

Installation

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)

Permissible cable lengths

- For all sensors and contacts:

Copper cable 0.6 mm dia.	max. 20 m
Copper cable 1.0 mm ²	max. 80 m
Copper cable 1.5 mm ²	max. 120 m
- For room units:

Copper cable 0.6 mm dia.	max. 37 m
Copper cable ≥0.8 mm dia.	max. 75 m
- For data buses:

LPB	according to Siemens specifications:
M-bus	Basic Documentation P2370E Engineering Manual J5361E

Mounting and wiring the base

Wall mounting

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

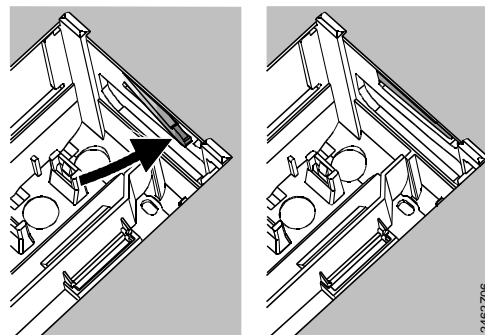
DIN rail mounting

1. Fit rail.
2. Separate base from the controller.
3. If required, knock out holes on the base for cable entry glands.
4. Fit base to the rail. Marking "TOP" must be at the top!
5. 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 x 138 mm
1. Separate base from the controller.
 2. If required, knock out holes on the base for cable entry glands.
 3. Insert base in the panel cutout from behind until stop is reached. Marking "TOP" must be at the top!

4. Push lateral tongues behind the front panel (refer to illustration below).



Wrong

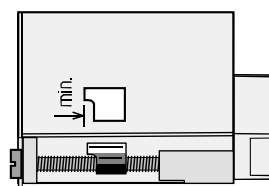
Correct

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


1. 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.

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
5. Switch on power. The display must show something (e.g. 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
6. 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)
- Entering --. / --:-- / --- (deactivating a function):

Keep ◀ or ▶ depressed until the required display appears
- 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 above.

Keep ▽ depressed and press ◀ to select the next line block below.

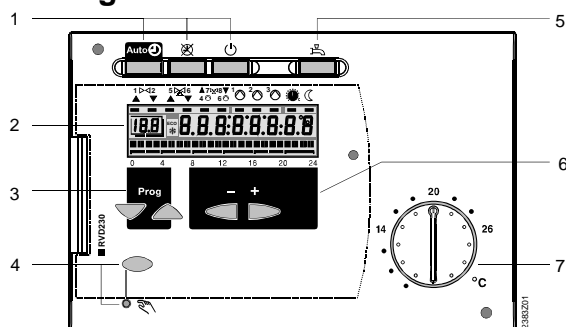
Setting procedure

- ☞ Enter the adjusted values in the table!
1. Make settings on the "End-user" level (operating lines 1...50).
 2. Configure plant type on operating lines 51...60.
 3. 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.
 4. Make settings on the "Heating engineer's" level (operating lines 61...170).
 5. Make settings on the "Locking functions" level (operating lines 171...196).

Commissioning and functional check

- Specific operating lines for the functional check:
 - 161 = sensor test
 - 162 = display of setpoint
 - 163 = relay test
 - 165 = digital input test
- 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 161

Setting elements

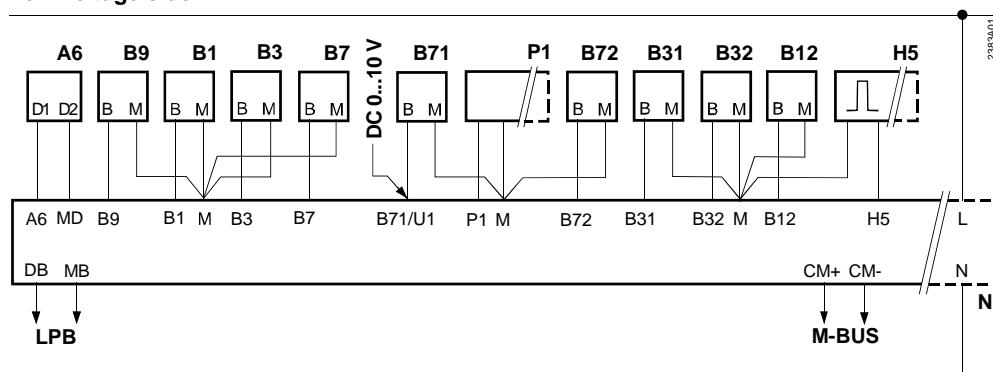


- 1 Operating mode buttons
- 2 Display
- 3 "Prog" buttons for selecting the operating lines
- 4 Button for manual operation ON / OFF
- 5 Button for d.h.w. heating ON / OFF
- 6 Buttons - and + for making readjustments
- 7 Setting knob for nominal room temperature setpoint

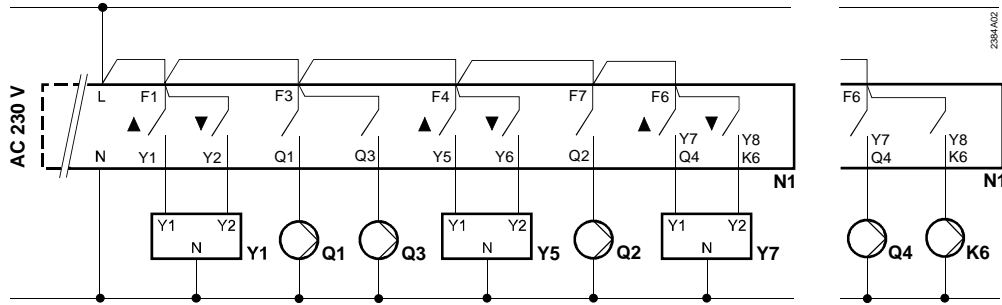
Connection diagrams

- | | |
|--|---|
| A6 Room unit | K6 Circulating pump* |
| B1 Flow sensor heating circuit or common flow* | N1 Controller RVD230 |
| B12 Flow sensor d.h.w. 2 or flow sensor heating circuit* | P1 Variable speed pump (PWM output) |
| B3 Flow sensor d.h.w.* | Q1 Heating circuit / system pump |
| B31 Storage tank sensor | Q2 Heating circuit or storage tank charging pump* |
| B32 Storage tank or return sensor* | Q3 D.h.w. intermediate circuit pump or diverting valve* |
| B7 Primary return sensor** | Q4 D.h.w. intermediate circuit or storage tank charging pump* |
| B71 Primary or secondary return sensor* | Y1 Actuator for two-port valve in the primary return |
| B72 Primary or secondary return sensor** | Y5 Actuator 2* |
| B9 Outside sensor | Y7 Actuator 3* |
| H5 Heat meter, flow switch, alarm contact, etc. | |
- * Depending on the type of plant
** Suppression of hydraulic creep

Low voltage side



Mains voltage side



Settings

Line	Function, display	Factory setting	Range	Setting	Explanations, notes and tips (-x and x- mean "randomly")
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Settings on the "End-user" level



Press or to activate the "End-user" level.

