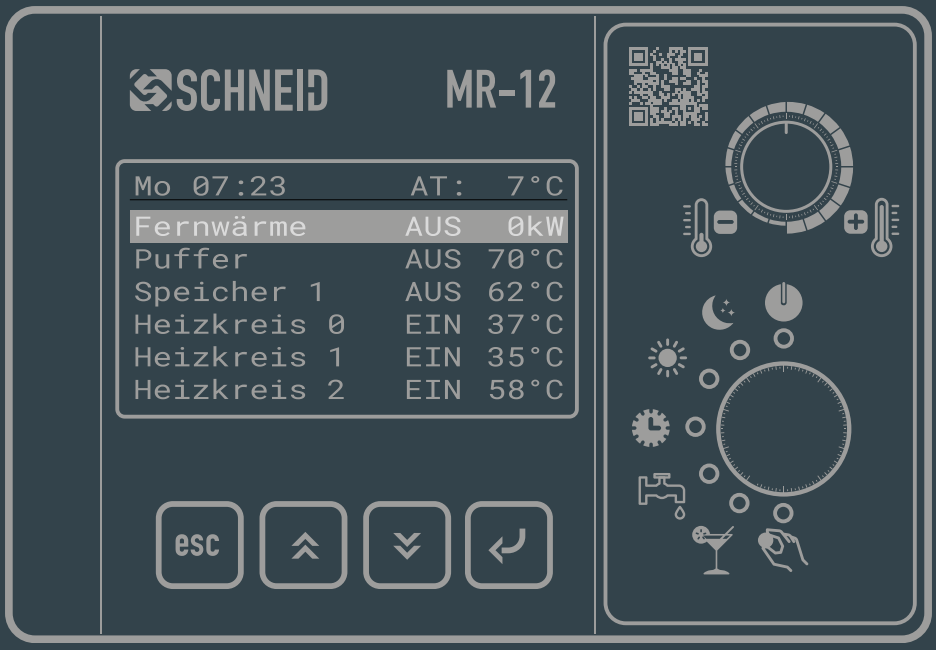


MR-12
HEATING CONTROLLER

Documentation for end customers

Universally applicable, modular heating controller based on a freely programmable microcontroller with extensive bus connection options, system visualization, remote maintenance and web connection

SCHNEID

EN

Table of contents

1 Safety instructions

Risk of scalding

Note that parts of the system can reach high temperatures of over 55 °C (for combustion thresholds, see e.g. EN 563). Advise the persons who use or look after the system of any potential hazards (e.g. touchable surfaces, high domestic hot water temperatures).

Risk of freezing

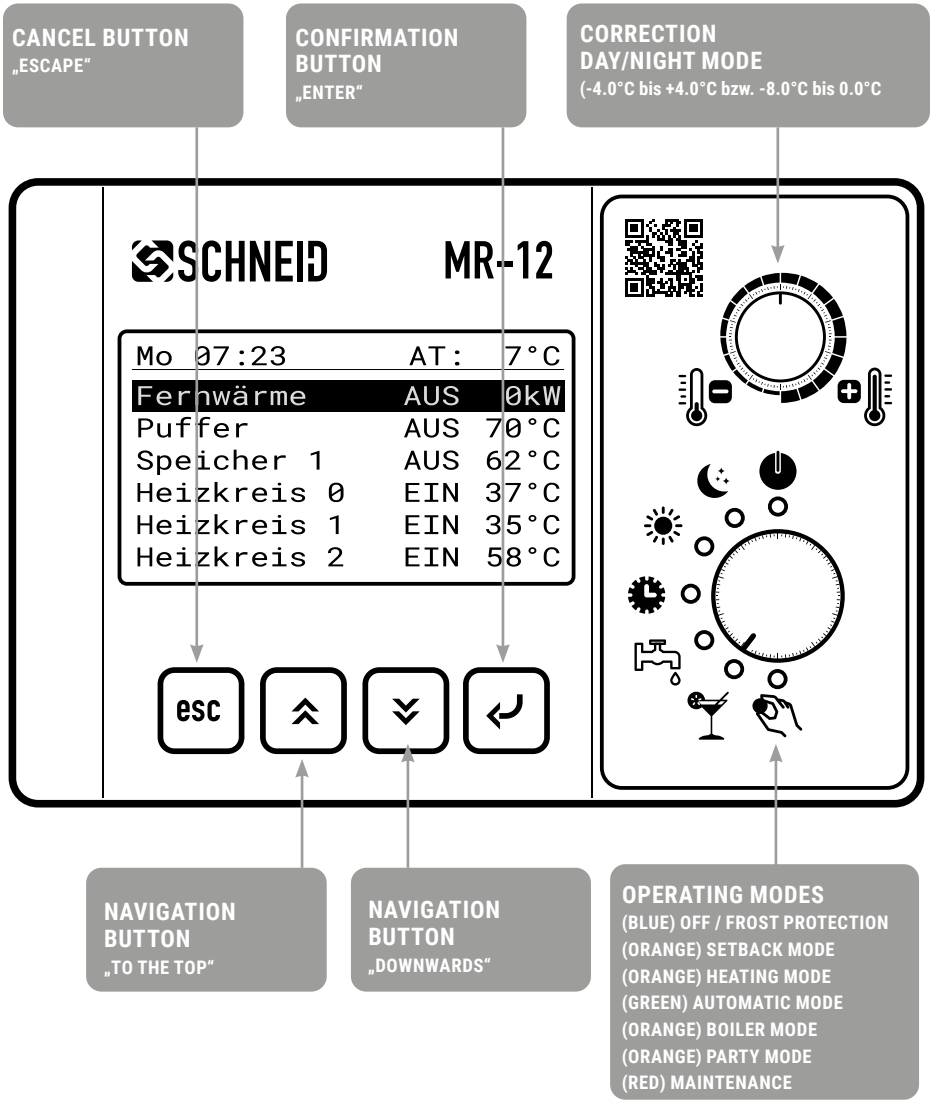
Make sure that the selector switch is not left in the MAINTENANCE position for long periods in winter. The heating pipes could freeze.

