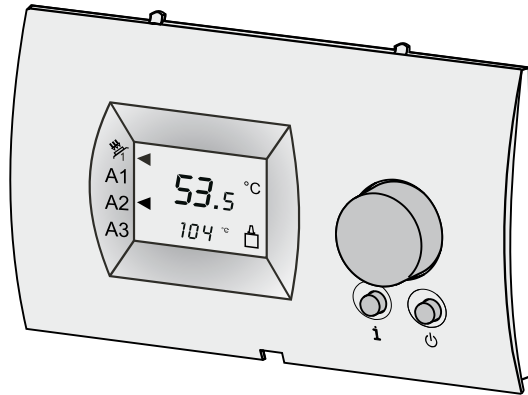


Installation and operating instructions

Programming module BM-Solar



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Safety instructions

The following symbols are used in conjunction with these important instructions concerning personal safety as well as operational reliability.



"Safety instructions" are instructions with which you must comply exactly, to prevent injury and material losses.



Danger through 'live' electrical components.

NB Switch OFF the ON / OFF switch before removing the casing.

Never touch electrical components or contacts when the ON / OFF switch is in the ON position. This brings a risk of electrocution that may cause injury or death.

The main supply terminals are 'live' even when the ON / OFF switch is in the OFF position.

NB

This indicates technical instructions that you must observe to prevent material losses and boiler malfunctions.

Standards / Directives

The appliance and control unit accessories comply with the following regulations:

EC Directives

- 2006/95/EC Low Voltage Directive
- 2004/108/EC EMC Directive

EN Standards

- EN 55014-1 Interference emissions
- EN 55014-2 Resistance to jamming
- EN 60529

**Installation /
Commissioning**

- According to DIN EN 50110-1, only qualified electricians may carry out the installation and commissioning of the heating control unit and connected accessories.
- Observe all regulations specified by your local power supply utility and all VDE or local regulations.
- DIN VDE 0100 regulations regarding the installation of high voltage systems up to 1000 V
- DIN VDE 0105-100 operation of electrical systems

Warnings

- Never remove, bypass or disable safety and monitoring equipment.
- Only operate the system in perfect technical condition. Immediately remove / remedy any faults and damage that may impact on safety.
- Always ensure that cold water is mixed in with hot water, when the DHW temperature is set above 60 °C (risk of scalding).

Maintenance / Repair

- Regularly check the perfect function of all electrical equipment.
- Only qualified personnel may remove faults or repair damage.
- Only replace faulty components or equipment with original Wolf spare parts.

NB

Any damage or loss resulting from technical modifications to Wolf control units is excluded from our liability.

Disposal and recycling

Observe the following information regarding the disposal of faulty system components or the system at the end of its service life: Dispose of all components in accordance with applicable regulations, i.e. separate material groups correctly. The aim should be the maximum possible amount of basic materials recycled and the lowest possible environmental impact. Never throw electrical or electronic scrap into the household waste, but recycle it appropriately.

Generally, dispose of materials in the most environmentally responsible manner according environmental, recycling and disposal standards.

Module installation

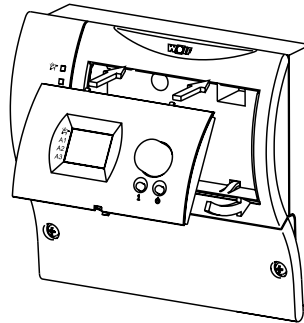
The BM-Solar programming module can be integrated into the SM solar module or can be used as remote control in conjunction with a wall mounting base.

When integrating the BM-Solar in the solar module, all settings are made at the solar module.



The electrical connection must only be carried out by a qualified electrician.

- Switch OFF the power at the solar module
- Remove the fascia from the solar module
- Click the BM-Solar programming module into the solar module as shown in the diagram
- Switch ON the power at the solar module



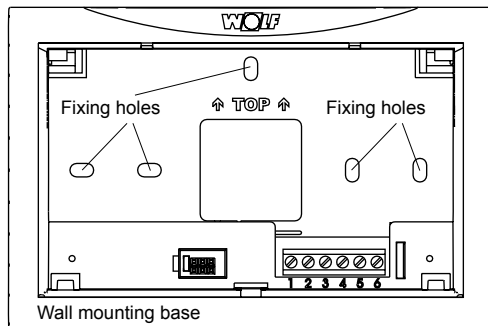
Remote control

Fitted to a wall mounting base (part no. 2744275), the BM-Solar programming unit can be used as a remote control (e.g. in the living room).

