



## Applications

- Meteorological Observation
- Research
- Climatology
- Solar Energy
- Wind Energy
- Road Weather Monitoring
- Aviation Weather Monitoring
- Railway Weather Monitoring
- Building Automation
- Smart Cities

## Compact all-in-one weather sensor

### Automatic weather station

**Intelligent measurement transducers with digital interface for environmental applications**

**Designed to measure: Air temperature/pressure, relative humidity, precipitation intensity/type, and wind direction/speed**

**One external temperature sensor is connectable**

**Maintenance-free operation – no moving parts that can wear out**

**Open communication protocol**

### All-in-one station

All-in-one housing concept of a compact weather sensor combining 8 (WS600) respectively 6 (WS601) measurement parameters in one housing with only one cable connection. Built-in data pre-processing, universal interfaces and selectable output protocols.

### Selective precipitation measurement

The WS600 comes with an integrated 24 GHz Doppler radar to measure intensity, type and quantity of precipitation. The WS601 comes with a traditional tipping spoon and bucket solution for precipitation quantity measurement.

### Compliant with ISO/IEC 61724-1

Ventilated temperature and humidity measurement according to international standards for solar monitoring on PV plants. Integrated heater can be switched on in risk of frost.

### Protocols and interfaces

Easy integration into any SCADA system. Communicates via RS-485 interface in Modbus and various other protocols. Compatible with many commercially available dataloggers and PLS systems.

# Technical Specifications

	WS600-UMB	WS601-UMB
Article number	8370.U01	8376.U01
Dimensions	Ø approx. 150 mm, height approx. 343 mm	Ø approx. 164 mm, height approx. 445 mm
Weight	Approx. 1.5 kg	Approx. 1.7 kg
Interface	RS485, 2 - wire, half - duplex	RS485, 2 - wire, half - duplex
Power supply	11 ... 32 VDC	11 ... 32 VDC
Power supply	5 ... 11 VDC (electronics with limited precision of measurements)	5 ... 11 VDC (electronics with limited precision of measurements)
Power supply	24 VDC +/- 10% (heater)	24 VDC +/- 10% (heater)
Power consumption	40 VA (heater)	20 VA (heater)
Operating temperature	-50 ... 60 °C (with heater)	-50 ... 60 °C (with heater)
Operating relative humidity	0 ... 100 % RH	0 ... 100 % RH
Protection level housing	IP66	IP66
Mast mounting suitable for	Mast diameter 60 - 76 mm	Mast diameter 60 - 76 mm
Cable length	10 m	10 m
<b>Temperature</b>		
Principle	NTC	NTC
Measuring range	-50 ... 60 °C	-50 ... 60 °C
Unit	°C	°C
Accuracy	±0.2 °C (-20 ... 50 °C), otherwise ±0.5 °C (> -30 °C)	±0.2 °C (-20 ... 50 °C), otherwise ±0.5 °C (> -30 °C)
<b>Relative humidity</b>		
Principle	Capacitive	Capacitive
Measuring range	0 ... 100 % RH	0 ... 100 % RH
Unit	% RH	% RH
Accuracy	±2 % RH	±2 % RH
<b>Air pressure</b>		
Principle	MEMS capacitive	MEMS capacitive
Measuring range	300 ... 1200 hPa	300 ... 1200 hPa
Unit	hPa	hPa
Accuracy	±0.5 hPa (0 ... 40 °C)	±0.5 hPa (0 ... 40 °C)
<b>Wind direction</b>		
Principle	Ultrasonic	Ultrasonic
Measuring range	0 ... 359.9 °	0 ... 359.9 °
Unit	°	°
Accuracy	< 3° RMSE > 1.0 m/s	< 3° RMSE > 1.0 m/s
<b>Wind speed</b>		
Principle	Ultrasonic	Ultrasonic
Measuring range	0 ... 75 m/s	0 ... 30 m/s
Unit	m/s	m/s
Accuracy	±0.3 m/s or 3 % (0 ... 35 m/s) ±5% (>35 m/s) RMS	±0.3 m/s or 3 % RMS
Resolution	0.1 m/s	0.1 m/s
<b>Precipitation (WS600)</b>		
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	0.5 ... 200 mm/h	
Intensity resolution	0.01 mm/h	
Amount resolution	0.1 mm	
Accuracy	20% under laboratory conditions	
Reproducibility	Typically >90% under laboratory conditions	
<b>Precipitation (WS601)</b>		
Accuracy		±2 %
Resolution		0.2 mm
Maximum intensity		144 mm/h
<b>Precipitation (WS601) (with reduction ring)</b>		
Accuracy		±2 %
Resolution		0.5 mm
Maximum intensity		360 mm/h