

## Description

The Symondo Box is a universal heating and zoning controller for Surface heating and cooling systems. In combination with Symondo Controller, this enables efficient use and function control of your surface heating and surface cooling with intuitive operability. The inputs and outputs can be freely assigned via Symondo Controller, 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 thermostatic radiator valves each
- Measurement of room temperature and humidity in combination with Symondo Controller, Symondo Sensor or Room sensor
- optionally weather compensated via an external 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 with additional functions

## ⚠ Safety Instructions

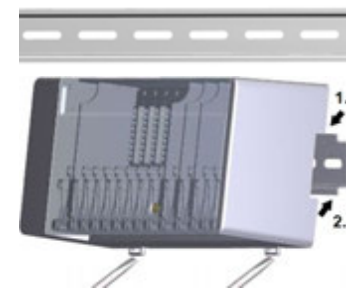
### General

- By no means does the controller replace the safety appliances on site!
- Temperature values which are set too high can lead to scalding or damage to the system. Scalding protection must be provided by the customer!
- The temperature sensor cables must be routed separately from mains voltage cables, and must not, for example, be routed in the same cable duct!

### Wall Installation

- Install the controller only in dry areas and under the ambient conditions described in "Specifications".
- 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.

## 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 inserting two screwdrivers into the eyelets and pulling them down-wards.

## Separation walls and cover



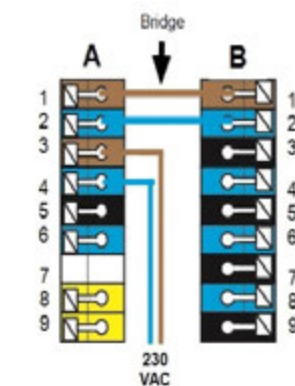
The separation walls and the cover can be removed for easier connection of the cables. They must then be re-installed in order to safely separate areas carrying mains voltage from areas carrying low voltages.

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

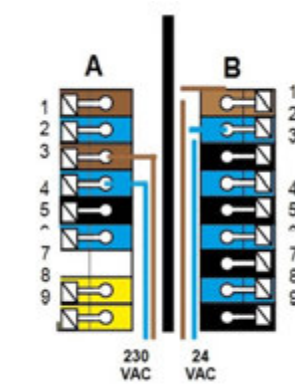
**⚠ If the terminal blocks (B-I) are to be supplied with a voltage other than the mains voltage, proceed as follows:**

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)



## Technical Data

Model	Symondo Box	Heating circuit controller for surface heating and cooling systems
<b>Electrical specifications</b>		
Power supply		230 VAC (+/- 5%), 50-60Hz
Power consumption / standby		0,5 - 2,5W / 0,5W
Internal fuse 1	1	(Pos. A, left) 2A slow blow 250V Fuse protection for terminal area A and electronics
Internal fuse 2	1	(Pos. B, right) 4A slow blow 250V Fuse protection for terminal area B - I
Protection Class		IP20
Protection class / overvoltage category		II / II
<b>Inputs/Outputs</b>		
<b>Inputs</b>	<b>Quantity</b>	<b>Measuring range / design</b>
1-Wire temperature sensor parasitic	≤ 20 pices	-55 °C ... 125 °C (2 pole version)
1-Wire temperature sensor powered	> 20 pices	-55 °C ... 125 °C (3 pole version)
0-10V input	1	
PWM input	2	
<b>Outputs</b>		
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	3	for 10 k Ω working resistance 1 kHz, level 10 V
0-10V/PWM switchable	2	
+ Voltage outputs 24VDC	3	Total max. 12 W for external devices e.g. Symondo Controller
<b>Max. cable length</b>		
1-Wire Sensors		up to 50 m parasitic, up to 100 m powered, use twisted pair cable
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.
24 VDC mechanical relay		<30m
<b>Interface</b>		<30m
Field bus	2x	CAN bus, separate building CAN bus and private CAN bus
<b>Permissible Ambient Conditions</b>		
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
<b>Other Specifications and Dimensions</b>		
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
<b>LED status</b>		
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	Lights up, if the private CAN bus is active. Flashes with 1Hz (60x / minute) if there is an error in the private CAN bus.	
LED N	Lights up if the building CAN bus and the 1-wire bus are active. Flashes with 1Hz (60x / minute) if there is an error in the building CAN. Flashes with 3Hz (180x / minute) if there is an error in the 1-wire connection. <b>EXCEPTION:</b> If the building CAN bus remains unused, a flashing of the LED M is normal and does <b>NOT</b> mean that there is an error.	
LED M	Lights up, if outputs V1, V2 or V3 are active.	

