en **Installation Instructions**   **Heating controller for**
2 heating circuits and d.h.w.

RVP36..

⚠️   Keep these instructions with the controller!

Installation

Place of installation

- In a dry room (e.g. in the boiler room)
- Installation choices:
  - In a compact station
  - In a control panel (panel front, inner wall, or on a top hat rail)
  - In a control cabinet
  - In the sloping front of a control desk
- Permissible ambient temperature: 0...50 °C

Electrical installation

- Local regulations for electrical installations must be complied with
- Only qualified personnel may carry out the electrical installation
- Cable strain relief must be ensured
- Cable glands must be made of plastic
- Cables from the controller to the actuating devices and pumps carry mains voltage
- Sensor cables must not be run parallel to mains carrying cables
- A defective or apparently damaged unit must immediately be disconnected from power

Permissible cable lengths

- For all sensors and thermostats:
  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 0.25 mm^2 max. 25 m
  Copper cable from 0.5 mm^2 max. 50 m
- For data buses: As per Siemens specification in Basic System Data N2030 and Basic Engineering Data N2032

## Mounting and wiring the base

Wall mounting
1. Remove base from 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 to fit the cable glands.
6. Screw base to the wall.
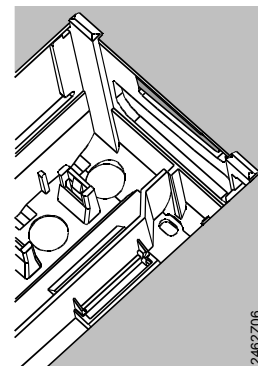7. Wire up the base.

Rail mounting
1. Fit top hat rail.
2. Remove base from controller.
3. If required, knock out holes on the base to fit the cable glands.
4. Fit base to the rail. Marking TOP must be at the top!
5. If required, secure the base (depending on type of rail used).
6. Wire up the base.

Flush-panel mounting
- Maximum thickness of front panel: 3 mm.
- Required panel cutout: 138 × 92 mm.
1. Remove base from controller.
2. If required, knock out holes on the base to fit the cable 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 (see illustration).
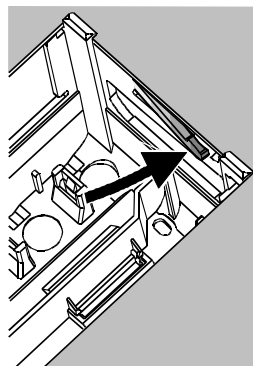
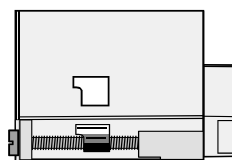Wrong   Correct

Place left and right tongue correctly – must not protrude inside the cutout!

5. Wire up the base. Cable lengths should be chosen such that sufficient space is left to open the control panel door.

Securing the controller to the base

1. Ensure correct position and location of the levers by turning the fixing screws. Symbol on lateral wall of the controller:

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

Commissioning

Preparatory checks

1. Do NOT turn on power yet.
2. Check wiring to ensure it accords with the plant's connection diagram.
3. Check each actuating device to see if …
   - it is correctly installed (observe direction of flow indicated on valve body),
   - manual control is disengaged.
4. **Exercise caution in connection with floor and ceiling heating systems!**
   The limit thermostat must be correctly set. During the function check, the flow temperature must 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
   - Shut the pump isolating valve .
5. Turn on power. The display shows the time of day. If not, the reason may be one of the following:
   - No mains voltage
   - Main fuse defective
   - Main switch not set to ON
6. Addressing the room units:
   - Room unit heating circuit 1 = address 1 (factory setting)
   - Room unit heating circuit 2 = address 2

General information about operation

- Setting elements for commissioning:
  - Readjustment of room temperature: Via setting knob, **separately for heating circuits 1 and 2!**
  - Other variables: On the display; each setting is assigned an operating line. **If required, make separate settings for heating circuits 1 and 2!**
- Buttons for selection and adjustment of values:
  - $\bigtriangledown$ Press to select the next lower operating line
  - $\bigtriangleup$ Press to select the next higher operating line
  - $\ominus$ Press to decrease the displayed value
  - $\oplus$ Press to increase the displayed value

- Adopting a setting value:
  Setting value is adopted by selecting a new operating line or by pressing one of the operating mode buttons
- Enter --.- / --:-- / --- (deactivation of function):
  Keep $\ominus$ or $\oplus$ depressed until the desired display appears
- Block jump function:
  To select an individual operating line quickly, 2 button combinations can be used:
  Keep $\bigtriangledown$ depressed and press $\oplus$ to select the next higher line block
  Keep $\bigtriangledown$ depressed and press $\ominus$ to select the next lower line block
- When pressing one of the buttons, the display lighting is switched on for a certain time

Setting procedure

1. Make the required settings on the "End-user" level (operating lines 1…50).
2. Configure plant type on operating line 51.
3. Enter the relevant settings on the parameter list below. All functions and operating lines required for the configured plant type are activated and adjustable; all operating lines that are not required cannot be accessed.
4. Make the required settings on the "Heating engineer" level (operating lines 61…208).

