en	**Installation Instructions**	**Heating controller for 1 heating circuit**	**RVP34..**

Heating controller for 1 heating circuit and d.h.w.

RVP35..

⚠️ 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 the data bus: 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 the 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).
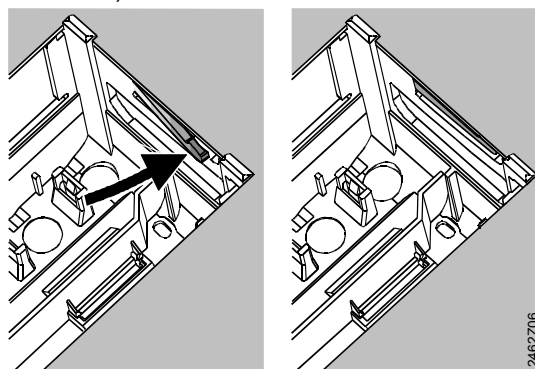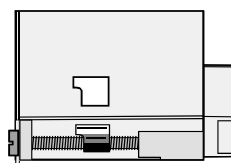

Wrong   Correct

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 the 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
   – Mains isolator or main switch not set to ON

General information about operation

- Setting elements for commissioning:
  – Setting knob: For room temperature readjustments
  – Display: For other variables; each setting is assigned an operating line
- Buttons for selection and adjustment of values:
  ▽ Press to select the next lower operating line
  △ Press to select the next higher operating line
  ◁ Press to decrease the displayed value
  ▷ 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 ◁ or ▷ depressed until the desired display appears
- Block jump function:
  To select an individual operating line quickly, 2 button combinations can be used: Keep ▽
  Keep ▽ depressed and press ▷ to select the next higher line block
  Keep ▽ depressed and press ◁ 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 the 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
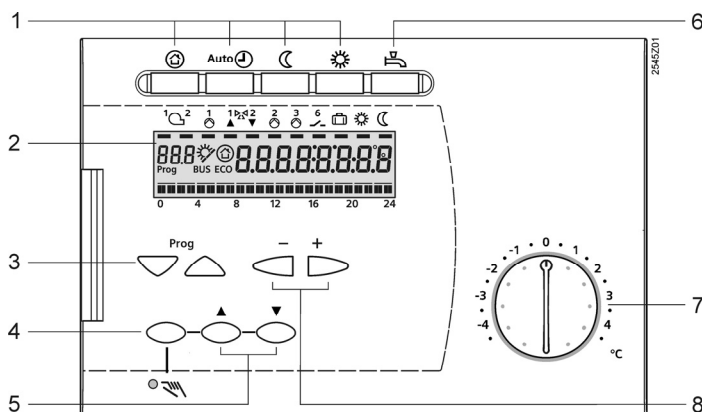
1 Buttons for selecting the operating mode
2 Display (LCD, RVP35..-specific)
3 Buttons for selecting the operating lines
4 Button for manual control ON / OFF
5 Buttons for valve OPEN / CLOSE when manual control ON
6 Button for d.h.w. heating ON / OFF (only with RVP35..)
7 Setting knob for readjusting the room temperature
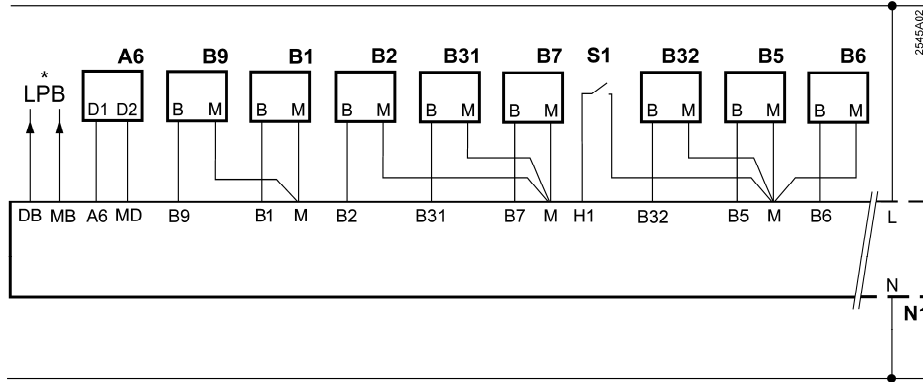8 Buttons for adjusting values

