Symondo Box

Heating circuit controller for surface heating and cooling

Installation and operating instruction

Read carefully before installation, commissioning and operation

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Safety Instructions

EU-Conformity

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

- EU low voltage directive 2014/35/EU
- EU electromagnetic compatibility directive 2014/30/EU
- EU RoHS Directive 2011/65/EU
- EU WEEE Directive 2012/19/EU (Reg.nr. DE 23479719)

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 Heating circuit controller for surface heating and cooling for and similar applications. Install the unit only in dry areas and under the ambient conditions described in “Specifications”.

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 importation 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 unit is subject to the statutory guarantee period of two years from the date of sale. 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.
- Unauthorised 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 ‚Specifi cations‘ 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 Symondo Box

Description

The Symondo Box is a universal heating and individual room controller for surface heating and surface cooling systems. In com-bination with up to 8 Symondo Controller, this enables efficient use and function control of your surface heating and cooling with intuitive operation. The inputs and outputs can be Symondo Controller freely assigned, so that different heating and cooling systems can be implemented.

Important characteristics of the Symondo Box:

- Control of 8 heating and cooling zones with 1 - 4 actuators
- Measurement of room temperature and humidity in combination with Symondo Controller, Symondo Sensor or Symondo Sensor
- optionally weather compensated via outdoor temperature sensor
- optional control of heating circuit pump and mixer (PWM oder 0-10V) possible
- 2 separate CAN bus interfaces for building network and private floor or apartment network
- connectable with other MULTIBETON products via CAN-Bus
- Control of mixers, valves and energy generators via 0-10V / PWM
- 2 additional floating changeover contacts (terminals J and K) for flexible assignment
- optionally usable with standard room thermostats
- easy to install due to innovative strain relief and coloured terminal strip
- optional up to 20 1-Wire temperature sensors connectable

Technical Data

Model	**Symondo Box**	Heating circuit controller for surface heating and cooling
Temperature controller class (ErP)	8	
Energy efficiency (ErP)	5%	
Standby loss	0,5W	
Request type invertible heat pump	"On /off" and/or "modulating"	
Electrical specifications:		
Power Supply		230 VAC (+/- 5%), 50 - 60 Hz
Power consumption / standby		0,5 - 2,5W/ 0,5W
Internal fuse 1	1	(Pos. A, left) 2A slow 250V Fuse protection for terminal area A and electronics
Internal fuse 2	1	(Pos. B, right) 4A slow 250V Fuse protection for terminal area B - I
Protection Class		IP20
Protection class / overvoltage category		II / II
Inputs	Quantity	Measuring range / design
1-Wire temperature sensor powered, 3-wire system	up to 20 pieces	-55 °C ... 125 °C (3 pole version)
Outputs		
Switching relay outputs	11	
Relay heat pump	1	230 VAC, 4A, (AC1 920 VA, AC3 185W)
Relay actuator	8	230 VAC, 4A, (AC1 920 VA, AC3 185W)
Relay additional function	2	Potential-free max. 4A
PWM output	1	for 10 k Ω working resistance 1 kHz, level 10 V
0-10V output	1	
0-10V / PWM	1 (switchable)	
+ Voltage outputs 24VDC	3	total max. 12W for external devices e.g. Symondo Controller
Interface		
Fieldbus	2 x	CAN bus (separate building CAN bus and private CAN bus)
Max. Cable Length		
1-Wire Sensors		Cable length of the entire system 100 m, use suitable twisted pair cable Especially when using Symondo Sensor, ensure sufficient conductor cross-section to avoid impermissible voltage drop see "Connection example Symondo Sensor" on page 15.
CAN		<3m; at> = 3m, a shielded twisted pair cable must be used. Isolate shielding and connect it to the protective conductor of **only one** of the devices. Max. cable length of the complete system 200 m.
0-10V/PWM		<3m
24 VDC		<30m
mechanical relay		<30m
Permissible Ambient Conditions		
during 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		multi-part ABS
Installation Methods		DIN rail mounting or wall mounting on DIN rail
Overall dimensions		95 mm x 303 mm x 57 mm
Light diode		14 x LED green
Real Time Clock		RTC with 24 hour power reserve
Operation		via Symondo Controller

Scope of Supply

- Heating circuit controller for surface heating and cooling Symondo Box
- 2 Replacement fuses
- additional separation wall for use of non-230V AC actuators
- DIN rail H=35mm L=280mm 2 screws 3,5 x 35 mm and 2 dowels S6
- Symondo Box installation and operating instructions

Installation

Wall Installation

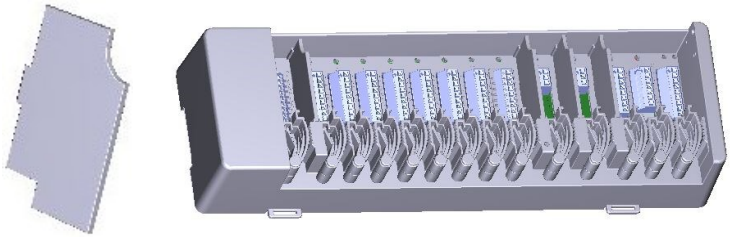
Fix the DIN rail horizontally to the wall using screws.

Installation
1. Place the Symondo Box on the upper edge of the DIN rail with the locking catch on top.

2 Engage the device by pressing it down. Ensure that the locking catches engage completely and that the device is firmly seated on the rail.

Disassembly
Remove the Symondo Box from the DIN rail by insert-ing two screwdrivers into the eyelets and pulling them down-wards.

Separation walls and cover



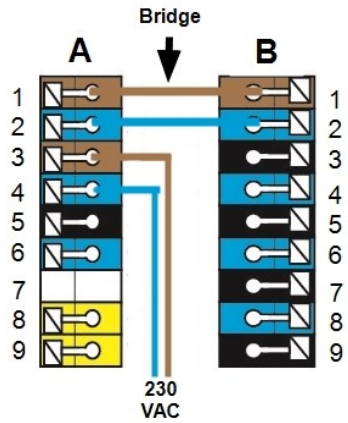
The separation walls and the cover can be removed for easier connection of the cables. They must then be reinstalled in order to safely separate areas carrying mains voltage from areas carrying low voltages.

Open the cover (90° degree) and then pull it out of the side of the attachment.

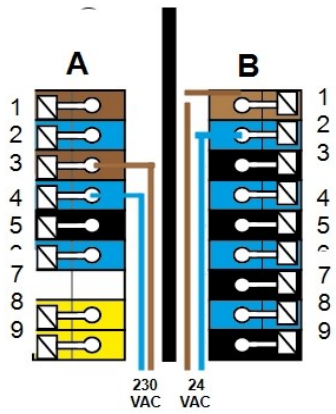
⚠ If the terminal blocks (B-I) are to be supplied with a voltage other than the mains voltage, proceed as follows:

1. Remove existing bridges A1 - B1 and A2 - B2
2. It is absolutely necessary to insert a separating wall between A - B.
3. Connect the power supply to B1 (L) and B2 (N).
4. Observe max. switching power of relay and fuse (4AT)

Heating zones with 230 VAC actuators (bridge)



Heating zones with e.g. 24 VAC actuators (separation wall)

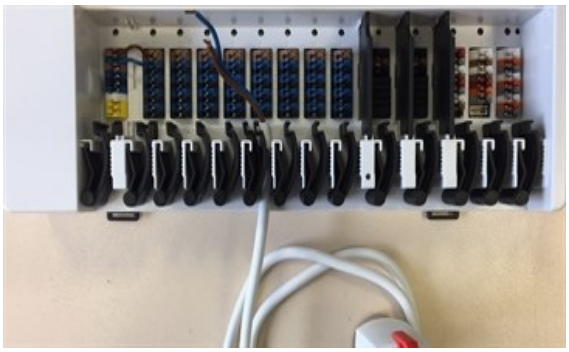


Electrical Connection

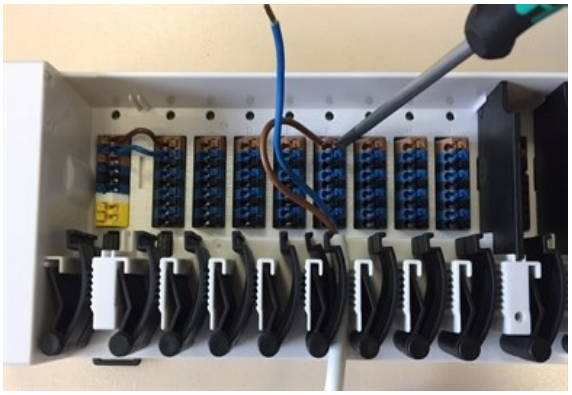
Low-voltage cables such as temperature sensor cables must be routed separately from mains voltage cables.

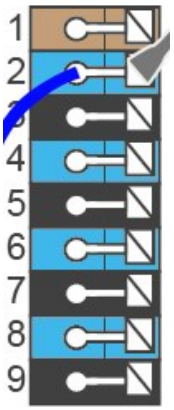
Before working on the unit, switch off the power supply and secure it against being switched on again! Check that there is no power flowing! Electrical connections may only be made by a specialist and in compliance with the applicable regulations. The unit may not be put into operation if there is visible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

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



The strain reliefs are suitable for flexible cables with a cable sheath diameter of 5 mm to 8 mm, primarily using the lower strain relief (as shown). The cables must be checked for firm placement. Solid, thicker and thinner cables must always be laid firmly and must be fixed on the installation side.

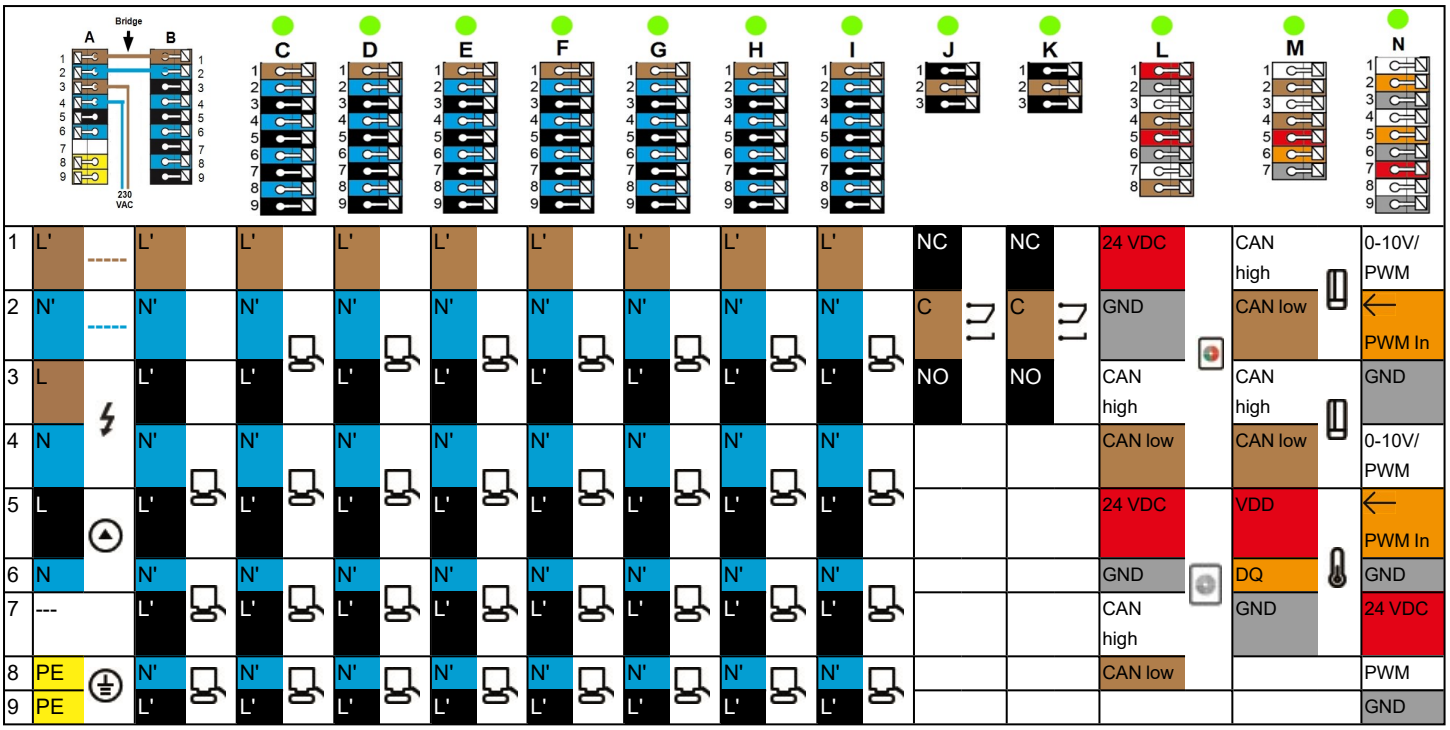




Massive wires or cables with special wire end sleeves can simply be pressed into the terminals. For other wires, the trowel must first be **completely pressed on** with a screwdriver as shown.