Only a two-wire BUS is required for the use as remote control.

Wall mounting base installation

- Remove the wall mounting base from its packing.
- Secure the wall mounting base on a flush-mounting box (Ø 55 mm) or directly on the wall.



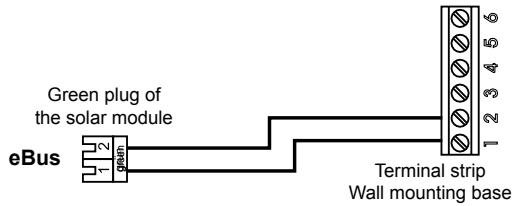
**Electrical connection
Remote control**

The electrical connection must only be carried out by a qualified electrician.

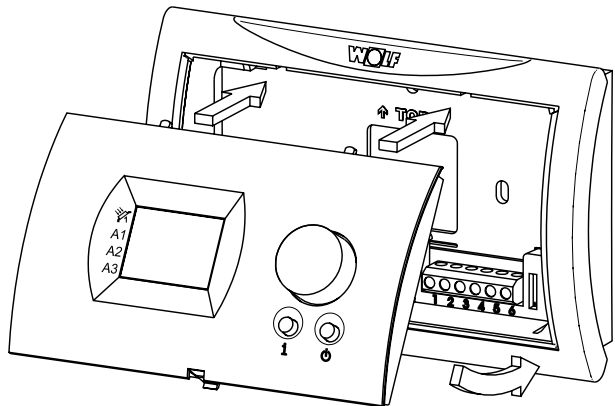
Never route sensor leads alongside mains power cables.

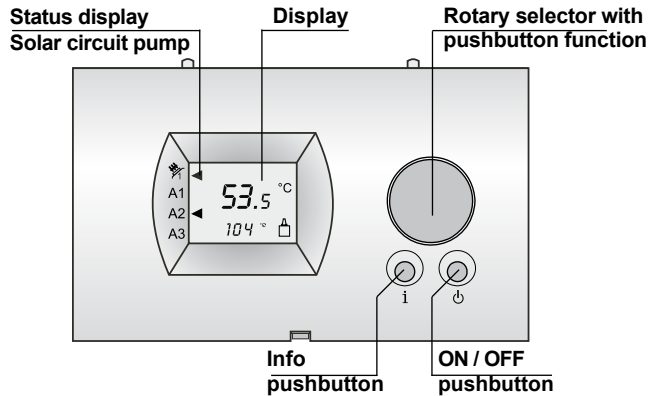


- Switch OFF the power at the solar module
- Wire the wall mounting base with a two-core cable (minimum cross-section 0.5 mm²) in accordance with the diagram shown

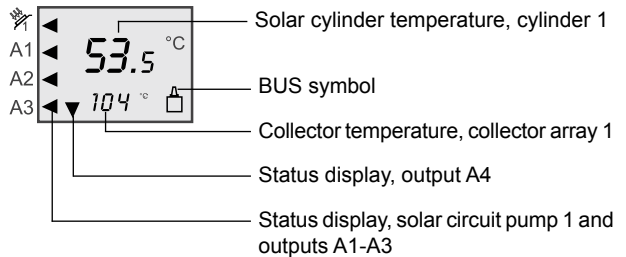


- Click the BM-Solar programming module into the wall mounting base as shown in the diagram
- Switch ON the power at the solar module





Standard display



- In the top line of the standard display, the current **solar cylinder temperature** is shown; the bottom line shows the current **collector temperature**.
- In systems with two cylinders, the solar cylinder temperature of cylinder 1 is shown.
- In systems with two collector arrays, the collector temperature of collector array 1 is shown.
- The **BUS symbol** indicates that a BUS connection exists between the programming module and the SM solar module. The BUS connection is faulty if this symbol is not displayed. This would prevent the solar module from being operated.

An arrow on the **status display** signals which output of the connected solar module is currently active.