Commissioning and function check

- Operating lines especially for the function check:
  161 = simulation of outside temperature
  162 = relay test
  163 = sensor test
  164 = display of setpoint
- If *Er* (error) appears on the display: Query operating line 50 to pinpoint the fault
- If no operating line is selected for 30 minutes, or if one of the operating mode buttons is pressed, the controller switches to the "non-operated" state

Setting elements
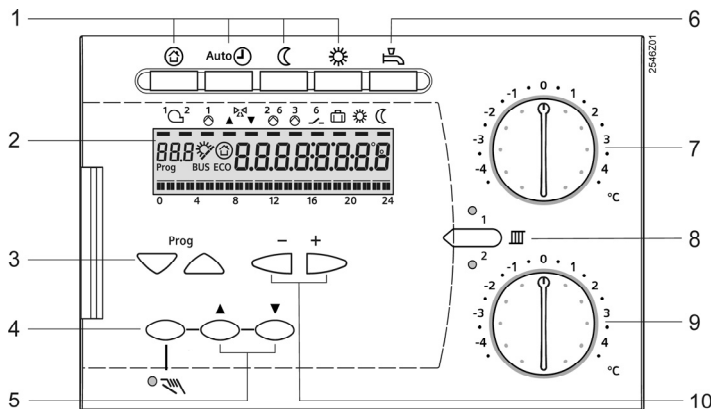
1 Buttons for selectiong the operating mode
2 Display (LCD)
3 Buttons for selecting the operating lines
4 Button for manual control ON / OFF
5 Buttons for valve OPEN / CLOSE when manual control ON
6 Button for d.h.w. heating ON / OFF
7 Setting knob for readjusting the room temperature of heating circuit 1
8 Button for switching between the heating circuits
9 Setting knob for readjusting the room temperature of heating circuit 2
10 Buttons for adjusting values

Connection diagrams

Low-voltage side

LPB	A6	A6	B9	B1	B12	B2	B31	B7	B32	B5	B52	B6
D1 D2	D1 D2	B M	B M	B M	B M	B M	B M	B M	B M	B M	B M	B M

DB MB   A6 MD   B9   B1 M   B12   B2   B31   B7 M   B32   B5 M   B52   B6 M   L

N

N1

* LPB only RVP360

Mains voltage side

AC 230 V

L   F4   F3   F1/F2   F7   F6

N   F5   K5 K4   Q1   Q3   Y1   Y2   Q2   Q6 K6   Y7   Y8

K6   N1

F1   F2   E1   M1   M3   Y1   M2   M6   Y7

1.
2.