Connection diagrams

Low-voltage side
RVP340
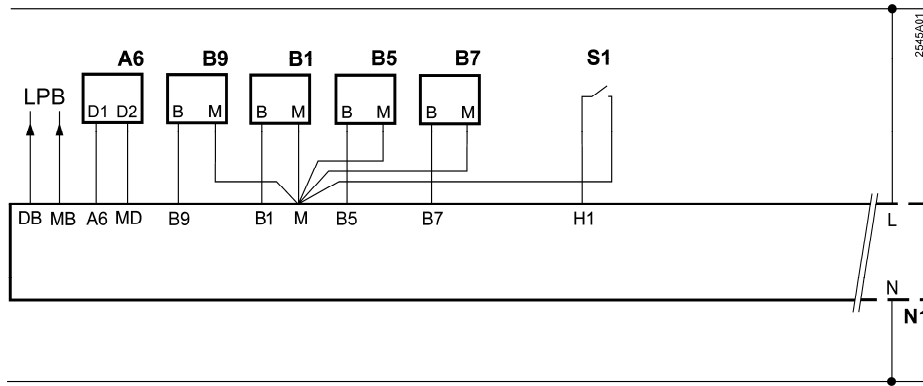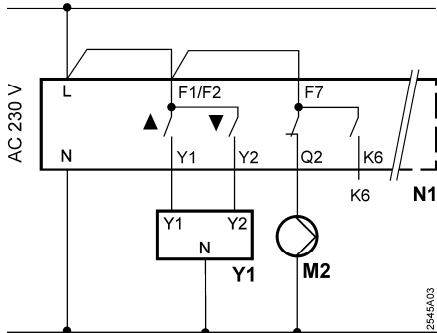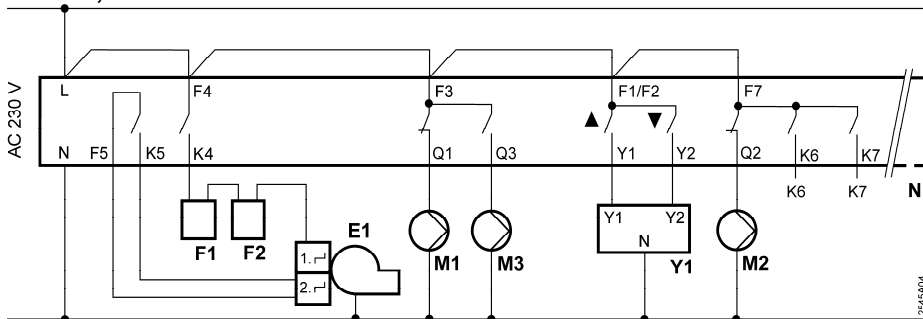

RVP350, RVP351

* LPB only RVP350

Mains voltage side
RVP340

RVP350, RVP351

A6	Room unit	F1	Thermal reset limit thermostat (only RVP35..)
B1	Flow sensor	F2	Safety limit thermostat (only RVP35..)
B2	Boiler sensor (only RVP35..)	Kx	K6, K7 = multifunctional outputs
B31	D.h.w. storage tank sensor / thermostat (only RVP35..)	LPB	Data bus (only RVP340 and RVP350)
B32	D.h.w. storage tank sensor / thermostat (only RVP35..)	M1	Circulating pump (only RVP35..)
B5	Room sensor	M2	Heating circuit pump
B6	Collector sensor (only RVP35..)	M3	Storage tank charging pump (only RVP35..)
B7	Return sensor	N1	Controller RVP3...
B9	Outside sensor	S1	Remote control "Operating mode"
E1	2-stage burner (only RVP35..)	Y1	Actuator heating circuit

"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.

