

## 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<sup>®</sup> 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: 4.921x.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  $\pm 2^\circ$  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  $\Omega$

Wind direction 0 ... 10 V

Voltage output min. 2000  $\Omega$

**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  $\varnothing$  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  $\varnothing$  150 x 175 mm  
 Weight 0.7 kg

**Product number 4.9212.20.000**

**Precipitation**

Measuring range 0.001 ... 10 mm/min  
 general

Accuracy typ. 95%

**Radiation**

Measuring range 0 ... 2000 W/m<sup>2</sup>

Accuracy  $\pm$  30 W/m<sup>2</sup> 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  $\varnothing$  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/m<sup>2</sup>

Accuracy ± 30 W/m<sup>2</sup> 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 ∅ 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/m<sup>2</sup>

Accuracy ± 30 W/m<sup>2</sup> 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  $\pm 1.8$  % 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  $\pm 0.25$  hPa @ - 20 ... +80 °C @ 800 ... 1100 hPa  
 $\pm 0.50$  hPa @ - 20 ... +80 °C @ 600 ... 800 hPa  
 $\pm 1.00$  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  $\varnothing$  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  <b>General</b> Cable FRNC 16 x 0,25 mm <sup>2</sup> Length 10 m





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