Status display

Status display	In conjunction with	
	SM1 solar module	SM2 solar module
	Solar circuit pump	Solar circuit pump 1
A1	-	Output A1*
A2	-	Output A2*
A3	-	Output A3*
_*	-	Output A4*

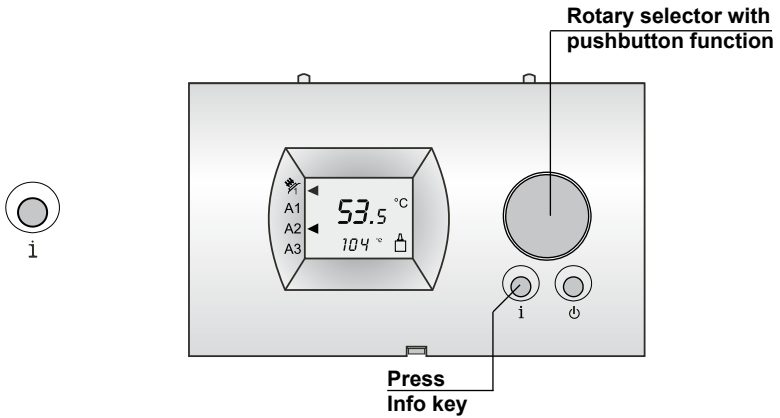
* Output assignment subject to configuration.

** An active output A4 is signalled by an arrow pointing downwards.

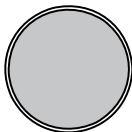
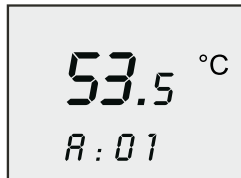
Information display

In addition to the values shown on the standard display, further values for the solar thermal system can be scanned at the BM-Solar.

Pressing the **Info key** leads to the display level. The display value A01 (solar cylinder temperature, cylinder 1) is shown.



Example: display value A 01



Pressing the Info key again or turning the rotary selector clockwise enables all additional display values to be scanned in sequence. If the final display value is reached and the selector further is turned further, the system exits the display level and returns to the standard display. The standard display returns automatically if no further activity is detected within the next minute.

Subject to the solar module used, different display values are available.

Display values used with SM1 solar module

Display	Designation
R : 01	Actual DHW temperature, solar cylinder (°C)
R : 02	Max. DHW temperature, solar cylinder (°C)
R : 03	Collector temperature (°C)
R : 04	Maximum collector temperature (°C)
R : 05	Return temperature (°C)
R : 06	Solar circuit flow rate (l/min)
R : 10	Hours run, solar circuit pump (h)
R : 12	Current output (kW)
R : 13	Current day yield (kWh)
R : 14	Total yield (Wh)
R : 15	Total yield (kWh)
R : 16	Total yield (MWh)
R : 17	Solar heating status (0 = unsuccessful, 1 = successful)

Display values used with SM2 solar module

Display	Designation
R : 01	Actual DHW temperature in solar cylinder 1 (°C)
R : 02	Max. DHW temperature, solar cylinder 1 (°C)
R : 03	Collector temperature, collector array 1 (°C)
R : 04	Maximum collector temperature, collector array 1 (°C)
R : 05	Input E1 *
R : 06	Input E2: solar circuit flow rate (l/min)
R : 07	Input E3 *
R : 08	Maximum DHW temperature, solar cylinder 2 (°C)
R : 09	Maximum collector temperature, collector array 2 (°C)
R : 10	Hours run, solar circuit pump 1 (h)
R : 11	Hours run, solar circuit pump 2 (h)
R : 12	Current output (kW)
R : 13	Current day yield (kWh)
R : 14	Total yield (Wh)
R : 15	Total yield (kWh)
R : 16	Total yield (MWh)
R : 17	Solar heating status, cylinder 1 (0 = unsuccessful, 1 = successful)
R : 18	Solar heating status, cylinder 2 (0 = unsuccessful, 1 = successful)
R : 19	Maximum DHW temperature, solar cylinder 3 (°C)
R : 20	Hours run, solar circuit pump 3 (h)
R : 21	Solar heating status, cylinder 3 (0 = unsuccessful, 1 = successful)

* Assignment of inputs E1 and E3 subject to the configuration selected at the SM2.

Note: Display A19 to A21 only effective from software version SM1/SM2 228_04.

Description of the display values*R : 0 1***SM1:** Actual
DHW temperature
Solar cylinder**SM2:** DHW
Actual temperature
Solar cylinder 1**SM1:** The current temperature of the solar cylinder at the level of the solar indirect coil is displayed.**SM2:** The current temperature of solar cylinder 1 at the level of the solar indirect coil is displayed.*R : 0 2***SM1:** Maximum
DHW temperature
Solar cylinder**SM2:** Maximum
DHW temperature
Solar cylinder 1**SM1:** The maximum DHW temperature over the course of 24 hours is displayed.**SM2:** The maximum DHW temperature of cylinder 1 over the course of 24 hours is displayed.

