Lufft UMB Sensor Overview

InstruFiber
INSTRUMENTAÇÃO E FIBRA ÓPTICA

	Wind	Temperature Rel. humidity Air pressure	Temperature Rel. humidity Air pressure Precipitation	Temperature Rel. humidity Air pressure Radiance (solar radiation)
Titan				
	Ventus			WS303
Platinum				
				WS301
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	2 Channel EXPANDER	Protocols
			ANACON	UMB MODBUS ASCII SDI12
	WS503			
			ANACON	UMB MODBUS ASCII SDI12
	WS501			
			ANACON	UMB MODBUS ASCII SDI12
WS500	WS504	WS600		
			ANACON	UMB MODBUS ASCII SDI12
	WS502	WS601		

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 protocolls:
UMB-Binary, UMB-ASCII, SDI-12, MODBUS

One external temperature or rain sensor is connectable.

Lufft WS501-UMB Smart Weather Sensor			Order No.
WS501-UMB			**8375.U01**
Technical Data	Dimensions	Ø approx. 150 mm, height 332 mm	
	Weight	approx. 1.5 kg	
Temperature	Principle	NTC	
	Measuring range	–50 … 60 °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	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)	< 20W/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	
Air pressure	Principle	MEMS capacitive	
	Measuring range	300 … 1200 hPa	
	Accuracy	+/- 0.5 hPa (0...40°C)	
Wind direction	Principle	Ultrasonic	
	Measuring range	0 … 359.9 °	
	Accuracy	< 3 ° RMSE >1.0 m/s	
Wind speed	Principle	Ultrasonic	
	Measuring range	0 … 75 m/s	
	Accuracy	±0.3 m/s or 3 % (0 … 35 m/s) RMS of reading, whichever is greater ±5 % (>35 m/s) RMS	
General Information	Heating	20 VA at 24 VDC	
	Protection type housing	IP66	
	Interface	RS485, 2-wire, half-duplex	
	Operating power consumption	4...32 VDC	
	Operating humidity range	0 … 100 %	
	Operating temperature range	–50 … 60 °C	
Accessories	Surge protection		**8379.USP**
	Power supply 24V/4A		**8366.USV1**
	UMB Interface converter ISOCON-UMB		**8160.UISO**
	Digital-analog-converter DACON8-UMB		**8160.UDAC**
	Temperature Sensor WT1		**8160.WT1**
	Road Surface Temperature Sensor WST1		**8160.WST1**
	Connection cable, 20m		**8370.UKAB20**
	Rain Sensor WTB100		**8353.10**

KIPP & ZONEN SINCE 1830

All in One

Aspirated temperature/humidity measurement

Open communication protocol:
- UMB-ASCII
- UMB-Binary
- SDI-12
- MODBUS
- Analoge 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.

Standard-Certificate for all UMB-Sensors

LUFFT Mess- und Regeltechnik GmbH

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*		

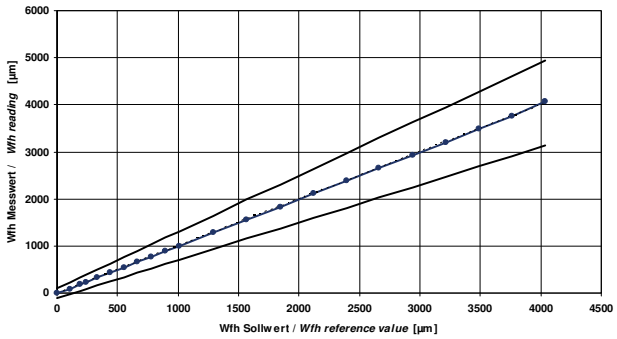
Stempel *Seal*	Datum *Date*	Qualitätssicherung *Quality control*	Bearbeiter *Person in charge*
		i. V. Rolf Großmann	

Herstellerprüfzertifikat M nach DIN 55350-18-4.2.2
Manufacturer test certificate M according to DIN 55350-18-4.2.2
Seriennummer / ***Serial number*:**

Kalibrierung Gefriertemperatur / ***Calibration freezing point***

Wasserfilmhöhe ***water film height***	**Gefriertemperatur** ***freezing point***	**Sollwert** **reference value**	**Messwert** **reading**
H_2O + NaCl 11,8 %, 1000 µm	-8,9 °C ± 1 °C	11,8 % ± 1,0 %	%
H_2O + NaCl 2,0 %, 500 µm	-1,0 °C ± 1 °C	2,0 % ± 1,0 %	%
H_2O + 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 *Temperaturecycle from –30 °C...+70 °C*	Alle Messwerte korrekt *All measured values correctly*	X	