



**The economical alternative for the acquisition of meteorological measuring data.**

- Wind velocity
- Wind direction
- Precipitation
- Brightness
- Air temperature
- rel. Air humidity
- Air pressure
- GPS receiver
- Magnetic compass

# CLIMA SENSOR US

The Clima Sensor US acquires the most important meteorological data with high precision in only one instrument.

The Clima Sensor US measures up to 10 meteorological parameters (s. figure), depending on model available. On this basis diverse derived measures are calculated in addition, such as:

- Wind chill temperature,
- Heat index temperature,
- Absolute humidity,
- Dew point temperature.

An integrated GPS sensor serves for the position determination and as real time source. With this information the air pressure on sea level can be corrected, and the current sun position can be calculated.

A version with integrated magnetic compass calculates the aspecular angle of the sensor to the magnetic north pole, and thus can be used for the automatic north correction of the wind direction, and the brightness.

## Models available

The Clima Sensor US can be delivered in four basic variants. The measurements of the wind speed and wind direction are standard.

The instruments are equipped with a 19-pole plug, which leads through, among others, the signals of the analogue outputs, and serial interface.

An integrated boot loader offers the option to simply update also future innovation, via the serial interface in full-duplex mode (4-wire cable, RS422/455) as well as in half-duplex mode (2-wire cable, RS422/455)

8 analogue output channels (0 ... 10 V) are available, 5 channels of them can alternatively be configured universally.

## Field of application

The compact design, the easy installation, and the flexible data output are the basis for the application in many fields of the meteorological data acquisition.

The data output of the measuring values as analogue standard signal and/or MODBUS-RTU via RS485 as well as the minimum maintenance expense thanks to omission of mechanically-movable elements, proves to be advantageous with the use in the following fields of application:

- Building control
- Traffic control systems
- Meteorology
- Renewable energy
- Agriculture

## Output signals

Different means of communication offer highest-possible flexibility with the connection to super-ordinated controls and data acquisition systems.

### Serial ASCII protocol

Connection RS422/485, communication through serial data transmission in ASCII format.

### Serial MODBUS protocol

Connection RS485/422, communication through serial data transmission with MODBUS-RTU protocol.

### Analogue outputs

8 analogue voltage outputs, 0 ... 10 V each, 5 of them are free configurable.

**For more connectivity options please contact our sales staff, and request detailed information for your projects.**



**Brightness**

Four sensors detect the brightness of the individual cardinal directions.

**Precipitation**

A radar sensor acquires the precipitation quantity, and distinguishes between solid and liquid events.

**Wind direction and -velocity**

The wind velocity and -direction are detected by means of an ultrasound-based measurement.

**Derived measures**

From the basic measures can be calculated, for ex. the wind chill temperature, the heat index temperature, the absolute humidity, the dew point temperature.

**Compass**

An inclination-compensated magnetic compass determines the deviation of the Clima Sensor US to the North direction.

**Air pressure**

A piezo-resistive MEMS sensor inside measures the absolute air pressure. The air pressure on sea level (QNH) is calculated internally by means of the international height formula.

**Air temperature  
Rel. Air humidity**

An integrated hygro-thermo sensor measures the air temperature and relative air humidity.

**Analogue data output**

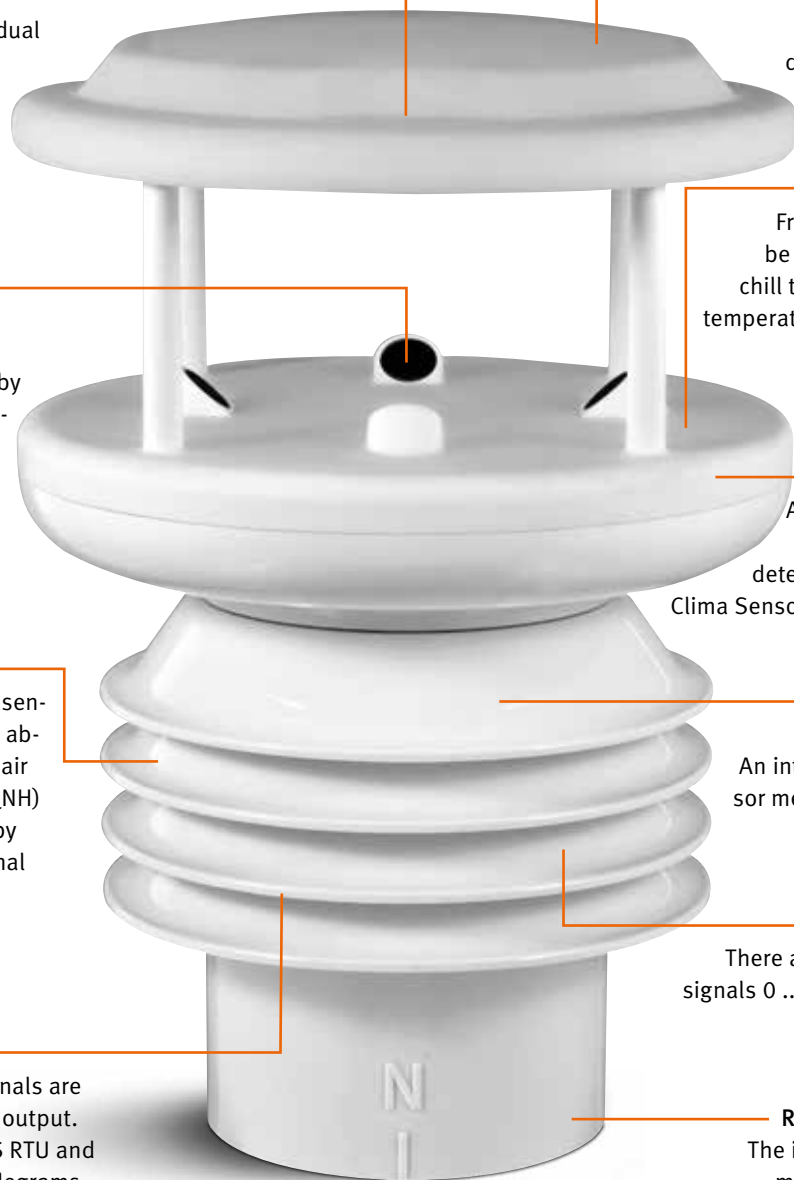
There are up to 8 analogue output signals 0 ... 10 V available, depending on model.