Y1 Y2 N   Y1 Y2 N
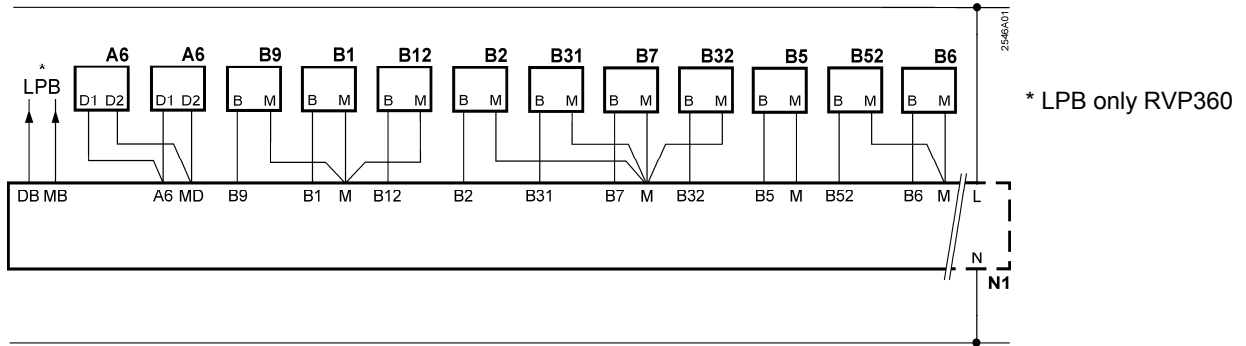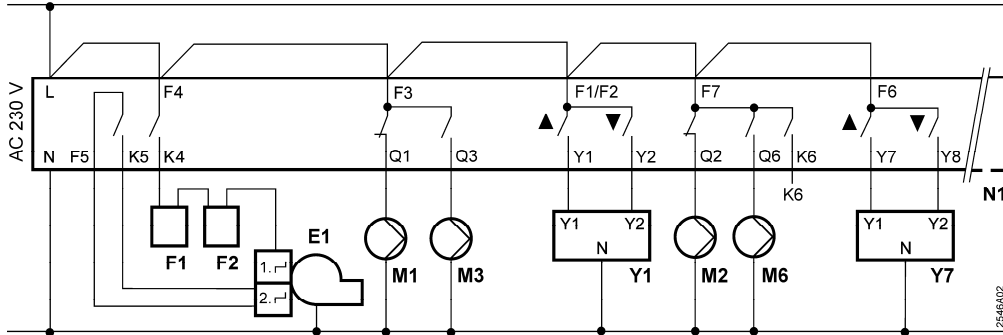
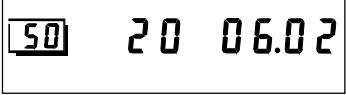| A6	Room unit	F1	Thermal reset limit thermostat
B1	Flow sensor heating circuit 1	F2	Safety limit thermostat
B12	Flow sensor heating circuit 2	K6	Multifunctional output
B2	Boiler sensor	LPB	Data bus (only RVP360)
B31	D.h.w. storage tank sensor / thermostat	M1	Circulating pump
B32	D.h.w. storage tank sensor / thermostat	M2	Heating circuit pump heating circuit 1
B5	Room sensor heating circuit 1	M3	Storage tank charging pump
B52	Room sensor heating circuit 2	M6	Heating circuit pump heating circuit 2
B6	Collector sensor	N1	Controller RVP36..
B7	Return sensor	Y1	Actuator heating circuit 1
B9	Outside sensor	Y7	Actuator heating circuit 2
E1	2-stage burner		

"End-user" level

To activate the "End-user" level, press ▽ or △.

Note: The settings made on the controller should be entered on the following parameter list and the Installation Instructions should be kept with the controller or in a suitable place.

➔ **Operating lines highlighted in grey require settings for heating circuit 1 (HC 1) and heating circuit 2 (HC 2)!**

Line	Function, display	Factory setting (range)	HC 1 HC 2	Explanations, notes and tips
1	Room temp. setpoint for NORMAL heating	20.0 °C (0.0…35.0)	............°C ....°C	
2	Room temp. setpoint for REDUCED heating	14.0 °C (0.0…35.0)	............°C ....°C	
3	Room temp. setpoint for holiday / protection mode	10.0 °C (0.0…35.0)	............°C ....°C	
4	Weekday, for entering the heating program	Current weekday (1…7 / 1-7)		1 = Monday 2 = Tuesday, etc. 1-7 = entire week
5	1st heating phase, start of NORMAL heating	6:00 (--:-- / 00:00…24:00)	....	
6	1st heating phase, end of NORMAL heating	22:00 (--:-- / 00:00…24:00)	....	
7	2nd heating phase, start of NORMAL heating	--:-- (--:-- / 00:00…24:00)	....	Scheduler program for heating circuit --:-- = phase deactivated
8	2nd heating phase, end of NORMAL heating	--:-- (--:-- / 00:00…24:00)	....	
9	3rd heating phase, start of NORMAL heating	--:-- (--:-- / 00:00…24:00)	....	
10	3rd heating phase, end of NORMAL heating	--:-- (--:-- / 00:00…24:00)	....	
12	Date of first day of holiday	--.-- (01.01…31.12)	....	dd.mm --.-- = holiday period deactivated
13	Date of last day of holiday	--.-- (01.01…31.12)	....	
14	Heating curve, flow temperature setpoint at an outside temperature of 15 °C	30 °C (20…70)	............°C ....°C	
15	Heating curve, flow temperature setpoint at an outside temperature of -5 °C	60 °C (20…120)	............°C ....°C	
26	Setpoint for NORMAL d.h.w. temperature	55 °C (20…100)	............°C	
27	Display of current d.h.w. temperature	Display function		
28	Setpoint for REDUCED d.h.w. temperature	40 °C (8…80)	............°C	
31	Weekday, for entering scheduler program 2	Current weekday (1…7 / 1-7)		1 = Monday 2 = Tuesday, etc. 1-7 = entire week
32	Start of 1st ON phase	5:00 (--:-- / 00:00…24:00)	....	
33	End of 1st ON phase	22:00 (--:-- / 00:00…24:00)	....	
34	Start of 2nd ON phase	--:-- (--:-- / 00:00…24:00)	....	Scheduler program 2 --:-- = phase deactivated
35	End of 2nd ON phase	--:-- (--:-- / 00:00…24:00)	....	
36	Start of 3rd ON phase	--:-- (--:-- / 00:00…24:00)	....	
37	End of 3rd ON phase	--:-- (--:-- / 00:00…24:00)	....	