1	Current room temperature setpoint	Display function			Including room unit
2	Reduced room temperature setpoint	14 °C	Variable*	..... °C	* From frost protection setpoint to nominal setpoint
3	Frost protection / holiday mode setpoint	8 °C	8...reduced setpoint	..... °C	
5	Heating curve slope	15	2.5...40	.....	For diagram, refer to the next page. Effective slope is ten times smaller
6	Weekday, for entering the heating program	Current weekday	1...7, 1-7		1 = Monday, 2 = Tuesday, etc. 1-7 = entire week
7	Start of heating period 1	6:00	00:00...24:00	.... : ....	Switching program for heating circuit --:-- = period inactive
8	End of heating period 1	22:00	00:00...24:00	.... : ....	Switching program for heating circuit --:-- = period inactive
9	Start of heating period 2	--:--	00:00...24:00	.... : ....	Switching program for heating circuit --:-- = period inactive
10	End of heating period 2	--:--	00:00...24:00	.... : ....	Switching program for heating circuit --:-- = period inactive
11	Start of heating period 3	--:--	00:00...24:00	.... : ....	Switching program for heating circuit --:-- = period inactive
12	End of heating period 3	--:--	00:00...24:00	.... : ....	Switching program for heating circuit --:-- = period inactive
13	Time of day	Undefined	00:00...23:59		
14	Weekday	1	1...7		1 = Monday, 2 = Tuesday, etc.
15	Date	01.01	01.01...31.12.		Day.Month
16	Year	2004	1995...2094		
17	Weekday, for entering the d.h.w. program	Current weekday	1...7, 1-7		1 = Monday, 2 = Tuesday, etc. 1-7 = entire week
18	Start of release period 1	6:00	00:00...24:00	.... : ....	Switching program for d.h.w. --:-- = period inactive
19	End of release period 1	22:00	00:00...24:00	.... : ....	Switching program for d.h.w. --:-- = period inactive
20	Start of release period 2	--:--	00:00...24:00	.... : ....	Switching program for d.h.w. --:-- = period inactive
21	End of release period 2	--:--	00:00...24:00	.... : ....	Switching program for d.h.w. --:-- = period inactive
22	Start of release period 3	--:--	00:00...24:00	.... : ....	Switching program for d.h.w. --:-- = period inactive
23	End of release period 3	--:--	00:00...24:00	.... : ....	Switching program for d.h.w. --:-- = period inactive
24	Room temperature (terminal A6)	Display function			
25	Outside temperature	Display function			Press and for 3 s: actual outside temperature will be adopted as the attenuated outside temperature
26	D.h.w. temperature	Display function			Keep or depressed: current setpoint will be displayed

Line	Function, display	Factory setting	Range	Setting	Explanations, notes and tips (-x and x- mean "randomly")
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27	Flow temperature, heating circuit	Display function			
31	Holiday period	1	1...8	
32	Date of the first day of the holiday period	--:--	01.01...31.12.	..... .....	Day.Month
33	Date of the last day of the holiday period	--:--	01.01...31.12.	..... .....	Day.Month
41	Setpoint d.h.w. temperature NORMAL	55 °C	variabel	..... °C	
42	Setpoint d.h.w. temperature REDUCED	40 °C	8...setpoint NORMAL	..... °C	
50	Display of faults	Display function 10 = fault outside sensor B9 30 = fault flow sensor B1 32 = fault flow sensor B12 40 = fault primary return sensor B7 42 = fault return sensor B71 43 = fault return sensor B72 50 = fault storage tank sensor B31 52 = fault storage tank sensor B32 54 = fault d.h.w. flow sensor B3 61 = fault room unit 62 = device with wrong PPS identification connected 81 = short-circuit on the data bus (LPB) 82 = two devices with the same bus address (LPB) 86 = short-circuit PPS 100 = two clock time masters 120 = flow alarm, common flow or pre-controlled flow 121 = flow alarm, heating circuit flow 123 = flow alarm, d.h.w. flow 140 = inadmissible bus address (LPB) 171 = alarm message from input H5 180 = contact to heat meter at input H5 interrupted 181 = configuration error between operating lines 52 and 57 182 = configuration error between operating lines 52, 176 and 177 or 52 and 179 183 = configuration error between operating lines 177 and 171 or 176			

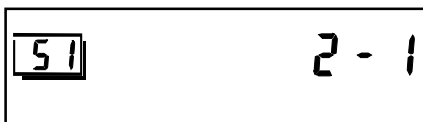
Settings on the "Heating engineer's" level

Press  and  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.

Enter the type of plant

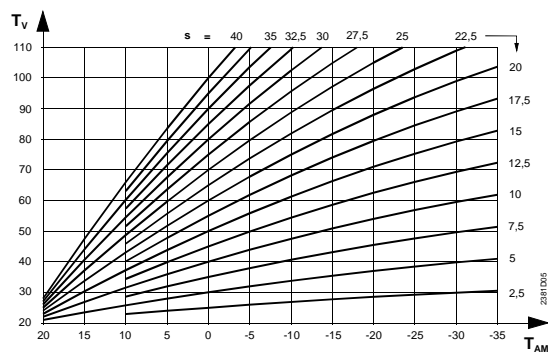
The required plant type is to be entered on operating line 51. This activates all functions required for the particular type of plant and shows the relevant operating lines. Each type of plant consists of a heating circuit and a d.h.w. circuit. There is a total of 28 plant types available. They are shown in the following plant diagrams.

