SIEMENS G2382E



en Installation Instructions

District heating controller for heating circuit and d.h.w.

RVD115 RVD135/109

Installation without base

Place of installation

- Compact station front or control panel front
- Permissible ambient temperature: 0...50 °C
- The controller may not be exposed to dripping water

Mounting

 Above and below the controller, there must be a clearance of at least 10 mm:



- That space should not be accessible and no objects may be placed there
- Panel cutout required: Dimensions of cutout: 92 × 138 mm Maximum thickness: 2...10 mm

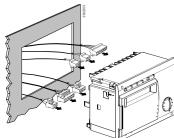
Electrical installation

- · Local regulations for electrical installations must be complied with
- Cable tension relief must be ensured
- The terminal strip at the top is used for low voltage connections, that at the bottom for the mains voltage connections
- The cables from the controller to the actuators and pumps carry mains voltage
- The cables to the sensors should not be run parallel to mains carrying cable (safety class II to EN 60730!)

Caution: Power to the controller may be supplied only after it is completely fitted in the cutout. If this is not observed, there is a risk of electric shock near the terminals and through the cooling slots.

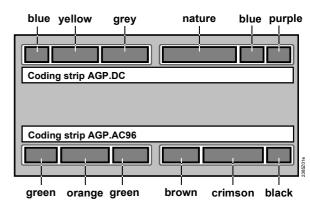
Mounting procedure

- 1. Turn off power supply
- Fit the coding strips
- 3. Pull the prefabricated cables through the cutout

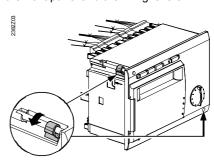


4. Plug the connectors into the respective sockets at the rear of the controller.

Note: The connectors are coded to make certain they cannot be mixed up.

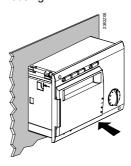


- 5. Check to ensure the fixing levers are turned inward
- Check to make certain there is sufficient space between the front panel and the fixing levers

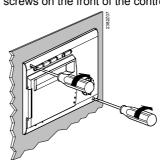


7. Slide the controller into the panel cutout without applying any force. Do not use any tools when inserting the unit into the cutout.

If the unit does not fit, check the size of the cutout and the housing.



8. Secure the fixing levers by tightening alternately the two screws on the front of the controller



Connection terminals

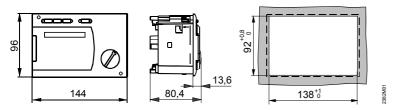
Low voltage connections

No.	Marking on controller	Marking on connector	Colour of connector	Type reference of connector	RVD 115	RVD 135	Unit connected or function
3	A6		blue	AGP2S.02G/109	•	•	Room unit (PPS)
4	MD	М			•	•	Ground for PPS (digital)
5	B9	1	nature/	AGP2S.06A/109	•	•	Outside sensor
6	B1	2	milky		•	•	Flow temperature sensor
7	М	М	(white)		•	•	Ground for sensors (analog)
8	В3	4			•	•	D.h.w. temperature sensor
9	B7	5			•	•	Return temperature sensor
10	B71	6			•	•	Universal sensor
15		1	yellow	AGP2S.04C/109		•	Not used
16	М	М				•	Ground (analog)
17		3				•	Not used
18	H5	4				•	Binary input

Mains voltage connections

No.	Marking on controller	Marking on connector	Colour of connector	Type reference of connector	RVD 115	RVD 135	Function
1	N	N	black	AGP3S.02D/109	•	•	Neutral AC 230 V
2	L	L			•	•	Live AC 230 V
3	F1	F	crimson	AGP3S.05D/109	•	•	Input for Y1 and Y2
4	Y1	2			•	•	Valve OPEN
5		F			•	•	Not used
6	Y2	4			•	•	Valve CLOSED
7		5			•	•	Not used
8	F3	F	brown	AGP3S.03B/109	•	•	Input for Q1 and Q3 / Y7
9	Q1	2			•	•	Pump ON
10	Q3 /Y7	3			•	•	Pump ON or valve OPEN
11	F4	F	green	AGP3S.03K/109		•	Input for Y5 und Y6
12	Y5	2				•	Valve OPEN
13	Y6	3				•	Valve CLOSED
14	F7	F	orange	AGP3S.04F/109		•	Input for Q7 / Y8
15		2				•	Not used
16		3				•	Not used
17	Q7 Y8	4			_	•	Valve OPEN or pump ON

