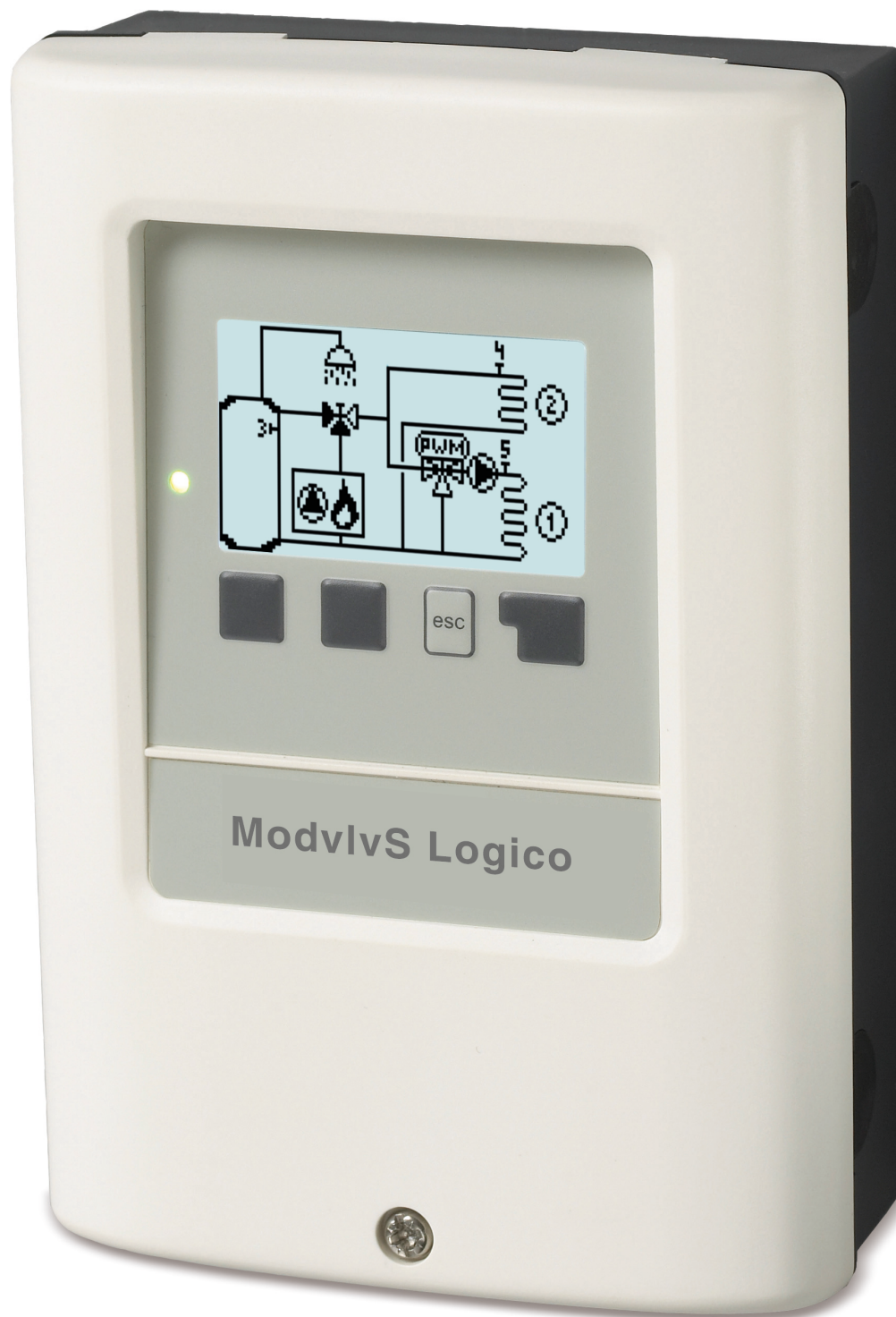


Heating Controller ModvlvS Logico

Weather-compensated heating circuit controller

Installation and operating instructions



Read carefully before installation, commissioning and operation

Content

Safety Instructions	3	Signal type	17
EU-Conformity	3	PV contact	17
General instructions	3	Mod. Offset	17
Explanation of Symbols	3	Energy Saving Mode	17
Changes to the Unit	4	Heating Circuit 2	17
Warranty and Liability	4	Settings Domestic Hot Water (DHW)	17
Disposal and Pollutants	4	Operating mode	17
Description ModvIvS Logico	4	Hot water minimum	17
About the Controller	4	DHW reference	17
Specifications	5	DHW comfort	17
Scope of supply	6	DHW hysteresis	18
Hydraulic Variants	6	Buffer DHW load	18
Installation	7	DHW priority	18
Electrical Terminals	7	PV contact	18
Wall Installation	8	14-day Reference	18
Electrical Connection	9	Burner	18
Installing the Temperature Sensors	9	DHW request	18
Temperature Resistance Table for Pt1000 Sensors ..	9	Heating Circuit request	18
Operation	10	Delay	18
Display and Input	10	Eco mode (during solar charge)	18
Commissioning help	11	Mode	18
1. Measurement values	11	Burner offset	19
2. Statistics	12	Enable times	19
Today	12	Anti Legionella	19
28 days	12	Boiler pump	19
Operating hours	12	Boiler pump	19
Operating hours	12	Boiler pump Tmin	19
Error messages	12	Burner sensor	19
Reset / Clear	12	Tmax	19
Heat quantity	12	6. Protective Functions	20
Graphic overview	12	Seizing Protection	20
3. Times	13	Frost Protection	20
Time & Date	13	7. Special Functions	21
Heating Circuit (Day)	13	Program selection	21
Heating Circuit Comfort	13	Sensor Calibration	21
DHW enable	13	Commissioning	21
4. Operating mode	14	Factory Settings	21
Manual	14	Eco Display Mode	21
5. Settings	14	Network	21
Heating Circuit (X)	14	Access Control	21
Operating mode	14	Ethernet	22
S/W Day	14	CAN bus ID	22
S/W Night	14	8. Menu Lock	23
Curve	14	9. Service values	23
Day Correction	15	10. Language	23
Night Correction	15	Malfunctions/Maintenance	24
Comfort Temperature Boost	15	Additional Information	25
Min. Flow	15	CAN bus	25
Max. Flow	15	Tips	25
Reference/Actual -	15	Appendix	26
Reference/Actual +	16	Pump	26
Turn off HC	16	Profile	26
Buffer sensor	16	Output Signal	26
Mixer	16	PWM / 0-10V off	26
Mixer run time	17	PWM / 0-10V on	26
		PWM / 0-10V max.	26
		Speed when „On“	26
		Example for pump settings	26
		Technical data PWM and 0-10V	27
		Show signal	27

EU-Conformity

By affixing the CE mark to the unit the manufacturer declares that the ModvlvS Logico conforms to the following relevant safety regulations:

- EU low voltage directive 2014/35/EU
- EU electromagnetic compatibility directive 2014/30/EU

conforms. Conformity has been verified and the corresponding documentation and the EU declaration of conformity are kept on file by the manufacturer.

General instructions

Please read carefully!

These installation and operating instructions contain basic instructions and important information regarding safety, installation, commissioning, maintenance and the optimal use of the unit. Therefore these instructions must be read and understood completely by the installation technician/specialist and by the system user before installation, commissioning and operation of the unit.

This unit is an automatic, electrical Weather-controlled heating circuit regulator for heating systems. Install the device only in dry rooms and under environmental conditions as described under "Technical Data".

The valid accident prevention regulations, VDE regulations, the regulations of the local power utility, the applicable DIN-EN standards and the installation and operating instruction of the additional system components must also be observed.