Example (display of plant type 2-1):



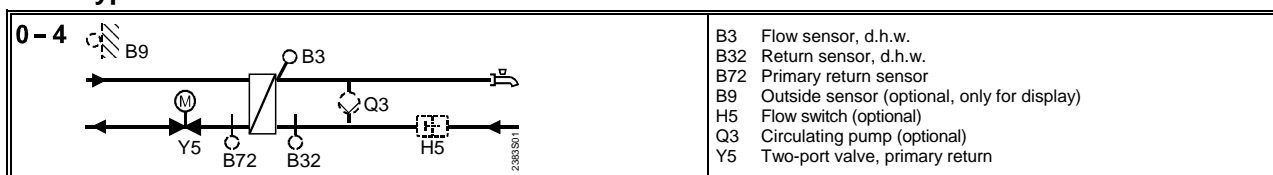
- 51 Operating line
- 2 Type of heating circuit
- 1 Type of d.h.w. heating

Heating slope chart



- s Slope
- T_{AM} Composite outside temperature
- T_V Flow temperature

Plant types

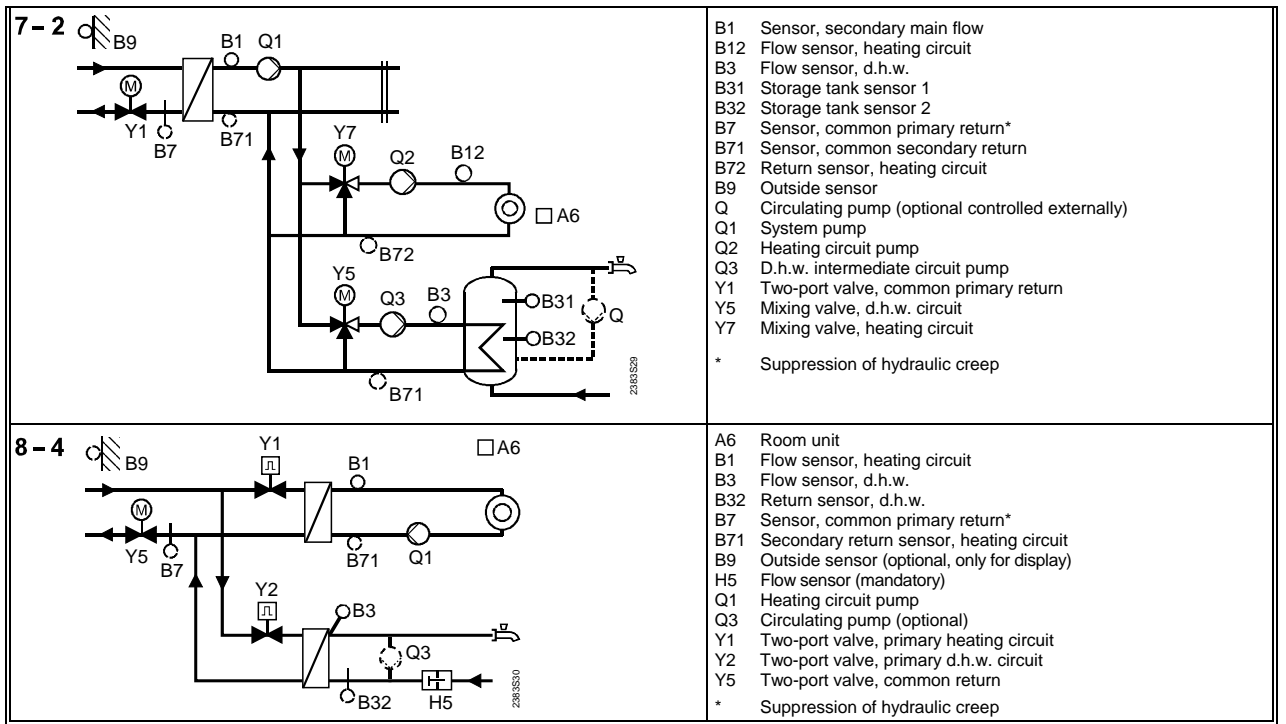


<p>0-8</p> <p>a) Circulating pump feeding water into the heat exchanger's return b) Circulating pump feeding water into the storage tank</p>	<p>B3 Flow sensor, d.h.w. B31 Storage tank sensor 1 B32 Storage tank sensor 2 B72 Primary return sensor B9 Outside sensor (optional, only for display) K6 Circulating pump (optional) Q3 Storage tank charging pump Y5 Two-port valve, primary return</p>
<p>0-9</p>	<p>B3 Flow sensor, d.h.w. B31 Storage tank sensor 1 B32 Storage tank sensor 2 B72 Primary return sensor B9 Outside sensor (optional, only for display) K6 Circulating pump (optional) Q3 D.h.w. intermediate circuit pump Y5 Two-port valve, d.h.w. primary return</p>
<p>0-10</p> <p>a) Circulating pump feeding water into the heat exchanger's return b) Circulating pump feeding water into the storage tank</p>	<p>B12 Flow sensor, d.h.w. 2 B3 Flow sensor, d.h.w. 1 B31 Storage tank sensor 1 B32 Storage tank sensor 2 B72 Primary return sensor B9 Outside sensor (optional, only for display) K6 Circulating pump (optional) Q3 D.h.w. intermediate circuit pump Q4 Storage tank charging pump Y5 Two-port valve, d.h.w. primary return</p>
<p>1-0</p>	<p>A6 Room unit B1 Flow sensor, heating circuit B7 Primary return sensor* B71 Secondary return sensor B9 Outside sensor Q1 Heating circuit pump Y1 Two-port valve, primary return</p> <p>* Suppression of hydraulic creep</p>
<p>1-3</p>	<p>A6 Room unit B1 Flow sensor, heating circuit B31 Storage tank sensor 1 B32 Storage tank sensor 2 B7 Primary return sensor, heating circuit* B71 Secondary return sensor, heating circuit B72 Primary return sensor, d.h.w. B9 Outside sensor K6 Circulating pump (optional) Q1 Heating circuit pump Y1 Two-port valve, heating circuit primary return Y5 Two-port valve, d.h.w. primary return</p> <p>* Suppression of hydraulic creep</p>
<p>1-4</p>	<p>A6 Room unit B1 Flow sensor, heating circuit B3 Flow sensor, d.h.w. B32 Return sensor, d.h.w. circuit B7 Primary return sensor, heating circuit* B71 Secondary return sensor, heating circuit B72 Primary return sensor, d.h.w. circuit B9 Outside sensor H5 Flow switch (optional) Q1 Heating circuit pump Q3 Circulating pump (optional) Y1 Two-port valve, heating circuit primary return Y5 Two-port valve, d.h.w. primary return</p> <p>* Suppression of hydraulic creep</p>
<p>1-8</p> <p>a) Circulating pump feeding water into the heat exchanger's return b) Circulating pump feeding water into the storage tank</p>	<p>A6 Room unit B1 Flow sensor, heating circuit B3 Flow sensor, d.h.w. B31 Storage tank sensor 1 B32 Storage tank sensor 2 B7 Primary return sensor, heating circuit* B71 Secondary return sensor, heating circuit B72 Primary return sensor, d.h.w. circuit B9 Outside sensor Q1 Heating circuit pump Q3 Circulating pump (optional) Q4 Storage tank charging pump Y1 Two-port valve, heating circuit primary return Y5 Two-port valve, d.h.w. primary return</p> <p>* Suppression of hydraulic creep</p>

