

DATASHEET

Crodeon[®] Weather Sensor

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About this product

The Crodeon weather sensor is a professional weather monitoring probe that measures eight weather parameters at the same time: **wind** (average, peak and direction), **rain**, **temperature** (dry bulb, wet bulb, dew point) and **relative humidity**. This sensor is exclusively compatible with Reporter[®], the wireless sensor module by Crodeon.

Applications

This sensor is made for professional use in construction, agriculture and smart city applications. Besides these main focus sectors, the sensor is also frequently used for festival monitoring, odour control and yachting.

Specifications

Brand	Crodeon®
Weight	636 g
Height	390 mm
Width	340 mm
Depth	140 mm
Measurement interval	Configurable online (options are 30 sec, 1 min, 2 min, 5 min, 10 min, 15 min, 20 min, 30 min, 1 hour, 2 hours)
Accuracy	Temperature: ± 0,5°C at 25°C Humidity: ± 3% RH at 25°C Rain: ± 7%
Resolution	Temperature: 0,1°C Humidity: 1% RH Rain: 400 ml / 0,4 mm
Wind direction stages	N, NNE, NE, ENE, E, ESE, SE, SSE, S, SSW, SW, WSW, W, WNW, NW, NNW
Cable length	5 m

Wind and rain

Precipitation is measured by the rain sensor through a tipping bucket sensor with a measurement area of 96mm diameter. A tilt represents 400 ml of rain per square meter. Cumulative rain per day is registered by Reporter and resets daily at midnight UTC+0.

Three parameters are used to measure wind: average wind speed, peak wind speed (gust), and wind direction. In the Crodeon Dashboard, wind speeds are calculated linearly from the average and the maximum speeds recorded during the measurement interval set by the user.

Temperature and humidity

The on-board Sensirion SHT30 sensor chip in this weather sensor measures humidity and temperature (wet bulb, dry bulb, and dew point). Datasheet of the SHT30: [Download here](#).

Calculated parameters

Wet bulb and dew point temperature are calculated based on the temperature and relative humidity measured by the onboard SHT30 sensor. The following formula is used to calculate dew point.

$$Dew\ point = \frac{b \cdot \gamma(T, RH)}{a - \gamma(T, RH)}$$

$$T = \text{Temperature in } ^\circ\text{Celcius}$$
$$RH = \text{Relative air humidity}$$

Given that $\gamma(T, RH) = \frac{a \cdot T}{b + T} + \ln(RH \div 100)$ and

$$a = 17,27$$
$$b = 237,7\ ^\circ\text{C}$$

The following formula is used to calculate wet bulb temperature.

$$T_w = T \operatorname{atan}[0.151\ 977(RH\% + 8.313\ 659)^{1/2}] + \operatorname{atan}(T + RH\%) - \operatorname{atan}(RH\% - 1.676\ 331) + 0.003\ 918\ 38(RH\%)^{3/2} \operatorname{atan}(0.023\ 101RH\%) - 4.686\ 035.$$

How to use

The sensor data is transmitted through one cable that connects to your Reporter. This leaves three connectors free for you to attach different sensors to measure ground water level, leaf wetness, soil moisture, solar radiation and many more.

Visit the Crodeon webshop at www.crodeon.com for a complete overview of all compatible sensors.

Reporter is powered by grid or solar power. During the night or a power outage, the device will keep operating between 3 and 14 days, depending on the measurement interval and the amount of sensors connected.



Crodeon Dashboard

Weather data from this sensor is transmitted to the cloud in real-time using Reporter. As a customer you can consult the live data on the Crodeon Dashboard, a cloud-based web application. Create your free account at cloud.crodeon.com for more information about this platform.

The Crodeon Dashboard is also the place where you can configure the alarm settings and measurement interval of your Reporter and sensors.

API access

The Crodeon Dashboard includes a third-party Rest API that allows you to integrate this sensor data into your own platform. Visit crodeon.stoplight.io for more information about the API.



Installation and maintenance

Install the sensor at a horizontal distance of 4 times the height of the nearest obstruction. Make sure the “N” arrow points to the north when mounting the sensor. The sensor should be mounted on a stable pole or surface.

The [following guide](#) provides extensive information about how to install your weather sensor.

The [following guide](#) provides extensive information about how to maintain your weather sensor

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