This value is reset every 24 hours.

*R : 0 3***SM1:** Collector temperature**SM2:** Collector temperature,
collector array 1**SM1:** The current temperature captured at the outlet (flow) of the collector or collector array is displayed.**SM2:** The current temperature captured at the outlet (flow) of the collector or collector array 1 is displayed.*R : 0 4***SM1:** Maximum collector
temperature**SM2:** Maximum collector
temperature
Collector array 1**SM1:** The maximum collector temperature over the course of 24 hours is displayed.**SM2:** The maximum collector temperature of collector array 1 over the course of 24 hours is displayed.

This value is reset every 24 hours.

*R : 0 5***SM1:** Return temperature**SM2:** Input E1**SM1:** The current temperature of the solar circuit return is displayed. This value is required for calculating the yield.**SM2:** The current value captured by the sensor connected to input E1 is displayed. Subject to the configuration set at the SM2, this may be the return temperature, the actual DHW temperature of solar cylinder 2, the actual DHW temperature of solar cylinder 3 or the heating temperature.

This value will only be displayed if a temperature sensor has been connected.

R : 0 6

Solar circuit flow rate

SM1/ The current flow rate in l/min (litres per minute) is displayed.**SM2:** This display is only shown if value 1 or 2 has been selected for parameter 08 (capturing the amount of heat).

This value is required for calculating the yield.

A : 0 7

SM1: Not installed

SM2: Input E3

SM1: Not installed

SM2: The current value captured by the sensor connected to input E3 is displayed. Subject to the configuration set at the SM2, this may be the buffer temperature, the actual DHW temperature of solar cylinder 2, the collector temperature of collector array 2 or the bypass temperature.

This value will only be displayed if a temperature sensor has been connected.

A : 0 8

SM1: Not installed

SM2: Maximum DHW temperature
Solar cylinder 2

SM1: Not installed

SM2: The maximum DHW temperature of cylinder 2 over the course of 24 hours is displayed.

This value is reset every 24 hours.

A : 0 9

SM1: Not installed

SM2: Maximum collector temperature
Collector array 2

SM1: Not installed

SM2: The maximum collector temperature of collector array 2 over the course of 24 hours is displayed.

This value is reset every 24 hours.

A : 1 0

SM1: Hours run
Solar circuit pump

SM2: Hours run
Solar circuit pump 1

SM1: The overall hours run by the solar circuit pump are displayed.

SM2: The overall hours run by solar circuit pump 1 are displayed.

This value corresponds to the **display value x 10**.

This value can be reset to 0 by pressing and holding down the rotary selector for at least 10 seconds.

A : 1 1

SM1: Not installed

SM2: Hours run
Solar circuit pump 2

SM1: Not installed

SM2: The overall hours run by solar circuit pump 2 are displayed.

This value corresponds to the **display value x 10**.

This value can be reset to 0 by pressing and holding down the rotary selector for at least 10 seconds.

A : 1 2

Current output

SM1/ The current output of the solar circuit is displayed.

SM2: This value is only available if a return sensor or a heat meter set has been connected to the associated SM solar module, and value 1 or 2 has been selected for parameter 08.

R : 13

Current day yield

SM1/ SM2: The yield for the current day is displayed. This value is only available if a return sensor, a heat meter set or an external heat meter has been connected to the associated SM solar module, and value 1, 2, 3 or 4 has been selected for parameter 08. In addition, a further BM programming module with address 0 or a radio clock receiver (accessory) must be installed in the overall system.

This value can be reset to 0 by pressing and holding down the rotary selector for at least 10 seconds.

R : 14

Total yield in Wh

SM1/ SM2: These three displays show the entire yield achieved by the solar thermal system. The value is composed of the three values that are displayed.

Example: A14 = 350, A15 = 12, A16 = 0

→ Total yield = 350 Wh + 12 kWh + 0 MWh = 12.35 kWh

These values can be reset to 0 by pressing and holding down the rotary selector for at least 10 seconds.

These values are only available if a return sensor, a heat meter set or an external heat meter has been connected to the associated SM solar module, and value 1, 2, 3 or 4 has been selected for parameter 08.

R : 17**SM1:** Solar heating status**SM2:** Solar heating status
Cylinder 1

SM1: This indicates whether a solar heating process has been completed successfully within the last 24 hours.

SM2: This indicates whether solar heating of cylinder 1 has been completed successfully within the last 24 hours.