<p>1-9</p> <p>2383S10</p>	<p>A6 Room unit B1 Flow sensor, heating circuit B3 Flow sensor, d.h.w. B31 Storage tank sensor 1 B32 Storage tank sensor 2 B7 Primary return sensor, heating circuit* B71 Secondary return sensor, heating circuit B72 Primary return sensor, d.h.w. circuit B9 Outside sensor K6 Circulating pump (optional) Q1 Heating circuit pump Q3 D.h.w. intermediate circuit pump Y1 Two-port valve, heating circuit primary return Y5 Two-port valve, d.h.w. primary return * Suppression of hydraulic creep</p>
<p>1-10</p> <p>2383S11</p> <p>a) Circulating pump feeding water into the heat exchanger's return b) Circulating pump feeding water into the storage tank</p>	<p>A6 Room unit B1 Flow sensor, heating circuit B12 Flow sensor, d.h.w. 2 B3 Flow sensor, d.h.w. 1 B31 Storage tank sensor 1 B32 Storage tank sensor 2 B7 Primary return sensor, heating circuit* B71 Secondary return sensor, heating circuit B72 Primary return sensor, d.h.w. circuit B9 Outside sensor K6 Circulating pump (optional) Q1 Heating circuit pump Q3 D.h.w. intermediate circuit pump Q4 Storage tank charging pump Y1 Two-port valve, heating circuit primary return Y5 Two-port valve, d.h.w. primary return * Suppression of hydraulic creep</p>
<p>2-1</p> <p>2383S12</p>	<p>A6 Room unit B1 Sensor, common flow B31 Storage tank sensor 1 B32 Storage tank sensor 2 B7 Sensor, common primary return* B71 Sensor, common secondary return B72 Return sensor, d.h.w. circuit B9 Outside sensor Q1 Heating circuit pump Q3 D.h.w. intermediate circuit pump Y1 Two-port valve, common return * Suppression of hydraulic creep</p>
<p>2-2</p> <p>2383S13</p>	<p>A6 Room unit B1 Sensor, common flow B3 Flow sensor, d.h.w. B31 Storage tank sensor 1 B32 Storage tank sensor 2 B7 Sensor, common primary return* B71 Sensor, common secondary return B72 Return sensor, d.h.w. circuit B9 Outside sensor K6 Circulating pump (optional) Q1 Heating circuit pump Q3 D.h.w. intermediate circuit pump Y1 Two-port valve, common return Y5 Mixing valve, d.h.w. circuit * Suppression of hydraulic creep</p>
<p>2-6</p> <p>2383S14</p>	<p>A6 Room unit B1 Sensor, common flow B3 Flow sensor, d.h.w. B31 Storage tank sensor 1 B32 Storage tank sensor 2 B7 Sensor, common primary return* B71 Sensor, common secondary return B9 Outside sensor K6 Circulating pump (optional) Q1 Heating circuit pump Q3 D.h.w. intermediate circuit pump Q4 Storage tank charging pump Y1 Two-port valve, common return * Suppression of hydraulic creep</p>
<p>2-7</p> <p>2383S15</p> <p>a) Circulating pump feeding water into the heat exchanger's return b) Circulating pump feeding water into the storage tank</p>	<p>A6 Room unit B1 Sensor, common flow B12 Flow sensor, d.h.w. 2 B3 Flow sensor, d.h.w. 1 B31 Storage tank sensor 1 B32 Storage tank sensor 2 B7 Sensor, common primary return* B71 Sensor, common secondary return B72 Return sensor, d.h.w. circuit B9 Outside sensor K6 Circulating pump (optional) Q1 Heating circuit pump Q3 D.h.w. intermediate circuit pump Q4 Storage tank charging pump Y7 Two-port valve, common return Y5 Mixing valve, d.h.w. circuit * Suppression of hydraulic creep</p>

<p>2-11</p>	<p>A6 Room unit B1 Sensor, common flow B31 Storage tank sensor 1 B32 Storage tank sensor 2 B7 Sensor, common primary return* B71 Sensor, common secondary return B9 Outside sensor K6 Circulating pump (optional) Q1 System pump Q3 Diverting valve Y1 Two-port valve, common return</p> <p>* Suppression of hydraulic creep</p>
<p>2-12</p>	<p>A6 Room unit B1 Sensor, common flow B3 Flow sensor, d.h.w. B31 Storage tank sensor 1 B32 Storage tank sensor 2 B7 Sensor, common primary return* B71 Sensor, common secondary return B9 Outside sensor K6 Circulating pump (optional) Q1 System pump Q3 Diverting valve Q4 Storage tank charging pump Y1 Two-port valve, common return</p> <p>* Suppression of hydraulic creep</p>
<p>3-1</p>	<p>A6 Room unit B1 Sensor, common flow B12 Flow sensor, heating circuit B31 Storage tank sensor 1 B32 Storage tank sensor 2 B7 Sensor, common primary return* B71 Sensor, common secondary or d.h.w. return B72 Return sensor, heating circuit B9 Outside sensor K6 Circulating pump (optional) Q1 Heating circuit pump Q3 D.h.w. intermediate circuit pump Y1 Two-port valve, common return Y5 Mixing valve, heating circuit</p> <p>* Suppression of hydraulic creep</p>
<p>3-2</p>	<p>A6 Room unit B1 Sensor, common flow B12 Flow sensor, heating circuit B3 Flow sensor, d.h.w. B31 Storage tank sensor 1 B32 Storage tank sensor 2 B7 Sensor, common primary return* B71 Sensor, common secondary or d.h.w. return B72 Return sensor, heating circuit B9 Outside sensor Q1 Heating circuit pump Q2 Circulating pump (optional) Q3 D.h.w. intermediate circuit pump Y1 Two-port valve, common return Y5 Mixing valve, d.h.w. circuit Y7 Mixing valve, heating circuit</p> <p>* Suppression of hydraulic creep</p>
<p>3-6</p>	<p>A6 Room unit B1 Sensor, common flow B12 Flow sensor, heating circuit B3 Flow sensor, d.h.w. B31 Storage tank sensor 1 B32 Storage tank sensor 2 B7 Sensor, common primary return* B71 Sensor, common secondary return B72 Return sensor, heating circuit B9 Outside sensor K6 Circulating pump (optional) Q1 Heating circuit pump Q3 D.h.w. intermediate circuit pump Q4 Storage tank charging pump Y1 Two-port valve, common return Y5 Mixing valve, heating circuit</p> <p>* Suppression of hydraulic creep</p>
<p>3-7</p> <p>a) Circulating pump feeding water into the heat exchanger's return b) Circulating pump feeding water into the storage tank</p>	<p>A6 Room unit B1 Sensor, common flow B12 Flow sensor, heating circuit B3 Flow sensor, d.h.w. B31 Storage tank sensor 1 B32 Storage tank sensor 2 B7 Sensor, common primary return* B71 Sensor, common secondary or d.h.w. return B72 Return sensor, heating circuit B9 Outside sensor Q Circulating pump (optional, controlled externally) Q1 Heating circuit pump Q2 Storage tank charging pump Q3 D.h.w. intermediate circuit pump Y1 Two-port valve, common return Y5 Mixing valve, d.h.w. circuit Y7 Mixing valve, heating circuit</p> <p>* Suppression of hydraulic creep</p>

