Heating controller   RVA10.121

User friendly, simple heating controller with manual temperature setting for heating and potable water.

Use

To control the flow temperature of a pump heating circuit and the potable water temperature in:

- Single-family homes
- Vacation homes and villas.

Application

For use in all standard heating systems, such as radiator or fan coil heating systems.

Market

The units are designed for the OEM market. They are supplied directly to the boiler manufacturer and enhance the functionality and the level of control of small heating plants featuring integrated boiler temperature controllers.

Functions

- Boiler temperature control
- Potable water temperature control
- Control of:
  - Heat pump (boiler flow= Heating flow)
  - DHW charging pump
  - Burner (via safety temperature limiter and burner control)
- Boiler overtemperature protection
- Frost protection for the boiler
- DHW discharging protection
- Fault recording of sensors
- Pump kick
- Winter/summer mode

Ordering

Please provide the type/article number and designation when ordering.

Type	Stock number (OEM standard)	Designation	Delivery unit
RVA10.121	BPZ:RVA10.121/109	Heating controller	20 pieces

Boiler sensor (1.5 m) and DHW sensor (2 m) with non-detachable Molex plug included in delivery.

Technical design

Control

Control can changeover to the applicable mode using the summer/winter switch on the front.

- Winter operation
  The heating circuit pump is switched on as long as the room thermostat is closed and no DHW request is pending. The burner mode is enabled and controls (with the appropriate switching difference) the boiler and DHW temperature to the set heating circuit temperature setpoint. The DHW charge has priority (factory setting) and can temporarily switch off the heat pump.
- Summer operation
  The heat pump remains switched off. Burner and DHW pump is operated as per DHW charge.

Boiler minimum limitation

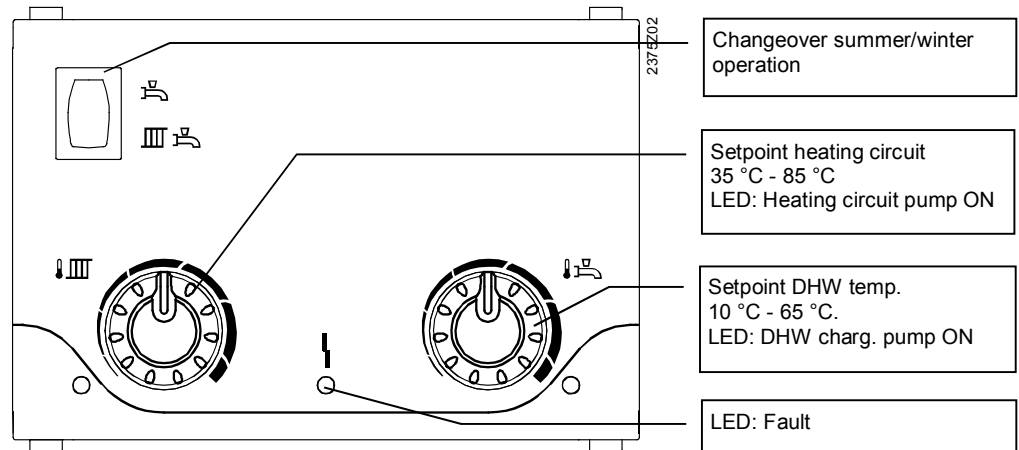The burner is switched on if the boiler temperature drops below 38 °C.

After achieving a boiler temperature of 44 °C, the boiler is switched off again as longer as no heating circuit or DHW request is pending.

Jumper X40 designates the operating mode for which boiler minimum limitation acts.

