LANDIS & STAEFA

SIGMAGYR®

Heating Controller

RVL47

Installations Instructions

Installation

Place of installation

- In a dry room, e.g. the boiler room
- Mounting choices:
  - In a control panel (on the inner wall or on a DIN mounting rail)
  - On a panel
  - In the control panel front
  - 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
- Cable tension relief must be provided
- The cables from the controller to the actuator and the pump carry mains voltage
- The cables to the detectors should not be run parallel to mains carrying cable (e.g. power supply for the pump)

Permissible cable lengths

- For all detectors:

Copper cable 0.6 mm dia	20 m max.
Copper cable 1.0 mm^2	80 m max.
Copper cable 1.5 mm^2	120 m max.

- For the room units:

Copper cable 0.6 mm dia	25 m max.
Copper cable from 0.8 mm dia	50 m max.

- For the data bus:

1.5...2.5 mm^2	according to Landis & Staefa specification

Installation and wiring

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

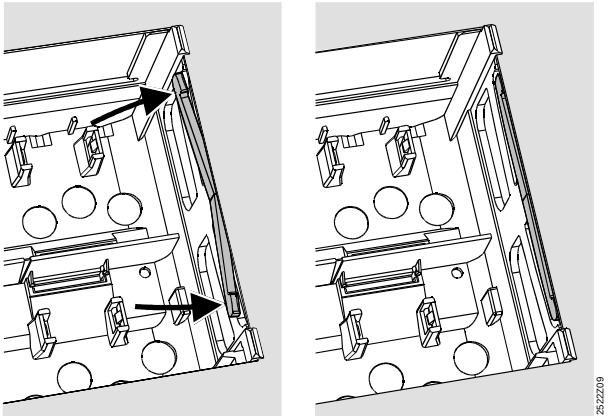
DIN rail mounting

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

- Panel cutout required: 138 x 138 mm (+1 mm / -0 mm)
- Maximum thickness: 3 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)
5. Wire up base. Make sure the cable lengths are such that there is sufficient space to open the control panel door



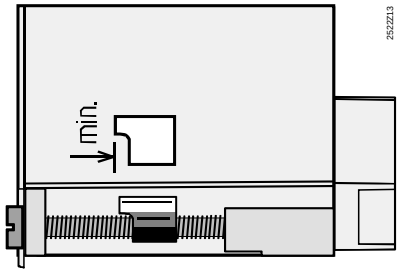
Wrong **Correct**

Place the tongues correctly - they must not be inside the cutout!

Commissioning

Preparatory checks

1. DO NOT switch on power supply yet
2. Check wiring according to the plant connection diagram
3. Ensure correct position and location of levers by turning the fixing screws (refer to illustration on the lateral wall of the unit).



4. Insert unit in the base until stop is reached. Marking «TOP» must be at the top!
5. Tighten fixing screws alternately
6. Check regulating unit (seat or slipper value): see if
   - it is correctly installed (observe direction of flow indicated on the valve body)
   - the slipper travels in the correct angular range (note position indicators)
   - the hand lever is disengaged
7. 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

8. Switch on power supply
   The display must show something (e.g. time of day). If not, the reason may be one of the following:
   - No mains voltage
   - Main fuse blown
   - Main switch not set to ON

General information on operation

- Setting elements for commissioning:
  - Heating curve: directly with the little bar
  - Other variables: in the display; one operating line is assigned to each setting
- Buttons for selecting and readjusting the values:
  - Selecting the next operating line below
  - Selecting the next operating line above
  - Decreasing the displayed value
  - Increasing the displayed value
- Adopting a setting value:
  The setting value is adopted by selecting the next operating line (or: press Info button or one of the operating mode buttons)
- Entering **--.-** or **--:--** :
  Press − or + until the required display appears
- Block jump function:
  To select a single operating line quickly, two button combinations can be used:
  Press ▽ and + selecting the next line block above
  Press ▽ and − selecting the next line block below

