Clima Sensor US

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

Suitable for drone/UAS weather data according to ASTM F3673-24

The CLIMA Sensor US supports unmanned aircraft systems (UAS) applications by providing reliable local weather data in accordance with ASTM F3673-24. Relevant meteorological parameters and measurement accuracies have been evaluated against the normative requirements. In key meteorological parameters, the specified accuracy requirements are met or exceeded.

Specification

Part number: 4.921x.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 Ω
Wind direction	0 ... 10 V
Voltage output	min. 2000 Ω
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 4.921x.x0.00x, but:

Product number 4.9213.00.000

Data output digital

Protocol	ASCII Thies format

Data output analog

Output parameters	wind speed, wind direction, etc.

General

Dimension	Ø 150 x 175 mm
Weight	0.7 kg

Product number 4.9213.00.001

Data output digital

Protocol	MODBUS RTU (preset)

Data output analog

Output parameters	wind speed, wind direction, etc.

General

Dimension	Ø 150 x 175 mm
Weight	0.7 kg

Product number 4.9212.20.000

Precipitation

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

Radiation

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

Brightness

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

Twilight

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

Data output digital

Protocol	ASCII Thies format

Data output analog

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

General

Dimension	Ø 150 x 220 mm
Weight	0.9 kg

Product number 4.9212.20.001

Precipitation

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

Radiation

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

Brightness

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

Twilight

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

Data output digital

Protocol	MODBUS RTU (preselected)

Data output analog

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

General

Dimension	Ø 150 x 220 mm
Weight	0.9 kg

Product number 4.9210.20.001

Precipitation

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

Radiation

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

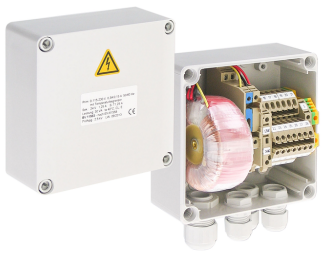
Temperature

Measuring range	-45 ... +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.
Accuracy	± 1.8 % rel. h. (10 ... 90 % rel. H.)
Brightness	
Measuring range	0 ... 150 kLux
Accuracy	3 % of measuring value
Twilight	
Measuring range	0 ... 250 Lux
Accuracy	3 % of 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)
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

	Cable for Clima Sensor US 509311	Cable assembled, 16-core connecting cable for Clima Sensor US • length 10 m **General** Cable FRNC 16 x 0,25 mm² Length 10 m
	Cable for Clima Sensor US 509427	Cable assembled, 8-core connecting cable for Clima Sensor US. • length 10 m **General** Cable length 10 m Cable LiYCY 8 x 0,25 mm²
	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. **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



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
secundary:
• 24 V AC / 30 W

Operating voltage	
Primary	230 V AC / 115 V AC
Secundary	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