This applies if, within 24 hours prior to 14:00 h, the set DHW temperature selected at the heating appliance was exceeded by solar heating.

In that case, the set DHW temperature at the heating appliance will be set to the minimum cylinder temperature (cylinder reheating blocked).

This function is only available if the solar module is operated as part of a Wolf control system (for a function description, see the SM solar module manual).

R : 18**SM1:** Not installed**SM2:** Solar heating status
Cylinder 2

SM1: Not installed

SM2: This indicates whether solar heating of cylinder 2 has been completed successfully within the last 24 hours.

This applies if, within 24 hours prior to 14:00 h, the set DHW temperature selected at the heating appliance was exceeded by solar heating.

In this case, the set DHW temperature at the heating appliance will be set to the minimum cylinder temperature (cylinder reheating blocked).

This function is only available if the solar module is operated as part of a Wolf control system (for a function description, see the SM solar module manual).

R : 19**SM1:** Not installed**SM2:** Maximum DHW temperature
Solar cylinder 3**SM1:** Not installed**SM2:** The maximum DHW temperature of cylinder 3 over the course of 24 hours is displayed.

This value is reset every 24 hours.

R : 20**SM1:** Not installed**SM2:** Hours run
Solar circuit pump 3**SM1:** Not installed**SM2:** The overall hours run by solar circuit pump 3 are displayed.This value corresponds to the **display value x 10**.

This value can be reset to 0 by pressing and holding down the rotary selector for at least 10 seconds.

R : 21**SM1:** Not installed**SM2:** Solar heating status
Cylinder 3**SM1:** Not installed**SM2:** This indicates whether solar heating of cylinder 3 has been completed successfully within the last 24 hours.

This applies if, within 24 hours prior to 14:00 h, the set DHW temperature selected at the heating appliance was exceeded by solar heating.

In this case, the set DHW temperature at the heating appliance will be set to the minimum cylinder temperature (cylinder reheating blocked).

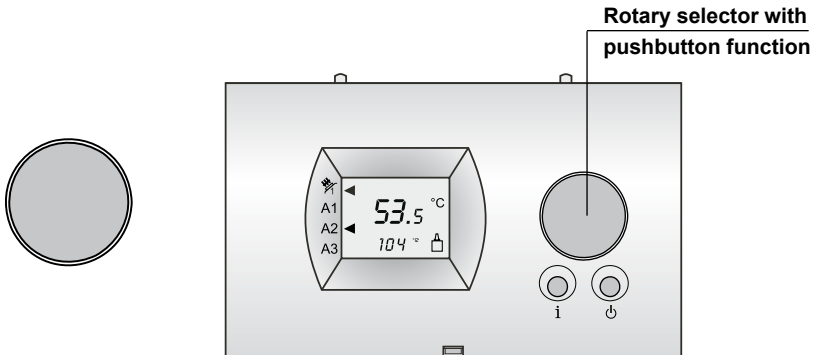
This function is only available if the solar module is operated as part of a Wolf control system (for a function description, see the SM solar module manual).

Access to the parameter level

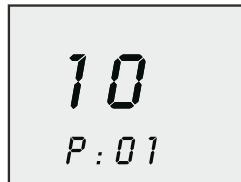
At the parameter level, all values that can be modified can be checked and changed if required.

The parameter level is activated by pressing the rotary selector once. Parameter P01 appears (start differential solar cylinder 1).

Display (factory setting):



Example: parameter P 01



Turning the rotary selector clockwise scans all further available parameters in sequence.

Changing parameters:

- Pressing the rotary selector again enables the currently displayed parameter. The display of the corresponding value flashes.
- Turning the rotary selector enables you to modify the value.
- Pressing the rotary selector again confirms the value. The value display then changes from flashing to static.

The parameter level can be exited by pressing the Info key.

The parameter level will also be terminated if no further activity is detected within one minute.



Subject to the solar module used, different parameters are available.