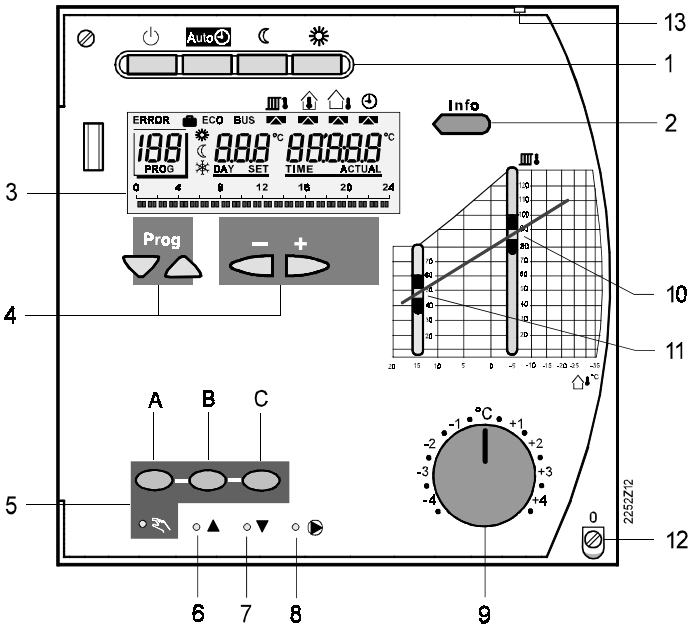
Setting procedure

1. Set bar for the heating curve according to the planning documention or according to common local practice
2. Make settings on operating lines 1...17 ("Enduser") (table on page 3)
3. Select plant type on operating line 51 (page 4)
4. Proceed in the respective table "Settings for plant type...":
   - Plant type 1: table on page 5
   - Plant type 2: table on page 5
   - Plant type 3: table on page 5
5. Enter the values set in the table!
6. If required, set the sevice functions (independent of plant type, table on page 6)
7. Carry out the final work (locking of settings, etc.; page 7)

Commissioning and functional check

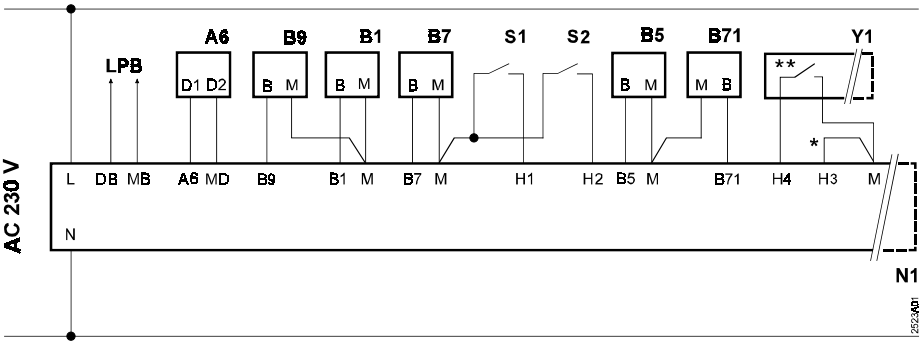
- Specific operating lines for the functional check:
  121 = simulation of outside temperature
  122 = relay test
  123 = detector test
- If ERROR appears in the display: interrogate operating line 50 to pinpoint error (table on page 3)

Setting elements

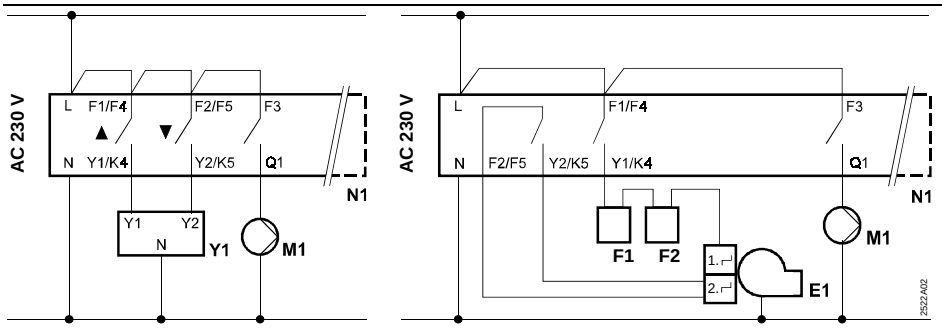


1 Operating mode buttons
2 Info button
3 Display
4 Buttons for selecting and readjusting setting values
5 Buttons for manual operation:
A = manual operation ON
B = valve OPENS
C = valve CLOSES
6 LED for valve OPENS / 1st burner stage ON
7 LED for valve CLOSES / 2nd burner stage ON
8 LED for pump ON
9 Setting knob for room temperature readjustment
10 Heating curve, slider for flow temperature at -5 °C outside temperature
11 Heating curve, slider for flow temperature at 15 °C outside temperature
12 Fixing screw with sealing facility
13 Sealing facility in the cover

