Solar Monitor
Installation Instructions

Package content including standard accessories

Solar Monitor

- Solar Monitor SM2-MU
- Installation instructions
- CD
- Screws for wall

Power supply or adapter

a) supply for DIN rail
b) adapter for European outlets

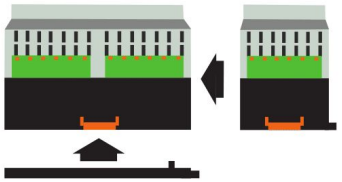
Other basic set of accessories

- Sensor exposure
- PV panel temperature sensor (1.5 m)
- Ambient temperature sensor (5 m)
- Wiring for sensor exposure
  a) 10 m PUR cable with molded plug
  b) + M8F possible connector cable

1. Step

Installation of additional modules

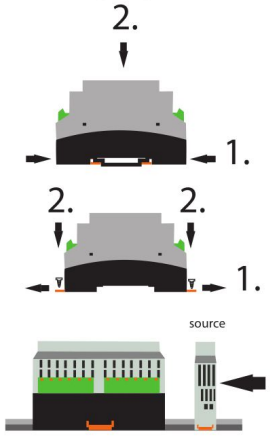
If you are installing SM2-MU without additional modules, skip this step.
Connect the bus HBUS SM2-MU. Then connect all modules together SM2-MU as shown below.



2. Step

Mechanical fastening

Solar Monitor, including any associated source modules can be mounted on wall or DIN rail mounting according to the following images.



3. Step

Digital inputs and outputs

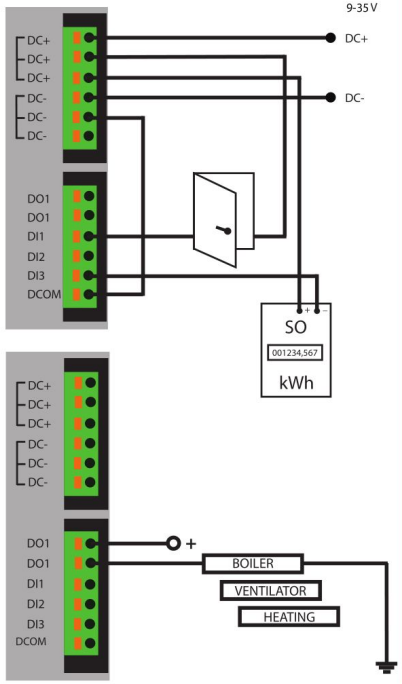
Inputs

Solar Monitor has 3 digital inputs DI. Input DI3 can then be used for counting energy from electricity meter.

For the using of inputs is necessary to bring the power signal DC- to terminal DCOM. For switching input is necessary to bring the signal DC+ to the appropriate terminal DI.

Outputs

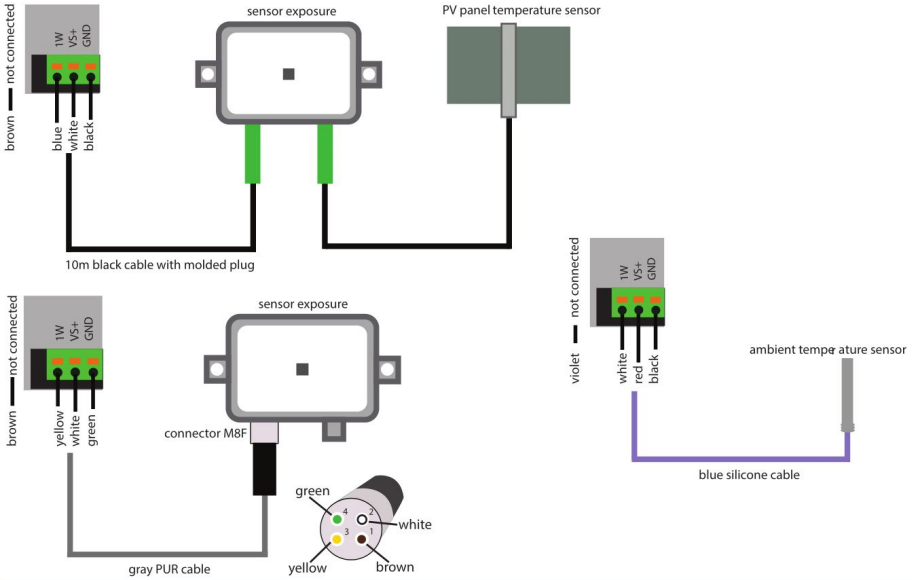
We can use a relay, which is in SM2. Realy may control the boiler. For example depending on the current ambient temperature, the relay is able to run ventilation, or depending on the current power, relay can control a boiler through the contactor . Load that can be permanently switched is 750VA / 90W. Relay (32 V, 3 A) is protected by a fuse.