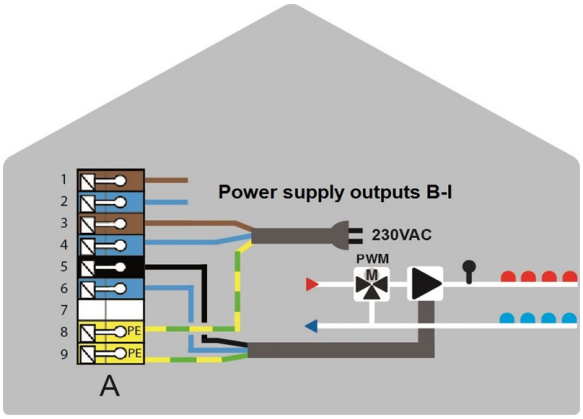
Wire ferrules made of brass can be difficult to clamp due to their asymmetric crimping shape. In this case, remove the wire ferrule. The plug-in terminals are also suitable for flexible cables.

Electrical Terminals

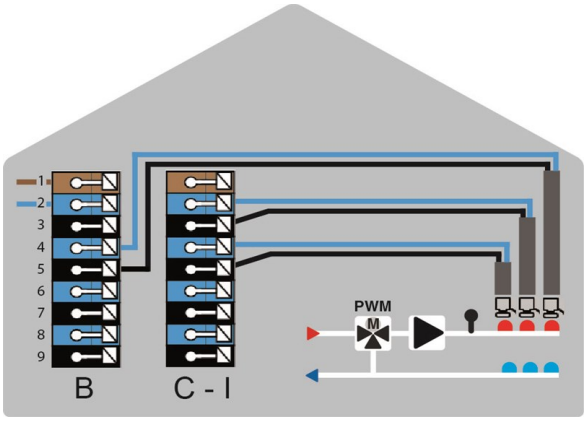


	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	L'	L'	L'	L'	L'	L'	L'	L'	L'	NC	NC	24 VDC	CAN high	0-10V/ PWM
2	N'	N'	N'	N'	N'	N'	N'	N'	N'	C	C	GND	CAN low	PWM In
3	L	L'	L'	L'	L'	L'	L'	L'	L'	NO	NO	CAN high	CAN high	GND
4	N	N'	N'	N'	N'	N'	N'	N'	N'			CAN low	CAN low	0-10V/ PWM
5	L	L'	L'	L'	L'	L'	L'	L'	L'			24 VDC	VDD	PWM In
6	N	N'	N'	N'	N'	N'	N'	N'	N'			GND	DQ	GND
7	---	L'	L'	L'	L'	L'	L'	L'	L'			CAN high	GND	24 VDC
8	PE	N'	N'	N'	N'	N'	N'	N'	N'			CAN low		PWM
9	PE	L'	L'	L'	L'	L'	L'	L'	L'					GND

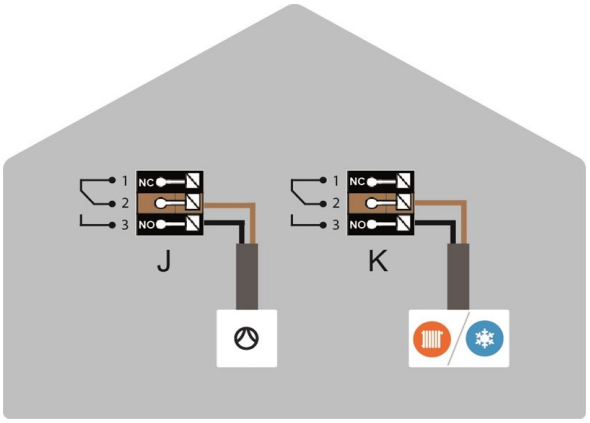
Example Wiring of Terminal Blocks



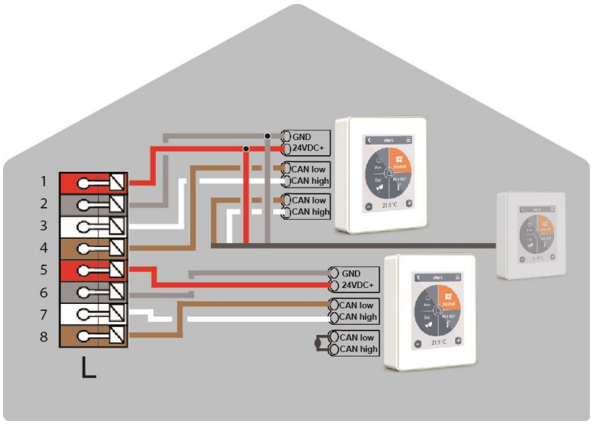
Mains connection heating circuit pump



Actuators for the heating zones

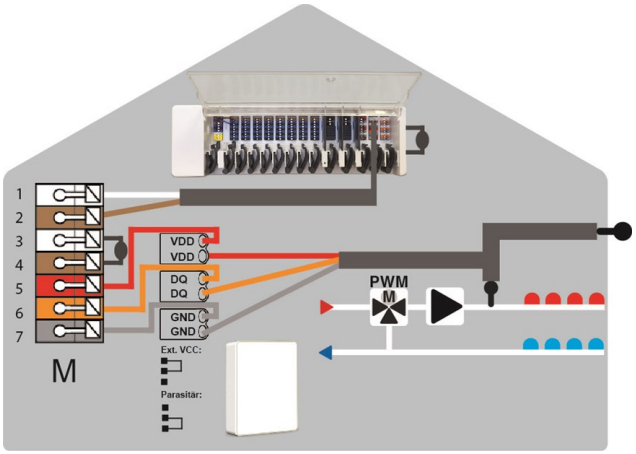


Potential-free switching contacts for additional functions

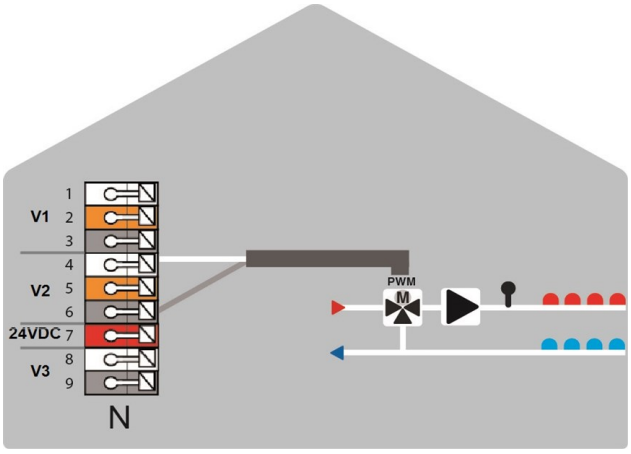


Symondo Controller in the **private CAN bus**

Private CAN bus
For linking devices within a housing unit, such as a single-family house or a flat. Shares all information with all devices in the same network, including room names, setpoint temperatures, absences, etc.



Building CAN bus and 1-Wire sensors



0-10V/PWM outputs for additional functions

Building CAN bus
For linking devices across several units, such as flats, offices or hotel rooms. Only shares information relevant for optimising the overall system:
- Outdoor temperature
- Energy demand
- Flow temperature
- Season (heating / cooling)

LED status

LED A	Lights up if mains voltage is present and relay A is switched
LED B - K	Lights up, if relay B - K is switched.
LED L	Flashes, if the private CAN bus is active. Flashes at 1Hz (60x / minute) if there is an error in the private CAN bus.
LED M	Lights up when the building CAN bus and the 1-wire bus are active. Flashes at 1Hz (60x / minute) if there is an error in the building CAN bus. Flashes at 3Hz (180x / minute) if there is an error in the 1-wire connection. **EXCEPTION**: If the building CAN bus remains unused, a flashing (1Hz (60x / minute)) of LED M is normal and does **NOT** mean that there is a fault.
LED N	Lights up, if outputs V1, V2 or V3 are active.

Wiring structures

CAN bus  

Description	Implementation	Admissibility
Line		**Yes**, optimal installation with maximum range.
Tree		**No**
Star		**No**

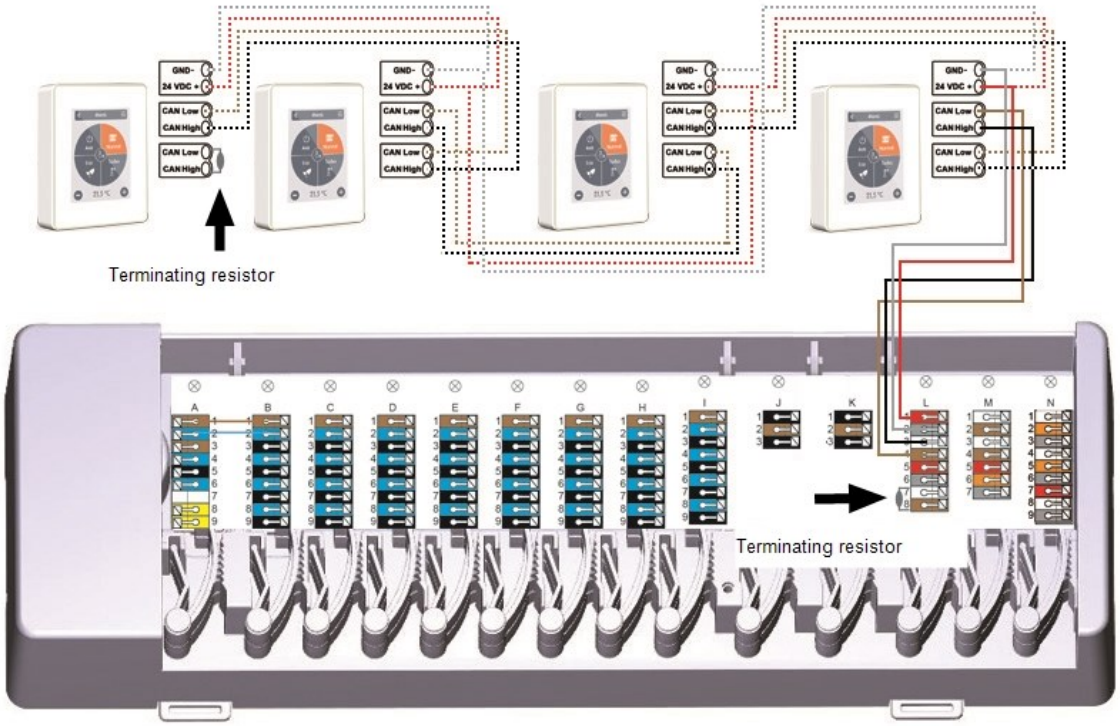
1-Wire-Bus    

Description	Implementation	Admissibility
Line		**Yes**, optimal installation with maximum range.
Tree		Possible without guarantee for **small systems** with short line lengths and few network participants. Keep stub lines short.
Star		**Not recommended**

Connection examples Symondo Controller

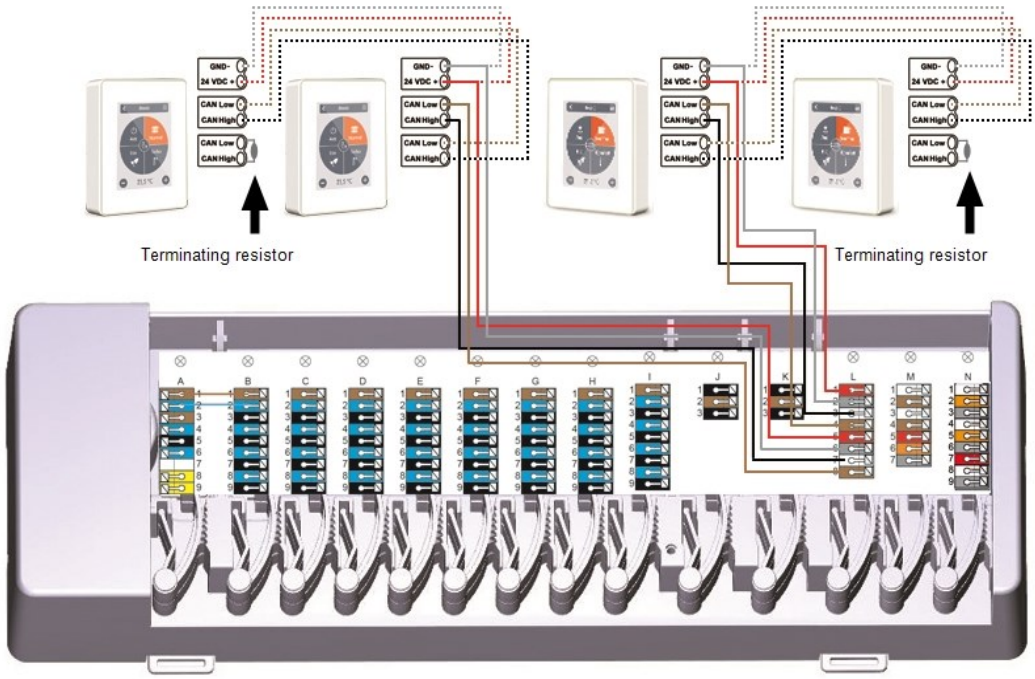
Do not combine units designed for heating only (Symondo Controller/Symondo Box) with units designed for heating and cooling only (Symondo Controller/Symondo Box).

Example 1: Line structure with Symondo Box as end point.



A 120 Ohm terminating resistor must be set on the first and last device in the CAN network.

