

## Description

The HERZ clever&smart Control Box Heating is a universal heating and individual room controller for surface heating systems. In combination with HERZ clever&smart Room Controller, HERZ clever&smart Room Sensor or HERZ clever&smart LEDcontroller, this enables efficient use and function control of your surface heating with intuitive operation. The inputs and outputs can be freely assigned via HERZ clever&smart Room Controller so that a wide variety of heating systems can be implemented.

Important characteristics of the HERZ clever&smart Control Box Heating:

- Control of 8 heating zones with 1 - 4 thermostatic radiator valves each
- Measurement of room temperature and humidity in combination with HERZ clever&smart Room Controller, HERZ clever&smart LEDcontroller or HERZ clever&smart 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 HERZ 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
- innovative strain relief and coloured terminal strip
- Up to 20 1-wire temperature sensors can be connected (incl. a maximum of 8 LEDcontrollers)

## Safety Instructions

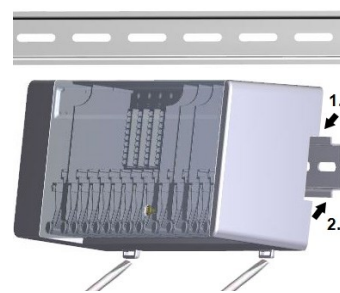
### General

- 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.

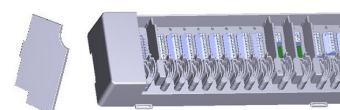
### Installation

1. Place the Control 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 Control 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.

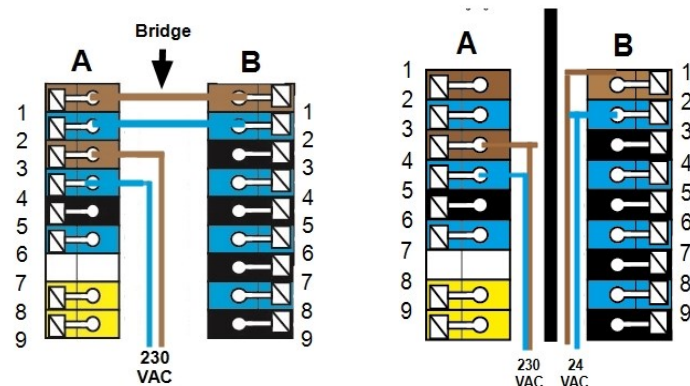
Open the cover (90 ° degree) and then pull it out of the attachment laterally.

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

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

Heating zones with 230 VAC actuators (bridge)

