

Solar module for EMS

For the user

Please read carefully
before use.

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1 For your safety

The SM10 function module has been developed and built in accordance with currently recognized standards and safety requirements.

However, dangers may arise if it is used improperly.

- You should therefore only operate the heating system as intended and when it is in perfect working order.
- Please read these instructions carefully.
- Always observe the safety instructions to prevent personal injury and property damage.

1.1 About this manual

These operating instructions describe the functions of the SM10 function module. They supplement the operating instructions of the RC35.

1.2 Intended use

The SM10 function module can only be used in conjunction with heating systems that have the Energy Management System (EMS) from Buderus.

The SM10 function module enables the heating system to heat DHW using solar energy.

The SM10 function module can only be operated, adjusted and controlled using the RC35.

1.3 Please observe these notes



WARNING!

RISK OF LIFE

from electric shock.

- Only a trained technician should be asked to work on electrical components.



USER NOTE

If a dual mode or thermosiphon tank is used, the thermal disinfection function is not available and generally not needed (see the RC35 operating instructions). If, however, you wish to use the thermal disinfection function, then other customer-supplied components are needed. These are not connected to the controls.

1.4 Disposal

- Dispose of discarded components in an environmentally responsible manner through an approved organisation.

2 Product description

The SM10 function module is used to control a solar heating system with a solar consumer (solar tank) for DHW heating.

Installing the SM10 function module makes the following functions available:

- Selection of operating mode for solar heating system
- Displaying operating values and performance data from the solar heating system

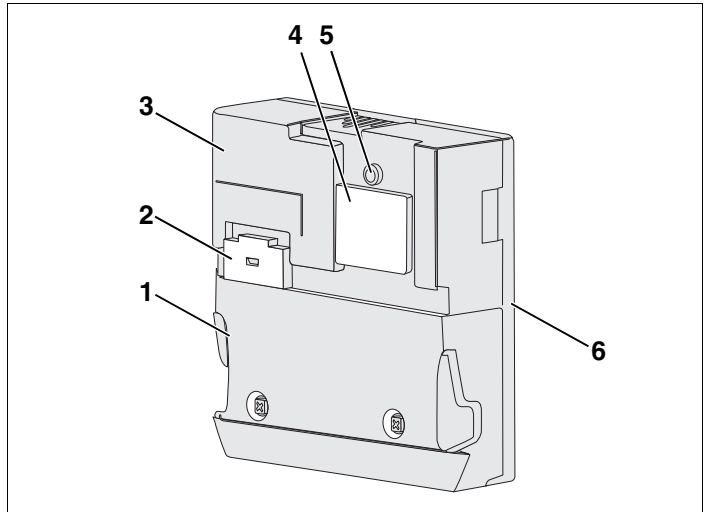


Fig. 1 SM10 function module (in this case wall-mounted)

Item 1: Terminal cover

Item 2: Fuse

Item 3: SM10 function module

Item 4: Access to spare fuse

Item 5: Operation/fault LED

Item 6: Wall bracket



This product has been tested and certified for both the US and Canadian markets and meets all applicable standards.

3 SM10 functions

The following sections explain how to select an operating mode and how to retrieve operating values from your solar heating system.

3.1 Selecting the mode of operation

You can select the solar control system's operating mode. Three modes of operation are available:

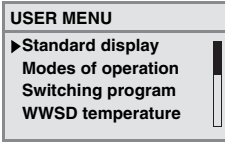
- **Automatic** (default setting)
- **Always OFF** (switched off manually)
- **Always ON** (manual constant operation). The solar heating system will be in constant operation for 30 minutes at maximum pump output. After 30 minutes the solar heating system automatically switches back to automatic mode. The "constant operation" mode manually controls the solar pump; however, the solar heating system will cut out if either the collector array or the solar tank exceed their maximum temperature (collector protection function).











USER NOTE

Note the time at which you switched to manual mode. When this operating mode is activated, the solar tank may also be depleted (cool down) so that:

- warm heat transfer medium (e.g. glycol/water mixture) in the solar heating system may flow from the solar tank to the collector array.
- cold (potentially below freezing) heat transfer medium (e.g. glycol/water mixture) may flow from the collector to the solar tank. The temperature in the tank will fall, and as a result the boiler may start to reheat the tank.


RC35: selecting modes of operation

- Open the cover (by pulling the recessed grip on the left).
- Press  to open the **USER MENU**.
- Turn the dial  to select **Modes of operation** (marked with ▶).
- Press  to open the menu.
- Turn the dial  to select **Solar**.
- Press  to confirm the selection.
- Press and hold  (the value flashes) and at the same time turn the dial  to set one of the three modes, normally **Automatic** (default setting).
- Release the button. The changed value is saved.
- Press  to go back one step.

3.2 Info menu (retrieving operating values)

You can view the operating values for your solar heating system and/or solar consumer on the RC35 display.

RC35: info menu procedure

- Open the cover (by pulling the recessed grip on the left).
- Press  to open the **INFO** menu.

For 5 seconds the display will show the message to the left. It will then continue on automatically.



or

- Turn the dial  to go immediately to the next screen.

Turn the dial to obtain system information.

INFO\ROOMHEAT ZONE 1

Set room temperature:	71°F
Actual room temperature:	72°F

- Turn the dial  to display the solar heating system information.
- To close the info menu: Press the  key or close the cover.
The standard display appears again.

Graphic displays in RC35 info menu (outdoor temperature curve and solar gain)

With the info menu, the outdoor temperature for the last two days and the solar gain can be displayed graphically. This provides an overview that makes it easy to compare relevant values.



USER NOTE

The graphs are updated every 15 minutes on both displays and at 12:00 am a new graph is created. Consequently, there will be no display available for the current day between 12:00 am and 12:14 am.

The minimum and maximum values are adjusted dynamically.

Outdoor temperature curve (weather station):

The temperature curve of the current and previous day is shown on two displays. The minimum and maximum values since 12:00 am on the previous day are also shown.

Solar gain (solar yield):

The solar gain display shows the contribution the solar panel makes towards DHW heating. This is calculated using the temperature difference between the tank and the solar panel as well as the modulation of the solar pump.

Solar gain depends on the type of system and its components and cannot be used to calculate a value in BTU (kWh). The display value is a system-specific measurement that cannot be used to compare solar heating systems and their performance. However it is suitable for comparing the gain on different days.

4 Troubleshooting

Any faults in your solar heating system or your solar consumer (solar tank) will be shown on the RC35 display.

RC35: the message **Please open cover** is shown at the bottom of the display.

- Open the cover (by pulling the recessed grip on the left).
- Inform your local heating contractor and ask them to troubleshoot the problem.



If there are several faults, turn the dial until the faults affecting the solar heating system or the solar consumer (solar tank) are shown.



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The following faults, which are connected to the SM10 solar module, may be shown:

- No communication
- Collector sensor
- Sensor at bottom of storage tank
- Solar setting

United States and Canada

Bosch Thermotechnology Corporation

50 Wentworth Avenue

Londonderry, NH 03053

U.S.A.

Tel. 603-552-1100

Fax 603-584-1681

www.buderus.net

Products manufactured by

Bosch Thermotechnik GmbH

D-35573 Wetzlar

www.buderus.de

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