

Function summary

- The RRV817 temperature controller is designed for centrally controlling underfloor heating systems in combination with the QAX810 master room unit and QAW810 zone room units.
- The system is divided into up to 7 zones by way of on/off control of zone valves.
- One RRV817 in master mode can be used to control up to five 5 zones, or – with 1 additional RRV817 connected and set to slave mode – the maximum of 7 zones can be centrally controlled.
- The RRV817 in master mode has 1 digital output (DO) available for switching a local heat source (boiler) and 1 digital input (DI) for remote on/off control from a home automation system or other remote switching device.
- The default room unit for zone 1 is the QAX810 master room unit. QAW810 room units are used for additional zones 2...7.
- The room units acquire and communicate their individual zone temperatures, and the demand for each zone is evaluated based on the corresponding zone setpoint. The zone valve for a corresponding zone will be opened when there is demand for heat and closed when there is no demand.

Installation

Place of installation

- Mounting choices:
 - Control cabinet
 - Control panel
 - Wall, ceiling space, cupboard
- Easy access is required for service staff
- The controller should not be freely accessible for the building occupants.
- Do not install outdoors without using suitable weather protection.
- Permissible ambient temperature: 0...50 °C.
- Cable strains relief is recommended for all wiring to avoid disconnection.

The RRV817 temperature controller must be mounted by an electrician (preferably in an electrical control panel). Adequate measures must be taken to ensure degree of protection IP30! Other mounting locations are possible provided the relevant standards are observed (including IP30).

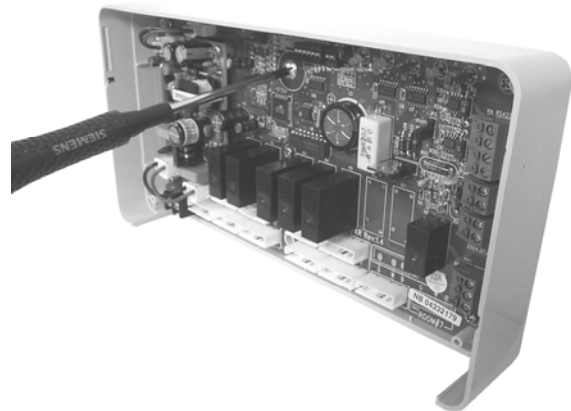
As a minimum requirement, the connecting cables must conform to H05.

Permissible cable lengths

- For all field devices: Room unit, sensors
 - Max. 60 m, $A \geq 0.5 \text{ mm}^2$
 - Max. 100 m, $A \geq 1.0 \text{ mm}^2$
- Signal cable type
 - 2-wire standard installation cable (unshielded)
 - Bus topology is free configuration. Ring, star, etc.
 - Twisted pair (unshielded) is recommended for enhanced immunity to external electromagnetic interference, e.g. in the vicinity of radio transmitters or variable speed drives.
- The RRV817 can be mounted in any orientation. Ensure adequate air circulation to dissipate heat generated during operation.

Wall mounting

1. Remove top cover
2. Hold controller against the surface
3. Mark fixing holes on the wall
4. Remove controller and drill the holes
5. Screw controller to the surface