Dimensions



Dimensions in mm

Dimensions in mm

Installation with base

Place of installation

- In a dry room, e.g. in the heat exchanger room
- Installation choices:
 - Compact station
 - Control cabinet (in the front, on the inner wall or on a DIN rail)
 - Control panel
 - Sloping front of a control desk
- Permissible ambient temperature 0...50 °C

Electrical installation

- The local regulations for electrical installations must be complied with
- · Cable tension relief must be ensured
- The cables from the controller to the actuators and pumps carry mains voltage
- The cables to the sensors should not be run parallel to mains carrying cable (safety class II to EN 60730)

Mounting and wiring the base

Wall mounting

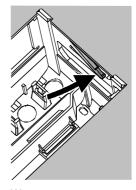
- 1. Separate base from the controller.
- Hold base against the wall. Marking "TOP" must be at the top!
- 3. Mark fixing holes on the wall.
- 4. Drill holes.
- If required, knock out holes on the base for cable entry glands.
- 6. Screw base to the wall.
- 7. Wire up base.

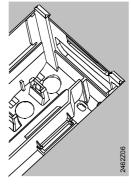
DIN rail mounting

- 1. Fit rail.
- 2. Separate base from the controller.
- 3. If required, knock out holes on the base for cable entry
- 4. Fit base to the rail. Marking "TOP" must be at the top!
- If required, secure base (depending on the type of rail used)
- 6. Wire up base.

Flush panel mounting

- Maximum thickness: 3 mm
- Panel cutout required: 92 × 138 mm
- 1. Separate base from the controller.
- If required, knock out holes on the base for cable entry glands.
- Insert base in the panel cutout from behind until stop is reached. Marking "TOP" must be at the top!
- Push lateral tongues behind the front panel (refer to illustration below).





Wrong

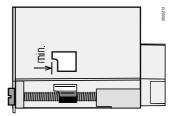
Correct

Place tongues on both sides correctly – they may not be located inside the cutout!

5. Wire up base. Make sure the cable lengths are such that there is sufficient space to open the control panel door.

Securing the controller to the base

 Ensure correct position and location of levers by turning the fixing screws (refer to illustration on the lateral wall of the unit).



- 2. Insert controller in the base until stop is reached. Marking "TOP" must be at the top!
- 3. Tighten fixing screw alternately.

Permissible cable lengths

• For all sensors and contacts:

Copper cable 0.6 mm dia. max. 20 m Copper cable 1.0 mm² max. 80 m Copper cable 1.5 mm² max. 120 m

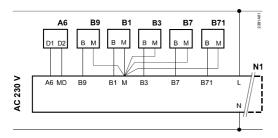
For room units:

Copper cable 0.6 mm dia. max. 37 m Copper cable ≥0.8 mm dia. max. 75 m

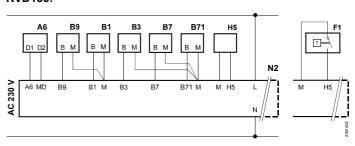
Connection diagrams

Low voltage side

RVD115:

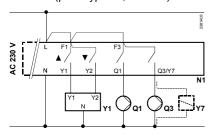


RVD135:



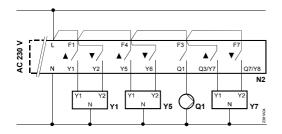
Mains voltage side

RVD115 (plant types 1, 2 and 3):



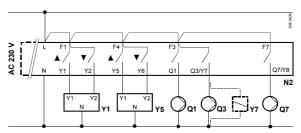
RVD135 (plant type 5):

Three actuators and one pump



RVD135 (plant types 1, 2, 3, 4, 6, 7 and 8):