Under no circumstances does the unit replace any safety devices to be provided by the customer!

Installation, electrical connection, commissioning and maintenance of the device may only be carried out by an appropriately trained specialist. Users: Make sure that the specialist gives you detailed information on the function and operation of the unit. Always keep these instructions in the vicinity of the unit.

The manufacturer does not take over any liability for damage caused through improper usage or non-compliance of this manual!

Explanation of Symbols



Danger

Failure to observe these instructions can result in electrocution.



Danger

Failure to observe these instructions can result in serious damage to health such as scalding or life-threatening injuries.



Caution

Failure to observe these instructions can result in destruction of the unit or the system, or environmental damage.



Caution

Information which is especially important for the function and optimal use of the unit and the system.

Changes to the Unit

- Changes, additions to or conversion of the unit are not permitted without written permission from the manufacturer.
- It is likewise forbidden to install additional components that have not been tested together with the unit.
- If it becomes clear that safe operation of the unit is no longer possible, for example because of damage to the housing, turn the Unit off immediately.
- Any parts of the unit or accessories that are not in perfect condition must be exchanged immediately.
- Use only original spare parts and accessories from the manufacturer.
- Markings made on the unit at the factory must not be altered, removed or made illegible.
- Only the settings described in these instructions may be set using the Unit.



Changes to the unit can compromise the safety and function of the unit or the entire system.

Warranty and Liability

The Unit has been manufactured and tested with regard to high quality and safety requirements. The warranty and liability shall not include, however, any injury to persons or material damage that is attributable to one or more of the following causes:

- Failure to observe these installation and operating instructions.
- Improper installation, commissioning, maintenance and operation.
- Improperly executed repairs.
- Unauthorized structural changes to the unit.
- Use of the device for other than its intended purpose.
- Operation above or below the limit values listed in the 'Specifications' section.
- Force majeure.

Disposal and Pollutants

The unit conforms to the European RoHS 2011/65/EU for the restriction of the use of certain hazardous substances in electrical and electronic equipment.



Under no circumstances may the device be disposed of with the normal household waste. Dispose of the unit only at appropriate collection points or ship it back to the seller or manufacturer.

Description ModvlvS Logico

About the Controller

The Weather-controlled heating circuit regulator for heating systems ModvlvS Logico facilitates efficient use and function control of your Heating system possible while its handling is intuitive. After every input step the suitable functions are matched to the keys and explained in a text above. In the menu 'measurement values and settings' are help text and graphics in addition to key words.

The ModvlvS Logico can be used with different variants of installations, see "Hydraulic Variants" on page 6 see "hydraulic variants" on page 1.

Important characteristics of the ModvlvS Logico are:

- Depiction of graphics and texts using a lit display.
- Simple viewing of the current measurement values.
- Statistics and system monitoring by means of statistical graphics
- Extensive setting menus with explanations.
- Menu block can be activated to prevent unintentional setting changes.
- Resetting to previously selected values or factory settings.

Specifications

Electrical specifications:			
Power supply		100 - 240VAC, 50 - 60 Hz	
Power consumption / standby		0.5 - 2.5 W/ 0.5	
Total switched power		2 A	
Switched power per relay		480	
Internal fuse	1	2 A slow 250V	
Protection category		IP40	
Protection class / overvoltage category		II / II	
Inputs/Outputs			
Sensor inputs	6	Pt1000	-40 °C ... 300 °C
Sensor inputs VFS / RPS		Grundfos Direct Sensor	0°C-100°C (-25°C /120°C short term)
Number room thermostats per circuit	8	°CALEON / °CALEON Clima	! Up to 8 ° CALEON / ° CALEON Clima can be supplied with voltage from the controller!
Sensor inputs RC20	2	Pt1000	
Outputs mechanical relay		4	
of relay potential free	R4	1	
mechanical relay	R1 - R4	460VA for AC1 / 460W for AC3	
0-10V/PWM output	V1 - V2	for 10 k Ω working resistance 1 kHz, level 10 V	
+ Terminal/ 24V voltage output	+	Max. load by external devices 24V / 6W	
Max. cable length			
VFS/RPS sensors		<3m	
CAN		<3m; at >=3m, a shielded twisted-pair cable is to be used and connected to the protective conductor on one side.	
0-10V/PWM		<3m	
mechanical relay		<10m	
Interface			
Fieldbus	CAN		
Permissible Ambient Conditions			
for controller operation		0 °C - 40 °C, max. 85 % rel. humidity at 25 °C	
for transport/storage		0 °C - 60 °C, no moisture condensation permitted	
Other Specifications and Dimensions			
Housing design		2-part, ABS plastic	
Installation methods		Wall installation, optionally panel installation	
Overall dimensions		163 mm x 110 mm x 52 mm	
Aperture installation dimensions		157 mm x 106 mm x 31 mm	
Display		Fully graphical display, 128 x 64 dots	
Light diode		multicolour	
Real Time Clock		RTC with 24 hour power reserve	
Operation		4 entry keys	

Scope of supply

- Weather-controlled heating circuit regulator for heating systems
- 3 screws 3,5 x 35 mm and 3 plugs 6 mm for wall installation.
- 6 strain relief clips with 12 screws, replacement fuse 2TA
- ModvlvS Logico Installation and operating instructions

Optionally contained depending on design/order:

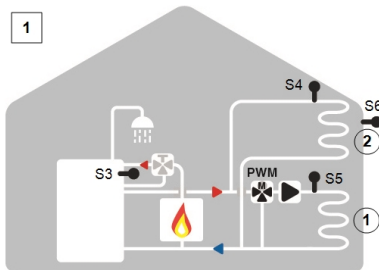
- External relay for V1 / V2: 0-10V relay 1W / 6A (77502)

Hydraulic Variants



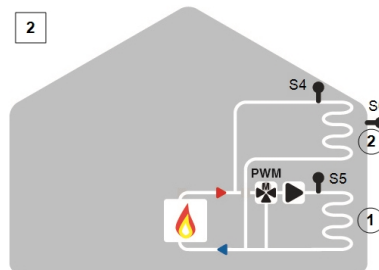
The following illustrations should be regarded only as schematic representations of the respective hydraulic systems and do not claim to be complete. Under no circumstances should the controller replace any safety devices. Depending on the specific application, additional system and safety components such as check valves, non-return valves, safety temperature limiters, scalding protectors, etc., may be required.