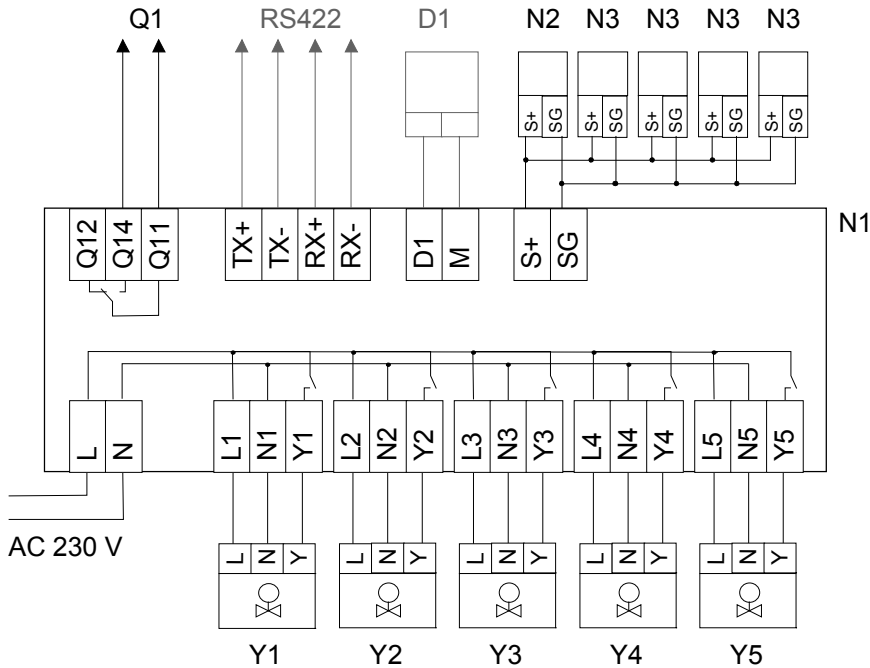


Connections

RRV817 connection terminals

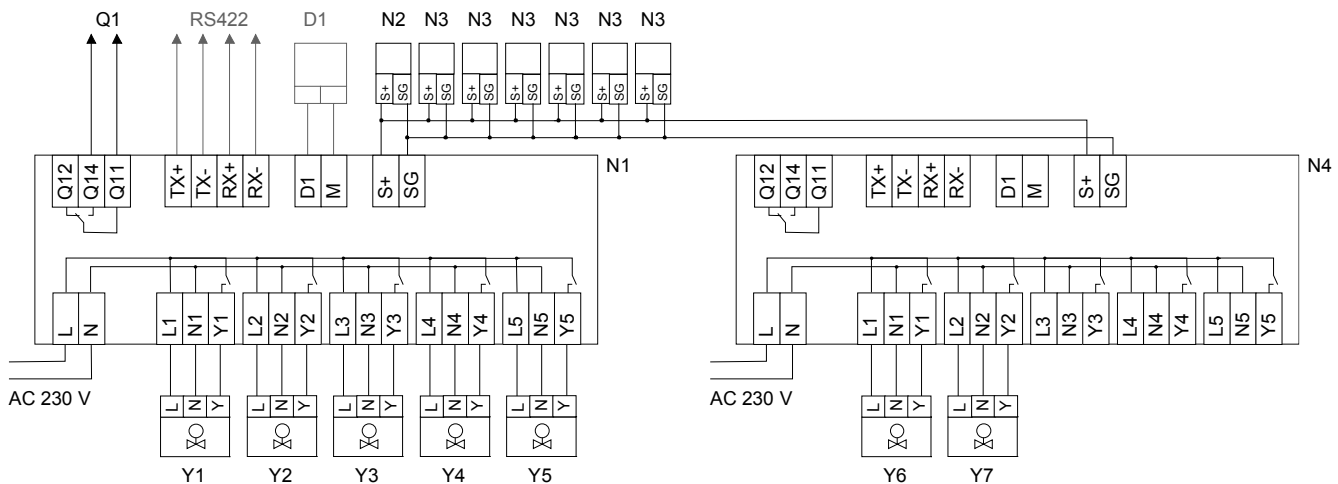
L	AC 230 V line
N	AC 230 V neutral
TX+	RS-422 Transmit +ve
TX-	RS-422 Transmit -ve
RX+	RS-422 Receive +ve
RX-	RS-422 Receive -ve
D1	Digital input
M	Digital ground
S+	Communication bus +ve
SG	Communication bus ground
L...	AC 230 V, zone valve power supply
N...	AC 230 V neutral
Y...	Digital outputs, AC 230 V, 3(1) A
Q...	Digital outputs, AC 230 V, 3(1) A

RRV817 – typical connection



- D1 Remote system off release signal
- N1 RRV817 temperature controller (master mode)
- N2 QAX810 master room unit
- N3 QAW810 zone room unit
- N4 RRV817 temperature controller (slave mode)
- Q1 Boiler output
- Y... Valve actuator, AC 230 V (max. up to 3 valve actuators per zone in parallel with 3(1) A rating)

RRV817 – master & slave connection

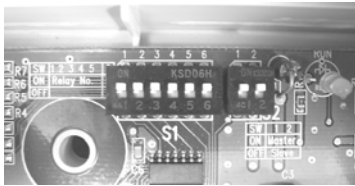


STOP Note!

- All input and bus terminals are not protected against connection to AC 230 V.
- Observe the technical data for digital outputs:
Max. AC 250 V, 3(1) A.
- All output cables used must satisfy the insulation requirements with regard to mains potential.
As a minimum requirement, the connecting cables must conform to H05
- Care should be taken when routing cables through sharp metal openings, conduits or ducts.
- Double insulation on output cables is recommended.
- Local regulations for installation must be observed.

Commissioning

DIP settings



DIP switch 1

<i>Example 1:</i>	<i>Master</i>			<i>Slave</i>		
7 zones. Zone valves 6 and 7 remote from master controller (slave controller required). No individual heat source (district heating)	Room 1 (zone 1)	S1-1	ON	Room 1 (zone 6)	S1-1	ON
	Room 2 (zone 2)	S1-2	ON	Room 2 (zone 7)	S1-2	ON
	Room 3 (zone 3)	S1-3	ON	Room 3 (not used)	S1-3	OFF
	Room 4 (zone 4)	S1-4	ON	Room 4 (not used)	S1-4	OFF
	Room 5 (zone 5)	S1-5	ON	Room 5 (not used)	S1-5	OFF
	Heat demand	S1-6	D	Heat demand	S1-6	D

<i>Example 2:</i>	<i>Master</i>			<i>Slave</i>		
4 zones, with zone 2 and 3 remote from master controller (slave controller required). Switching of an individual heat source is required (no district heating)	Room 1 (zone 1)	S1-1	ON	Room 1 (zone 3)	S1-1	ON
	Room 2 (zone 2)	S1-2	ON	Room 2 (zone 4)	S1-2	ON
	Room 3 (not used)	S1-3	OFF	Room 3 (not used)	S1-3	OFF
	Room 4 (not used)	S1-4	OFF	Room 4 (not used)	S1-4	OFF
	Room 5 (not used)	S1-5	OFF	Room 5 (not used)	S1-5	OFF
	Heat demand	S1-6	I	Heat demand	S1-6	I

