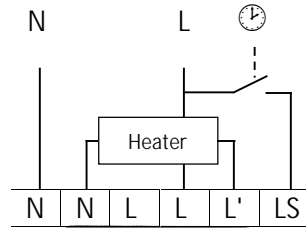# Controller.Rock.021   Operating Instructions

This device, compatible to nearly all types of heaters, regulates ambient temperature and floor temperature in dry, closed rooms. This controller can be integrated in all series of the switch range manufacturers by covering with

Function and operation of the controller

Connection

N = neutral (2 terminals, internally connected)
L = Phase (2 terminals, internally connected)
L' = relay output 230 V~, 10 (2)A
LS = special mode for external input
      230 V~ 50Hz ; same phase as supply voltage

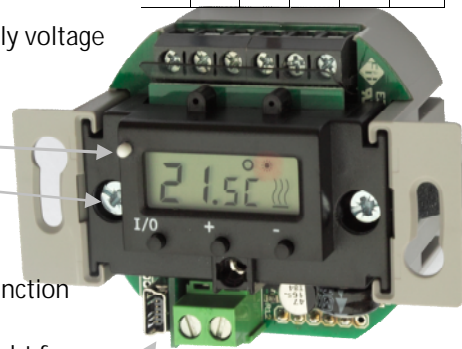### Integrated room temperature sensor
(ambient temperature control)
Screw / claw fitting

functions of the pushbuttons

(I/O) A longer press (3 sec.) permits to active/deactive the display and function of regulation.
A briefly press turns on the backlight for a time of 10 seconds.

⊖ the target temperature can be reduced in steps by 0,5°C

⊕ the target temperature can be increased in steps by 0,5°C

Mini USB port
avialable only by model Rock.USB controller

sensor line terminal
resistor 220 kΩ =
function ambient temperature controller
NTC sensor line =
function floor temperature controller

LCD Display

backlighting of the display

backlighting during operation plus 10 seconds after the last actuation of any key

display indication
actual temperature (ambient temperature or floor temperature); the target temperature is indicated for 3 sec. after pressing the button ⊕ or ⊖

☼ LED red + symbol of three flames ≀≀≀
comfort temperature
- blinking: heat demand
- fixed: target temperature is reached

☾ LED blue + symbol of single flame ≀
economic temperature
when phase is connected to LS = special operation
- blinking: heat demand
- fixed: target temperature is reached

Rock.FF NTC remote sensor, 4m
when using as floor temperature controller
10 °C = 58,7 kΩ   25 °C = 30,0 kΩ
15 °C = 46,7 kΩ   30 °C = 24,3 kΩ
20 °C = 37,3 kΩ   **35 °C = 19,7 kΩ**

Application / Function

This device is utilised for two controller types:
- ambient temperature controller with integrated room sensor (220 kΩ connected to FF)
- floor temperature controller with external remote sensor conneted to terminal FF.
In case of interruption or short circuit of the external sensor the device switches to **ermergency mode**. It regulates the ambient temperature. The display indication is blinking.

The controller supplies two target temperatures:

LED red ≀≀≀ standard functionality (comfort temperature) and LED blue ≀ special operation (economic temperature). Special operation is active when phase is connected to LS🕐. The target temperature (comfort temperature and economic temperature) can be set over the complete range. For this purpose use the button ⊕ (plus) and ⊖ (minus).
The sensor measures the ambient temperature (actual temperature). When falling below the target temperature, the relay switches on; when exceeding the target temperature, the relay switches off. Delay times up to 3 minutes are possible (e.g. valves). A special protective function helps prevent an inadvertent activation of the push buttons.
Therefore it is necessary to keep the button (I/O) pressed more than 3 sec. to switch the conroller on/off. When pressing the buttons ⊖ und ⊕ for the first time, the display indicates the target temperature, after repeated pressing the temperature level can be modified.

LED and flame symols

LED red and symbol ≋   blinking   = mode comfort, heating phase, relay contact is closed
LED red and symbol ≋   fixed   = mode comfort, no heating required, relay contact is open
LED blue and symbol ⌇   blinking   = special operation, heating phase, relay contact is closed
LED blue and symbol ⌇   fixed   = special operation, no heating required, relay contact is open   =

More functions

Display backlight ON/OFF :   press button ⊕/0 for ca. 1 sec. then briefly press button ⊕
LED red / blue ACTIVE/OFF :   press button ⊕/0 for ca. 1 sec. then briefly press button ⊖
Adjustment -3,5 to 4,0 K: keep pressing the buttons ⊕ and ⊖ simultaneously for at least 8 sec. then
(ambient temperature)   correct with the button ⊕ or ⊖
keylock   **activate**: press button ⊕ more than 30 sec. / **deactivate**: press button ⊖ more than 30 sec.
(no modification with buttons ⊕ and ⊖ possible)

Mounting / Conncetion

The controller is determined for installatition in flush mounting box. It may not be exposed to any heat sources.
It must not be mounted above other heat generators (e.g. light dimmer, radiator,
television etc.). The electrical connection is to be realised as shown in the image description with screw
connection.
Caution: Prior to performing any installation work, always make sure to disconnect the mains voltage at all poles!

FF sensor line terminal
. resistor of 220 kΩ   - regulation via room temperature sensor
. external remote sensor   - regulation via floor temperature sensor
  The external remote sensor has to be installed in an empty conduit, which has to be closed at the end (e.g. sensor sleeve .509)

The controller is fixed in a flush mounting box with claw fittings; the plastic support components on both sides are used to
secure the unit. The cover (central unit of TAE and frame) ist mounted with the screw

Please note :
Expert electricans only may install this device in due compliance with the wiring diagram shown on the housing / represented in
the corresponding operation instuction. Otherwise there is a risk of fire or a risk of electric shock. These operation instructions
must be kept at a place that can be accessed freely by the operating and/or servicing personal in charge.

Technical details

operating voltage:	230V~ / 50 Hz	protection rating:	IP 30
visualisation:	LCD-Display	protection class:	II, (after corresponding installation)
contact/switching capacity:	NOC 230V~ 10(2)A	sensor:	NTC
electrical connection:	with screws	sensor voltage:	DC (direct current) < 5V
installation:	claw fixing 60mm flush box		

switching difference:	ca. 0,5 K	sensor characteristics:	-5 °C = 122,4 kΩ	25 °C = 30,0 kΩ
power consumption:	ca. 0,5 W		0 °C = 95,0 kΩ	30 °C = 24,3 kΩ
temperature setting range:	0 °C to + 40 °C, in 0,5 °C steps		5 °C = 74,4 kΩ	35 °C = 19,7 kΩ
temperature decrease:	phase to LS⌚, complete range		10 °C = 58,7 kΩ	40 °C = 16,1 kΩ
measuring temperature:	-5 °C bis + 60 °C		15 °C = 46,7 kΩ	45 °C = 13,3 kΩ
storage temperature:	-15 °C bis + 60 °C		20 °C = 37,3 kΩ	50 °C = 11,0 kΩ
		sensor failure	external sensor -> emergency operation display is blinking	