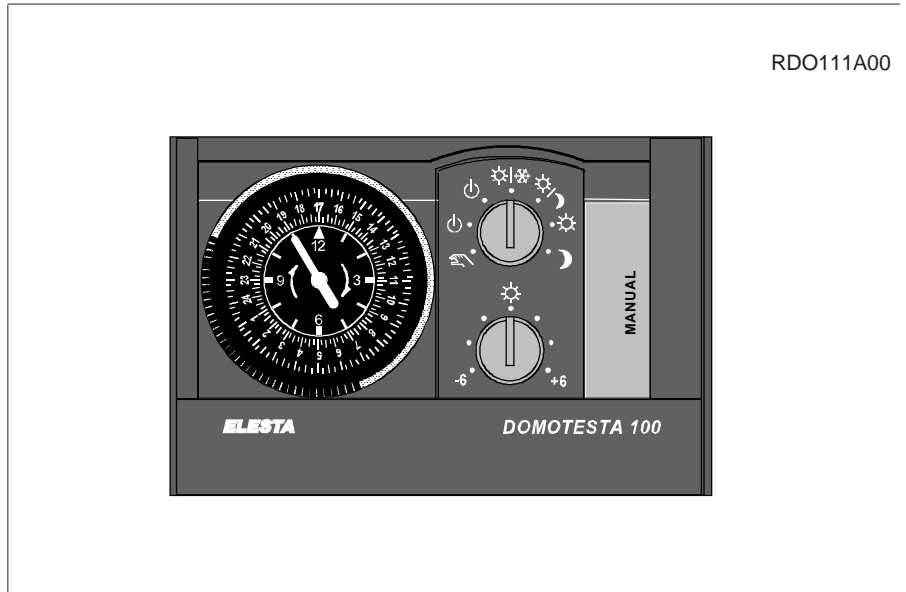


Mounting instruction

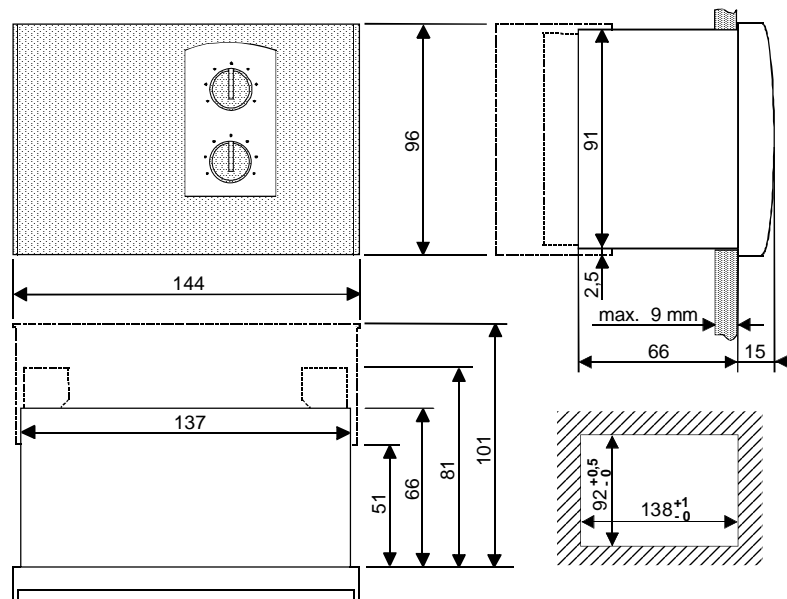
RDO111A00



Application

Heating controller for boiler or flow temperature regulation according to outside and/or room temperature. Direct control of a mixing valve-heating circuit or direct control of a 1-step burner and a direct boiler-heating circuit.

Dimensions (mm)



Mounting possibility

- Flush mounting
- Surface mounting
- Mounting on carrier rail as per DIN46277
- Base plate and extension of terminal compartment

Switch panel cut-out 138 x 92 mm for controller class 144 x 96 mm, mounting depth with plug-in strip: 81 mm / mounting depth with base plate: 101 mm

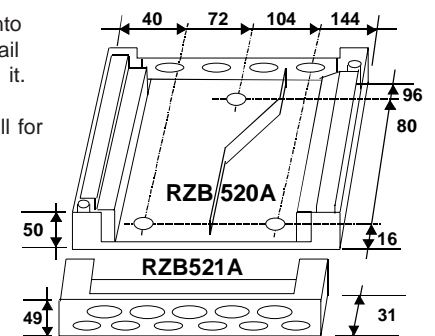
Slide device into panel cutout and secure it with fastening bolts. Wiring with connectors for AMP male connectors RZB500A, screwable connectors RZB510A (or base plate RZB520A)

Mount base plate RZB520A and wire it. Plug on the device and screw-fasten it.

