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/m³
Accuracy	PM2.5 @ -10...+60 °C ± 10 µg/m³ @ 0 ... 100 µg/m³ ± 10 % of measuring @ 100 ... 1000 µg/m³ PM10 @ -10...+60 °C ± 25 µg/m³ @ 0 ... 100 µg/m³ ± 25 % of measuring @ 100 ... 1000 µg/m³ (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

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 0,25mm² Shielded, UV- and seawater resistant **General** Cable length 5 m

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