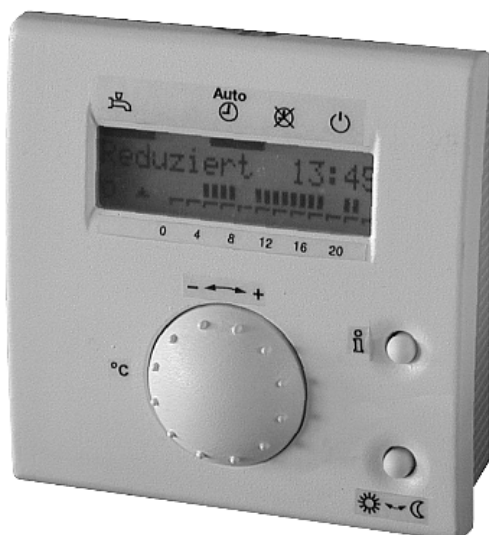


# SIEMENS



ALBATROS 

## QAA73.110

### Room Unit for Boiler Control with OpenTherm Interface Basic Documentation

Edition 1.0  
Device series A  
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Siemens Building Technologies  
Landis & Staefa Division



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# 1 Summary

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## Brief description

The QAA73.110 is a digital multi-functional room unit for one or 2 heating circuits and d.h.w. control.

Boiler control delivers the outside temperature and other information to the QAA73.110 room unit via the OpenTherm communication interface. Based on the outside temperature, the room temperature and a number of other parameters, the interface calculates the required flow temperature setpoints for one or 2 heating circuits and transmits them to the boiler control. In addition, the d.h.w. temperature setpoint is transmitted to the boiler control.

The optimization functions offer energy savings without sacrificing comfort. The room sensor required for that purpose is integrated in the unit.

## 1.1 Features

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### Operating functions

- Operating sections based on ergonomic and functional considerations
- Clear assignment of basic functions:
  - Operating mode, setpoint adjustment and occupancy button
  - A number of actual values can be accessed via the Info button
  - Additional functions can be programmed after opening the cover
  - Special service level with protected access
- Every setting or change is displayed and thus acknowledged
- Yearly clock with automatic summer- / wintertime changeover
- One heating program per heating circuit with up to 3 heating periods per day can be selected on an individual basis
- D.h.w. program with up to 3 periods per day can be selected on an individual basis
- Holiday program
- Heating programs and d.h.w. program can be reset to their default settings
- Programming lock (e.g. for child-proofing)
- Clear text display in a number of selectable languages
- Special mode for setting the parameters of Siemens boiler control systems

### • Functions

- Weather-compensated flow temperature control while giving consideration to the building's thermal dynamics
- Weather-compensated flow temperature control with room compensation
- Pure room temperature control
- Effect of room temperature deviation can be adjusted
- Optimum start / stop control
- ECO functions (24-hour limit switch, automatic summer / winter changeover)
- Room temperature switching differential for limiting the room temperature
- Maximum limitation of flow temperature can be adjusted (especially for floor heating systems)
- Limitation of rate of increase of flow temperature setpoint
- Frost protection for the building, frost warning
- D.h.w. control with release and preselection of setpoint for the boiler controller
- Legionella function
- Integrated yearly clock with a reserve of at least 12 hours

### • Other features

- Elegant housing made of recyclable plastic
- Communication with boiler control via OpenTherm interface
- Power supply via OpenTherm bus

## 1.2 Range of products

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Boiler Management Unit Premix TOP	LMU6x
Third party boiler control with OpenTherm interface	
Room unit with OpenTherm interface	QAA73.110
Clips for mounting in a panel cut-out	AVS92.299

## 1.3 Field of use

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### Target market

The room units are designed for the OEM market. They are supplied directly to the boiler manufacturer and enhance functionality and level of control of heating boilers.

### Types of buildings

Suited for use in residential buildings with own heating systems, such as:

- One- and 2-family houses
- Smaller multifamily houses
- Holiday houses and villas

### Types of heating systems

Standard heating systems, such as radiator, convector, underfloor and ceiling heating systems, and radiant panels. Especially suited for heating plants with pump heating circuits. If boiler control systems feature integrated mixing valve control, it is also possible to control mixing heating circuits.

### Heat generating equipment

Primarily in connection with:

- Heating boilers or modulating burners
- Heating boilers or instantaneous water heaters with integrated d.h.w. storage tank that can be controlled with an appropriate OpenTherm signal

## 1.4 Product liability

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- The products may only be used in building services plant and applications as described above
- When using the products, all requirements specified under "Technical data" must be satisfied
- The local regulations for installation must be complied with

## 1.5 Environmental compatibility

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### Note on disposal



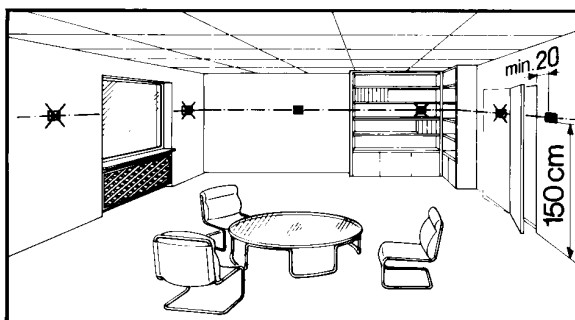
The unit contains electrical and electronic components and may not be disposed of as household garbage. **Local laws must be complied with!**

## 2 Handling

### 2.1 Engineering

#### Mounting location

- In the main living room or reference room
- The unit must be located such that the sensor can measure the room temperature as accurately as possible without being affected by direct solar radiation or other heat or refrigeration sources
- Mounting height is about 1.5 meters above the floor
- The unit can be fitted to most commercially available conduit boxes or directly on the wall



### 2.2 Installation

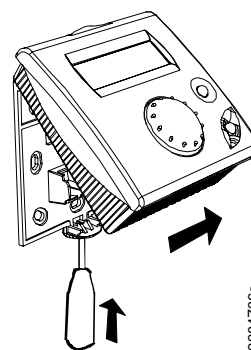
#### Mounting conditions

- Wall
- Boiler control panel (with the help of clips)
- The controller may not be exposed to dripping water
- Permissible ambient temperature: 0...50 °C

#### Wall mounting

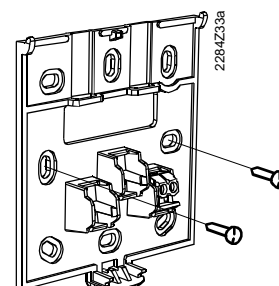
##### Step 1

Open the unit at the bottom and remove the base from the housing front.



##### Step 2

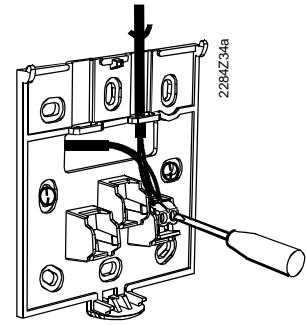
Fit the base to the wall with the help of screws.





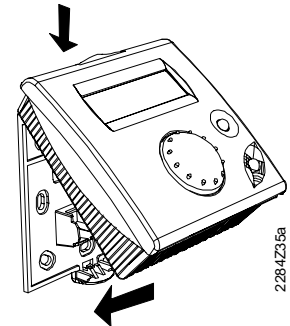
Step 3

Pull bus cable through the opening of the base and connect bus cable to the screw terminals.



Step 4

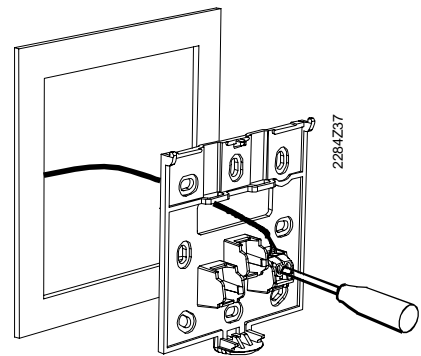
Engage the housing front at the bottom of the base and close the unit at the top.



### Mounting in a panel cut-out

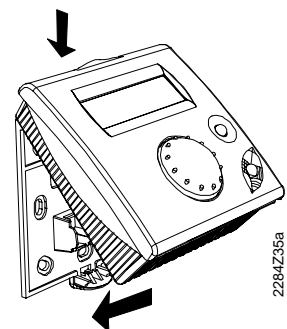
Step 1

Pull bus cable through the opening of the base and connect bus cable to the screw terminals.



Step 2

Engage the housing front at the top of the base and close the unit at the bottom.

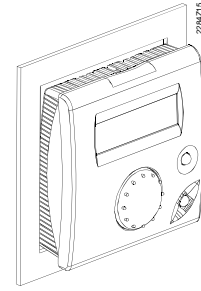


Step 3

Slide the unit into the panel cut-out without applying any force.

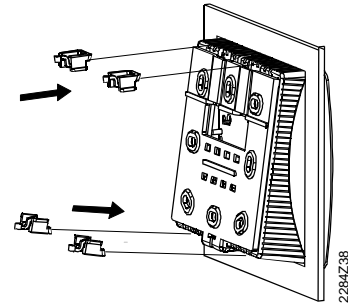
*Note:*

Do not use any tools when inserting the unit into the cut-out. If it does not fit, check the size of the cut-out and the housing.



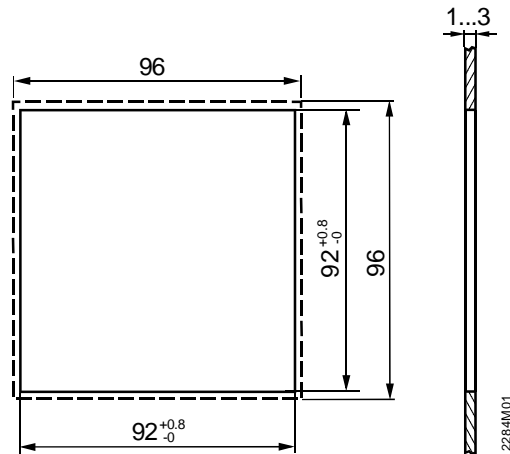
Step 4

Fit the clips (usually 4 pieces) to the rear of the housing. They engage on the housing.



## Dimensions of cut-out

The controller's mounting dimensions are 92 x 92 mm.  
Due to the dimensions of the front, however, the standard spacing is 96 mm.  
The mechanical mounting facility allows the controller to be fitted in front panels having a thickness of 1 to 3 mm.

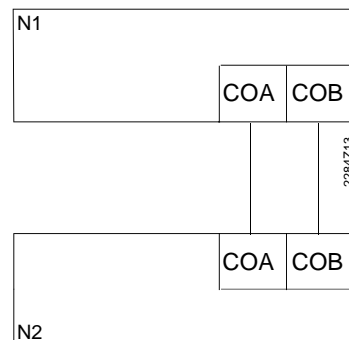


## 2.3 Electrical installation

### Regulations for installation

The local regulations for electrical installations must be complied with.

### Connection diagrams



Connection diagram of QAA73.110 for boiler control

COA OpenTherm terminal A (interchangeable)

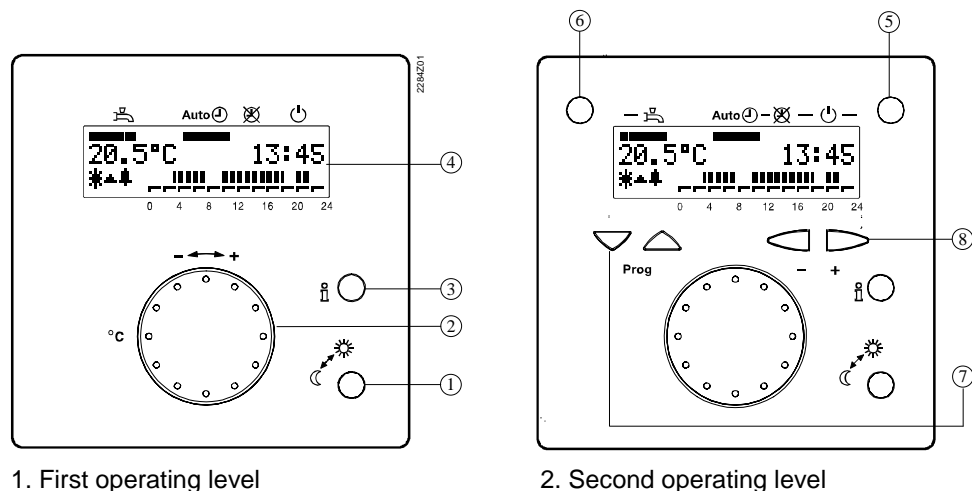
COB OpenTherm terminal B (interchangeable)

N1 Room unit QAA73.110

N2 Boiler control

## 2.4 Operation

### Operating elements



### Legend

Operating element	Function
① Occupancy button	Changeover of operating level
② Setpoint knob for nominal temperature	Adjustment of room temperature setpoint
③ Info button	Change of info display
④ LCD with 2 lines each with 16 characters and pointer for operating mode	Display of data and operating mode
⑤ Heating circuit operating mode button and associated symbols	Operating mode changes to: <b>Auto</b> Automatic operation Continuous operation Standby
⑥ D.h.w. operating mode button with associated symbol	D.h.w. heating ON / OFF
⑦ Line selection buttons (up and down)	Selection of operating line
⑧ Setting buttons (plus and minus)	Setting the parameters

First operating level

Operating elements 1 to 4.

Second operating level

Operating elements 5 to 8. Can be accessed only after opening a cover.

