



Weather Transmitter

Single device that measures
wind speed & direction,
precipitation,
barometric pressure,
temperature and relative humidity

Overview

The WXT520 Weather Transmitter, manufactured by Vaisala, measures wind speed and direction, precipitation, barometric pressure, temperature, and relative humidity - all in a single device that has no moving parts. The WXT520 outputs an SDI-12 signal that can be measured by many of our dataloggers. The WXT520 is about the size of a larger Gill radiation shield, making it ideal for use with our CR200-series dataloggers in applications requiring quick, short-term deployment. However, the WXT520 is not intended for weather stations that require research-grade performance.

Wind Speed and Direction

The WXT520's wind sensor consists of three equally spaced transducers that produce ultrasonic signals. Wind speed and direction are determined by measuring the time it takes for the ultrasonic signal of one transducer to travel to the other transducers.

Precipitation

Precipitation is measured one raindrop at a time. Whenever a raindrop hits the precipitation sensor, an electrical signal is produced that is proportional to the volume of the drop. From this signal, precipitation is calculated.

Barometric Pressure, Temperature, and Relative Humidity (RH)

The WXT520 has a PTU module that contains a capacitive silicon BAROCAP® sensor for barometric pressure measurements, a capacitive ceramic THERMOCAP® sensor for air temperature measurements, and a capacitive thin film polymer HUMICAP® sensor for relative humidity (RH) measurements. The PTU is housed in a naturally-aspirated radiation shield that protects the PTU and reflects solar radiation.

Mounting

A simple mounting tube is available for the WXT520. The mounting tube fastens to a CM202, CM204, or CM206 crossarm via a 008285 NU-RAIL fitting.

The #25299 is an optional mounting kit for the WXT520. It provides better water protection. When using the #25299, the WXT520's IP classification is IP66; otherwise its classification is IP65. The #25299 fastens to a crossarm via the 008285 NU-RAIL fitting.

Benefits and Features

- › Single device that measures wind speed and direction, precipitation, barometric pressure, temperature and relative humidity
- › No moving parts
- › Ideal for use with CR200-series dataloggers
- › Housed in radiation shield that protects the unit and reflects solar radiation
- › An optional bird spike kit can be added to discourage birds from roosting without harming the birds and with minimal interference to performance



Bird Spike Kit

The #25300 Bird Spike Kit is used to discourage birds from roosting on the WXT520. This kit is fastened on top of the WXT520. It consists of a metallic band with spikes pointing upward. The spike's shape and location ensure minimal interference of wind and rain measurements. The spikes are designed not to hurt the birds. Please note that when the kit is attached to the WXT520, more snow can accumulate on the WXT520, and the snow may melt slower.

Specifications

Wind speed

Measurement Range: 0 to 60 m s⁻¹

Response Time: 0.25 s

Accuracy: $\pm 3\%$ at 10 m/s

Wind Direction

Measurement Range: 0° to 360°

Response Time: 0.25 s

Accuracy: $\pm 3^\circ$

Output Resolution: 1°

Precipitation

Rainfall Measurement: Cumulative accumulation after latest automatic or manual reset.

Collecting Area: 60 cm²

Output Resolution: 0.01 mm (0.001")

Field Accuracy for Daily Accumulation:

Better than 5% (weather dependent); due to the nature of the phenomenon, deviations caused by spatial variations may exist in precipitation readings, especially in short time scale. The accuracy specification does not include possible wind induced error.

Rain Duration: Counting each 10-s increment whenever droplet detected.

Rain Intensity: 1-min. running average in 10-s steps.

Rain Intensity Range: 0 to 200 mm hr⁻¹ (broader range possible with reduced accuracy)

Air Temperature

Measurement Range: -52° to +60°C

Accuracy: $\pm 0.3^\circ\text{C}$ @ +20°C

Output Resolution: 0.1°C

Barometric Pressure

Measurement Range: 600 to 1100 hPa

Accuracy: ± 0.5 hPa @ 0° to 30°C; ± 1 hPa @ -52° to +60°C

Output Resolution: 0.1 hPa

Relative Humidity

Measurement Range: 0 to 100% RH

Accuracy: $\pm 3\%$ RH @ 0 to 90% RH; $\pm 5\%$ RH @ 90 to 100% RH

Output Resolution: 0.1% RH

Assembly

Electromagnetic Compatibility

Complies with EMC standard EN61326-1;

IEC standards: IEC 60945/61000-4-4, IEC 60945/61000-4-2

Input Voltage: 5 to 30V DC (below 5.3V the measurement performance for high wind speeds may be degraded)

Typical Current Drain @ 12V DC:

0.1 mA (SDI-12 standby)

3 mA (default measuring intervals)

Output: SDI-12

Compatible Dataloggers: CR200-series, CR800, CR850, CR1000, CR3000, CR5000, CR510, CR10(X), CR23X

Operating Range: -52° to +60°C; 0 to 100% RH

Storage Temperature Range: -60° to +70°C

Height: 23.8 cm (9.38")

Diameter: 11.5 cm (4.52")

Weight: 650 g (1.43 lbs)

Ordering Information

WXT520	Vaisala Weather Sensor (requires a sensor cable; see options below)
-2	2 m Sensor Cable
-10	10 m Sensor Cable

Accessories

008285	NU-RAIL. Fitting for mounting the WXT520 to a crossarm, such as a CM202, CM204, or CM206.
#25299	Optional WXT520 IP66 Mounting Kit
#25300	Bird Spike Kit for the WXT520 Radiation Shield that houses the temperature, RH, and barometric pressure sensors.