1



Logico ACS

2



Logico

Installation

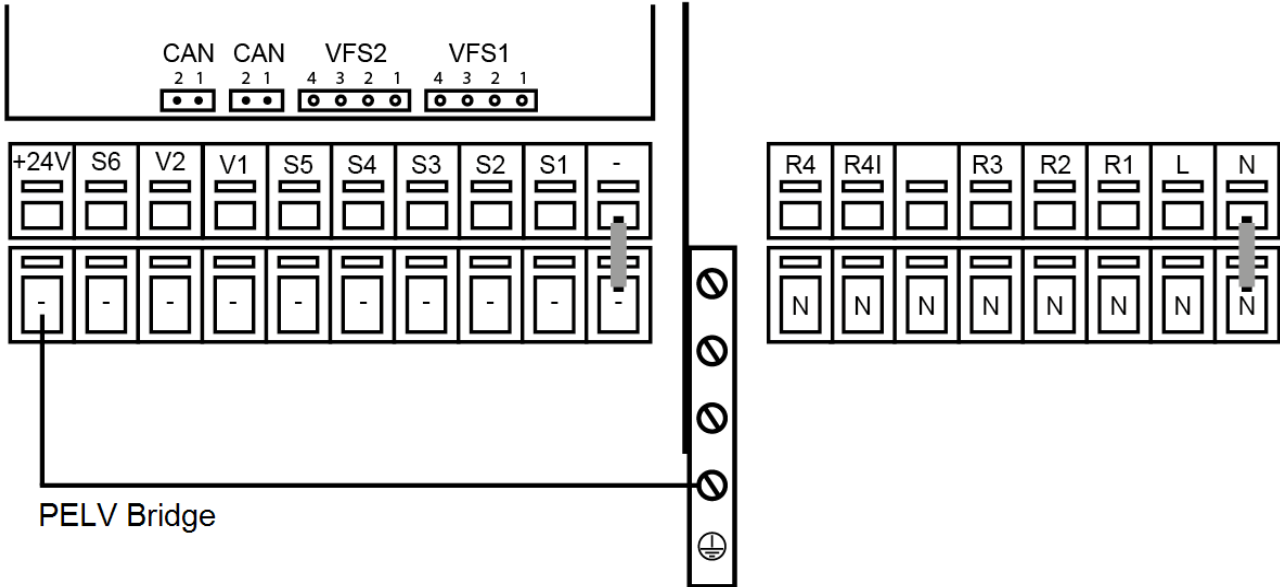
Electrical Terminals



Low voltage
max. 24 VAC / DC



Mains voltages
230 VAC 50 - 60 Hz



On the control board

VFS1	Grundfos Direct Sensor
VFS2	Grundfos Direct Sensor
CAN	CAN bus connection (1=high,2=low)
CAN	CAN bus connection (1=high,2=low)

Terminal:	Connection for:
-	GND bridge on the lower ground terminal block
S1	Temperature Sensor 1
S2	Temperature Sensor 2
S3	Temperature Sensor 3
S4	Temperature Sensor 4
S5	Temperature Sensor 5
V1	0-10V / PWM signal output e.g. for controlling high-efficiency pumps
V2	0-10V / PWM signal output e.g. for controlling high-efficiency pumps
S6	Temperature Sensor 6 (outdoor)
+	24V Power supply

The connection of the ground wire is made at the lower gray terminal block.

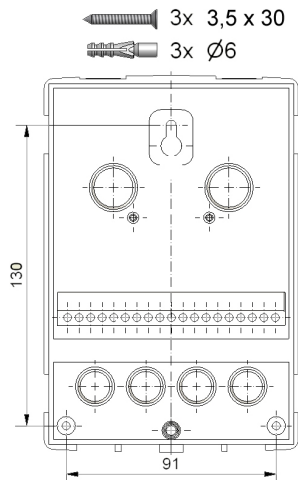
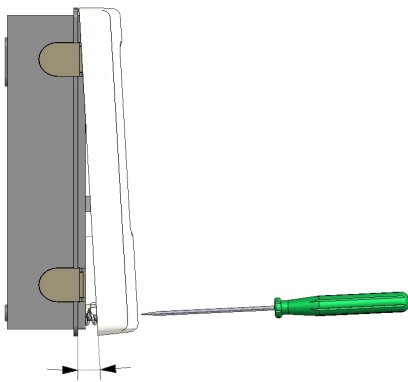
Terminal:	Connection for:
N	Neutral conductor N
L	Network outer conductor L
R1	Relays 1
R2	Relays 2
R3	Relays 3
R4	Relay 4 (potential-free contact)
R4	Relay 4 (potential-free contact)

The neutral conductor N must be connected to the N terminal block.

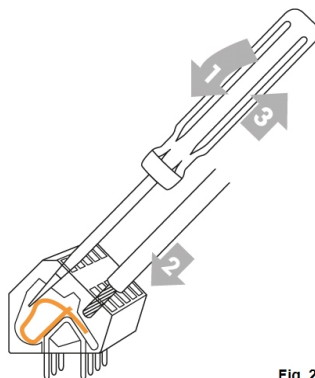
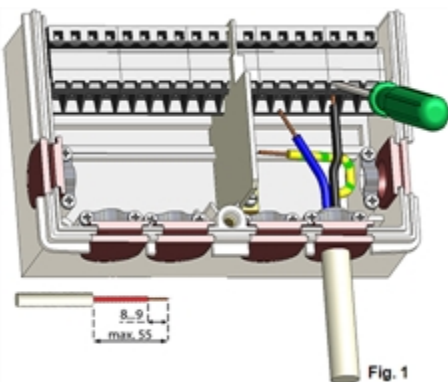
The PE protective conductor must be connected to the PE metal terminal block!

For high-efficiency pumps with 0-10V / PWM signal input, the power can be provided (V1 / V2 parallel operation) over a free relay.

Wall Installation



1. Unscrew cover screw completely.
2. Carefully pull upper part of housing from lower part. During the removal, the brackets are released as well.
3. Set upper part of housing aside Do not touch the electronics.
4. Hold the lower part of the housing up to the selected position and mark the three mounting holes. Make sure that the wall surface is as even as possible so that the housing does not become distorted when screwed on.
5. Using a drill and size 6 bit, drill three holes at the points marked on the wall and push in the plugs.
6. Insert the upper screw and screw it in slightly.
7. Fit the upper part of the housing and insert the other two screws.
8. Align the housing and tighten the three screws.



1. open terminal cover.
2. Strip lines a max. of 55 mm, assemble the strain reliefs, strip wire ends 8-9 mm (figure 1)
3. Open clamps with a fitting screwdriver (figure 2) and connect electrical system to the controller.
4. Suspend clip room cover again and close with the screw.
5. Turn on mains supply and operate the controller.

Electrical Connection



Before working on the unit, switch off the power supply and secure it against being switched on again! Check that there is no power flowing! Electrical connections may only be made by a specialist and in compliance with the applicable regulations. The unit may not be put into operation if there is visible damage to the housing, e.g. cracks.



The unit may not be accessible from behind.



Low-voltage cables such as temperature sensor cables must be routed separately from mains voltage cables. Feed temperature sensor cables only into the left-hand side of the unit, and mains voltage cables only into the right-hand side.



The customer must provide an all-pole disconnecting device, e.g. an emergency heating switch.



The cables being connected to the unit must not be stripped by more than 55 mm, and the cable jacket must reach into the housing just to the other side of the strain relief.

Installing the Temperature Sensors

The controller operates with Pt1000 temperature sensors which are accurate to 1 °C, ensuring optimal control of system functions.



If desired, the sensor cables can be extended to a maximum of 30 m using a cable with a cross-section of at least 0.75 mm². Ensure there is no contact resistance! Position the sensor precisely in the area to be measured! Only use immersion, pipe-mounted or flat-mounted sensors suitable for the specific area of application with the appropriate permissible temperature range.

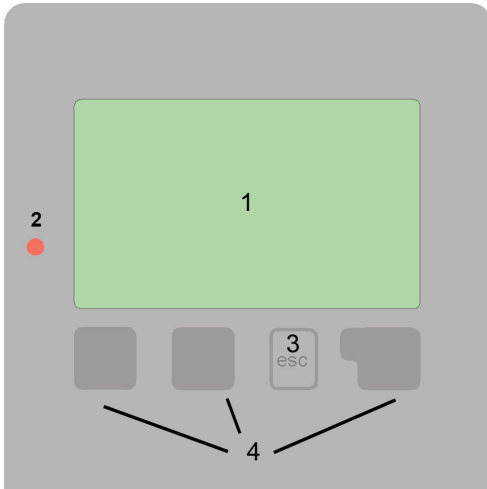




Low-voltage cables such as temperature sensor cables must be routed separately from mains voltage cables. Feed temperature sensor cables only into the left-hand side of the unit, and mains voltage cables only into the right-hand side.