Connection diagrams



Basic connections on the low voltage side



Basic connections on the mains voltage side

Left: connections for plant types 1, 3, 4 and 6 (mixing valve or district heat)

Right: connections for plant types 2 and 5 (boiler with a two-stage burner)

A6	Room unit QAW50 or QAW70
B1	Flow temperature detector
B5	Room temperature detector
B7	Return temperature detector
B71	Return temperature detector in secondary circuit
B9	Outside detector
E1	Two-stage burner (With plant type 2, it is possible to control an electro-thermal actuator in place of the burner; electrical connections on request)
F1	Thermal reset limit thermostat
F2	Manual reset safety limit thermostat
LPB	Data bus (Local Process Bus)
M1	Circulating or boiler pump
N1	Controller RVL47
S1	Remote control "operating mode"
S2	Remote control "set value of flow temperature / minimum valve"
Y1	Actuator for three-position control
*	Wire link for locking the district heat parameters
**	Auxiliary switch for minimum stroke limitation in the actuator (suppression of hydraulic creep)

Settings on the "Enduser" level

Press ▽ or △, thus activating the "Enduser" level

Legend to the tables:

Adjustable value
Read only display

Line	Function, display	Factory setting	Range	Setting	Explanations, notes, tips
1	Setpoint for NORMAL heating ☼	20.0 °C	0...35	.....°C	
2	Setpoint for REDUCED heating ☾	16.0 °C	0...35	.....°C	
3	Setpoint for holidays mode / frost potection ❄	10.0 °C	0...35	.....°C	
4	Weekday (for heating program)	1...7	1...7		1 = Monday 2 = Tuesday 7 = Sunday 1-7 = all days
5	1st heating period, start of NORMAL heating	Monday to Fryday: 22:00 Saturday: 23:00 Sunday: 22:00	--:-- ... 24:00	.....	
6	1st heating period, start of REDUCED heating	Monday to Fryday: 22:00 Saturday: 23:00 Sunday: 22:00	--:-- ... 24:00	.....	
7	2nd heating period, start of NORMAL heating	--:--	--:-- ... 24:00	....	
8	2nd heating period, start of REDUCED heating	--:--	--:-- ... 24:00	....	
12	Date of first day of holiday 💼	--:--	01.01. ... 31.12.		Day**.**Month
13	Date of last day of holiday 💼	--:--	01.01. ... 31.12.		
14	Time of day		0...23:59	.....	Hours**:**Minutes
15	Weekday		1...7	.....	1 = Monday 2 = Tuesday 7 = Sunday
16	Date		01.01. ... 31.12.	.....	Day**.**Month (e.g. 02.12 for 2 Dec.)
17	Year		1995..2094	.....	

50	Faults	**Display function** Display example for interconnected plants:  10 = error code 2 = segment number 03 = controller address	10 = fault outside detector 30 = fault flow or boiler detector 40 = fault return detector (primary circuit) 42 = fault return detector (secondary circuit) 60 = fault room detector 61 = fault room unit 62 = wrong room unit connected 81 = short-circuit on data bus 140 = wrong controller address (data bus)

Settings on the "Heating engineer's" level

Press ▽ and △ simultaneously for 3 seconds, thus activating the "Heating engineer's" level for setting the plant type and the plant-related variables.

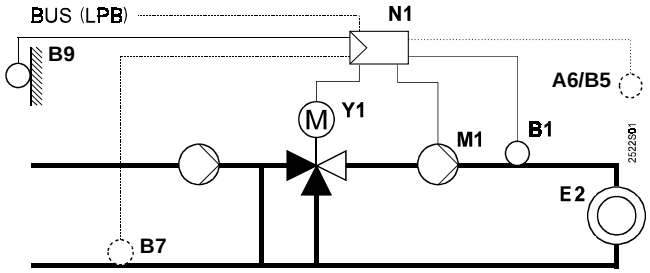
Setting the plant type on operating line 51:

The required plant type must be set on operating line 51. This activates all functions and operating lines required for the plant, which can then be set. Ignore the other five plant types!