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



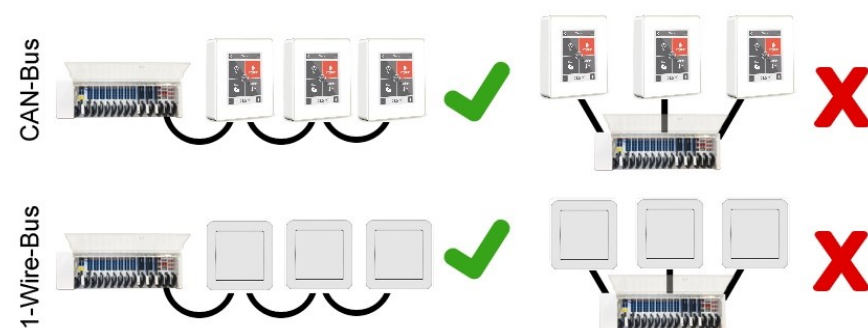
## Technical Data

Model	HERZ clever&smart Control Box Heating	Individual room control system for surface heating
<b>Electrical specifications</b>		
Power supply		230 VAC (+/- 5 %), 50-60 Hz
Power consumption / standby		0,5 - 2,5 W / 0,5 W
Internal fuse 1	1	(Pos. A, left) 2 A slow blow 250 V Fuse protection for terminal area A and electronics
Internal fuse 2	1	(Pos. B, right) 4 A slow blow 250 V Fuse protection for terminal area B - I
Protection Class		IP 20
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 powered	< 20 pieces (incl. max. 8 LED controllers)	- 55 °C ... 125 °C (3 pole version)
PWM inputs	2 (N2, N5)	
<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 (N1, N4, N8)	for 10 kΩ working resistance 1 kHz, level 10 V
of which 0-10 V / PWM switchable	2 (N1, N4)	
+ Voltage output 24 VDC	3	total max. 12 W for external devices e.g. HERZ clever&smart Room Controller or mixer motor
<b>Max. cable length</b>		
1-Wire Sensors		up to 50 m parasitic, up to 100 m powered, Use twisted pair cable (LIYCY 2 x 2 x 0.75 mm²)
		Especially when using HERZ clever&smart LEDcontroller, ensure sufficient conductor cross-section to avoid impermissible voltage drop.
		< 3 m; for ≥ 3 m, use a shielded twisted pair cable (2 x 2 x 0.22 mm²).
		Isolate shielding and connect it to the protective conductor of only one of the devices. Max. cable length of the complete system 200 m.
CAN		< 3 m
0-10 V/PWM		< 30 m
24 VDC		< 30 m
mechanical relay		< 30 m
<b>Interface</b>		
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 HERZ clever&smart Room Controller

## 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	Lights up, if the private CAN bus is active. Flashes at 1 Hz (60 x / minute) if there is an error in the private CAN bus.
LED M	Lights up if the building CAN bus and the 1-wire bus are active. Flashes at 1 Hz (60 x / minute) if there is an error in the building CAN. Flashes at 3 Hz (180 x / minute) if there is an error in the 1-Wire connection. <b>EXCEPTION:</b> If the building CAN bus remains unused, a flashing (1 Hz (60 x / minute)) of LED M is normal and does <b>NOT</b> mean that there is a error.
LED N	Lights up, if outputs V1, V2 or V3 are active.

## System structure



## Instruction Manual

# HERZ clever&smart Control Box Heating

3 F810 11



### Detailed instruction



### Scope of delivery

- HERZ clever&smart Control Box Heating
- 2 spare fuses, 1 x 2 AT, 1 x 4 AT
- additional separation wall
- DIN rail H= 35 mm L= 280 mm
- 2 screws 3.5 x 35 mm and 2 dowels S6
- HERZ clever&smart Control Box Heating Instruction Manual

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> [www.herz-armaturen.at/solutions/clever-and-smart/manuals](http://www.herz-armaturen.at/solutions/clever-and-smart/manuals)

## 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 HERZ clever&smart Control Box Heating 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.n.r. DE 23479719)

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.



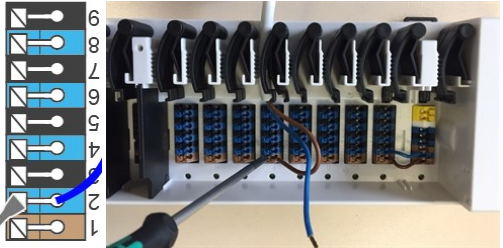
Under no circumstances may the device be disposed of with the normal household waste. Dispose of the unit only at appropriate collection points or ship it back to the seller or manufacturer.