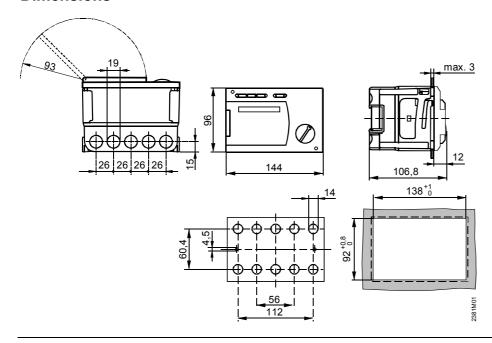
Two actuators and three pumps or two pumps and one changeover valve



- A6 Room unit
- B1 Flow temperature sensor
- B3 B7 D.h.w. temperature sensor
- Primary return temperature sensor Universal sensor according to plant type B71
- В9 Outside sensor
- D.h.w. thermostat F1
- Flow switch

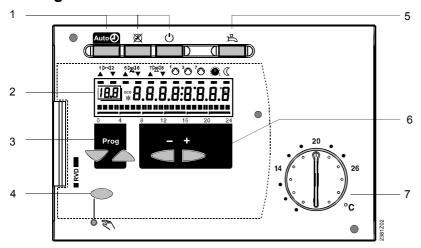
- Controller RVD115 N1
- N2 Controller RVD135
- Heating circuit pump D.h.w. charging pump Circulating pump Q1 Q3
- Q7 Y1 Y5 Y7
- Actuator of two-port valve in the primary return
- Actuator of mixing valve or of two-port valve according to plant type Actuator of changeover valve or of mixing valve according to plant type

Dimensions



Dimensions in mm

Setting elements



- Operating mode buttons
- 2 Display
- 3 Buttons for selecting operating lines
- 4 Button for manual operation ON / OFF
- 5 Button for d.h.w. heating ON / OFF
- 6 Buttons for making readjustments of values
- 7 Setting knob for nominal room temperature setpoint

Commissioning

Preparatory checks

- 1. DO NOT switch on power yet.
- 2. Check wiring according to the plant connection diagram.
- 3. Check each motorized valve: see if
 - it is correctly installed (observe direction of flow indicated on the valve body)
 - the manual lever is disengaged
- 4. Note with underfloor and ceiling heating systems! The limit thermostat must be set to the correct value. During the functional test, the flow temperature may not exceed the maximum permissible level (usually 55 °C). If it does, proceed immediately as follows:
 - Either close the valve manually, or
 - Switch off the pump, or
 - Close the pump isolating valve
- Switch on power. The display must show the time of day. If not, the reason may be one of the following:
 - No mains voltage
 - Main fuse defective
 - Mains isolator or main switch not set to ON
- If one of the operating mode buttons flashes, a room unit overrides the controller. Select operating mode on the room unit.

General information about operation

- Setting elements for commissioning:
 - Nominal room temperature setpoint: with the setting knob
 - Other variables: on the display, where one operating line is assigned to each setting
- Buttons for selecting and readjusting the values:
 - To select the next operating line below
 - To select the next operating line above
 - To decrease the displayed value
 - To increase the displayed value
- Adopting a setting value:

The setting value is adopted by selecting the next operating line (or by pressing one of the operating mode buttons)

- Block jump function:

To select a single operating line quickly, two button combinations can be used:

Keep

depressed and press

to select the next line block below.

Setting procedure

Enter the adjusted values in the table!

- Make settings on the "End-user" level (operating lines 1...50).
- 2. Configure plant type on operating lines 51...55.
- Make the relevant settings in the parameter list below.
 All functions and operating lines configured for the type
 of plant are activated and adjustable. All operating lines
 that are not required are locked.
- Make settings on the "Heating engineer's" level (operating lines 56...150).
- 5. Make settings on the "Locking functions" level (operating lines 151...191).

Commissioning and functional check

- Specific operating lines for the functional check:
 - 141 = sensor test
 - 142 = relay test
 - 149 = reset of service settings
- If Er (ERROR) appears on the display: prompt operating line 50 to pinpoint the error
- If no line selection button has been pressed for eight minutes, or if one of the operating mode buttons is pressed (controller in the non-operated status), setting buttons
 and
 can be used to prompt all actual values and the time of day. The actual values are presented like those on operating line 141.