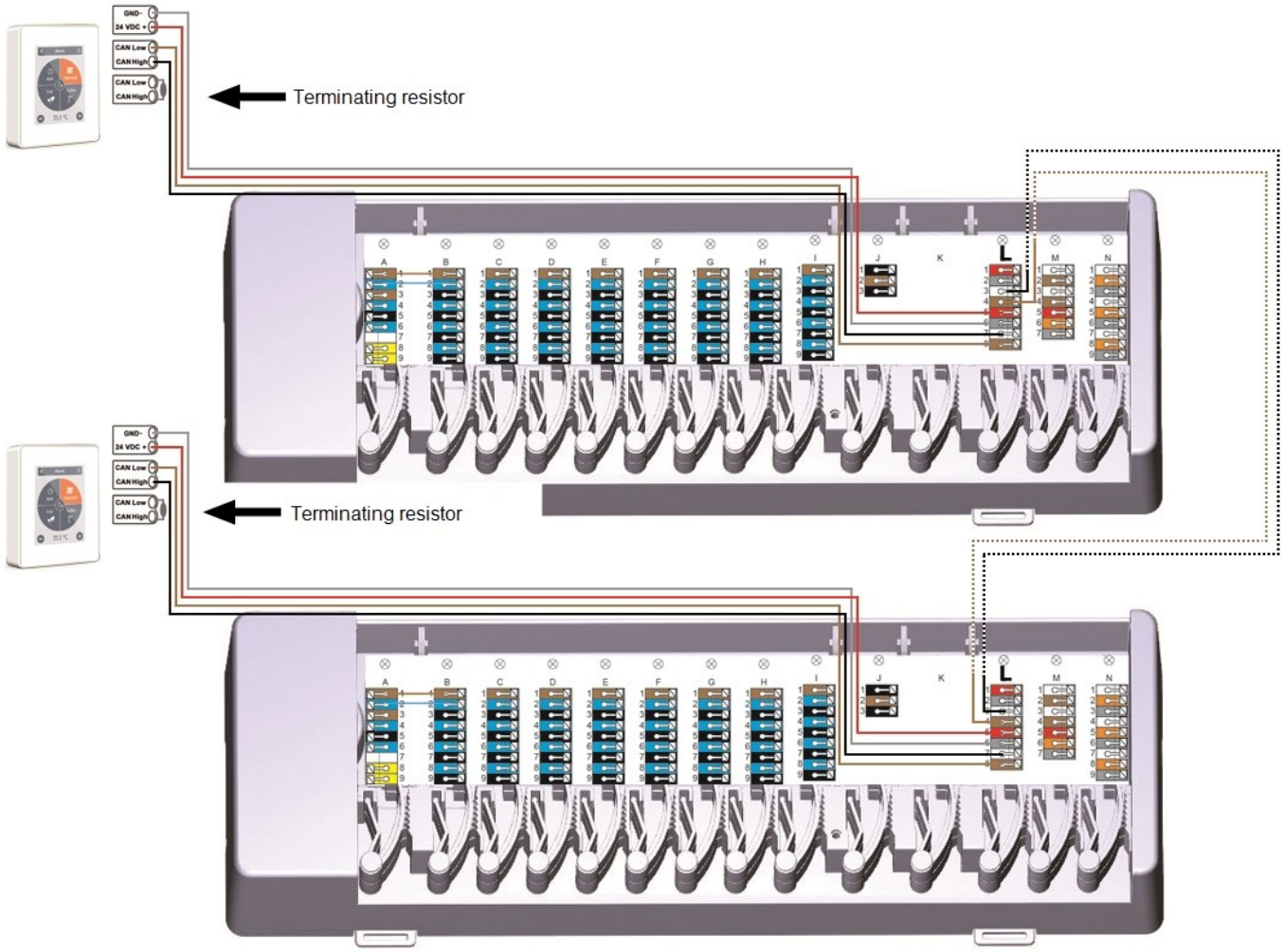
Example 2: Line structure with Symondo Box in the middle.



A 120 Ohm terminating resistor must be set on the first and last device in the CAN network.

Connection example single-family house with >8 zones

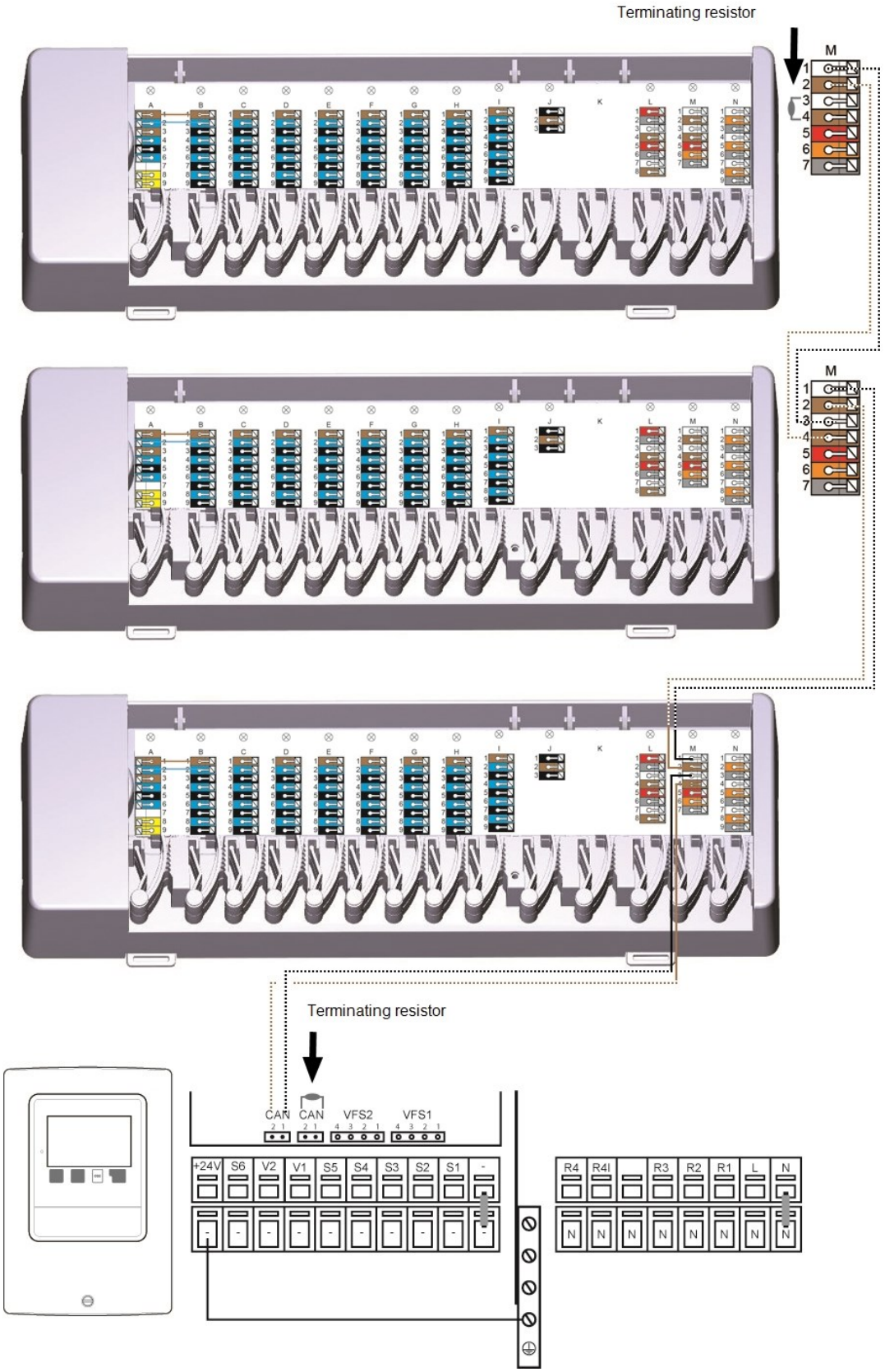
Example: Line structure with several Symondo Box via the private CAN bus (e.g. within a residential unit).



A 120 Ohm terminating resistor must be set on the first and last device in the CAN network.

Connection example apartment building

Example: Line structure with several Symondo Box via the building CAN bus (e.g. across several residential or commercial units).



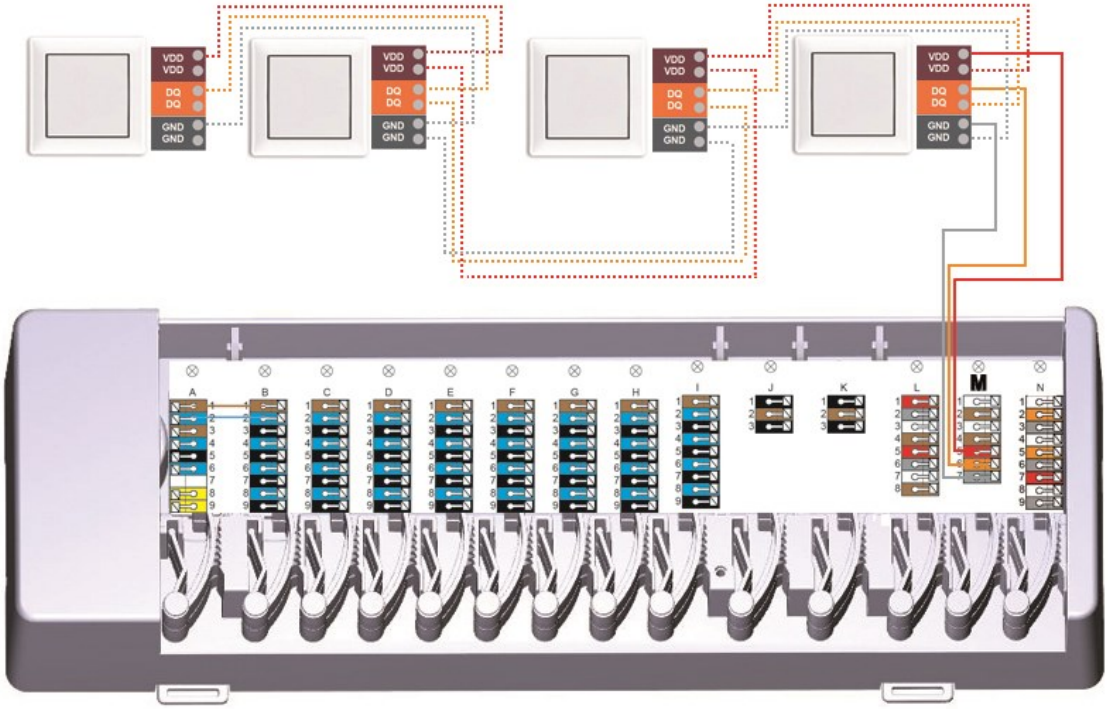
Use **building CAN bus** on **terminal block M** so that no private data such as room temperatures or holiday mode are shared across flats.

A 120 Ohm terminating resistor must be set on the first and last device in the CAN network.

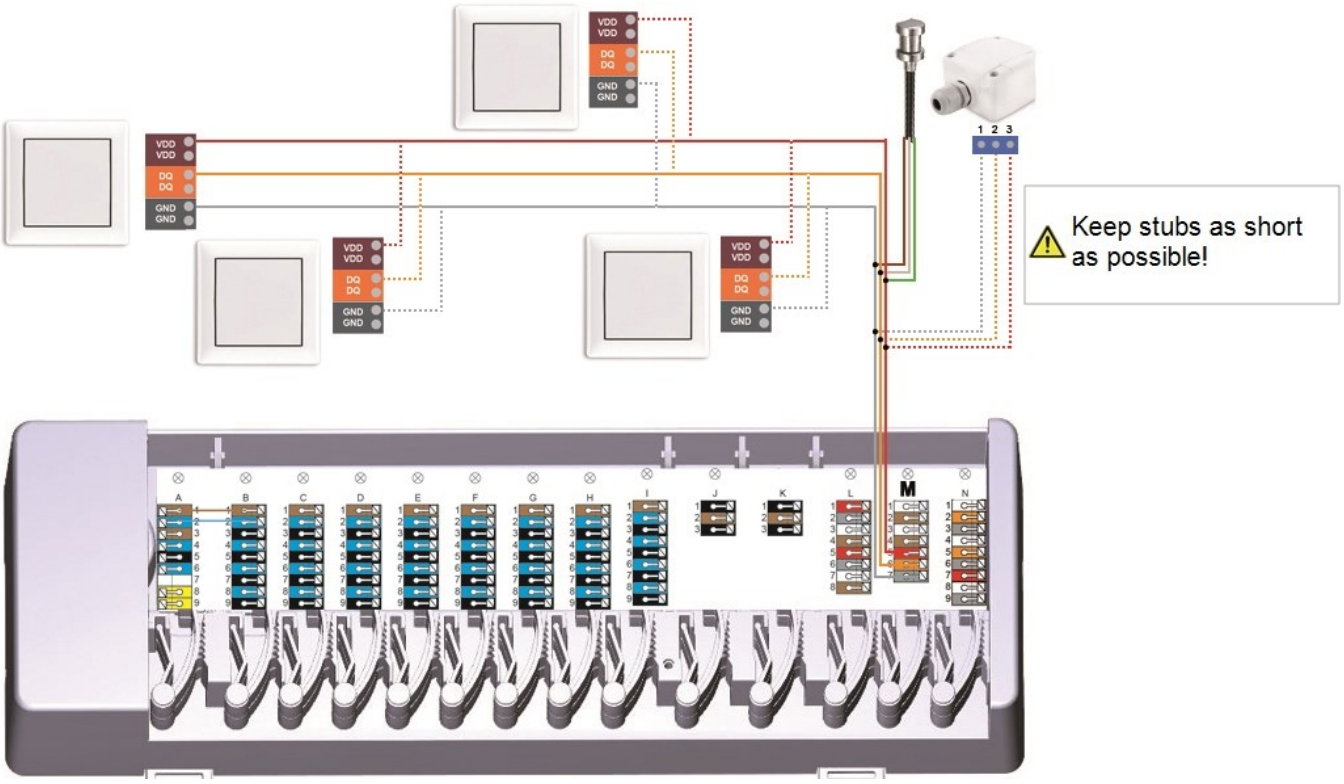
Connection Examples 1-Wire Sensors

When connecting the 1-Wire sensors, please record the 16-digit 1-Wire ID and the location of the sensor for later commissioning of the system! The 1-Wire ID can be found in the device housing and in the device menu under: Devices -> Symondo Box -> Resources -> 1-Wire Sensor.