Line	Function, display	Factory setting (range)	Setting	Explanations, notes and tips
1	Room temp. setpoint for NORMAL heating	20.0 °C (0.0…35.0)	...............°C	
2	Room temp. setpoint for REDUCED heating	14.0 °C (0.0…35.0)	...............°C	
3	Room temp. setpoint for holiday / protection mode	10.0 °C (0.0…35.0)	...............°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)	....	Scheduler program for heating circuit --:-- = phase deactivated
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)	....	
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	
15	Heating curve, flow temperature setpoint at an outside temperature of -5 °C	60 °C (20…120)	...............°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)	....	Scheduler program 2 --:-- = phase deactivated
33	End of 1st ON phase	22:00 (--:-- / 00:00…24:00)	....	
34	Start of 2nd ON phase	--:-- (--:-- / 00:00…24:00)	....	
35	End of 2nd ON phase	--:-- (--:-- / 0:00…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		10 = fault outside sensor B9 20 = fault boiler sensor B2 30 = fault flow sensor B1 40 = fault primary return sensor B7 50 = fault storage tank sensor B31 52 = fault storage tank sensor B32 60 = fault room sensor B5 61 = fault room unit A6 62 = device with wrong PPS identification connected 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)

Example:
Interconnected system

```
┌──────────────────────────┐
│ ⌐50┐    2 0   0 6.0 2      │
└──────────────────────────┘
```

20	= error code
06	= segment number (LPB)
02	= device number (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.
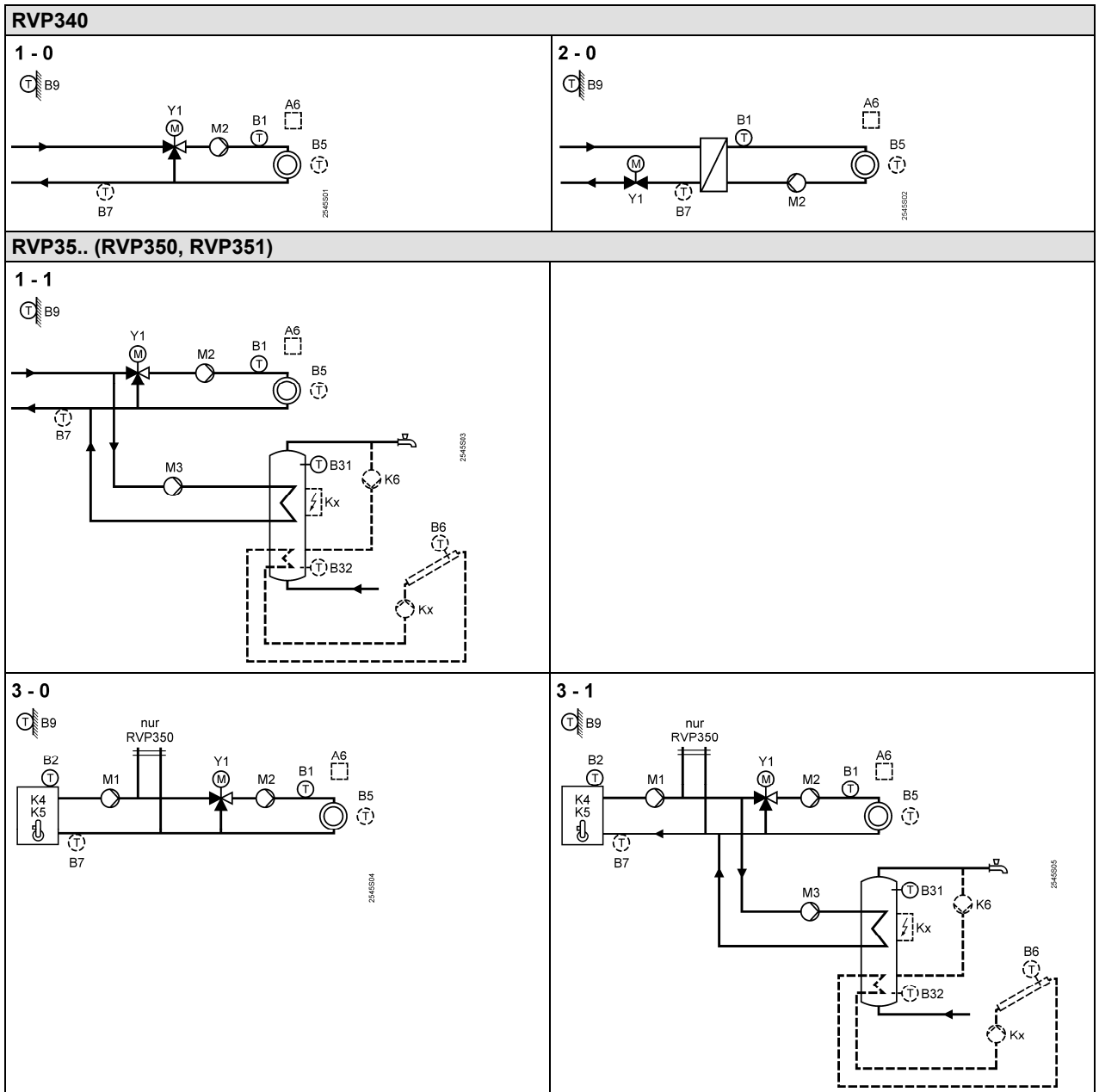
Configuring the plant type:
Select the required plant type on operating line 51 (see the following plant diagrams). This activates all functions needed for the particular type of plant and the required operating lines appear.
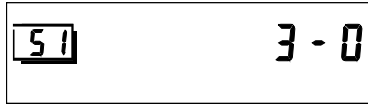
Example:
Display for plant type 3 - 0