Parameter list

1 :	Constian display	Defeult	Donas	Catting	Evalenctions, notes and time
	Function, display	Default	Range	Setting	Explanations, notes and tips

Settings on the "End-user" level

Press \bigcirc or \triangle to activate the "End-user" level

	o or activate the Lind-user i	····			
1	Current nominal room temperature setpoint	ı	Display functio	n	Including room unit
2	Reduced room temperature setpoint	14 °C	Variable*	°C	* From nominal setpoint to frost protection set- point
3	Frost protection / holiday mode set- point	8 °C	8 °C variable*	°C	* From 8 to reduced setpoint. Holiday setting only with room unit QAA70
5	Heating curve slope	15	2.540		Effective slope is ten times smaller
6	Weekday, for entering the heating program	Current weekday	17, 1-7		1 = Monday, 2 = Tuesday, etc. 1-7 = entire week
7	Heating period 1 start	6:00	00:0024:00	:	Switch. program for heating circuit: = period inactive
8	Heating period 1 end	22:00	00:0024:00	:	Switch. program for heating circuit: = period inactive
9	Heating period 2 start	:	00:0024:00	:	Switch. program for heating circuit: = period inactive
10	Heating period 2 end	:	00:0024:00	:	Switch. program for heating circuit: = period inactive
11	Heating period 3 start	:	00:0024:00	:	Switch. program for heating circuit: = period inactive
12	Heating period 3 end	:	00:0024:00	:	Switch. program for heating circuit: = period inactive
13	Time of day	Undefined	00:0023:59		
14	Weekday	;	17		1 = Monday, 2 = Tuesday, etc.
15	Date	01.01	01.0131.12.		Day.Month
16	Year	2004	19952094		
17	Weekday, for entering the d.h.w. program	Current weekday	17, 1-7		1 = Monday, 2 = Tuesday, etc. 1-7 = entire week
18	Release period 1 start	6:00	00:0024:00	:	Switching program for d.h.w: = period inactive
19	Release period 1 end	22:00	00:0024:00	:	Switching program for d.h.w: = period inactive
20	Release period 2 start	:	00:0024:00	:	Switching program for d.h.w: = period inactive
21	Release period 2 end	:	00:0024:00	:	Switching program for d.h.w: = period inactive
22	Release period 3 start	:	00:0024:00	:	Switching program for d.h.w: = period inactive
23	Release period 3 end	:	00:0024:00	:	Switching program for d.h.w: = period inactive
24	Room temperature (terminal A6)	I	Display functio	n	
25	Outside temperature	ı	Display functio	n	Press and for 3 s: actual outside temperature will be adopted as the attenuated outside temperature
26	D.h.w. temperature	ı	Display functio	n	
27	Flow temperature heating circuit	ı	Display functio	n	Keep or depressed: current setpoint is displayed
41	Setpoint d.h.w. temperature NORMAL	55 °C	variabel	°C	
42	Setpoint d.h.w. temperature REDUCED	40 °C	8setpoint NORMAL	°C	
49	Reset of operating lines 212, 1723 and 41, 42				Press and until display changes: 0 (flashing) = normal status 1 = reset to factory settings completed
50	Display of faults	1	Display functio	n	 10 = fault outside sensor 30 = fault flow temperature sensor 40 = fault return temperature sensor (primary side) 42 = fault return temperature sensor (secondary side) 50 = fault d.h.w. temperature sensor 61 = fault room unit 62 = connected unit shows wrong identification 86 = short-circuit on room unit bus (PPS)

Settings on the "Heating engineer's" level

Press $\overline{\hspace{1cm}}$ and \bigtriangleup simultaneously for 3 seconds, thus activating the "Heating engineer's" level for configuring the plant type and for setting the plant-related variables. The "End-user" level remains activated.

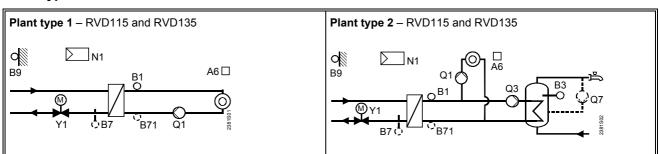
Configuration of plant

The required plant type must be configured on operating lines 51...55. This activates all functions and operating lines required for the particular type of plant, which can then be set.