Example 1: Line. The installation leads from one sensor to the next. A twisted pair cable must be used for the connecting cable.

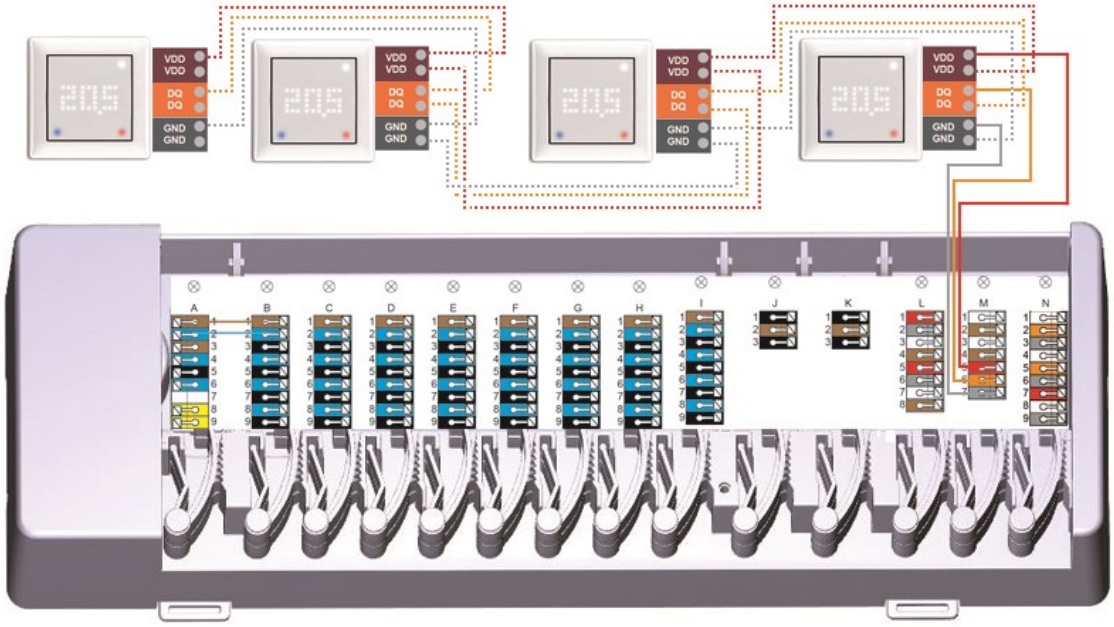


Example 2: Tree Structure. A twisted pair cable must be used for the connecting cable.



Connection example Symondo Sensor

Example line: The installation leads from one sensor to the next. A twisted pair cable must be used for the connecting cable.



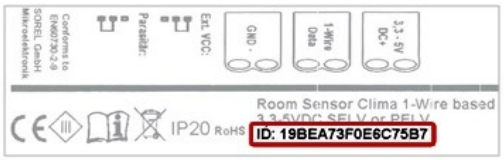
The 1-Wire system must be designed with 3 wires (5VDC, DQ, GND). The total cable length can thus be up to 100m. A suitable twisted pair cable must be used and sufficient wire cross-section must be ensured, e.g. with LIYCY 2 x 2 x 0.75mm², in order to avoid impermissible voltage drop at the Symondo Sensor below U_{min} = 4.5VDC.

1-Wire ID overview

For systems with 1-Wire sensors, you must assign the respective 1-Wire ID to a room on the Symondo Controller. Writing down the IDs in combination with the room in which the sensor hangs in the following list simplifies the later assignment.

The 1-Wire ID can be found inside the sensor on the type plate (1) and on the supplied sticker (2). We recommend to insert the sticker into the following table.

(1)



(2)

1-Wire Raumsensor Clima		
Symondo Pipe Sensor Symondo Floor Sensor		
Symondo Outside Sensor		

	Location	1-Wire ID		Location	1-Wire ID
Example	Bathroom	**1053f67c0308009e**	**11**		
1			**12**		
2			**13**		
3			**14**		
4			**15**		
5			**16**		
6			**17**		
7			**18**		
8			**19**		
9			**20**		
10			**21**		

Setup Wizard

The commissioning wizard in the Symondo Controller starts automatically when the unit is commissioned for the first time and guides you through the necessary basic settings in the correct order. Press the arrow keys in the upper right/left corner to return to the next or previous setting.

> ⚠ Commissioning must also be completed on all other Symondo Controller in the network.

> ⚠ The Symondo Box is configured **exclusively** on aSymondo Controller .

> ❗ The setup wizard is restarted via the "Factory settings" menu item.

Operation

To parameterise the Symondo Box, you need at least one Symondo Controller. This is connected to the Symondo Box via the private CAN bus as described above (see "Electrical Connection" on page 7).

Room Overview

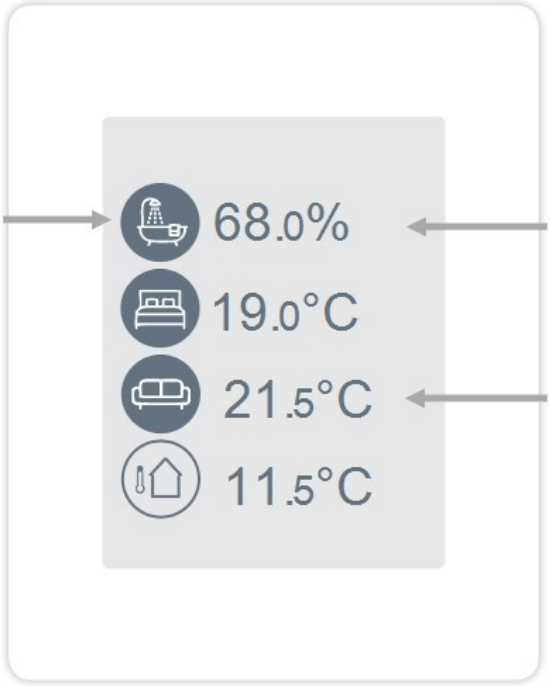
Displays the room temperature, humidity and external temperature once the start screen was activated.

Room icon

By selecting a room icon, you are forwarded to the room temperature settings.

Multiroom selection

By dragging your finger vertically across several rooms, you can change the operating mode in all rooms at the same time.



% Room humidity

Relative humidity.

°C Room temperature

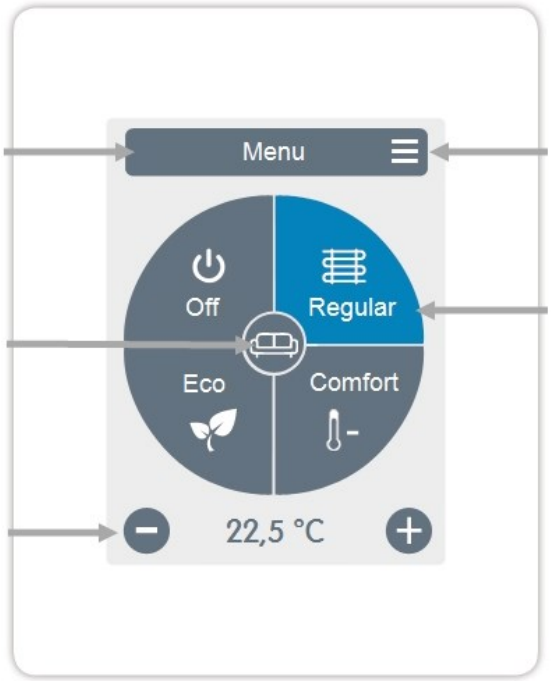
Current room temperature.

Operating Mode

Back/ Forward
Navigate back to the overview.

Room
Displays the selected space.

Reference temperature
Setting the reference temperature for the active operating mode in the displayed room.



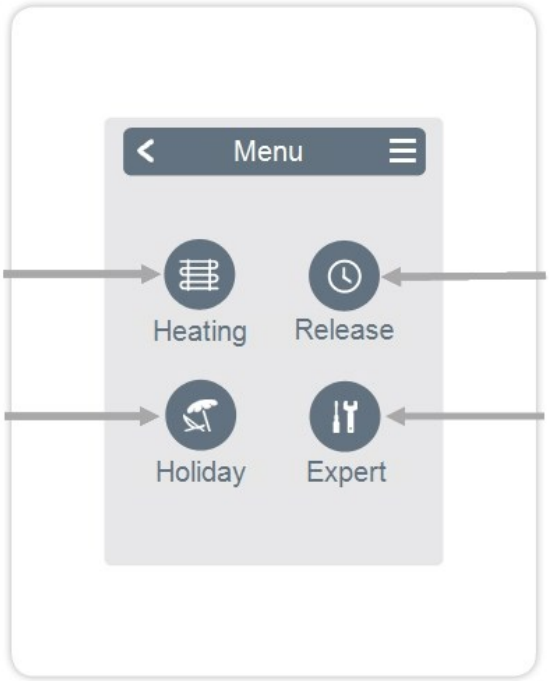
Menu
Navigate to the main menu

Operating Modes
The operating mode shown in colour is currently active and can be changed by selecting another mode. Manually selected modes remain active until the next change of mode by the timer program. A background frost protection function remains active in the "off" mode.

Menu

Heating / Cooling
Switch between heating and cooling modes.

Holiday
Set the period and temperature for a longer absence.



Timer
Setting of individual heating or cooling times for each day of the week with copy function for subsequent days.

Expert
Advanced settings for the technician.

Set Operation Hours

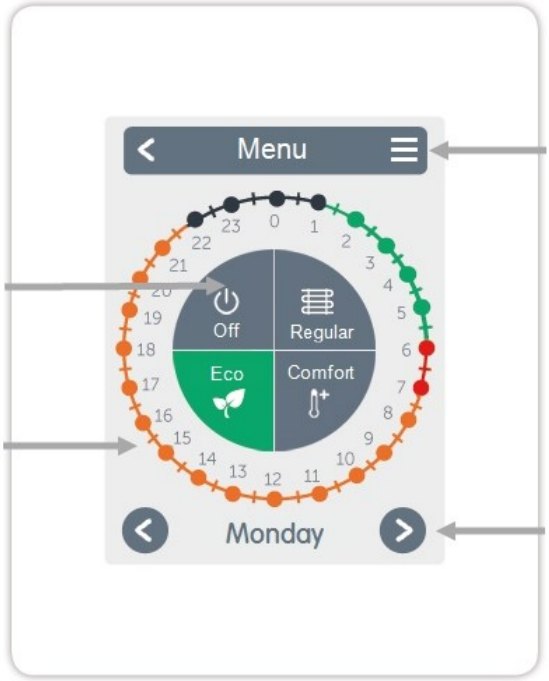
Overview > Operating Mode > Menu > **Timer**

Setting of individual heating and cooling times for the selected room.

Separate times are set for the heating and cooling modes. To do this, first switch to the heating mode and define the corresponding times for this operating mode under Main menu > Timer. Then change to the cooling mode and define the corresponding times for this operating mode under Main menu > Timer.

Operating Modes
Selection of the operating mode to select individual heating or cooling sections.

Clock
Time table of the selection in periods of 30 minutes increments. Touch individual segments, or drag your finger over complete time intervals to colour them according to the selected operation mode.

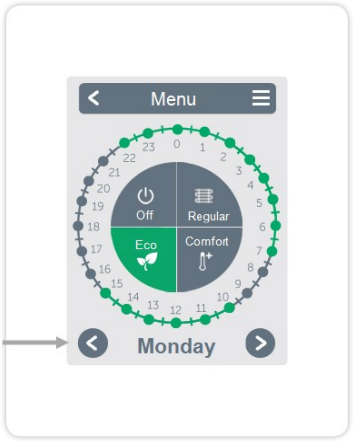


Menu
Opens the copy function. The function allows you to copy the heating and cooling times to the following day, to Monday - Friday or to Monday - Sunday.

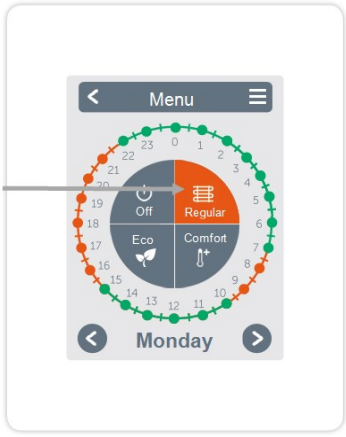
Back / Next
Weekday Selection of the day which is to be set.