Screw rail clamps RZB106A for DIN rail 35mm onto base plate RZB520A. Snap base plate onto DIN rail and wire it. Plug on the device and screw-fasten it.

RZB520A: Base plate with 2 side walls (side wall for glands 4xPG9) with screwable connectors RZB510A in position.

RZB521A: Mounting kit for extension of terminal compartment for mounting at top or bottom of base plate RZB520A, for glands 6xPG9 and 5xPG11, with side wall for covering the RZB521A upwards aperture.



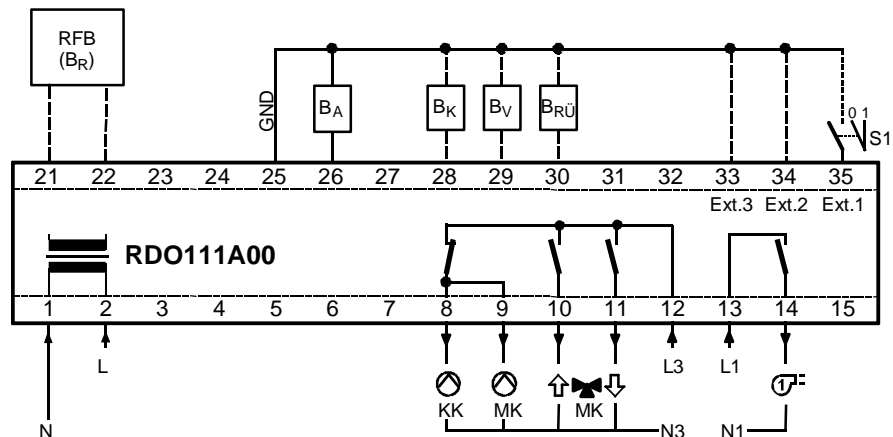
Mounting of sensors:

Avoid junction and connector boxes. Use own sensor cable. Line length for passive sensors max. 100m, cable 2x1mm² stranded wire, not shielded, place separate from mains lines.
Line length: up to 25m Cable cross section: 0.25mm²
Line length: up to 50m Cable cross section: 0.5 mm²
Line length: up to 100m Cable cross section: 1.0 mm²

- Room remote control RFB410A / RFB411A In the main living room, on an inside wall, not exposed to sun or other foreign heat sources (chimney wall, near radiators, draughts, televisions, lamps); not hidden by furniture or curtains; approx. 1.2 - 1.5m above the floor; due to draughts seal installation conduit. (NTC 10kΩ; bei 25°C)
- Room temperature detector RFT410A / RFT016A (RFT017A) **Room remote control:** connection with 2 reversible wires, line length max. 50m
- Outside sensor FT12A Mount at 2/3 of building face height, not above window or under roof protrusions, preferably on north or north-west side. Protect from direct solar radiation (with sun protection RZB139A). (NTC 10kΩ; by 25°C)
- Clamp-on sensor FT1A Mount immediately after the pump in the flow or, if pump is in the return line, approx. 1.5m after the mixing point. Mounting: With clamping band ZB126A on blank pipe, install without thermal conductive paste. (PTC 1kΩ; by 25°C)
- Plunging sensor FT2A Mount immediately after the pump in the flow or, if pump is in the return line, approx. 1.5m after the mixing point. Mounting: Install in the pipe bend against the heat transfer medium's direction of flow. (PTC 1kΩ; by 25°C)
- Cable-plunging sensor RFT203A For measuring of boiler temperature, flow, return, hot water. Mounting: In the boiler, next to the manual reset safety limit thermostat. (PTC 1kΩ; by 25°C)
- Cable-plunging sensor RFT213A For measuring of the hot water temperature or flow, return. Mounting: In the hot water boiler, at the top near the hot water exit. (PTC 1kΩ; by 25°C)

Wiring diagram

Wire according to application diagram or total current flow plan. Connection through specialists according to local regulations. The temperature sensor- and remote control-connections to the controller are supplied with low voltage protection. It is advantageous to lay these separate from the power supply cables.



S1 : External "⏻" "Standby" controller (boiler and heating OFF)

0 = Function as per operation mode switch on controller

1 = Boiler operation OFF; heating operation OFF; frost protection active

Ext.2, Ext.3 : Configuration input of the controller (see application)

The application of the controller can be configured by the external inputs.

BRÜ : Return sensor connected

In the case of applications where only a mixer heating circuit is used, the potentiometer "Boiler minimum limitation" serves to set the minimum return flow temperature (limitation of return flow temperature) if a return flow sensor is connected. The heating system must feature a boiler circuit pump.

