

First and only compact all-in-one weather sensor with detection of lightning strikes

- **Parameters measured**
  temperature, relative humidity, air pressure, wind direction, wind speed, precipitation intensity, precipitation quantity, radiation, lightning strikes

- **Measurement technology**
  Ultrasonic/Wind, NTC/T, Capacitive/RH/Pressure, Radar/Precipitation, radio wave emission/Lightning strikes

- **Product highlights**
  Wind detection with birdproof construction. First and only compact all-in-one weather sensor with lightning detection, low power, heater, aspirated radiation shield, maintenance-free operation, open communication protocol.

- **Interfaces**
  RS485 with supported protocols UMB-Binary, UMB-ASCII, Modbus-RTU, Modbus-ASCII, XDR and SDI-12

- **Article number**
  8381.U01, 8381.U01-NA

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, precipitation intensity, precipitation type, precipitation quantity, solar radiation, lightning detection, air pressure, wind direction and wind speed. One external temperature sensor is connectable.

General	
Dimensions	Ø approx. 150 mm, height approx. 317 mm
Weight	Approx. 1.5 kg
Interface	RS485, 2 - wire, half - duplex
Power supply	11...32 VDC
Power supply	5...11 VDC (electronics with limited precision of measurements)
Power supply	24 VDC +/- 10% (heater)
Operating temperature	-50...60°C (with heater)
Operating rel. humidity	0...100% RH
Cable length	10 m
Protection level housing	IP66
Standards/Regulations	Compliant to IEC 61724-1:2017 Class C
Mast mounting suitable for	Mast diameter 60 - 76 mm

Lightning detection	
Lightning detection	Number of lightning events
Coverage area	5 - 10 km

Air 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° RMSE > 1.0 m/s
Resolution	0.1

Wind speed	
Principle	Ultrasonic
Measuring range	0...75 m/s

Unit	m/s
Accuracy	±0.3 m/s or ±3 % (0...35 m/s) ±5 % (>35 m/s) RMS
Resolution	0.1

Precipitation (liquid)	
Droplet size	0,3 ... 5 mm
Detection sensitivity	0,01 mm/h
Particle velocity	0.9 ... 15.5 m/s
Precipitation types	rain/ snow
Solid precipitation	5.1 ... ~30 mm
Intensity range	0...200mm/h
Intensity resolution	0.01 mm/h
Amount resolution	0.1 mm
Accuracy	20 % under laborary conditions
Reproducibility	Typical >90 % under laborary conditions

Radiation	
Unit	W/m^2
Accuracy	5%
Response time (95%)	< 1s
Spectral range	300 to 1100 nm
Measuring range	1400 W/m^2