

STHCPV 102 – TEMPERATURE, RELATIVE HUMIDITY, CO₂, ATM. PRESSURE AND VOC SENSOR TO THE INTERIOR WITH RS 485 (MODBUS) OUTPUT

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DESCRIPTION AND APPLICATION



Combined temperature, relative humidity, CO₂, atmospheric pressure and VOC interior sensors with RS 485 (MODBUS) output - STHCPV 102 is designed to measure the carbon dioxide concentration, air temperature, air relative humidity, atmospheric pressure and VOC (volatile organic compounds) concentration in spaces protected against water. Combined interior 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, relative humidity, atmospheric pressure and VOC 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. Combined interior 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 STHCPV 102 temperature, relative humidity, CO₂, atmospheric pressure and VOC interior 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, as amended) or in an Accredited laboratory.

SPECIFICATIONS

Sensor type	STHCPV 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 - 40 to 80 °C short-term
Temperature measurement accuracy *	± 0.5 °C in temperature 25 °C ± 1.0 °C in temperature 0 to 65 °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 20 to 85 % ± 4.5 % in range 0 to 19 % and 81 to 95 %
CO ₂ measuring range *	400 to 5000 ppm
CO ₂ measuring accuracy *	± 100 ppm *
Time response CO ₂ (90%)	90 s
VOC measurement range (IAQ index)*	0 to 500
VOC measurement accuracy *	± 15 %

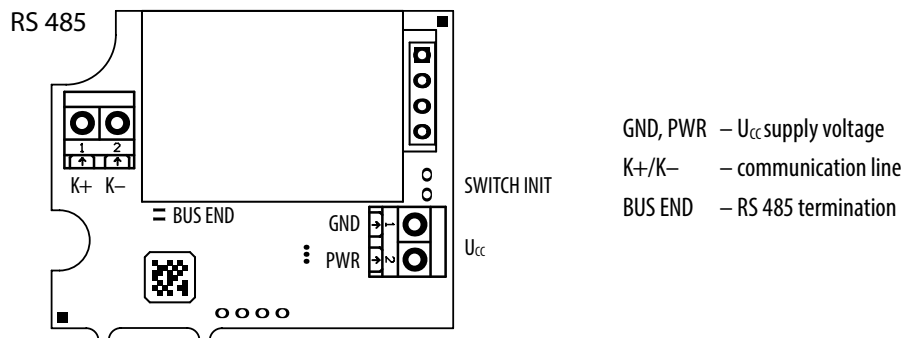
OTHER PARAMETERS

Atm. pressure measurement range *	300 to 1100 hPa
Atm. pressure measurement accuracy * (in temperature range 0 to 65 °C, in range of 300 - 1100 hPa)	absolute deviation: ± 0.6 hPa long term temperature stability: ± 1.0 hPa
Atm. pressure measurement accuracy * (in temperature range 25 to 45 °C, in range 700 - 1100 hPa)	absolute deviation: ± 0.12 hPa
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 °C to 80 °C for a short time.

WIRING DIAGRAM



DIMENSIONAL DRAFT

