

# Compact Weather Sensors

Meteorology | Agrometeorology | Hydrology



## General Description

The WS Series compact weather sensors are designed for **reliable and maintenance-free measurements** in hydrology, meteorology and weather-dependent applications where durability, precision and operations in different moderate climatic conditions and **wind speed up to 45 m/s** are required.

The compact devices allow for single or all-in-one measurements of up to 7 parameters such as

- Wind speed
- Wind direction
- Temperature
- Humidity
- Air-pressure
- Rainfall
- Radiation

All sensors have been tested and approved against following environment conditions:

- High and low temperature ranges
- Humid weather (humidity and ingress protection)
- Windy and coastal environments (vibration and salt spray sustainability)

## Applications

WeatherSens WS is especially suitable for hydro-meteorological and agrometeorological applications by one sensor design and construction, e.g. for

- Automatic weather stations - hydro
- Smart cities, urban areas and municipalities
- Road weather monitoring
- Power grid transmission stations
- Agrometeorological stations such as ETo or irrigation stations
- Photovoltaic farms
- Building automation
- Airfield and helicopter landing platforms

## Features

- Wind speed measurement up to 45 m/s
- Low costs of installation and total costs of ownership
- Corrosion-resistant polycarbonate material, solid structure and rugged design
- Product portfolio to suit best to automatic weather monitoring
- Build-In data processing and algorithm
- Universal and selectable interfaces and protocols such as SDI-12 or RS 485 (MODBUS-RTU, ASCII, NMEA 0183)

- Easy integration into 3rd party systems
- Low power consumption for solar power packages
- No moving parts and maintenance-free with high IP grade 66
- Sustainability and high accuracy at entire wide temperature operating range from -40 to +70 °C (non-heated versions)
- Metric and imperial units
- Unheated versions: Operating measuring and deployment temperature range from -40 °C to +70° C

## Accessories

- **M12 cables:** 10 m / 8-pol (sensor)
- **Poles:** with 2" or 50 mm outer diameter for 2 or 3.5 m measuring height
- **iRIS dataloggers and data modems:**
  - robust housing
  - IP over one or two channels of your choice: xG / GPRS, satellite, IoT
  - I/O: analog, digital, SDI-12, Modbus
  - iLink software
  - Telemetry or cloud app

**Please ask for details.**

### Alternative: WeatherSens MP Series

MP Series compact weather sensors measure wind speed up to 75 m/s. With an aluminum alloy, teflon coating and an optional heater they are suitable for the harshest environments. **Please ask for details.**

## Variants

WS200	WS500	WS601	WS650
			
<b>Measures</b> <ul style="list-style-type: none"> <li>- wind speed</li> <li>- wind direction</li> </ul>	<b>Measures</b> <ul style="list-style-type: none"> <li>- wind speed</li> <li>- wind direction</li> <li>- temperature</li> <li>- relative humidity</li> <li>- air pressure</li> </ul>	<b>Measures</b> <ul style="list-style-type: none"> <li>- wind speed</li> <li>- wind direction</li> <li>- temperature</li> <li>- relative humidity</li> <li>- air pressure</li> <li>- rainfall (photoelectric)</li> </ul>	<b>Measures</b> <ul style="list-style-type: none"> <li>- wind speed</li> <li>- wind direction</li> <li>- temperature</li> <li>- relative humidity</li> <li>- air pressure</li> <li>- solar radiation</li> </ul>
H 152 x D 126 mm, 0.5 kg (H 5.98 x D 4.96 inch, 1.1 lbs) 20 mA @ 12 VDC *	H 208 x D 126 mm, 0.6 kg (H 8.19 x D 4.96 inch, 1.32 lbs) 23 mA @ 12 VDC *	H 266 x D 126 mm, 0.8 kg (H 10.47 x D 4.96 inch, 1.76 lbs) 57 mA @ 12 VDC *	H 233 x D 160 mm, 0.7 kg (H 9.17 x D 6.3 inch, 1.54 lbs) 27 mA @ 12 VDC *

## Technical Specifications

<b>IP Class</b>	IP66
<b>Interfaces</b>	SDI-12 / RS 485 (selectable)
<b>Protocols</b>	SDI-12 V 1.3 or RS485 (MODBUS-RTU, ASCII, NMEA 0183)
<b>Operating Voltage</b>	10 to 30 VDC for all measuring parameters
<b>Connector and Cable</b>	Connector M12-8pol; Cable PUR 10 m (32.8 ft) (other lengths on request)
<b>Operating Temperature</b>	-40 °C to +70 °C (-40 to +158 °F)
<b>Humidity</b>	5 % to 100 % RH
<b>Operating Measuring and Deployment Range</b>	-40 °C to +70 °C (-40 to +158 °F) (without snow accumulation and/or ice accretion)

## Parameters

	Wind Speed	Wind Direction	Temperature	Relative Humidity	Air Pressure	Rainfall	Solar Radiation
<b>Principle</b>	Ultrasonic	Ultrasonic	Diode voltage	Capacitive	Piezoresistor	Photoelectric	Photoelectric
<b>Range</b>	0 to 45 m/s (0 to 100 mph)	0 to 359.9°	-40 to +80 °C (-40 to 176 °F)	0 to 100 % RH	10 to 1100 hPa	0 to 400 mm/h (0 to 15.75 inch/h)	300 to 2100 nm; 0 to 2000 W/m <sup>2</sup>
<b>Accuracy</b>	±0.3 m/s (±0.67 mph) or 3 %	±3°	±0.3 °C ** (±0.54 °F)	±3 % RH	±0.3 hPa	±0.2 mm or ±10 %	±5 %
<b>Resolution</b>	0.1 m/s (0.22 mph)	0.1°	0.1 °C (0.18 °F)	0.1 % RH	0.1 hPa	0.1 mm	0.1 W/m <sup>2</sup>

\* Please note: With interface RS 485 the power consumption is 20 to 30 % less. Please ask for details.

\*\* Accuracy in measuring range 0 to 40 °C (32 to 104 °F): ±0.2 °C (±32,4 °F)

Reseller

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