Set Operation Hours

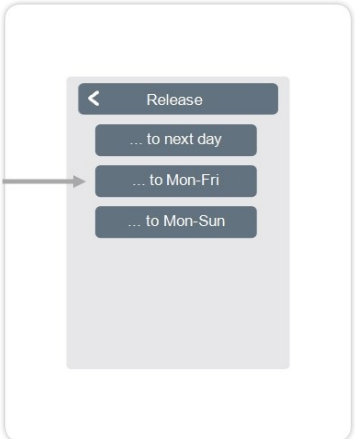
Step 1
Use the arrow keys to select the desired day.



Step 2
Select the first heating mode (Normal) - with the index finger select the desired length of time. The selected period will be coloured after selecting the colour of the operating mode (normal = orange). Set the times of the other operating modes in the same way.



Step 3
After completing the setting of the individual heating or cooling times, you have the option of copying the times via the main menu to the following day, to Monday - Friday or to Monday - Sunday or to set them individually for each day of the week.



In the interests of efficient and energy-saving single room control, the operating times should be set specifically for each room.

When setting the operating times, please consider that surface heating systems are inherently inert.

Expert Menu

Select Language

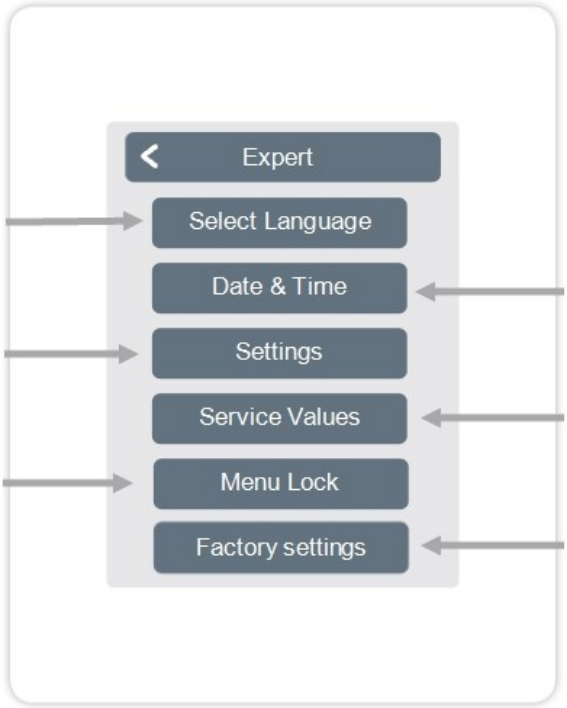
Set the device language.

Settings

Parameterisation of heating/cooling system.

Menu Lock

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



Date & Time

Setting of time and date and automatic summer/winter time changeover.

Service Values

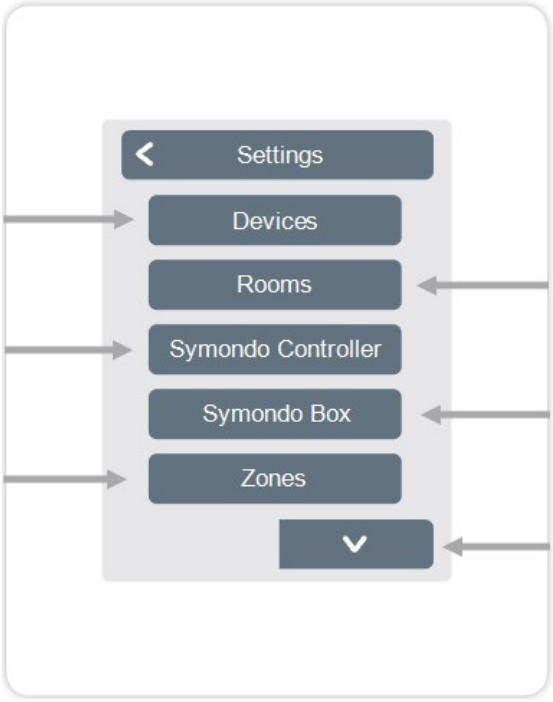
Information about the system.

Factory settings

The factory settings are restored in the device.

The menu structure described here is based on the status at the time of production and may vary due to subsequent software changes.

Settings



Devices

Add, manage and remove connected devices.

Symondo Controller

Assignment and configuration of additional functions for the 0-10V/PWM outputs in the Symondo Controller.

Zones

Assign rooms to heating and cooling zones.

Rooms

Add, manage and remove rooms and assign them to connected devices.

Symondo Box

Assignment and configuration of additional functions of the free switching outputs on the Symondo Box. **This menu is only visible if this Symondo Controller was set as the "configurator" of the Symondo Box during commissioning.**

WiFi

Set and manage WiFi functions.

Display Brightness

Setting the screen brightness.

Interface Mode

Switch between full and restricted menu. Only the reference temperature can be set in the mode "Hide menu". To return to "full" mode, press and hold the upper right corner of the display for 5 seconds and then change the mode to "full" in this menu.

Room Sync.

If room synchronisation is activated, you will see all rooms set up in the system and the corresponding sensor information on the Symondo Controller. This also allows the setting of other rooms. If you only want to see and set the room to which this Symondo Controller is assigned, deactivate room synchronisation.

Devices

Overview > Operating mode > Menu > Expert > Settings > **Devices**

Clima systems have to be switched to 'heating' mode before another device can be added to a running system.

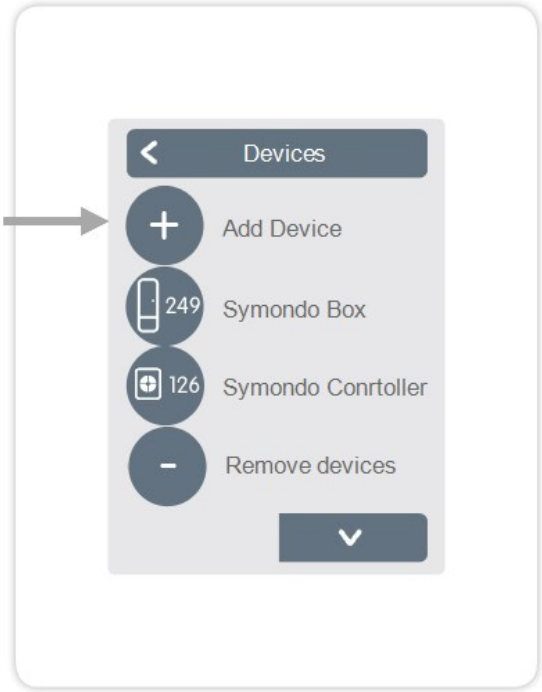
Do not combine units designed for heating only (Symondo Controller/Symondo Box) with units designed for heating and cooling only (Symondo Controller/Symondo Box).

Add Device

Starts the search for new available devices in the network.

Device icon

Shows the type of connected device and its CAN ID.



Description

Displays the detected type of the device.

Remove devices

Devices are removed from the network.

Overview > Operating mode > Menu > Expert > Settings > Devices > **Symondo Box**

Resources

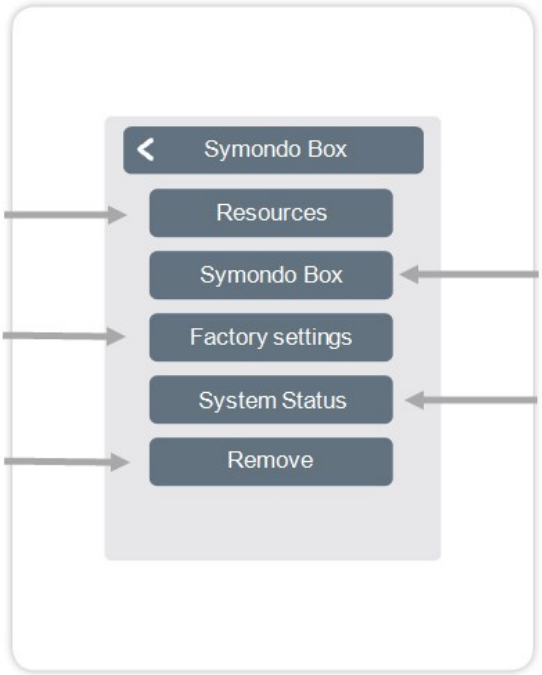
Displays which outputs and connected sensors are available.

Factory settings

Load the factory settings of the Symondo Box. Remove Remove device from list.

Remove

Device removed from the list.



Symondo Box

Use this Symondo Controller to configure the Symondo Box. Tip: If available, set the Symondo Controller with WiFi.

System Status

Update option for the Symondo Box software.

Rooms

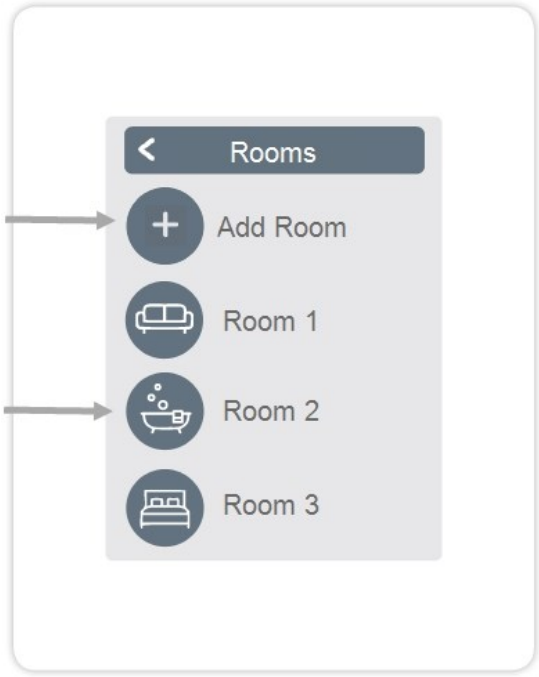
Overview > Operating mode > Menu > Expert > Settings > **Rooms**

Add Room

Adding rooms.

Room 2

Setting of location, sensors of the respective room.



Overview > Operating mode > Menu > Expert > Settings > **Room 2**

Location

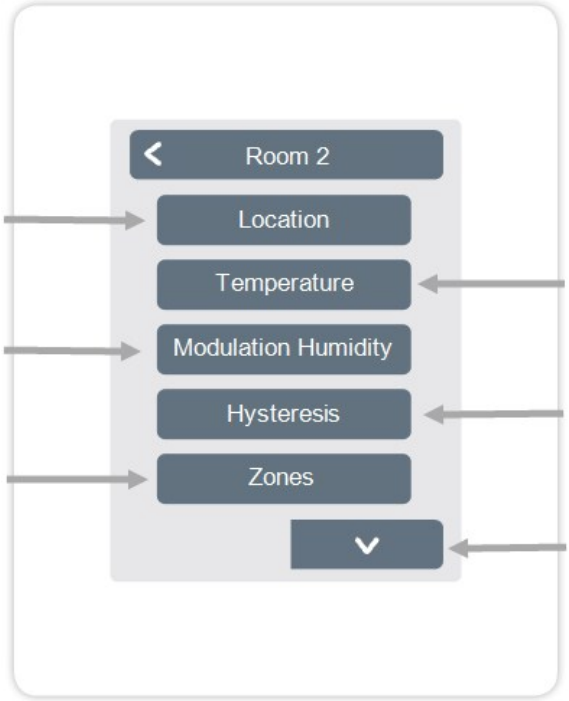
Selection of room icon.

Modulation Humidity

Selection of humidity sensors in the selected room.

Zones

Selection of the zones to be controlled.



Temperature

Selection of the temperature sensors in the selected room.

Hysteresis

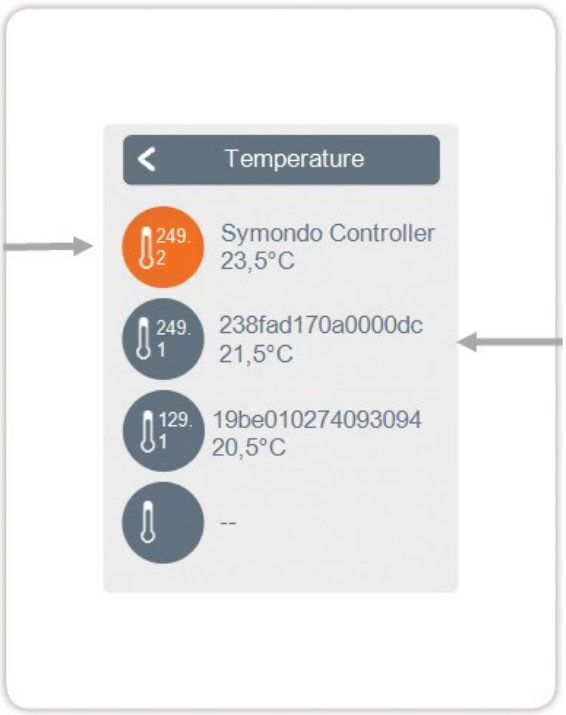
Switch-off hysteresis for the room set-point temperature.

Dew point correction

Shifting the dew point in 0.1 °C steps. Remove room Remove the selected room.