**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 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.

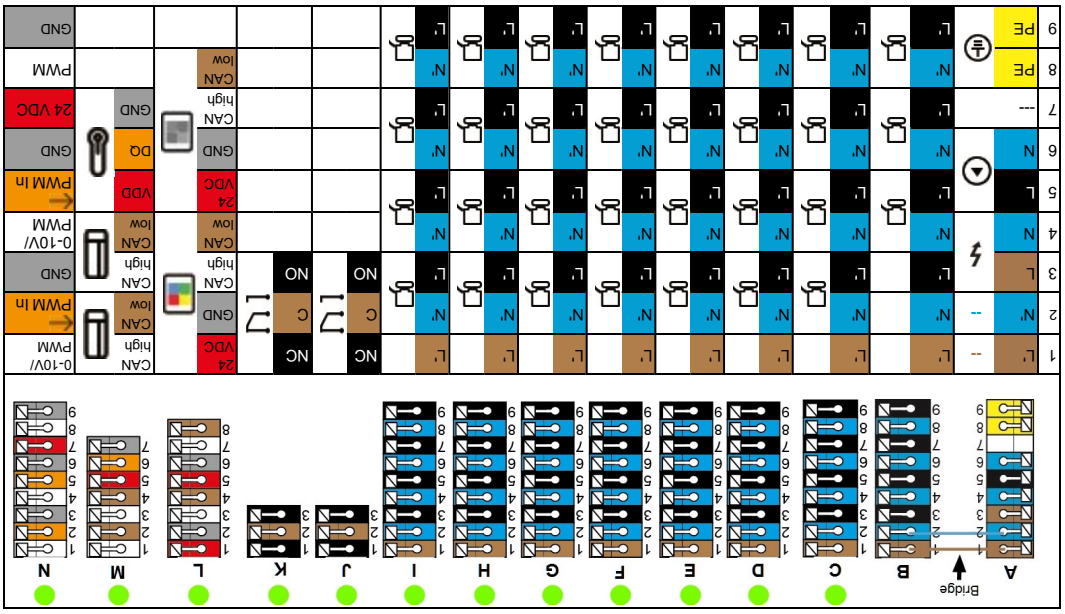


The strain relief is suitable for flexible cables with a cable sheath diameter of 5 mm to 8 mm, primarily using the lower strain relief (as shown). The cables must be checked for firm placement. Solid, thicker and thinner cables must always be laid firmly and must be fixed on the installation side.

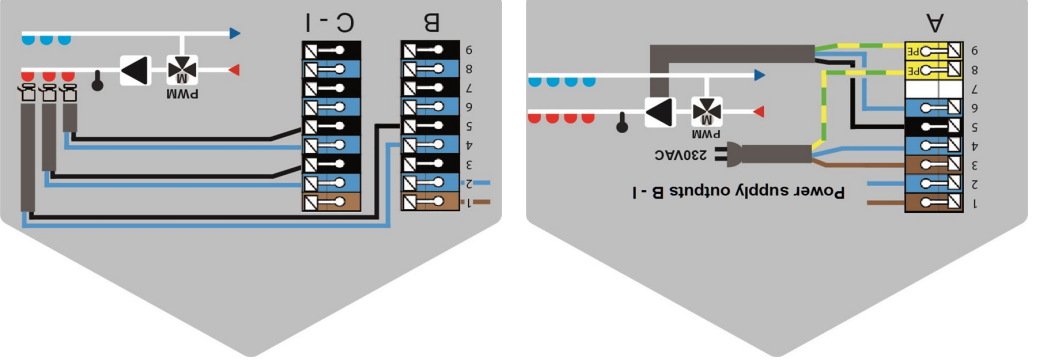


Solid cables or wires with special wire end ferrules can simply be pushed into the terminals. For other wires, the terminal must first be completely pressed on with a screwdriver as shown.