MAINTENANCE position: There is no frost protection monitoring!

Attention

To disconnect the appliance from the mains, operate the all-pole main switch provided by the customer. The appliance may only be opened by a specialist and is completely maintenance-free.

2.1 Key assignment



2.2 Operating modes

The current operating mode is indicated by a light next to the selector switch. When the operating mode is changed, the newly selected operating mode appears on the controller display.

Off / frost protection
Control mode is deactivated except for the frost protection circuit. If the outside temperature falls below the frost protection temperature, the frost protection circuit is activated.

Lowering mode
The heating circuits are in set-back mode regardless of the time program. This means that the setpoint temperature is reduced according to the settings. The remote control has priority.

Heating mode
The heating circuits are in heating mode regardless of the time program. The remote control has priority. See page 19 for explanation.

Automatic mode
The operating mode of the heating circuits (heating or lowering mode) depends on the time program and the remote control.

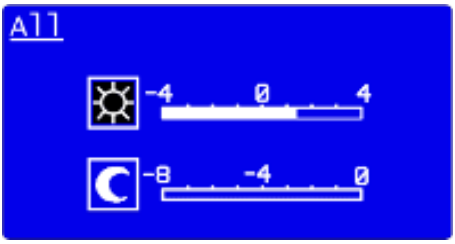
Boiler mode
The heating circuits are out of operation, except for frost protection. The boiler is charged as usual.

Party mode
The heating circuits are set to heating mode for a certain period of time (adjustable). After the time has elapsed, the controller returns to the last selected operating mode.

Maintenance
All outputs are switched off, there is no control function.

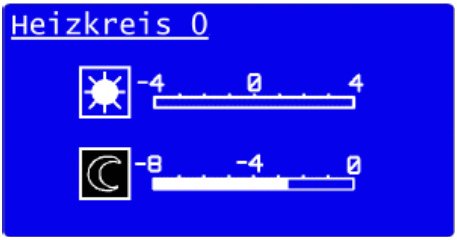
ATTENTION: NO frost protection!

2.3 Correction day-night operation



Day mode - day correction

Day mode can be set using the top right rotary knob. The value can be set from -4°C to +4°C and causes a permanent increase in the flow temperature of the heating circuits during day mode. The value applies as the room temperature. If no room sensor is connected, this value applies as an increase or decrease in the respective flow temperature, so that the room temperature is changed by the set value.