4. Step

Connection of sensors

The Solar Monitor can connect up to 10 sensors. The total cable length must no exceed 100 meters. The following sensors can be connected with described cables. In the case of using multiple sensors connect the various cables in parallel to the same terminal.



5. Step

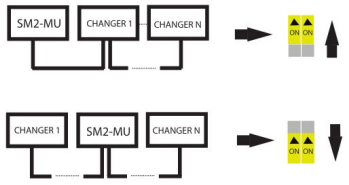
Connecting the inverters

Depending on the manufacturer of the inverter the following SM2-MU terminals are used: A, B, 4GND, Z, Y, or DC+ and DC -. If the SM is at the beginning of the bus, it is necessary to place the sliding switch to ON.

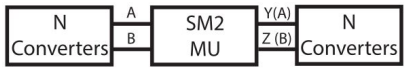
Similarly, for the inverter - if it supports the bus termination, switch it at the last in a series according to the manufacturer´s instructions. How to connect the inverters to the Solar Monitor and whether they support the bus termination are listed in the following table.

The Solar Monitor can be connected to two separate branches of inventers with the same or different types if no type requires the involvement of all signals A, B, Z and Y. The second branch is then angaged as shown below except A anb B. Then A and B are connected to Y and Z.

On / off bus termination in SM2-MU.



Involvement of two separate branches of the drive.



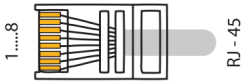
SM2-MU	Z	Y	4 GND	B	A	DC+	DC-	Support termination	Hand addressing	Transmission speed
AEG	4 (Rx-)	3 (Rx+)	1 (GND)	5 (Tx-)	6 (Tx+)	–	–	✓	–	9600
Power - One (aurora)	–	–	RTN	-T/R	+T/R	–	–	✓	✓	optional
Carlo Gavazzi	–	–	5 (GND)	8 (RXB)	7 (TXA)	–	–	✓	–	optional
Danfoss	–	–	1	3	6	–	–	✓	–	19200
Delta	–	–	GND	6	7	–	–	✓	✓	optional
Diehl	–	–	shield	B	A	–	–	✓	–	19200
Fronius (OUT!)	6	3	2	5	4	–	–	✓	✓	optional
Kaco	–	–	–	A	B	–	–	✓	✓	9600
KOSTAL	–	–	3	2	1	–	–	✓	✓	19200
Mastervolt	–	–	–	3	4	–	–	✓	–	9600
Omron	–	–	6: GO	8: A-	7: B+	–	–	✓	✓	optional
Refusol	–	–	–	3	2	–	–	✓	✓	57600
Santerno	–	–	–	S-	S+	–	–	✓	–	optional
Schneider (SunEzy)	4 (Rx-)	3 (Rx-)	1(GND)	5(Tx-)	6(Tx-)	–	–	✓	–	9600
Siemens	–	–	–	B	A	–	–	✓	✓	optional
Siliken	–	–	5(GND)	8(RXB)	7(TXA)	–	–	✓	–	optional
SMA	–	–	5	7	2	–	–	✓	–	1200
Solar Max	–	–	–	8	7	2(15V)	3	–	✓	19200
Sungrow	–	–	–	B	A	–	–	✓	✓	optional
Sunwille	4 (Rx-)	3 (Rx-)	1(GND)	5(Tx-)	6(Tx-)	–	–	✓	–	9600
Vacon	–	–	5	3	4	–	–	✓	✓	optional
Xantrex (GT100-630E)	–	–	GND	Rxtx-	Rxtx+	–	–	✗	optional	optional

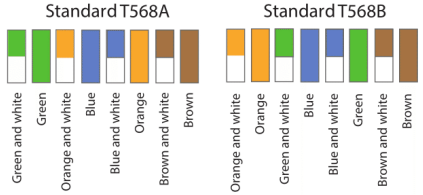
6. Step

Connecting to a LAN

The unit is connected to a LAN (to a switch) straight UTP cable, connect directly to a PC requires a crossover UTP cable. UTP cables for connection to the network can be purchased in stores with computers. Correct function of the network is recognized if the green light "LINK" lits.

Straight UTPcable = both ends of the same (T568A)
Crossover UTP cable = T568A + T568B

