

# Solar Monitor

## Installation manual SM2-RM-GSM

### Package content

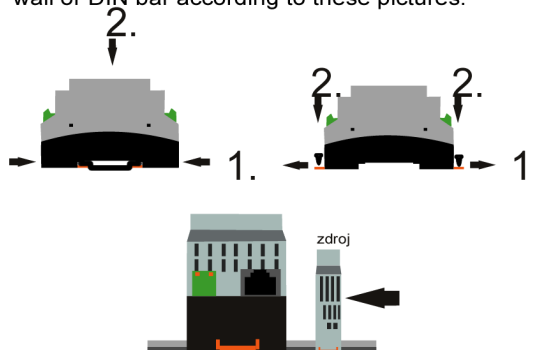
### Remote reading

- SM2-RM-GSM
- installation manual

### 1. Step

### Mechanical fastening

SM2-RM-GSM and source can be fixed to the wall or DIN bar according to these pictures.

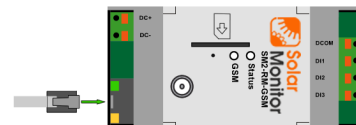


### 2. Step

### LAN network

Connect the unit to the LAN network (to the switch, to PC) by straight or cross UTP cable.

Connect the UTP cable to the SM2-RM-GSM into the RJ45 connector. LAN connection works correctly if green diode „LINK“ on RJ45 connector lights on the device SM2-RM-GSM (after power connection, see further ).

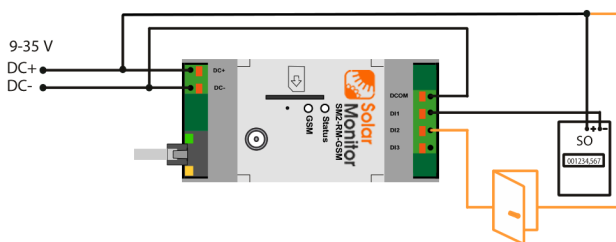


### 3. Step

### Digital inputs

The SM2-RM-GSM has 3 digital DI inputs. You can easily connect the movement sensor, lightning arrester, optical barrier, door sensor and other types of devices which signalize their state by contact output. These 3 digital inputs can be used for electrometer, gasmeter and watermeter energy reading. It is necessary that all these counters have pulse output, named S0 with electromeres. We bring power signal DC- to the terminal DCOM.

Switching on works only if there is a voltage bigger than 8V between terminals DCOM and DI (DI1-DI3).

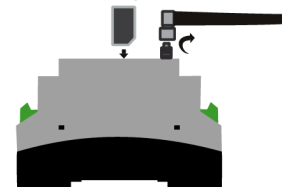


### 4. Step

### Inserting SIM card and antenna connection

Insert SIM card according to the picture. click the SIM card, it has to be plugged completely. Don't set any PIN code on the SIM card. This can be done e.g. using your mobile phone. Connect the antenna with SMA connector to the SM2-RM-GSM modem.

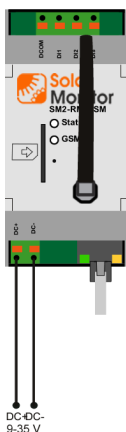
The device starts sending data using GSM, if you disconnect UTP cable from net connector (convenient after Step 9).



### 5. Step

### Power

Connect the power (9-35 V) to the SM2-RM-GSM unit according to this picture.



### 6. Step

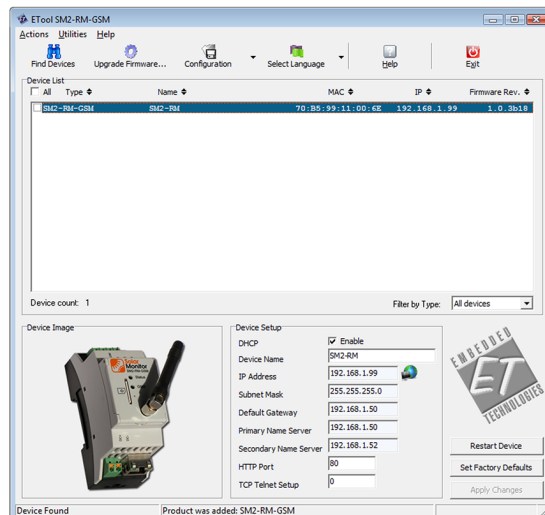
### First start up

After power switching the green diode Status will light. The green LED diode of ethernet connector will light also and orange will flash at the same time. The unit has DHCP client status allowed in the default setting - it gets the IP address automatically from DHCP server in the local network (if available).

In case you don't have DHCP server in your network, the device tries to get IP address for 20 second firstly and then it is possible to connect in 192.168.1.99 address. By writing this IP address to your internet browser you can see the unit web interface.

You can use Etool application for searching for units in network (download here: <http://www.solarmonitor.cz>, section Support/Download/Utility). Utility ETool can search for devices in network, configure ethernet setting, set the initial configuration of the device and device restart. Searching is possible only if the device is configured to any other network than connected into. You can open device web interface by using Etool application.