<i>Example 3:</i>	<i>Master</i>			<i>Slave</i>		
4 zones, with master controller only required. No individual heat source (district heating)	Room 1 (zone 1)	S1-1	ON	Not present		
	Room 2 (zone 2)	S1-2	ON			
	Room 3 (zone 3)	S1-3	ON			
	Room 4 (zone 4)	S1-4	ON			
	Room 5 (not used)	S1-5	OFF			
	Heat demand	S1-6	D			

DIP switch 2

<i>RRV817 mode</i>	<i>Functionality</i>	<i>S2-1</i>	<i>S2-2</i>
Master	Full	ON	ON
Slave	RCS bus and control of up to 5 zones	OFF	OFF

Procedure

1. Check wiring in accordance with to the plant connection diagram.
2. Ensure correct positions of DIP switch S2 (1 and 2) to assign the RRV817 as a master or slave (always master in a plant with 1 RRV817; 1 master and 1 slave in a plant with 2 RRV817) (refer to DIP switch settings).
3. Ensure correct positions of DIP switch S1 (1-5) settings to match the allocation of zone valve outputs in accordance with requirements (refer to DIP switch settings).
4. Ensure correct position of DIP switch S1 (6) setting if switching of a local heat source (boiler) is required (master only) (refer DIP switch settings).
5. Ensure correct communication address of DIP switch settings of QAW810 zone 2...7 room units (refer to DIP switch settings).
6. When switching on power:
 - The "Run" LED on the RRV817 will flash at 2 Hz.
 - The QAX810/QAW810 room units will display all LCD symbols and the heating demand LED will be lit for 3 seconds before reverting to normal display.
 - The LED on the QAX810/QAW810 room units will be lit when the related zone valve is opened (heat demand).
7. Make zone-specific time switch and temperature settings at the QAX810 (refer to zone unit setting).

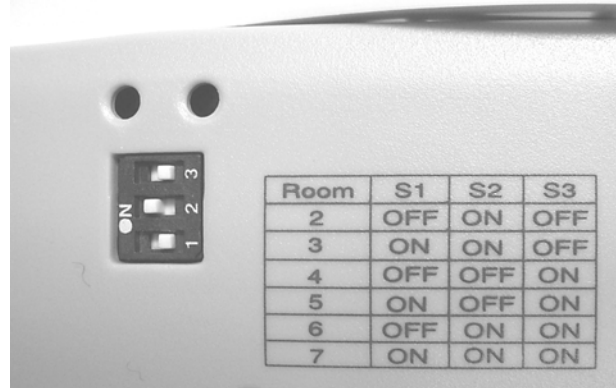
Sensor calibration

- Generally, there is no need to calibrate any sensors. However, should it be considered necessary, the room temperature displayed on the QAX810 and QAW810 can be calibrated if there is a deviation from the actual temperature when compared with a measurement made with a certified thermometer

- The calibration function can be accessed by pressing the \blacktriangle and \blacktriangledown buttons simultaneously for 2 seconds. The displayed value can then be readjusted, using the same buttons, in 0.5 K increments. The readjustment range is ± 2 K.

QAW810 DIP switches

The QAW810 features DIP switches for zone addressing. Up to 6 zones can be connected to an RRV817 controller.



DIP switches at the rear of the QAW810

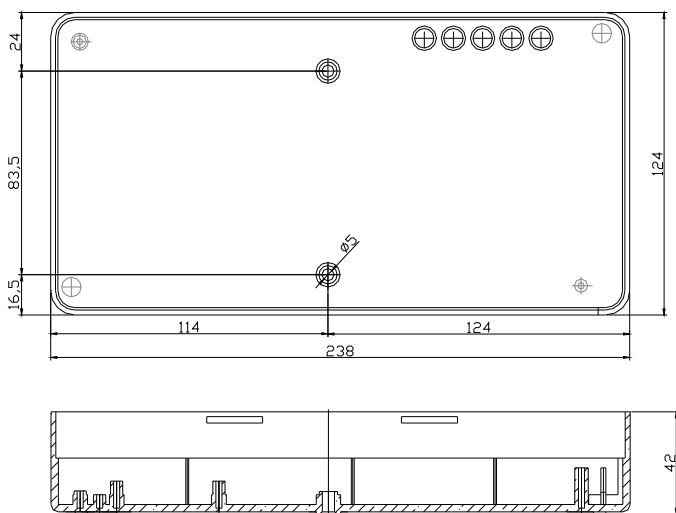
They allow setting the address in cases where several room units are connected to 1 RRV817 controller. The room units are delivered with default positions = zone 2.

DIP switches no. 1...3
Function: zone identity

Room	Pos. 1	Pos. 2	Pos. 3
2	OFF	ON	OFF
3	ON	ON	OFF
4	OFF	OFF	ON
5	ON	OFF	ON
6	OFF	ON	ON
7	ON	ON	ON

BOLD = default setting

Dimensions



Dimensions in mm