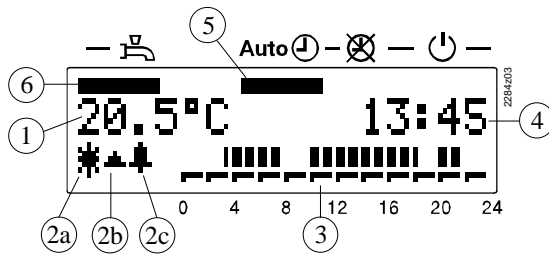
### Display

The room unit has 2 display levels:

- The info level
- The parameter setting / programming level

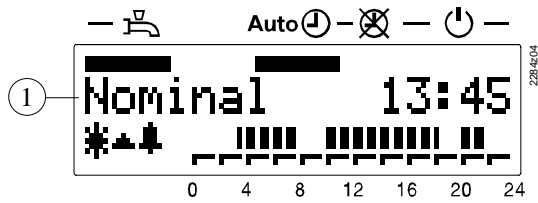
Examples of info level

Basic display:



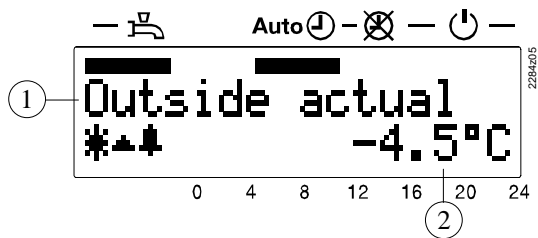
- 1 Actual value of room temperature
- 2a Display of heating circuit operating level
  - \* Nominal
  - ◻ Reduced
  - \* Frost protection
- 2b Flame status (activated, if flame present)
- 2c Fault / service (activated, if fault present / service due)
- 3 Time pointer
- 4 Time of day
- 5 Heating circuit operating modes
- 6 D.h.w. operating mode

Display of operating level, in this case "Nominal":



- 1 Current operating level

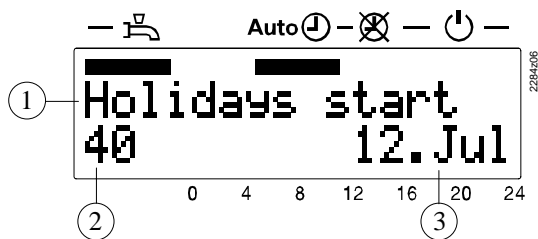
Display of measured value "Outside temperature":



- 1 Parameter name
- 2 Parameter value

Example of parameter level

Display of parameter "Holidays start":



- 1 Parameter name
- 2 Parameter number
- 3 Parameter value

## 2.5 Communication with the BMU

### OpenTherm bus

For communication between the QAA73.110 and boiler control, the OpenTherm protocol is used.

OpenTherm differentiates between 2 modes, Plus and Lite:

- In OpenTherm Plus mode, the QAA73.110 can read or write various standardized objects via the bus
- In OpenTherm Lite mode, the QAA73.110 only sends a signal for the heat output to the boiler control. In the event of fault, boiler control signals *Boiler Lock-Out*.

### Notes



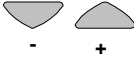

- The parameters displayed only in OpenTherm Plus mode are appropriately identified in the parameter lists
- The following descriptions of the individual parameters refer to the use of OpenTherm Plus and are based on the assumption that the relevant functions are supported by boiler control. Only then is the full functionality of the QAA73.110 ensured so that the most common applications can be fully covered
- If a parameter is not supported by boiler control, the display shows 3 strokes – – – in place of a value

## 2.6 Parameter settings for the end-user

### Description

The following settings can be made to meet the individual needs of the end-user.

### Setting

	<i>Buttons</i>	<i>Explanation</i>	<i>Line</i>
1		Press one of the 2 line selection buttons. <i>This will take you directly to the programming mode "End-user".</i>	<b>1</b>
2		Press the line selection buttons to select the required line. <i>The parameter list on the next pages contains all available lines.</i>	<b>1</b> ... <b>50</b>
3		Press the + or - button to set the required value. The setting will be stored as soon as you leave the programming mode or change to another line. <i>The parameter list on the next 2 pages contains all settings that can be made.</i>	
4		By pressing the Info button, you leave the programming mode "End-user".	Contin- uous display

### Note

If no button is pressed for about 8 minutes, the room unit will automatically return to the Info level.

## 2.6.1 Overview of end-user parameters

Line	Function	Range	Unit	Resolution	Factory setting
<b>Time of day</b>					
1	Time of day	0 ... 23:59	hh:mm	1 min	–
2	Date (day, month)	1. Jan ... 31. Dec	dd.mm	1 day	–
3	Year	2000 ... 2094	jjjj	1 year	–
<b>Setpoints</b>					
5	Reduced setpoint of room temperature (TRRw)	TRF ... TRN	°C	0.5	16.0
6	Frost protection setpoint of room temperature (TRF)	4 ... TRRw	°C	0.5	10.0
7*	Nominal setpoint of d.h.w. temperature (TBWw)	TBWR ... TBWmax	°C	1	55
<b>Time switch program HC 1 (heating circuit 1)</b>					
10	Time switch program HC 1 preselection of weekday	Mo...Su, week	Day	1 day	–
11	Time switch program HC 1 switch-on time 1 <sup>st</sup> phase	--:-- / 00:00 ... 24:00	hh:mm	10 min	06:00
12	Time switch program HC 1 switch-off time 1 <sup>st</sup> phase	--:-- / 00:00 ... 24:00	hh:mm	10 min	22:00
13	Time switch program HC 1 switch-on time 2 <sup>nd</sup> phase	--:-- / 00:00 ... 24:00	hh:mm	10 min	--:--
14	Time switch program HC 1 switch-off time 2 <sup>nd</sup> phase	--:-- / 00:00 ... 24:00	hh:mm	10 min	--:--
15	Time switch program HC 1 switch-on time 3 <sup>rd</sup> phase	--:-- / 00:00 ... 24:00	hh:mm	10 min	--:--
16	Time switch program HC 1 switch-off time 3 <sup>rd</sup> phase	--:-- / 00:00 ... 24:00	hh:mm	10 min	--:--
<b>Time switch program HC 2 (heating circuit 2)</b>					
20*	Time switch program HC 2 preselection of weekday	Mo...Su, week	Day	1 day	–
21*	Time switch program HC 2 switch-on time 1 <sup>st</sup> phase	--:-- / 00:00 ... 24:00	hh:mm	10 min	06:00
22*	Time switch program HC 2 switch-off time 1 <sup>st</sup> phase	--:-- / 00:00 ... 24:00	hh:mm	10 min	22:00
23*	Time switch program HC 2 switch-on time 2 <sup>nd</sup> phase	--:-- / 00:00 ... 24:00	hh:mm	10 min	--:--
24*	Time switch program HC 2 switch-off time 2 <sup>nd</sup> phase	--:-- / 00:00 ... 24:00	hh:mm	10 min	--:--
25*	Time switch program HC 2 switch-on time 3 <sup>rd</sup> phase	--:-- / 00:00 ... 24:00	hh:mm	10 min	--:--
26*	Time switch program HC 2 switch-off time 3 <sup>rd</sup> phase	--:-- / 00:00 ... 24:00	hh:mm	10 min	--:--
<b>Time switch program 3 (d.h.w.)</b>					
30	Time switch program d.h.w. preselection of weekday	Mo...Su, week	Day	1 day	–
31	Time switch program 3 d.h.w. 1 <sup>st</sup> phase on	--:-- / 00:00 ... 24:00	hh:mm	10 min	06:00
32	Time switch program 3 d.h.w. 1 <sup>st</sup> phase off	--:-- / 00:00 ... 24:00	hh:mm	10 min	22:00
33	Time switch program 3 d.h.w. 2 <sup>nd</sup> phase on	--:-- / 00:00 ... 24:00	hh:mm	10 min	--:--
34	Time switch program 3 d.h.w. 2 <sup>nd</sup> phase off	--:-- / 00:00 ... 24:00	hh:mm	10 min	--:--
35	Time switch program 3 d.h.w. 3 <sup>rd</sup> phase on	--:-- / 00:00 ... 24:00	hh:mm	10 min	--:--
36	Time switch program 3 d.h.w. 3 <sup>rd</sup> phase off	--:-- / 00:00 ... 24:00	hh:mm	10 min	--:--
<b>Holidays</b>					
40	Holidays start (day.month) --:-- (= inactive)	1. Jan ... 31. Dec.	dd.mm	1 day	--:--
41	Holidays end (day.month) --:-- (= inactive)	1. Jan ... 31. Dec.	dd.mm	1 day	--:--
42	Heating circuit operating level during holidays	Frost, reduced	–	–	Frost
<b>General</b>					
45	STANDARD time switch programs for HC1 + 2 and d.h.w. (press both buttons +/- for 3 s)	No, yes	–	–	No
46	Summer / winter changeover temperature	8 ... 30	°C	0.5	17.0
47	Language	German, English...	–	–	German
50*	Display of fault (error code of QAA73.110 or boiler control)	0 ... 255	–	1	–

\* These lines are only displayed in OpenTherm Plus mode. Also, the relevant functions must be supported by boiler control.




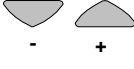

--:-- = Switching point inactive

## 2.7 Parameter settings for the heating engineer

### Description

Room unit configuration and parameter settings to be made by the heating engineer.

### Setting

	<i>Buttons</i>	<i>Explanation</i>	<i>Line</i>
1		Press one of the 2 line selection buttons. <i>This will take you first to the programming mode "End-user".</i>	<b>1</b>
2		Press both line selection buttons for at least 3 seconds.  <i>This will take you to the programming level "End-user".</i>	<b>51</b>
3		Press the line selection buttons to select the required line.  <i>The parameter list on the next 2 pages contains all available lines.</i>	<b>51</b> ... <b>98</b>
4		Press the + or - button to set the required value. The setting will be stored as soon as you leave the programming mode or change to another line.  <i>The parameter list on the next 2 pages contains all settings that can be made.</i>	
5		You leave programming level "Heating engineer" by pressing the Info button.	Contin- uous display

### Note

If no button is pressed for about 8 minutes, the room unit will automatically return to the Info level.



## 2.7.1 Overview of heating engineer parameters

Line	Function	Range	Unit	Resolution	Factory setting
<b>Service values</b>					
51	Current room temperature setpoint HC1 Nominal, reduced or frost protection setpoint	0 ... 35.0	°C	0.5	–
52*	Current room temperature setpoint HC2 Nominal, reduced or frost protection setpoint	0 ... 35.0	°C	0.5	–
53*	Outside temperature attenuated (is set to actual value by pressing both buttons +/- for 3 s)	–50 ... +50	°C	0.5	–
54*	Outside temperature composite	–50 ... +50	°C	0.5	–
55*	Actual value 2 of d.h.w. temperature	0 ... 127	°C	1	–
56*	D.h.w. flow rate	0 ... 16	l/min	0.5	–
57*	Actual boiler return temperature	–40 ... 127	°C	1	–
58*	display of the maximum flue gas temperature	–40 ... 500	°C	1	–
59*	Actual temperature of solar collector	–40 ... 250	°C	1	–
61*	Actual temperature of solar storage tank	–40 ... 127	°C	1	–
62	OpenTherm mode	Lite, Plus	–	–	–
<b>Space heating (HC1 and HC2)</b>					
70	Heating curve slope HC1 – – = HC1 inactive	2.5 ... 40.0	–	0.5	15.0
71	Minimum limitation of flow temperature HC1 (TV1 min)	8 ... TV1max	°C	1	8
72	Maximum limitation of flow temperature HC1 (TV1max)	TV1min ... TKmax	°C	1	80
73	Parallel displacement of heating curve HC1	–4.5 ... +4.5	K	0.5	0.0
74*	Type of building construction	Heavy, light	–	–	Light
75*	Room influence	None, on HC1, on HC2, on HC1 + HC2	–	–	On HC1
76	Switching differential of room temperature (switch-off point) – – . – = inactive	0.5 ... 4.0	K	0.5	– – . –
77	Adaptation of heating curve	Inactive, active	–	–	Active
78	Optimum start control maximum forward shift	0 ... 360	min	10	100
79	Optimum stop control maximum forward shift	0 ... 360	min	10	30
80*	Heating curve slope HC2 – – . – = HC2 inactive	2.5 ... 40.0	–	0.5	15.0
81*	Minimum limitation of flow temperature HC2 (TV2min)	8 ... TV2max	°C	1	8
82*	Maximum limitation of flow temperature HC2 (TV2max)	TV2min ... TKmax	°C	1	80
83*	Parallel displacement of heating curve HC2	–4.5 ... +4.5	K	0.5	0.0
<b>D.h.w.</b>					
90*	Reduced setpoint of d.h.w. temperature (TBWR)	8 ... TBWw	°C	1	40
91	Release of d.h.w. heating	24h/day, TSP HC – 1h, TSP HC, TSP d.h.w.	–	–	TSP HC – 1h
92*	Legionella function	Off, on	–	–	ON
<b>General</b>					
95	Operation lock	Off, on	–	–	OFF
96*	Clock time master	QAA73, external	–	–	QAA73
97	Summer time start	1. Jan ... 31.Dec	dd.mm	1 day	25. Mar
98	Summer time end	1. Jan ... 31.Dec	dd.mm	1 day	25. Oct











\* These lines are only displayed in OpenTherm Plus mode. Also, the relevant functions must be supported by boiler control.

## 2.8 Parameter settings for the OEM

### Description

Boiler-specific settings and protective functions for the boiler manufacturer.

### Setting

	Buttons	Explanation	Line
1	 PROG	Press one of the 2 line selection buttons. <i>This will take you first to the programming mode "End-user".</i>	<b>1</b>
2	 PROG 9 s	Press both line selection buttons for at least 9 seconds. A special display for entering the code will appear.	
3	<b>CODE</b>	Press buttons   and  to enter the required combination of the access code. <i>If the combination of buttons is correct, you reach the programming mode "OEM".</i>  ➔ Wrong code: If the code has been entered incorrectly, the display will change to the "Parameter settings for the heating engineer".	
4	 PROG	Press the line selection buttons to select the required line. <i>The parameter list on the next 2 pages contains all available lines.</i>	<b>100</b> ... <b>199</b>
5	  - +	Press the + or - button to set the required value. The setting will be stored as soon as you leave the programming mode or change to another line. <i>The following parameter list contains all available lines.</i>	
6	 	You leave the programming level "OEM" by pressing the Info button.	Contin- uous display

### Note

If no button is pressed for about 8 minutes, the room unit will automatically return to the Info level.

