



TOPOSENS

ECHO ONE®

3D Ultrasonic Echolocation and Ranging Sensor



Data Sheet V1.0 | 07/2022

The content of this document is subject to change without notice.
The most recent version of this document can be found at toposens.com/downloads

ECHO ONE®

Data Sheet

Features

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	< 360 ms
Startup Delay	< 5000 ms

Interface

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

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/
---------------------------------------	---

Dimensions

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

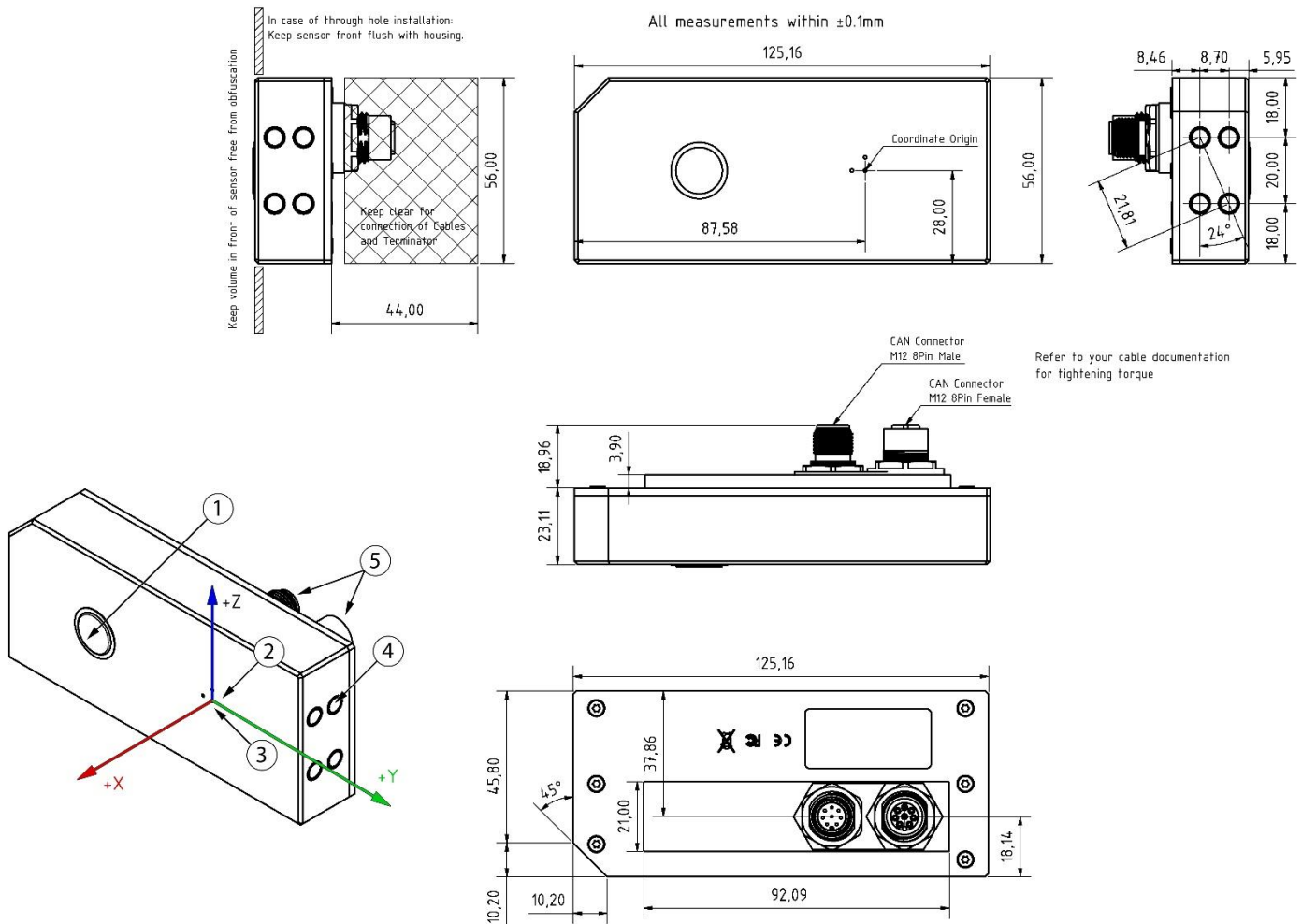
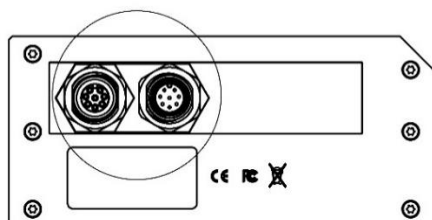