Temperature Resistance Table for Pt1000 Sensors

°C	-20	-10	0	10	20	30	40	50	60	70	80	90	100
Ω	922	961	1000	1039	1077	1116	1155	1194	1232	1270	1308	1347	1385

Display and Input



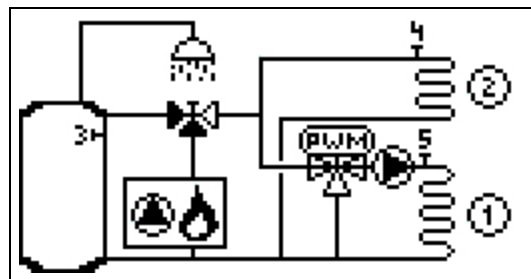
-  Warning/Error message
-  New information available
- Further symbols can be found in the special functions

The display's (1), extensive text and graphical mode, enables simple, almost self-explanatory, operation of the controller.

The LED (2) lights up green when a relay is switched on. The LED (2) lights up red when operating mode ,Off' is set. The LED (2) flashes quickly red when an error is present.

Entries are made using 4 keys (3+4), to which contextual functions are assigned. The ,esc' key (3) is used to cancel an entry or to exit a menu. If applicable, a request for confirmation appears to save the made changes.

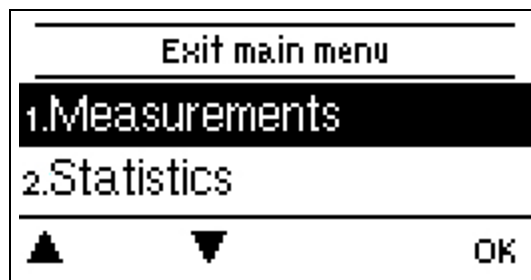
The function of the other 3 keys (4) is shown in the display right above the keys. The right-hand key generally has a confirmation and selection function.



The graphics mode appears if no key is pressed for 2 minutes or after exiting the main menu with 'esc'.

HC1	Day	HC2	Day
Tg	23.5 °C	Tg	45.0 °C
Flow	60.0 °C	Flow	52.0 °C
Room	0.0 °C	Room	0.0 °C
Humidity	0.0 %	Humidity	0.0 %
Outdoor	22.0 °C	Burner	52.0 °C

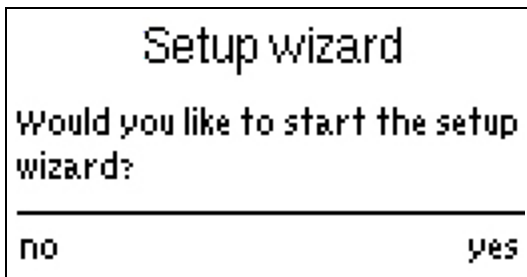
The temperature overview appears when you press the left button. Tapping the button again leads back to the graphic overview.



Hitting the "esc" key in the graphics mode takes you directly to the main menu.

Examples for key settings:

- +/- Increase / decrease values
- ▼/▲ Scroll down / up menu
- Yes/No agree / reject
- About further information
- Back to the previous display
- Ok Confirm selection
- Confirm Confirm setting



1. Set language and time
2. Commissioning help / setup wizard
 - a) select or
 - b) skip.

The setup wizard guides through the necessary basic settings in the correct order. Each parameter is explained in the control display. Pressing the „esc“ key takes you back to the previous setting.

b) With free commissioning the settings should be made in the following order:

- menu 10. Language
- menu 3. Time, Date and Operating Times.
- menu 5. Heating Circuit Settings, all values.
- menu 6. Protection Functions (if any adjustments necessary).
- menu 7. Special Functions (if any adjustments necessary).

3. In Menu operating mode "Manual", test the switch outputs with the consumers connected and check the sensor values for plausibility. Then set to automatic mode. see " Manual " on page 14

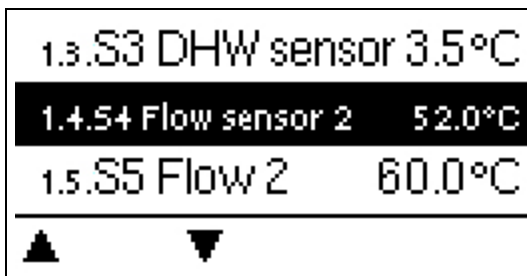


The setup wizard can be accessed in menu 7.2 at any time.



Consider the explanations for the individual parameters on the following pages and check if further settings are necessary for your application.

1. Measurement values



Serve to display the current measured temperatures.



If 'error' appears on the display instead of the measurement value, there may be a defective or incorrect temperature sensor.



If the cables are too long or the sensors are not well-placed, small deviations in the measurement values may occur. In this case, the display values can be compensated by adjustments in the controller - see 'Sensor calibration'. The selected program, connected sensors and the specific model design determine which measurement values are displayed.

2. Statistics



Serve for function control and long-term monitoring of the system.



For system data statistics it is essential for the time to be set accurately on the controller. Please note that the clock continues to run for about 24 hours if the mains voltage is interrupted, and afterward must be reset. Improper operation or an incorrect time may result in data being cleared, recorded incorrectly or overwritten. The manufacturer accepts no liability for the recorded data!

Today

Flow temperature of the last 24 hours

In the graphical overview the characteristics of the flow for the present day is shown from 0 ... 24 h. The right button changes the unit of time (days) and the two left buttons scroll through the diagram.

28 days

Flow temperature during the last 28 days

In the graphical overview the characteristics of the flow temperature during the last 28 days is shown. The right button changes the unit of time (days) and the two left buttons scroll through the diagram.

Operating hours

Display of the operating hours of the consumers connected to the controller (for example, solar pumps, valves etc.) whereby different time ranges (day-years) are available!

Operating hours

Here the operating hours of the heating circuit and other switch or signal outputs are displayed. This is the entire time the heating circuit pump and other switch or signal outputs were active. The displayed date in this menu is the date of the last deletion. From this date on the current count is added.

Error messages

Display of the last 15 errors in the system with indication of date and time.

Reset / Clear

Resetting and clearing the selected statistics. Selecting ,all statistics' clears everything except the error log.

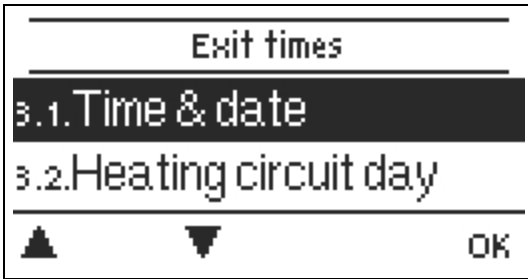
Heat quantity

Display of the consumed heat quantity from the system in kWh.

Graphic overview

This results in a clear illustration of the data as a bar graph. Different time ranges are available for comparison. You can page through with the two left keys.

3. Times



Settings for time, date and operating times for the heating circuit.



The associated temperature reference values are specified in Menu 5, 'Settings'.

Time & Date

Serve to set the current time and date.



For system data statistics it is essential for the time to be set accurately on the controller. Please note that the clock continues to run for about 24 hours if the mains voltage is interrupted, and afterward must be reset. Improper operation or an incorrect time may result in data being cleared, recorded incorrectly or overwritten. The manufacturer accepts no liability for the recorded data!

Heating Circuit (Day)

This menu is used to select the daytime mode times for the heating circuit; three time periods can be specified for each weekday and copied to the following days.



Unspecified times are automatically considered to be night-time mode. The set times are only taken into account in the 'Automatic' heating circuit operating mode.

Heating Circuit Comfort

This menu can be used to select three time ranges for each day of the week in which the heating circuit is supplied with an increased comfort temperature, e.g. for quick heating in the morning.

