

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 49,21 yd/s (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 (by photoelectric or piezoelectric technique)
- 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 (MOD-

BUS-RTU, ASCII, NMEA 0183, UMB)

- 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 +158°F (-40 to + 70 °C) (non-heated versions)
- Metric and imperial units

Accessories

- **M12 cables:** 10,94 yd (10 m) / 8-pol (sensor)
- **Poles:** with 2" or 1,97 inch (50 mm) outer diameter for 2,19 or 3,83 yd (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

HyQuest Solutions' MP Series compact weather sensors measure wind speed up to 65,62 yd/s (60 m/s). With an aluminum alloy and teflon coating they are suitable for the harshest environments. Please ask for details.

Variants

WS200	WS500	WS600	WS601	WS650
				
Measures ■ wind speed ■ wind direction	Measures ■ wind speed ■ wind direction ■ temperature ■ relative humidity ■ air pressure	Measures ■ wind speed ■ wind direction ■ temperature ■ relative humidity ■ air pressure ■ rainfall (piezoelectric)	Measures ■ wind speed ■ wind direction ■ temperature ■ relative humidity ■ air pressure ■ rainfall (photoelectric)	Measures ■ wind speed ■ wind direction ■ temperature ■ relative humidity ■ air pressure ■ rainfall (photoelectric) ■ solar radiation
H 5,98 x D 4,96 inch (H 152 x D 126 mm) 1,1 lbs (0.5 kg) 20 mA @ 12 V DC *	H 8,19 x D 4,96 inch (H 208 x D 126 mm) 1,32 lbs (0.6 kg) 23 mA @ 12 V DC *	H 5,04 x D 4,96 inch (H 218 x D 126 mm) 1,54 lbs (0.7 kg) 26 mA @ 12 V DC *	H 10,47 x D 4,96 inch (H 266 x D 126 mm) 1,76 lbs (0.8 kg) 57 mA @ 12 V DC *	H 9,17 x D 6,3 inch (H 233 x D 160 mm) 1,54 lbs (0.7 kg) 57 mA @ 12 V DC *

Technical Specifications

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

Parameters

	Wind Speed	Wind Direction	Temperature	Relative Humidity	Air Pressure	Rainfall	Rainfall	Solar Radiation
Principle	Ultrasonic	Ultrasonic	Diode voltage	Capacitive	Piezoresistor	Piezoelectric	Photoelectric	Photoelectric
Range	0 to 49,21 yd/s (0 to 45 m/s)	0 to 359.9°	-40 to 176 °F (-40 to +80 °C)	0 to 100 % RH	10 to 1100 hPa	0 to 7,87 inch/h (0 to 200 mm/h)	0 to 15,75 inch/h (0 to 400 mm/h)	300 to 2100 nm; 0 to 2000 W/m²
Accuracy	±0,33 yd/s (±0.3 m/s) or 3 %	±3°	±32,5 °F (±0.3 °C **)	±3 % RH	±0.3 hPa	±5 %	±5 %	±5 %

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

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

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