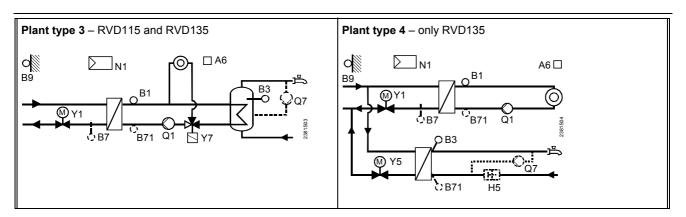
Ignore the other types of plant!

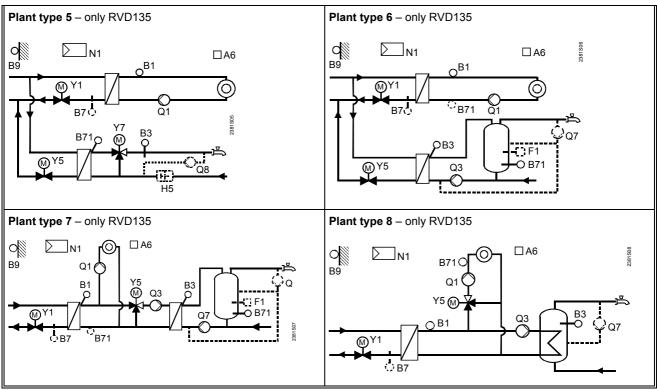
Line	Function, display	Default	Range	Setting	Exp	olanations, r	notes and tips		
51	Plant type	1	13			RVD115: range 13			
			or 18			RVD135: range 18 For diagram, refer to the following section			
52	Space heating present	1	0 / 1		1		ating present		
						space heatir			
53	Universal sensor connected to B71	1	0 / 1				eturn temperature sensor erature sensor		
54	Flow switch present / circulating pump present (heat losses	0	03			Flow switch present			
	are compensated)				0	no	insignificant (heat losses fully compensated [100 %])		
					1	yes	no		
					2	2 yes yes, heat losses partly corpensated (80 %)			
					3	yes	yes, heat losses fully compensated (100 %)		
55	Return flow of circulating pump	0	02		0 =	d.h.w. storaç	ge tank / no circulating pump		
						heat exchan sated (80 %)	ger, heat losses partly compen-		
						2 = heat exchanger, heat losses fully compensated (100 %)			
56	Periodic pump run (pump kick)	1	0 / 1		0 =	no periodic p	oump run		
					1 =	weekly pump	o run enabled		
57	Winter- / summertime changeover	25.03	01.0131.12		Set	ting: earliest	possible changeover date		
58	Summer- / wintertime changeover	25.10	01.01 31.12		Set	ting: earliest	possible changeover date		

Plant types



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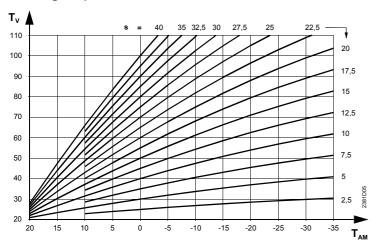




- Flow temperature sensor (controlled variable)
 D.h.w. temperature sensor
- B1 B3
- Primary return temperature sensor
- Universal sensor according to plant type
 Outside sensor B71
- B9
- Flow switch

- Controller Heating circuit pump Charging pump Circulating pump controlled by controller (only RVD135)
- Externally controlled circulating pump Two-port valve in the primary return
- N1 Q1 Q3 Q7 Q Y1 Y5 Y7
- Actuator of mixing valve or of two-port valve according to plant type Actuator of changeover valve or of mixing valve according to plant type

Heating slope chart



 $\begin{array}{c} \text{S} \\ \text{T}_{\text{AM}} \\ \text{T}_{\text{V}} \end{array}$

Slope Composite outside temperature Flow temperature

Line Function, display Default Range Setting Explanations, notes and tips	Line Function, display	Default	Range	Setting	Explanations, notes and tips
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Block "Space heating"