<p>5-0</p> <p>2386S23</p>	<p>B1 Sensor, pre-controlled secondary flow B7 Sensor, pre-controlled primary return* B71 Sensor, secondary return B9 Outside sensor (optional, only for display) Q1 System pump Y1 Two-port valve, pre-controlled primary return</p> <p>* Suppression of hydraulic creep</p>
<p>5-4</p> <p>2386S24</p>	<p>B1 Sensor, pre-controlled secondary flow B3 Flow sensor, d.h.w. B32 Secondary return sensor, d.h.w. B7 Sensor, pre-controlled primary return* B71 Sensor, pre-controlled secondary return B72 Primary return sensor, d.h.w. B9 Outside sensor (optional, only for display) H5 Flow switch (optional) Q1 System pump Q3 Circulating pump (optional) Y1 Two-port valve, pre-controlled primary return Y5 Two-port valve, d.h.w. circuit primary return</p> <p>* Suppression of hydraulic creep</p>
<p>5-9</p> <p>2386S25</p>	<p>B1 Sensor, pre-controlled secondary flow B3 Flow sensor, d.h.w. B31 Storage tank sensor 1 B32 Storage tank sensor 2 B7 Sensor, pre-controlled primary return* B71 Sensor, pre-controlled secondary return B72 Primary return sensor, d.h.w. B9 Outside sensor (optional, only for display) K6 Circulating pump (optional) Q1 System pump Q3 D.h.w. intermediate circuit pump Y1 Two-port valve, pre-controlled primary return Y5 Two-port valve, d.h.w. circuit primary return</p> <p>* Suppression of hydraulic creep</p>
<p>5-10</p> <p>2386S26</p> <p>a) Circulating pump feeding water into the heat exchanger's return b) Circulating pump feeding water into the storage tank</p>	<p>B1 Sensor, pre-controlled secondary flow B12 Flow sensor, d.h.w. 2 B3 Flow sensor, d.h.w. 1 B31 Storage tank sensor 1 B32 Storage tank sensor 2 B7 Sensor, pre-controlled primary return* B71 Sensor, pre-controlled secondary return B72 Primary return sensor, d.h.w. B9 Outside sensor (optional, only for display) K6 Circulating pump (optional) Q1 System pump Q3 D.h.w. intermediate circuit pump Q4 Storage tank charging pump Y1 Two-port valve, pre-controlled primary return Y5 Two-port valve, d.h.w. circuit primary return</p> <p>* Suppression of hydraulic creep</p>
<p>6-2</p> <p>2386S27</p>	<p>B1 Sensor, secondary main flow B3 Flow sensor, d.h.w. 1 B31 Storage tank sensor 1 B32 Storage tank sensor 2 B7 Sensor, common primary return* B71 Sensor, common secondary return B72 Primary return sensor, d.h.w. B9 Outside sensor (optional, only for display) K6 Circulating pump (optional) Q1 System pump Q3 D.h.w. intermediate circuit pump Y1 Two-port valve, common primary return Y5 Mixing valve, d.h.w. circuit</p> <p>* Suppression of hydraulic creep</p>
<p>6-7</p> <p>2386S28</p> <p>a) Circulating pump feeding water into the heat exchanger's return b) Circulating pump feeding water into the storage tank</p>	<p>B1 Sensor, common secondary flow B12 Flow sensor, d.h.w. 2 B3 Flow sensor, d.h.w. 1 B31 Storage tank sensor 1 B32 Storage tank sensor 2 B7 Sensor, common primary return* B71 Sensor, common secondary return B72 Primary return sensor, d.h.w. B9 Outside sensor (optional, only for display) K6 Circulating pump (optional) Q1 System pump Q3 D.h.w. intermediate circuit pump Q4 Storage tank charging pump Y1 Two-port valve, common primary return Y5 Mixing valve, d.h.w. circuit</p> <p>* Suppression of hydraulic creep</p>



Parameter list

Line	Function, display	Factory setting	Range	Setting	Explanations, notes and tips (-x and x- mean "randomly")
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Block „Plant configuration“