## 2.8.1 Overview of OEM parameters

Line	Function	Range	Unit	Resolution	Factory setting
<b>Space heating OEM</b>					
100	Maximum room temperature setpoint (TrwMax)	TRwMin ... 35	°C	0.5	35
101	Minimum room temperature setpoint (TrwMin)	4 ... TRwMax	°C	0.5	10
102	Gain factor of room influence (KORR)	0 ... 20	–	1	4
103	Quick setback constant (KON) (without room sensor)	0 ... 20	–	1	2
104	Boost of room temperature setpoint (DTRSA), boost heating	0 ... 20	K	1	5
105	Limitation of rate of increase of flow temperature setpoint	0 ... 15	K/min	0.5	5
106	Measured value correction of room temperature	–3.0 ... 3.0	°C	0.5	0
<b>D.h.w. OEM</b>					
130*	Maximum d.h.w. setpoint (TBWmax)	TBWw 80	°C	1	60
131*	Setpoint of legionella function (d.h.w.)	8 ... 95	°C	1	65
<b>Service functions OEM</b>					
150	Info display	Temporary, continuously	–	–	Temporary
151	Frost warning –.– = inactive	–10 ... +10	°C	0.5	3.0
152	Knob for setpoint adjustment	Locked, released	–	–	Released
153	Action occupancy button	On HC1+ HC2, On HC1	–	–	On HC1+HC2
199	Softwareversion (QAA73)	0 ... 99.9	–	1	–

\* These lines are only displayed in OpenTherm Plus mode. Also, the relevant functions must be supported by boiler control.

## 2.9 Commissioning

### Prerequisites

Prior to commissioning the controller, make the following checks:

- Correct mounting
- Correct connection to OpenTherm bus
- End-user parameters are set as required
- Heating engineer parameters are set in compliance with plant requirements
- OEM parameters are set in compliance with technical requirements

### Functional check

The heating plant is started up via boiler control. To make the functional check, the individual functions of the room unit are checked in the plant.

## 2.10 Operational faults

---

### Room unit

#### No display on the room unit:

- Is the heating plant's mains isolator switched on?
- Are the fuses in order?
- Check the wiring

#### Room unit displays a wrong time of day or a wrong date:

- Set the right time of day, the right date and the year on the room unit if the QAA73.110 is the clock master
  - Set the correct time of day and the date on the clock master (if present)
- 

### Boiler controller

#### Boiler control does not switch on

- Does boiler control really have to operate?
  - Press boiler control's lock-out reset button
  - Check the control thermostat (TR) and the manual reset safety limit thermostat (STB)
  - Check wiring and fuse of boiler control
  - Check communication link to boiler control
- 

### Room temperature

#### The room temperature does not agree with the required temperature level:

- Does the room temperature setpoint agree with the required temperature level?
  - Is the required operating mode indicated?
  - Are weekday, time of day and the displayed heating program correct? (Info displays)
  - Has the heating curve slope been correctly set?
  - Check wiring of outside sensor
  - Has the "Nominal room temperature setpoint" with the "Parallel displacement of the heating curve" been calibrated based on the effective room temperature?
  - Check boiler control
- 

### D.h.w.

#### D.h.w. is not being heated:

- Has the button for d.h.w. heating been pressed?
- Check setpoint of the d.h.w. temperature
- Check d.h.w. function of boiler control

# 3 Description of end-user settings




## User interface

### 3.1 Operating modes of heating circuit

#### Description

The control provides 3 different heating circuit operating modes that can be directly selected as required.




#### Operating modes

Auto , , 

The operating modes are selected by pressing the heating circuit operating mode button. It can be accessed after opening the cover.

The selected heating circuit operating mode applies to both heating circuits and is indicated on the display by a pointer under the relevant symbol.

#### Effect

Operating mode	Designation	Effect of mode selected
Auto 	Automatic operation	<ul style="list-style-type: none"><li>• Heating circuit 1 according to time switch program 1</li><li>• Heating circuit 2 according to time switch program 2</li><li>• Holiday function is active</li></ul>
	Continuous operation	Heating circuits 1 and 2 continuously according to the adjusted nominal room temperature setpoint or reduced setpoint Holiday function is not active
	Standby	Heating circuits 1 and 2 are switched off <ul style="list-style-type: none"><li>• Holiday function is not active</li><li>• Frost protection functions are active</li></ul>

### 3.2 Operating mode of d.h.w. heating

#### Description


D.h.w. heating can be switched on and off independent of the other operating modes.

#### Operating mode



The operating mode of d.h.w. heating is switched on and off by pressing the d.h.w. operating mode button on the unit's user interface.

#### Effect

D.h.w. heating ON is indicated by a pointer under the d.h.w. symbol . The d.h.w. is then automatically heated according to the internal settings.

D.h.w. heating OFF is indicated by the missing pointer beneath the d.h.w. symbol.

#### Notes

- The d.h.w. operating mode and the different d.h.w. functions are active only if supported by boiler control and if communicated in OpenTherm Plus mode
- No d.h.w. functions are provided in OpenTherm Lite mode, that is, the d.h.w. operating mode button is inactive

#### Caution

The QAA73.110 has no frost protection function for d.h.w. heating. Frost protection for d.h.w. must be ensured by boiler control.

### 3.3 Occupancy button

#### Description

In automatic and continuous operation, the heating circuit operation level can be changed by pressing the occupancy button.

#### Effect

Current operating mode	Effect on occupancy button
Automatic operation	The heating circuit operation level changes temporarily from nominal to reduced, or vice versa. The effect relates to HC1 + 2 or only to HC1, depending on the selection of function 153.
Continuous operation	The heating circuit operation level changes from nominal to reduced, or vice versa.
D.h.w.	The occupancy button has no effect on d.h.w. heating.
Holiday program	The occupancy button has no effect.
Summer operation	After automatic summer changeover, the occupancy button has no effect.

### 3.4 Info button

#### Description

The Info level can be accessed any time by pressing the Info button. By repeatedly pressing the Info button, the various data made available by the Info level can be queried.

Line	Display
1	Time of day, actual room temperature and operating mode
2	Indication of faults
3 *	Service display
4	Time of day and operating state heating circuit 1
5	Time of day and date
6 *	Actual value of outside temperature
7 *	Lowest outside temperature**
8 *	Highest outside temperature**
9	Actual value of room temperature
10	Lowest room temperature**
11	Highest room temperature**
12 *	Actual value of d.h.w. temperature
13 *	Actual value of the boiler temperature
14 *	Actual value of flow temperature
15 *	Burner modulation
16 *	Water pressure heating circuit

Depending on the configuration made (operating line 150), the information selected last is continuously displayed, or changes back to the standard display after 8 minutes.

\* These lines are only displayed in OpenTherm Plus mode. Also, the relevant functions must be supported by boiler control.

\*\* A reset to the actual temperature is made by pressing the +/- buttons for 3 seconds

## Time of day

### 3.5 Time of day, date and year

#### Description

To ensure proper functioning of the heating program, the time switch with the time of day, day, month and year must be correctly set.

#### Lines 1, 2, 3

1. Press the line selection buttons to select line **1**, **2** or **3**.
2. Press the + / – buttons to set the current values.

<i>Line</i>	<i>Setting range</i>	<i>Unit</i>
1	00:00...23:59	Minute, hour
2	1.Jan ... 31.Dec	day, month
3	2000 ... 2094	year

#### Effect

Time of day, date and year will be set to their current values. These settings are important, ensuring that the heating program, the d.h.w. program, the holiday program and summer- / wintertime changeover of the room unit operate as required.

#### Notes

- While the settings are made, the clock continues to run
- During the time settings, the seconds are reset to zero each time a + or – button is pressed
- If, on line 96, the clock master was programmed for external, manual time settings via lines 1 to 3 are no longer possible

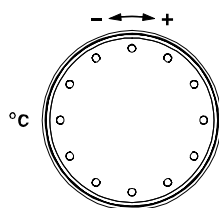
## Setpoints

### 3.6 Nominal room temperature setpoint

#### Description

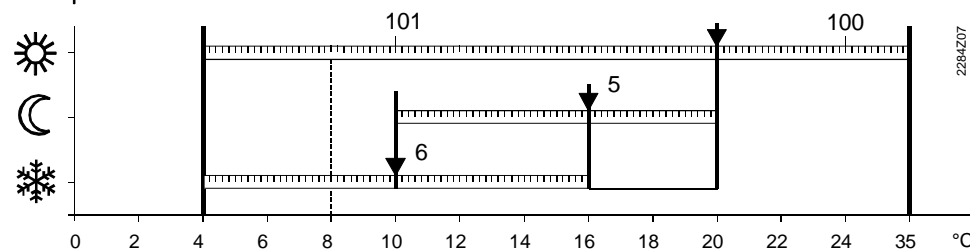
In nominal operation, the nominal room temperature setpoint is maintained.

#### Nominal setpoint



The nominal room temperature setpoint is adjusted with the knob for the nominal temperature, which is located on the controller front for direct access by the user. When turning the knob, the current room temperature setpoint is displayed and – when turning further – readjusted. The value applies to both heating circuits.

<i>Setting range</i>	<i>Unit</i>	<i>Factory setting</i>
TRwMin ... TRwMax	°C	20.0



#### Room temperature setpoint setting ranges

- 5 Reduced room temperature setpoint
- 6 Frost protection setpoint of room temperature

Notes

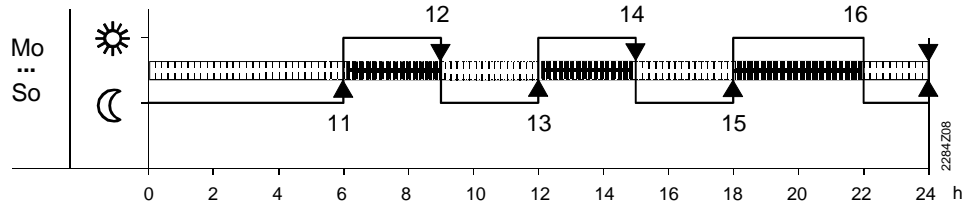
- Readjustment of the nominal setpoint with the knob can be locked via OEM parameter 152
- Minimum and maximum limitation of the nominal setpoint setting range can be accomplished via OEM parameters 100 and 101

Effect

When the nominal room temperature setpoint is active, the rooms will be heated according to the adjustment made with the knob.  
The adjustment made with the knob is only active in automatic and continuous operation.

Example

The nominal phases depend on the settings made on lines 11 through 16 for heating circuit 1 and according to the settings made on lines 21 through 26 for heating circuit 2.



Nominal temperature and reduced temperature phases for heating circuit 1

### 3.7 Reduced room temperature setpoint

Description

The reduced room temperature setpoint ensures a lower room temperature during the night, for instance, to save energy.

Line 5

1. Press the line selection buttons to select line 5.
2. Press the + / - buttons to adjust the reduced room temperature setpoint.

<i>Setting range</i>	<i>Unit</i>	<i>Factory setting</i>
TRF...TRN	°C	16

TRF Frost protection setpoint of room temperature (setting on line 6)

TRN Nominal room temperature setpoint (adjusted with the setpoint knob)

Note

It is not possible to set the reduced setpoint above the adjustment made with the nominal temperature knob.

Effect

During the reduced phases, the reduced room temperature setpoint is maintained. Any lower nominal temperature is given priority however.



## 3.8 Frost protection setpoint of room temperature (TRF)

### Description

This function prevents the room temperature from falling below the adjusted frost protection setpoint.

### Line 6

1. Press the line selection buttons to select line 6.
2. Press the + / – buttons to adjust the frost protection setpoint of the room temperature.

<i>Setting range</i>	<i>Unit</i>	<i>Factory setting</i>
4...TRRw	°C	10

TRRw Reduced room temperature setpoint (setting one line 5)

### Effect



This setting will change the frost protection setpoint of the room temperature.



### Caution

This function is ensured only when the heating plant operates properly!

### Frost protection for the building

In operating mode , the room temperature is prevented from falling below a certain level. This means that the frost protection setpoint of the room temperature  will be maintained.

## 3.9 Nominal setpoint of the d.h.w. temperature

### Description

During nominal operation, the nominal d.h.w. setpoint is maintained. It is possible to use 2 different d.h.w. temperature setpoints.

### Line 7

1. Press the line selection buttons to select line 7.
2. Press the + / – buttons to adjust the nominal setpoint of the d.h.w. temperature.

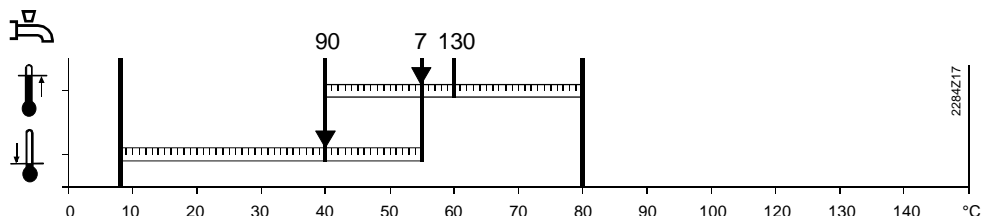
<i>Setting range</i>	<i>Unit</i>	<i>Factory setting</i>
TBWR...TBWmax	°C	55

TBWR Reduced d.h.w. temperature setpoint (setting one line 90)

TBWmax Maximum nominal setpoint of d.h.w. temperature (setting on line 130)

### Effect

The temperature setpoint during normal d.h.w. operation will be changed.



7 Nominal setpoint of the d.h.w. temperature

90 Reduced setpoint of the d.h.w. temperature

130 Maximum nominal setpoint of d.h.w. temperature

## D.h.w. temperature setpoints

D.h.w. heating has 2 setpoints that can be individually adjusted:



Nominal setpoint of d.h.w. temperature (setting on line 7): It ensures the d.h.w. temperature required during occupancy times.



Reduced setpoint of d.h.w. temperature (setting on line 90): It ensures the d.h.w. temperature required the main occupancy times.

## D.h.w. charging

The criteria required for releasing d.h.w. heating are defined by the settings made on line 91.

## Time switch programs for HC1, HC2 and d.h.w.

### Description

For the 2 heating circuits 1 and 2 as well as for d.h.w., it is possible to define independent time switch programs. This serves the following purpose:

- Space heating and d.h.w. heating operate only if there is a demand for heat
- The user can set the occupancy times to suit his lifestyle
- Energy can be saved by making adequate use of the time switch programs

The time switch programs for HC1, HC2 and d.h.w. consist of the switching times that can be entered for the weekdays or the 7-day block. For HC1, parameters 10 through 16 are provided, for HC2, parameters 20 through 26.

### Notes

- The time switch programs for HC1 and HC2 and that for d.h.w. operate independently of one another
- Parameters 20 through 26 are visible only if boiler control supports a second heating circuit
- Parameters 30 through 36 are visible only if line 91 is set for use by the d.h.w. time switch program

## 3.10 Pre-selection of weekday

### Description

With this setting, you select the weekdays or the 7-day block for which the switching times of the time switch program apply.