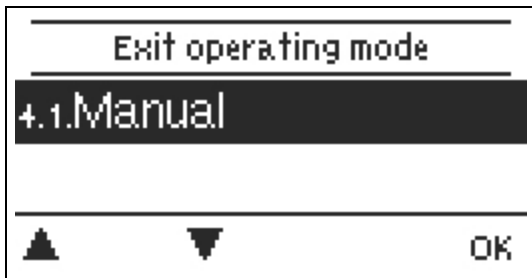
DHW enable

In this menu, the approval times for the DHW load (sensor S3) are selected, whereby for every weekday 3 periods can be determined and copied in the following days.




In times that are not filled, the DHW load is automatically shut down by the controller.

4. Operating mode

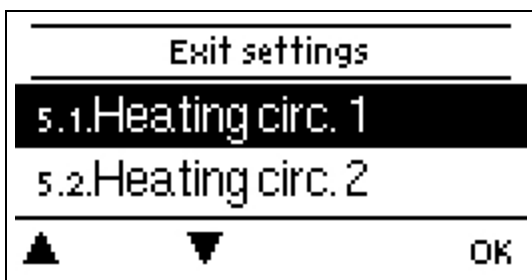



Manual

In 'Manual' mode, the individual relay outputs and the connected consumers can be checked for proper functioning and correct assignment.

 The operating mode 'Manual' may only be used by specialists for brief function tests, e.g. during commissioning! Function in manual mode: The relays and thus the connected consumers are switched on and off by pressing a key, with no regard to the current temperatures and set parameters. At the same time, the current measurement values of temperature sensors are also shown in the display for the purposes of function control.

5. Settings



 By no means does the controller replace the safety appliances on site!

Heating Circuit (X)



Operating mode

Heating= Automatic/Normal mode using the set times.


Reference Value = Fixed flow temperature regardless of the outdoor temperature. The desired flow temperature must be set in Menu 4.3 .

14 days reference value program = For the next 14 days, you can enter the menu 4. temperatures for the next 14 days. After 14 days, the reference temperature of the 14th day is used continuously until the operating mode is changed. Different temperature values can be set in menu 4.4 for every individual day.

S/W Day

Summer / Winter changeover in daytime mode

If this value is exceeded at the outdoor sensor the controller automatically switches the heating circuit off = Summer mode. If the outdoor temperature drops below this value, the heating circuit is switched on again = Winter mode.

 In addition to the operating times in normal daytime operation, this setting is also valid for times with activated comfort.

S/W Night

Summer/Winter changeover in night-time mode

If this value is exceeded at outdoor sensor S1 during the nighttime mode times, the controller automatically switches the heating circuit off = Summer mode. If the outdoor temperature drops below this value, the heating circuit is switched on again = Winter mode.

Curve

Type and slope of the heating characteristic curve

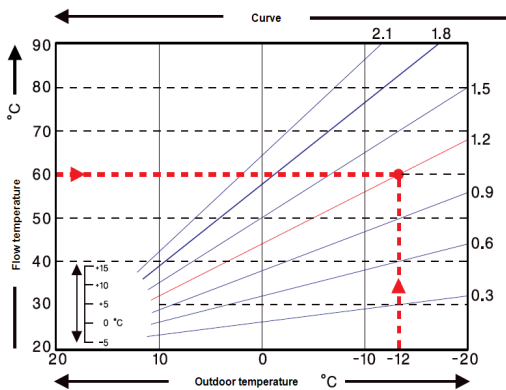
The characteristic curve is used to control the heat dissipation of the heating circuit relative to the outdoor temperature. The demand for heat differs due to factors such as the type of building, heating, insulation and outdoor temperature. For this reason, the controller can operate with a normal straight curve (setting ,simple') or split curve (setting ,split').

If ,simple' is selected, the curve is adjusted using the graphic diagram. While setting the slope, the controller also shows the slope value and the calculated target flow temperature at -12 °C as a reference point.

If ,split' is selected, the curve is set in the following steps:

1. Slope over outdoor temperature for change
2. Outdoor temperature for slope change
3. Slope below outdoor temperature for change

While setting the slope, the controller also shows the slope value and the calculated target flow temperature at -12 °C as a reference point. In case of repeated adjustment of the split curve, the settings appear in reverse order.



The diagram shows the influence of the selected characteristic curve steepness (standard curve) on the calculated reference flow temperature of the heating unit. The correct characteristic curve is determined by defining the intersection point of the maximal calculated flow temperature (=design temperature) at minimal outdoor temperature.

Example: The design temperature of the heater 60 °C flow at lowest outdoor temperature according to calculation of heat requirement -12 °C. The intersection point renders a slope of 1.2 as the setting.

Day Correction

Parallel characteristic translation

The day correction causes a parallel shift of the heating curve during daytime operating hours, because with certain outdoor temperatures the building might not be optimally heated with the set heating curve. With a non-optimised heating curve, the following situations frequently occur: hot weather = room too cold/cold weather = room too hot. In this case, the slope of the curve should be reduced stepwise by 0.2 points and increases the day correction by 2 ... 4 °C each.

Night Correction

Parallel characteristic translation

The night correction produces a parallel translation of the heating characteristic during the nighttime operating hours. If a negative value is set for the night correction, the reference flow temperature is lowered accordingly during the nighttime operating hours. In this manner, primarily at night, but also during the day when no-one is at home, the room temperature is lowered, thus saving energy. Example: A day correction of +5 °C and a night correction of -2 °C produces a reference flow temperature in nighttime operation that is 7 °C lower.

Comfort Temperature Boost

Parallel characteristic translation

The comfort temperature boost is added to the set day correction. In this manner it is possible to carry out quick heating and/or raise the temperature of living spaces at a certain time each day.

Min. Flow

The minimum flow temperature is the lower limit of the heating curve, and by this, the reference flow temperature of the heating circuit. In addition to that, the minimal flow temperature is the reference flow temperature for the frost protection function.

Max. Flow

This value is the upper limit of the reference flow temperature of the heating circuit. If however, the temperature of the heating circuit exceeds the set value, the heat circuit shuts down until the temperature falls below this value. The system purged for 30 seconds every 5 minutes.



The customer must provide an additional limiting thermostat which is connected to the pumps in series (eg underfloor heating) for safety.

Reference/Actual -

Switch on hysteresis for additional heating

This setting determines the allowed undershoot of the heating circuit temperature below the calculated reference flow temperature. If the heating circuit flow temperature and the storage temperature drop below the reference flow temperature by this value, the additional heating will start the additional heat source after a 1 minute delay.



Heat request is started when the flow temperature is continuously below reference temperature for 1 minute.

Reference/Actual +

This value determines the acceptable underflow of the heating circuit temperature beyond the calculated reference flow temperature at the buffer sensor or flow sensor. If the temperature at the buffer sensor exceeds the reference flow temperature by the value set here, the heating request is deactivated.



The setting value reference/actual + appears only in the menu if a sensor has been set under buffer sensor.



Heat request is started when the flow temperature is continuously below reference temperature for 1 minute.

Turn off HC

Summer: HC turns off when the summer/winter changeover (outside temperature) is exceeded.

Summer + Room: HC is turned off when the summer/winter changeover (outside temperature) or the room setpoint temperatures are exceeded.

Buffer sensor

Input of heating circuit buffer sensor

In this menu, the sensor is set, which is used as a reference sensor for the heating circuit request.



The request only works if an energy source (burner, compressor, solid chamber) is activated as an additional function and if this source is set for the heating circuit request

(see also burner: see " Heating Circuit request " on page 18

Room Controller

This value is used to appoint the amount of influence the room temperature has on the reference flow temperature, as a percentage. For each degree deviation between room temperature and set point temperature, the percentage set here is added from the calculated set flow temperature to the set flow temperature or subtracted from it until the min. or max flow values.