Temperature / Humidity

Overview > Operating mode > Menu > Expert > Settings > Rooms > Room 1 > **Temperature**



Icon

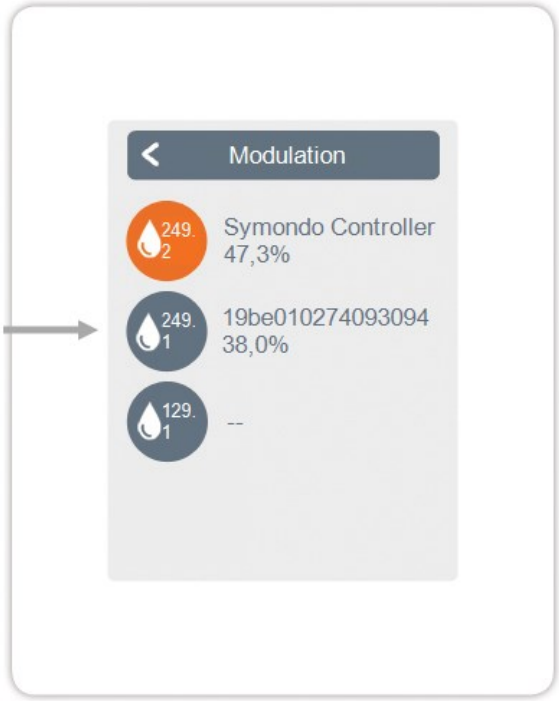
Sensor already selected.

Sensor icon with CAN ID + resource no.

When using 1-Wire sensors, these are displayed via the CAN ID of the Symondo Box + a resource number.

With 1-Wire sensors, the temperature and the 1-Wire ID are displayed alternately. The 1-Wire ID is used for the unique assignment of the sensors.

Overview > Operating mode > Menu > Expert > Settings > Rooms > Room 1 > **Humidity**



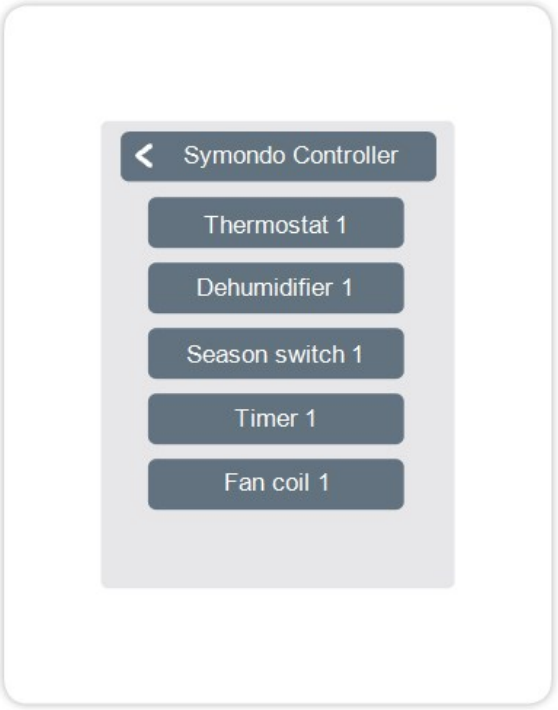
Sensor icon with CAN ID + resource no.

Humidity sensor selection in the selected room.

Functions Symondo Controller

Overview > Operating mode > Menu > Expert > Settings > Symondo Controller

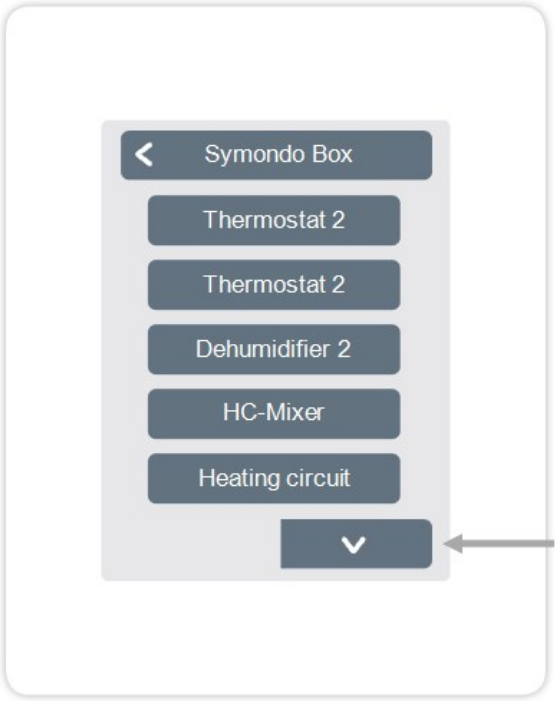
Activate and set additional functions on free outputs of the Symondo Controller.



Functions Symondo Box

Overview > Operating mode > Menu > Expert > Settings > Symondo Box

Activate and set additional functions on free outputs of the Symondo Box.



Further functions on the next page.

Overview > Operating mode > Menu > Expert > Settings > Symondo Box > **Thermostat 2**

Switches the defined output to the set room / rooms depending on time and temperature.

Output

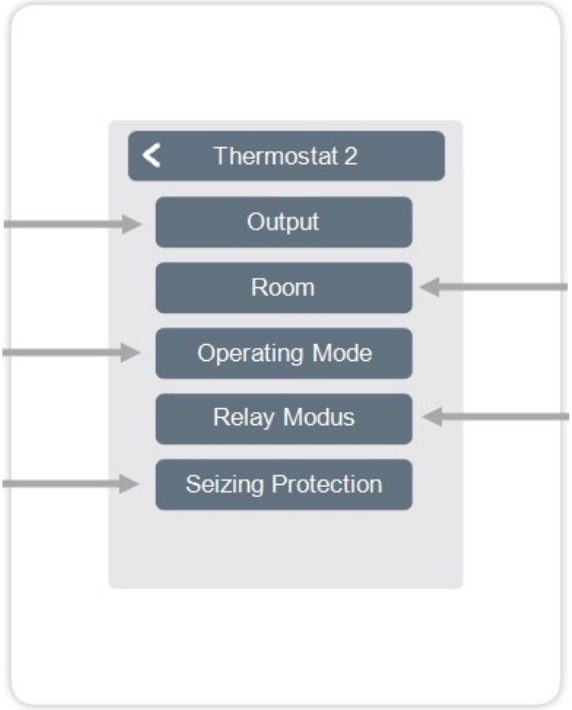
Assign the output to be switched by the function. **The other menu options become visible after assigning the output.**

Operating Mode

Selection of the operating mode. Heating & cooling, heating or cooling.

Seizing Protection

If the seizing potection is activated (daily, weekly, off), the controller switches on the outputs one after the other at 12:00 noon for 5 seconds to prevent seizing of the connected device during longer inactivity.



Room

Selection of the rooms on whose settings and states the function is to be based.

Relay Modus

Switching mode of the output Normal/Inverted.

In heating mode, the thermostat function switches on in at least one of the selected rooms when the room temperature falls below the target room temperature. The automatic summer switch-off of the zones via the outdoor temperature is not considered here.

The dehumidifier function switches the defined output depending on the set humidity in the set room(s).

Output

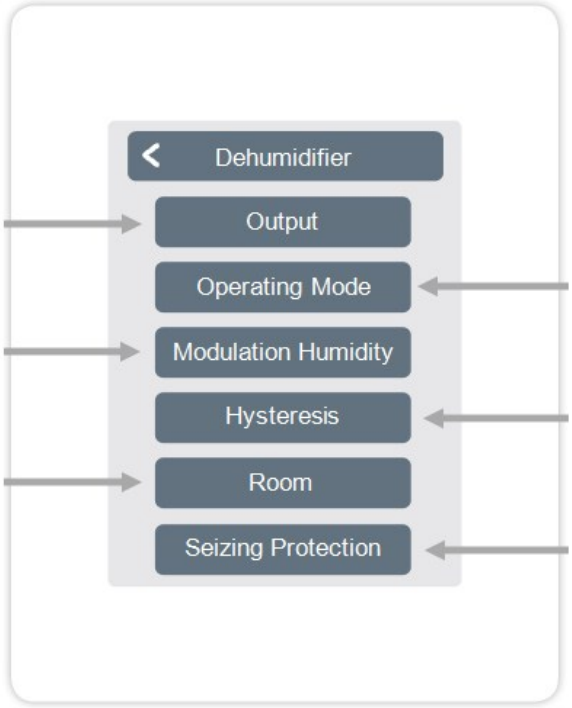
Assign the output to be switched by the function. **The other menu options become visible after assigning the output.**

Modulation Humidity

Set the limit value for the air humidity. If this is exceeded, the dehumidifier is switched on.

Room

Room selection for assigning the humidity of a room as the basis for switching the dehumidifier.



Operating Mode

Specify in which operating states of the heating and cooling system the dehumidifier is to be switched on.

Hysteresis

Define the switch-off hysteresis.

Seizing Protection

If the seizing potection is activated (daily, weekly, off), the controller switches on the outputs one after the other at 12:00 noon for 5 seconds to prevent seizing of the connected device during longer inactivity.

The heating circuit mixer function controls the flow temperature via a 0-10V / PWM mixer depending on the outdoor temperature.

Output

Assign the output to be switched by the function. **The other menu options become visible after assigning the output.**

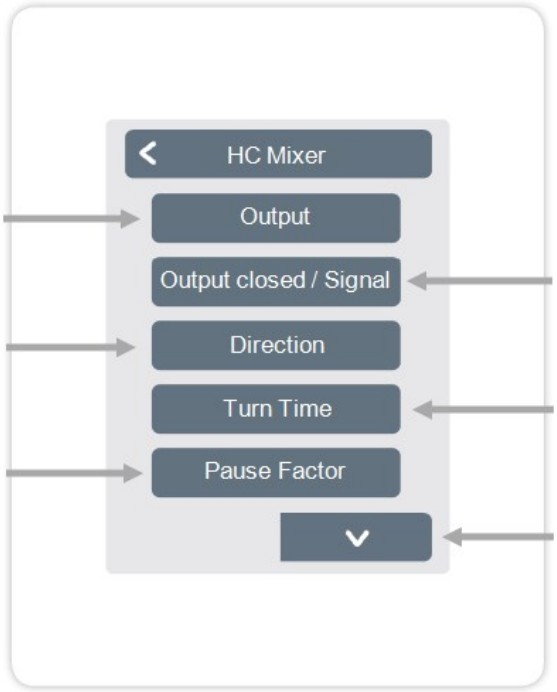
Only outputs N1, N4 and N8 may be used.

Direction

Set the direction of rotation of the mixer.

Pause Factor

Multiplier for the pause time between strokes. The off factor 1.0 is the pause time calculated by the programme, at 0.5 the pause time is halved - the valve regulates twice as fast.



Output closed / Signal type

Select switching output. Relay or signal output. Relay, 0-10V or PWM.

Turn Time

Set the duration of a stroke. or the duration of one mixing cycle.

Increase

Set the influence of temperature changes. Setting a higher value leads to earlier counter-control of the mixer.

Mixer run time

Setting of the running time required by the mixer for a full ride.

Seizing Protection

If the seizing potection is activated (daily, weekly, off), the controller switches on the outputs one after the other at 12:00 noon for 5 seconds to prevent seizing of the connected device during longer inactivity.

The heating circuit function starts the heating pump at the defined output as soon as at least one zone is active.

Output

Assign the output to be switched by the function. **The other menu options become visible after assigning the output.**

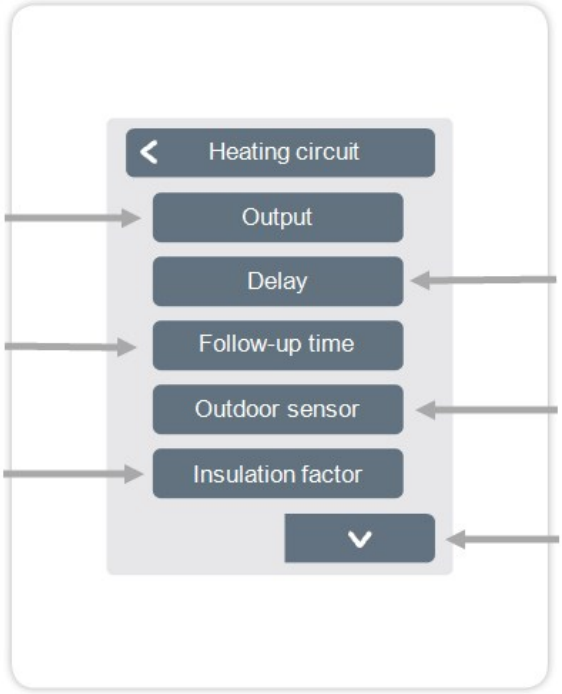
By default, the output at terminal block A of the Symondo Box is defined here.

Follow-up time

When all zones are switched off, the pump continues to run in order to bring the residual heat into the heating system.

Insulation factor

Appears when 'Sensor Outside' is defined. Delays the influence of the outdoor temperature on the calculation of the reference flow temperature. 1=poor insulation/ 5 =good insulation.



Delay

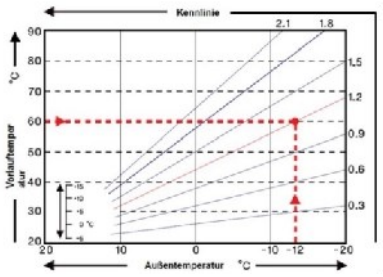
Delays switching on the heating circuit pump so that it does not push against closed valves.

