

Specification M&T Protocol

This document describes the M&T protocol of the RS485 port of the Sensor Si-RS485-TC-x, called „sensor“.

The data logger or a control system has the function of the master, the sensor has the function of the slave.
The sensor address has a range of 00 to 99. The sensor address is specified by the last two signs of the serial number. Each sensor has a fixed, for the user not changeable address.
Data format: 9600 baud, 8 data bits, no parity, one stop bit.

Command structure:

Master	Sensor	Comment
#aa0<CR>	<LF>*aa7<CR>	Command for recognition a sensor
#aav<CR>	<LF>*aavhhhsss<CR>	Command for requesting hardware and software version
#aa7<CR>	<LF>*aa7 <data1> <data 2> <data3> <data 4> <CRC><CR>	Command for data request

aa: Address of the sensor, defined by the last two signs of the serial number, setting by the manufacturer

0: Command for recognition a sensor

7: Command for data request

v: Command for requesting hardware and software version

hhh: Hardware Version

sss: Software Version

data 1: Measurement value for irradiance in [W/m²], field length: 6

data 2: Measurement value for cell temperature in [°C], field length: 5

data 3: Measurement value for external temperature (ambient, pv module) in [°C], field length: 5, optional

data 4: Measurement value for wind speed in [m/s], field length: 4, optional

CRC: Addition of all characters before CRC without <LF> as integer U8. Attention: The CRC could contain non-printable-characters.

All measurement values contain a decimal separator (0x2e) and one decimal place. The field length includes the decimal separator. At measurement values with a smaller field length space characters are added. Each measurement value has at minimum one space character before and behind. So, each command and each request contains a fixed number of characters.

Example (sensor with Bus address 01):

Master: #010<CR>

Slave: <LF>*017 <CR>

Master: #01v<CR>

Slave: <LF>*01v131108<CR>

Slave: <LF>*017__923.4__46.3__18.1__11.3__<CRC><CR> (space characters are displayed as _)

To prevent collisions all sensors at the same bus must have different addresses.