Parameters used with SM1 solar module:

Parameter BM	Parameter BM-Solar	Explanation	Setting range		Factory setting
			min.	max.	
SQL 01	P 01	Start differential solar cylinder	5 K	30 K	8 K
SQL 02	P 02	Stop differential solar cylinder	2 K	20 K	4 K
SQL 03	P 03	Collector cooling function	0 (OFF)	1 (ON)	0
SQL 04	P 04	Critical collector temperature	90 °C	150 °C	110 °C
SQL 05	P 05	Maximum collector temperature	100 °C	150 °C	130 °C
SQL 06	P 06	Maximum cylinder temperature, solar cylinder	15 °C	90 °C	60 °C
SQL 07	P 07	Assignment, solar cylinder	0	8	0
SQL 08	P 08	Capturing the amount of heat	0 (OFF)	4	0
SQL 09	P 09	P 08 = 0 → P 09 Not adjustable P 08 = 1 → Pulse value, pulse generator P 08 = 2 → Constant flow rate P 08 = 3 or 4 → Pulse value external heat meter	0 l/pulse 0 l/min -2	99.5 l/pulse 99.5 l/min 1	1 l/pulse 1 l/min 0
SQL 10	P 10	Glycol selection: 0 = Water 1 = Tyfocor L (Anro) 2 = Tyfocor LS (Anro LS) 3 = Propylene glycol 4 = Ethylene glycol	0	4	1
SQL 11	P 11	BUS feed	0	2	2
SQL 27 *	P 27 *	Tube collector function	0 (OFF)	2	0
SQL 28 *	P 28 *	Frost protection function	0 (OFF)	1 (ON)	0
SQL 33 *	P 33 *	Hysteresis, solar cylinder	0.5 K	5 K	1 K
SQL 36 *	P 36 *	Solar cylinder emergency shutdown	60 °C	95 °C	95 °C
SQL 39 *	P 39 *	Minimum collector limit	-25 °C	90 °C	10 °C
SQL 41 *	P 41 *	Function check, flow rate	0 (OFF)	1 (ON)	0
SQL 42 *	P 42 *	Function check, gravity brake	0 (OFF)	60 °C	40 °C
SQL 44 *	P 44 *	Reverse cooling function	0 (OFF)	1 (ON)	0
SQL 51 *	P 51 *	Proportion of glycol in water P 10 = 0 → P 51 Not adjustable P 10 = 1 : Tyfocor L (Anro) P 10 = 2 → P 51 Not adjustable P 10 = 3 → P 51 Not adjustable P 10 = 4 → Ethylene glycol	---- 20 % ---- ---- 20 %	---- 75 % ---- ---- 80 %	---- 45 % ---- ---- 45 %
SQL 60	P 60	Relay test	1	5	1

* Parameters only effective from software version SM1/SM2 228_04.

For function descriptions of the individual parameters, see the SM solar module instruction manual.

Parameters used with SM2 solar module:

Parameter BM	Parameter BM-Solar	Explanation	Setting range		Factory setting
			min.	max.	
<i>SQL 01</i>	<i>P 01</i>	Start differential solar cylinder 1	5 K	30 K	8 K
<i>SQL 02</i>	<i>P 02</i>	Stop differential solar cylinder 1	2 K	20 K	4 K
<i>SQL 03</i>	<i>P 03</i>	Collector cooling function	0 (OFF)	1 (ON)	0
<i>SQL 04</i>	<i>P 04</i>	Critical collector temperature	90 °C	150 °C	110 °C
<i>SQL 05</i>	<i>P 05</i>	Maximum collector temperature	100 °C	150 °C	130 °C
<i>SQL 06</i>	<i>P 06</i>	Maximum temperature, solar cylinder 1	15 °C	90 °C	60 °C
<i>SQL 07</i>	<i>P 07</i>	Assignment, solar cylinder 1	0	8	0
<i>SQL 08</i>	<i>P 08</i>	Capturing the amount of heat	0 (OFF)	4	0
<i>SQL 09</i>	<i>P 09</i>	<i>P 08</i> = 0 → <i>P 09</i> Not adjustable <i>P 08</i> = 1 → Pulse value, pulse generator <i>P 08</i> = 2 → Constant flow rate <i>P 08</i> = 3 or 4 → Pulse value external heat meter	0 l/pulse 0 l/min -2	99.5 l/pulse 99.5 l/min 1	1 l/pulse 1 l/min 0
<i>SQL 10</i>	<i>P 10</i>	Glycol selection: 0 = Water 1 = Tyfocor L (Anro) 2 = Tyfocor LS (Anro LS) 3 = Propylene glycol 4 = Ethylene glycol	0	4	1
<i>SQL 11</i>	<i>P 11</i>	BUS feed	0	2	2
<i>SQL 12</i>	<i>P 12</i>	Configuration	1	14	1
<i>SQL 13</i>	<i>P 13</i>	Speed control, solar circuit pump	0 (OFF)	1 (ON)	0
<i>SQL 14</i>	<i>P 14</i>	Start differential solar cylinder 2	5 K	30 K	8 K
<i>SQL 15</i>	<i>P 15</i>	Stop differential solar cylinder 2	2 K	20 K	4 K
<i>SQL 16</i>	<i>P 16</i>	Maximum temperature, solar cylinder 2	15 °C	90 °C	60 °C
<i>SQL 17</i>	<i>P 17</i>	Assignment, solar cylinder 2	0	8	8
<i>SQL 18</i>	<i>P 18</i>	Burner blocked during return temperature raising	0 s	300 s	0 s
<i>SQL 19</i>	<i>P 19</i>	Start differential, return temperature raising	4 K	30 K	10 K
<i>SQL 20</i>	<i>P 20</i>	Stop differential, return temperature raising	2 K	20 K	5 K
<i>SQL 21</i>	<i>P 21</i>	Priority solar cylinder 1	0	2	0
<i>SQL 22</i>	<i>P 22</i>	Start differential parallel cylinder operation	20 K	60 K	30 K
<i>SQL 23</i>	<i>P 23</i>	Differential temperature, bypass	8 K	50 K	15 K
<i>SQL 24</i>	<i>P 24</i>	Function output A4	0 (OFF)	3	0
<i>SQL 25</i>	<i>P 25</i>	Start temperature, thermostat function	30 °C	90 °C	50 °C
<i>SQL 26</i>	<i>P 26</i>	Stop differential, thermostat function 1/2	5 K	30 K	10 K
<i>SQL 27</i>	<i>P 27</i>	Tube collector function	0 (OFF)	2	0
<i>SQL 28</i>	<i>P 28</i>	Frost protection function	0 (OFF)	1 (ON)	0

