DC measurement devices

PVM-E33 : DC Power meter

Measurements:
V / A / P / Energy
Voltage input : Up to 1000 VDC
Current Input : 9 DC channels
Tariffs
Precision:
Energy : Class 1
Voltage : 0,5%
Current : 0,5%
Features:
1 RS485 Modbus communication port
Power supply : 80 – 270V AC/DC
Extension modules:
PVM-EXT : 12 DC current input channels
EMR-10 : 4 Digital Inputs + 2 Relay Outputs

PVM-EXT

EMR-10

Table of references

Code	Designation and composition
SM4000-TCP	Datalogger SM4000 with Modbus-TCP Ethernet Communication port
SM4000-4G	Datalogger SM4000 with Modbus-TCP Ethernet and 4G communication
SM4000-RF	Datalogger SM4000 with Modbus-TCP Ethernet and IQRF communication
GR42-TCP-WIFI	Remote Analog Input Module : 4 x PT100/1000 inputs ; 2 Analog inputs (0/4-20mA / 0-10V) ; IP66 ; RS-485 Modbus RTU
CTHA60	Ambient Temperature and Humidity sensor- 20/+60°C-IP65- RS485 Modbus RTU
CTS100	Surface temperature probe - PT100 -20 to 80°C with adhesive surface
CTHP45	Ambient Temperature and Humidity sensor in 6 plates shiels-40/+120°C- IP66- RS485 Modbus RTU
CVVM45	Wind speed sensor – Aluminium Alloy- RS-485 Modbus RTU
CDVM45	Wind direction sensor – Aluminium Alloy- RS-485 Modbus RTU
CRS320	Solar Irradiance sensor up to 1500 W/m² - IP65 – RS-485 Modbus
PVM-E33	DC power meter 1000VDC – 09 DC current input channels - class 1- RS-485 Modbus RTU
PVM-EXT	12 DC current input channels for PVM-E33 DC pwer meter
SMC-4001-TCP	COMPLETE WEATHER STATION - Amb Temp and Humidity + ground radiation. + Wind speed - stainless steel structure H 0.6m - Datalogger SD32GB - Modbus TCP
SMC-4001-4G	COMPLETE WEATHER STATION - Amb Temp and Humidity + ground radiation. + Wind speed - stainless steel structure H 0.6m - Datalogger SD32GB - Modbus TCP / 4G Modem
SMC-4001-RF	COMPLETE WEATHER STATION - Amb Temp and Humidity + ground radiation. + Wind speed - stainless steel structure H 0.6m - Datalogger SD32GB - Modbus TCP / RF Modem
SMC-4002-TCP	COMPLETE WEATHER STATION - Amb Temp and Humidity + ground radiation. + Wind speed - Aluminium structure H 0.6m - Datalogger SD32GB - Modbus TCP
SMC-4002-4G	COMPLETE WEATHER STATION - Amb Temp and Humidity + ground radiation. + Wind speed - Aluminium structure H 0.6m - Datalogger SD32GB - Modbus TCP / 4G Modem
SMC-4002-RF	COMPLETE WEATHER STATION - Amb Temp and Humidity + ground radiation. + Wind speed - Aluminium structure H 0.6m - Datalogger SD32GB - Modbus TCP / RF Modem
Other Dimensions of the structure on demand	

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PV Power plants monitoring solutions

MEIER

The **SMC4000** weather station keeps you informed at all times about the efficiency of your photovoltaic plant.
Thanks to our wide range of sensors, we provide you with weather information tailored to your needs.
The high storage capacity and scalability of the solution allow you to manage very large sites with a single weather station.

