

# Product data sheet

## OndoSense *apex* HP

Distance radar sensor for harsh environments



**ONDOSENSE**  
*apex*



## Technical Data

### General data

Radar frequency (FMCW)	119 - 125 GHz (selectable) 122 - 123 GHz
Radiation power	EIRP < 100 mW
MTTF	> 105 years
Opening angle	$\pm 1.5^\circ$ (3°)
Measurement range	0.30 - 8.00 m (calibrated range 0.1 - 1.4 m)
Measurement rate	up to 800 Hz
Output rate via RS485	100 Hz
Linearity	< $\pm 700 \mu\text{m}$ (for calibrated range up to 1.4 m)
Repeatability	up to $\pm 1 \mu\text{m}$ (in High Precision Mode)

### Mechanical data

Dimensions (W x H x D)	80.0 mm x 79.2 mm x 75.0 mm
Housing material	Die-cast aluminum, painted
Lens material	PTFE
Connection	M12, 8-pin, A-coded male connector
Weight	415 g

### Environmental data

Protection class	IP67
Operating temperature	-40 ... + 70 °C
Storage temperature	-40 ... + 85 °C
EMC	IEC 61496-1, IEC 61000-6-2, IEC 61000-6-4

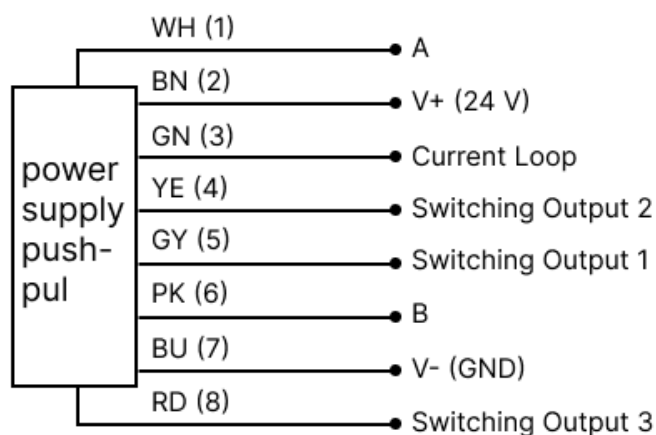
### Electrical data

Power supply	24.0 V DC (3.5 - 40 V) <sup>1</sup>
Power consumption	60 mA (at 24 V DC)
Power dissipation	1.44 W
Reverse voltage protection	yes
Communication interface	RS485 (half-duplex mode)
Switching outputs	3x push-pull (PNP/NPN)
Analog outputs	Current loop (4 - 20 mA)

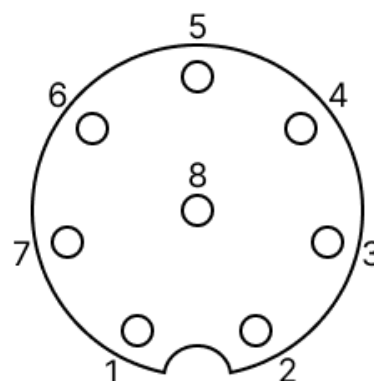
<sup>1</sup>Switching outputs (10 V - 40 V) and Analog output (8 V - 40 V)

## Connection

V+ (24 V) and V- (GND) are used for the power supply. The pins A and B are used for RS485 data exchange. These 4 pins are needed for operating the sensor with RS485 communication. The sensor can be connected with an 8-pin a-coded M12 cable. Additional pins are the 3 switching outputs and the current loop.