### Lines 10, 20, 30

1. Press the line selection buttons to select line **10** or **20** or **30**.
2. Press the + / - buttons to preselect the 7-day block or the individual day.

<u>Setting range</u>	<u>Unit</u>
Week	7-day block
Mo...Su	Individual days

### Important

- This setting must be made before the switching times are entered!
- For every day on which other switching times shall apply, the preselection of the individual day with subsequent entry of the switching times must be repeated

### Effect

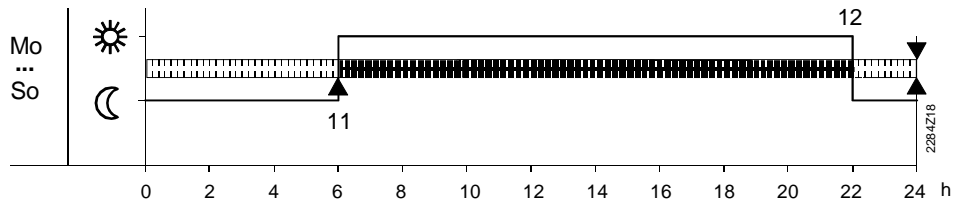
This setting is used to select either the whole week or individual days.

### Entry of 7-day block

Entry of the switching times of lines 11 through 16 (for HC1), or of lines 21 through 26 (for HC2), or of lines 31 through 36 (for d.h.w.) is identical for every day from Monday to Sunday. **7-day block:**

Entry of the switching times on lines 26 through 18 is identical for every day from Monday through Sunday

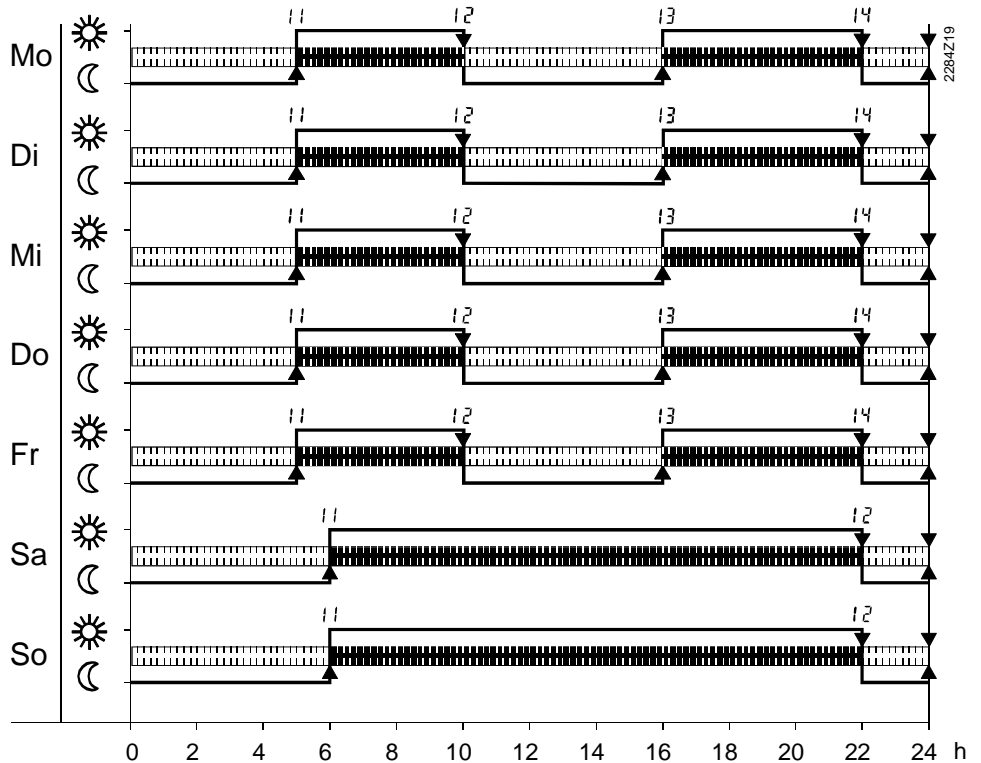
Example of a time switch program for heating circuit 1 valid for all weekdays:



### Entry of individual days

The switching times of lines 11 through 16 (for HC1), of lines 21 through 26 (for HC2) and of lines 31 through 36 (for d.h.w.) are **only** entered for the individual day selected here.

Example of a 7-day time switch program for heating circuit 1:



### Tip

First, choose the 7-day block to enter the switching times required for the majority of days; then, select the individual days to make the required adjustments.

## 3.11 Switching times

<b>Description</b>	This setting defines the switching times for space heating and d.h.w. heating. The temperature setpoints of the 2 heating circuits and the d.h.w. usage times change at the times set.		
<b>Lines</b> 11 ... 16 for HC1 21 ... 26 for HC2 31 ... 36 for d.h.w	<ol style="list-style-type: none"> <li>Press the line selection buttons to select lines <b>11</b> through <b>16</b> (for HC1), or lines <b>21</b> through <b>26</b> (for HC2), or lines <b>31</b> through <b>36</b> (for d.h.w.).</li> <li>Press the + / – buttons to set the switching time on each line.</li> </ol>		
	<u>Setting range</u>	<u>Unit</u>	<u>Factory setting</u>
	-- : -- 24:00	hh:min	See standard time switch programs
<b>Important</b>	First, select the weekday (operating line 10 or 20 or 30) for which the switching times shall be entered!		
<b>Note</b>	The room unit then makes a check to ensure the entries have been made in the correct order.		
<b>Effect</b>	At the times entered, the program will switch to the respective functions:		
	-- : --	Switching point inactive	
	00:00...24:00	At the time entered, a change to the respective function takes place.	

## Holidays

## 3.12 Holiday settings

<b>Description</b>	During the holiday period, the heating circuit operating level can be reduced. The start and the end of the holiday period are set here. This function is only active in automatic mode and acts on both heating circuits simultaneously.			
<b>Lines</b> 40, 41	<ol style="list-style-type: none"> <li>Press the line selection buttons to select line <b>40</b> for the start of the holiday period and line <b>41</b> for the end of the holiday period.</li> <li>Press the + / – buttons to set the start and then the end of the holiday period. First, the current date according to the internal clock is proposed.</li> </ol>			
	<u>Line</u>	<u>Display</u>	<u>Unit</u>	<u>Factory setting</u>
	40	1. Jan ... 31. Dec.	day.month	-- : -- (= inactive)
	41	1. Jan ... 31. Dec.	day.month	-- : -- (= inactive)
<b>Note</b>	The end of the holiday period can be changed only if a value has been set on the line for the start of the holiday period.			
<b>Effect</b>	<ul style="list-style-type: none"> <li>After the start of the holiday period, the heating level will be reduced either to "Reduced" or " Frost", depending on the parameter setting made on programming line 42. During the holidays, d.h.w. heating is locked</li> <li>On completion of the holiday period, the current room unit settings apply again</li> <li>The dates of the start and the end of the holiday period will automatically be cleared when the holidays are over</li> </ul>			
<b>Clearing</b>	The entered holiday period is cleared or aborted in the following way: Select line 40 or 41 and keep the + / – buttons depressed for 3 seconds.			

### 3.13 Heating circuit operating level during holidays

**Description** There is a choice of reduced operation or frost protection mode, depending on the geographical location and individual requirements.

- Line 42**
1. Press the line selection buttons to select line 42.
  2. Press the + / – buttons to set the heating circuit operating level.

<i>Display</i>	<i>Unit</i>	<i>Factory setting</i>
Frost, reduced	–	Frost

**Effect** When using the “Reduced” setting, the reduced room temperature setpoint (TRRw) is maintained during the holidays; when using the “Frost” setting, the frost protection setpoint of the room temperature (TRF) is maintained.

### General

### 3.14 Standard times

**Description** The standard time program resets the time settings of all time switch programs. For this purpose, the room unit is supplied with non-volatile factory settings.

- Line 45**
1. Press the line selection buttons to select line 45.
  2. Press the + / – buttons for 3 seconds.  
The standard time program is activated as soon as the display changes to “Yes”.

<i>Display</i>	<i>Unit</i>
No / yes	–

**Caution** In that case, the individual settings will be lost!

**Effect** The time settings for the time switch programs will be overwritten with standard values. This applies to the following settings:

- Switching times for time switch programs heating circuits 1 and 2 **11 ... 16 or 21 ... 26**
- Switching times for d.h.w. program **31 ... 36**

#### Standard values

<i>Switching point</i>	<i>Setting line</i>		<i>Standard time</i>
	Heating circuit 1 or 2	D.h.w.	
Switch-on time period 1	11 or 21	31	06 : 00
Switch-off time period 1	12 or 22	32	22 : 00
Switch-on time period 2	13 or 23	33	-- : --
Switch-off time period 2	14 or 24	34	-- : --
Switch-on time period 3	15 or 25	35	-- : --
Switch-off time period 3	16 or 26	36	-- : --

## 3.15 Summer / winter changeover temperature

### Description

The summer / winter changeover temperature is the criterion for automatic summer / winter changeover of the heating plant.

It offers the following benefits:

- Fully automatic operation throughout the year
- The heating will not be switched on when the outside temperature drops for short periods of time
- Additional savings function

### Line 46

1. Press the line selection buttons to select line 46.
2. Press the + / - buttons to select the summer / winter changeover temperature.

<u>Setting range</u>	<u>Unit</u>	<u>Factory setting</u>
8 ... 30.0	°C	17

### Effect

By changing the setting, the respective periods of time will be shortened or extended. The change will only affect the heating circuit.

Entry:

Increase: Winter operation will start *earlier*  
Summer operation will start *later*.


Decrease: Winter operation will start *later*  
Summer operation will start *earlier*

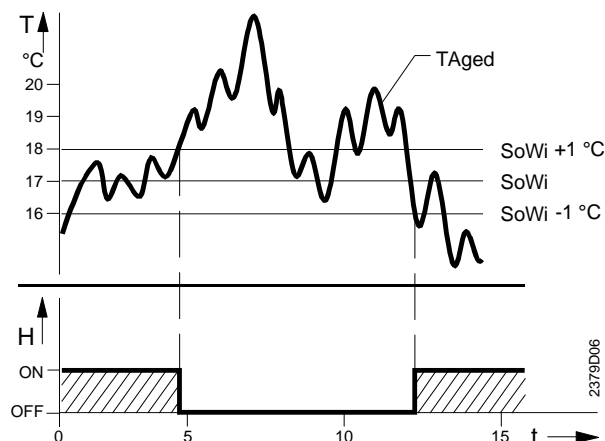
### Changeover

To determine changeover, the setting of the summer / winter changeover temperature ( $\pm$  a fixed switching differential) is compared with the attenuated outside temperature.

Heating <b>OFF</b> (from winter to summer)	$T_{Aged} > SoWi + 1 \text{ } ^\circ\text{C}$
Heating <b>ON</b> (from summer to winter)	$T_{Aged} < SoWi - 1 \text{ } ^\circ\text{C}$

### Notes

- This function only acts in automatic mode **Auto** 
- During summer operation, Info line 4 Eco is displayed



Changeover between summer and winter operation:

$T_{Aged}$  Attenuated outside temperature  
 $SoWi$  Summer / winter changeover temperature  
 $T$  Temperature  
 $t$  Time in days  
 $H$  Heating

## 3.16 Language

### Description

There is a choice of languages for the display.

### Line 47

1. Press the line selection buttons to select line 47.
2. Press the + / – buttons to select the required language.

Setting range

Factory setting

German, English ...

German

The assignment of other languages depends on the relevant software release. They can be selected by pressing the + / – buttons again.

## 3.17 Indication of faults

### Description

The room unit indicates faults that may have occurred in the unit itself or in the system. Faults cannot be reset. They will be cleared only when rectified.

### Info line 2 or line 50

Press the Info button to select Info line 2, or the line selection buttons to select line 50.

### Effect

If a fault is indicated, the symbol for fault / service flashes. The fault can be displayed in clear text by pressing the Info button. The fault automatically displayed is always the fault with the highest priority (most severe fault). If other faults are present at the same time, the next fault with the highest priority will be displayed after the present fault has been corrected.

### Own displays

In the case of a room unit-specific fault or a fault of Siemens's boiler control, the error code and appropriate error text will be displayed.



Example of own fault display

### Other displays

In the event of a fault occurring on a boiler control system of other manufacture, the error code delivered is preceded by #.



Example of other fault display

### Error code list

<u>Error code</u>	<u>Display QAA73.110</u>	<u>Description of fault</u>
0	No fault	No fault
10	OutsideSens	Fault outside sensor
60	Room sensor	Fault room sensor
100	TimeMaster	No valid external time (yearly clock)
118	W-Press low	Water pressure too low
124	Boiler temp	Alarm boiler temperature (too high)
131	Burn lockout	Fault burner
142	OpenTherm	Missing partner unit on LPB
150	BMU	General BMU fault
153	Interlock	Boiler control interlocked
162	AirPressSwi	Fault air pressure switch

Other fault displays

Depending on the type of boiler control, the room unit also displays other error codes with the relevant error text. For detailed information, please refer to the technical documentation of the boiler controller used.

### 3.18 Service display

**Description**

The room unit displays service notes that are generated by Siemens boiler control and then transmitted via the OpenTherm bus. They will be cleared only when rectified.

**Info line 3**

Press the Info button to select Info line 3.

**Effect**

If a service note is displayed, the symbol for fault / service flashes.  
When pressing the Info button, the relevant service note is displayed in clear text.

**Service text**

<i>display QAA73.110</i>	<i>Description of fault</i>
one	No service required
oiler	Boiler or burner service required
chimney sweep	Chimney sweep function active
controller stop	Controller stop function active
setting Vo LF	Low-fire setting Vo is active
setting Vo HF	High-fire setting Vo is active
parameter mode	Unit is in parameter setting mode
MU	Service non-L&S boiler control required



# 4 Description of heating engineer settings

## Service values

### 4.1 Current room temperature setpoints

#### Description

Depending on the operating mode, the room temperature is maintained either at the nominal setpoint (TRN), the reduced setpoint (TRRw), or the frost protection setpoint (TRF).

These parameters show the current setpoints of heating circuits 1 and 2.

#### Lines 51, 52

Press the line selection buttons to select line **51** (HC1) or **52** (HC2).