Six reasons to choose our solution:

1 - Industrial quality
- Low startup and configuration effort. Plug-and-Play solution ready to use
- Easy connection with circular M12 connectors
- IP66 waterproofing

2 - Wide choice of sensors
- Sensors for ambient temperature, ambient humidity, wind speed, wind direction, solar radiation and PV panel temperature
- Possibility of integrating other sensors thanks to the RS-485 port and the two available analog inputs (4..20mA/ 0..10V)

3 - Extensibility
- RS485 port (Master) for the integration of up to 32x GR42 expansion modules (4xPT100 + 2xAI)
- Possibility of integrating other Modbus equipment (on request)

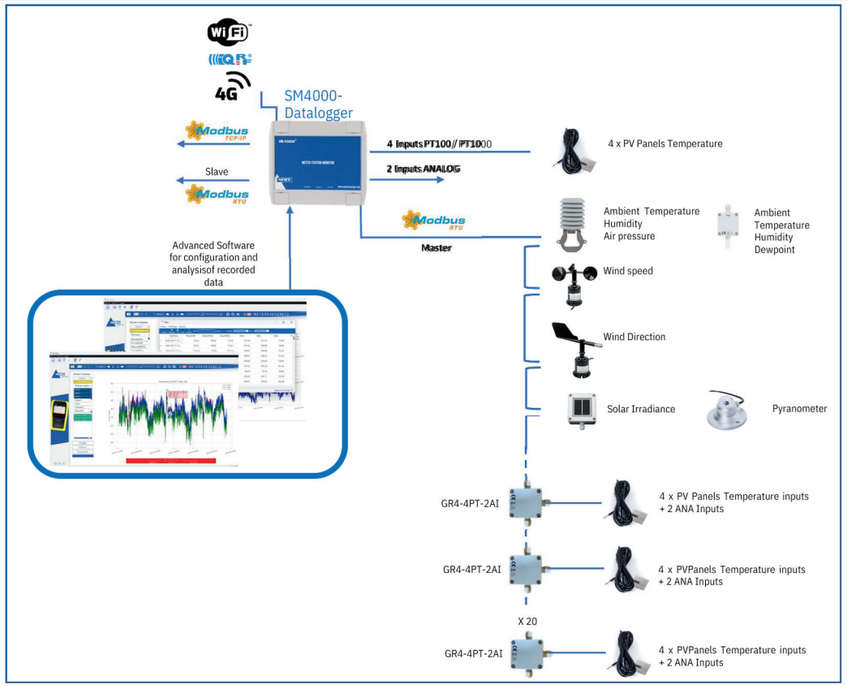
4. Large data storage capacity
- Onboard memory: 32 GB
- Several years of data
- Sampling period from 1s to several hours

5. Advanced communication
- 2x RS-485 Modbus RTU ports
- 1 Modbus TCP Ethernet port
- 4G/5G communication – Wifi – IQRF (optional)
- Other protocols on request

6 - Powerful and free software

M-Visu software provided free of charge. It allows:
- Settings in local and remote mode,
- Downloading data and reading recorded data
- Several integrated statistical analysis tools

SM4000 Datalogger



SM4000 Datalogger

The **SM4000 Datalogger** is designed for universal use and supports the connection of up to 32 modbus communicating **GR4-4PT-2AI** sensors and expansion modules.
In addition, the **SM4000** is reliably protected against power surges and bad weather.

The sensors are easily configured via the **M-Visu** software. The acquired weather data is recorded locally in the Datalogger's internal memory (32GB capacity) at intervals ranging from 1 second to several hours (configurable at the software level). The storage capacity is more than 10 years.

The **M-Visu** software (provided free of charge) allows the visualization and analysis of recorded data using very advanced tools, in addition to editing reports.
Thanks to its RS-485 and Ethernet communication ports, the **SM4000** can be easily connected to any PV monitoring system or SCADA supervision system using the Modbus TCP protocol.

SM4000 Datalogger specifications :

SM4000 is a Datalogger and at the same time a remote management controller (RTU) designed for remote monitoring of the main environmental parameters of small and large photovoltaic power plants. It has several digital and analog inputs and can manage up to 32 GR42-4PT-2AI expansion modules. It integrates easily and intuitively into any SCADA on the market

- Simultaneous data transmission over 4G/3G/2G network, Wi-Fi and Ethernet
- 8 MB internal data logging memory
- Expansion slot for SD memory card (32 GB)
- Programmable data logging interval from 1s
- 2 configurable analog inputs 0…20mA; 4…20mA; 0-10V
- 4 Inputs for temperature sensors (PT100 or PT1000)
- 1 RS-485 Modbus Master communication port: manages up to 32 GR42-4PT-2AI expansion modules
- Modbus support via RS485 port (Slave) and Ethernet for data reporting to any SCADA system
- Support for fixed IP addresses and DDNS
- Configuration and downloading of recorded data via USB, serial port or Ethernet
- Data analysis recorded via M-Visu software (free)
- Power supply 12 to 36 VDC
- Protection degree : IP66

