



First and only Smart Weather Sensor with integrated Kipp & Zonen CMP10 Pyranometer (secondary standard)

- **Parameters measured**
Temperature, relative humidity, air pressure, wind direction, wind speed, radiation
- **Measurement technology**
Ultrasonic/Wind, NTC/T, Capacitive/RH, MEMS capacitive/Pressure, Kipp&Zonen/Radiation
- **Product highlights**
Compact all-in-one weather sensor, low power, heater, aspirated radiation shield, maintenance-free operation, open communication protocol
- **Interfaces**
RS485, 2-wire, half-duplex
- **Article number**
8375.U13

From the WS product family of professional intelligent measurement transducers with digital interface for environmental applications. Integrated design with ventilated radiation protection for measuring: Air temperature, relative humidity, air pressure, wind direction, wind speed and radiation. One external temperature or rain sensor is connectable.

General	
Dimensions	Ø approx. 150 mm, height approx. 332 mm
Weight	Approx. 1.5 kg

Technical Data

WS510-UMB Smart Weather Sensor



Interface	RS485, 2 - wire, half - duplex
Power supply	12 - 24 VDC $\pm 10\%$
Operating temperature	-50...60 °C
Operating rel. humidity	0...100 % RH
Heating	20 VA at 24 VDC
Cable length	10 m
Protection level housing	IP66
Mast mounting suitable for	Mast diameter 60 - 76 mm

Temperature

Principle	NTC
Measuring range	-50 ... 60 °C
Unit	°C
Accuracy	± 0.2 °C (-20...50 °C), otherwise ± 0.5 °C (>-30 °C)

Relative humidity

Principle	Capacitive
Measuring range	0 ... 100 % RH
Unit	% RH
Accuracy	± 2 % RH

Air pressure

Principle	MEMS capacitive
Measuring range	300 ... 1200 hPa
Unit	hPa
Accuracy	± 0.5 hPa (0...40 °C)

Wind direction

Principle	Ultrasonic
Measuring range	0 ... 359.9 °
Unit	°
Accuracy	$< 3^\circ$ RMSE > 1.0 m/s

Wind speed

Principle	Ultrasonic
Measuring range	0 ... 75 m/s
Unit	m/s
Accuracy	± 0.3 m/s or $\pm 3\%$ (0...35 m/s) $\pm 5\%$ (>35 m/s) RMS
Resolution	0.1 m/s

Radiation

Response time	< 5 s
Zero offset A	< 7 W/m ²
Zero offset B	< 2 W/m ²
Directional error (at 1000 W/m ²)	$< 0.2\%$

Technical Data

WS510-UMB Smart Weather Sensor



Temperature dependence of sensitivity	< 1 % (-10 °C...40 °C)
Spectral range	285 to 2,800 nm
Measuring range	4000 W/m ²