Connected sensors (**BA**, **BR**)

BA : Outside temperature controlled regulation of the heating circuit

BA and BR : Outside temperature controlled with room temperature adjustment

BR : Room temperature controlled regulation (forbidden with floor heating)

Remark:

Without **BA** : Heating curve (adjustment with S=slope) at TA=2°C defines flow temperature setpoint when TR is equal TRnominal (without room temperature deviation)

Influence of room temperature deviation: S=0.6 S=1.0 S=1.3 S=2.0

BA and BR : dTVnominal [dTR=1K]: 3.0K 3.7K 4.3K 5.6K

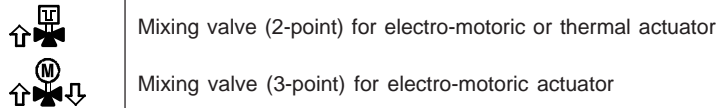
BR : dTVnominal [dTR=1K]: 10.0K 12.5K 14.4K 18.7K

Connector position

A: 230 VAC inputs and outputs

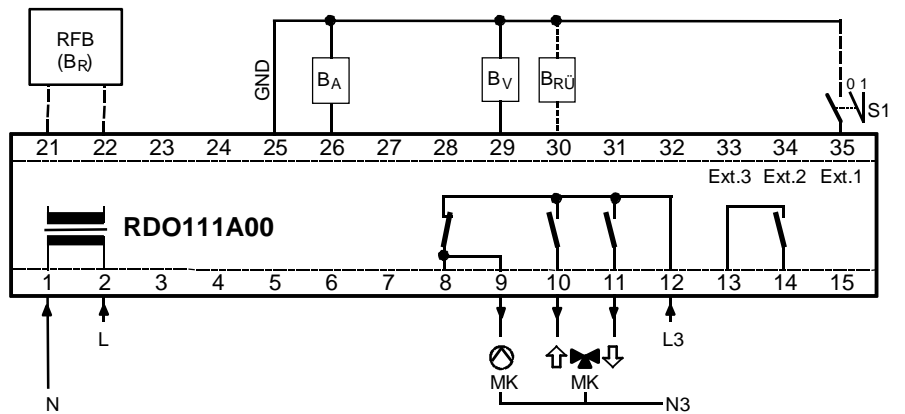
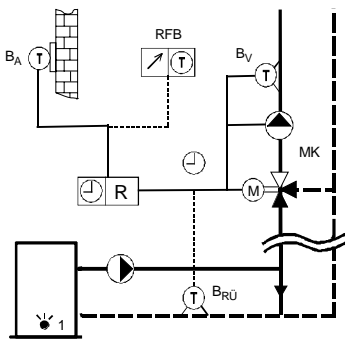
Terminal number	Symbol designation	Description
1	N (N _L)	Neutral
2,12,13	L, L3, L1	Phase
8	⊙ KK	Boiler pump parallel to mixing valve pump
9	⊙ MK	Mixing valve pump parallel to boiler pump
10	↑	Mixing valve : order "warmer"
11	↓	Mixing valve : order "colder"
14	⌚=1 on	Burner stage 1
B: Measurement and control inputs		
21	RFB	Remote control or room sensor (GND)
22	RFB	Remote control or room sensor
25	GND	Ground
26	B _A	Outside sensor FT12A
28	B _K	Boiler sensor RFT203A.. (FT1A, FT2A)
29	B _V	Flow sensor FT1A (FT2A)
30	B _{RÜ}	Return sensor FT2A (FT1A)
33	Ext.3	Configuration input of the application (heating circuit)
34	Ext.2	Configuration input of the application (heating circuit)
35	S1 (Ext.1)	Input: Heating and domestic hot water OFF "Standby" (Switch closed: ⌚ "Standby" -> frost protection active)