38	Time of day	hh:mm (00:00…23:59)	....	
39	Weekday	Display function		1 = Monday 2 = Tuesday, etc.
40	Date	dd.mm (01.01…31.12)	....	
41	Year	yyyy (2009…2099)	....	
50	Faults	Display function Example: Interconnected system `[50]   20   06.02` 20 = error code 06 = segment number (LPB) 02 = device number (LPB)		10 = fault outside sensor B9 20 = fault boiler sensor B2 30 = fault flow sensor B1, heating circuit 1 32 = fault flow sensor B12, heating circuit 2 40 = fault primary return sensor B7 50 = fault storage tank sensor B31 52 = fault storage tank sensor B32 60 = fault room sensor B5, heating circuit 1 61 = fault room unit A6, heating circuit 1 62 = device with wrong PPS identification connected, heating circuit 1 65 = fault room sensor B52, heating circuit 2 66 = fault room unit A6, heating circuit 2 67 = device with wrong PPS identification connected, heating circuit 2 73 = fault collector sensor B6 81 = short-circuit on data bus (LPB) 82 = 2 devices with the same bus address (LPB) 86 = short-circuit PPS 100 = 2 clock time masters (LPB) 140 = inadmissible bus address (LPB)

"Heating engineer" level

To activate the "Heating engineer" level, press ▽ and △ simultaneously for 3 seconds. This level is used to configure the plant type and to set the plant-specific variables.

- The "End-user" level also remains activated when on the "Heating engineer" level.

Note: The heating engineer should enter the function of "Scheduler program 2" in the Operating Instructions.
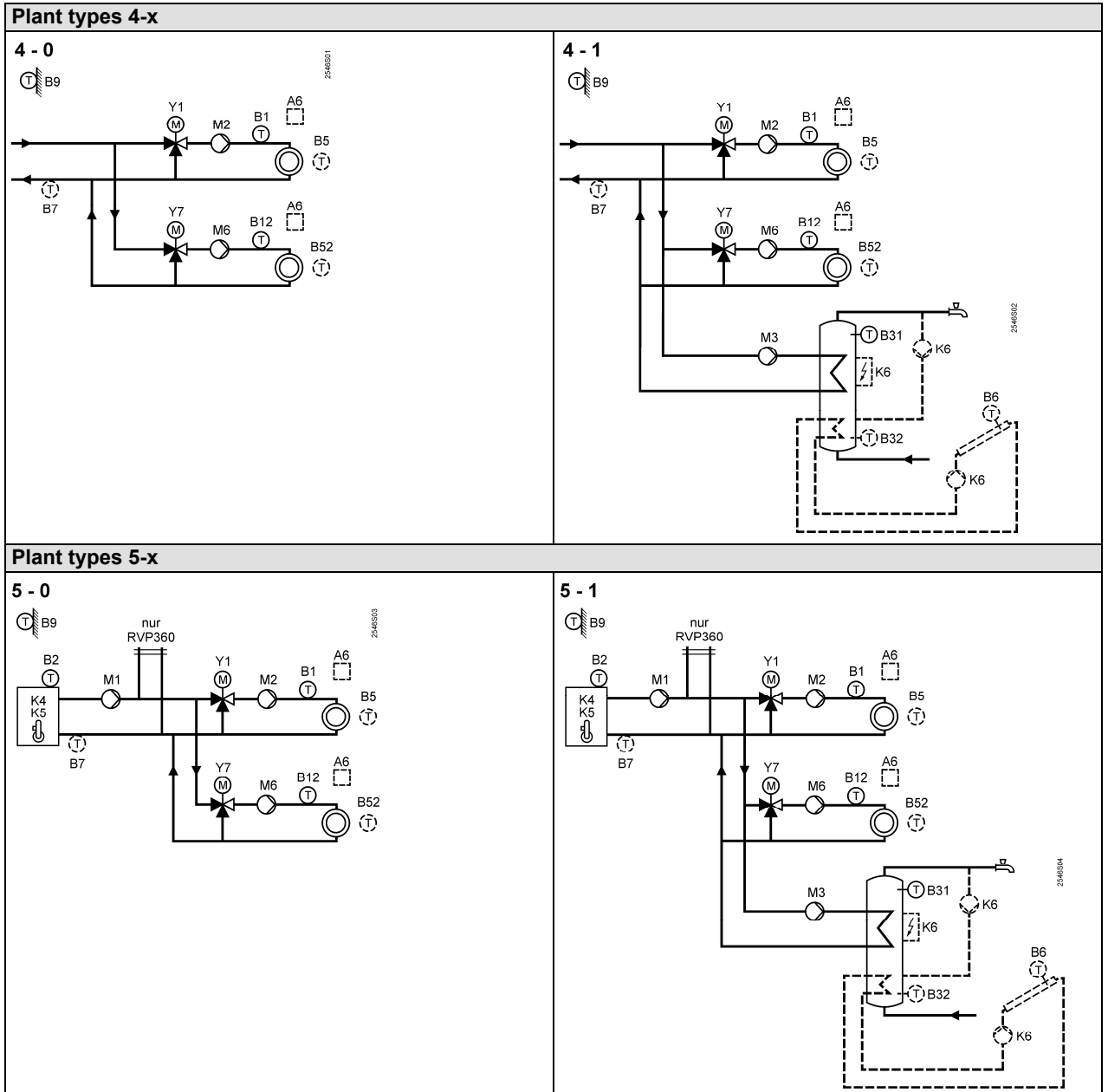
Configuring the plant type:

Select the required plant type on operating line 51 (see the following plant diagrams). This activates all functions needed for the particular type of plant and the required operating lines appear.

Example:
Display for plant type 5-1

51 Operating line
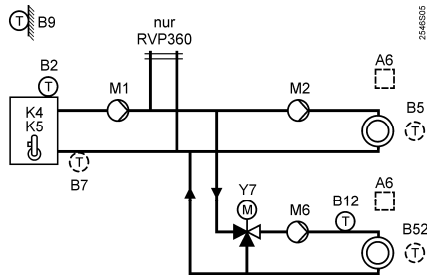 5 Heating circuit type
 1 D.h.w. type

Plant types

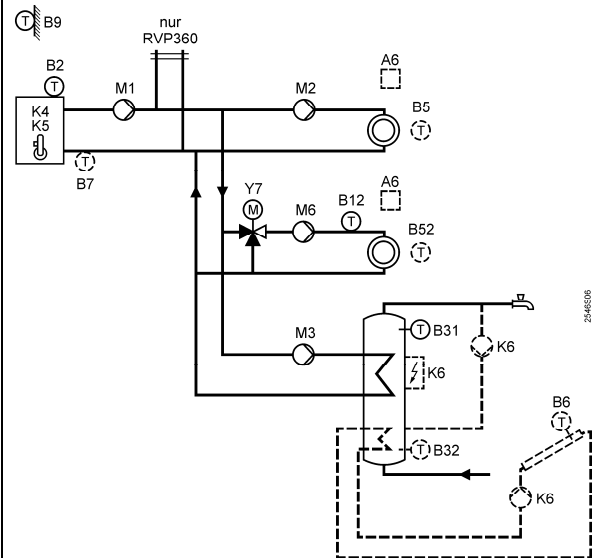For meaning of symbols, refer to "Connection diagrams".

Plant types 4-x

4 - 0

4 - 1

Plant types 5-x

5 - 0

5 - 1

Plant types 6-x	
6 - 0	**6 - 1**

Function block "Plant configuration"

51	Plant type	5-1 (4-0...6-1)	....	See the plant diagrams above

Function block "Space heating"

61	Heating limit NORMAL (ECO day)	17.0 °C (--- / –5.0…25.0)	.................°C ....°C	--- = function deactivated
62	Heating limit REDUCED (ECO night)	5.0 °C (--- / –5.0…25.0)	.................°C ....°C	--- = function deactivated
63	Building time constant	20 h (0…50)	.................h	10 h = light building construction 20 h = medium building construction 50 h = heavy building construction
64	Quick setback	1 (0 / 1)	....	0 = without quick setback 1 = with quick setback