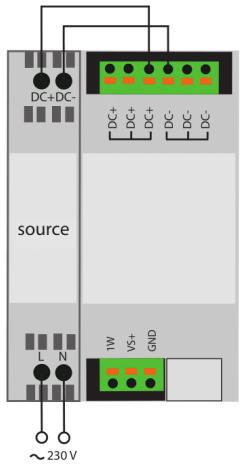




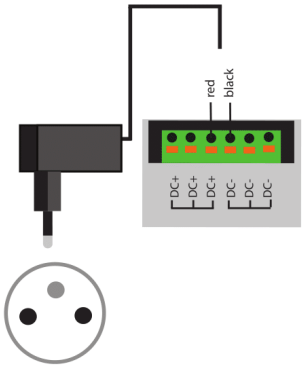
7. Step

Connecting the power supply

a) Source for DIN rail



b) The socket adapter



8. Step

First Run

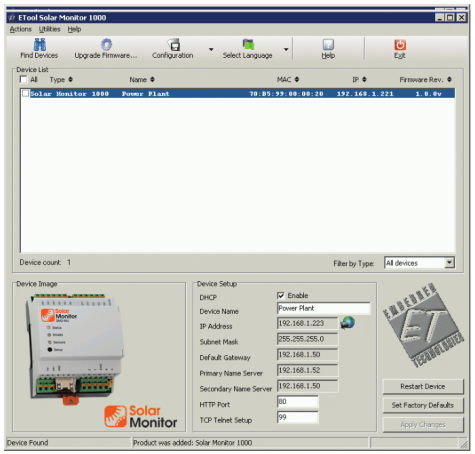
After powering the green status LED diode lights up. At the same time the green LED on the network connector lights up and simultaneously begins to flash orange.

By default, the unit has enabled DHCP client mode. IP adress is obtained automatically from the DHCP server on the local network (if available).

In case you do not have a DHCP server in your network, connect the unit to the power supply and when the green LED Status lights, press the Setup button 3 times. After a few seconds, you can connect to a fixed IP address 192.168.1.99.

For connecting the unit, use a web browser and enter the address "http://192.168.1.99" or the address from the DHCP.

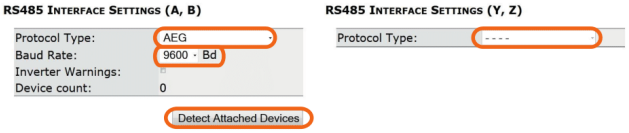
For searching units on the network can be used the Etool application (download http://www.solarmonitor.cz in the Download section). This application finds your unit regardless of the setting IP address.



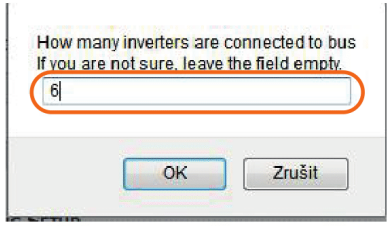
9. Step

Detection of inventers

After opening a web browser open the System Settings page/ Measuring & RS485. Here we choose protocol according to the interface and choose baud rate according to the type of connected inverters.
If we have two branches of inverters connected, select the second interface and also fill required information.



After pressing "Detect Attached Devices" enter the number of inverters connected to the first branch and consequently the number of inverters on the second branch. Auto detection can take up to several minutes depending on the type and the number of connected inverters.

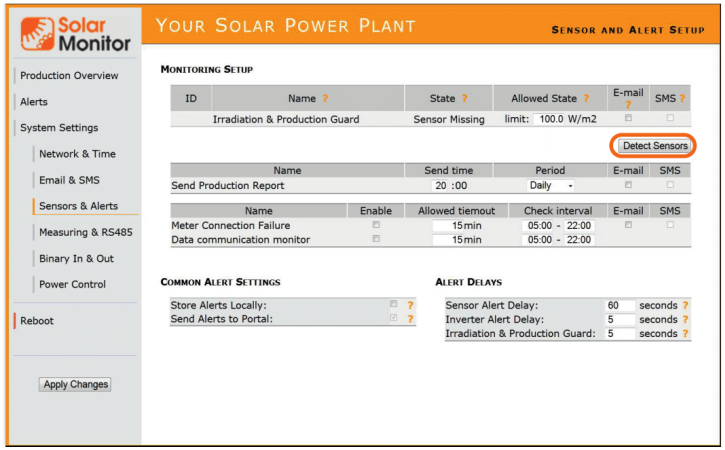


10. Step

Detection of sensors

Open the menu System Settings / Sensors & Alerts.

To retrieve the sensors you need to click on the "Detect Sensors" and wait 5-7 seconds. If the sensors fail to get detect, try to gradually connect different parts of the line of the sensors to detect the probable error in the cabling.



11. Step

Setting the energy

Counting the total energy production can be done in two ways listed below on the page the System Settings / Measuring & RS485.

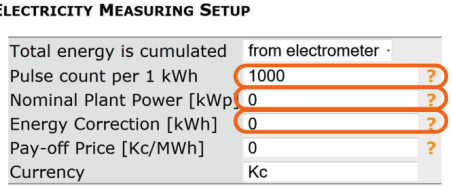
a) from inverters

In the field "Pulse count per 1kWh" is filled 0 and subsequently the total energy is the sum total kwh of all inverters

b) from electrometer (more accurate)

It should be connected to the output SO of the electrometer and there adjust the number of pulses which electrometer generates to 1 kWh. This constant is defined by a producer of the electrometer should to be filed in the field Pulse count per 1 kWh".
It should be also filled the current meter reading in the field "Energy Correction".

Fill the field "Nominal Plant Power"



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