

STHC 102 – TEMPERATURE, RELATIVE HUMIDITY AND CO₂ TO THE INTERIOR WITH RS 485 OUTPUT (MODBUS)

H03.02en

DESCRIPTION AND APPLICATION

The STHC 102 temperature, relative humidity and CO₂ sensor is designed to measure the carbon dioxide concentration, temperature and relative humidity of the air in spaces protected against water. This combined sensor consists of a plastic ribbing head where a printed circuit board with the individual sensors and a converter is placed to establish a communication via the RS 485 bus. The temperature and relative humidity are measured by a common internal sensor whose signal is processed in a microprocessor and is converted to an output signal of MODBUS RTU. The CO₂ value is measured by a NDIR module whose digital signal is also converted to an output signal of MODBUS RTU. For the CO₂ concentration sensor, there is an autocalibration function available to set the sensor at the minimum CO₂ value corresponding to the outside concentration level. The STHC 102 temperature, relative humidity and CO₂ sensor meets the ingress protection of IP 30 according to EN 60529, as amended. Suitable design and high-quality material ensure that the sensor does not feel disturbing even in the interiors with high aesthetic requirements. The STHC 102 temperature, relative humidity and CO₂ sensor is designed to be operated in a chemically non-aggressive environment; its use must be chosen with regard to temperature and chemical resistance of the head and of the individual sensors.

The operating conditions to establish the correct function are:

- ambient temperature in the vicinity of the sensor: 0 to 45 °C
- relative ambient humidity: 0 to 95% (non-condensing humidity)
- atmospheric pressure: 87 to 106 kPa

DECLARATION, CERTIFICATES, CALIBRATION

Manufacturer provides **EU Declaration of Conformity**.

Calibration – The final metrological inspection – comparison with standards or working instruments – is carried out for all the products. Continuity of the standards and working measuring instruments is ensured within the meaning of the Section 5 of Act no.505/1990 on metrology. The manufacturer offers a possibility to supply the sensors calibrated in SENSIT s.r.o.'s laboratory (according to requirements of the EN ISO/IEC 17025 standard) or in an Accredited laboratory.

SPECIFICATIONS

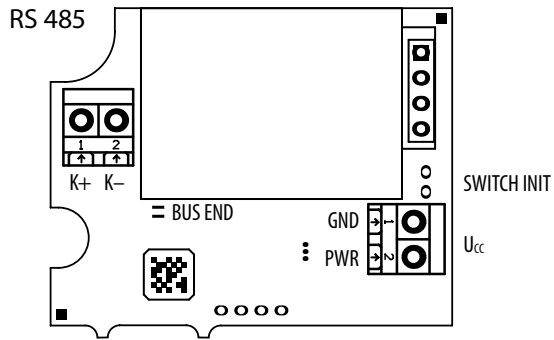
Sensor type	STHC 102
Temperature measurement range **	0 to 45 °C with guaranteed accuracy of CO ₂ measurement - 30 to 70 °C without guaranteed accuracy of CO ₂ measurement
Temperature measurement accuracy *	± 0.5 °C
Relative humidity measurement range *	0 to 85 % with guaranteed accuracy of CO ₂ measurement 0 to 95 % without guaranteed accuracy of CO ₂ measurement
Relative humidity measurement accuracy *	± 3 % in range 10 to 85 % ± 4.5 % in range 0 to 10 %
CO ₂ measuring range *	400 to 5000 ppm
CO ₂ measuring accuracy *	± 100 ppm *
Time response CO ₂ (90%)	90 s
Output signal	RS 485 / MODBUS RTU
Supply voltage U	15 to 30 VDC
Rated supply voltage Un	24 VDC
Consumption	maximum: 500 mW typical: 300 mW
Ingress protection	IP 30 acc. to EN 60529, as amended
Dimension of the head	71.9 x 59 x 27 mm
Material of the head	LEXAN
Weight min	35 g
Recommended wire cross section	0.14 to 1 mm ²

* The stated measurement ranges and accuracies for the individual sensors refer to operating conditions when the supply voltage is connected.

** Temperature sensor can be used in temperature range -40 to 80 °C for a short time.



WIRING DIAGRAM



GND, PWR – U_{CC} supply voltage
 K+/K- – communication line
 BUS END – RS 485 termination

DIMENSIONAL DRAFT