65	Room temperature source	A
		(0…3 / A)
			....
			....
				0 = no room sensor available
				1 = room unit connected to terminal A6
				2 = room sensor connected to terminal B5
				3 = mean value of both devices connected to
				     terminals A6 and B5 (heating circuit 1)
				     and / or A6 and B52 (heating circuit 2)
				A = automatic selection

66	Type of optimization	0 (0 / 1)	....	0 = optimization with room model 1 = optimization with room unit / room sensor (setting 0 only provides optimum start control)
67	Maximum heating up period	0:00 h (0:00...42:00)	.................h ....h	Maximum forward shift for switching on before occupancy starts 0:00 = no optimum start control
68	Maximum early shutdown	0:00 h (0:00...6:00)	.................h ....h	Maximum forward shift for switching off before occupancy ends 0:00 = no optimum stop control
69	Maximum limitation of room temperature	--.- °C (--.- / 0.0…35.0)	.................°C ....°C	--- = limitation deactivated, function can only be provided with room unit / room sensor
70	Influence of room temperature (gain factor)	4 (0…20)	....	Function can only be provided with room unit / room sensor
71	Boost of room temperature setpoint on boost heating	5 °C (0…20)	.................°C ....°C	

Function block "Pump heating circuit"

75	Overtemperature protection for the pump heating circuit	1 (0 / 1)	....	0 = without overtemperature protection 1 = with overtemperature protection **Note:** Can only be set for heating circuit 1

Function block "Actuator heating circuit"

81	Maximum limitation flow temperature	--- °C (--- / 0…140)	................°C ....°C	--- = function deactivated **Caution:** This is not a safety function!
82	Minimum limitation flow temperature	--- °C (--- / 0…140)	................°C ....°C	--- = function deactivated **Caution:** This is not a safety function!
83*	Maximum rate of flow temperature increase	--- K/h (--- / 1...600)	................K/h ....K/h	--- = function deactivated
84*	Setpoint boost mixing valve	10 K (0…50)	................K ....K	
85*	Actuator running time	120 s (30…873)	................s ....s	Settings only required for 3-postion control
86*	P-band of control	32.0 K (1.0…100.0)	................K ....K	
87*	Integral action time of control	120 s (10…873)	................s ....s	
88*	Type of actuator	1 (0 / 1)	....	0 = 2-position control 1 = 3-position control
89*	Switching differential	2 K (1…20)	................K ....K	Setting only required for 2-postion control

* Note: Operating lines 83 through 89 with plant type 6-x can only be set for heating circuit 2!

Function block "Boiler"

91	Boiler operating mode	0 (0…2)	....	0 = with manual shutdown (button ☺) 1 = with automatic shutdown (OFF when there is no demand for heat) 2 = without shutdown
92	Maximum limitation boiler temperature	95 °C (25…140)	................°C	**Caution:** This is not a safety function!
93	Minimum limitation boiler temperature	10 °C (5…140)	................°C	
94	Switching differential boiler	6 K (1…20)	................K	
95	Minimum limitation burner running time	4 min (0…10)	................min	
96	Burner stage 2 release integral	50 °Cxmin (0…500)	................°Cxmin	
97	Burner stage 2 reset integral	10 °Cxmin (0…500)	................°Cxmin	
98	Burner stage 2 locking time	20 min (0…40)	................min	
99	Operating mode pump M1	1 (0 / 1)	....	0 = without shutdown on protective boiler startup 1 = with shutdown on protective boiler startup

Function block "Limitation of return temperature"

101	Setpoint return temperature limitation, constant value	--- °C (--- / 0…140)	................°C	--- = function deactivated

Function block "D.h.w."

121	Assignment of d.h.w. (only RVP360)	0 (0…2)		D.h.w. heating for 0 = locally 1 = all controllers in the interconnected system having the same segment number 2 = all controllers in the interconnected system
123	Release of d.h.w. heating	2 (0…2)		0 = always (24 h/day) 1 = according to heating program(s), depending on setting made on operating line 121 Start of release is shifted forward by 1 hour 2 = according to scheduler program 2 **Note:** This setting is to be entered in the Operating Instructions.
124	D.h.w. priority	0 (0…4)		Priority of d.h.w. / Flow temperature setpoint according to: (see sub-table below)
126	D.h.w. storage tank sensor / thermostat	0 (0…5)		0 = one sensor 1 = two sensors 2 = one thermostat 3 = two thermostats 4 = one sensor with solar d.h.w. heating 5 = two sensors with solar d.h.w. heating
127	Boost d.h.w. charging temperature	10 K (0…50)	..........K	
128	Switching differential d.h.w.	8 K (1…20)	..........K	
129	Maximum period d.h.w. charging	60 min (--- / 5…250)	..........min	--- = no limitation of charging time
130	Setpoint legionella function	--- °C (--- / 20…100)	..........°C	--- = function deactivated
131	Forced charging	0 (0 / 1)		0 = without forced charging 1 = with daily forced charging on first release