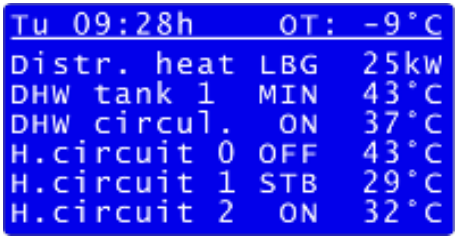


Lowering mode

To set the lowering mode, press the top right rotary knob and then an arrow button. You are now in the correction for set-back mode. This value can be set from -8°C to 0°C and causes a permanent adjustment of the flow temperature of the heating circuits during set-back mode. The value applies as the room temperature. If no room sensor is connected, this value applies as an increase or decrease in the respective flow temperature, so that the room temperature is changed by the set value.

The correction for each heating circuit can be adjusted individually. The name of the respective heating circuit is displayed in the first line.

3.1 Main overview



In the main overview, you have an overview of all the controller functions. The controller also shows you the current operating modes and the current temperatures of the individual controlled components.

Attention: Menu items that do not open are not accessible for your authorization level as a consumer. For changes and questions, please contact your district heating operator.

District heating operating modes

OFF District heating is not active, there is no energy transfer

ON District heating is in normal operation mode

RLB Return flow limitation is active

LBG Power limitation is active

MAN District heating valve is in manual mode (manual)

EXT District heating is OFF, supply from external energy source (e.g. boiler)

Return flow limitation
The district heating return temperature is limited to a value set by the district heating operator. If you have any questions or requests for changes to this function, please contact your district heating operator.

Power limitation
The consumption capacity is limited to your contractually agreed connected load. If you have any questions or requests for changes to this function, please contact your district heating operator.

Heating circuit operating modes

AUS Heating circuit is not active

EIN Heating circuit is in normal operating mode

RLG Residual output > Hot water preparation is preferred, heating circuit is regulated back

ABS Heating circuit is in lowering mode

WNR Hot water subordination > Heating circuit is OFF during boiler charging

FS Frost protection is active

SPR Lock > e.g.within blocking times (=OFF)

MAN Manual mode

AHZ Heating program > Floor drying is active

EXT External setpoint specification (=ON)

KHL if it is a district cooling station and the circuit is in operation.

Intermediate circuit pump operating modes

OFF Pump is not active

ON Pump is active

Buffer operating modes

OFF Buffer is not in any charging mode

ON Buffer is in the loading period

Circulation operating modes

OFF Circulation pump is not active

ON Circulation pump is active

Solar operating modes

OFF Solar pump is not active

EIN Solar pump is active

Buffer operating modes

AUS Charging pump is not active

EIN Charging pump is active

Operating modes Producer

AUS Producer is not active

EIN Producer is active

3.2 District heating

The transfer station is referred to as district heating. It delivers the heat energy via a heat exchanger.

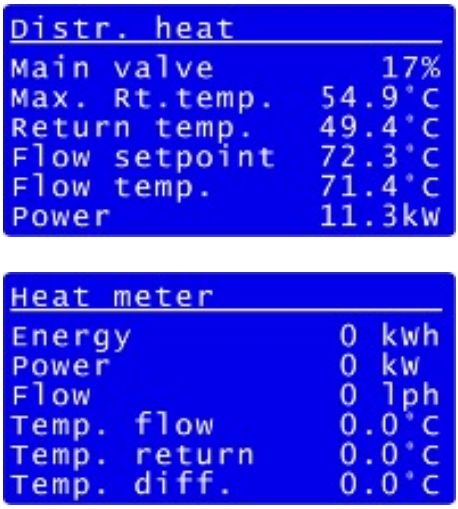
Primary valve
Indicates the percentage of the district heating valve that is open.

Max. Return temperature
Is the set maximum return temperature to the district heating network.

Return temperature
Is the current return temperature to the district heating network.

Performance
Displays the current power output of the district heating to the transfer station.

Counter
Selecting this menu item takes you to the heat meter data menu. If a heat meter is connected and linked to the controller, you can read off all the current output values in this menu.

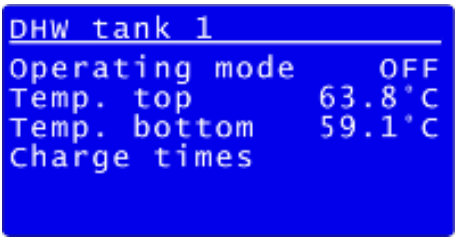


3.3 Buffer (Boiler)

A hot water cylinder is used to provide the required hot domestic water.