51	Plant type	1-0	0-4...8-4	According to the summary given on pages 4 to 9
52	Function of input at terminal B71/U1	1	0...3	.....	0 = differential temperature sensor (DRT) 1 = sensor in the heating or d.h.w. circuit / no sensor 2 = signal reception DC 0...10 V 3 = heat demand DC 0...10 V
54	Function of circulating pump	0	0...3	.....	0 = no circulating pump 1 = feed into the storage tank 2 = feed into the heat exchanger's secondary return; heat losses partly compensated (80 %) 3 = feed into the heat exchanger's secondary return; heat losses fully compensated (100 %)
55	Function of contact connected to terminal H5	0	0...4	.....	0 = none 1 = input for pulses 2 = input for heat demand signal 3 = alarm input 4 = input for flow switch
57	Assignment of variable speed pump control	0	0...4	.....	0 = none 1 = pump Q1 2 = pump Q2 (only plant types 3-7 and 7-2) 3 = pump Q3 4 = pump Q4
58	Min. speed of speed-controlled pump	50 %	0...variable* %	..... %	* Max. value = operating line 59
59	Max. speed of speed-controlled pump	100 %	Variable*... 100 %	..... %	* Min. value = operating line 58
60	Power factor at reduced pump speed	85 %	0...100 %	..... %	Set power delivered at minimum speed, in % of the power at maximum speed

Block „Space heating“

61	Heating limit (ECO)	-3.0 K	--- / -10.0...+10.0 K	..... K	--- = function deactivated
62	Building time constant	20 h	0...50 h	..... h	10 h = light 20 h = medium 50 h = heavy

Line	Function, display	Factory setting	Range	Setting	Explanations, notes and tips (-x and x- mean "randomly")
70	Room temperature influence (gain factor)	10	0...20	.....	Function can be provided only with room sensor
71	Parallel displacement of heating curve	0.0 K	-15...+15 K	..... K	Setting in K room temperature
72	Overrun time, heating circuit or system pump	4 min	0...40 min	..... min	0 = no pump overrun
73	Max. limitation of the room temperature	---	--- / 0.5...4.0 K	..... K	Limit value: nominal setpoint plus setting on this line --- = function deactivated
74	Optimization with / without room sensor	0	0 / 1	.....	0 = without room sensor 1 = with room sensor
75	Max. heating up time	0:00 h	0:00...42:00 h	..... h	Max. forward shift of switching on before occupancy starts 0:00 = no optimization of switching on
76	Max. early shutdown	0:00 h	0:00...6:00	..... h	Max. forward shift of switching off before occupancy ends 0:00 = no optimization of switching off
77	Max. limitation of rate of flow temperature increase	---	--- or 1...600 °C/h	.....°C/h	--- = function deactivated
78	Quick setback (with and without room sensor)	1	0 / 1	.....	0 = no quick setback 1 = with quick setback

Block „Actuator heat exchanger“

81	Actuator running time, heat exchanger	120 s	10...873 s	..... s	Plant types 2-x to 7-2: two-port valve Y1 in the primary return
82	P-band heat exchanger control	35.0 K	1.0...100.0 K	..... K	
83	Integral action time, heat exchanger control	120 s	10...873 s	..... s	
84	Setpoint boost, heat exchanger	10 K	0...50 K	..... K	
85	Max. limitation of the flow temperature	---	--- / variable*... 140 °C	..... °C	* Min. value = operating line 86 --- = no limitation
86	Min. limitation of the flow temperature	---	--- / 8 °C... variable*	..... °C	* Max. value = operating line 85 --- = no limitation
87	Heat demand contact	60 °C	0...100 °C	..... °C	Temperature demand from an external consumer (B1/Y1). Function is activated when operating line 55 = 2
88	Priority external heat demand (contact and DC 0...10 V)	0	0 / 1	.....	0 = max. selection of external and internal heat demand 1 = external heat demand is given priority
89	Heat demand input DC 0...10 V	100 °C	5...130 °C	..... °C	Function is activated when operating line 52 = 3

Block „Actuator heating circuit“

91	Actuator running time heating circuit	120 s	10...873 s	..... s	<ul style="list-style-type: none"> Plant types 1-x: two-port valve Y1 in the primary return Plant types 3-1, 3-6: mixing valve Y5 in the heating circuit Plant types 3-2, 3-7, 7-2: mixing valve Y7 in the heating circuit
92	P-band, heating circuit control	35.0 K	1.0...100.0 K	..... K	
93	Integral action time, heating circuit control	120 s	10...873 s	..... s	
94	Setpoint boost, mixing valve / heat exchanger	10 K	0...50 K	..... K	
95	Max. limitation of the flow temperature	---	--- / variable*... 140 °C	..... °C	* Min. value = operating line 96 --- = no limitation
96	Min. limitation of the flow temperature	---	--- / 8 °C... variable*	..... °C	* Max. value = operating line 95 --- = no limitation

Block „D.h.w heating“

101	Release of d.h.w. heating	0	0...2	.....	0 = always (24 h / day) 1 = acc. to the heating program, with forward shift 2 = acc. to the d.h.w. program
102	Release of circulating pump	1	0...2	.....	0 = always (24 h / day) 1 = acc. to the heating program 2 = acc. to the d.h.w. program
103	D.h.w. switching differential	5 K	1...20 K	..... K	
104	Legionella function	6	--- / 1...7 / 1-7	.....	1 = Monday 2 = Tuesday, etc. 1-7 = entire week --- = no legionella function

Line	Function, display	Factory setting	Range	Setting	Explanations, notes and tips (-x and x- mean "randomly")																		
105	Setpoint of the legionella function	65 °C	60...95 °C °C																			
106	D.h.w. priority	4	0...4	<table border="1"> <tr> <td></td> <td><i>D.h.w. priority</i></td> <td><i>Flow temperature setpoints acc. to</i></td> </tr> <tr> <td>0 =</td> <td>absolute</td> <td>d.h.w.</td> </tr> <tr> <td>1 =</td> <td>shifting</td> <td>d.h.w.</td> </tr> <tr> <td>2 =</td> <td>shifting</td> <td>max. selection</td> </tr> <tr> <td>3 =</td> <td>none (parallel)</td> <td>d.h.w.</td> </tr> <tr> <td>4 =</td> <td>none (parallel)</td> <td>max. selection</td> </tr> </table>		<i>D.h.w. priority</i>	<i>Flow temperature setpoints acc. to</i>	0 =	absolute	d.h.w.	1 =	shifting	d.h.w.	2 =	shifting	max. selection	3 =	none (parallel)	d.h.w.	4 =	none (parallel)	max. selection
	<i>D.h.w. priority</i>	<i>Flow temperature setpoints acc. to</i>																					
0 =	absolute	d.h.w.																					
1 =	shifting	d.h.w.																					
2 =	shifting	max. selection																					
3 =	none (parallel)	d.h.w.																					
4 =	none (parallel)	max. selection																					
107	Overrun time, intermediate circuit pump	4 min	0...40 min min																			
108	Extra overrun time, charging pump	1'00 min	0'10...40'00 min min																			
109	Max. time d.h.w. heating	150 min	--- / 5...250 min min	--- = no limitation																		
110	Discharging protection during the d.h.w. pump overrun time	1	0 / 1		0 = without protection 1 = with protection																		