Parameter BM	Parameter BM-Solar	Explanation	Setting range		Factory setting
			min.	max.	
<i>SQL 29 *</i>	<i>P 29 *</i>	Start differential solar cylinder 3	5 K	30 K	8 K
<i>SQL 30 *</i>	<i>P 30 *</i>	Stop differential solar cylinder 3	2 K	20 K	4 K
<i>SQL 31 *</i>	<i>P 31 *</i>	Maximum temperature, solar cylinder 3	15 °C	90 °C	60 °C
<i>SQL 32 *</i>	<i>P 32 *</i>	Assignment, solar cylinder 3	0	8	8
<i>SQL 33 *</i>	<i>P 33 *</i>	Hysteresis, solar cylinder 1	0.5 K	5 K	1 K
<i>SQL 34 *</i>	<i>P 34 *</i>	Hysteresis, solar cylinder 2	0.5 K	5 K	1 K
<i>SQL 35 *</i>	<i>P 35 *</i>	Hysteresis, solar cylinder 3	0.5 K	5 K	1 K
<i>SQL 36 *</i>	<i>P 36 *</i>	Solar cylinder emergency shutdown 1	60 °C	95 °C	95 °C
<i>SQL 37 *</i>	<i>P 37 *</i>	Solar cylinder emergency shutdown 2	60 °C	95 °C	95 °C
<i>SQL 38 *</i>	<i>P 38 *</i>	Solar cylinder emergency shutdown 3	60 °C	95 °C	95 °C
<i>SQL 39 *</i>	<i>P 39 *</i>	Minimum collector limit	-25 °C	90 °C	10 °C
<i>SQL 40 *</i>	<i>P 40 *</i>	Minimum buffer limit	10 °C	90 °C	10 °C
<i>SQL 41 *</i>	<i>P 41 *</i>	Function check, flow rate	0 (OFF)	1 (ON)	0
<i>SQL 42 *</i>	<i>P 42 *</i>	Function check Gravity brake	0 (OFF)	60 °C	40 °C
<i>SQL 43 *</i>	<i>P 43 *</i>	Lower pump rate	28 %	100 %	30 %
<i>SQL 44 *</i>	<i>P 44 *</i>	Reverse cooling function	0 (OFF)	1 (ON)	0
<i>SQL 45 *</i>	<i>P 45 *</i>	Selection cylinder thermostat function	1	3	1
<i>SQL 46 *</i>	<i>P 46 *</i>	Priority solar cylinder 2	0	2	1
<i>SQL 47 *</i>	<i>P 47 *</i>	Cylinder operating mode	1	3	2
<i>SQL 48 *</i>	<i>P 48 *</i>	Cyclical heating time	0 min.	60 min.	30 min.
<i>SQL 49 *</i>	<i>P 49 *</i>	Idle time	0 min.	60 min.	5 min.
<i>SQL 50 *</i>	<i>P 50 *</i>	Blocking time, solar circuit pump or electrical valve	0 s	300 s	90 s
<i>SQL 51 *</i>	<i>P 51 *</i>	Proportion of glycol in water <i>P 10</i> = 0 → <i>P 51</i> Not adjustable <i>P 10</i> = 1 : Tyfocor L (Anro) <i>P 10</i> = 2 → <i>P 51</i> Not adjustable <i>P 10</i> = 3 → <i>P 51</i> Not adjustable <i>P 10</i> = 4 → Ethylene glycol	---- 20 % ---- ---- 20 %	---- 75 % ---- ---- 80 %	---- 45 % ---- ---- 45 %
<i>SQL 52 *</i>	<i>P 52 *</i>	Cylinder switching with external cylinder heating	0	1	0
<i>SQL 53 *</i>	<i>P 53 *</i>	Sampling interval	1 s	60 s	10 s
<i>SQL 54 *</i>	<i>P 54 *</i>	Internal pump speed	5 %	20 %	5 %
<i>SQL 55 *</i>	<i>P 55 *</i>	Upper pump rate	50 %	100 %	100 %
<i>SQL 60</i>	<i>P 60</i>	Relay test	1	5	1