Example: Reference room temp.: e.g. 25 °C; room temp.: e.g. 20 °C ±5 °C. Calculated reference temp.: e.g. 40 °C: room controller: 10 % = 4 °C 5 X 4 °C = 20 °C. Accordingly, 20 °C are added to the reference flow temperature, giving 60 °C. If the value is higher than the one set in max. flow temp, the resulting temperature is the one set in max. flow temp.

Room Reference (Day)

The desired room temperature for day mode. As long as this temperature is not reached, the reference flow temperature is raised and/or lowered according to the percent setting in ,room controller'. If ,room controller' is set to 0 %, this function is deactivated.

Room Reference (Night)

The desired room temperature for night mode. As long as this temperature is not reached, the reference flow temperature is raised and/or lowered according to the percent setting in ,room controller'. If ,room controller' is set to 0 %, this function is deactivated.



In the modes ,Set point' and ,Set point program, the room controller has no influence.

Thermostat (X)

The room controller is selected here. If no room controller is connected and a room controller is connected via the CAN Bus, another room controller can be selected here.

The CAN bus ID of controller is shown in Menu 'Special Functions' under 'Network'. In °CALEON see the CAN Bus ID in the expert menu under Network. Choose the Room Controller with the CAN Bus ID of the corresponding controller.

Sensor Typ

If a sensor input is connected to a room controller, it must be set here whether it is a room temperature sensor (RC20) or a switching contact.

Mixer

This menu contains all settings relating to the mixer of the heating circuit.

Direction

Direction of the mixing valve can be set here.

Mixer turn time

The mixer is switched on i.e. is opening or closing for the time span set here, then the temperature is measured to control the flow temperature

Mixer off factor

The calculated pause time of the mixer is multiplied with the value set here. If the pause factor is ,1', the normal pause time is used, ,0.5' will use half the normal pause time. Setting the pause factor to ,4' would quadruple the pause time.

Mixer increase

If the temperature rises very fast, this value is added to the measured flow temperature so that the mixer's reaction is stronger. If the measured temperature does not rise any more, the measured value is used again. The measurement occurs once every minute.

Mixer run time

Mixer-specific setting of the running time required by the mixer for a full ride.

Signal type

The type of device to be controlled is set here.

0-10V: Controlled by a 0-10V signal.

PWM: Control by means of a PWM signal.

PV contact

This sensor input could be used as a PV-contact of PV-System

This sensor is observed to "short circuit" (PV-Contact closed).

If the PV-Contact is closed, the mode of this function is changed to "comfort" and operate

This also applies in the case that the mode "comfort" of the function currently has no time release.



Information about the operation and the connection of PV-contact, refer to the technical description of your PV system.

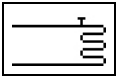
Mod. Offset

At modulated heat request the requested temperature can be increased by the value adjusted here.

Energy Saving Mode

The Energy saving mode switches the heating on when T_{eco} is undershot and heats up to T_{eco} + hysteresis when solar charge or solid fuel boiler is active.

Heating Circuit 2



see " Heating Circuit (X) " on page 14

No operating mode or mixer function can be set for heating circuit 2

Settings Domestic Hot Water (DHW)



By no means does the controller replace the safety appliances on site!

Operating mode

The DHW heating can be set here. "Auto" activates the DHW heating according to the time program, with "off" the DHW heating is turned off.

Hot water minimum

Minimum DHW temperature

If the set temperature at the DHW sensor is undeshot outside of the set times, the DHW charge and heat request will be turned on.

DHW reference

Minimum DHW temperature time program

If the set temperature at the DHW sensor is undershot and the BW charge is approved for the time, the DHW charge and the heat request will be turned on.



The request only works if an energy source (burner, compressor, solid boiler) is activated as an additional function and if this source is set for the DHW request (see also Burner: Request BW on page 38, Compressor: request BW on page 40).

DHW comfort

DHW temperature for comfort time

The set temperature considered as minimum temperature during the set comfort time. If the temperature on DHW-sensor is below the value set here is during the DHW comfort periods, the DHW heating is started, until DHW comfort + hysteresis is achieved.

DHW hysteresis

DHW hysteresis

The DHW charge and heat request are shut down if the temperature at the DHW sensor reaches the value set under "see " Hot water minimum " on page 17" / "see " DHW reference " on page 17" plus the heating set here.

Buffer DHW load

DHW load from the buffer

The DHW load from the buffer storage is turned on if the temperature on the buffer sensor is at least 8°C warmer than at the DHW sensor. The DHW load from the buffer storage is shut down if the temperature at the buffer sensor is only 4 °C warmer than at the DHW sensor or if the temperature at the DHW sensor has reached the value set under see " Hot water minimum " on page 17 or see " DHW reference " on page 17.

DHW priority

Preferred DHW charge

If this function is activated, the reference flow temperature during a BW heating will be set to the minimum flow temperature see " Min. Flow " on page 15 so that the mixer moves to the "closed" position.

PV contact

This sensor input could be used as a PV-contact of PV-System

This sensor is observed to "short circuit" (PV-Contact closed).

If the PV-Contact is closed, the mode of this function is changed to "comfort" and operate

This also applies in the case that the mode "comfort" of the function currently has no time release.



Information about the operation and the connection of PV-contact, refer to the technical description of your PV system.

14-day Reference

If operating mode, 14-day reference value' is selected see " Operating mode " on page 14, the reference flow temperature for each of the 14 days can be set here. In Menu 4.4.1, the starting time of the program is shown. To restart the reference program, press ,restart'.

Pressing ,restart' again will reset the 14-day reference program and restart it at Day 1.

Burner



This function requests a burner when a request of a heating circuit or the DHW function is present. Depending on the request, the burner will turn on in a more economic manner in the Eco-Mode if the solar circulation pump is running.

DHW request

The burner is started for a DHW - heat request.

Heating Circuit request

The burner is started for a heating circuit heat request.

Delay

Switch delay, valid for cooling and heat request. The burner first turns on after this time span if the switch conditions were reached and are still present. This function should prevent unnecessary switches through temperature changes or create a regenerative energy source that adds energy.

Eco mode (during solar charge)

The economy mode for this function can be operated in 2 different variants:

Shutdown: The function is not started with an active solar charge.

Decrease:

For a heating request the function first turns on when the conditions and an additional offset were not met.

For a DHW request the function only activates when T eco is not met and de-activates when T eco + DHW-heating is achieved.

Mode

Switching: Request is made via signal output V2.

Output signal to V1: "no request" = 0V, "request" = 10V

Modulating: Request is made via signal output V2. The ModVlVS Logico outputs the requested temperature (calculated target VL) as a voltage via the signal output.

Example: Calculated target VL heating circuit 43 ° C, measured VL at sensor S2 40 ° C.

If the VL sensor exceeds the setpoint VL by 2K (preference/actual -) for more than 2 minutes, the ModvIVS Logico requests a heat source with 4.3V (corresponds to 43 ° C setpoint VL).

The requested temperature can be raised with the value "Mod.Offset". 0.1V correspond to 1 ° C. If you set an offset of 0.5V, this results in a requested temperature of 48 ° C or 4.8V (43 ° C corresponds to 4.3V + 0.5V (offset) = 4.8V corresponds to 48 ° C)

Burner offset

When using the 0-10V outputs V1 or V2 for the burner function, the requested temperature is emitted through a corresponding voltage. This offset increases the requested temperature.