61	Heating limit (ECO)	–3 K	,		= function deactivated
			–10+10 K	K	
62	Building structure	1	0 / 1		0 = heavy
					1 = light
63	Quick setback without room tempera-	1	015		0 = no quick setback
	ture sensor				1 = min. setback time
					15 = max. setback time

Line	Function, display	Default	Range	Setting	Explanations, notes and tips
66	Adaptation of heating curve	0	0 / 1		0 = no adaptation
	·				1 = adaptation
69	Heat gains	0 K	–2+4 K	K	Setting in K room temperature
70	Room temperature influence	10	020		Function can be provided only with room tem-
	(gain factor)				perature sensor
71	Parallel displacement of heating curve	0.0 K	-4.5+4.5 K	K	Setting in K room temperature
72	Overrun time heating circuit pump	4 min	040 min	min	0 = no pump overrun
73	Frost protection for the plant	1	0 / 1		0 = no frost protection for the plant
					1 = frost protection for the plant
74	Max. limitation of room temperature		, 0.54 K		Limit value: nominal setpoint plus setting on this
				K	line = function deactivated

Block "Actuator heat exchanger"

81	Actuator Y1 running time common flow	120 s	10873 s	S	
82	P-band common flow control	35 K	1100 K	K	
83	Integral action time common flow control	120 s	10873 s	S	
85	Max. limitation of common flow temperature		Variable* 140 °C	°C	* Min. value = operating line 86 = no limitation
86	Min. limitation of common flow temperature		8 °C variable*	°C	* Max. value = operating line 85 = no limitation

Block "Actuator heating circuit"

91	Actuator running time heating circuit	120 s	10873 s	S	
92	P-band heating circuit control	35 K	1100 K	K	
93	Integral action time heating circuit control	120 s	10873 s	S	
	Setpoint boost for control of the common flow	10 K	050 K	K	
	Max. limitation of flow temperature heating circuit		Variable* 140 °C		* Min. value = operating line 96 = no limitation
	Min. limitation of flow temperature heating circuit		8 °C variable*		* Max. value = operating line 95 = no limitation

Block "D.h.w. heating"

101	Release of d.h.w. heating	0	03		0 = permanently (24 h / day) 1 = acc. to the d.h.w. program 2 = acc. to the heating program 3 = acc. to the heating program with forward shift (operating line 109)
102	Release of circulating pump	1	02		0 = permanently (24 h / day) 1 = acc. to the d.h.w. program 2 = acc. to the heating program
103	D.h.w. switching differential	5 K	120 K	K	
104	Legionella function	6	, 17, 1-7		1 = Monday 2 = Tuesday, etc. 1-7 = entire week = no legionella function
105	Setpoint legionella function	65 °C	6095 °C	°C	

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106	D.h.w. priority	4	04			D.h.w. priority	Flow temp. setpoint acc. to:
					0 =	absolute priority	d.h.w.
					1 =	shifting priority	d.h.w.
					2 =	shifting priority	max. selection
					3 =	none (parallel)	d.h.w.
					4 =	none (parallel)	max. selection
107	Overrun time charging pump Q3	4 min	040 min	min	Plant	t type no. 3: change	eover valve
108	Overrun time charging pump (Q7 in	4 min	040 min				
	the secondary d.h.w. circuit, after Q3)			min			
109	Max. time d.h.w. heating	150 min	, 5250 min	min	=	function deactivated	d

Line	Function, display	Default	Range	Setting	Explanations, notes and tips		
Block	Block "D.h.w. actuator 1"						
111	Actuator Y5 opening time d.h.w. circuit	35 s	10873 s	S			
112	Actuator Y5 closing time d.h.w. circuit	35 s	10873 s	S			
113	P-band d.h.w. control (Y5)	35 K	1100 K	K			
114	Integral action time d.h.w. control (Y5)	35 s	10873 s	S			
115	Derivative action time d.h.w. control	16 s	0255 s	S			
116	Setpoint boost with d.h.w. heating	16 K	050 K	K			
117	Max. d.h.w. temperature setpoint	65 °C	2095 °C	°C			
Block	Block "D.h.w. actuator 2"						
121	Actuator running time, mixing valve Y7 in the secondary d.h.w. circuit	35 s	10873 s	S			
122	P-band d.h.w. control	35 K	1100 K	K			
123	Integral action time d.h.w. control	35 s	10873 s	S			
Block	Block "D.h.w. load limit"						
124	Load limit when flow switch is activated	25 %	060 %	%	Setting in % of the current max. stroke		