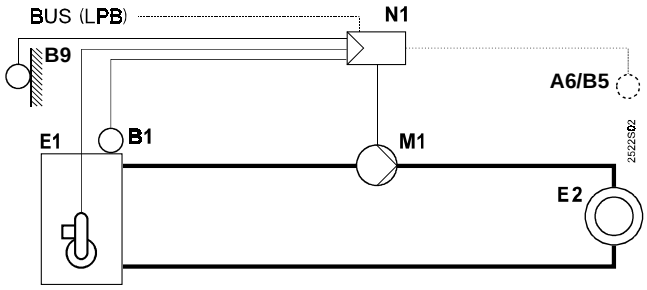
51	Plant type	1	1...3	.....	4...6 are disabled

Plant types

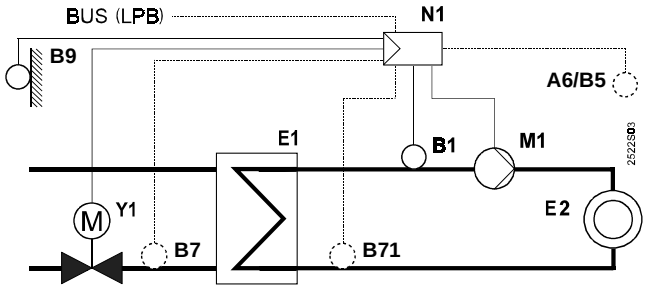
Plant type 1: space heating with mixing zone (three-position control, acting on seat or slipper valve)



Plant type 2: space heating with own boiler (on/off control, acting on burner)



Plant type 3: space heating with district heat connection



A6	Room unit QAW50 or QAW70
B1	Flow temperature detector
B5	Room temperature detector
B7	Return temperature detector
B71	Return temperature detector in secondary circuit
B9	Outside detector
E1	Boiler or heat exchanger
E2	Load
LPB	LPB, Data bus (Local Process Bus) for common outside temperature
M1	Circulating pump or boiler pump
N1	Controller RVL47
Y1	Actuator for three-position control
*	With plant type 2, it is possible to control an electro-thermal actuator in place of the burner; controller settings on request.

Settings required for plant type 1 (selected on on operating line 51)

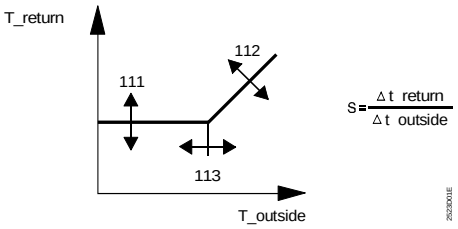
Line	Function, display	Factory setting	Range	Setting	Explanations, notes, tips
61	Heating limit for NORMAL heating (ECO day)	18.0 °C	--.- or -5...+25	.....°C	Setting --.- = function disabled
62	Heating limit for REDUCED heating (ECO night)	5.0 °C	--.- or -5...+25	.....°C	Setting --.- = function disabled
63	Building time constant	20 h	0...50	.....h	Light = 10 h, medium = 25 h, heavy = 50 h
65	Source of the room temperature	0	0 / 1 / 2 / 3	.....	0 = no room detector present or room unit only used for remote control 1 = room unit QAW50 or QAW70 at terminal A6 2 = room detector at terminal B5 3 = mean value of the two units at terminals A6 and B5
81	Maximum limitation of flow temperature	---	--- or 0...140	.....	e.g. for floor heating 55 °C Setting --- = function disabled
82	Minimum limitation of flow temperature	---	--- or 0...140	.....	Setting --- = function disabled
101	Minimum limitation of return temperature	---	--- or 0...140	.....°C	Function prevents corrosion of boiler Setting --- = function disabled

Settings required for plant type 2 (selected on on operating line 51)

