



## WXT520

Weather Sensor



### Overview

The WXT520<sup>a</sup> measures wind speed and direction, precipitation, barometric pressure, temperature, and relative humidity—all in a single device that has no moving parts. The WXT520's small size makes it ideal for quick, short-term deployments. However, the WXT520 is not intended for weather stations that require research-grade performance.

### Benefits and Features

- › Low maintenance—no moving parts significantly reduces maintenance cost and time
- › Compact and lightweight
- › Low power consumption
- › Fast and simple to install
- › Outputs an SDI-12 signal that can be measured by most of our dataloggers<sup>b</sup>
- › Combines the six weather parameters in one instrument

### Technical Description

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 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.

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

<sup>a</sup>The WXT520 is manufactured by Vaisala.

<sup>b</sup>Compatible contemporary dataloggers are the CR200(X)-series, CR300, CR6, CR800, CR850, CR1000, and CR3000. For information about retired dataloggers, see [www.campbellsci.com/wxt520-compatibility](http://www.campbellsci.com/wxt520-compatibility).



## Accessories

The WXT520 is shipped with a mounting tube that fastens to a Campbell Scientific crossarm via the CM220 Right Angle Mounting Bracket or 17953 1-inch by 1-inch Nu-Rail Fitting.

The 25299 is an optional mounting kit for the WXT520 that 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 using the CM220 bracket or 17953 Nu-Rail fitting.

The 25300 Bird Spike Kit<sup>c</sup> 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 spikes' shape and location ensure minimal interference of wind and rain measurements. The spikes are designed not to hurt the birds.

## Ordering Information

### Weather Transmitter

**WXT520** 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 Campbell Scientific crossarm

**17953** 1-inch-by-1-inch Nu-Rail Fitting for mounting the WXT520 to a Campbell Scientific crossarm

**25299** Optional WXT520 IP66 Mounting Kit.

**25300** Bird Spike Kit for the WXT520.

## Specifications

- Electromagnetic Compatibility: Complies with EMC standard EN61326-1
- IEC Standards: IEC 60945/61000-4-4, IEC 60945/61000-4-2
- Input Voltage: 5 to 30 Vdc (below 5.3 V the measurement performance for high wind speeds may be degraded)
- Typical Current Drain @ 12 Vdc: 0.1 mA (SDI-12 standby); 3 mA (Default Measuring Intervals)
- Output: SDI-12
- Operating Temperature Range: -52° to +60°C
- Storage Temperature: -60° to +70°C
- Operating Relative Humidity: 0 to 100% RH
- Height: 23.8 cm (9.38 in)
- Diameter: 11.5 cm (4.52 in)
- Weight: ~ 650 g (1.43 lb)

### 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 to 90% RH	90 to 100% RH
$\pm 3\%$ RH	$\pm 5\%$ RH

- Output Resolution: 0.1% RH

### Wind Speed

- Measurement Range: 0 to 60 m s<sup>-1</sup>
- Response Time: 0.25 s
- Accuracy

0 to 35 m s <sup>-1</sup>	36 to 60 m s <sup>-1</sup>
$\pm 0.3 \text{ m s}^{-1}$ or $\pm 3\%$ whichever is greater	$\pm 5\%$

### Wind Direction

- Measurement Range: 0° to 360°
- Response Time: 0.25 s
- Accuracy:  $\pm 3^{\circ}$
- Output Resolution: 1°

### Precipitation<sup>d</sup>

- Rainfall Measurement: Cumulative accumulation after latest automatic or manual reset
- Collecting Area: 60 cm<sup>2</sup>
- Field Accuracy for Daily Accumulation: Better than 5% (weather dependent; does not include possible wind induced error)
- Rain Duration: Counting each 10 s increment whenever drop-let detected
- Rain Intensity: 1 minute running average in 10 s steps
- Rain Intensity Range: 0 to 200 mm hr<sup>-1</sup> (broader range possible with reduced accuracy)

<sup>c</sup>When the bird spike kit is attached to the WXT520, more snow can accumulate on the WXT520, and the snow may melt slower.

<sup>d</sup>Due to the nature of the phenomenon, deviations caused by spatial variations may exist in precipitation readings, especially in short-time scale.



**CAMPBELL  
SCIENTIFIC**

Campbell Scientific, Inc. | 815 W 1800 N | Logan, UT 84321-1784 | (435) 227-9120 | [www.campbellsci.com](http://www.campbellsci.com)  
USA | AUSTRALIA | BRAZIL | CANADA | CHINA | COSTA RICA | FRANCE | GERMANY | SE ASIA | SOUTH AFRICA | SPAIN | UK

© 2009, 2016  
Campbell Scientific, Inc.  
August 3, 2016