

# Lufft WS501-UMB – Temperature, Relative Humidity, Radiation, Air Pressure, Wind, Electronic Compass

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
- Solar radiation

Relative humidity is measured by means of a capacitive sensor element; a precision NTC measuring element is used to measure air temperature.

The world renowned technology of Kipp+Zonen CMP3 is integrated.

Ultrasonic sensor technology is used to take wind measurements.

Measurement output can be accessed by the following protocols:  
UMB-Binary, UMB-ASCII, SDI-12, MODBUS

**One external temperature or rain sensor is connectable.**

Lufft WS501-UMB Smart Weather Sensor			Order No.
<b>WS501-UMB</b>			<b>8375.U01</b>
<b>Technical Data</b>	Dimensions	Ø approx. 150 mm, height 332 mm	
	Weight	approx. 1.5 kg	
<b>Temperature</b>	Principle	NTC	
	Measuring range	-50 ... 60 °C	
	Accuracy	±0.2 °C (-20 °C ... 50 °C), otherwise ±0.5 °C (>-30 °C)	
<b>Relative humidity</b>	Principle	Capacitive	
	Measuring range	0 ... 100 % RH	
	Accuracy	±2 % RH	
<b>Radiation</b>	Response time (95%)	< 18s	
	Non-stability (change/year)	< 1%	
	Non-linearity (0 to 1,000 W/m²)	< 1%	
	Directional error (at 80° with 1,000 W/m²)	< 20 W/m²	
	Temperature dependence of sensitivity	< 5 % (-10 to 40 °C)	
	Tilt error (at 1000 W/m²)	< 1%	
	Spectral range (50% points)	300 to 2,800 nm	
	Measuring range	1400 W/m²	
<b>Air pressure</b>	Principle	MEMS capacitive	
	Measuring range	300 ... 1200 hPa	
	Accuracy	+/- 0.5 hPa (0...40°C)	
<b>Wind direction</b>	Principle	Ultrasonic	
	Measuring range	0 ... 359.9°	
	Accuracy	< 3° RMSE >1.0 m/s	
<b>Wind speed</b>	Principle	Ultrasonic	
	Measuring range	0 ... 75 m/s	
<b>General Information</b>	Accuracy	±0.3 m/s or 3% (0...35 m/s) RMS of reading, whichever is greater ±5% (>35 m/s) RMS	
	Heating	20 VA at 24 VDC	
	Protection type housing	IP66	
	Interface	RS485, 2-wire, half-duplex	
	Operating power consumption	4...32 VDC	
<b>Accessories</b>	Operating humidity range	0 ... 100%	
	Operating temperature range	-50 ... 60 °C	
	Surge protection		<b>8379.USP</b>
	Power supply 24V/4A		<b>8366.USV1</b>
	UMB Interface converter ISOCON-UMB		<b>8160.UI50</b>
	Digital-analog-converter DACON8-UMB		<b>8160.UDAC</b>
	Temperature Sensor WT1		<b>8160.WT1</b>
	Road Surface Temperature Sensor WST1		<b>8160.WST1</b>
	Connection cable, 20m		<b>8370.UKAB20</b>
	Rain Sensor WTB100		<b>8353.10</b>



All in One

Aspirated temperature/humidity measurement

Open communication protocol:

- UMB-ASCII
- UMB-Binary
- SDI-12
- MODBUS
- Analogue outputs in combination with 8160.UDAC

Third-Party-Rain gauge sensors are compatible: 0.1 mm, 0.2 mm, 0.5 mm, 1mm heated and unheated.