Input/Output Remote modules

GR4-4PT-2AI : Remote Analog inputs Module

- 4 Inputs for temperature sensors PT100 or PT1000
- 2 Analog inputs 0/4..20mA or 0-10V
- RS485: 1200bps to 115.2kbps
- Power supply: 12V to 36 VDC
- Protection degree : IP65

Features

Temperature and Humidity Sensors

CTHA60 : Ambient Temperature & humidity measurement probe

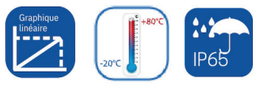
- Temperature measurement range : -20 to 60°C.
- Accuracy, +/-0.5%
- Relative humidity measurement range : 0 to 100%.
- Accuracy : +/-0.5%
- Calculation of dew point and absolute humidity
- Communication : RS-485 Modbus
- Power supply : 9V to 24V DC
- Protection Degree : IP65
- Mounting : with drill hole to be fixed with a screw
- Dimensions, 38x58x118mm

Features

CTS100 : Surface temperature probe - PT100

- Temperature range : -20 to 80°C
- Stainless steel probe and plate
- Probe dimensions: φ 6x35mm
- Plate dimensions : 50x50x1mm
- Adhesive on the back of the plate + fixing hole
- Cable length : 1 m

Features



CTHP45 : Ambient temperature and humidity sensor with housing

6 plates solar radiation shield

- Temperature Range: -40-+120℃ (-40-+257℉)
- Humidity Range:0～100%RH (Non-dewy state)
- Accuracy: ±0.2 @ 0-90 °C; ± 2%RH (0 ~ 100%RH)
- Resolution: 0.1°C; 0.01% RH
- Output Signal: RS485
- Power Supply: 5-12V DC
- Operating Temperature: -55℃~120℃;
- Operating Humidity: ≤95%RH
- Protection Degree : IP66

Wind Sensors

CVVM45 : Wind speed sensor

Compact design and high measurement accuracy. Aluminium Alloy. Output Interface with RS485 Modbus.
- 3 measurement ranges: 0-30m/s; 0-50m/s or 0-60m/s
- Starting wind speed: ≤ 0.3m/s
- Accuracy: ± (0.3+0.03V) m/s
- Response time: <1 second
- Working Temperature: -30 ℃~70 ℃;
- Working Humidity: ≤ 100% RH
- RS485 (standard Modbus RTU protocol)
- Material: Aluminum Alloy
- Power supply voltage: 5-20V DC
- Cable specification: 2 meter 4-wire system (RS485)

CDVM45 : Wind Direction Sensor

Wind angle and wind direction measurement sensor, with high accuracy and fast response time
- Measurement Range 0～360°
- Accuracy ±1°
- Resolution 0.1°
- Start wind speed ≤0.5m/s
- Maximum turning radius 100mm
- Working Temperature: -30℃～70℃;
- Working Humidity: ≤100%RH
- RS485 (standard Modbus-RTU protocol)
- Material : Aluminum Alloy
- Power supply voltage : 5 to 24V DC
- Cable specification: 2 meter 4-wire system (RS485)
- Protection Degree : IP65

Solar Irradiance Sensors

CRS320 : Solar irradiance sensor 1500 W/m² - RS485

- Sensor type : Monocrystalline cell (33 mm / 40 mm)
- Measuring range : 0 – 1500 W/m²
- Sensor accuracy : ± 5 % (annual mean)
- Supply voltage : 12 – 30 V DC
- Casing : Polycarbonate, UV-resistant, with PG screw joint and pressure differential valve
- Connection terminals : 1.5 mm²
- Mounting : with drill hole to be fixed with a screw
- Protection Degree : IP65
- Dimensions 150 mm x 80 mm x 60 mm