Block „D.h.w.actuator“

111	Actuator opening time in the d.h.w. circuit	35 s	10...873 s	..... s	<ul style="list-style-type: none"> Plant types 2-x, 3-x, 6-7, 7-2: mixing valve Y5 in the d.h.w. circuit Plant types 0-x, 1-x, 5-x: two-port valve Y5 in the primary return of the d.h.w. heat exchanger Plant type 8-4: two-port valve Y5 in the common primary return
112	Actuator closing time in the d.h.w. circuit	35 s	10...873 s	..... s	
113	P-band, d.h.w. control	35.0 K	1.0...100.0 K	..... K	
114	Integral action time, d.h.w. control	35 s	10...873 s	..... s	
115	Derivative action time, d.h.w. control	16 s	0...255 s	..... s	
116	Setpoint boost, d.h.w. heating	16 K	0...50 K	..... K	
117	Max. d.h.w. temperature setpoint	65 °C	20...95 °C	..... °C	
118	Setpoint boost, mixing valve / d.h.w. heat exchanger	10 K	0...50 K	..... K	
119	Reduction d.h.w. setpoint for storage tank sensor at the bottom	5 K	0...20 K	..... K	Only when two sensors are used
120	Circulating pump with d.h.w. heating	0	0 / 1	.....	0 = OFF during d.h.w. heating 1 = ON during d.h.w. heating
124	Load limit when flow switch is activated	25 %	0...60 %	..... %	Setting in % of the current max. stroke

Block „Assignment of d.h.w.“

125	Assignment of d.h.w.	0	0...2	0 = locally 1 = all controllers in the interconnected system with the same segment number 2 = all controllers in the interconnected system
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Block „Additional legionella functions“

126	Time for charging	--:--	--:--, 00:00...23:50	... : ...	
127	Dwelling time at legionella setpoint	---	---, 10...360 minmin	
128	Circulating pump operation during legionella function	1	0 / 1	...	0 = no 1 = yes

Block „LPB parameter“

131	Device number for the bus address	0	0...16	.....
132	Segment number for the bus address	0	0...14	.....
133	Type of clock operation	0	0...3	.....	0 = autonomous clock 1 = clock is the slave with no remote setting 2 = clock is slave with remote setting 3 = clock is the master
134	Bus power supply, operating mode and status indication	A	0, 1, A	.....	0 = OFF (no bus power supply) 1 = bus power supply ON A = automatic bus power supply
135	Outside temperature source	A	A / 00.01...14.16	.....	A = automatic, or segment and device number

Line	Function, display	Factory setting	Range	Setting	Explanations, notes and tips (-x and x- mean "randomly")
136	Gain of locking signal	100 %	0...200 %	..... %	Response to locking signal
137	Response to uncritical locking signals from the data bus	1	0 / 1	.....	0 = function OFF 1 = function ON



Block „Control functions“

141	Actuator pulse lock	1	0 / 1	.....	0 = function OFF 1 = function ON
142	Frost protection for the plant	1	0 / 1	.....	0 = without frost protection for the plant 1 = with frost protection for the plant
143	Flow alarm	--:--	--:-- / 0:10...10:00 h	.... : .... h	Period of time during which the flow temperature may remain outside the limit values. --:-- = function deactivated
144	Winter- / summertime changeover	25.03	01.01. ...31.12	..... .....	Setting: earliest possible changeover date
145	Summer- / wintertime changeover	25.10	01.01. . 31.12	..... .....	Setting: earliest possible changeover date
146	Periodic pump run (pump kick)	1	0 / 1	.....	0 = no periodic pump run 1 = weekly pump run enabled

Block „M-bus parameter“

151	M-bus primary address	0	0...250	.....
152	M-bus secondary address	Display function			Corresponds to the serial number
153	Baud rate	2400	300 / 2400 Baud	.... Baud	
154	Passing on M-bus load management signals	0	0...2	.....	0 = locally 1 = to all controllers in the interconnected system with the same segment number 2 = to all controllers in the interconnected system
155	M-bus load management in the heating circuit	Display function			Display in % 100 % = internal demand for heat will be adopted unchanged

Block „PPS parameter“

156	Active slaves on the PPS	Display function		Call up identification of the slaves by pressing  or 
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Block „Test and display“

161	Sensor test Input B9: --- = open-circuit / no sensor oo.o = short-circuit Other inputs: --- = open-circuit / no sensor ooo = short-circuit	0	0...11		No.	Input	Sensor for:
					0	B9	Weather (outside temperature)
					1	B1	Heating circuit flow
					2	B3	D.h.w. flow
					3	A6	Room unit
					5	B7	Return temperature
					6	B71	Return temperature
					7	B72	Return temperature
					8	B31	Storage tank
					9	B32	Storage tank
					10	B12	Flow
					11	U1	DC 0...10 V / 0...130 °C
162	Display of setpoints --- = no setpoint available	0	0...11		No.	Input	Setpoint of:
					0	B9	Composite outside temperature
					1	B1	Heating circuit flow temperature
					2	B3	D.h.w. flow temperature
					3	A6	Room temperature
					5	B7	Return temperature
					6	B71	Return temperature
					7	B72	Return temperature
					8	B31	Storage tank temperature
					9	B32	Storage tank temperature
					10	B12	Flow temperature
					11		--- (not available)

