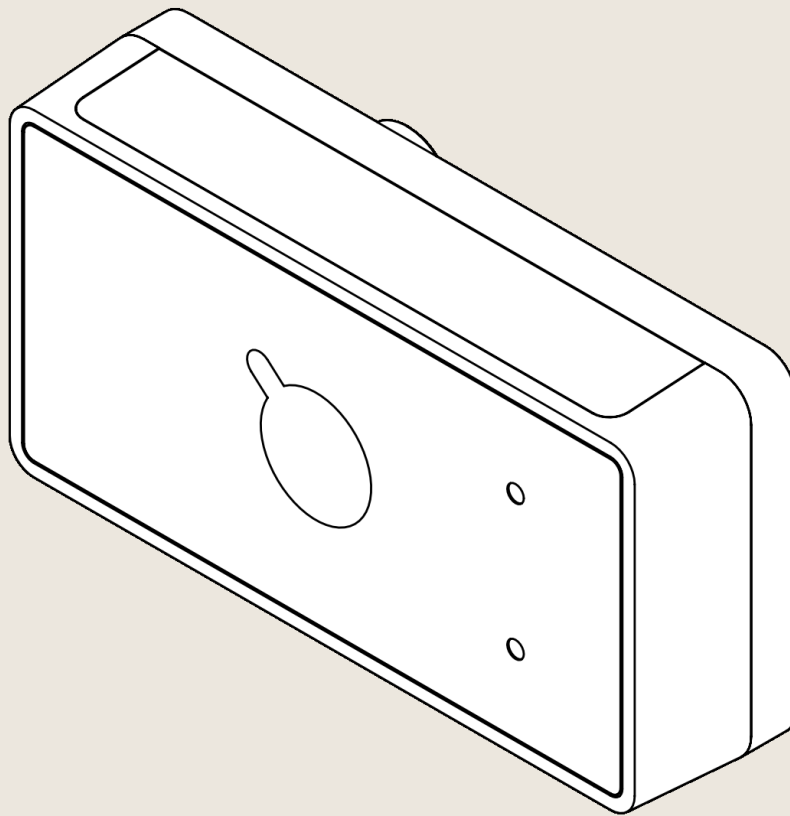


+ Sonair



ADAR

Sound, simple, safe: 3D obstacle detection for autonomous mobile robots

Preliminary Technical Datasheet | Version 1.5

Details in this document are subject to change without notice.
2025-10-23

Sonair ADAR



DISCLAIMER:

Details in this document are subject to change without notice



Features

Detection range	0 - 4 m
Detection capability	Ø30 mm cylinder up to 3 m
Range precision	± 2 cm
Angular precision	± 2° (center), ± 10° (edge)
Field-of-view	180° by 180°
Ultrasonic frequency	70-85 kHz
Multiple devices inside the detection range	Yes
Frame rate	18 Hz
Response time	112 ms
Number of simultaneously monitored zones ¹⁾	3
Number of zone presets ¹⁾	128

¹⁾ 1x safe protective zone, 2x warning zones per preset

Interfaces

Safe output	1 OSSD Pair Protective Zone
Outputs	2 status outputs - Inner warning zone - Outer warning zone
Safe inputs	11 static control inputs Zone select
Data interface	1 Ethernet 3D point cloud (COAP over UDP/IP) - Configuration (TCP/IP)
Display elements	2 bicolor LEDs - OSSD status - System and warning zone status

Electrical

Power consumption	5 W (without output load)
Supply voltage	24 V DC (18 V to 28 V DC) (SELV/PELV)

Environmental

Ingress protection	IP 64
Vibration	In accordance with IEC 61496-1, class 5M1
Shock	In accordance with IEC 61496-1, class 5M2
Operating temperature	-10° to +50° C
Storage temperature	-20° to +60° C

Compliance

Conformity	CE, UKCA, FCC (pending), PSE (pending)
Electromagnetic compatibility	IEC 61000-6-1, IEC 61000-6-2, IEC 61000-6-3, IEC 61000-6-4 and IEC 61000-6-7

Safety parameters

The product is designed with the following intended safety functionality. All details in the following table are pending.

Safety integrity level	SIL2 (IEC 61508)
Performance level	PL d, Cat. 2 (EN ISO 13849)
PFH _d (mean probability of a dangerous failure per hour)	< 1.55E-7
MTTF _d (mean time to dangerous failure)	>36 years