## System structure



## Instruction Manual

# Heating circuit controller for surface heating and cooling systems Symondo Box



### Detailed instruction



### SCAN ME

> [www.yourmanual.info/Symondo\\_Box\\_en.pdf](http://www.yourmanual.info/Symondo_Box_en.pdf)

### Scope of delivery

- Heating circuit controller for surface heating and cooling systems Symondo Box
- 2 Spare fuses
- additional separation wall
- DIN rail H=35mm L=280mm
- 2 screws 3,5 x 35 mm and 2 plugs S6
- Symondo Box Instruction Manual

## General notes

This manual contains basic instructions and important information about safety, installation and operation. Before commissioning and operation, the installer/specialist and the operator of the system have to read the manual completely. It is an automatic electric temperature controller for household and similar applications. In addition, observe the accident prevention regulations applicable in the respective countries, the applicable standards and regulations and the installation and operating instructions for additional system components. Installation, electrical connection, commissioning and maintenance may only be carried out by specialists who possess the appropriate training. Users: Make sure that the specialist gives you detailed information on the function and operation of the controller.

### EU-Conformity


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

- EU EU low voltage directive 2014/35/EU and the
- 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.

### 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.
- 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.

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

 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.

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



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).

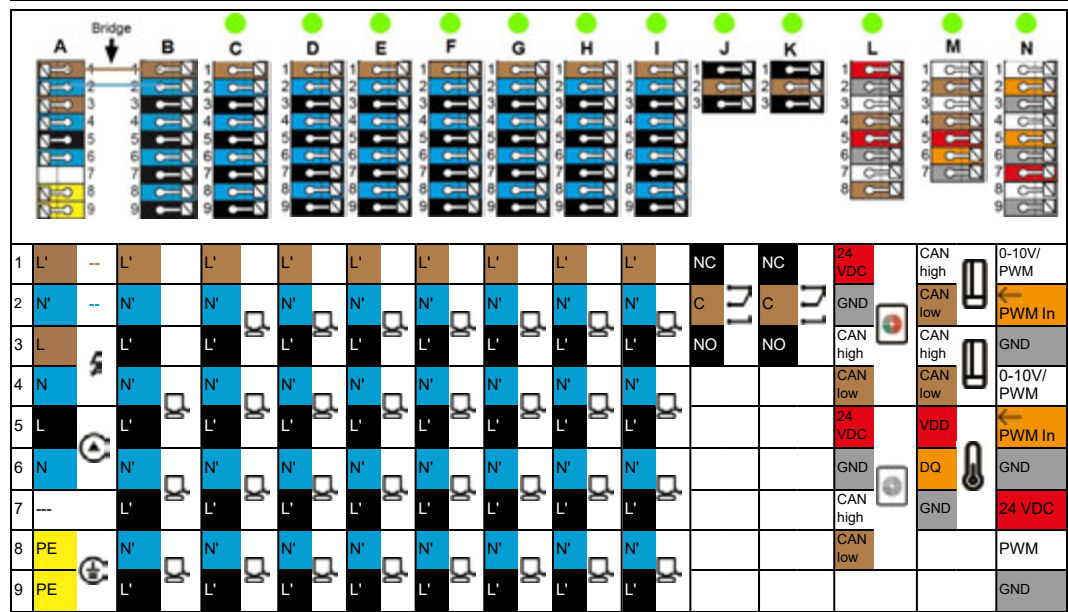
The cables must be checked for firm placement. Solid, thicker and thinner cables must always be laid firmly and must be fixed on the installation side.