Enable times

Function activity times

Here the desired periods are set in which this function is approved. For each weekday, three times can be specified, furthermore, you can copy individual day to other days. Outside the set times the function is disabled.

Anti Legionella

With the help of the anti legionella function (hereinafter referred to as: AL), the system can be heated up at selected times in order to free it of legionella.



In the delivery state, the anti legionella function is switched off.



As soon as it has heated up with "AL" turned on, information with the date will be shown in the display.



This anti legionella function does not offer any secure protection against legionella, because the controller requires an adequate added amount of energy and the temperatures cannot be monitored in the entire storage area and the connected pipe system.



During the operation of the anti legionella function, if applicable, the storage is heated above the set value "Tmax", which may lead to scalding and system damage.

AL Tref

For a successful heating, this temperature has to be reached at the AL sensor(s) for the exposure time period.

AL residence time

For this period of time the AL Tref temperatures at the activated AL-sensors have to be reached for a successful heating.

Last AL heat

This displays when the last successful heating has occurred.

AL sensor 1

On this sensor, the temperature of the AL function is measured.

AL Sensor 2

Optional AL sensor

If this sensor is set for a successful heating Tset AL have to be achieved at this sensor too for the action time.

Boiler pump



A boiler pump is turned on and off together with the burner. Function is only visible if the additional function Burner is activated.

Boiler pump

Activate function.

Boiler pump Tmin

Minimum temperature at the burner sensor for enabling of the boiler pump. If this temperature is exceeded at the burner sensor, the burner pump is activated.

Burner sensor

Reference sensor for burner function. If this temperature at the set sensor is exceeded, the burner is shut down.

Tmax

Maximum temperature at the burner sensor. If this temperature at the set sensor is exceeded, the burner is shut down.

6. Protective Functions



The 'Protective functions' can be used by specialists to activate and set various protective functions.



By no means does the controller replace the safety appliances on site!

Seizing Protection

If the anti-seizing protection is activated, the controller switches the heat pump and the mixer on/off at 12:00 noon for 5 seconds to prevent seizing of the pump/valve after long periods of inactivity.

ABS R(X)

Activation (daily, weekly) of the anti-lock protection to a relay (X) at 12:00 for 5 seconds.

Frost Protection

If the temperature at the outside sensor drops below 1 ° C, the frost protection is activated. If the outside temperature rises above 1 ° C, the frost protection function is switched off.



Switching the frost protection function off or setting the minimum flow temperature too low can lead to severe damage to the system.

7. Special Functions



Used to set basic items and expanded functions.



The settings in this menu should only be changed by a specialist.

Program selection

Here the hydraulic variation fitting to the respective use case is selected and set.



The program selection normally occurs only once during the first entry into service by a specialist. An incorrect program selection may lead to unpredictable errors.

Sensor Calibration

Deviations in the temperature values displayed, for example, due to cables which are too long or sensors which are not positioned optimally can be compensated for manually here. The settings can be made for each individual sensor in steps of 0.5 °C.



Settings are only necessary in special cases at the time of initial commissioning by the specialist. Incorrect measurement values can lead to unpredictable errors.

Commissioning

Starting commissioning help guides you in the correct order through the basic settings necessary for commissioning, and provides brief descriptions of each parameter in the display. Pressing the ,esc' key takes you back to the previous value so you can look at the selected setting again or adjust it if desired. Pressing ,esc' more than once takes you back to the selection mode, thus cancelling the commissioning help see " Commissioning help " on page 11



May only be started by a specialist during commissioning! Observe the explanations for the individual parameters in these instructions, and check whether further settings are necessary for your application.

Factory Settings

All settings can be reset, returning the controller to its delivery state.



All of the controller's parametrization, statistics, etc. will be lost irrevocably. The controller must then be commissioned once again.

Eco Display Mode

In Eco Display Mode the backlight of the display is switched off if no buttons are pushed for 2 minutes.



If a message exists, the backlight does not switch off until the message has been scanned by the user.

Network

If applicable, the network settings of the connected data logger have to be adjusted

Access Control

This menu lets you give up to 4 users access to the data logger. The users that are registered then have access to the controller or respectively the data logger.

To add a user in the list, select <add user>. Leave the now visible menu open und connect to the address of the connector or respectively the data logger. Your user name is going to appear in this menu and can be selected and confirmed with 'OK'.

Note

You can find the address of the connector or respectively the data logger on the address sticker on the outside of the casing. Pointers and help on how to establish a connection you can find in the enclosed SOREL connect instructions or the instructions of the data logger.

Select a user with 'OK' to grant access.

To revoke access again, choose one of the users from your list and choose <remove user>.

Ethernet

The data logger's Ethernet connection settings can be set using this menu.

MAC Address

Displays the individual MAC address of the data logger.

Auto-Configuration (DHCP)

If auto-configuration is activated, the data logger requests IP addresses and network parameters from a DHCP server that assigns an IP address, subnet mask, gateway IP and DNS server IP. **If you deactivate the auto configuration (DHCP), you will have to make the required network settings manually!**

IP-Address

Please refer to the router configuration for the IP address to be set.

Subnetz

Please refer to the router configuration for the subnetz to be set.

Gateway

Please refer to the router configuration for the gateway to be set.

DNS-Server

Please refer to the router configuration for the DNS server to be set.

CAN bus ID

Here you can see the ID of the controller on the CAN bus.

8. Menu Lock



Secure the controller against unintentional changing and compromise of basic functions.

The menus listed below remain completely accessible despite the menu lock being activated, and can be used to make adjustments if necessary:

1. Measurement values
2. Statistics
3. Times
8. Menu lock
9. Service values

9. Service values



Serve for remote diagnosis by a specialist or the manufacturer in the event of errors, etc.



Enter the values into the table when an error occurs.


10. Language




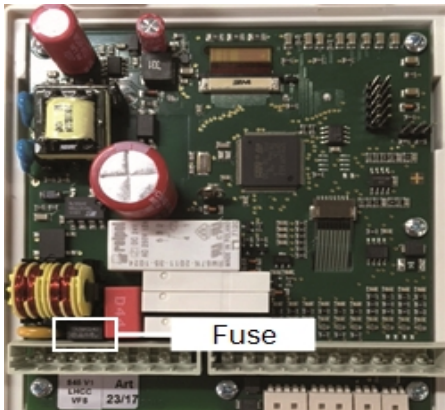
To select the menu language. For initial commissioning the query is automatic.

Malfunions/Maintenance

Replacing the Fuse

 Repairs and maintenance may only be performed by a specialist. Before working on the unit, switch off the power supply and secure it against being switched on again! Check that there is no power flowing!


 Only use the supplied spare fuse or a fuse of the same design with the following specifications: 2 AT/250 V



If the mains voltage is switched on and the controller still does not function or display anything, then the internal device fuse may be defective. In that case, open the device as described in section C, remove the old fuse and check it.

Exchange the defective fuse for a new one, locate the external source of the error (e.g. the pump) and exchange it. Then first recommission the controller and check the function of the switch outputs in manual mode as described.

Maintenance

 In the course of the general annual maintenance of your heating system, the functions of the controller should also be checked by a specialist and the settings should be optimized if necessary.

Performing maintenance:

- Check the date and time see "Time & Date" on page 13
- Assess/check plausibility of statistics see "Serve for function control and long-term monitoring of the system." on page 12
- Check the error memory see "Error messages" on page 12
- Verify/check plausibility of the current measurement values see "Measurement values" on page 11
- Check the switch outputs/consumers in manual mode see "Manual" on page 14
- Possibly optimize the parameter settings.