Figure 1 - Sensor Dimensions

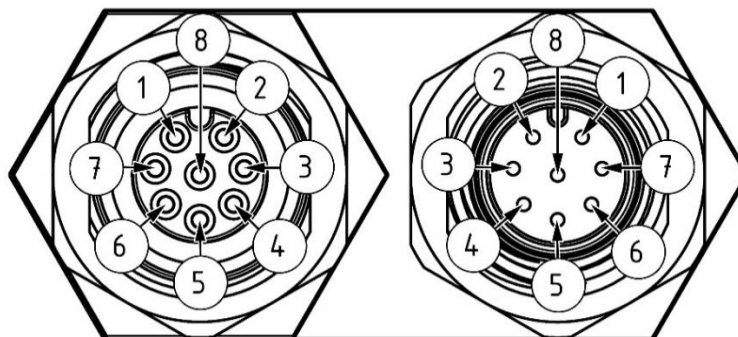
1. Transducer
2. Microphone receiver array
3. Acoustic Axis
4. M5 threads, 5 mm deep (8x)
5. M12 A-coded 8Pin Connectors, Male and Female

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

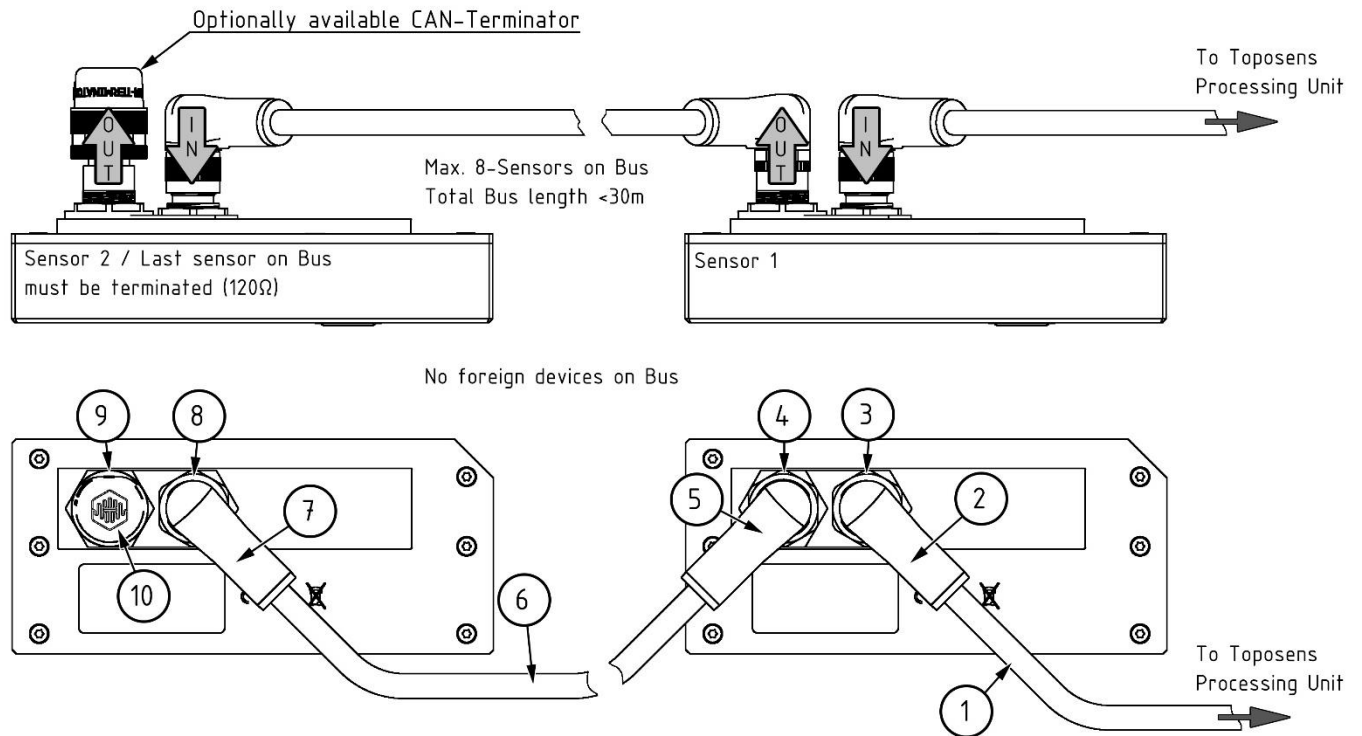
M12 A-Coded 8-Pin Male

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)

2AT



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

MEYSENS GmbH

Wilhelm-Wagenfeld-Str. 24
80807 Munich
Germany
www.toposens.com
+49 089 23751540

Document Version: V 1.0
Release Date: July 2022

MEYSENS reserves the right to change specifications and information in this document without notice.