---

<u>Line</u>	<u>Display</u>	<u>Unit</u>	<u>Setpoint</u>
51	4 ... 35.0	°C	HK1
52	4 ... 35.0	°C	HK2

### 4.2 Attenuated outside temperature

#### Description

The attenuated outside temperature is the simulated room temperature of a fictive building that has no internal heat source. This means that it is only the outside temperature that affects the room temperature. Consideration is given to the building's thermal storage capacity.

The attenuated outside temperature is generated by the room unit. It is continually calculated based on the prevailing outside temperature.

#### Line 53

Operating line **53** automatically displays the actual value [°C] of the attenuated outside temperature. No direct setting can be made.

The generation of the attenuated outside temperature cannot be influenced.

---

<u>Display</u>	<u>Unit</u>
-50 ... 50	°C

#### Resetting

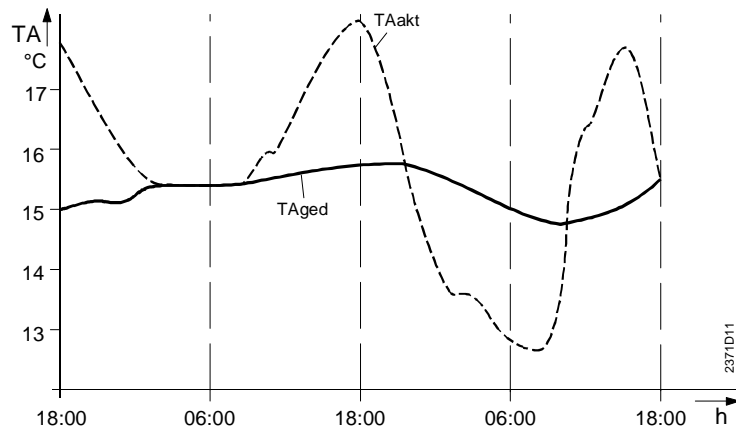
It is possible, however, to reset the attenuated outside temperature:

1. Press the line selection buttons to select line 53.
2. Press the + / – buttons for 3 seconds.  
As soon as the display stops flashing, the attenuated outside temperature is reset to the actual outside temperature.

#### Effect

The attenuated outside temperature has a direct impact only summer / winter changeover.

The attenuated outside temperature acts indirectly on flow temperature control via the composite outside temperature.



Attenuated outside temperature  
 TAakt Actual outside temperature  
 TAged Attenuated outside temperature

### 4.3 Composite outside temperature

#### Description

The composite outside temperature is a mixture of the actual outside temperature and the attenuated outside temperature as calculated by the room unit. It is used as a compensating variable for flow temperature control.

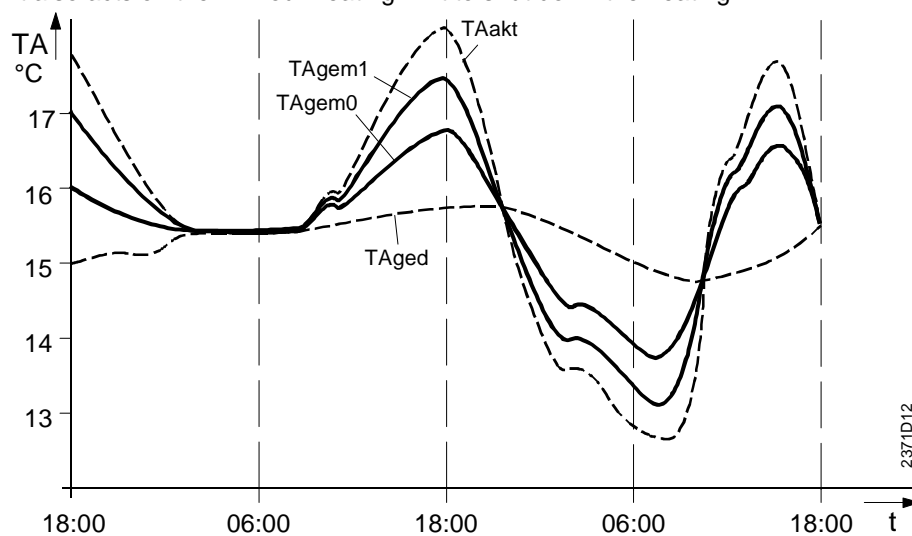
#### Line 54

Operating line **54** automatically displays the actual value [°C] of the composite outside temperature. No direct setting can be made.

Display	Unit
-50 ... 50	°C

#### Effect

The composite outside temperature as a compensating variable acts on flow temperature control, that is thus matched to the prevailing weather conditions. It also acts on the 24-hour heating limit to shut down the heating.



Composite outside temperature  
 TAakt Actual outside temperature  
 TAged Attenuated outside temperature  
 TAgem1 Composite outside temperature for light building structures  
 TAgem0 Composite outside temperature for heavy building structures

## 4.4 Actual value 2 of d.h.w. temperature

---

**Description**

The current d.h.w. temperature of the second d.h.w. sensor is displayed.

---

**Line 55**

Press the line selection buttons to select line 55.

---

<u>Display</u>	<u>Unit</u>
0 ... 127	°C

---

## 4.5 D.h.w. flow rate

---

**Description**

The flow rate currently passing through the d.h.w. circuit is displayed.

---

**Line 56**

Press the line selection buttons to select line 56.

---

<u>Display</u>	<u>Unit</u>
0 ... 16	l/min

---

## 4.6 Actual boiler return temperature

---

**Description**

The current boiler return temperature is displayed.

---

**Line 57**

Press the line selection buttons to select line 57.

---

<u>Display</u>	<u>Unit</u>
-40 ... 127	°C

---

## 4.7 Actual value of flue gas temperature

---

**Description**

The current flue gas temperature is displayed.

---

**Line 58**

Press the line selection buttons to select line 58.

---

<u>Display</u>	<u>Unit</u>
-40 ... 500	°C

---

## 4.8 Actual value of solar collector temperature

---

**Description**

The current solar collector temperature is displayed.

---

**Line 59**

Press the line selection buttons to select line 59.

---

<u>Display</u>	<u>Unit</u>
-40 ... 250	°C

---

## 4.9 Actual value of solar storage tank temperature

### Description

The current solar storage tank temperature is displayed.

### Line 61

Press the line selection buttons to select line 61.

<u>Display</u>	<u>Unit</u>
-40 ... 127	°C

## 4.10 OpenTherm mode

### Description

For communication between the QAA73.110 and boiler control, the OpenTherm protocol is used.

OpenTherm differentiates between 2 modes, Plus and Lite:

- In OpenTherm Plus mode, the QAA73.110 can read or write various standardized objects via the bus
- In OpenTherm Lite mode, the QAA73.110 delivers only one signal to the boiler control for controlling the heat output. In the event of fault, boiler control signals *Boiler Lock-Out Fault* to the QAA73.110

### Line 62

Press the line selection buttons to select line 62.

<u>Display</u>	<u>Unit</u>
Lite, Plus	–

### Effect

Directly after connection of OpenTherm, the QAA73.110 ascertains whether boiler control supports the OpenTherm Plus or the OpenTherm Lite protocol.

The protocol currently used will automatically be displayed on this line.

Lite	<i>OpenTherm Lite</i> protocol is used
Plus	<i>OpenTherm Plus</i> protocol is used

## Space heating

## 4.11 Slope of heating curve

### Description

The room unit generates the flow temperature setpoint based on the selected heating curve.

The result is a constant room temperature irrespective of outside temperature variations.

### Line 70 for HC1 Line 80 for HC2

1. Press the line selection buttons to select line **70** (for HC1) or line **80** (for HC2).
2. Press the + / – buttons to select the heating curve slope or --.-

<u>Setting range</u>	<u>Unit</u>	<u>Factory setting</u>
--.- / 2.5 ... 40.0	Increment	15.0

## Effect

By changing the setting, the slope of the heating curve will be increased or decreased with the following effects:

Increase: The flow temperature will be **raised** when the outside temperature drops

Decrease: The flow temperature will **rise less** when the outside temperature drops

The following settings produce the following effects:

2.5 ... 40.0 The room unit delivers a weather-compensated flow temperature for the respective heating circuit.

-- . -- The relevant heating circuit is deactivated.

## Note

- HC1 can be deactivated only if HC2 is also deactivated or does not exist
- Line 80 is visible only if a second heating circuit exists and if it is supported by boiler control

## 4.12 Minimum and maximum limitation of the flow temperature HC1 and HC2

### Description

Minimum and maximum limitation define the range within which the flow temperature setpoint may vary. They prevent too low or too high flow temperatures.

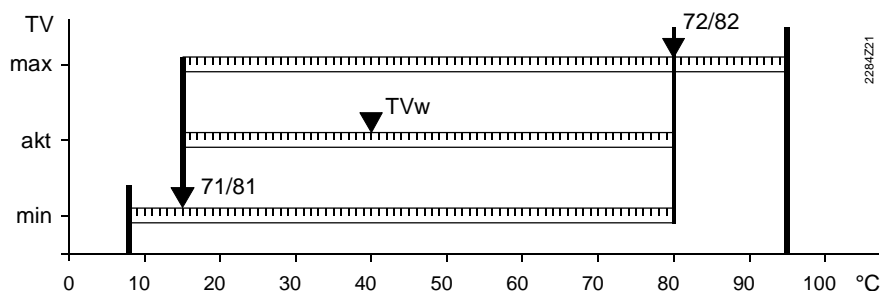
### Lines

71, 72 for HC1  
81, 82 for HC2

1. Press the line selection buttons to select line **71, 72, 81 or 82**.
2. Press the + / - buttons to set the required limitations of the flow temperature.

<i>Line</i>	<i>Setting range</i>	<i>Unit</i>	<i>Factory setting</i>
71	8...TV1max	°C	8
72	TV1min...TKmax	°C	80
81	8...TV2max	°C	8
82	TV2min...TKmax	°C	80

TKmax Maximum boiler temperature  
TV1max Maximum limitation of flow temperature HC1  
TV1min Minimum limitation of flow temperature HC1  
TV2max Maximum limitation of flow temperature HC2  
TV2min Minimum limitation of flow temperature HC2



TVw Current flow temperature setpoint  
71 Minimum limitation of flow temperature  
72 Maximum limitation of flow temperature  
81 Minimum limitation of flow temperature  
82 Maximum limitation of flow temperature

**Effect**

These settings provide maximum or minimum limitation of the flow temperature.

**Important**

Maximum limitation is **not** to be regarded as a safety function as required with underfloor heating systems, for example.

## 4.13 Parallel displacement of heating curve HC1/HC2

**Description**

A parallel displacement of the heating curve ensures a better match of room temperature setpoint and actual room temperature.

**Lines 73 and 83**

1. Press the line selection buttons to select line **73** or **83**.
2. Press the + / - buttons to set the parallel displacement..

<i>Line</i>	<i>HC</i>	<i>Setting range</i>	<i>Unit</i>	<i>Factory setting</i>
73	1	-4.5...+4.5	°C	0.0
83	2	-4.5...+4.5	°C	0.0

**Effect**

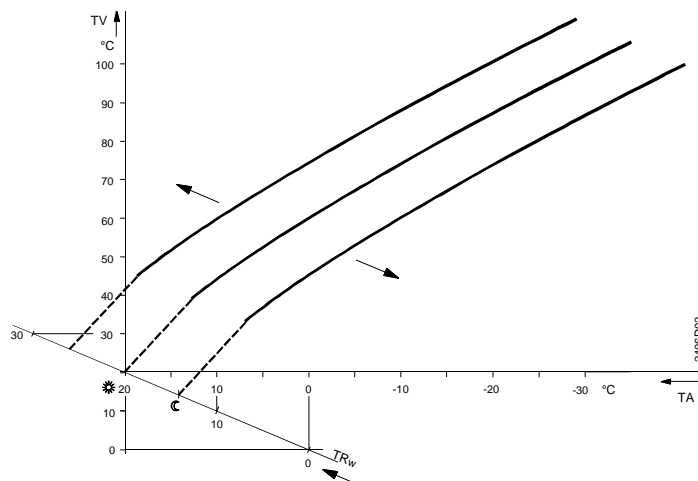
By changing the value entered, all room temperature setpoints will be appropriately raised or lowered. This allows the room temperature setpoints to be matched to the effective room temperatures.

**Example**

If a nominal room temperature setpoint of 20 °C adjusted on the room unit always produces a room temperature of 22 °C (independent of the prevailing outside temperature), the heating curve should be displaced downward by 2 °C.

**Parallel displacement**

Each setpoint readjustment, be it by changing the setting value or the operational level, corresponds to a parallel displacement of the heating curve.



TV Flow temperature  
TA Outside temperature  
TRw Room temperature setpoint

## 4.14 Type of building construction

<b>Description</b>	Enables the control system's rate of response to be matched to the type of building construction.		
<b>Line 74</b>	<ol style="list-style-type: none"><li>1. Press the line selection buttons to select line 74.</li><li>2. Press the + / – buttons to select the type of building construction.</li></ol>		
	<u>Setting range</u>	<u>Unit</u>	<u>Factory setting</u>
	Heavy, light	–	Light
<b>Effect</b>	<p>When the outside temperature varies, the room temperature changes at different rates, depending on the building's thermal storage capacity.</p> <p>The above setting ensures that the generation of the composite outside temperature will be matched to the type of building construction. Also refer to “Composite outside temperature”.</p> <p>Entry:</p> <p>Heavy            Heavy building structures: The room temperature will respond <i>slower</i> to outside temperature variations</p> <p>Light            Light building structures: The room temperature will respond <i>quicker</i> to outside temperature variations</p>		
<b>Building construction</b>	<ul style="list-style-type: none"><li>• Heavy building structures: Buildings with thick walls or with external insulation</li><li>• Light building structures: Buildings with a light envelope</li></ul>		

## 4.15 Authority of room influence

<b>Description</b>	Owing to the temperature checkback signal received from the room, a constant room temperature is maintained and, if required, boost heating or quick setback enabled. The parameter defines the room influence on the control of the heating circuits. Room temperature deviation is the temperature differential between actual room temperature and room temperature setpoint.		
<b>Line 75</b>	<ol style="list-style-type: none"><li>1. Press the line selection buttons to select line 75.</li><li>2. Press the + / – buttons to select the room influence.</li></ol>		
	<u>Setting range</u>	<u>Unit</u>	<u>Factory setting</u>
	None, on HC1, on HC2, on HC1 + HC2	–	On HC1
<b>Effect</b>	The setting will activate the room influence on the required heating circuits.		

