

WIND MEASURING TECHNOLOGY

Clima Sensor US

Part number: 4.920x.x0.00x

The CLIMA Sensor US offers a comprehensive range of weather data - combined with state-of-the-art measurement accuracy and maintenance-free technology. Integration into existing infrastructures is facilitated by various communication interfaces (Modbus, ASCII, 0-10V), while the shockproof and UV-resistant LEXAN® housing reliably protects the sensor even in extreme environments (-50°C to +80°C).

Recorded weather parameters:

- Wind: Wind speed, wind direction (ultrasonic technology)
- Radiation & light: Global radiation, brightness (4 hemispheres), twilight
- Precipitation: status, amount, intensity, type
- Air values: temperature, absolute & relative humidity, dew point
- Air pressure: Absolute & relative air pressure
- GPS receiver: Position, altitude, time, date, sun position,
- E-compass: North orientation

Typical areas of application:

- Solar parks & PV performance measurement: Optimization of energy yields
- Building automation: intelligent control of air conditioning, shading and ventilation systems
- Smart city: environmental monitoring and weather forecast models
- Agriculture & greenhouses: Precise control of irrigation and climate
- Meteorology & research: High-precision recording of weather and climate data



Specification

Part number: 4.920x.x0.00x

Wind speed	
Measuring range	0 ... 60 m/s
Resolution	0.1 m/s (standard)
Accuracy	0 ... 10 m/s ± 0.25 m/s (rms - mean over 360 °) 10 ... 30 m/s ± 2.5 % (rms - mean over 360 °) 30 ... 60 m/s ± 3.5 % (rms - mean over 360 °)
Wind direction	
Measuring range	0 ... 360 °
Resolution	1 ° 0.1 ° in special telegrams
Accuracy	±2 ° WS > 2 m/s
Data output digital	
Interface	RS485 / RS422

Baudrate	1200 ... 921600 Baud
Data values	div. meas. data, date, time, check sum, Precipitation type according to Synop etc.
Output range	1 per 10 msec up to 1 per 60sec
Status signals	heating, Meas section error, Temperature of meas section
Protocol	ASCII (preselected)
Data output analog	
Type	max. 8 x 0 ... 10 V
Wind speed	0 ... 10 V
Stromausgang	max. 400
Wind direction	0 ... 10 V
Voltage output	min. 2000
Output parameters	wind speed, wind direction, brightness, precipitation, rel. humidity, air temperature, air pressure, etc,
Operating voltage	
Electronic	6 ... 40V DC or 10 ... 28 V AC / typ. 50mA @ 24V
Heating	24 V AC/DC, typ 1,4 A @ 24V
General	
Bus operation	up to 98 sensors
Electr. connection	19 pol. connector
Mounting	on a mast tube 1,5"
Housing	Plastic LEXAN (Polycarbonat, UV-stabilised)
Protection	IP 67

Versions

As per 4.920x.x0.00x, but:

Product number 4.9200.00.001

Precipitation

Measuring range general	0.001 ... 10 mm/min
Accuracy	typ. 95%

Radiation

Measuring range	0 ... 2000 W/m²
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Accuracy	± 30 W/m ² compared to a Class B pyranometer, calculated from brightness and sun position
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Temperature

Measuring range	-50 ... +80 °C
Accuracy	±0,3 K (@ 25 °C)

Rel. Humidity

Measuring range	0 ... 100 % rel. h.
Accuracy	± 1.8 % rel. h. (10 ... 90 % rel. H.)

Brightness

Measuring range	0 ... 150 kLux
Accuracy	3 % of rel. measuring value

Twilight

Measuring range	0 ... 250 Lux
Accuracy	3 % of rel. measuring value

Air pressure

Measuring range	260 ... 1260 hPa
Accuracy	±0.25 hPa @ - 20 ... +80 °C @ 800 ... 1100 hPa ±0.50 hPa @ - 20 ... +80 °C @ 600 ... 800 hPa ±1.00 hPa @ - 50 ... -20 °C @ 600 ... 1100 hPa

Data output digital

Protocol	MODBUS RTU (preselected)
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Data output analog

Output parameters	wind speed, wind direction, brightness, precipitation, rel. humidity, air temperature, air pressure , etc.
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General

Dimension	Ø 150 x 220 mm
Weight	0.9 kg

Product number 4.9201.00.000

Temperature

Measuring range	-50 ... +80 °C
Accuracy	±0,3 K (@ 25 °C)

Rel. Humidity

Measuring range	0 ... 100 % rel. h.
Accuracy	± 1.8 % rel. h. (10 % ... 90 % rel. H.)