DHW charging	For DHW request, the boiler temperature is controlled to the configured boiler temperature charging setpoint (Jumper X40) and the DHW pump is switched on. The heat pump remains switched off during DHW charging until the DHW charge is completed.
	After successful DHW charging, the burner is switched off as long as no heating circuit temperature request per winter operation is pending. The DHW pump operates for another 5 minutes before switching off.
Note	The overshoot time is cancelled if DHW discharge protection intervenes within the overshoot time and the heating circuit pump is re-switched on immediately. A new DHW request or power outage also cancel the overshoot time.
DHW discharging prot.	The DHW pump is only enabled if the boiler temperature is 5 °C higher than the DHW temperature.
Boiler overtemp. protection	The DHW pump is switched on if the boiler temperature exceeds 95 °C, until the boiler temperature drops to 92 °C. Burner mode is locked from control.
Frost protection for the boiler	The boiler is switched on if the boiler temperature is below 5 °C and switched off again if the boiler temperature reaches 11 °C.
Auto configuration	A DHW sensor failure at controller start up (or after each power outage) is interpreted as "purely heating mode" and the "Error" LED does not light. In this case, heating mode is enabled; the DHW charging pump remains locked.
	DHW mode is enabled as soon as a valid DHW temperature value is recorded during operation. Any sensor defect is indicated as an error if DHW mode is enabled.
Fault recording of sensors	A sensor defect is indicated with the corresponding LED. A sensor defect occurs if the recorded temperature exceeds 130 °C or drops below 0 °C or for a short circuit or interrupt.
	Burner and pump operation is locked for a defect to the boiler sensor. The charging pump is blocked for a defect to the DHW sensor. Burner operation is still enabled.
Pump kick	In summer operation, the heating circuit pump is switched on for 3 seconds every 24 hours.

Design

Operating elements

Changeover summer/winter operation

Setpoint heating circuit
35 °C - 85 °C
LED: Heating circuit pump ON

Setpoint DHW temp.
10 °C - 65 °C.
LED: DHW charg. pump ON

LED: Fault

**Technician/
OEM settings**

Technician/OEM settings are made at Jumper X40.
The 5 jumpers are number from top to bottom.

1	DHW charging temperature	Both open	= 85 °C
2	DHW charging temperature	NO. 1 plugged = 80 °C NO. 2 plugged = 75 °C Both plugged in = 70 °C	
3	DHW priority	plugged in = absolute open = parallel	
4	Boiler minimum limitation in winter	plugged in = Min. limitation active open = no Min. limitation	
5	Boiler minimum limitation in Summer	plugged in = Min. limitation active open = no Min. limitation	

Notes

Disposal

The device is considered electrical and electronic equipment for dis-posal in terms of the applicable European Directive and may not be disposed of as domestic garbage.
• Dispose of the device through channels provided for this purpose.
• Comply with all local and currently applicable laws and regulations.

Technical data

General unit data	Operating voltage	AC 230 V +10/-15 %
	Frequency	50 / 60 Hz
	Power consumption	max. 4 VA
	External supply line protection	Slow-blow fuse max. 10 A or Circuit breaker max. 13 A Characteristic B, C, D according to EN 60898
Wiring of terminals Function data	Power supply and outputs	Solid wire or stranded wire (twisted or with ferrule): 1 core: 0.5 ... 2.5 mm^2 2 cores: 0.5 ... 1.5 mm^2
	Software class	A
Inputs	Mode of operation to EN 60730	1b (automatic operation)
	Sensor inputs B2 and B3 Perm. sensor cables (copper)	NTC10k

• Cross-sectional area	0.25	0.5	0.75	1.0	1.5	mm2	
• Max. length	20	40	60	80	120	m	

Outputs	Relay outputs	
	Rated current range	AC 0.02 ... 2 (2) A
	Switch-on current	15 A for ≤1 s
	Maximum total current (all relays)	AC 6 A
	Voltage range	AC (24...230) V (for potential free outputs)
	External supply line protection	See section power supply
Protection data	Housing protection	IP40 (when mounted) to EN 60529
	Protection class	II to EN 60 730-1 when correctly installed, low-voltage live parts meet the requirements
	Degree of pollution	Normal pollutiont o EN 60730-1
Standards, directives and approvals	Product standard	EN 60730-1 Automatic electrical controls for household and similar use
	Electromagnetic compatibility (Applications)	For use in residential, commerce, light-industrial and industrial environments
	EU conformity (CE)	CE1T2375x4
	EAC conformity	Eurasia conformity
Ambient conditions	Storage to IEC721-3-1 class 1K3	Temp. -20…65 °C
	Transport to IEC721-3-2 class 2K3	Temp. -25…70 °C
Weight	Operation to IEC721-3-3 class 3K5	Temp. 0...50 °C (non-condensing)
	Without packaging	250 g

