



WINDCAP® Ultrasonic Wind Sensor WXT532



Features

- Triangular design ensures excellent data availability
- Maintenance-free with no moving parts
- Optional heating available
- Compact, durable, and robust
- Low power consumption
- IP66 housing with mounting kit
- mA output suitable for industrial applications
- Cost-effective
- Optional accredited wind calibration (MEASNET) available

Vaisala WINDCAP® Ultrasonic Wind Sensor WXT532 is designed for demanding applications where stable and inexpensive wind measurements are required.

Proven Vaisala performance

WXT532 incorporates decades of Vaisala experience in wind measurement using ultrasound to determine horizontal wind speed and direction. With no moving parts, the sensor has high sensitivity as the measurement time constant and starting threshold are virtually zero. This makes it superior to conventional mechanical wind sensors.

WXT532 is designed to operate without periodic field calibration and maintenance.

Applications

WXT532 is ideal for use in marine applications as the housing with the mounting kit is water resistant. The sensor is also suitable for environmental monitoring, for example, for measuring wind speed and direction in automatic weather stations.

Easy to install

WXT532 is delivered fully assembled and configured from the factory. With Vaisala configuration software tool you can change the settings, such as averaging times, output mode, update intervals, measured variables, and message contents.

The sensor can be mounted either on top of a pole mast or on a cross arm. When using the optional mounting kit, the north alignment needs to be performed only once.

Heating

The optional heating available in WXT532 assists measurements in freezing or snowy weather conditions and in humid environments.

Since the heating circuit is independent of the operation power, separate power supplies can be used. Heating is switched on automatically at low temperatures, well before the freezing point.

Low power consumption

WXT532 has very low power consumption: in idle mode the device typically consumes about 2 ... 3 mW.

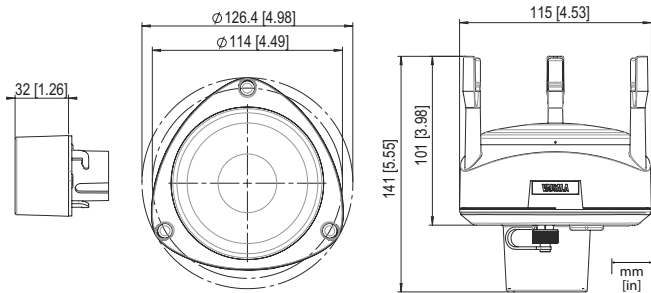
Technical data

Wind measurement performance

Wind speed	
Observation range	0 ... 60 m/s (134 mph)
Reporting range	0 ... 75 m/s (168 mph)
Response time	0.25 s
Available variables	Average, maximum, and minimum
Accuracy	±3 % at 10 m/s (22 mph)
Output resolution	0.1 m/s (km/h, mph, knots)
Wind direction	
Azimuth	0 ... 360°
Response time	0.25 s
Available variables	Average, maximum, and minimum
Accuracy	±3.0° at 10 m/s (22 mph)
Output resolution	1°
Wind measurement frame	
Averaging time	1 ... 3600 s, sample rate 1, 2, or 4 Hz (configurable)
Update interval	1 ... 3600 s (= 60 min), at 1 s steps

Inputs and outputs

Operating voltage	6 ... 24 V DC (-10 ... +30 %)
Average power consumption	Minimum: 0.1 mA at 12 V DC (SDI-12 standby) Typical: 3.5 mA at 12 V DC (typical measuring intervals) Maximum: 15 mA at 6 V DC (constant measurement of all parameters)
Heating voltage	DC, AC, or full-wave rectified AC 12 ... 24 V DC (-10 ... +30 %) 12 ... 17 V AC _{rms} (-10 ... +30 %)
Typical heating current	12 V DC: 800 mA, 24 V DC: 400 mA
Digital outputs	SDI-12, RS-232, RS-485, RS-422
Communication protocols	SDI-12 v1.3, Modbus RTU, ASCII automatic and polled, NMEA 0183 v3.0 with query option



WXT532 analog mA output options

When the analog output option is applied, digital communication is not available.

Wind speed	0 ... 20 mA or 4 ... 20 mA
Wind direction	0 ... 20 mA or 4 ... 20 mA

Options and accessories

Vaisala configuration tool and USB service cable SP	220614
Cable USB RS-232/RS-485 1.4 m USB M12 SP	220782
Cable 2 m shielded 8-pin M12 SP	222287
Cable 10 m shielded 8-pin M12 SP	222288
Cable 40 m shielded 12-pin, open end wires SP	217020
Cable USB with power supply RS-232 / 485 USB/ M12SP / 100-240 VAC	263193SP
Cable 10 meter shielded 8-pin M12	CBL210679
Cable 50 m shielded 8-pin M12, open end wires	245931
Bushing and grounding accessory kit	222109
Mounting kit	212792
Mounting accessory between mounting kit and 60 mm tube	WMSFIX60
Bird kit	212793

Operating environment

Operating environment	Outdoor use
Operating temperature	-52 ... +60 °C (-60 ... +140 °F)
Storage temperature	-60 ... +70 °C (-76 ... +158 °F)
Operating humidity	0 ... 100 %RH
Operating pressure	500 ... 1100 hPa
Wind ¹⁾	0 ... 60 m/s (0 ... 134 mph)
IP rating	Without mounting kit: IP65 With mounting kit: IP66

¹⁾ Due to the measurement frequency used in the sonic transducers, RF interference in the 200 ... 400 kHz range can disturb wind measurement.

Mechanical specifications

Dimensions (H × Ø)	141 × 114 mm (5.48 × 4.49 in)
Weight	510 g (1.12 lb)
Materials	
Radiation shield, top, and bottom parts	Polycarbonate +20 % fiberglass
Precipitation sensor plate	Stainless steel (AISI 316)

Compliance

EU directives and regulations	LVD, EMC, RoHS
EMC compatibility	EN 61326-1, industrial environment CISPR 32 / EN 55032, Class B
Environmental	IEC 60068-2-1, 2, 6, 14, 30, 31, 52, 78 IEC 60529, VDA 621-415
Maritime	IEC 60945 (Exposed)
Compliance marks	CE, RCM, RoHS, China RoHS, UKCA

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