Weather Station Thies Clima Sensor US

The CLIMA SENSOR US is used for acquisition of the most important meteorological parameters.

Description

- Compact weather station to measure the most important meteorological parameters
- Implemented GPS receiver
- RS485
- Modbus protocol

The CLIMA SENSOR US is used for acquisition of the most important meteorological parameters. Depending on the development level the device supplies measured data for:

- wind speed and direction, averaging acc. to WMO-recommendations
- air temperature
- relative humidity
- barometric air pressure
- precipitation
- brightness

The compact design, simple mounting and different options for data output permit operation with numerous applications.

Wind speed and wind direction are determined by acquiring 2-dimensional horizontal components of ultrasonic measurement paths positioned at right angles in relation to each other. The speed of sound can be additionally used to calculate and output the acoustic virtual temperature. The ultrasonic measurement principle allows inertia-free measurement of gusts and peak values.

Air temperature and relative humidity are measured via a built-in precision combination sensor, which is equipped with a weather and radiation shield. Barometric air pressure is measured with a MEMs (micro-electro-mechanical system) sensor, based on piezoresistive technology.

Measurement of the precipitation intensity are contactless using a signal reflected with a Doppler radar. When calculating, the intensity captured for the last minute is extrapolated to an output for one hour. The type of

precipitation can roughly be determined from the measured values of rainfall speed, intensity, temperature and humidity.

Brightness is captured by 4 photo sensors with spectral sensitivity curve. The direction of the light source is calculated using the prevailing intensity conditions. The logarithmic intensity characteristic of the photo sensors allows light intensities to be measured and output in a wide range between 1 – 150,000 lux.

A GPS receiver is used for the determination of position and as a real-time source. Additionally, it is used to calculate the current position of the sun. Position, time and position of the sun are provided via the RS485 / RS422 interfaces.

A RS485/422 interface is available for serial communication. It can be operated in full or half duplex mode. Predefined data telegrams are available for outputting measured values (e.g., VD, VDT, NMEA, etc.). A Modbus RTU protocol is additionally implemented for extended standardised communication. The device can be switched to Modbus RTU mode with the relevant command.

The CLIMA SENSOR US is equipped with a built-in heating system.

Specifications

Sensor connection diagram

Sensor connection to Ammonit Meteo-40 data logger

Sensor	Plug Pin No.	Ammonit Cable Wire Colour	Meteo-40 RS485M	Supply Sensor
Data	K	brown	Tx-	
Data	L	white	Tx+	
Ground	I	green, yellow		Signal Ground
Supply	E, F	red, pink		(+)24V AC/DC
Supply	D, G	grey, blue		(-)24V AC/DC

Connect the shield logger-sided to Ground (GND)
Cable type: LiYCY (TP) 4 x 2 x 0.25mm²

Note:
Cable is subject to change depending on the required cable length.

Sensor connection diagram to Ammonit Meteo-40 data logger

In order to connect the sensor to the Ammonit Meteo-40 data logger, an additional module set (M83555 or M83575) has to be implemented between sensor and data logger.