









Lufft UMB Sensor Overview

	Wind	Temperature Rel. humidity Air pressure	Temperature Rel. humidity Air pressure Precipitation	Temperature Rel. humidity Air pressure Radiance (solar radiation)
Titan				
	Ventus			WS310
Platinum				
				WS301/303
Gold				
	V200A	WS300	WS400	WS304
Professional				
	WS200		WS401	WS302



Temperature Rel. humidity Air pressure Wind speed Wind direction	Temperature Rel. humidity Air pressure Wind speed Wind direction Radiance (solar radiation)	Temperature Rel. humidity Air pressure Wind speed Wind direction Precipitation	Temperature Rel. humidity Air pressure Wind speed Wind direction Precipitation Radiation	2 Channel EXPANDER	Protocols
				ANACON	UMB MODBUS ASCII SDI12
	WS510				
				ANACON	UMB MODBUS ASCII SDI12
	WS501/503				
				ANACON	UMB MODBUS ASCII SDI12
WS500	WS504	WS600	WS700		
				ANACON	UMB MODBUS ASCII SDI12
	WS502	WS601			





An ISO 9060 Secondary Standard Pyranometer

CMP10 Integrated

Smart Weather Sensor with integrated Kipp & Zonen CMP10 pyranometer

Lufft WS510-UMB – Solar Radiation, Wind, Temperature, Air pressure, Relative humidity, 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:

- Solar radiation
- Wind direction
- Wind speed
- Air temperature
- Relative humidity
- Air pressure

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 CMP10 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 WS310-UMB 8374.U13
Solar Radiation,
Temperature, Air pressure,
Relative humidity,
Electronic compass



WS310 Technical Data as WS510 without wind sensor

Lufft WS510-UMB Smart Weather Sensor		Order No.
WS510-UMB		8375.U13
WS310-UMB without wind sensor		8374.U13
Technical data	Dimensions	Ø approx. 150mm, height 392mm
	Weight	Approx. 1.5kg
Temperature	Principle	NTC
	Measuring range	-40 ... 80 °C
	Accuracy	± 0.2 °C (-20 °C ... 50 °C), otherwise ± 0.5 °C (> -30 °C)
Relative humidity	Principle	Capacitive
	Measuring range	0 ... 100% RH
	Accuracy	±2% RH
Radiation	Spectral range (50% points)	285 to 2,800nm
	Measuring range	4000W/m ²
Air pressure	Principle	MEMS capacitive
	Measuring range	300 ... 1200hPa
	Accuracy	±0.5hPa (0...40°C)
Wind direction	Principle	Ultrasonic
	Measuring range	0 ... 359.9°
	Accuracy	< 3° RMSE >1.0m/s
Wind speed	Principle	Ultrasonic
	Measuring range	0 ... 75m/s
	Accuracy	±0.3m/s or 3% (0...35m/s) RMS of reading, whichever is greater ± 5% (>35 m/s) RMS
General information	Heating	20VA at 24VDC
	Protection type housing	IP66
	Interface	RS485, 2-wire, half-duplex
	Operating power consumption	12-24VDC ± 10%
	Operating humidity range	0 ... 100%
	Operating temperature range	-40 ... 80 °C
	Response time	< 5s
	Zero offset A	< 7W/m ²
	Zero offset B	< 2W/m ²
	Directional error (at 1000 W/m ²)	< 0.2%
	Temperature dependence of sensitivity	< 1% (-10°C...40°C)
Accessories	see WS family members	



Standard Certificate for all UMB-Sensors



LUFFT Mess- und
Regeltechnik GmbH

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Herstellerprüfzertifikat M nach DIN 55350-18-4.2.2
Manufacturer test certificate M according to DIN 55350-18-4.2.2

Gegenstand Object	IRS31-UMB		
Sensornummer Sensor number		Seriennummer Serial number	
Hersteller Manufacturer	G. Lufft Mess- und Regeltechnik GmbH Gutenbergstraße 20 70736 Fellbach, Germany		