Air pressure

Measuring range	260 ... 1260 hPa
Accuracy	±0.25 hPa @ - 20 ... +80 °C @ 800 ... 1100 hPa ±0.50 hPa @ - 20 ... +80 °C @ 600 ... 800 hPa ±1.00 hPa @ - 50 ... -20 °C @ 600 ... 1100 hPa

Data output analog

Output parameters	wind speed, wind direction, rel. humidity, air temperature, air pressure , etc.
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General

Dimension	Ø 150 x 220 mm
Weight	0.9 kg

Product number 4.9201.00.001

Temperature

Measuring range	-50 ... +80 °C
Accuracy	±0,3 K (@ 25 °C)

Rel. Humidity

Measuring range	0 ... 100 % rel. h.
Accuracy	± 1.8 % rel. h. (10 % ... 90 % rel. H.)

Air pressure

Measuring range	260 ... 1260 hPa
Accuracy	±0.25 hPa @ - 20 ... +80 °C @ 800 ... 1100 hPa ±0.50 hPa @ - 20 ... +80 °C @ 600 ... 800 hPa ±1.00 hPa @ - 50 ... -20 °C @ 600 ... 1100 hPa

Data output digital

Protocol	MODBUS RTU (preselected)
----------	----------------------------

Data output analog

Output parameters	wind speed, wind direction, rel. humidity, air temperature, air pressure , etc.
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General

Dimension	Ø 150 x 220 mm
Weight	0.9 kg

Product number 4.9202.00.000

Precipitation

Measuring range general	0.001 ... 10 mm/min
Accuracy	typ. 95%

Radiation

Measuring range	0 ... 2000 W/m ²
Accuracy	± 30 W/m ² compared to a Class B pyranometer, calculated from brightness and sun position

Brightness

Measuring range	0 ... 150 kLux
Accuracy	3 % of rel. measuring value

Twilight

Measuring range	0 ... 250 Lux
Accuracy	3 % of rel. measuring value

Data output analog

Output parameters	wind speed, wind direction, brightness, precipitation, etc.
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General

Dimension	Ø 150 x 175 mm
Weight	0.7 kg

Product number 4.9202.00.001

Precipitation

Measuring range general	0.001 ... 10 mm/min
Accuracy	typ. 95%

Radiation

Measuring range	0 ... 2000 W/m ²
Accuracy	±30 W/m ² im Vergleich zu einem Class B Pyranometer, berechnet aus Helligkeiten und Sonnenstand

Brightness

Measuring range	0 ... 150 kLux
Accuracy	3 % of rel. measuring value

Twilight

Measuring range	0 ... 250 Lux
Accuracy	3 % of rel. measuring value

Data output digital

Protocol	MODBUS RTU (preselected)
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Data output analog

Output parameters	wind speed, wind direction, brightness, precipitation, etc.
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General

Dimension	Ø 150 x 175 mm
Weight	0.7 kg

Product number 4.9203.00.000

Data output analog

Output parameters	wind speed, wind direction, etc.
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General

Dimension	Ø 150 x 175 mm
Weight	0.7 kg

Product number 4.9203.00.001

Data output digital

Protocol	MODBUS RTU (preselected)
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Data output analog

Output parameters	wind speed, wind direction, etc.
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General

Dimension	Ø 150 x 175 mm
Weight	0.7 kg

Product number 4.9200.20.000

Precipitation

Measuring range general	0.001 ... 10 mm/min
Accuracy	typ. 95%

Radiation

Measuring range	0 ... 2000 W/m ²
Accuracy	± 30 W/m ² compared to a Class B pyranometer, calculated from brightness and sun position

Temperature

Measuring range	-50 ... +80 °C
Accuracy	±0,3 K (@ 25 °C)

Rain Temperature

Measuring range	5 ... 50 °C
Accuracy	0,5 °C

Rel. Humidity

Measuring range	0 ... 100 % rel. h.
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Accuracy	± 1.8 % rel. h. (10 ... 90 % rel. H.)
Brightness	
Measuring range	0 ... 150 kLux
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Product number 4.9200.20.001	
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Measuring range	0 ... 100 % rel. h.