* Parameters only effective from software version SM1/SM2 228_04.

For function descriptions of the individual parameters, see the SM solar module instruction manual.

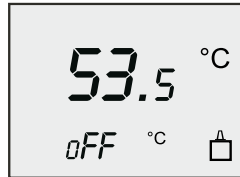
System ON / OFF

The solar module can be switched ON and OFF with the **ON / OFF pushbutton**.

To prevent the system being switched OFF accidentally, the pushbutton needs to be held down for at least 3 seconds to effect a shutdown. A brief activation of the pushbutton is sufficient to start the system again.

When the system is shut down, the display shows *OFF* instead of the collector temperature.

Example:

**NB**

In the shutdown state, no protective functions are enabled (except anti-seizing pump protection).

Specification

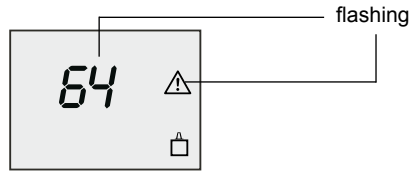
Specification

Supply voltage:	eBUS 15 – 24 V
Power consumption:	Max. 0.5 W
Protection:	With wall mounting base: IP30 Module installation: IP30
Ambient temperature:	0....50 °C
Storage temperature:	-20....+60 °C

Fault codes

If faults occur at the SM solar module, the corresponding fault code and a warning symbol will flash on the display.

Example:



The standard display will return when the fault has been removed. The following fault messages can occur at the solar module:

Fault code	Fault	Cause	Remedy
FC62	Function check, flow rate (no flow)	Too little or no throughput	Check solar circuit pump
FC63	Function check, gravity brake	Faulty gravity brake	Check gravity brake
FC 64 applies only to P08 = 1	Pulse generator faulty	Pulse generator or cable faulty	Check pulse generator and cable; replace if required
FC71	SM1: Terminal SFS, solar sensor Cylinder faulty	Faulty sensor or lead	Check sensor and lead; replace if required
	SM2: Terminal SFS1 Solar sensor Cylinder 1 faulty		
FC72	SM1: Terminal RLF, return sensor faulty	Faulty sensor or lead	Check sensor and lead; replace if required
	SM2: Terminal E1, sensor on input E1 faulty		
FC73	SM1: N/A	Faulty sensor or lead	Check sensor and lead; replace if required
	SM2: Terminal E3, sensor on input E3 faulty		
FC74	DCF signal or reception interference	No BUS connection; no DCF reception	Check eBUS connection/DCF reception
FC79	SM1: Terminal SFK, solar sensor Collector faulty	Faulty sensor or lead	Check sensor and lead; replace if required
	SM2: Terminal SFK1, solar sensor Collector array 1 faulty		
FC81	EEPROM fault	Parameter values outside valid range	Reset to standard values by briefly interrupting the power supply, and check values

Note:

Fault codes 71, 72, 79, 73, 64, 62 and 74 are reset automatically as soon as their cause has been removed. Fault codes 63 and 81 must be reset (acknowledged) explicitly by restarting the SM. Alternatively, FC63 can be reset via the BM-Solar (by holding down the rotary selector for at least 5 seconds).