Block "Addtional legionella functions"

126	Time for charging	:	:, 00:0023:50	:	
127	Dwelling time at legionella setpoint		, 10360 min	min	
	Circulating pump operation during legionella function	1	0 / 1		0 = no 1 = yes

Block "Test and display"

141 Sensor test 0 = outside sensor (B9) 1 = flow temperature sensor (B1) 2 = d.h.w. temperature sensor (B3) 3 = room unit sensor (A6) 4 = primary return temp. sensor (B7) 5 = universal sensor (B71)	0	05	= open circuit or no sensor ooo = short-circuit
Relay test 0 = normal operation (no test) 1 = all relays de-energized 2 = relay at terminal Y1 energized 3 = relay at terminal Y2 energized 4 = relay at terminal Q1 energized 5 = relay at terminal Q3/Y7 energized 6 = relay at terminal Y5 energized 7 = relay at terminal Y6 energized 8 = relay at terminal Q7/Y8 energized	0	08	To terminate the relay test: - Select another operating line - Press an operating mode button - Automatically after 8 minutes Note: with plant type 5, perform relay test only when main valve is closed! Recommendation: always close main valve when making the relay test

143	Display of active limitations	Display function	Max. limitation 1 = primary return temperature 2 = common flow temperature 3 = secondary flow temperature heating circuit 4 = temperature differential 5 = room temperature Min. limitation 1 : 11 = reduced room temperature setpoint 12 = common flow temperature 13 = secondary flow temperature heating circuit
145	Address and identification of device at terminal A6	Display function	1 82 = room unit QAW50 or QAA50 1 83 = room unit QAW70 or QAA70 1 90 = room unit QAW50
146	Status at terminal H5	Display function	H5 0 = H5-contact open H5 1 = H5-contact closed
149	Reset of operating lines 56128		Press
150	Software version	Display function	

Line	Function, display	Default	Range	Setting	Explanations, notes and tips

Settings on the "Locking functions" level

To access the "Locking functions" level, proceed as follows:

- 2. The display shows Cod 00000
- 3. Enter the code (for information about code, contact your Siemens Building Technologies service centre)

 The "End-user" and "Heating engineer's" levels remain activated.

Block "Locking functions"

	Max. limitation of primary return temperature, constant value		, 0140 °C	°C	= no limitation T _R Constant value
152	Max. limitation of primary return temperature, slope	7	040		Slope
	Max. limitation of primary return tem- perature slope, start of shifting limita- tion	10 °C	–50+50 °C	°C	Start of shifting limitation
154	Max. setpoint of return temperature with d.h.w. heating				Only with plant types 2, 3, 7 and 8 = function deactivated
	Integral action time primary return temperature limitations	15 min	060 min	min	
	Max. limitation of temperature differential (between primary return and secondary return temperature)		, 0.550 °C	°C	Only with plant types 1, 2, 3, 4, 6 and 7 = function deactivated
	Max. setpoint of the return tempera- ture during d.h.w. heating on le- gionella setpoint		/ 0140 °C	°C	
	Raising the reduced room tempera- ture setpoint	0	010		Effect of outside temperature on the reduced setpoint of the room temperature 0 = function deactivated
162	Daily forced d.h.w. heating at the start of release period 1	1	0 / 1		Only with plant types 2, 3, 6, 7 and 8 0 = function deactivated 1 = function activated
163	Idle heat function primary flow		, 3255 min	min	Only with plant types 4 and 5 = function deactivated If B7 is available, place sensor as indicated: B1 B7 B7 B7 B7
191	Locking on the hardware side	0	0/1		0 = no locking 1 = code can be entered only when terminals B71–M on the base are bridged

After the settings have been entered in the tables, keep the Installation Instructions in a safe place!