Entry:	None	Room influence inactive: The measured room temperature has no impact on temperature control
	On HC1	Room influence acting on heating circuit 1: The measured room temperature has an impact on temperature control of heating circuit 1 (OpenTherm Lite mode)
	On HC2	Room influence acting on heating circuit 2: The measured room temperature has an impact on temperature control of heating circuit 2
	On HC1+HC2	Room influence acting on heating circuits 1 and 2: The measured room temperature has an impact on temperature control of both heating circuits

## Room influence

Deviations of the actual room temperature from the setpoint are acquired and taken into account by the temperature control.

To be able to use the control variant "Weather compensation with room influence", the following conditions must be satisfied:

- An **outside sensor** must be connected to boiler control
- Room influence **must** be enabled to act on the relevant heating circuits
- There may be **no thermostatic radiator valves** in the reference room (If such valves are present, they must be set to their fully open position).

## 4.16 Switching differential of room temperature

### Description

It is used for room temperature limitation. This function is recommended for pump heating circuits and prevents the rooms from getting overheated.

### Line 76

1. Press the line selection buttons to select line 76.
2. Press the + / - buttons to set the room temperature switching differential.

<u>Setting range</u>	<u>Unit</u>	<u>Factory setting</u>
--. --	-	--. --
0.5...4.0	°C	

### Effect

The switching differential for 2-position control will be changed.

Entry:

--. --

Switching differential is inactive

- The pump always remains activated

Decrease: Switching differential will become smaller

- The pumps are switched on and off **more often**
- The room temperature varies within a **narrower** band

Increase: Switching differential will become greater

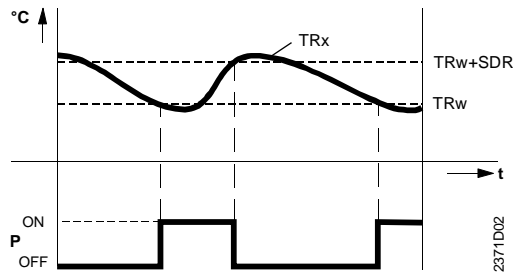
- The pumps are switched on and off **less often**
- The room temperature varies within a **wider** band



**Room temperature control**

With pump heating circuits, the amount of heat supplied is controlled by switching the pumps on and off. This is accomplished with 2-position control by means of the room temperature's switching differential.

Functioning:

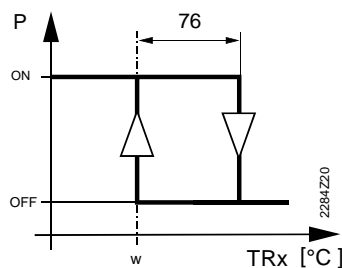


**Legend**

- TRx Actual room temperature
- TRw Room temperature setpoint
- SDR Switching differential of room temperature
- ON Switch-on point
- OFF Switch-off point

Switching differential

Pump ON	$TRx = TRw + SDR$
Pump OFF	$TRx = TRw$



**Legend**

- TRx Actual room temperature
- TRw Room temperature setpoint
- SDR Switching differential of room temperature
- P Pump (ON / OFF)
- w Setpoint
- W Switch-on point
- W Switch-off point

Note

The heating circuit pumps are controlled not directly by the QAA73.110, but by boiler control. For this reason, this functionality is not ensured by the room unit alone.

## 4.17 Adaption of heating curve

**Description**

The adaption facility learns from the different heating situations and matches the control to the heating circuit at regular intervals. Adaption of the heating curve takes place automatically, which means that it need not be adjusted manually.

**Line 77**

1. Press the line selection buttons to select line 77.
1. Press the + / - buttons to select the type of heating curve adaption.

<i>Setting range</i>	<i>Unit</i>	<i>Factory setting</i>
Inactive / active	—	Active

**Effect**

The setting will switch automatic adaption of the heating curve on or off.

Entry:

Inactive No adaption:  
The heating curve settings are maintained.

Active Automatic adaption:  
The heating curve will automatically be adapted as soon as the operating level "Nominal room temperature setpoint" is used.

Note

Adaption acts according to line 75 "Room influence".

## Adaption

The adaption facility automatically matches the heating curve to the type of building construction and the heating requirements. Adaption gives consideration to room temperature deviations, outside temperature characteristics and adaption sensitivity.

## Note

To achieve optimum adaption, the following situations should occur as rarely as possible - especially after commissioning - since this would reset certain calculations required for the adaption:

- Manual correction of heating curve
- Power failure
- Changes to the room temperature setpoint

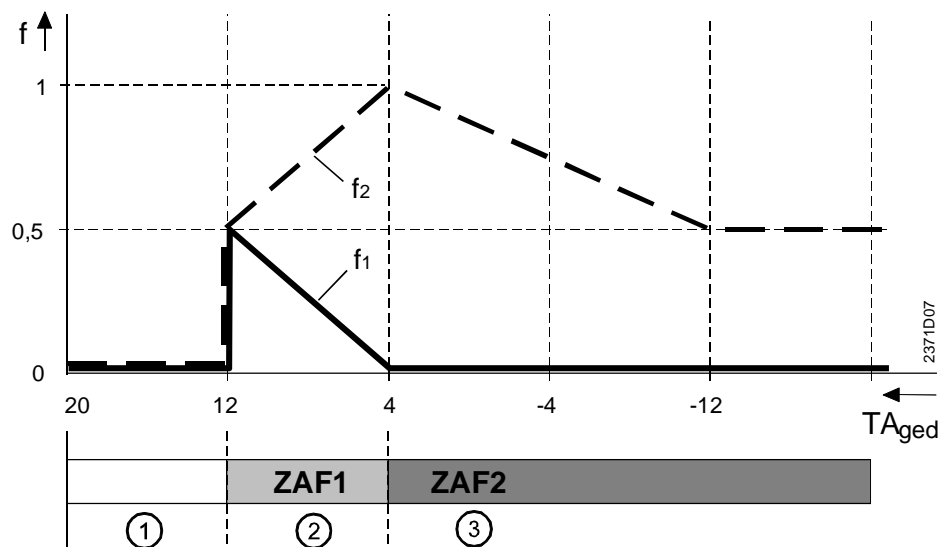
## Process

Every day at midnight, the room temperature control differential of the previous day is evaluated. This evaluation leads to an automatic readjustment of the heating curve.

- At attenuated outside temperatures below 4 °C, it is only the slope of the heating curve that is adapted.  
In this temperature range, the readjustment is weighted with factor f2 and adaption sensitivity 2.
- At attenuated outside temperatures of between 4 and 12 °C, it is partly the slope and partly the parallel displacement that are adapted.  
In this temperature range, the readjustment of the parallel displacement is weighed with factor f1 and adaption sensitivity 1.  
In this temperature range, the readjustment of the slope is weighted with factor f2 and adaption sensitivity 2.
- At attenuated outside temperatures above 12 °C, the heating curve will not be adapted.

## Diagram

Example using a nominal room temperature setpoint of 20 °C.



- f Factor  
f1 Factor for parallel displacement  
f2 Factor for slope  
 $TA_{ged}$  Attenuated outside temperature  
ZAF1 Adaption sensitivity 1  
ZAF2 Adaption sensitivity 2

## 4.18 Maximum forward shift for optimum start control

**Description** Maximum forward shift is a limit function for limiting the switch-on point with optimum start control. It is active only when room influence is used.

### Line 78

1. Press the line selection buttons to select line 78.
2. Press the + / – buttons to select the type of building construction.

<i>Setting range</i>	<i>Unit</i>	<i>Factory setting</i>
0 ... 360	min	100

### Effect

0 Optimum start control deactivated  
 10 ... 360 Optimum start control activated

### Note

Optimum start control acts according to line **75** "Room influence".

### Optimum start control

The maximum forward shift for optimum start control can be set between 0 and 360 minutes. Setting 0 means that optimum stop control is deactivated.

Outside the main occupancy hours, the reduced temperature level is maintained. Towards the end of the setback period, optimization switches the control back to the nominal temperature level.

Optimization calculates the changeover time such that, at the start of occupancy, the room temperature will have reached the nominal setpoint.

The switch-on point for the heating system (change to the nominal temperature level) is selected such that, at the start of occupancy according to the heating program, the room temperature reached will be the setpoint minus 0.25 K.

### Note

Optimum start control only acts on the first occupancy period of the day.

## 4.19 Maximum forward shift for optimum stop control

**Description** Maximum forward shift is a limit function for limiting the switch-off point with optimum stop control. It is active only when room influence is used.

### Line 79

1. Press the line selection buttons to select line 79.
2. Press the + / – buttons to select the type of building construction.

<i>Setting range</i>	<i>Unit</i>	<i>Factory setting</i>
0 ... 360	min	30

### Effect

0 Optimum stop control deactivated  
 10 ... 360 Optimum stop control activated

### Note

Optimum stop control acts according to line **75** "Room influence".

## Optimum stop control

The maximum forward shift for optimum stop control can be set between 0 and 360 minutes. Setting 0 means that optimum stop control is deactivated.

During occupancy hours, the nominal temperature level is maintained. Towards the end of the occupancy time, the control switches back to the reduced temperature level. Optimization calculates the changeover time such that, at the end of occupancy, the room temperature will lie 0.25 °C below the nominal setpoint (early shut-down).

Note

Optimum stop control only acts on the last occupancy period of the day.

## D.h.w.

### 4.20 Reduced setpoint of the d.h.w. temperature

#### Description

Reduction of d.h.w. temperatures outside main occupancy times.

The time switch integrated in the room unit automatically switches between main and secondary occupancy times.

D.h.w. is at a high temperature level only if required. This saves energy by reducing the temperature when not in use.

#### Line 90

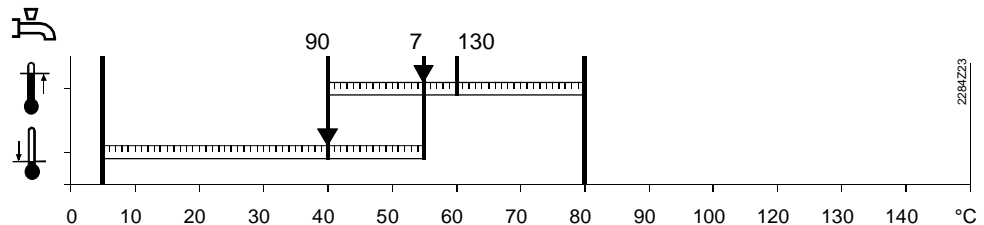
1. Press the line selection buttons to select line 90.
2. Press the + / - buttons to adjust the reduced setpoint of the d.h.w. temperature.

<i>Setting range</i>	<i>Unit</i>	<i>Factory setting</i>
8...TBWw	°C	40

TBWw Nominal setpoint of the d.h.w. temperature

#### Effect

The temperature setpoint during reduced d.h.w. operation will be changed.



- 7 Nominal setpoint of the d.h.w. temperature
- 90 Reduced setpoint of the d.h.w. temperature
- 130 Maximum nominal setpoint of d.h.w. temperature

#### D.h.w. temperature setpoints



Nominal setpoint of the d.h.w. temperature

Produces the d.h.w. temperature required during main occupancy times.



Reduced setpoint of the d.h.w. temperature. Produces the d.h.w. temperature required outside the main occupancy times.

The periods of time during which these d.h.w. temperature setpoints shall be used can be set on line 91.

## 4.21 Release of d.h.w. heating

### Description

Makes it possible to limit the period of time during which d.h.w. heating at the nominal setpoint is released. D.h.w. heating at the nominal setpoint can thus be released as required by the users.

### Line 91

1. Press the line selection buttons to select line 91.
2. Press the + / – buttons to enter the required period of time during which d.h.w. heating at the nominal setpoint shall be released.

<u>Setting range</u>	<u>Unit</u>	<u>Factory setting</u>
24h / day, TSP HC – 1h TSP HC, TSP d.h.w.	–	TSP HC – 1h

### Effect

The setting defines the period of time during which d.h.w. heating at the nominal setpoint is released. Outside this period of time, the reduced d.h.w. setpoint applies. There is one exception, however, function d.h.w. push (function with no setting). Release of d.h.w. heating at the nominal setpoint takes place when using the following settings:

24 h/day	24 hours per day
TSP HC – 1h	According to the heating circuit time switch program(s) with a forward shift of one hour
TSP HC	According to the heating circuit time switch program(s)
TSP d.h.w.	According to the d.h.w. time switch program

## 4.22 Legionella function

### Description

The legionella function ensures that the d.h.w. in the storage tank will periodically be raised to a temperature of at least 60 °C, thus making certain that potential legionella viruses will be killed.

### Line 92

1. Press the line selection buttons to select line 92.
2. Press the + / – buttons to activate or deactivate the legionella function.

<u>Setting range</u>	<u>Unit</u>	<u>Factory setting</u>
Off / On	–	On

### Effect

The setting activates or deactivates the legionella function.

Entry:

**Off** Function inactive


**On** ON: Function is activated every Monday morning when d.h.w. is heated up for the first time and lasts a maximum of 2.5 hours. The d.h.w. is heated up to the adjusted legionella setpoint.

### Notes

- This function is possible only when d.h.w. heating is released by the d.h.w. heating program
- If the legionella function is aborted during the usual time (on Mondays), it will be repeated the next time the d.h.w. setpoint is changed

## General

### 4.23 Operation lock

<b>Description</b>	If the parameter values shall not be changed, entry can be locked.						
<b>Line 95</b>	<ol style="list-style-type: none"><li>1. Press the line selection buttons to select line 95.</li><li>2. Press the + / – buttons to activate or deactivate the operation lock.</li></ol>						
	<table><thead><tr><th><u>Setting range</u></th><th><u>Unit</u></th><th><u>Factory setting</u></th></tr></thead><tbody><tr><td>Off / On</td><td>–</td><td>Off</td></tr></tbody></table>	<u>Setting range</u>	<u>Unit</u>	<u>Factory setting</u>	Off / On	–	Off
<u>Setting range</u>	<u>Unit</u>	<u>Factory setting</u>					
Off / On	–	Off					
<b>Effect</b>	<p>The setting activates or deactivates the operation lock.</p> <p>Entry:</p> <p><b>Off</b> Operation lock is deactivated. The parameter values can be changed.</p> <p><b>On</b> Operation lock is activated. The parameter values can still be displayed, but changes are no longer possible.</p> <p>When pressing the + / – buttons, the display shows symbol  in place of the value.</p>						
Temporary cancellation of operation lock	On the programming or parameter setting level, the operation lock can temporarily be deactivated. To do this, the down button (▼) and the (+) button must be pressed simultaneously for at least 3 seconds. This temporary cancellation of the operation lock is maintained until the next change to the Info level is made.						
Continuous cancellation of operation lock	To have the operation lock continuously deactivated, the down button (▼) and the (+) button must be pressed simultaneously for at least 3 seconds. Then, parameter “Operation lock” can be set to <b>Off</b> .						

