

# WXT520

## Weather Transmitter



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 CR200X-series dataloggers in applications requiring quick, short-term deployment. However, the WXT520 is not intended for weather stations that require research-grade performance.

### 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.

### 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.

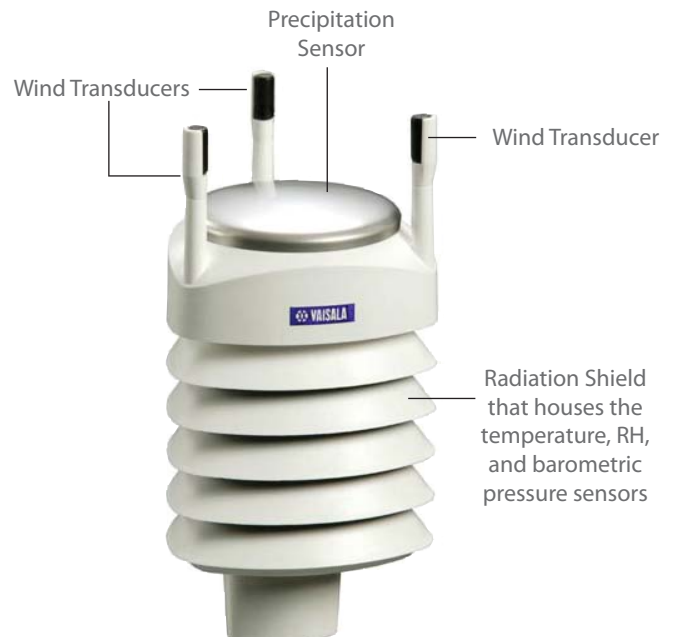
### Precipitation

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.

### Mounting

The WXT520 is shipped with a mounting tube. The mounting tube fastens to a CM202, CM204, or CM206 crossarm via the CM220 Right Angle Mounting Bracket or 17953 1-in. x 1-in. 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 cross-arm via the CM220 bracket or 17953 NU-RAIL fitting.



### 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.

### Ordering Information

#### Weather Transmitter

**WXT520** Vaisala Weather Sensor (requires a sensor cable; see options below)

#### Cable Options (choose one)

- 2 2 m Sensor Cable
- 10 10 m Sensor Cable

#### Accessories

- CM220** Right Angle Mounting Bracket for attaching the WXT520 to a crossarm, such as a CM202, CM204, or CM206.
- 17953** 1-in x 1-in 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

# Specifications

## Assembly

<b>Electromagnetic Compatibility:</b>	Complies with EMC standard EN61326-1
<b>IEC Standards:</b>	IEC 60945/61000-4-4, IEC 60945/61000-4-2

<b>Input Voltage:</b>	5 to 30 Vdc (below 5.3 V the measurement performance for high wind speeds may be degraded)
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<b>Typical Current Drain @ 12 Vdc</b>	
SDI-12 Standby:	0.1 mA
Default Measuring Intervals:	3 mA

<b>Output:</b>	SDI-12
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<b>Compatible Dataloggers:</b>	CR200(X)-series, CR800, CR850, CR1000, CR3000, CR5000, CR510, CR10(X), CR23X.
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<b>Operating Range</b>	
Temperature:	-52° to +60°C
Relative Humidity:	0 to 100% RH

<b>Storage Temperature:</b>	-60° to +70°C
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<b>Dimensions</b>	
Height:	9.38 in (23.8 cm)
Diameter:	4.52 in (11.5 cm)

<b>Weight:</b>	1.43 lb (650 g)
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## Air Temperature

<b>Measurement Range:</b>	-52° to +60°C
<b>Accuracy:</b>	±0.3°C @ +20°C
<b>Output Resolution:</b>	0.1°C

## Barometric Pressure

<b>Measurement Range:</b>	600 to 1100 hPa
<b>Accuracy:</b>	±0.5 hPa @ 0° to 30°C; ±1 hPa @ -52° to +60°C
<b>Output Resolution:</b>	0.1 hPa

## Relative Humidity

<b>Measurement Range:</b>	0 to 100% RH
<b>Accuracy:</b>	±3% RH @ 0 to 90% RH; ±5% RH @ 90 to 100% RH
<b>Output Resolution:</b>	0.1% RH

## Wind Speed

<b>Measurement Range:</b>	0 to 60 m s <sup>-1</sup>
<b>Response Time:</b>	0.25 s
<b>Accuracy:</b>	±0.3 m s <sup>-1</sup> or ±3% whichever is greater (0 to 35 m s <sup>-1</sup> ); ±5% (36 to 60 m s <sup>-1</sup> )

## Wind Direction

<b>Measurement Range:</b>	0° to 360°
<b>Response Time:</b>	0.25 s
<b>Accuracy:</b>	±3°
<b>Output Resolution:</b>	1°

## Precipitation

<b>Rainfall Measurement:</b>	Cumulative accumulation after latest automatic or manual reset.
<b>Collecting Area:</b>	60 cm <sup>2</sup>
<b>Output Resolution:</b>	0.01 mm (0.001 in)
<b>Field Accuracy for Daily Accumulation*:</b>	Better than 5% (weather dependent)
<b>Rain Duration:</b>	Counting each 10-s increment whenever droplet detected.
<b>Rain Intensity:</b>	1-minute running average in 10-s steps.
<b>Rain Intensity Range:</b>	0 to 200 mm hr <sup>-1</sup> (broader range possible with reduced accuracy)

\*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.

