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			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 WS400-UMB – Temperature, Relative Humidity, Precipitation, Air Pressure

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
- Precipitation intensity
- Precipitation type
- Precipitation quantity
- Air pressure

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

Precipitation is measured by a 24 GHz Doppler radar, which measures the drop speed of an individual drop of rain/snow.

Precipitation quantity and intensity are calculated from the correlation between drop size and speed.

The difference in drop speed determines the type of precipitation (rain/snow). Maintenance-free measurement offers a major advantage over the common tipping spoon and tipping bucket processes.

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

One external temperature sensor is connectable.

Lufft WS400-UMB Smart Weather Sensor			Order No.
WS400-UMB EU, USA, Canada			**8369.U01**
WS400-UMB UK			**8369.U02**
Technical Data	Dimensions	Ø approx. 150 mm, height approx. 280 mm	
	Weight	approx. 1.3 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	
Precipitation quantity	Resolution	0.01 mm	
	Measuring range	Measuring range drop size 0.3 … 5 mm	
	Reproducibility	typ. > 90 %	
Precipitation type	Rain/snow		
Air pressure	Principle	MEMS Capacitive	
	Measuring range	300 … 1200 hPa	
	Accuracy	+/- 0.5 hPa (0...40°C)	
General Information	Heating	20 VA at 24 VDC	
	Protection type housing	IP66	
	Interface	RS485, 2-wire, half-duplex	
	Op. power consumption	4...32 VDC	
	Operating humidity range	0 … 100 %	
	Op. temperature range	–50 … 60 °C	
Accessories	Surge protection		**8379.USP**
	Power supply 24 V/4 A		**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**

Aspirated temperature/humidity measurement

Maintenance-free operation

Open communication protocol:
- UMB-ASCII
- UMB-Binary
- SDI-12
- MODBUS
- Analoge outputs in combination with 8160.UDAC

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	

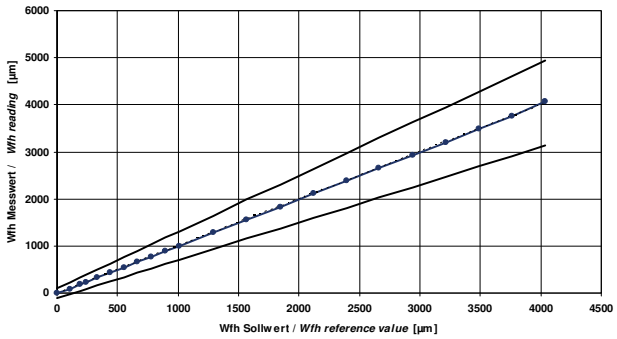
LUFFT Mess- und Regeltechnik GmbH

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