### 4.24 Clock time master

<b>Description</b>	The clock time of the QAA73.110 and the clock time of the connected boiler control can be synchronized. In that case, one of the units will be defined as the clock time master, and the other unit adopts the time of day from the master.						
<b>Line 96</b>	<ol style="list-style-type: none"><li>1. Press the line selection buttons to select line 96.</li><li>2. Press the + / – buttons to define the clock time master.</li></ol>						
	<table><thead><tr><th><u>Setting range</u></th><th><u>Unit</u></th><th><u>Factory setting</u></th></tr></thead><tbody><tr><td>QAA73, external</td><td>–</td><td>QAA73</td></tr></tbody></table>	<u>Setting range</u>	<u>Unit</u>	<u>Factory setting</u>	QAA73, external	–	QAA73
<u>Setting range</u>	<u>Unit</u>	<u>Factory setting</u>					
QAA73, external	–	QAA73					
<b>Effect</b>	<p>The setting defines the clock time master.</p> <p>Display:</p> <p><b>QAA73</b> QAA73.110 is the clock time master. OpenTherm transmits the time of day to the boiler control, either periodically or after an adjustment.</p> <p><b>Externally</b> The QAA73.110 adopts the time of day periodically (every 5 minutes) from the boiler control. In that case, the time of day cannot be readjusted on the QAA73.110.</p>						

## 4.25 Winter- / summertime changeover

---

### Description

This function enables the yearly clock to automatically switch to wintertime.

---

### Line 97

1. Press the line selection buttons to select line 97.
2. Press the + / – buttons to set the date of changeover.

<u>Setting range</u>	<u>Unit</u>	<u>Factory setting</u>
1. Jan ... 31. Dec	dd.mm	March 25

---

### Effect

On the Sunday following the set date, the time of day of the room unit will switch to summertime. That is, wintertime is put forward by one hour.

---

### International standards

In compliance with international standards, the change from winter- to summertime is made on the last Sunday in March, and the change from summer- to wintertime on the last Sunday in October. The factory setting of the room unit meets this requirement as the Sundays in question lie in the adjustable period of time between the factory setting and the last day of the relevant month.

---

## 4.26 Summer- / wintertime changeover

---

### Description

This function enables the yearly clock to automatically switch to wintertime.

---

### Line 98

1. Press the line selection buttons to select line 98.
2. Press the + / – buttons to set the date of changeover.

<u>Setting range</u>	<u>Unit</u>	<u>Factory setting</u>
1. Jan ... 31. Dec	dd.mm	25. Oct.

---

### Effect

On the Sunday following the set date, the time of day of the room unit will switch to wintertime.

That is, the time is put back by one hour.

---

# 5 Description of OEM settings

## Space heating OEM

### 5.1 Maximum setpoint (TRwMax) and minimum setpoint (TRwMin) of room temperature

#### Description

The nominal setpoint of the room temperature can be adjusted within a certain setting range. That setting range is limited by the maximum room temperature setpoint (TRwMax) and the minimum room temperature setpoint (TRwMin).

#### Lines 100, 101

1. Press the line selection buttons to select line **100** or **101**.
2. Press the + / – buttons to set the maximum rate of increase.

<u>Line</u>	<u>Setting range</u>	<u>Unit</u>	<u>Factory setting</u>
100	TRwMin ... 35	°C	35
101	4... TRwMax	°C	10

#### Effect

The upper or lower limit of the nominal room temperature setpoint will be changed.

### 5.2 Gain factor for room influence (KORR)

#### Description

Defines the influence of room temperature setpoint deviations on the controlled system. The room influence can be activated and deactivated (operating line 75).

#### Line 102

1. Press the line selection buttons to select line 102.
2. Press the + / – buttons to set the gain factor.

<u>Setting range</u>	<u>Unit</u>	<u>Factory setting</u>
0...20	–	4

#### Effect

Changing this setting has the following impact:

Increase: Room influence will increase

Decrease: Room influence will decrease

#### Correction

The following example shows how and according to which formula the room temperature setpoint will be corrected.

#### Example with formula

Room temperature setpoint TRw = 20°C  
Actual room temperature TRx = 22°C  
Correction factor KORR = 8

$$TRwk = TRw + \frac{KORR}{2} (TRw - TRx)$$

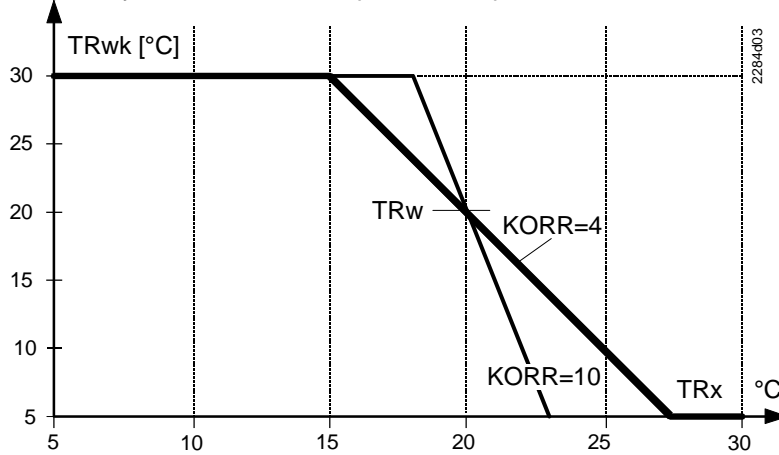
$$TRwk = 20 \text{ °C} + 4 (20 \text{ °C} - 22 \text{ °C}) = 12 \text{ °C}$$

KORR Constant for room influence  
TRx Actual value of room temperature  
TRw Room temperature setpoint  
TRwk Room temperature setpoint (readjusted)



Example with graph

As the example shows, if the room temperature is 2 °C too high, the room influence temporarily shifts the room temperature setpoint down to a level of 12 °C.



The corrected room temperature setpoint

Note

KORR works only if the room temperature influence on line 75 is activated.

### 5.3 Constant for quick setback (KON)

#### Description

Quick setback takes advantage of the thermal storage capacity of a building. The constant for quick setback is only active in the case of quick setback of control systems with no room influence.

#### Line 103

1. Press the line selection buttons to select line 103.
2. Press the + / - buttons to set the constant.

<u>Setting range</u>	<u>Unit</u>	<u>Factory setting</u>
0...20	-	2

#### Effect

The duration of quick setback will be changed.

Entry:

Increase: Setback time will become longer  
For well insulated buildings that cool down slowly

Decrease: Setback time will become shorter  
For poorly insulated buildings that cool down rather quickly

#### Quick setback with no room influence

Quick setback is started as soon as a change to a lower room temperature setpoint takes place (e.g. switching times in automatic mode).

The heating circuit pump will be deactivated until the quick setback time has elapsed, which is the result of setting 103, the composite outside temperature and the room temperature setpoint jump.

The quick setback time is limited to a maximum of 15 hours.

Example

The example applies to a setpoint step change of 4 °C (e.g. TRw from 20 °C to 16 °C):

TAgem	Setting on line 103					
	0	4	8	12	15	20
-20	0	0	0	0	0	0
-10	0	0.5 h	1 h	1.5 h	2 h	2.5 h
0	0	3 h	6 h	9 h	11 h	15 h
+10	0	5 h	11 h	15 h	15 h	15 h

## 5.4 Boost of the room temperature setpoint (DTRSA)

**Description**

This function temporarily raises the room temperature setpoint so that the room will be heated up quicker.

**Note**

This function only acts on the heating circuits according to line 75.

**Line 104**

1. Press the line selection buttons to select line 104.
2. Press the + / - buttons to adjust the room temperature setpoint boost.

<i>Setting range</i>	<i>Unit</i>	<i>Factory setting</i>
0...20	°C (K)	5

**Effect**

The duration of boost heating will be changed.

Entry:

Increase: More setpoint boost  
Heating up time will become shorter

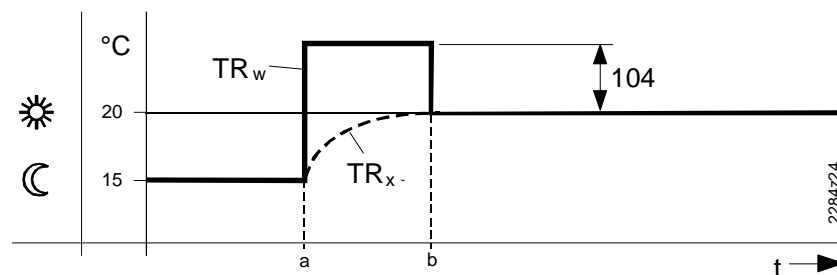
Decrease: Less setpoint boost  
Heating up time will become longer

**Boost heating**

Boost heating is started as soon as switching to a higher room temperature setpoint occurs (e.g. switching times in automatic mode).

The room temperature setpoint will be raised by the setting made on line 104 until the room is heated up (TRw - ¼ °C).

The boost produces an increase in the flow temperature setpoint.



- TRx Actual room temperature
- TRw Room temperature setpoint
- 104 Setpoint boost
- t Time

## 5.5 Limitation of rate of increase of flow temperature setpoint

### Description

The rate of increase of the flow temperature setpoint indicates how quickly the flow temperature setpoint may rise (in K per minute). It can be limited. The limitation set applies to both heating circuits.

### Line 105

1. Press the line selection buttons to select line 105.
2. Press the + / – buttons to set the maximum rate of increase.

<u>Setting range</u>	<u>Unit</u>	<u>Factory setting</u>
0 ... 15	K/min	5

### Effect

The rate of increase will be limited by the setting.

## 5.6 Measured value correction of room temperature

### Description

Calibration of the room sensor ensures that the display of the effective room temperature will be more accurate.

### Line 106

1. Press the line selection buttons to select line 106.
2. Press the + / – buttons to select the required correction of the sensor characteristic.

<u>Setting range</u>	<u>Unit</u>	<u>Factory setting</u>
–3 ... 3	°C	0

### Effect

The sensor characteristic is displaced parallel by the selected value. When entering a negative value, the temperature measured will be lowered by that value, when entering a positive value, it will be raised by that value.

### *D.h.w. OEM*

## 5.7 Maximum d.h.w. setpoint (TBWmax)

### Description

Function for limiting the nominal setpoint of the d.h.w. temperature. This yields the following benefits:

- Setting can be limited by the end-user
- Reduced risk of scalding
- Minimized susceptibility to scale

### Line 130

1. Press the line selection buttons to select line 130.
2. Press the + / – buttons to adjust the maximum setpoint of the d.h.w. temperature.

<u>Setting range</u>	<u>Unit</u>	<u>Factory setting</u>
TBWw...80	°C	60

TBWw: Nominal setpoint of the d.h.w. temperature

### Effect

The setting will ensure maximum limitation of the nominal d.h.w. temperature setpoint.

## 5.8 Setpoint of legionella function

### Description

The setpoint of the legionella function is an adjustable temperature level to which the d.h.w. temperature is raised when the legionella function is activated, aimed at killing any legionella viruses that may have occurred.

### Line 131

1. Press the line selection buttons to select line 131.
2. Press the + / - buttons to adjust the required setpoint.

<i>Setting range</i>	<i>Unit</i>	<i>Factory setting</i>
8...95	°C	65

### Effect

The setting changes the d.h.w. setpoint during the period of time the d.h.w. is heated up as a result of the legionella function.

## Service functions OEM

## 5.9 Info display

### Description

The Info display can be made to appear continuously or temporarily.

### Line 150

1. Press the line selection buttons to select line 150.
2. Press the + / - buttons to select the display mode.

<i>Setting range</i>	<i>Unit</i>	<i>Factory setting</i>
Temporary, continuously	–	Temporary

### Effect

This setting selects the display mode of the Info display:

Entry:

Temporary The information selected on the Info level is displayed for only 8 minutes. After that period of time, the display will return to the standard display (actual room temperature, time of day and time pointer)

Continuously The information selected last with the Info button will be continuously displayed.

## 5.10 Frost warning

### Description

A frost warning can be generated depending on a selectable outside temperature.

### Line 151

1. Press the line selection buttons to select line **151**.
2. Press the + / - buttons to select the required function.

<i>Setting range</i>	<i>Unit</i>	<i>Factory setting</i>
-- . - / -10 ... +10	°C	3.0

### Note

-- . - no frost warning

### Effect

If the outside temperature falls to the selected temperature level or drops below it, the Info display shows the actual outside temperature as a flashing value.

## 5.11 Locking the setpoint knob

### Description

The setpoint knob for the nominal room temperature can be locked or released.

### Line 152

1. Press the line selection buttons to select line **152**.
2. Press the + / – buttons to select the required function.

<u>Setting range</u>	<u>Unit</u>	<u>Factory setting</u>
Locked / released	–	Released

### Effect

The setpoint knob for the nominal room temperature can be locked to prevent tampering.

## 5.12 Action occupancy button

### Description

The action of the occupancy button can be restricted to heating circuit 1 or it can apply to both heating circuits.

### Line 153

1. Press the line selection buttons to select line 153.
2. Press the + / – buttons to select the required function.

<u>Setting range</u>	<u>Unit</u>	<u>Factory setting</u>
On HC1 + HC2, on HC1	–	On HC1 + HC2

### Effect

When pressing the occupancy button in automatic or continuous operation, either both heating circuits or only heating circuit 1 is acted upon.

## 5.13 Software version

### Description

The software version installed represents the state of the software available at the time the unit was produced. It is thus possible to identify the software version without removing the unit.

### Line 199

Press the line selection buttons to select line 199.