51 Operating line
  3 Heating circuit type
  0 D.h.w. type

Plant types

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

RVP340	
1 - 0	**2 - 0**

RVP35.. (RVP350, RVP351)	
1 - 1	
3 - 0	**3 - 1**

Function block "Plant configuration"

51	Plant type	**RVP340** 1-0 (1-0...2-0) **RVP35..** 3-1 (1-1...3-1)	....	See the plant diagrams above

Function block "Space heating"

61	Heating limit NORMAL (ECO day)	17.0 °C (--- / –5.0…25.0)	.............°C	--- = function deactivated
62	Heating limit REDUCED (ECO night)	5.0 °C (--- / –5.0…25.0)	.............°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 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	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	Maximum forward shift for switching off before occupancy ends 0:00 = no optimum stop control
69	Maximum limitation room temperature	--.- °C (--.- / 0.0…35.0)	.............°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	

Function block "Actuator heating circuit"

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

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, plant types 1-x, 3-x: Minimum limitation, plant type 2-0: Maximum limitation

Function block "District heating"

112	Slope, maximum limitation return temperature	0.7 (0.0...4.0)		
113	Start of compensation (point of inflection), maximum limitation return temperature	10 °C (–50...50)	°C	
114	Integral action time, maximum limitation return temperature	30 min (0…60)	min	

OpL 101, OpL 112, OpL 113, TRt, -TO

OpL = operating line
TO = outside temperature
TRt = return temperature

Function block "D.h.w." (only RVP35..)

121	Assignment of d.h.w. (only RVP350)	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 the heating program(s), depending on the 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: 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

| 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 time 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

Function block "Multifunctional relays"

141	Function multifunctional relay K6	**RVP340** 0 (0…2) **RVP350** Plant types x-0 0 (0…2) Plant types x-1 0 (0…9) **RVP351** 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!
142	Function multifunctional relay K7	**RVP350** Plant types x-1 0 (0…4) **RVP351** Plant types x-1 0 (0…2)	....	0 = no function 1 = collector pump 2 = electric immersion heater, changeover heating / electric according to own controller 3 = electric immersion heater, changeover heating / electric according to all controllers in the interconnected system having the same segment number 4 = 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 operates during the legionella function	1 (0 / 1)	....	0 = no 1 = yes