Other symbols

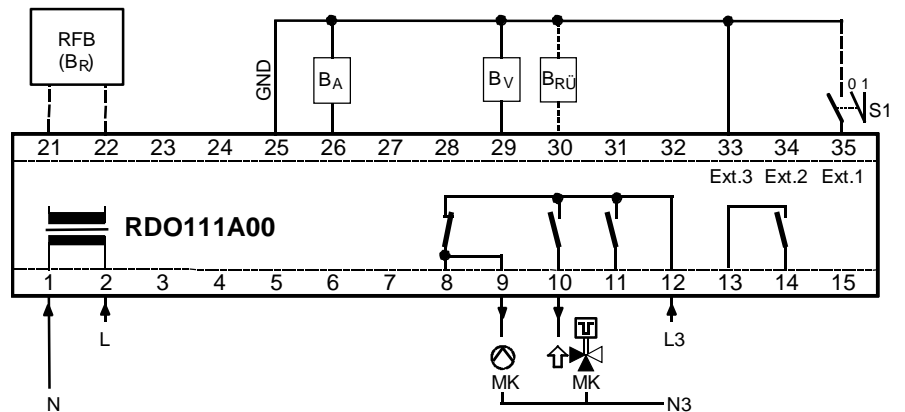
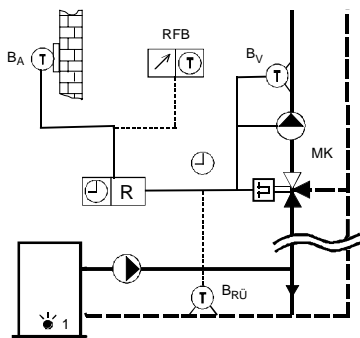


Application / Installation

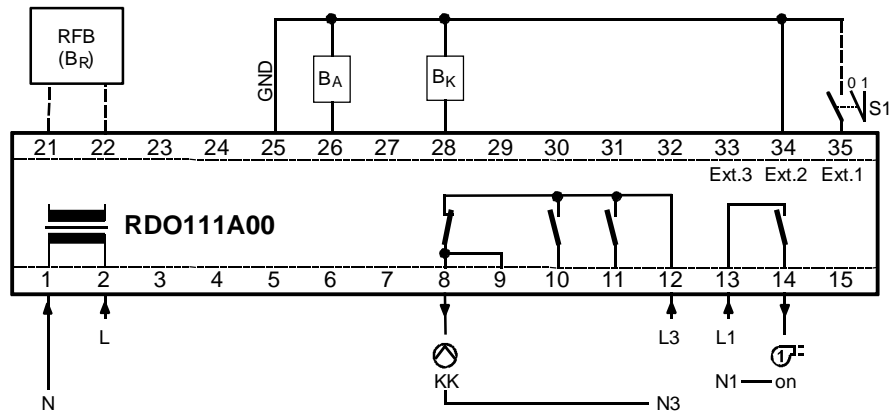
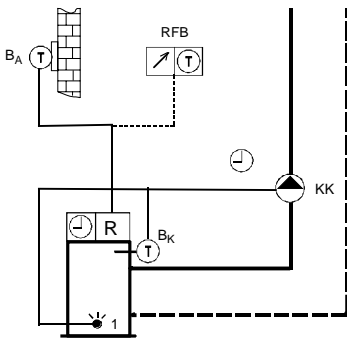
3-point mixing valve-heating circuit (with or without limitation of return temperature)
(without return sensor: pump "KK" and bypass are not necessary)



2-point mixing valve-heating circuit (with or without limitation of return temperature)
(without return sensor: pump "KK" and bypass are not necessary)



Direct boiler-heating circuit,
Burner 1 stage



Initial operation

- Switch the mains voltage OFF (remove mains fuses).
- **Before the controller is connected to the multipole connectors or installed on the base plate**, check that the necessary pumps, sensors, burner and mixing valve on the installation side are correctly connected (examine the electrical installations).
- Make sure all necessary safety devices exist (manual reset safety limit thermostat of the boiler, maximum temperature limiter in case of floor heating and possibly additional devices) (see electrical installation diagram).
- Plug in connector 21..35 (low voltage) and then connector 1..15 (mains voltage) or secure the controller on the base plate.
- The adjustment of the controller has to be made in function of the application and the user demands (see user manual).
(room temperatur, heating curve, burner, boiler, switch clock)
- Switch the mains voltage ON.
- For a few seconds the LED's on the controller lights up.
- Control the functions of the system p.e. (mode positions: manual operation, permanent "normal" or permanent "reduced").
- Set the controller's mode switch to the desired operating mode
(usual mode positions: Auto „normal/reduced“ or Auto „normal/frost protection“).

Safety remarks



Warning:

All mains fuses of the heating system must be switched off before any work is carried out on terminal bars or electrical connections (wires). The heating system consists of the controller and the components connected to it (burner, pumps, manual reset safety limit thermostat, etc.). Controlling of the external wires and at the devices has tu be made without installed controller.



Warning:

Touching of the terminal bars and connected or disconnected wires by persons or with electrically conductive materials is prohibited since the terminal bars may be live (danger of mains contact).



Attention:

The safety features specified by national or international regulations must be installed under all circumstances. (Manual reset safety limit thermostat and safety thermostat)
- Regulations concerning electricity (heavy-duty current)
- Regulations concerning heating equipment