DIGITAL IRRADIANCE SENSORS

SENSOR / ITEM NO.

SI-RS485TC-T-MB / 423.016
SI-RS485TC-2T-MB / 423.018
SI-RS485TC-T-TM-MB / 423.036
SI-RS485TC-2T-V-MB / 423.052

DESCRIPTION OF FUNCTIONS

The **SI-RS485TC-T irradiance sensor** measures solar irradiance intensity and internal module temperature (measured in the sensor). The RS485 interface makes it particularly suitable for industrial applications requiring long cable lengths.

In addition to the basic Si-RS485TC-T-MB variant, meteocontrol also offers several variants as described below.

TYPE	ITEM NO.	MEASURED DATA	FURTHER DETAILS
SI-RS485TC-T-MB	423.016	Solar irradiance Module temperature (sensor-internal)	--
SI-RS485TC-2T-MB	423.018	Solar irradiance Module temperature (sensor-internal) Ambient temperature	Firmly connected ambient temperature sensor (3 m connection cable) **Optional for additional purchase:** • Irradiation Shield-Tamb-Si (423.056)
SI-RS485TC-T-TM-MB	423.036	Solar irradiance Module temperature (sensor-internal) PV module temperature	Firmly connected module temperature sensor (3 m connection cable)
SI-RS485TC-2T-vMB	423.052	Solar irradiance Module temperature (sensor-internal) Temperature (PV module or ambient temperature) Wind speed	Two sockets for external sensors with preconfigured plug **Optional for separate purchase:** • Wind speed sensor Vwind-Si (423.053) • Module temperature sensor Tmodul-Si (423.054) • Ambient temperature sensor Tamb-Si (423.055) • Irradiation Shield-Tamb-Si (423.056)

TECHNICAL DATA

Supply voltage	24 V DC (12...28 V DC)
Current consumption	Typically 35 mA
Galvanic isolation	1000 V between supply and RS485 bus

IRRADIANCE MEASUREMENT

Solar cell	Monocrystalline silicium (50 mm x 33 mm)
Current measuring shunt	0.1 Ω (TK = 30 ppm/K)
Measurement range	0…1500 W/m²
Deviation	± 5 W/m² ± 2.5 % of measurement value, valid for temperature compensation, for spectrum AM 1.5 (vertical light incidence).

WIND MEASUREMENT

Measurement range	0.9 … 40 m/s
Deviation	0.5 m/s or 5 % from measured value

TEMPERATURE MEASUREMENT

Measurement range	-40…90 °C
Deviation	1.0 K (condition -35...80 °C)

MEASUREMENT VALUES RECORDED

G_M	Irradiance in module plane (value for WEB'log)
SRAD	Irradiance in module plane (value for blue'Log)
E_T_M1	Module temperature (sensor-internal measurement)
E_T_M2	Module temperature (external measurement)
E_AT	Ambient temperature
E_W_S	Wind speed

CONFIGURATION

Interface	RS485
Protocol	Modbus RTU
Default baud rate	19200
Selectable baud rates	9600, 19200, 38400
Default address range	11 to 50, see type plate
Default data format	8N1
Selectable data formats	8N1, 8E1
Note	Changes to the communication settings can only be made via a USB on an RS485 converter or via the manufacturer's software.

INSTALLATION

Installation	Horizontal mounting results in increased reflection on the glass and thus in greater measurement errors.
Operating temperature	–35…80 °C
Electrical connection	via 3 m connecting cable, weather and UV-resistant
Dimensions	155 mm x 85 mm x 39 mm
Housing, protection class	Powder-coated aluminium, IP 65
Weight	approx. 350 to 470 g

IRRADIATION SHIELD TAMB-SI

ITEM NO. 423.056

DESCRIPTION OF FUNCTIONS

Weather and irradiation shield for ambient temperature sensors with cable sensors. Optional accessory for:

- SI-RS485TC-2T-MB
- SI-RS485TC-2T-vMB

INSTALLATION

1. Remove the plastic holder on the Tamb-Si sensor. CAUTION: Do not damage the cable jacket!

Support bracket

Radiation shield

Main bracket

Tamb-Si

2. Install the cable gland in the main bracket.

3. Insert the Tamb-Si sensor in the cable gland. The sensor tube should extend less than 1 cm out of the cable gland.

ca. 1 cm
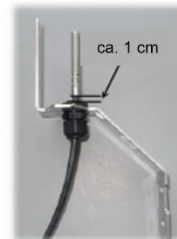
4. Install the radiation shield on the main bracket and support bracket.

109
71
272
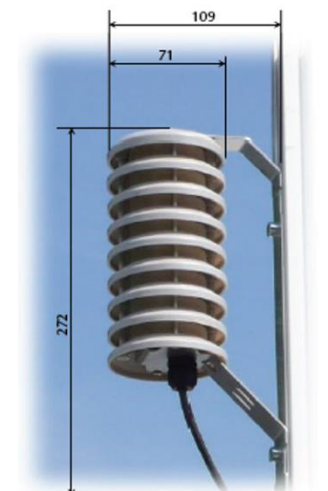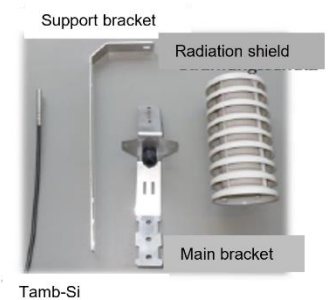
All measurements in mm
Weight: 270 g