



Compact all-in-one weather sensor with measurement of temperature, relative humidity, air pressure, wind direction, wind speed and radiation.

- **Parameters measured**

Temperature, relative humidity, air pressure, wind direction, wind speed, radiation

- **Measurement technology**

Ultrasonic/Wind, NTC/T, Capacitive/RH, MEMS capacitive/Pressure, Tilttable Pyranometer Lufft/Radiation

- **Product highlights**

Wind detection with birdproof construction. Compact all-in-one weather sensor, tilttable pyranometer, 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**

8375.U12

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.

IMPORTANT: WS504 is discontinued

Technical Data

WS504-UMB Smart Weather Sensor - discontinued



General

| | |
|----------------------------|---|
| Dimensions | Ø approx. 150 mm, Height approx. 377 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) |
| Power consumption | 20 VA (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 |

Radiation

| | |
|--|-----------------------|
| Unit | W/m ² |
| Accuracy | 5 % |
| Response time (95%) | < 1 s |
| Non-stability(change/year) | ±1 % |
| Non-linearity (0 to 1000 W/m ²) | ±1 % |
| Directional error (at 80° with 1000 W/m ²) | ±20 W/m ² |
| Temperature dependence of sensitivity | ±5 % (-10 to + 40 °C) |
| Tilt error (at 1000 W/m ²) | ±1 % |
| Spectral range | 300...1100 nm |
| Measuring range | 1400 W/m ² |

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) |

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Technical modifications and errors excepted - Created 04/02/2026
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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 m/s |