

Particulate-hygro-thermo-baro sensor compact

The sensors are primarily intended for use in distributed fine dust measurement outdoors. For example, the fine dust distribution in a district can be recorded using several hygro-thermo-baro sensors. Thanks to its universal interface, the sensor can also be used as an individual solution in any suitable application.

The interface to the device is digital and consists of an RS485 interface in half duplex mode. In conjunction with ID-based communication the interface enables operation of the sensors in a bus system.

Two data protocols are available:

- ASCII (THIES format)
- Binary (MODBUS-RTU)

The sensor is equipped with a built-in pressure sensor, as well as a replaceable hygro-thermo module for recording the air temperature and relative humidity, as well as a replaceable fine dust sensor. The durable sensors are adjusted and calibrated at the factory.

Specification

Part number: 1.1007.54.xxx

Particulate

Measuring range	0 ... 1000 µg/m ³
Accuracy	PM2.5 @ -10...+60 °C ± 10 µg/m ³ @ 0 ... 100 µg/m ³ ± 10 % of measuring @ 100 ... 1000 µg/m ³ PM10 @ -10...+60 °C ± 25 µg/m ³ @ 0 ... 100 µg/m ³ ± 25 % of measuring @ 100 ... 1000 µg/m ³ (with no fog)

Temperature

Measuring range	-40 ... +60 °C
Accuracy	± 0.1 °C @ -40 ... +60 °C @ moved air > 2 m/s

Rel. Humidity

Measuring range	0 ... 100 % rel. Humidity
Accuracy	Typ. ± 1,5 % r. H. @ 25 °C and 80 % r. H. 2 % r. H. over the complete measuring range

Air pressure

Measuring range	300 ... 1200 hPa
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Accuracy ± 0.25 hPa @ -20 ... +60°C @ 800 ... 1100 hPa
 ± 0.50 hPa @ -20 ... +60°C @ 600 ... 800 hPa

Interface

Type RS 485 HD
 Data format 8N1, 8N2, 8E1, 8E2, 8O1, 8O2, 7E1, 7N1
 Baud rate 2400 ... 57600 Baud

Operating voltage

Battery connection 2x 12 ... 30 V DC

General

Ambient conditions -20 ... +70 °C
 0 ... 100 rel. humidity, including condensation

Current load Measurement electronics:
 typ. 360 mW
 max. 500 mW
 Ventilation:
 2 W

Housing Stainless steel, polycarbonate

Protection IP53

Dimension Ø 120 x 317

Weight aprox. 1.25 kg

Versions

As per 1.1007.54.xxx, but:

Product number 1.1007.54.780

Data output digital

Electr. output THIES ASCII

General

Electr. connection Measuring electronics with plug, weather and radiation protection with permanently connected 5 m cable.

Product number 1.1007.54.781

Data output digital

Electr. output MODBUS RTU

General

Electr. connection Measuring electronics with plug, weather and radiation protection with permanently connected 5 m cable.

Product number 1.1007.54.770

Data output digital

Electr. output THIES ASCII

General

Electr. connection Measuring electronics with plug, weather and radiation protection with permanently connected 5 m cable.

Accessories

Product	Product name	Brief description
	Connection cable Fine Dust Hygro- Thermo-Baro Encoder Compact 510641	For measurement electronics Particulate-Hygro-Thermo-Baro Sensor Compact. 5m, 4 x 0,25mm ² Shielded, UV- and seawater resistant General Cable length 5 m

