


















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 WS503-UMB – Tiltable Pyranometer, 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:

- 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 WS503-UMB Smart Weather Sensor | | | Order No. |
|--------------------------------------|--|--|--------------------|
| WS503-UMB | | | 8375.U11 |
| Technical data | Dimensions | Ø approx. 150 mm, height 392mm | |
| | 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) | < 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 | |
| Air pressure | Altitude | 0 ... 60° | |
| | Azimuth | -10° ... 10° | |
| | Principle | MEMS capacitive | |
| Wind direction | Measuring range | 300 ... 1200 hPa | |
| | Accuracy | ±0.5 hPa (0 ... 40°C) | |
| | Principle | Ultrasonic | |
| Wind speed | Measuring range | 0 ... 359.9° | |
| | Accuracy | < 3° RMSE >1.0 m/s | |
| | Principle | Ultrasonic | |
| General information | 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 | |
| | Heating | 20 VA at 24 VDC | |
| | Protection type housing | IP66 | |
| | Interface | RS485, 2-wire, half-duplex | |
| | Operating power consumption | 4...32 VDC | |
| Accessories | 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 DAICON8-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 |



Tiltable Pyranometer

Ultrasonic wind sensor

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.



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



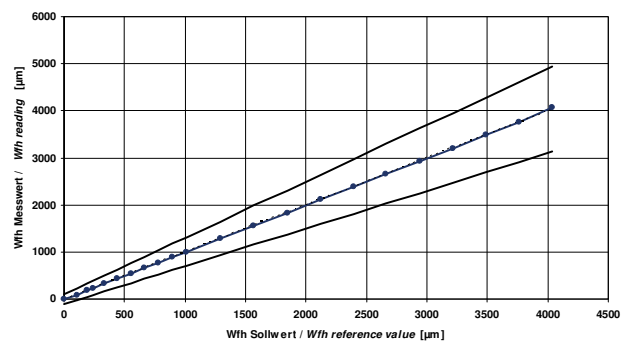
Seite/ Page: 2/2

Herstellerprüfzertifikat M nach DIN 55350-18-4.2.2
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 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 | |