









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			



Lufft WS401-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
- Air pressure

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

Optionally, the WS401-UMB can be equipped with a leaf wetness sensor in addition.

Precipitation is measured by tipping spoon and tipping bucket processes. The flexible tipping bucket allows a 0.2mm or a 0.5mm resolution of the rainfall.

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



One external temperature sensor is connectable.

Aspirated temperature/humidity measurement

Open communication protocol:

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

Lufft WS401-UMB Smart Weather Sensor			Order No.
WS401-UMB			8377.U01
Technical Data	Dimensions	Ø approx. 150mm, height approx. 380mm	
	Weight	Approx. 1.5kg	
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	Resolution	0.2mm	
	Accuracy	±2 %	
	Max. intensity	144mm/h	
Precipitation (with reduction ring)	Resolution	0.5mm	
	Accuracy	±2 %	
	Max. intensity	360mm/h	
Air pressure	Principle	MEMS Capacitive	
	Measuring range	300...1200hPa	
	Accuracy	±0.5hPa (0...+40 °C)	
General Information	Protection type housing	IP66	
	Interface	RS485, 2-wire, half-duplex	
	Op. power consumption	4...32VDC	
	Operating humidity range	0...100%	
	Op. 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
	Leaf wetness sensor WLW100		8358.10
	Temperature Sensor WT1		8160.WT1
	Road Surface Temperature Sensor WST1		8160.WST1
Connection cable, 20m		8370.UKAB20	



Standard Certificate for all UMB-Sensors



LUFFT Mess- und
Regeltechnik GmbH

Seite/ Page: 1/2

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



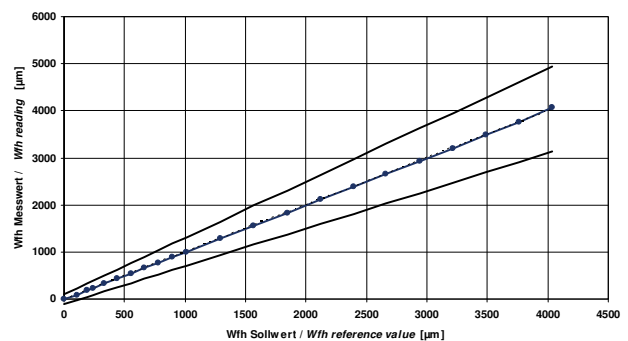
Seite/ Page: 2/2

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	