Line	Function, display	Factory setting	Range	Setting	Explanations, notes, tips
61	Heating limit for NORMAL heating (ECO day)	18.0 °C	--.- or -5...+25	.....°C	Setting --.- = function disabled
62	Heating limit for REDUCED heating (ECO night)	5.0 °C	--.- or -5...+25	.....°C	Setting --.- = function disabled
63	Building time constant	20 h	0...50	.....h	Light = 10 h, medium = 25 h, heavy = 50 h
65	Source of the room temperature	0	0 / 1 / 2 / 3	.....	0 = no room detector present or room unit only used for remote control 1 = room unit QAW50 or QAW70 at terminal A6 2 = room detector at terminal B5 3 = mean value of the two units at terminals A6 and B5
94	Switching differential	6 °C	1...20	.....°C	
95	Minimum burner running time	4 min	0...10	..... min	
97	Reset limit, first burner stage to OFF	10.0 °C*Min	0...500	..... °C*Min	

Settings required for plant type 3 (selected on on operating line 51)

Line	Function, display	Factory setting	Range	Setting	Explanations, notes, tips
61	Heating limit for NORMAL heating (ECO day)	18.0 °C	--.- or -5...+25	.....°C	Setting --.- = function disabled
62	Heating limit for REDUCED heating (ECO night)	5.0 °C	--.- or -5...+25	.....°C	Setting --.- = function disabled
63	Building time constant	20 h	0...50	.....h	Light = 10 h, medium = 25 h, heavy = 50 h
65	Room temperature	0	0 / 1 / 2 / 3	.....	0 = no room detector present or room unit only used for remote control 1 = room unit QAW50 or QAW70 at terminal A6 2 = room detector at terminal B5 3 = mean value of the two units at terminals A6 and B5

81	Maximum limitation of flow temperature	---	--- or 0...140	.....°C	e.g. for floor heating 55 °C Setting --- = function disabled
82	Minimum limitation of flow temperature	---	--- or 0...140	.....°C	Setting --- = function disabled
111	Maximum limitation of return temp. Constant limit value	---	--- or 0...140	.....°C	Setting --- = function disabled
112	Maximum limitation of return temp. Slope S	0.7	0.0...4.0	.....	
113	Maximum limitation of return temp. Start of shifting limitation	10 °C	- 50...+ 50	.....°C	
115	Maximum limitation of differential return temperature	--.- °C	--.- or 0...50	.....°C	Differential temperature (DRT): difference between primary return and secondary return temperature Setting --.- = function disabled

Service functions

Note: the service functions are independent of the type of plant

Line	Function, display	Factory setting	Range	Setting	Explanations, notes, tips
121	Simulation of outside temperature	--.-	--.- or -50...+50		To terminate simulation: press Info button. (Resetting the attenuated outside temperature: set the actual outside temperature, then terminate simulation)
122	Relay test: Relay 1: valve OPENS / 1st burner stage ON Relay 2: valve CLOSES / 2nd burner stage ON Relay 3: circulating pump	0	0/1/2/3/4		0 = normal operation (no relay test) 1 = no relay energized 2 = relay 1 energized, relay 2 and 3 de-energized 3 = **plant with mixing valve:** relay 2 energized, relay 1 and 3 de-energized **plant with burner:** relay 1 and 2 energized, relay 3 de-energized 4 = relay 3 energized, relay 1 and 2 de-energized To terminate relay test: press Info button or select next line
123	Setpoints and actual values, detector test 0: outside detector 1: flow* or boiler* detector 2: room detector at terminal B5 3: room unit at terminal A6 4: primary return detector at B7 5: secondary return detector at B71	**Display function**			SET = setpoint or limit value ACTUAL = actual value 000 = short-circuit - - - = interruption * The setpoint displayed is the effective setpoint including all compensations.
124	Corrected flow temperature set value	**Display function**			Actual set value resulting from heating curve and position of setting knob
125	Corrected heating curve	**Display function**			Resulting setpoint incl. position of setting knob Left: flow temperature setpoint at °C outside temperature Right: flow temperature setpoint at -5 °C outside temperature
128	Controller address	0	0...16		0 = device with no bus

129	Segment number	0	0...14		Each separate subsection is given a separate number
131	Operating mode when linking terminals H1-M	0	0/1/2/3		0 = STANDBY 1 = AUTO mode 2 = REDUCED mode 3 = NORMAL mode
133	Flow temperature setpoint when linking terminals H2-M	70 °C	0...140	.....°C	Max. selection between this value and the flow temperature setpoint according to the heating curve
136	Changeover winter-/ summertime	25.03	1.1. ... 31.12	.....	Setting: earliest possible changeover time
137	Changeover summer-/ wintertime	22.10	1.1. ... 31.12	.....	Setting: earliest possible changeover time
139	Bus supply	A	0/A	.....	Set=0 : central bus supply (to be selected, when connected with SYNERGYR) Set=A : bus supply through the controller
141	Operating hours of controller	**Display function**			
142	Controller's software version	**Display function**			
143	Identification code of room unit	**Display function**			