Function block "Service functions and general settings"
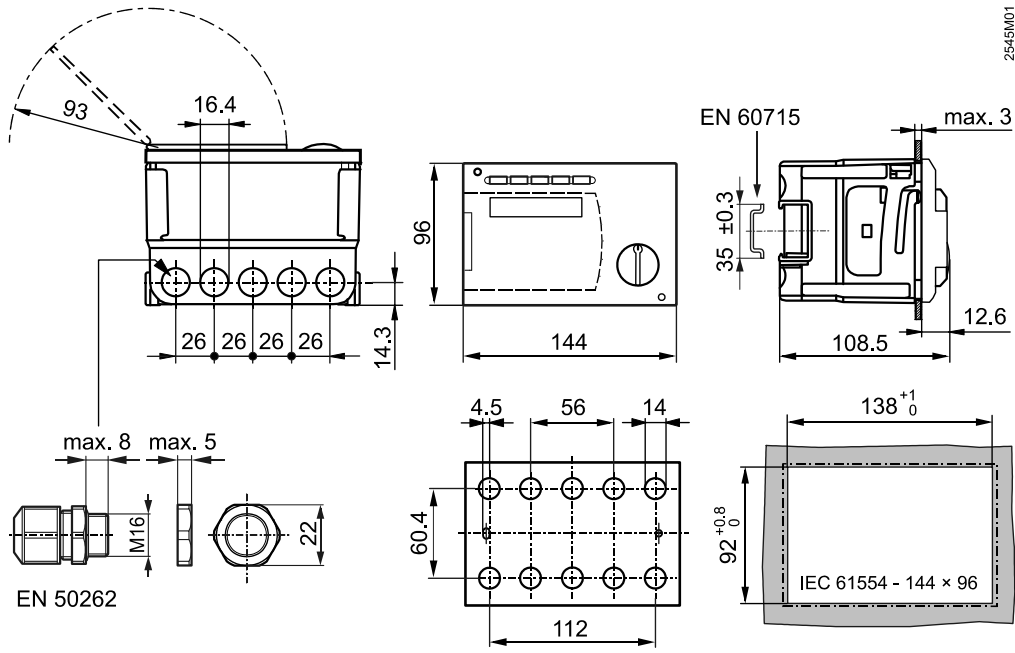
161	Simulation of outside temperature	--.- °C (--.- / –50.0...50.0)	............°C	Simulation is automatically ended after 30 minutes --.- = no simulation
162	Relay test	**RVP340** 0 (0…5) **RVP35..** 0 (0…10)		**RVP340** 0 = normal operation (no test) 1 = all relays deenergized 2 = relay Y1 energized 3 = relay Y2 energized 4 = relay Q2 energized 5 = relay K6 energized **RVP35..** 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 K7 energized 10 = relay K6 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	**RVP340** 0 (0…4) **RVP35..** 0 (0…8)		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
164	Display of setpoint – – – = no setpoint available	**RVP340** 0 (0…4) **RVP35..** 0 (0…8)		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)
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)

172	Operating mode when terminals H1–M are bridged	Plant types x-0 0 (0…3) Plant types x-1 0 (0…9)	....				

For row 172, the description area contains the following sub-table:

		Operating mode heating circuit	D.h.w.
0 =	⌂	PROTECTION MODE	OFF
1 =	Auto⏱	AUTO	OFF
2 =	☾	REDUCED	OFF
3 =	☼	NORMAL	OFF
4 =	⌂	PROTECTION MODE	ON
5 =	Auto⏱	AUTO	ON
6 =	☾	REDUCED	ON
7 =	☼	NORMAL	ON
8 =	Auto⏱	AUTO	ON, 24h/day
9 =	☼	NORMAL	ON, 24h/day

No.	Name	Default (Range)	Unit	Description
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."

No.	Name	Default (Range)	Unit	Description
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

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