Heating circuit operating modes

The current operating mode of the memory can be viewed here:



Min-Ladg The storage tank always carries out a minimum charge outside its charging times if the temperature falls below the minimum temperature of the storage tank.

Leg-Ladg The storage tank carries out its weekly legionella charge.

Top temperature

The current upper cylinder temperature is displayed here. You can also set the “Boiler set temperature” and the “Boiler minimum temperature” here.

Boiler set temperature (55°C standard)

The boiler set temperature specifies the temperature (measured at the upper boiler sensor) to which the boiler is charged in a charging period or during a minimum temperature charge.

Minimum boiler temperature (45°C standard)

The minimum temperature represents the lower limit for the charging status of the boiler (measured at the upper boiler sensor) and causes recharging if the temperature falls below this.

Temperature bottom

The current lower storage tank temperature is displayed here.

Loading periods

You can configure the loading times for the memory here.

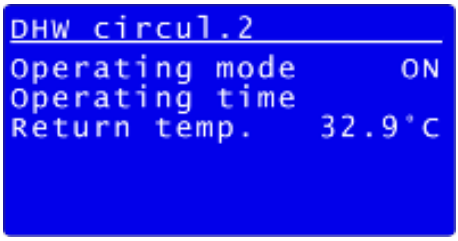
3.4 Circulation

A circulation pump is used to provide hot water in a building immediately. For this purpose, the hot water in the hot water tank is constantly circulated via the domestic hot water pipes. The reason for this is that without a circulation pump, the domestic hot water in the pipe cools down and only cold water is available to the consumer when it is turned on.

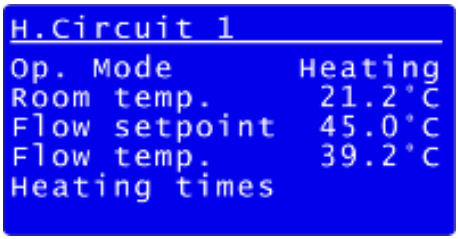
Operating mode
Shows whether the circulation is in operation or not.

Operating hours
You can set fixed operating times for the circulation pump here.

Return temperature
Shows the current return temperature of the circulation to the hot water tank.



3.5 Heating circuits



A heating circuit is a hot water circuit through a heating system (e.g. radiators, underfloor heating, etc.).

ATTENTION: If the selector switch of the controller is set to OFF / frost protection, boiler charging or maintenance, the controller selector switch has priority over the remote control.

OFF	Heating circuit is not active
ON	Heating circuit is in normal operating mode
RESTL	Remaining power > hot water preparation is preferred, heating circuit is regulated back
ABSENK	Heating circuit is in setback mode
NACHR	Hot water subordination > heating circuit is OFF during boiler charging
FROSTS	Frost protection is active
SPERRE	Lock > e.g. within blocking times (=OFF)
MANUELL	Manual mode
AUSHEIZ	Heating program > screed drying is active
EXTSOLL	External setpoint specification (=ON)
KÜHLEN	if it is a remote cooling station and the circuit is in operation.

Setting options Heating circuit operating mode

Selector switch applies
The operating mode on the controller applies. The room remote control has priority if it is set to heating, lowering or OFF mode.

Party mode
If party mode is set for the heating circuit, the heating circuit switches to heating mode for the set party mode duration. After the duration has elapsed, the heating circuit returns to the previous operating mode.

Time program
The heating circuit is in heating mode during heating times and in set-back mode outside these times.

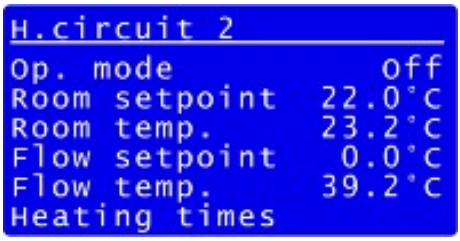
Heating mode
The heating circuit is continuously in heating mode.

Lowering mode
The heating circuit is continuously in set-back mode.

OFF / frost protection
No control function of the heating circuit, except frost protection function

Room setpoint temperature

You can set the desired room setpoint temperature here. The room setpoint temperature is only visible if a room remote control is connected and the room control or a room thermostat is configured.



Room temperature

Shows the current room temperature of the heating circuit. The room temperature is only visible if a room remote control is connected.

Flow temperature setpoint

Shows the current set flow of the heating circuit. You can also configure the “switch-off temperatures” here.