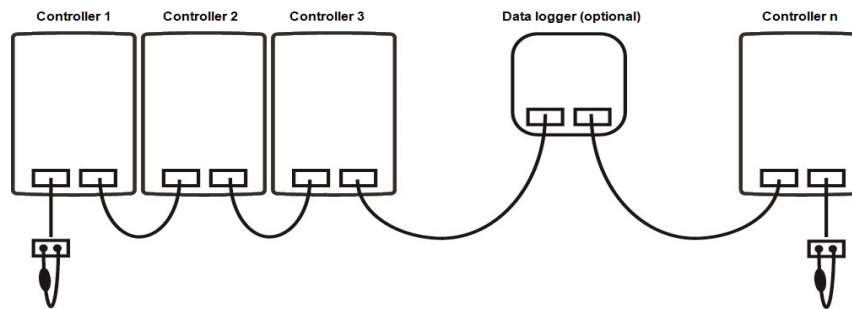
Possible error messages

Possible error messages	Notes for the specialist
Sensor x defective	Means that either the sensor, sensor input on the controller or the connection line is / or was defective (see "Temperature Resistance Table for Pt1000 Sensors" on page 9)
Collector alarm	Means that the temperature on the collector set under "Collector protection" was exceeded.
Restart	Means that the controller was restarted, for example, due to a power outage. Check date & time!
Time & Date	This display appears automatically after a longer network disruption, because the time & date must be examined and, if applicable, adjusted.
Frequent on / off	A relay was switched on and off more than 5 times within 5 minutes.
AL failed	Is displayed when AL ref -5 °C was not measured for the set AI residence time at the AL sensor.
Frost Protection	The solar pump is switched on in order to protect the collector from freezing.

Additional Information

CAN bus

The CAN bus can be used to connect two or more controllers with each other or with the data logger to exchange data.



1. The controllers are connected in series with the CAN bus cable.
2. The first and last controllers in this connection in series must be fitted with terminating resistance.
The wiring of the two CAN sockets is arbitrary.
3. Optionally, the data logger can also be connected to the CAN bus.

Tips



The service values include not only current measurement values and operating states, but also all of the settings for the controller. Write the service values down just once after commissioning has been successfully completed.



In the event of uncertainty as to the control response or malfunctions the service values are a proven and successful method for remote diagnosis. Write the service values down at the time that the suspected malfunction occurs. Send the service value table by fax or e-mail with a brief description of the error to the specialist or manufacturer.



To protect against loss of data, record any statistics and data of particular importance at regular intervals.

Pump

In this menu, the preset profiles for the pump can be selected or under "manual" all settings can be done personally. The settings can still be changed after a profile has been selected.

Profile

Delete this text and replace it with your own.

Output Signal

In this menu, the type of pump is set: heating pumps have the greatest output with a small input signal, solar pumps in contrast have very little output with a small input signal. Solar = normal, heating = inverted. For 0-10 V pump always choose the "Normal" setting

PWM / 0-10V off

This voltage / this signal is emitted if the pump is turned off (pumps with cable break detection need a minimal voltage / minimal signal).

PWM / 0-10V on

This voltage / this signal requires the pump in order to turn on and to run at a minimum speed.

PWM / 0-10V max.

With this value, the maximum voltage level / maximum frequency can be specified for the highest speed of the energy saving pump, which is used, for example, during the flushing or manual operation.

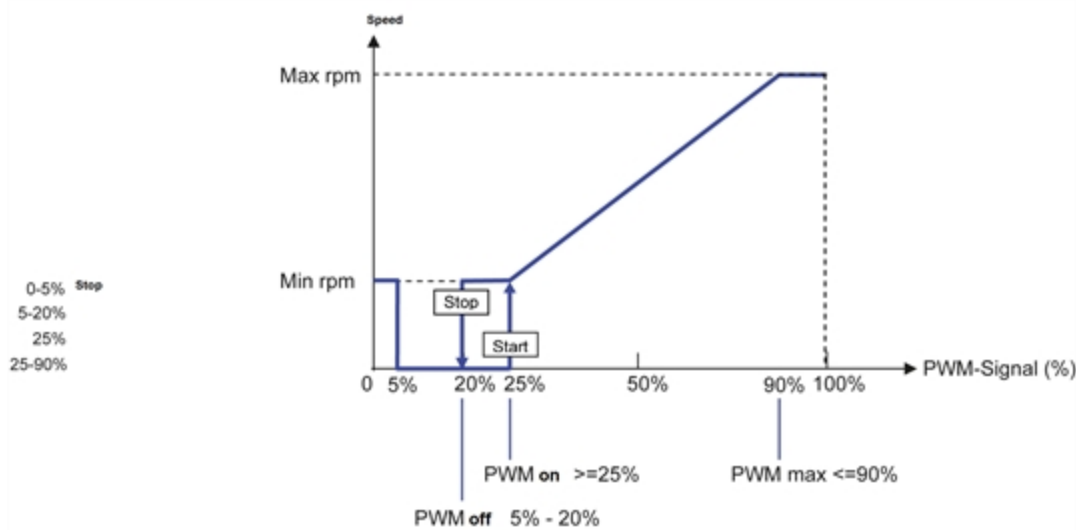
Speed when „On“

In this menu, the calculation basis of the displayed speed is changed. If, for example, 30% is specified here, the frequency/voltage set under "PWM On" / "0-10V On" will be displayed during creation so that a 30% speed is present. When creating the voltage/frequency of PWM Max / 0-10V Max, 100% speed is displayed. Temporary values are calculated correspondingly.

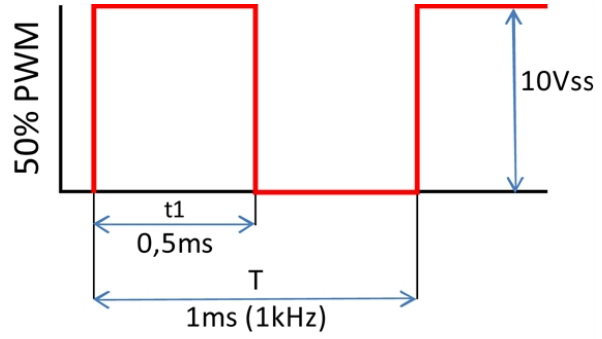
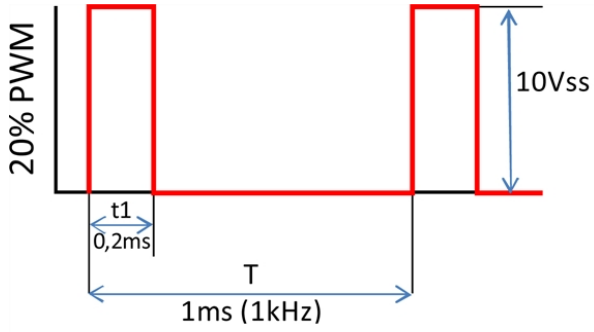


This function does not influence the rule, but rather only the display on the status screen.

Example for pump settings



Technical data PWM and 0-10V



PWM: 20% to 100%, 1kHz Designed for a load of 10K Ohm

Technical data 0-10V: 0-10V: 2V to 10V (20% to 100%)
 Designed for a load of 10K Ohm. 10V = 100% Speed 5V = 50% Speed 2V = 20% Speed 0V = Off



Show signal

Represents the set pump signal in a graphic and text overview.

Final declaration

Although these instructions have been created with the greatest possible care, the possibility of incorrect or incomplete information cannot be excluded. Subject as a basic principle to errors and technical changes.

Date and time of installation:

Name of installation company:

Space for notes:

Your specialist dealer:

Manufacturer:

SOREL GmbH Mikroelektronik
Reme-Str. 12
D - 58300 Wetter (Ruhr)

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