Outdoor sensor

Assignment of the outdoor sensor for weather-compensated control of the heating circuit.

Curve

Appears when 'Sensor Outside' is defined. The characteristic curve is used to control the heat dissipation of the heating circuit relative to the outdoor temperature. The characteristic curve can also be changed via parallel shift.



Parallel characteristic translation

Appears when 'Sensor Outside' is defined. A fixed correction value is added to or subtracted from the current target flow calculated by the characteristic curve.

Room influence

Influence of the setpoint temperature deviation
on the setpoint flow temperature.

Flow

Assignment of the heating circuit flow sensor.

Min. Flow

Appears when a sensor has been defined for "Flow". Setting the minimum flow temperature.

Max. Flow

Appears when a sensor has been defined for "Flow". Setting the maximum flow temperature.

Min. Flow cooling

Appears when a sensor has been defined for "Flow". Setting the minimum flow temperature in the "Cooling" mode.

Max. flow cooling

Appears when a sensor has been defined for "Flow". Setting the maximum flow temperature in the "Cooling" mode.

Dew Point protection

This feature activates the switch-off of the heating circuit pump when the actual flow temperature falls below the set flow temperature by 1° C for 5 minutes.

The controller automatically adjusts the set flow temperature based on the relative humidity in the rooms to prevent mould formation in cooling mode.

Season switch

External season switch (between heating and cooling) via selected output.

Seizing Protection

If the Seizing Protection is activated (daily, weekly, off), the controller switches on the outputs at 12 o'clock one after the other for 5 seconds in order to prevent the connected unit from seizing in case of longer standstill.

The difference function switches the defined output as soon as there is a preset temperature difference between the source and target sensor.

Output

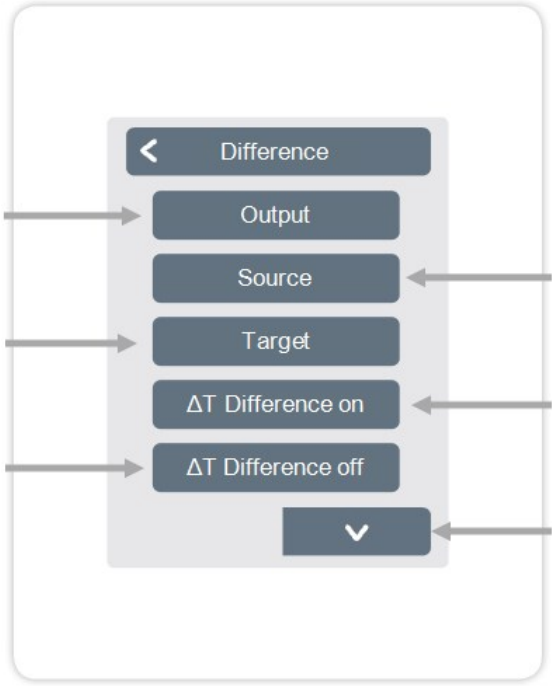
Assign the output to be switched by the function. **The other menu options become visible after assigning the output.**

Target

Assignment of the temperature sensor in the energy consumer.

ΔT Difference off

Set the temperature difference to switch off.



Source

Assignment of the temperature sensor in the energy source. ΔT Difference on Set the temperature difference for switching on.

Tmin Source

Setting the minimum temperature in the energy source.

Tmax Drain

Set the maximum temperature in the energy absorber.

Seizing Protection

If the seizing potection is activated (daily, weekly, off), the controller switches on the outputs one after the other at 12:00 noon for 5 seconds to prevent seizing of the connected device during longer inactivity.

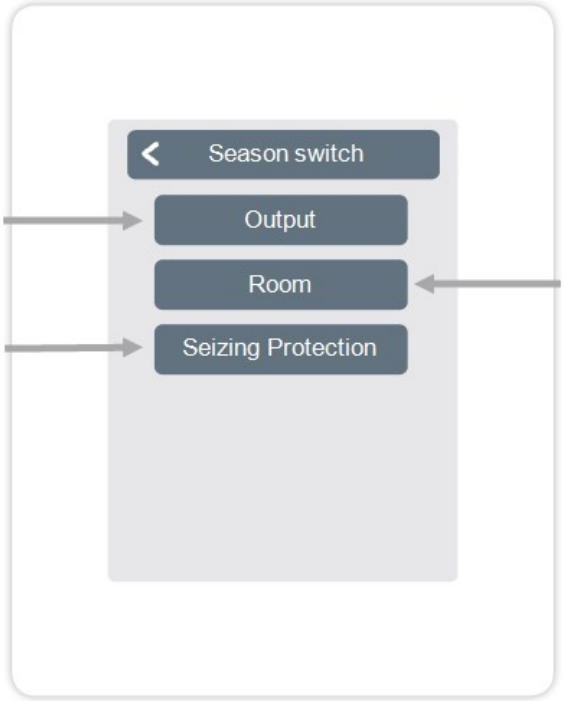
The "season switch" function switches when the system changes from heating mode to cooling mode, see "Menu" on page 18

Output

Assign the output to be switched by the function. **The other menu options become visible after assigning the output.**

Seizing Protection

If the seizing potection is activated (daily, weekly, off), the controller switches on the outputs one after the other at 12:00 noon for 5 seconds to prevent seizing of the connected device during longer inactivity.



Room

Room selection to start the function. As soon as one of the assigned rooms switches from "heating" mode to "cooling" mode the season switch becomes active and the assigned relay is switched.

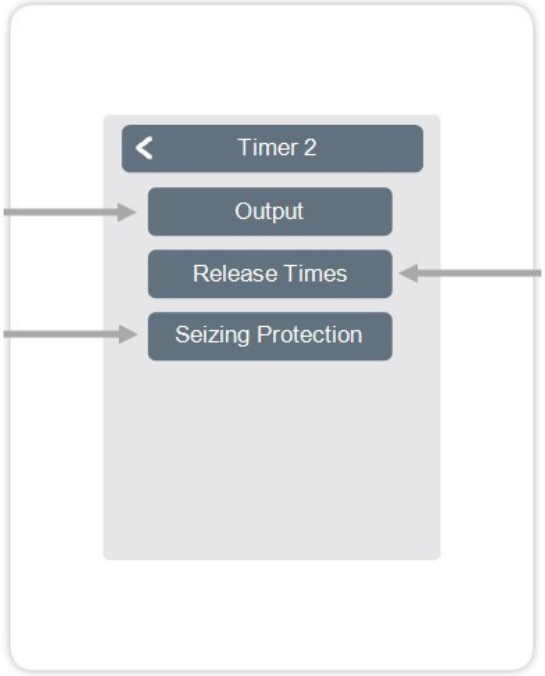
The function Timer 1-2 switches the defined output depending on the set times.

Output

Assign the output to be switched by the function. **The other menu options become visible after assigning the output.**

Seizing Protection

If the seizing potection is activated (daily, weekly, off), the controller switches on the outputs one after the other at 12:00 noon for 5 seconds to prevent seizing of the connected device during longer inactivity.



Release Times

Set the times at which the outputs are to be switched.

The function energy request switches the defined output when the rooms require energy depending on the set delay.

Output

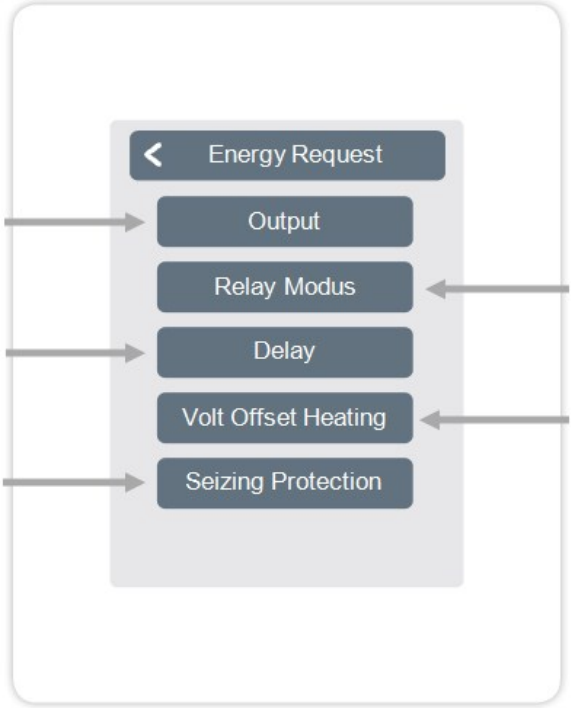
Assign the output to be switched by the function. **The other menu options become visible after assigning the output.**

Delay

Sets the delay for the energy request in minutes.

Seizing Protection

If the seizing potection is activated (daily, weekly, off), the controller switches on the outputs one after the other at 12:00 noon for 5 seconds to prevent seizing of the connected device during longer inactivity.



Relay Modus

Set the relay modes "Switching" or "Modulating". In the "switch" mode the output is switched on or off. In the "Modulate" mode, the set flow temperature is modulated as a 0-10V signal, where the voltage corresponds to the set flow temperature divided by 10 (Volt = set flow temperature / 10).

Volt Offset Heating

The set value is added to the demand value of the modulated signal, regardless of whether heating or cooling is used. (This menu item is only available when the relay mode "Modulate" is selected)

The energy request switches on when energy is required both in heating mode when the set flow rate falls below the set flow rate and in cooling mode when the set flow rate is exceeded. A flow sensor is required for this function.

The fan coil function controls convection heating and cooling via the 0-10V/PWM outputs .

Output

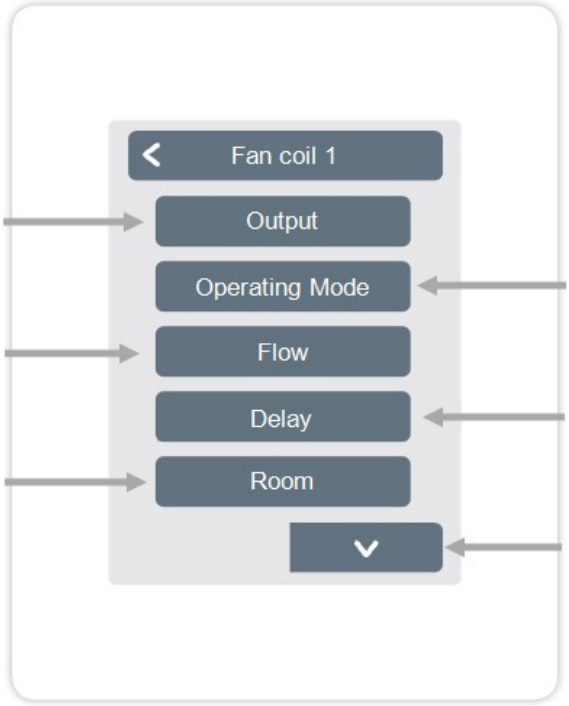
Assign the output to be switched by the function. **The other menu options become visible after assigning the output.**

Flow

Assignment of the convector flow sensor
in "Heating" mode.

Room

Selection of the sensors on whose settings and states the function is to be based.



Operating Mode

Set the operating mode of this convector function. Heating, cooling, or heating and cooling.

Delay

Delays the switching on of the fan coil so that it does not push against closed valves.

Modulation Humidity

Set the limit value for the air humidity. If this is exceeded, the dehumidifier is switched on.

Hysteresis

Define the switch-off hysteresis.

Modulation

Modulation of the output for power control

Signal type

Selection of control: 0-10V = voltage signal PWM = square wave signal Relay mode Switching mode of the output Normal/Inverted.

Off Signal

Signal to switch off the target device

On Signal

Signal to switch on the target device at minimum power

Max Signal

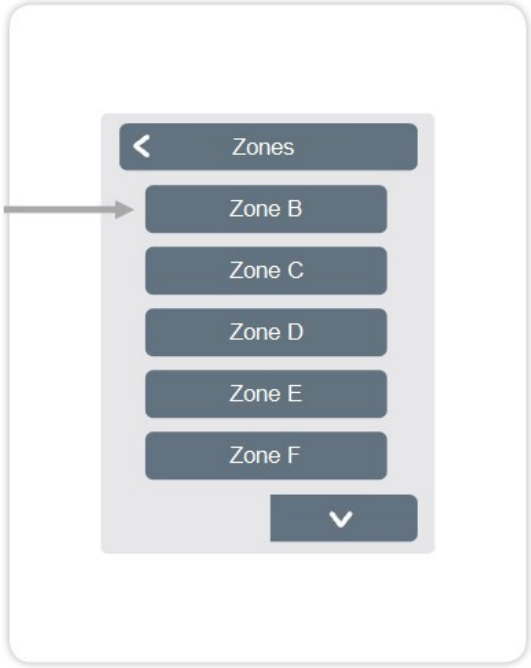
Signal to set target device to maximum power

Seizing Protection

If the seizing potection is activated (daily, weekly, off), the controller switches on the outputs one after the other at 12:00 noon for 5 seconds to prevent seizing of the connected device during longer inactivity.

Zones

Selection of heating zone to be set or managed.