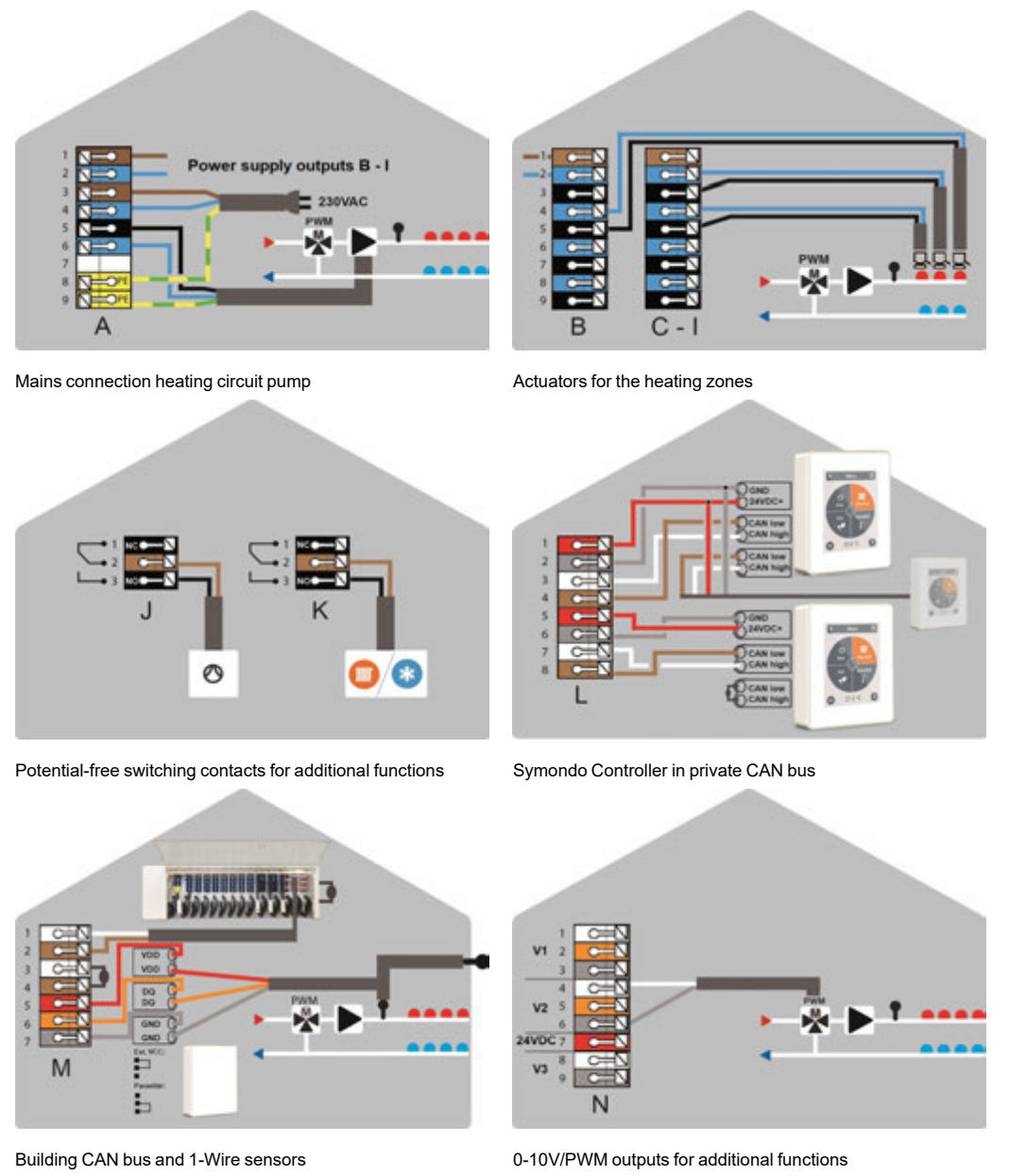
Solid cables or wires with special wire end ferrules can simply be pushed into the terminals.

For other wires, the push button must first be completely pressed on with a screwdriver as shown.

### Terminal diagram for electrical connection






### Example Wiring of Terminal Blocks



### 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 a Symondo Controller.
-  The setup wizard is restarted via the "Factory settings" menu item.

### Tips

Interface mode	Menu > Expert > Settings > Interface mode Provides the option to restrict the menu against unintentional use, for example, by hotel guests or children.
Download system update via WiFi	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 > System update Symondo Controller: Menu > Expert > Service values > System update, download and install update on each Symondo Controller. It is recommended to check for the availability of system updates from Symondo Controller and Symondo Box during installation.
Insulation factor	Menu > Expert > Settings > Symondo Box > Heating circuit > Insulation factor Provides the option to adapt the flow temperature to the insulation of your building.
Dew Point protection	Menu > Expert > Settings > Symondo Box > Heating circuit > Dew point monitoring Provides the option to monitor temperature and humidity to prevent mold.
Additional functions	1. menu > Expert > Settings > Symondo Box Overview of all available additional functions (on the Symondo Controller configuring the Symondo Box, all Symondo Box functions are displayed, on all other Symondo Controller only local functions of the Symondo Controller are displayed). 3. For further setting options for the selected function. 4. Select function and free switching output to activate function.
Symondo App	Offers the possibility to operate the Symondo Controller via app.

### 1-Wire ID Overview

For systems with 1-Wire sensors, you have to assign the respective 1-Wire ID on the Symondo Controller to a room. 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.



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