Final work

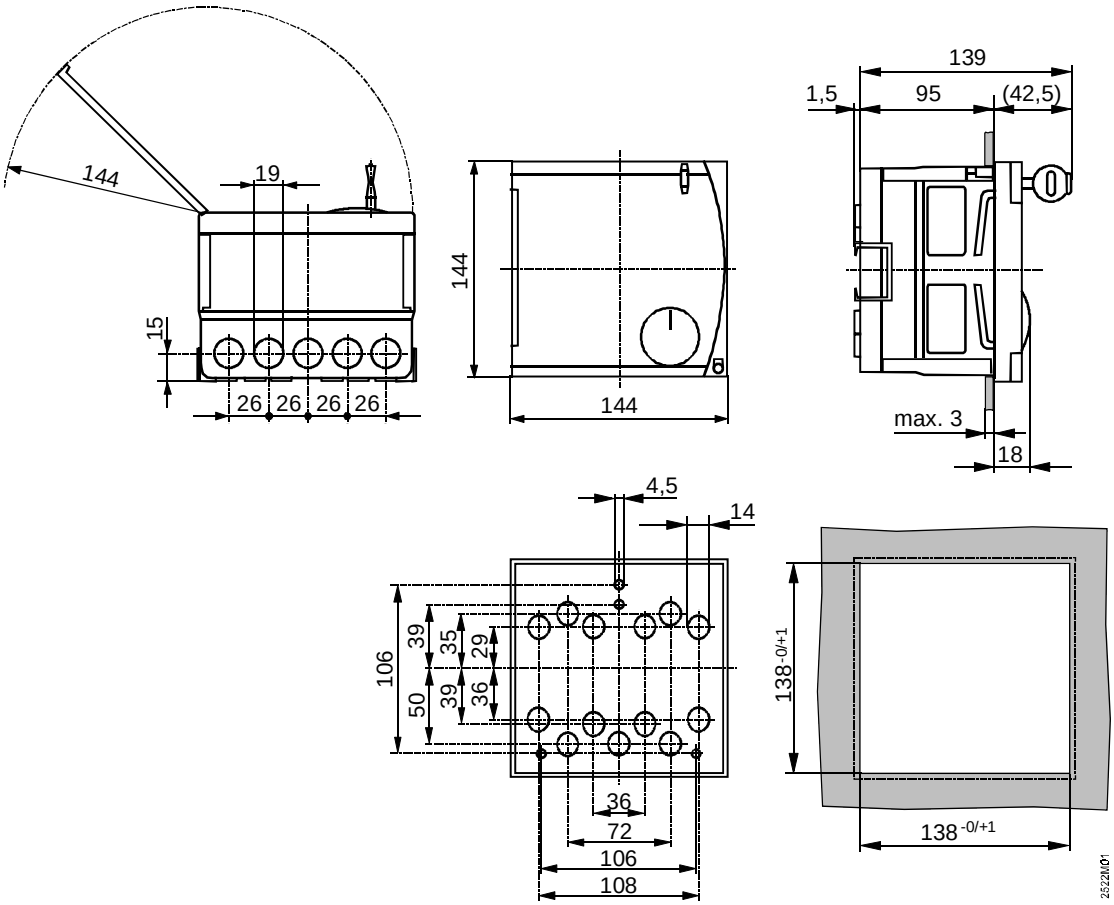
Locking the settings for district heat

The settings for district heat can be locked by linking terminals H3 and M.
Then, seal the fixing screw at the bottom: insert plug (attached to the key ring) in the screw hole; introduce a wire through both lugs and seal.

Finishing the installation work

Tighten the fixing screws, if not already done.
If settings have been entered in these instructions: keep instructions in a safe place.
Keep Operating Instructions inside the controller.
Seal the transparent cover, if required.

Dimensions



Dimensions in mm

 Ordering number: 4 319 2758 0