Temperaturmessung / Temperature measurement

Prüfpunkt Test point	Prüfbedingung Test conditions	Bestanden Passed	
		Ja Yes	Nein No
Fahrbahnoberflächentemperatur Road surface temperature	Temperatur = 0,0 °C ±0,1 °C Temperature = 0,0 °C ±0,1 °C	X	
Tiefentemperatur 1 Temperature under ground 1	Temperatur = 0,0 °C ±0,1 °C Temperature = 0,0 °C ±0,1 °C	X	
Tiefentemperatur 2 Temperature under ground 2	Temperatur = 0,0 °C ±0,1 °C Temperature = 0,0 °C ±0,1 °C	X	

Temperatursensor / Temperature sensor

Prüfpunkt Test point	Prüfbedingung Test conditions	Bestanden Passed	
		Ja Yes	Nein No
Fahrbahnoberflächensensor Road surface sensor	Temperatur = 0,0 °C ±0,1 °C Temperature = 0,0 °C ±0,1 °C		
Tiefentemperatursensor 1 Temperature sensor under ground 1	Temperatur = 0,0 °C ±0,1 °C Temperature = 0,0 °C ±0,1 °C		
Tiefentemperatursensor 2 Temperature sensor under ground 2	Temperatur = 0,0 °C ±0,1 °C Temperature = 0,0 °C ±0,1 °C		

Dieses Prüfzertifikat darf nur vollständig und unverändert weiterverbreitet werden. Auszüge oder Änderungen bedürfen der Genehmigung des Ausstellers. Prüfzertifikate ohne Unterschrift und Stempel haben keine Gültigkeit.
This test certificate may not be reproduced other than in full except with the permission of the exhibitor. Test certificates without signature and seal are not valid.

Stempel Seal Datum Date Qualitätssicherung Quality control Bearbeiter Person in charge

F. V. Hoff Großmann

LUFFT Mess- und
Regeltechnik GmbH



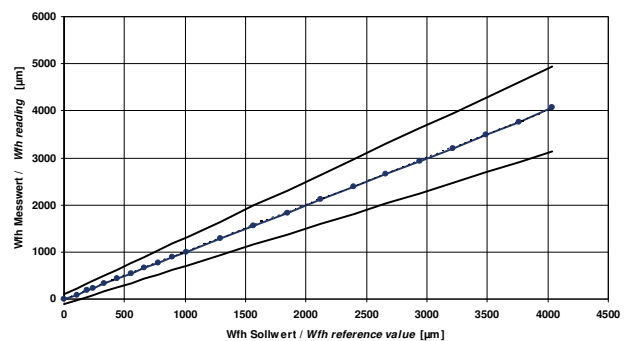
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Herstellerprüfzertifikat M nach DIN 55350-18-4.2.2
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Seriennummer / Serial number:

Kalibrierung Gefriertemperatur / Calibration freezing point

Wasserfilmhöhe water film height	Gefriertemperatur freezing point	Sollwert reference value	Messwert reading
H ₂ O + NaCl 11,8 %, 1000 µm	-8,9 °C ± 1 °C	11,8 % ± 1,0 %	%
H ₂ O + NaCl 2,0 %, 500 µm	-1,0 °C ± 1 °C	2,0 % ± 1,0 %	%
H ₂ O + NaCl 1,1 %, 250 µm	-0,6 °C ± 1 °C	1,1 % ± 1,0 %	%

Kalibrierung Wasserfilmhöhe / Calibration water film height



Funktionstest / Function test

Prüfpunkt Test point	Prüfbedingung Test conditions	Bestanden Passed	
		Ja Yes	Nein No
Temperaturzyklus von -30 °C...+70 °C Temperature cycle from -30 °C...+70 °C	Alle Messwerte korrekt All measured values correctly	X	