Diagrams

Connection diagrams

2375A01

X1

X2

B3 B2

X40

Heating controller
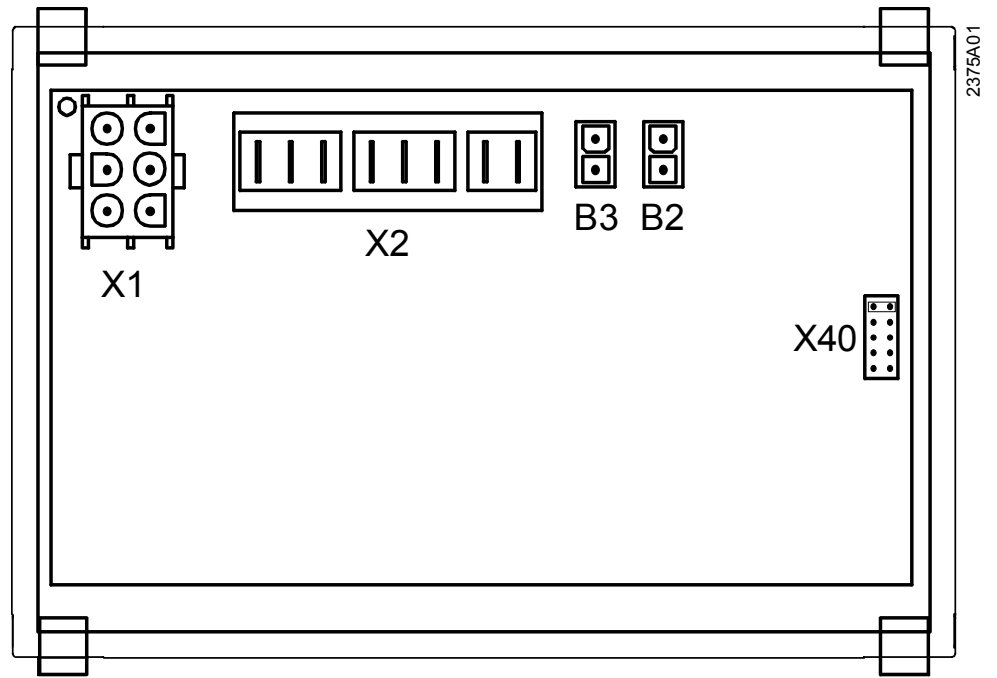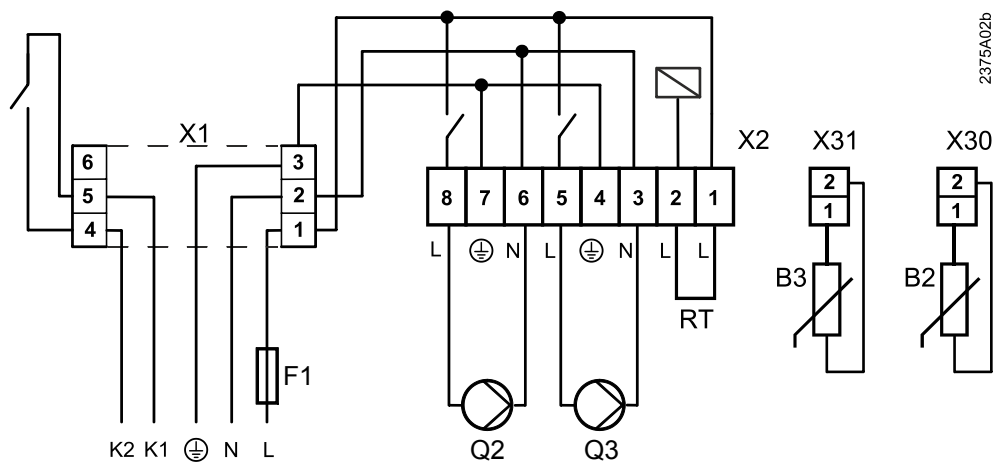
2375A02b