Sub-table for line 124:

	Priority of d.h.w.	Flow temperature setpoint according to:
0 =	absolute	D.h.w.
1 =	shifting	D.h.w.
2 =	shifting	Maximum selection
3 =	none (parallel)	D.h.w.
4 =	none (parallel)	Maximum selection

Function block "Multifunctional relay"

| 141 | Function multifunctional relay K6 | **RVP360** Plant types x-0 0 (0…2) Plant types x-1 0 (0…9) **RVP361** Plant types x-0 0 (0…2) Plant types x-1 0 (0…7) | | 0 = no function 1 = relay energized in the event of fault 2 = relay energized when there is demand for heat 3 = circulating pump ON 24 hours per day 4 = circulating pump ON   according to the heating program(s), depending on the setting made on operating line 121 5 = circulating pump ON according to scheduler program 2 6 = collector pump 7 = electric immersion heater, changeover heating / electric according to own controller 8 = electric immersion heater, changeover heating / electric according to all controllers in the interconnected system having the same segment number 9 = electric immersion heater, changeover heating / electric according to all controllers in the interconnected system **Caution:** Wrong configurations will not be prevented! |

Function block "Legionella function"

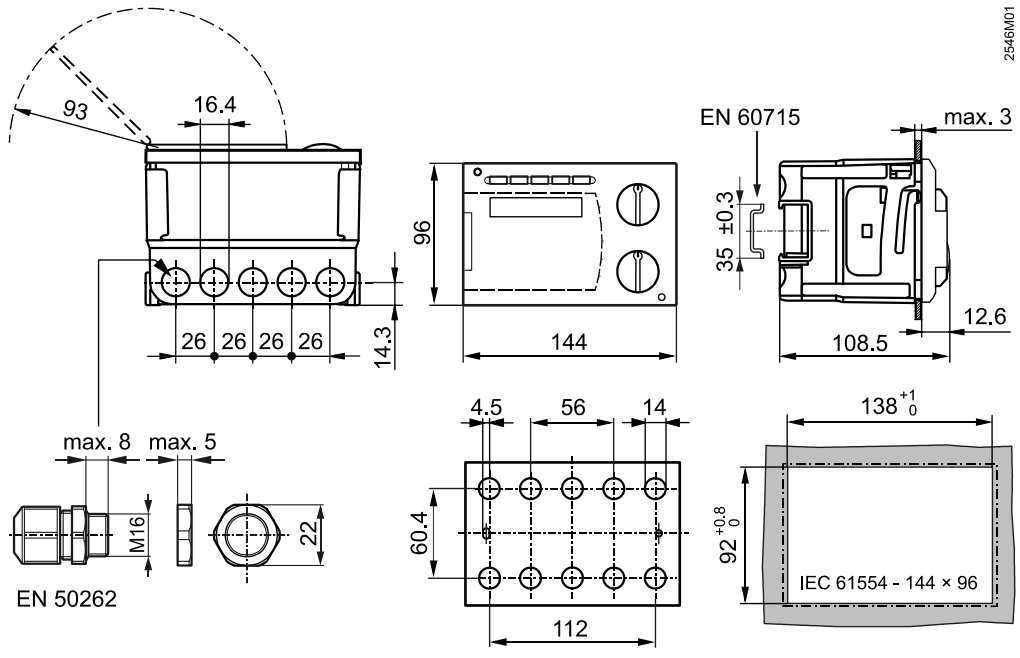| 147	Periodicity of legionella function	1 (0…7)	....	0 = daily 1 = Mondays 2 = Tuesdays, etc.
148	Starting point legionella function	05:00 (00:00…23:50)	....	hh:mm
149	Dwelling time at legionella setpoint	30 min (0…360)	..............min	
150	Circulating pump runs during legionella function	1 (0 / 1)	....	0 = no 1 = yes

Function block "Service functions and general settings"