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Brightness	
Measuring range	0 ... 150 kLux
Accuracy	3 % of measuring value
Twilight	
Measuring range	0 ... 250 Lux
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Rain Temperature	
Measuring range	5 ... 50 °C
Accuracy	0,5 °C
Brightness	
Measuring range	0 ... 150 kLux
Accuracy	3 % of rel. measuring value

Twilight

Measuring range	0 ... 250 Lux
Accuracy	3 % of rel. measuring value

Data output analog

Output parameters	wind speed, wind direction, brightness, precipitation, etc.
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General

Dimension	Ø 150 x 175 mm
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Product number 4.9202.20.001

Precipitation

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Radiation

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Accuracy	± 30 W/m ² compared to a Class B pyranometer, calculated from brightness and sun position

Rain Temperature

Measuring range	5 ... 50 °C
Accuracy	0,5 °C

Brightness

Measuring range	0 ... 150 kLux
Accuracy	3 % of rel. measuring value

Twilight

Measuring range	0 ... 250 Lux
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Data output digital

Protocol	MODBUS RTU (preselected)
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Data output analog

Output parameters	wind speed, wind direction, brightness, precipitation, etc.
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General

Dimension	Ø 150 x 175 mm
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Data output analog	
Output parameters	wind speed, wind direction, brightness, precipitation, rel. humidity, air temperature, air pressure , etc.
General	
Dimension	Ø 150 x 220 mm
Weight	0.9 kg

Accessories

Product	Product name	Brief description
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Cable for Clima Sensor US 509311	Cable assembled, 16-core connecting cable for Clima Sensor US • length 10 m <table border="1"> <tr><td colspan="2">General</td></tr> <tr> <td>Cable</td><td>FRNC 16 x 0,25 mm²</td></tr> <tr> <td>Length</td><td>10 m</td></tr> </table>	General		Cable	FRNC 16 x 0,25 mm ²	Length	10 m				
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Cable	FRNC 16 x 0,25 mm ²										
Length	10 m										
Cable for Clima Sensor US 509427	Cable assembled, 8-core connecting cable for Clima Sensor US. • length 10 m <table border="1"> <tr><td colspan="2">General</td></tr> <tr> <td>Cable length</td><td>10 m</td></tr> <tr> <td>Cable</td><td>LiYCY 8 x 0,25 mm²</td></tr> </table>	General		Cable length	10 m	Cable	LiYCY 8 x 0,25 mm ²				
General											
Cable length	10 m										
Cable	LiYCY 8 x 0,25 mm ²										
Thies Device Utility 9.1700.81.000	The PC program “Thies Device Utility” serves for the initial operation and configuration of Thies sensors with serial interface. The program can find all sensors connected to the PC, and facilitates an initial operation via terminal function. Thanks to a user-friendly surface design the communication with the sensors is very easy. <table border="1"> <tr><td colspan="2">General</td></tr> <tr> <td>Function</td><td>searching for Thies-sensors settings for the communication monitor-presentation of instantaneous measuring values and settings</td></tr> <tr><td colspan="2">Compatibility</td></tr> <tr> <td>Connectable instruments</td><td>Weather Station Compact WSC11 4.9056.00.000 Clima Sensor US 4.920x.00.000 US-Anemometer 2D 4.38xx.xx.xxx US-Anemometer 3D 4.3830.xx.xxx US-Anemometer 2D compact 4.3875.xx.xxx etc.</td></tr> <tr> <td>System requirements</td><td>PC with Windows 7 or higher</td></tr> </table>	General		Function	searching for Thies-sensors settings for the communication monitor-presentation of instantaneous measuring values and settings	Compatibility		Connectable instruments	Weather Station Compact WSC11 4.9056.00.000 Clima Sensor US 4.920x.00.000 US-Anemometer 2D 4.38xx.xx.xxx US-Anemometer 3D 4.3830.xx.xxx US-Anemometer 2D compact 4.3875.xx.xxx etc.	System requirements	PC with Windows 7 or higher
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System requirements	PC with Windows 7 or higher										



Power supply Unit
9.3389.20.000

Serves for the power supply of the ClimaSensor US as well as for the connection and distribution of cable resp. cable wires.

primary:

- 230 V AC

secondary:

- 24 V AC / 30 W

Operating voltage

Primary	230 V AC / 115 V AC
Secondary	24 V AC / 30 W

Electrical connection

Series terminals	16
Cable gland	3 x M16x1.5 1 x M20x1.5

General

Housing	plastic
Protection	IP 66
Dimension	ca. 125 x 112.5 x 104 mm
Weight	approx. 1.5 kg