F1: External supply line protection ≤ 10 A

Mains voltage

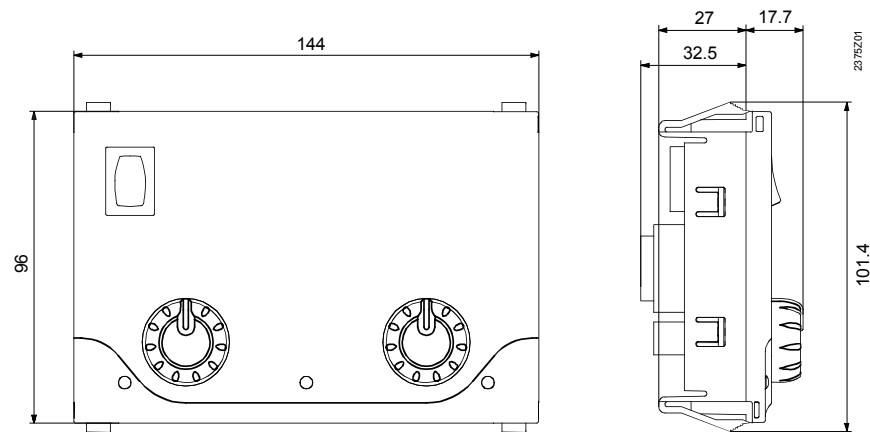|	Use	Terminal	Connector type
1	Phase L1	X1	AMP NO. 350715-1
2	Neutral conductor N	X1	with AMP connector
3	Protective earth PE	X1	
4	Burner phase T1	X1	
5	Control burner T2	X1	
6	Not used	X1	
1	Thermostat RT	X2	AGP8S.02E/109
2	Thermostat RT	X2	Q
3	DHW charging pump neutral conductor	X2	AGP8S.03A/109
4	DHW charging pump protective earth	X2	R
5	DHW charging pump phase (Q3)	X2	
6	Heating circuit pump neutral conductor	X2	AGP8S.03B/109
7	Heating circuit pump protective earth	X2	S
8	Heating circuit pump phase (Q2)	X2	

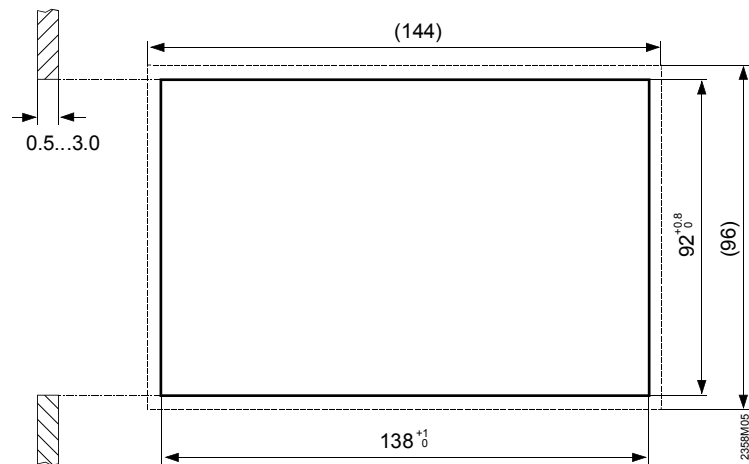The plug-in terminals listed are not included with the controller.

Low voltage

	Use	Terminal	Connector type
1	Boiler temperature sensor B2	X30	MOLEX Minifit
2	Boiler temperature sensor B2	X30	MOLEX Minifit
1	DHW temperature sensor, sensor B3	X31	MOLEX Minifit
2	DHW temperature sensor, sensor B3	X31	MOLEX Minifit

Dimensions

Device

144

96

27 17.7

32.5

101.4

2375Z01

Panel cut out

(144)

0.5...3.0

$92^{+0.8}_{0}$

(96)

138^{+1}_{0}

2358M05

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Siemens
Building Technologies
Heating controller
CE1Q2375en
2018-04-09