161	Simulation of outside temperature	--.- °C (--.- / –50.0...50.0)	..............°C	Simulation is automatically ended after 30 minutes --.- = no simulation
162	Relay test	0 (0…12)		0 = normal operation (no test) 1 = all relays deenergized 2 = relay K4 energized 3 = relays K4 and K5 energized 4 = relay Q1 energized 5 = relay Q3 energized 6 = relay Y1 energized 7 = relay Y2 energized 8 = relay Q2 energized 9 = relay Q6 energized 10 = relay K6 energized 11 = Relay Y7 energized 12 = Relay Y8 energized *Ending the relay test:* • Select another operating line • Press an operating mode button • Automatically after 30 minutes **Caution:** Before making the relay test, always close the main valve!
163	Sensor test Sensor: – – – = interruption / no sensor o o o = short-circuit Thermostat: – – – = contact open o o o = contact closed	0 (0…11)		0 = B9 outside sensor 1 = B1 Flow sensor 2 = B5 room sensor 3 = A6 room unit sensor 4 = B7 return sensor 5 = B31 d.h.w. storage tank sensor / thermostat 6 = B32 d.h.w. storage tank sensor / thermostat 7 = B6 collector sensor 8 = B2 Boiler sensor 9 = B12 Flow sensor heating circuit 2 10 = B52 Room sensor heating circuit 2 11 = A6 room unit sensor, heating circuit 2
164	Display of setpoint – – – = no setpoint available	0 (0…11)		0 = no function 1 = B1 flow temperature setpoint 2 = B5 room temperature setpoint 3 = A6 room temperature setpoint 4 = B7 return temperature setpoint 5 = B31 d.h.w. temperature setpoint 6 = B32 d.h.w. temperature setpoint 7 = B6 collector setpoint 8 = B2 boiler temperature setpoint (switch-off point) 9 = B12 flow temperature setpoint heating circuit 2 10 = B52 room temperature setpoint heating circuit 2 11 = A6 room temperature setpoint heating circuit 2

167	Outside temperature for frost protection for the plant	2.0 °C (--.- / 0.0...25.0)	.............°C	--.- = no frost protection for the plant
168	Flow temperature setpoint for frost protection for the plant	15 °C (0...140)	.............°C	
169	Device number	0 (0...16)	....	Data bus address (LPB) 0 = device without bus
170	Segment number	0 (0...14)	....	Data bus address (LPB)
173	Locking signal gain	100% (0...200)	.............% ....%	Response to locking signals
174	Pump overrun time	6 min (0…40)	.............min	
175	Pump kick	0 (0 / 1)	....	0 = without periodic pump run 1 = with weekly pump run
176	Changeover winter- / summertime	25.03 (01.01...31.12)	....	Setting: Earliest possible changeover date
177	Changeover summer- / wintertime	25.10 (01.01...31.12)	....	Setting: Earliest possible changeover date
178	Clock mode	0 (0...3)	....	0 = autonomous clock in the controller 1 = clock from bus (slave), without remote readjustment 2 = clock from bus (slave), with remote readjustment 3 = controller is the central clock (master)
179	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
180	Outside temperature source	A (A / 00.01…14.16)	....	A = automatic or segment and device number
194	Hours run counter	Display function		
195	Software version	Display function		

Function block "Solar d.h.w."

201	Temperature differential solar ON	8 K (0…40)	.............K	Temperature differential of collector and storage tank
202	Temperature differential solar OFF	4 K (0…40)	.............K	Temperature differential of collector and storage tank
203	Fost protection temperature for collector	--- °C (--- / –20…5)	.............°C	--- = no frost protection for the collector
204	Overtemperature protection for collector	105 °C (--- / 30…240)	.............°C	--- = no overtemperature protection for the collector
205	Evaporation temperature of heat conducting medium	140 °C (--- / 60…240)	.............°C	--- = no protection for the collector pump
206	Maximum limitation of charging temperature	80 °C (8…100)	.............°C	
207	Maximum limitation of storage tank temperature	90 °C (8…100)	.............°C	**Caution:** This is not a safety function!
208	Collector start function gradient	--- min/K (--- / 1…20)	.............min/K	--- = function deactivated

Dimensions

2546M01

93

16.4

96

144

EN 60715

35 ±0.3

max. 3

108.5

12.6

26 26 26 26

14.3

max. 8   max. 5

M16

22

EN 50262

4.5   56   14

60.4

112

138^{+1}_{0}

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

IEC 61554 - 144 × 96

[mm]

Subject to change