Switch-off temperature day mode (Standard: 18°C)
If the mean value of the outside temperature exceeds this value during daytime operation, the respective heating circuit is switched off (heating circuit pump OFF, mixing valve CLOSED).

Switch-off temperature lowering mode (Standard: 10°C)
If the mean value of the outside temperature exceeds this value during set-back operation, the respective heating circuit is switched off (heating circuit pump OFF, mixing valve CLOSED).

Actual flow temperature

Shows the current actual flow temperature of the respective heating circuit.

Heating times / setback times

Here you can define the heating times or setback times for the selected heating circuit. The type of times is set in the basic configuration of the controller. This is why this menu item can contain heating times or setback times.

The times can be configured for each day of the week. There are 3 time periods available for each day of the week. The individual weekdays can be parameterized either individually or for all days together via the menu item “Heating time Monday - Sunday”. Individual changes at a later date (e.g. only for Saturday and Sunday) remain possible.

The room temperature is reduced by the set value between the heating times and during the setback times.

3.6 Buffer (heating storage tank)

The buffer or heating storage tank is a container that is responsible for storing thermal energy. It stores energy from the district heating, solar system or similar in order to avoid a constant demand for heat energy.

Pump speed
Shows the current speed of the buffer charging pump.

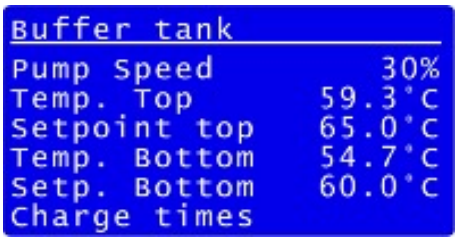
Top temperature
Shows the current upper buffer temperature.

Set temperature top
Displays the upper setpoint temperature of the buffer. It results from the highest set flow. If the highest set flow is lower than the “minimum upper buffer temperature”, this value is used as the set temperature. You can configure this value by selecting this item.

Minimum upper buffer temperature (default 50°C): specifies the upper minimum temperature of the buffer.

Temperature bottom
Shows the current lower buffer temperature.

Set temperature bottom
Shows the currently calculated lower setpoint temperature of the buffer. The lower setpoint temperature is calculated using the maximum return flow of the district



heating minus the hysteresis. The “Hysteresis” can be configured by selecting this item.

Hysteresis maximum return temperature buffer OFF
This hysteresis is used to calculate the lower buffer setpoint temperature. The lower set temperature of the buffer is determined by the maximum return temperature at the district heating minus this hysteresis.

Buffer loading times
You can define the loading times for the buffer here.

3.7 Solar

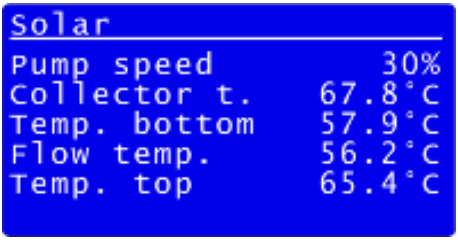
The solar pump switches on as soon as the collector temperature is higher than the buffer temperature plus hysteresis.

Pump speed
Shows the current speed of the solar pump.

Collector temperature
Displays the current temperature of the solar collector

Temperature bottom
Shows the current solar buffer temperature.

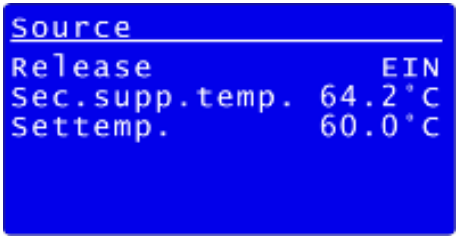
Solar flow temperature
This value is only visible if an additional input/output module is present. Furthermore, this value is only required if the solar pump is speed-controlled.



Top temperature
This value is only visible if an additional input/output module is present.

3.8 Producer

Additional energy sources (e.g. boilers) are designated as generators. The controller itself distinguishes between a pure switchover or a request from a generator.



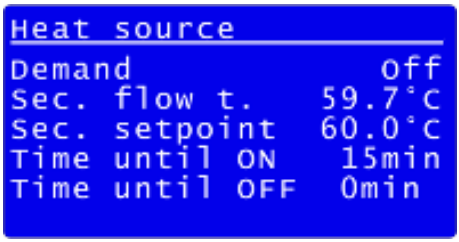
Switching:
An existing heat generator has a temperature sensor. If the sensor value of the generator is greater than the set flow plus the switch-on hysteresis, the controller switches to the external heat generator. In the event of a switchover, there is no further supply from the district heating. The switch-off occurs when the temperature of the generator is lower than the set flow plus the switch-off hysteresis.