**Terminal diagram for electrical connection**

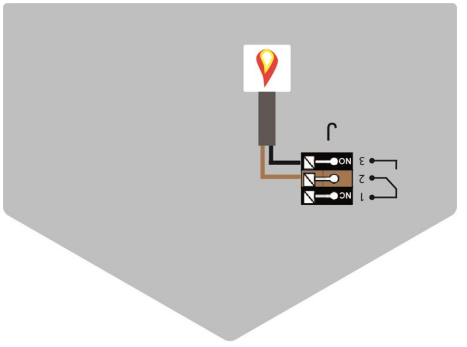


**Example Wiring of Terminal Blocks**

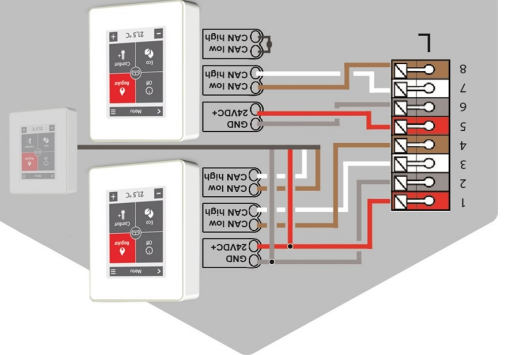


Mains connection heating circuit pump

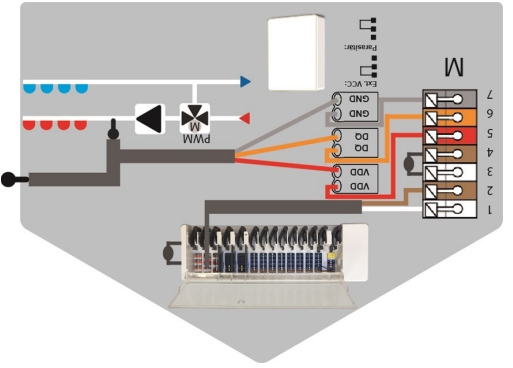
Actuators for the heating zones



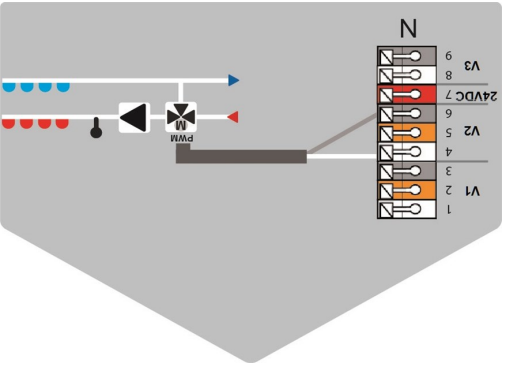
Potential-free switching contacts for additional functions



HERZ clever&smart Room Controller in private CAN bus



Building CAN bus and 1-Wire sensors



0-10 V/PWM outputs for additional functions

**setup wizard**

The commissioning wizard in the HERZ clever&smart Room 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 HERZ clever&smart Room Controller in the network.



The HERZ clever&smart Control Box Heating is configured exclusively on a HERZ clever&smart Room Controller.



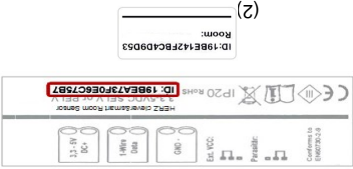
The setup wizard is restarted via the "factory settings" menu item.

**Tips**

Interface mode	Menu > Expert > Settings > Interface mode
Download system updates via WiFi	In addition to the possibility of carrying out a firmware update specifically for individual Room Controllers or Control Boxes after prior selection in the unit menu, a system update can also be carried out in which all Control Boxes / Room Controllers visible in the network are supplied with the latest firmware. It is recommended to check for the availability of system updates from HERZ clever&smart Room Controller and Control Box during installation.
Insulation factor	Menu > Expert > Settings > Functions > Heating circuit > Insulation factor
Dew Point protection	Menu > Expert > Settings > Functions > Heating circuit > Dew Point protection
Additional functions	1. Menu > Expert > Settings > Functions Overview of all available additional functions (on the HERZ clever&smart Room Controller configuring the HERZ clever&smart Control Box Heating, all HERZ clever&smart Room Controller only local functions of the HERZ clever&smart Room Controller are displayed, on all other HERZ clever&smart Room Controller additional functions of the HERZ clever&smart Room Controller are displayed). 3. For further setting options for the selected function. 4. Select function and free switching output to activate function.
HERZ clever&smart App	Offers the possibility to operate the HERZ clever&smart Room Controller via app.

**1-Wire ID Overview**

For systems in which 1-Wire HERZ clever&smart Room Sensor / HERZ clever&smart LED controller are used, it is helpful for commissioning and service purposes to enter their 1-Wire IDs in combination with the respective installation location (room name) in the following table.



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.

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