Open Etool and click on Find Devices upper left. Mark the line with found unit and click on the device picture down on the left or click on the picture that is at the end of the IP address line. You can get into the device web interface this way.



# 7. Step Configuration

The device has 3 optoelectronically isolated inputs, that can be configured for pulse reading of input status reading. You can name the input arbitrarily.

## Pulse reading

Up to 3 different counters can be connected to SM2-RM-GSM. Each of them can be electrometer, gasmeter or watermeter.

Open the menu "System Settings/ Inputs and Meters" in your internet browser.

Set the input function – Counter. Choose the impulse counter according to the counted media (electricity, gas, water). Set the pulse number for one unit (kWh, m<sup>3</sup>), generated by your counter on S0 output. You can find this information from the counter label or from the counter documentation. If you set wrong value, the SM2-RM-GSM will show wrong data about produced energy.

Then it is necessary to write the actual counter status into the field "Meter Correction". If the device serves for counting of electricity produced by your plant, write the parameter Nominal Plant Power.

**INPUT 1**

Function: Counter ?

Name: Electrometer ?

Counter Type: Elmeter Supply ?

Pulse count per 1 kWh: 1000 ?

Meter Correction [kWh]: 89.5 ?

Nominal Plant Power [kWp]: 5 ?

Note: counted pulses can be deleted by energy correction change, by input function change (counter, non-active) or by pushing and holding the reset button (for approx. 4 sec), it is on the cap below the Status diode (you can use eg. paperclip).

## Inputs setting

If the user chooses the Input function, it will have 0 or 1 value (connected, disconnected).

Choose the allowed value of the input. Write the input name.

**INPUT 2**

Function: Input ?

Name: Door sensor ?

# 8. Step Sending to the Portal

On the address <http://portal.solarmonitor.cz> you can find information from the SM2-RM-GSM unit always available without need of having public IP address. You have possibility of detailed analyses and OTE reporting.

## How to set sending

In the SM2-RM-GSM enter the menu System Settings/Network and time.

Enable the sending to the portal...

**PORTAL SETUP**

Sending Enabled:  ?

Portal Address: portal.solarmonitor.cz ?

Service Path: /service/server.php ?

Remote Port: 80 ?

Sending Period: 5 min ?

...press the button **Apply Changes**. From that moment the unit will send data to the Portal with set period.

Test the sending function:

**PORTAL COMMUNICATION TEST**

State : ?

**Test now**

The test message will be sent to the Portal and the delivery status will be shown. If data were sent correctly, the new account on the address <http://portal.solarmonitor.cz> will be created. Data will be saved there.

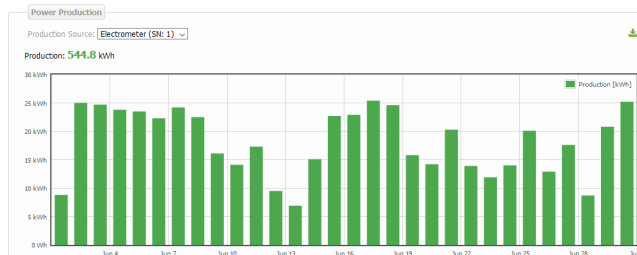
**PORTAL COMMUNICATION TEST**

State : Úspěšně odesláno

**Test now**

For login to Portal use the default user name. It is the 6 last characters of SM2-RM-GSM MAC address (without double dots, it is on the sheet below the unit). Password is heslo. Use these login information for the first login. Then we recommend to change login information.

You can also watch counted values in the clear graph with the Portal.



# 9. Step GSM internet setting

Enter the menu System Settings/Network and time in the SM2-RM-GSM.

Write the correct APN address according to your mobile operator in the GSM internet menu. Each operator has different APN.

**GSM INTERNET**

APN Address: internet ?

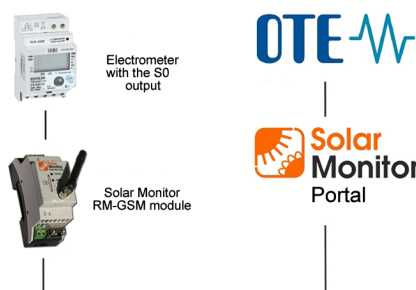
Dial-up Number: \*99# ?

Name: ?

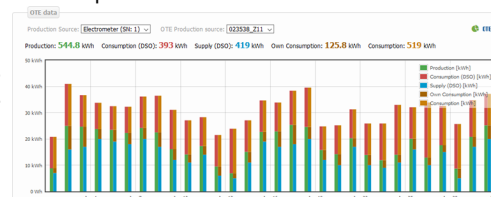
Password: ?

# 10. Step OTE

SM2-RM-GSM sends electrometer data to the Portal Solar Monitor, they are paired with data from the Electricity market operator (OTE). As soon as OTE gives needed data, Portal Solar Monitor will send you authorization e-mail.



There is a clear graphic image on the Portal incl. values from electrometer for consumption and production.



You can use service Portal Solar Monitor incl. OTE reporting also in your smartphones with Android operation system.



More information: <http://wiki.solarmonitor.cz>