Requirement:
If the flow rate falls below the setpoint for a certain period of time, an existing heat generator (e.g. oil boiler) is switched on.

Release
Shows whether the external heat generator is switched on.

External energy
Shows the available temperature at the external energy generator.

Secondary target flow
Shows the current secondary set flow. If changeover producer is set here, you can configure the “Hysteresis activation” and “Hysteresis deactivation” by confirming this item.



Hysteresis activation (standard +5°C): If the temperature of the external heat generator is higher than the set flow plus this hysteresis, the heat generator is switched on.

Hysteresis limit switching (standard -5°C): If the temperature of the external heat generator is lower than the set flow plus this hysteresis, the heat generator is switched off.

Secondary flow temperature
Shows the current secondary flow temperature.

Time until ON
The generator is only switched on when the flow rate falls below the setpoint for a certain period of time.

Here you can see how long it takes for an activation to take place. If you select this item, you can configure the “Timeout activation” parameter.

Timeout connection: If the flow rate falls below the setpoint for this period, the external heat generator is switched on.

Time until OFF
This menu item shows you how long the activation will continue. You can also configure the “Minimum runtime” of the external heat generator under this item.

Minimum term: The minimum runtime allows the external heat generator a minimum heating time. The external heat generator is in operation for at least this duration if a release is given. The purpose of this circuit is that the heat generator requires a certain amount of time to supply energy at all. Furthermore, this prevents the heat generator from starting up briefly.

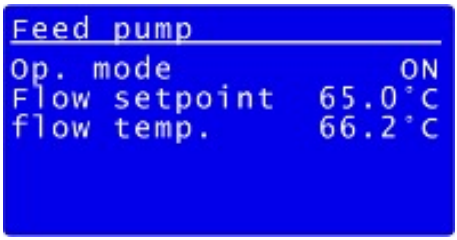
3.9 Intermediate circuit pump

The intermediate circuit pump switches on when a circuit is in operation. It is the pump of the main system.

Operating mode
Shows whether the DC link pump is active or inactive.

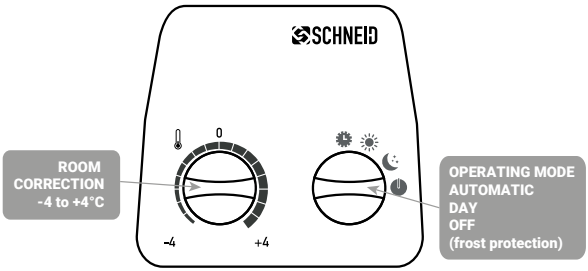
Target flow secondary
Shows the target flow on the secondary side of the transfer station.

Secondary flow temperature
Shows the temperature of the secondary flow of the transfer station. The secondary side is your domestic system and the primary side is the district heating.



4.1 Remote control FBR 6

It is possible to connect a separate remote control for each heating circuit. The following functions can be selected via the remote control:

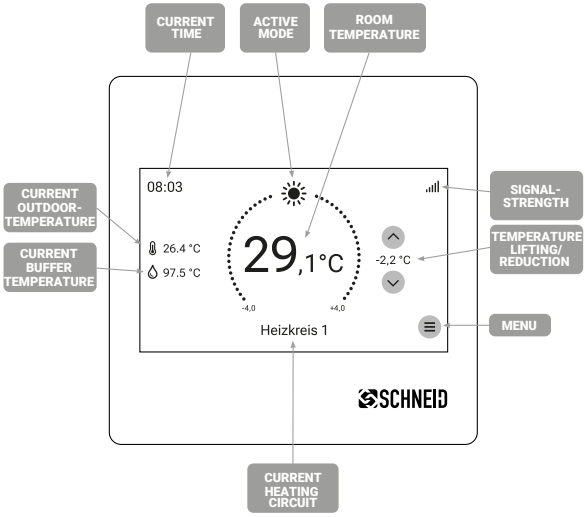


An **AUTOMATIC / DAY / NIGHT / OFF** preselection switch is provided for preselecting the operating mode. A potentiometer with a range of plus/minus four degrees is provided for changing the set room temperature. A room sensor is built into the remote control, which can be used to apply various heating control programmes and to optimise the SCHNEID control unit.