Line	Function, display	Factory setting	Range	Setting	Explanations, notes and tips (-x and x- mean "randomly")
163	Relay test	0	0...10		<p>Note: make relay test only when main shutoff valve is closed!</p> <p>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 energized 6 = relay at terminal Y5 energized 7 = relay at terminal Y6 energized 8 = relay at terminal Q2 energized 9 = relay at terminal Y7/Q4 energized 10 = relay at terminal Y8/K6 energized</p> <p><i>To terminate the relay test:</i></p> <ul style="list-style-type: none"> • Select another operating line • Press an operating mode button • Automatically after 8 minutes
164	Speed of the speed-controlled pump	Display function			In % of the nominal speed (selection of pump: operating line 57)
165	Display of the digital inputs:	Display function			Prompting with ◀ or ▶
	Contact H5				0 = contact open 1 = contact closed
	Pulse input				In pulses per minute
	Radio clock receiver				Time since last reception
169	Display of active limitations	Display function			<p>Prompting with ◀ or ▶</p> <p><i>Max. limitations</i> ⌈ :</p> <p>1 = volumetric flow or power, pre-controller 2 = pre-controlled primary return 3 = pre-control temperature differential 4 = pre-controlled secondary flow 5 = volumetric flow or power, heating circuit 6 = primary return, heating circuit 7 = secondary return, heating circuit 8 = temperature differential, heating circuit 9 = secondary flow, heating circuit 10 = room temperature 11 = rate of flow temperature increase, heating circuit 18 = primary return d.h.w. 19 = secondary return d.h.w.</p> <p><i>Min. limitations</i> ⌋ :</p> <p>20 = pre-controlled primary return* 21 = pre-controlled secondary flow 22 = primary return, heating circuit* 23 = secondary flow, heating circuit 24 = reduced room temperature setpoint</p> <p>* Suppression of hydraulic creep</p>
170	Software version	Display function			

Settings on the "Locking functions" level

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

1. Press ▼ and ▲ at the same time for 6 seconds.
2. The display shows **Cod 00000**.
3. Enter the code (for information about the code, contact the Siemens Building Technologies service center nearest you).

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

Line	Function, display	Factory setting	Range	Setting	Explanations, notes and tips (-x and x- mean "randomly")
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Block „DRT and limitation of the return temperature“

171	Max. limitation of the primary return temperature, heating circuit	0	0 / 1	0 = without limitation 1 = with limitation
172	Upper constant value, max. limitation of the primary return temperature	70 °C	variable... 140 °C	..... °C	<p>Lower constant value Upper constant value Slope Start shifting</p> <p>T_R Primary return temperature T_A Outside temperature</p>
173	Slope, max. limitation of the primary return temperature	7	0...40	.....
174	Start of shifting (point of inflection), max. limitation of the primary return temperature	10 °C	-50...+50 °C	..... °C	
175	Lower constant value, max. limitation of the primary return temperature	50 °C	0...variable* °C		* Setting on operating line 172
176	Max. setpoint of the return temperature with d.h.w. heating	---	--- / 0...140 °C	..... °C	--- = no limitation
177	Max. limitation of the secondary return temperature, differential to the primary limit value	---	--- / 0...50 K	..... K	The secondary limit value is always lower than the primary limit value, the difference being this setting value. Applies to the heating and the d.h.w. circuit --- = no limitation
178	Integral action time of the primary return temperature limitations	30 min	0...60 min	..... min	Limitation of temperature differential and max. limitation
179	Limit value of max. limitation of temperature differential (DRT)	--.-	--.- / 0.5...50.0 K	..... K	Max. limitation of temperature differential between primary return and secondary return temperature --.- = no limitation of the temperature differential
180	Max. setpoint of the return temperature during d.h.w. heating on legionella setpoint	---	--- / 0...140 °C	..... °C	

Block „Various functions“

181	Limit function at contact H5	1	1...2	.....	1 = limitation with an adjustable limit value (operating line 182) 2 = limitation with a fixed limit value (75 pulses / min) Function is activated when line 55 = 1
182	Limit value of volumetric flow or power limitation	75 Pulses/min	5...1500 Pulses/min	..... Pulses/min	
183	Integral action time of limit function at contact H5	60 min	0...240 min	..... min	
188	Locking time after min. limitation for the suppression of hydraulic creep	6 min	--- / 1...20 min	..... min	
189	Start of shifting (point of inflection), raising the reduced room temperature setpoint	5 °C	-50...+50 °C	..... °C	Influence of the outside temperature on the reduced room temperature setpoint Slope 0 = function deactivated
190	Slope, raising the reduced room temperature setpoint	0	0...10	.....	<p>Slope Start of shifting</p> <p>T_R Reduced room temperature setpoint T_A Outside temperature</p>
191	Forced charging at the start of release period 1	1	0 / 1	.....	0 = function deactivated 1 = function activated
192	Idle heat function, primary flow	---	--- / 3...255 min	..... min	--- = function deactivated

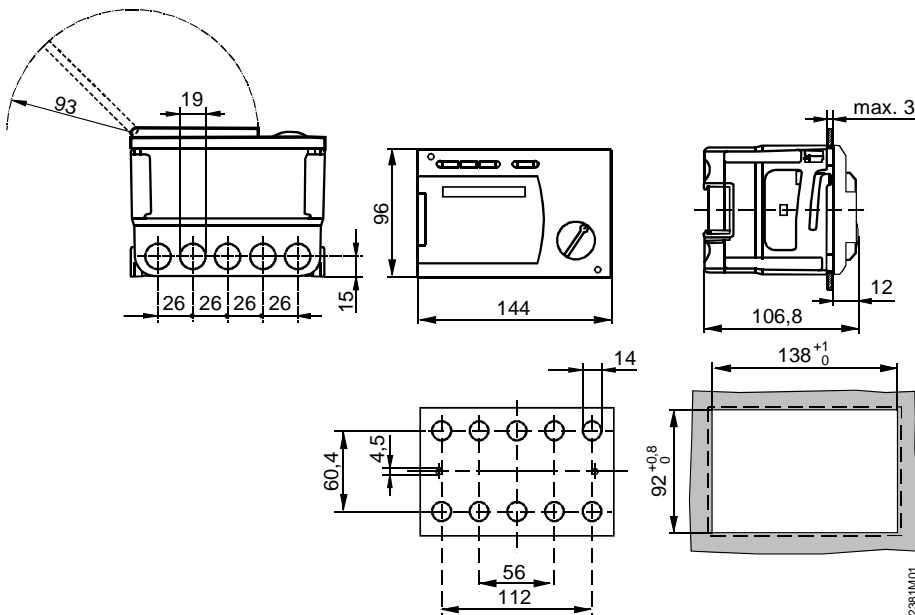
Block „Locking functions“

195	Locking settings on the software side	0	0...4	.....	0 = no locking 1 = d.h.w. settings locked 2 = heating engineer's level locked 3 = d.h.w. settings and heating engineer's level locked 4 = all settings locked
196	Locking the "Locking functions" level on the hardware side (operating lines 171...196)	0	0 / 1	.....	0 = no locking 1 = "Locking functions" level accessible only if terminals B31-M are linked

Keep Instructions

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

Dimensions



Dimensions in mm