<u>Display</u>	<u>Unit</u>
00.0 ... 99.9	–

### Effect

The software version will automatically be displayed on this line.

Example:       01.0

The first 2 digits give the software version (**01.0**)

The third digit gives the software revision (**01.0**)

# 6 Functions

---

## Introduction

The functions described below require no settings. They are performed automatically but have an effect on the plant.

For the rectification of faults, planning and plant maintenance, it may therefore be of advantage to know about their impact on the plant.

## 6.1 Types of compensation

---

The room unit offers 3 types of compensation each of which generates the effective flow temperature setpoint in a different way. They are the following:

- Weather compensation
- Weather compensation with room influence
- Room compensation

## Note

If no outside sensor is connected and the room sensor of the QAA73.110 fails, a fault status signal will be delivered. In that case, the room unit will change to emergency operation “with no sensor” to generate the flow temperature setpoint based on the current room temperature setpoint and a fixed outside temperature of 0 °C.

### 6.1.1 Weather compensation

---

## Description

With this type of compensation, the building's heat losses are compensated by an adequate flow temperature.

The colder the weather, the quicker the building cools down and the greater the heating circuit's heat demand.

With this type of compensation, it must be ensured that the heating curve is correctly set, because the room unit gets no feedback from the space whether the amount of heat supplied meets the demand of the users.

## Prerequisites

The room influence (line 75) must be set to “None” and, in addition, an outside sensor must be connected.

### 6.1.2 Weather compensation with room influence

---

## Description

Compared to pure weather compensation, this type of compensation offers enhanced comfort because with the room influence, the room unit gets a feedback from the space.

## Prerequisites

The room influence (line 75) must be activated for the required heating circuits and, in addition, an outside sensor must be connected.

## Authority of room influence

The room influence acts on the room temperature setpoint. The deviation of setpoint / actual value of the room temperature is multiplied by the correction factor KORR/2 and added to the deviation from the room temperature setpoint in the opposite direction.

Room influence acts:

- In the case of deviations of setpoint / actual value of the room temperature
- With automatic or manual changeover to a higher or lower room temperature setpoint

### 6.1.3 Room compensation

---

<b>Description</b>	With pure room compensation, a PID control algorithm is activated. This is the preferred control mode if the room temperature is the only compensating variable available. The selected control algorithm gives consideration to both the actual value of the room temperature and the current slope (gradient). The P-part is generated by the control deviation, the D-part from the gradient of the room temperature. The I-part suppresses continuous deviations of setpoint / actual value.
<b>Prerequisites</b>	The room influence (line 75) must be activated for the required heating circuits and, in addition, no outside sensor may be connected.
<b>Effect</b>	The flow temperature and thus the room temperature are controlled as a function of the actual room temperature and its current development. For example, if the room temperature rises slightly, the flow temperature will immediately be reduced even if there is deviation of setpoint / actual value apparent yet. To prevent continuous deviations, the I-part of PID control keeps the room temperature at the required level.

---

## 6.2 Automatic 24-hour heating limit

---

<b>Description</b>	This is a fast-acting savings function since the heating is switched off when there is no more demand for heat. Economical operation is ensured throughout the year since manual switching off is no longer required, especially during intermediate seasons.
<b>Notes</b>	<ul style="list-style-type: none"><li>• The automatic 24-hour heating limit does not function in continuous operation ☒</li><li>• When the 24-hour heating limit is activated, the Info line displays Eco</li></ul>

---

### 6.2.1 Without room influence

---

<b>Introduction</b>	If no room influence is activated, the 24-hour heating limit switches depending on the flow temperature setpoint and the adjusted setpoint ☀, ☾ or ❄.
<b>Process</b>	The temperature basis used for this function are the flow temperature setpoint and the current room temperature setpoint.
<b>Switching off</b>	If the flow temperature setpoint drops below the room temperature setpoint plus a correction value, the heating will be switched off. <ul style="list-style-type: none"><li>• Heating OFF</li></ul> $\boxed{TVw \leq TRw + 2 S/10}$
<b>Switching on</b>	If the flow temperature setpoint rises above the room temperature setpoint plus a correction factor, the heating will be switched on. <ul style="list-style-type: none"><li>• Heating ON:</li></ul> $\boxed{TVw \geq TRw + 4 S/10}$ <p>TVw Flow temperature setpoint TRw Room temperature setpoint S Slope of heating curve</p>

---

## 6.2.2 With room influence

---

### Introduction

If the room influence on the heating circuits is activated, the room influence readjusts the flow temperature setpoint of the relevant heating circuits. In that case, the 24-hour heating limit switches depending on the corrected flow temperature setpoint and the adjusted setpoint ☀, ☾ or ❄.

---

### Process

The temperature basis used for this function are the values of the readjusted flow temperature setpoint and of the current room temperature setpoint.

---

### Switching off

If the flow temperature setpoint corrected by the room influence falls below the room temperature setpoint plus a correction value, the heating will be switched off.

Heating's switch-off point:

$$TVwk \leq TRw + 2 \frac{S}{10} - \frac{KORR}{16}$$

### Switching on

If the flow temperature setpoint corrected by the room influence rises above the room temperature setpoint plus a correction value, the heating will be switched on.

Heating's switch-on point:

$$TVwk \geq TRw + 4 \frac{S}{10} - \frac{KORR}{16}$$

KORR	Factor for room influence (line 102)
TVwk	Flow temperature setpoint corrected by the room temperature
TRw	Room temperature setpoint
s	Slope of heating curve



## 6.3 Quick setback with room influence

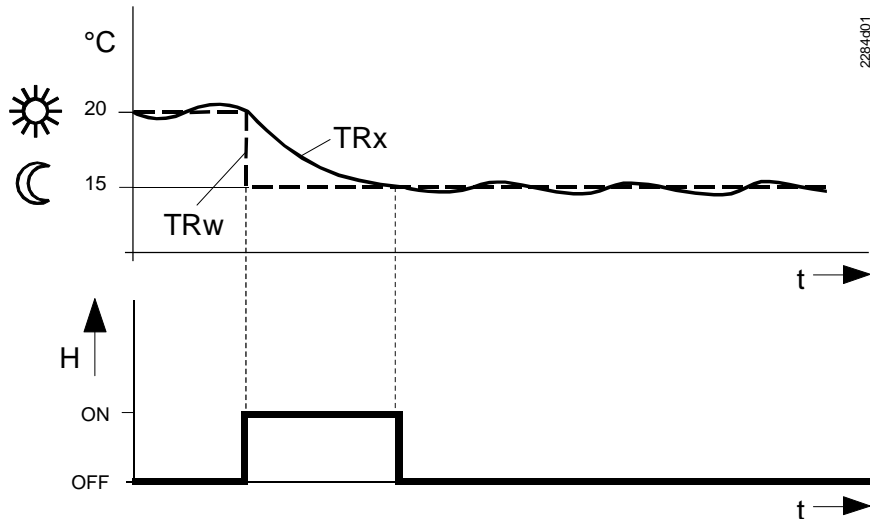
### Description

The thermal storage capacity of a building is utilized when changing to a lower setpoint. The quick setback described here only acts on the heating circuits where room influence is active.

### Process

Quick setback is started as soon as a change to a lower room temperature setpoint takes place (e.g. switching times in automatic mode).

Quick setback is terminated as soon as the actual room temperature reaches the level of the respective room temperature setpoint ( $TR_x = TR_w$ ).



TR<sub>x</sub> Actual value of room temperature  
 TR<sub>w</sub> Room temperature setpoint  
 H Quick setback

### Effect

Due to the readjustment of the room temperature setpoint, the heating circuit pump will be switched off until the quick setback process is terminated. This means that the room temperature falls quicker since the supply of heat from the boiler is cut off.

### Note

If no room influence is selected, quick setback will be provided not by this process but according to the quick setback function 103.

## 6.4 D.h.w. push

### Benefit

Availability of d.h.w. is also ensured during non-occupancy times.

### Description

If, due to unexpected demand, the d.h.w. storage tank is emptied, the d.h.w. push provides one-time charging of the storage tank until the nominal d.h.w. temperature setpoint is reached.

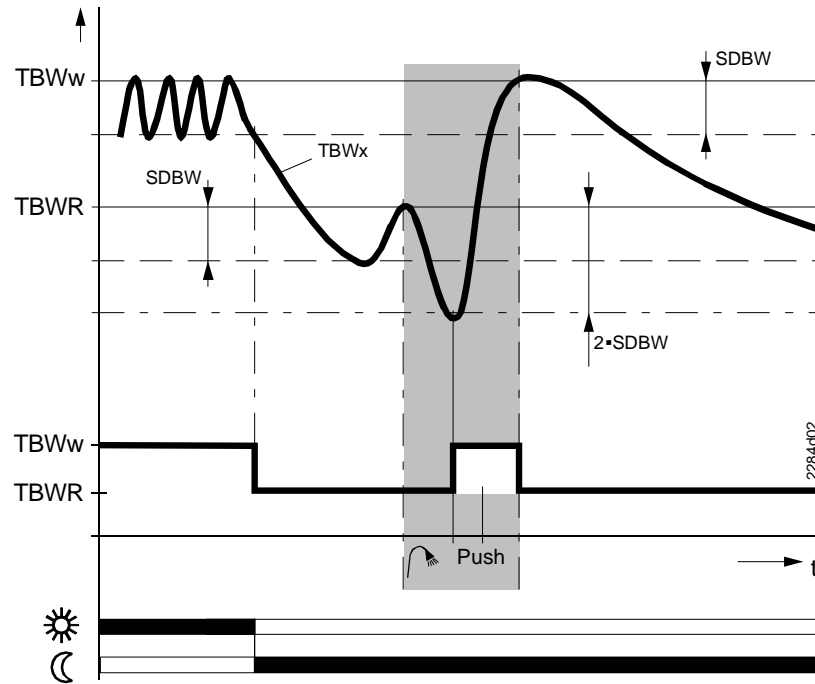
### Process

The d.h.w. push is triggered as soon as the actual d.h.w. temperature falls by more than 10 °C below the reduced d.h.w. setpoint.

### Effect

When the d.h.w. push is triggered, the d.h.w. is heated once until its nominal temperature setpoint is reached. Then, the active d.h.w. program applies again.

## Example



SDBW Switching differential of d.h.w.  
TBWw Nominal setpoint of the d.h.w. temperature  
TBWR Reduced setpoint of the d.h.w. temperature

## 6.5 Frost protection

### Description

Frost protection functions prevent plant and room temperatures from falling below a certain level, thus protecting the heating plant and the rooms from freezing.

### 6.5.1 Frost protection for the building and the plant

### Effect

The room unit's frost protection function ensures that the room temperature will not fall below the selected frost protection value as long as the heating plant operates.

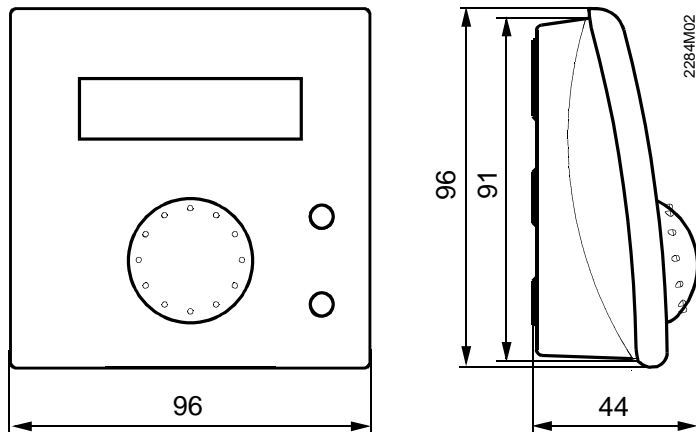
### 6.5.2 Frost protection for the boiler and the d.h.w.

### Caution

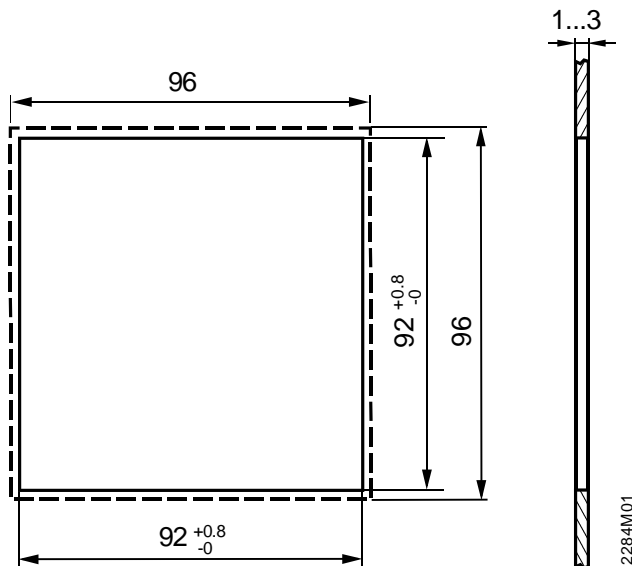
Frost protection for the boiler and the d.h.w. must be ensured by the boiler control.

# 7 Dimensions

Device



Panel cut-out



## 8 Technical data

Power supply	OpenTherm Bus	
	Terminals	2-wire (interchangeable)
	Cable length	max. 50 m
	Cable resistance	max. 2 x 5 Ω
	Power consumption	30 mW (typically)
Protection	Safety class	III to EN60730 when mounted in compliance with regulations
	Degree of protection of housing	IP 20 to EN 60529
	Contamination environment	to EN 60730
Environmental conditions	Operation	IEC 721-3-3 class 3K 5
	Temperatures	0...50 °C
	Humidity	< 85 % rH
	Transport	IEC 721-3-2 class 2K 3
	Temperatures	-25...70 °C
	Humidity	< 95 % rH
	Storage	IEC 721-3-1 class 1K 3
	Temperatures	-25...70 °C
	Humidity	< 95 % rH
Standards	<b>CE</b> -conformance	
	EMC directive	89/336/EEC
	– Immunity	EN 50082-1, EN 50082-2
	– Emissions	EN 50081-1, EN 50081-2
	Low voltage directive	73/23/EEC
	– Electrical safety	EN 60730-1, EN 60730-2-9
Room sensor	Measuring range	0...45 °C
Other features	Backup of time switch	min. 12 h
	Software class	A to EN 60730
	Weight	approx. 0.17 kg

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