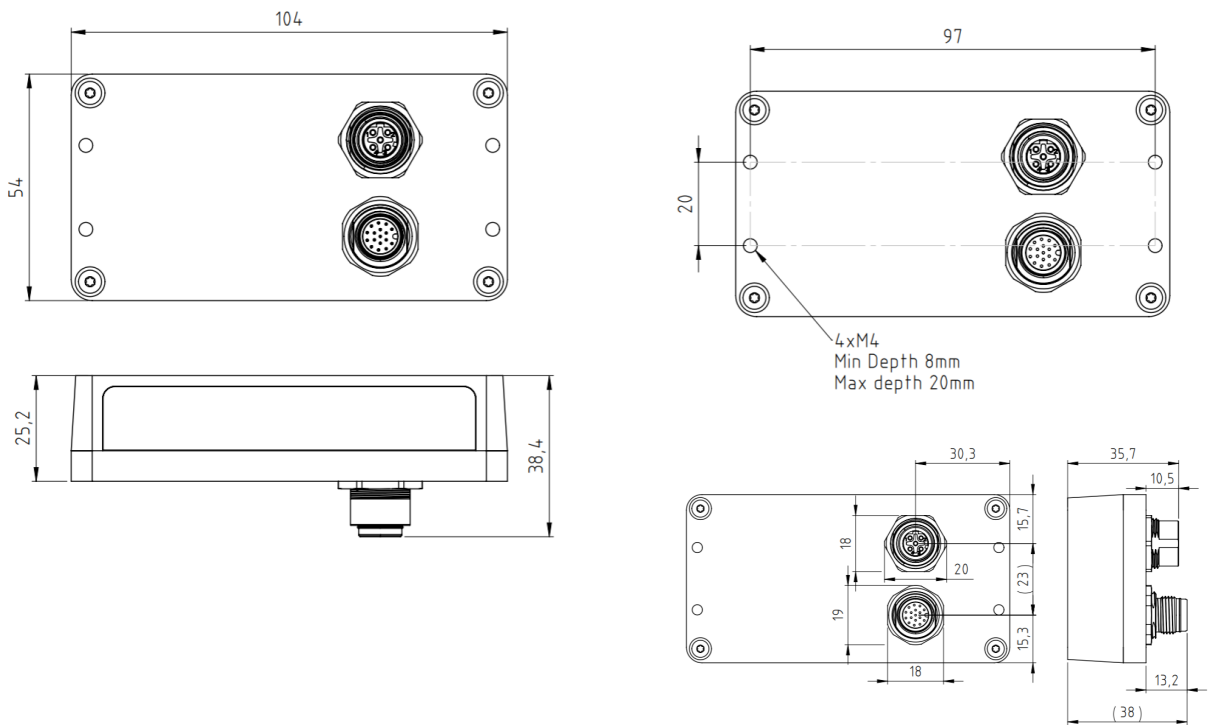
Mechanical dimensions

Size	Height 54 mm, width 104 mm, depth 25 mm, excluding connector and cables.
Weight	0.2 kg



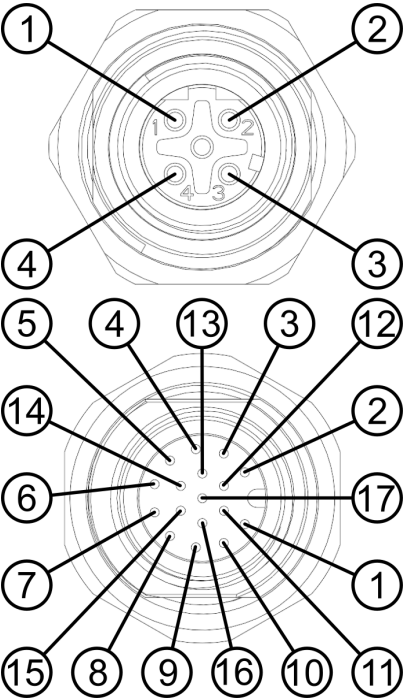
Draft dimensions!

Sensor dimensions. Unit: mm



Pinout

Sensor connectors:



Ethernet 100Mb

- M12 D-coded 4-pin **female** connector

Pin	Designation	Function
1	TX+	Send data +
2	RX+	Receive data +
3	TX-	Send data -
4	RX-	Receive data -
Thread	SH	Shielding

I/O and power

- M12 A-coded 17-pin **male** connector

Pin	Designation	Function
1	PWR_IN	Supply voltage +24 V DC
2	PWR_RET	Supply voltage 0 V DC
3	OSSD0	OSSD0 output
4	OSSD1	OSSD1 output
5	ZONE_SELECT0	Safe input bit 0
6	ZONE_SELECT1	Safe input bit 1
7	ZONE_SELECT2	Safe input bit 2
8	ZONE_SELECT3	Safe input bit 3
9	ZONE_SELECT4	Safe input bit 4
10	ZONE_SELECT5	Safe input bit 5
11	ZONE_SELECT6	Safe input bit 6
12	ZONE_SELECT7	Safe input bit 7
13	ZONE_SELECT8	Safe input bit 8
14	ZONE_SELECT9	Safe input bit 9
15	INNER_WARNING	Inner warning zone output
16	OUTER_WARNING	Outer warning zone output
17	ZONE_SELECT10	Safe input bit 10
Thread	SHIELD	Shielding