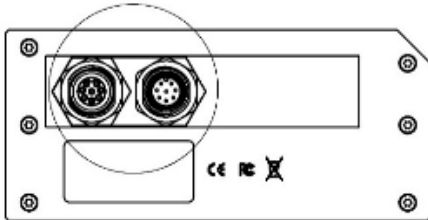


Figure 1 - Sensor Dimensions

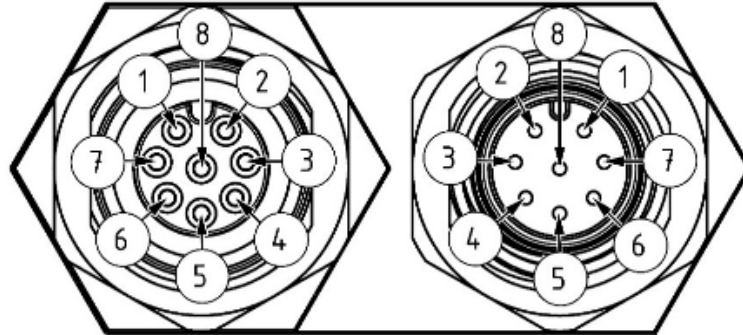
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|----|--|
| 1. | Transducer |
| 2. | Microphone receiver array |
| 3. | Acoustic Axis |
| 4. | M5 threads, 5 mm deep (8x) |
| 5. | M12 A-coded 8Pin Connectors, Male and Female |

Pinout

Sensor Connectors



Sensor Connectors: Detail View



M12 A-Coded 8-Pin Female

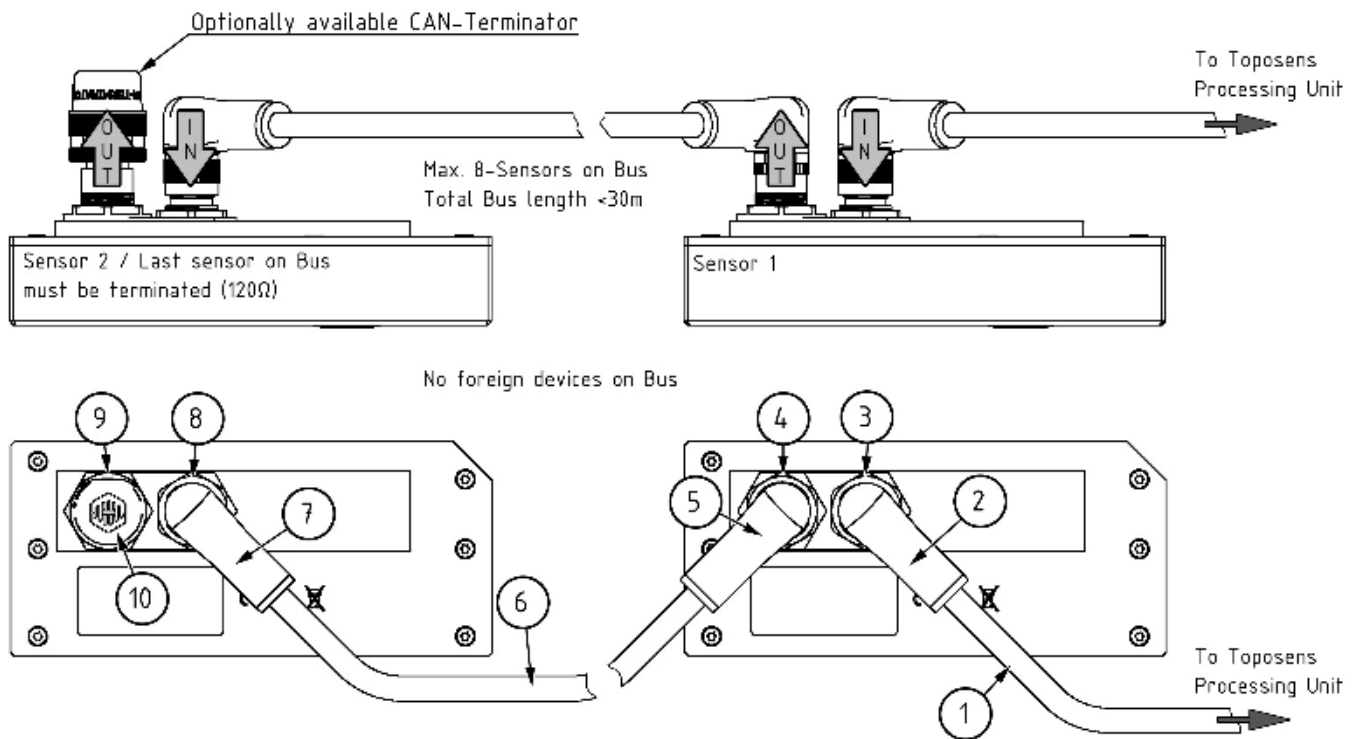
Pin No.	Function
1	+Vout
2	+Vout
3	Reserved / Shield
4	Reserved / Shield
5	-Vout
6	CAN_L
7	CAN_H
8	-Vout
Shield	CAN GND/Shield

M12 A-Coded 8-Pin Male

Pin No.	Function
1	+Vin
2	+Vin
3	Reserved / Shield
4	Reserved / Shield
5	-Vin
6	CAN_L
7	CAN_H
8	-Vin
Shield	CAN GND/Shield

Network

System Fuse (with Toposens Processing Unit) **4AT**



Number	Part Name
1	Cable to Toposens Processing Unit
2	M12 A-Coded 8-Pin Female Cable Connector
3	M12 A-Coded 8-Pin Male Sensor Connector
4	M12 A-Coded 8-Pin Female Sensor Connector
5	M12 A-Coded 8-Pin Male Cable Connector
6	Cable between Echo ONE sensors
7	M12 A-Coded 8-Pin Female Cable Connector
8	M12 A-Coded 8-Pin Male Sensor Connector
9	M12 A-Coded 8-Pin Female Sensor Connector
10	M12 Terminator Male

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