**Digital data output**

With all models, the signals are available via the digital output. Supported are MODBUS RTU and ASCII formatted data telegrams.

**Receiving port for mast tube**

The instrument is mounted on a mast tube of R 1½" diameter.



# CLIMA SENSOR US

## TECHNICAL DATA

Order-No.: 4.9200.00.00x

### Wind velocity

Measuring range	0 ... 60 m/s
Resolution	0.1 m/s
Accuracy	±0.3 m/s rms @ WV ≤ 5 m/s ±3% rms @ WV > 5 m/s ±3% rms f. Mv. @ WV > 5 ... 60 m/s

### Wind direction

Measuring range	0 ... 360°
Resolution	1°
Accuracy	±2° @ WV > 2 m/s

### Acoustic-virtual temperature

Measuring range	-40 ... +80 °C
Resolution	0.1 K
Accuracy	±0.5 K

### Air temperature

Measuring range	-40 ... +80 °C
Resolution	0.1 K
Accuracy	±0.3 K @ 25 °C

### rel. Air humidity

Measuring range	0 ... 100% rel. Humidity
Resolution	0.1% r. H.
Accuracy	±1.8% @ 10 ... 90% r. H.

### Air pressure

Measuring range	500 ... 1200 hPa
Resolution	0.1 hPa
Accuracy	±0.2 hPa @ 0 ... 65 °C and 800 ... 1100 hPa

### Brightness

Measuring range	0 ... 150 kLux
Resolution	0.3% of meas. value
Accuracy	±3% of meas. value

### Precipitation intensity

Measuring range	0 ... 999 mm/h
Resolution	0.001 mm/h
Type of precipitation	Rain, snow, sleet, ice crystals, hail

### Data output digital

Interface	RS485 / RS422
Baud rate	1200 ... 921600 baud
Output	instantaneous values, mean values
Output rate	10 ... 0.1 Hz
Protocol	ASCII (Thies-format) MODBUS RTU

### Data output analogue

Output	0 ... 10 V galvanically isolated from supply
Output	instantaneous value, mean values
Update	10 msec
Resolution	16 bit

### General

Bus operation	up to 99 instruments
Operating voltage	6 ... 40 V DC or 10 ... 28 V AC, 50 Hz / 60 Hz
Heating	24 V AC / DC, 25 VA
Electrical connection	19 pole plug
Housing	plastic material, UV stabilized, shock-proof, weather-proof
Protection	IP67
Dimension	Ø 150 x 220/175 mm
Mounting	Mast tube R 1½" (Ø 48.3 mm)
Weight	approx. 900 g
Temperature range	-40 ... +70 °C

### Accessories

<b>7.1415.00.200:</b> Universal data converter RS485 / analogue
<b>9.1700.98.001:</b> PC visualization software MeteoOnline

Models available: All models have RS485/422 interface, and analogue output

Order-No.	Wind	Precipitation	Brightness	Temperature	Air humidity	Air pressure	GPS-Receiver
4.9200.00.00x	X	X	X	X	X	X	X
4.9201.00.00x	X			X		X	
4.9202.00.00x	X	X	X				X
4.9203.00.00x	X						

4.920x.00.000 = Data protocol: ASCII (Thies-format)

4.920x.00.001 = Data protocol: MODBUS RTU

