VAISALA

Weather Transmitter WXT530 Series

Features

- Right parameter combination
- Easy to use and integrate
- Weather parameter hub
- Analog sensors can be added
- Compact, light-weight
- Low power consumption
- mA output suitable for industrial applications
- Cost-effective
- DNV GL Type Examination

Vaisala Weather Transmitter WXT530 is a unique series of sensors with parameter combinations that allow you to choose what is right for your application. WXT530 is a flexible, integrated building block for weather applications. WXT530 series improves your grip on weather.

Flexibility

WXT530 is a series of weather instruments that provides 6 of the most important weather parameters: air pressure, temperature, humidity, rainfall, wind speed and direction through various combinations. You can select the transmitter with the needed parameter(s) into your weather application, with a large variety of digital communication modes and wide range of voltages. A heated option is available. Low power consumption enables solar panel applications. WXT530 Series focuses on maintenance-free operations in a cost-effective manner.

Integration

The series offers analog input options for additional third-party analog sensors. With the help of the built-in analog-to-digital converters, you can turn WXT530 into a small, cost-effective weather parameter hub.

Additional parameters include solar radiation and external temperature sensor. Further, the analog mA output for wind speed and wind direction enables a wide variety of industrial applications. WXT530 exceeds IEC60945 maritime standard.

Solid Performance

WXT530 Series has a unique Vaisala solid state sensor technology. To measure wind, Vaisala WINDCAP® ultrasonic wind sensors are applied to determine horizontal wind speed and direction. Barometric pressure, temperature, and humidity measurements are combined in the PTU module using capacitive measurement for each parameter. This module is easy to change without any contact with the sensors. The precipitation measurement is based on the unique acoustic Vaisala RAINCAP® Sensor without flooding, clogging, wetting, and evaporation losses.

TYPE APPROVED PRODUCT
DNV·GL
DNVGL.COM/AF

DNV GL TYPE EXAMINATION CERTIFICATE No. TAA00000VF

Technical Data

Available options	Rain	Wind speed, Wind direction	Pressure, Temperature, Relative Humidity	Analog inputs	2 × mA outputs
WXT531	✔				
WXT532		✔			✔
WXT533	✔	✔			
WXT534			✔		
WXT535	✔		✔		
WXT536	✔	✔	✔	✔	

Barometric Pressure Measurement Performance

Observation range	600 … 1100 hPa
Accuracy (for sensor element)	±0.5 hPa at 0 … +30 °C (+32 … +86 °F) ±1 hPa at −52 … +60 °C (−60 … +140 °F)
Output resolution	0.1 hPa / 10 Pa / 0.001 bar / 0.1 mmHg / 0.01 inHg

Air Temperature Measurement Performance

Observation range	−52 … +60 °C (−60 … +140 °F)
Accuracy (for sensor element) at +20 °C (+68 °F)	±0.3 °C (±0.54 °F)
Output resolution	0.1 °C (0.1 °F)

Relative Humidity Measurement Performance

Observation range	0 … 100 %RH
Accuracy (for sensor element)	±3 %RH at 0 … 90 %RH ±5 %RH at 90 … 100 %RH
Output resolution	0.1 %RH

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°
Averaging time	1 … 3600 s (= 60 min), at 1 s steps, on the basis of samples taken at 4, 2, or 1 Hz rate (configurable)

Mechanical Specifications

IP rating	Without mounting kit: IP65 With mounting kit: IP66
Weight	
WXT534, WXT535, WXT536	0.7 kg (1.54 lbs)
WXT531, WXT532, WXT533	0.5 kg (1.1 lbs)

Precipitation Measurement Performance

Rainfall	Cumulative accumulation after the latest automatic or manual reset
Collecting area	60 cm^2 (9.3 in^2)
Output resolution	0.01 mm (0.001 in)
Field accuracy for daily accumulation	Better than 5 %, weather-dependent
Rain	
Duration	Counting each 10-second increment whenever droplet detected
Duration output resolution	10 s
Intensity	Running 1-minute average in 10-second steps
Intensity observation range	0 … 200 mm/h (0 … 7.87 in/h) (broader range with reduced accuracy)
Intensity output resolution	0.1 mm/h (0.01 in/h)
Hail	Cumulative amount of hits against collecting surface
Duration	Counting each 10-second increment whenever hailstone detected
Output resolution	0.1 hits/cm^2 (1 hits/in^2), 1 hit
Intensity	1-minute running average in 10-second steps
Duration output resolution	10 s
Intensity output resolution	0.1 hits/cm^2h (1 hits/in^2h), 1 hit/h

Inputs and Outputs

Operating voltage	6 … 24 VDC (−10 … +30 %)
Average power consumption	Minimum: 0.1 mA at 12 VDC (SDI-12 standby) Typical: 3.5 mA at 12 VDC with typical measuring intervals Maximum: 15 mA at 6 VDC (with constant measurement of all parameters)
Heating voltage	Options: DC, AC, full-wave rectified AC 12 … 24 VDC (−10 … +30 %) 12 … 17 VACrms (−10 … +30 %)
Typical heating current	12 VDC: 0.8 A 24 VDC: 0.4 A
Digital outputs	SDI-12, RS-232, RS-485, RS-422
Communication protocols	SDI-12 v1.3 ASCII automatic and polled NMEA 0183 v3.0 with query option

Analog Input Options

Solar radiation	Kipp & Zonen CMP3
Level measurement	IRU-9429
Tipping bucket rain gauge	Vaisala Rain Gauge RG13
Temperature	Pt1000

Analog mA Output Options

Wind speed	0 … 20 mA or 4 … 20 mA
Wind direction	0 … 20 mA or 4 … 20 mA
Load impedance	Max. 200 Ω

Operating Environment

Operating temperature	−52 ... +60 °C (−60 ... +140 °F)
Storage temperature	−60 ... +70 °C (−76 ... +158 °F)
Relative humidity	0 ... 100 %RH
Pressure	600 ... 1100 hPa
Wind [1)]	0 ... 60 m/s (0 ... 134 mph)

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

Compliance

EMC compliance	IEC 61326-1 IEC 60945 IEC 55022:2010 Class B
Environmental	IEC 60068-2-1, 2, 6, 14, 30, 31, 52, 78 IEC60529 VDA 621-415
Maritime	DNVGL-CG-0339 IEC 60945

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