Attention: If the selector switch of the controller is set to OFF / frost protection, boiler charging or maintenance, the selector switch of the controller has priority over the remote control.

4.2 Remote control FBR 15

It is possible to connect a separate remote control for each heating circuit. The following functions can be selected via the remote control:



The SCHNEID-FBR15 remote control is compatible with **SCHNEID control units from the MODUL MR12 series.** The touchscreen control panel always displays the time, the current outdoor and room temperature and the operating status. The display shows: Automatic/day, Automatic/night, Automatic/OFF or one of the 5 selection programmes, which can be set at the bottom of the display (Automatic, Day, Night, Party and OFF). The two arrow buttons are used to change the current room temperature by -4°C to +4°C. A room sensor is built into the remote control, which can be used to apply various heating control programmes and to optimise the SCHNEID control unit.

The **FBR15** also has a WiFi chip that enables the remote control to be integrated into the network. This chip allows the FBR15 to be controlled via an app in the network.

Communication with the remote control

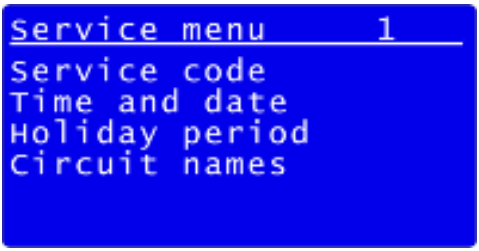
Reading option: Current room temperature, current time, current conditions, setpoint (-4.0°C to +4.0°C), room temperature setting.

Setting option: actual conditions (selection programme), setpoint (-4.0°C to +4.0°C), room temperature setting.

Caution: If the controller is set to OFF / frost protection, boiler charging or maintenance, the selector switch of the controller has priority over the remote control.

5.1 Access to the level

In the main overview, press and hold both arrow buttons until the Service level window appears on the controller.

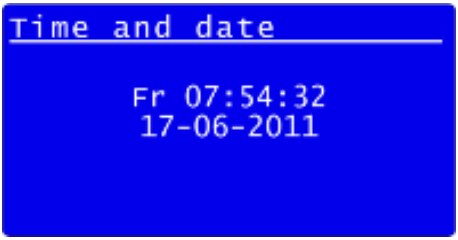


5.2 Service code

The service code is required for internal work on the controller. Your district heating operator is responsible for information and work at this level.

5.3 Set time

The controller sets the time automatically and the time is synchronised automatically every 24 hours if it is networked with the district heating operator. If this is not the case, it is possible to set the time manually.

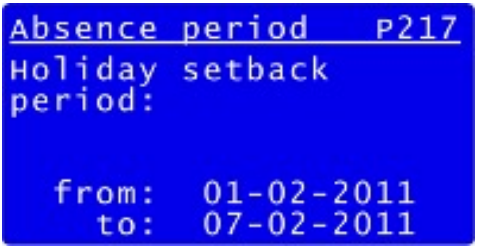


5.4 Out of office note

To set the absence time, press and hold both arrow buttons in the main menu of the controller until you reach the service level.

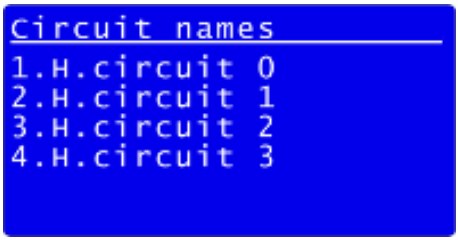
Absence time FROM: During an absence period, all heating circuits are set to permanent reduction. This setting configures the first day of the absence function to start at 00:00.

Absence times UNTIL: During an absence period, all heating circuits are set to continuous reduction. This setting configures the last day of the absence function to end at 24:00.



5.5 Naming circles

Here you can name the individual heating circuits individually.



6.1 Menu items do not open

Individual menu items that cannot be opened are not accessible in the current authorisation level. For changes and questions, please contact your district heating operator.

6.2 Temperature is not displayed

Please note that temperatures are only displayed if a temperature sensor is connected or is fully functional. If problems with sensors occur, please report this to your district heating operator immediately.

6.3 Other errors

If other malfunctions occur, please contact your district heating operator immediately.

7.1 Index

Notes

Notes

together.

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