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 irradiation sensor is used to record the intensity of solar irradiance. Furthermore, it can also record the module temperature (measured in the sensor). The RS485 interface makes it particularly suitable for the industrial sector, enabling particularly long lengths of cable.
In addition to the Si-RS485TC-T-MB, meteocontrol also offers two variants of the sensor, each with an additional connected sensor:

- Si-RS485TC-2T-MB: additional sensor for measuring the ambient temperature – firmly connected with a 3 m cable
- Si-RS485TC-T-Tm-MB: additional sensor for measuring the module temperature (external measurement) – firmly connected with a 3 m cable
- Si-RS485TC-2T-v-MB (sockets for optional connection to external temperature sensor and wind sensor)

	SI-RS485TC-T-MB	SI-RS485TC-2T-MB	SI-RS485TC-T-TM-MB	SI-RS485TC-2T-vMB
Item no.	423.016	423.018	423.036	423.052
1 x sensor to record the intensity of solar irradiance	✓	✓	✓	✓
1 x sensor to record module temperature (sensor-internal measurement):	✓	✓	✓	✓
1 x sensor to record module temperature (external measurement)	-	-	✓	-
1 x sensor to measure ambient temperature	-	✓	-	-
1x sockets for optional connection to external temperature sensor or wind sensor	-		-	✓*
1 x irradiation shield Tamb-Si (optional accessory, item no. 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

Measuring 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[1]	Irradiance in module plane
SRAD[2]	Irradiance in module plane
E_T_M1	Module temperature (sensor-internal measurement)
E_T_M2	Module temperature (external measurement)
E_AT	Ambient temperature
E_W_S	Wind speed

1.) Value for WEB'Log

2.) Value for blue'Log

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

*The wind speed sensor Vwind-Si / 423.053 and the module temperature sensor Tmodul-Si / 423.054 or the ambient temperature sensor Tamb-Si /423.055 are suitable for connection to the SI-RS485TC-2T-v-MB.