Room

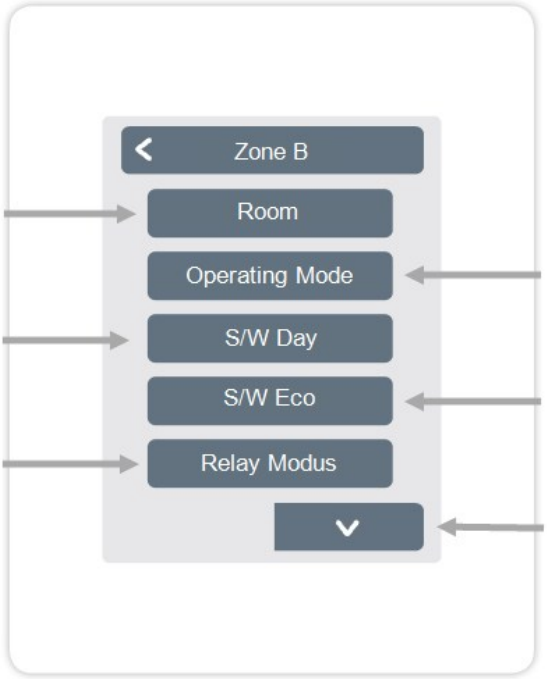
Assignment of the rooms in which the zone is located. First, rooms must be created in the menu under: Expert -> Rooms.

S/W Day

Setting the temperature limit for summer switch-off in "Normal" operating mode in heating mode. If the outdoor temp. exceeds this value, this zone is no longer heated.

Relay Modus

Set the switching direction for the zone valves. In normal mode the relay is used as a normally open contact, in inverted mode it is used as a normally closed contact.



Operating Mode

Set the operating mode of this zone. Heating, cooling, or heating and cooling.

S/W Eco

Setting the temperature limit for summer switch-off in "Eco" operating mode in heating mode. If the outdoor temperature exceeds this value, this zone is no longer heated.

Floor sensor

Assignment of the floor sensor.

Tmax

FloorSet the maximum temperature of the floor sensor.

Dew Point protection

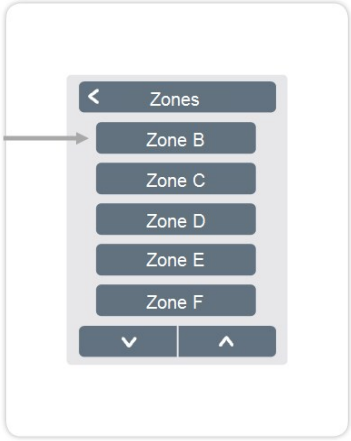
Automatic shutdown of the heating circuit / zone when the dew point is exceeded.

Seizing Protection

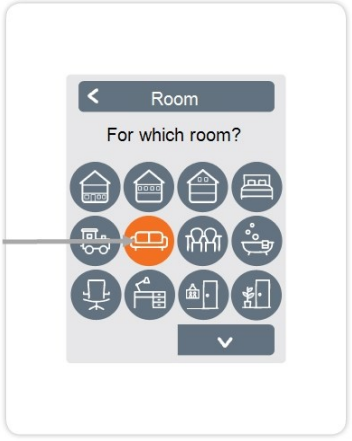
If the Seizing Protection is activated (daily, weekly, off), the controller switches on the outputs at 12 o'clock one after the other for 5 seconds in order to prevent the connected unit from seizing in case of longer standstill.

Example zone setting

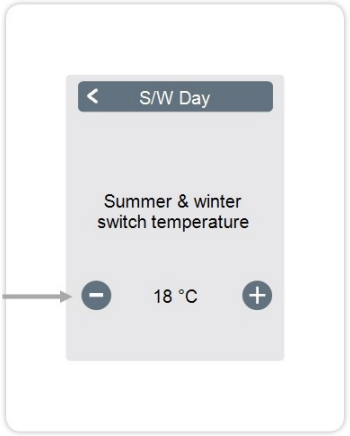
Step 1
Select the respective zone.



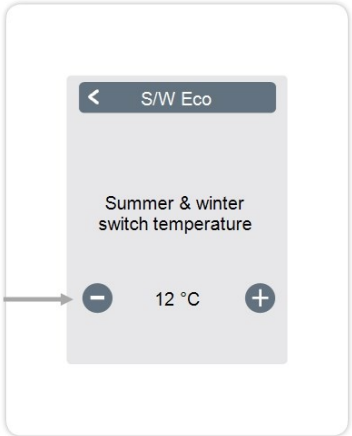
Step 2
Select the room corresponding to the zone.



Step 3
Set the desired outdoor switch-off temperature for the Normal (S/W Day) mode.



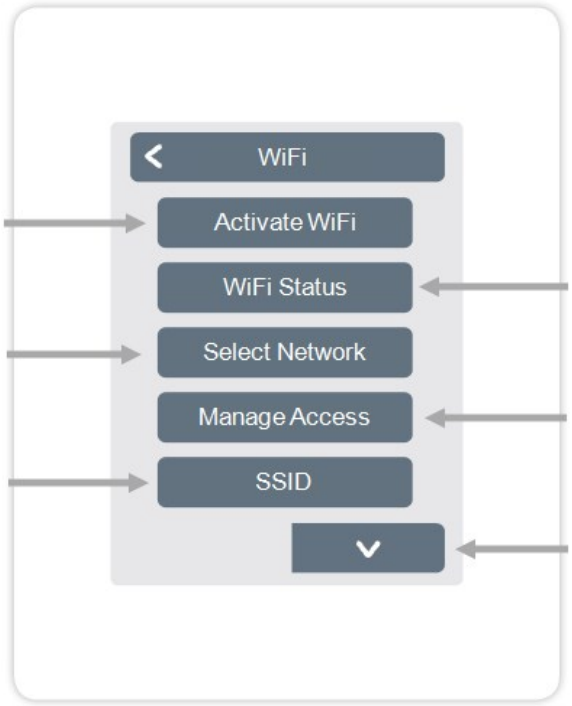
Step 4
Set the desired outdoor switch-off temperature for Eco (S/W Eco) mode.



WiFi

Overview > Operating mode > Menu > Expert > Settings > **WiFI**

This menu is only available when a Symondo Controller WLAN or Symondo Controller WLAN is connected.



Activate WiFi

Activate WiFi function.

Select Network

Scan for available networks and select the network.

SSID

Manually enter the WLAN name.

WiFi status

Information about WiFi status and device address (which is required to connect to the Symondo App).

Manage Access

Allow up to 5 users to access the unit via Symondo App by entering their e-mail addresses.

WiFi password

Entering the WiFi password

Activate DHCP

If auto-configuration is enabled, the device searches the network for a DHCP server that assigns it 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!

See the following points:

IP address

Enter the Symondo Controller IP address.

Network mask

Set the network mask.

Gateway

Set the gateway address.

DNS/ DNS 2

Set the DNS address.

Service Values

Overview > Operating mode > Menu > Expert > **Service values**

Message Log

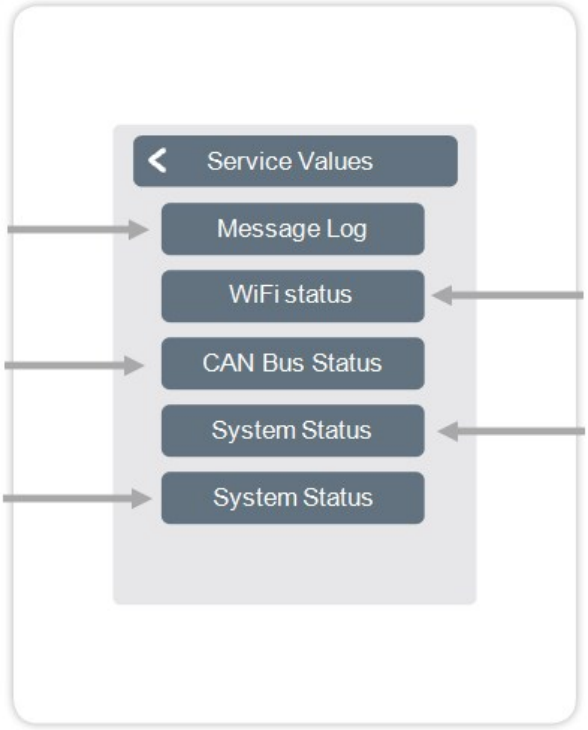
Displays the error memory.

CAN Bus Status

Display the CAN bus status.

System Status

Update all components in the system (from software version 32480).



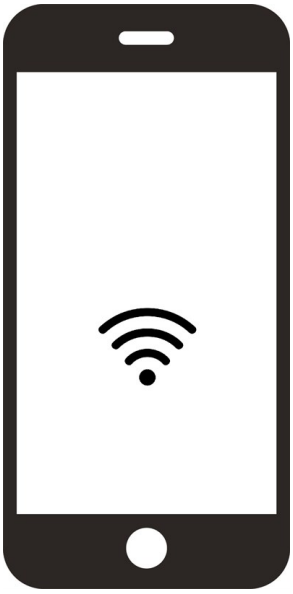
WiFi status

Displays the WiFi status.

System Status

Displays the system status.

Symondo Controller WLAN and Symondo App Configuration



1. Download Symondo App app to your mobile device. Currently available on Google Play (Android) and Apple App Store (iOS).
2. Start app and create account.
3. Click activation link in your e-mail inbox.
4. Connect Symondo Controller with the WLAN network:
   Expert → Settings → WiFi → Choose Network
5. Add selected e-mail address to the access list in Symondo Controller:
   Expert → Settings → WiFi → Access control
6. Log in to app with e-mail and password

7.a If your Symondo Controller WLAN is located in the same WiFi network as your mobile device, you can activate it by clicking the "Done! Search Symondo Controller on WiFi to connect to each other.

7.b If the devices are not in the same WiFi network, click the "Enter device address manually" button. The device address is displayed automatically during commissioning or you can find it in the menu under : Expert → Settings → WiFi → WiFi status

Tips

Interface Mode see "Settings" on page 21	Menu > Expert > Settings > Interface mode Provides the option to restrict the menu against unintentional use, for example, by hotel guests or children.
Download firmware updates via WiFi (only with Symondo Controller WLAN) see "Devices" on page 22	Offers the possibility to update Symondo Controller and Symondo Box in the network to the latest version. Symondo Box: Menu > Expert > Settings > Devices > Symondo Box > Firmware Symondo Controller: Menu > Expert > Service values > System update, start update on each Symondo Controller. It is recommended to check for the availability of system update from Symondo Controller and Symondo Box during installation.
Insulation factor see "Functions Symondo Box" on page 26	Menu > Expert > Settings > Symondo Box > Heating circuit > Insulation factor Provides the option to adapt the flow temperature calculation performed by the controller to the insulation of your building.
Dew Point protection see "Functions Symondo Box" on page 26	Menu > Expert > Settings > Symondo Box > Heating circuit > Dew point monitoring Switch-off of the heating circuit if the flow temperature falls below the permitted flow temperature for a safe cooling operation (mould prevention) for more than 5 minutes, depending on the humidity. Setting: 1. Zone-by-zone shutdown (when dew point is reached for 5 minutes) **In the Setup Wizard** Assign a humidity sensor when creating a room: Expert > Settings > Rooms When configuring the zone, set the dew point protection to "On": Expert > Setting > Zones > Dew Point protection **Following the Setup Wizard** Store a flow sensor in the heating circuit: Expert > Settings > Symondo Box > Heating circuit > Flow 2. Adjustment of the flow temperature in combination with a HC mixer Heating circuit settings: Expert > Settings > Symondo Box > Heating circuit Activate dew point monitoring for the heating circuit "Min flow cooling" menu: Start value for the setpoint flow temperature in cooling, value is intelligently adjusted Activate HC mixer to flexibly adjust the setpoint flow: Expert > Settings > Symondo Box > HC Mixer
Additional functions	1. Menu > Expert > Settings > Symondo Box 2. Overview of all available Additional functions (all Symondo Boxfunctions are displayed on the Symondo Controller that configures the Symondo Box, only local functions of the Symondo Controller are displayed on all other Symondo Controller). 3. Make further settings for the selected function see "Functions Symondo Box" on page 26. 4. Select function and free switching output to activate function.
Symondo App (only with Symondo Controller WLAN) see "Symondo Controller WLAN and Symondo App Configuration" on page 37	Offers the possibility to operate the Symondo Controller via app.

Support

Event	Support
Devices or sensors are missing from the device or sensor lists although they are connected.	Has a search for connected devices been carried out under Settings > Devices > Add Device? Has the electrical connection been implemented as described in the operating instructions? Is the bus connection properly installed? see "Wiring structures" on page 10
A specific sensor is not found, fluctuating sensor values	Check wiring, check correct connection. Measure the voltage at the sensor (supply voltage 5V DC), install the 1-Wire repeater / extender if necessary, carry out the system update.
No sensor is found	Check wiring, disconnect 1-Wire sensors, start with the last sensor in the series. Pay attention to when a sensor is displayed. Measure the voltage at the last sensor (supply voltage 5V DC), install 1-Wire repeater / extender if necessary, carry out system update.
Two devices cannot be connected	Is the routing mode activated? Settings > WiFi > Access Point -> Activate / deactivate Routing Mode

Notes

Final Declaration
Although this list and description have been created with the greatest possible care, incorrect or incomplete information cannot be excluded. Subject as a basic principle to errors and technical changes.

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