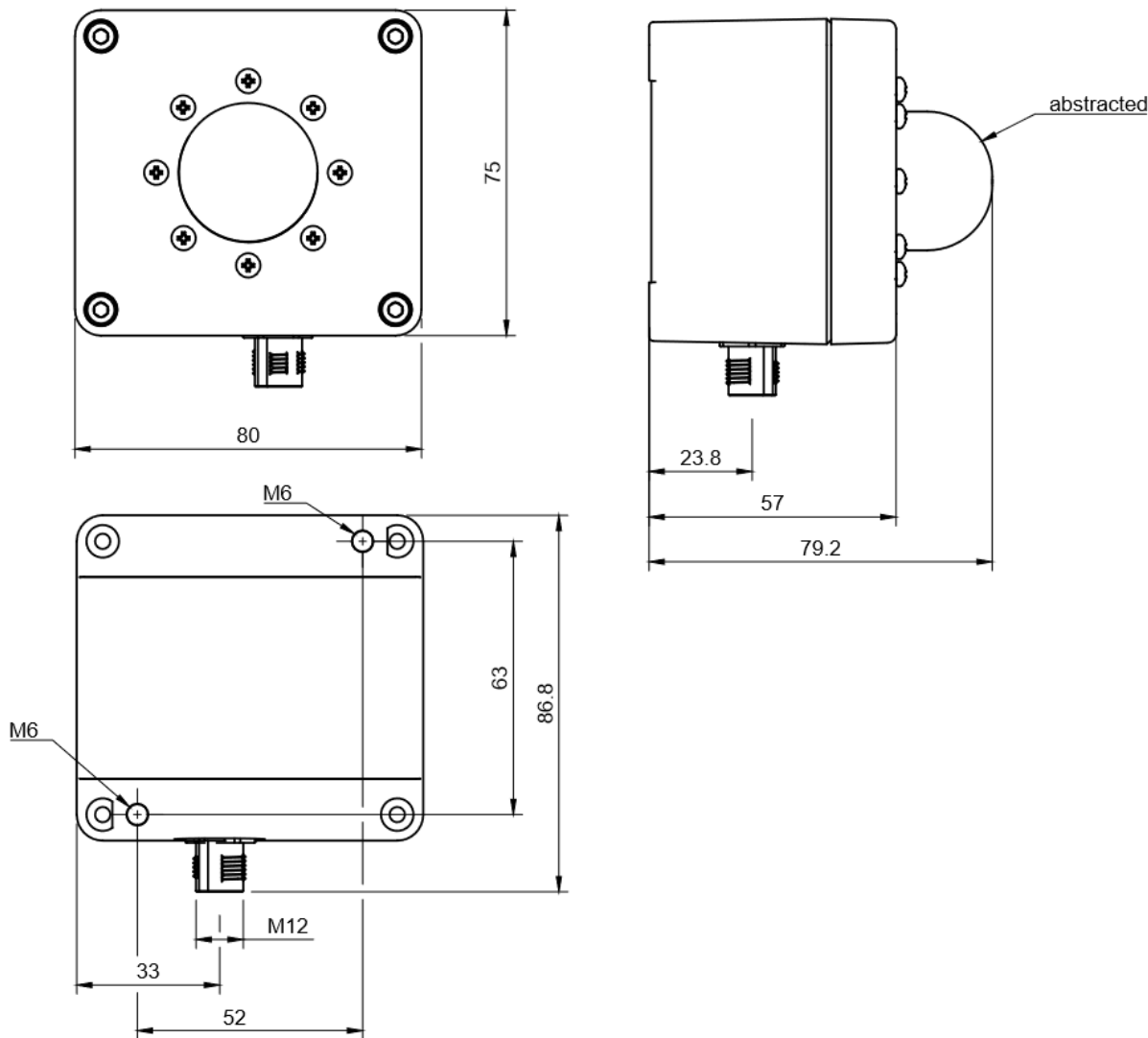
Pinout diagram sensor




M12 8-pin a-coded male layout

## Dimensional Drawings

The lens geometry has been abstracted. All offered lenses will fit within the envelope.



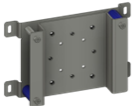
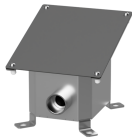
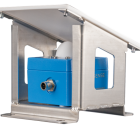
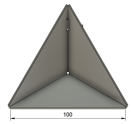

Accessories:

Name	Description	Ordering Nr.
Install		
 OndoSense Mounting Plate	Static front-mounting of OndoSense apex	MB.A000.1000

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## OndoSense *apex* HP



Name	Description	Ordering Nr.
 OndoSense AngleControl	Precise alignment of OndoSense apex	MB.X200.1000
<b>Protect</b>		
 OndoSense AirChill	Engineered with a sealed, air-cooled housing for extreme radiant heat environments, such as from molten metal, with resistance up to 1600°C. Short-term exposure tolerance up to 700°C, suitable for ambient temperatures up to 120°C	PS.2110.1000
 OndoSense HeatShield	Optimized for high radiant heat environments, like molten metal, with a built-in shield against thermal radiation, as long as ambient temperatures stay within sensor limits.	PS.1110.1000
<b>Reflect</b>		
 CornerCube - 100	Increases the signal strength and the possible angle between sensor and target. RCS: 70 m <sup>2</sup>	CC.0100.1000
 CornerCube - 250	Increases the signal strength and the possible angle between sensor and target. RCS: 2732 m <sup>2</sup>	CC.0250.1000