SIEMENS

ALBATROS

QAA73.110
Room Unit for Boiler Control with OpenTherm Interface
Basic Documentation

Contents

1 Summary

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

Operating functions

- Operating sections (operating levels) 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 heating periods per day can be selected on an individual basis
- Holiday program
- The heating programs and the 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
- Adjustable maximum limitation of the flow temperature (especially in connection with floor heating systems)
- Limitation of the rate of increase of the 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 the boiler control via OpenTherm interface
	• Power supply via OpenTherm bus

1.2 Range of products

Boiler Management Unit Premix TOP	LMU6x
Third party boiler control with OpenTherm interfaceRoom unit with OpenTherm interface	QAA73.110
Mounting clips for panel mounting	AVS92.299

1.3 Field of use

Target market

The room units are designed for the OEM market. They are supplied directly to the boiler manufacturer and enhance the functionality and the level of control of small gas-fired appliances with integrated boiler temperature controllers.

Types of buildings

Suited for use in residential buildings with own heating systems, such as:
• Single or 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 the 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 small gas-fired appliances or condensing boilers
• 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

• 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 observed
• The local regulations for electrical installation must be complied with

1.5 Environmental compatibility

Note on disposal

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

2 Handling

2.1 Engineering

Mounting location

- In the main living room or reference room
- The place of installation should be chosen so that the sensor can capture the room temperature as accurately as possible, without being affected by direct solar radiation or other heating or cooling sources.
- Mounting height is about 1.5 meters above the floor
- The unit can be fitted to most commercially available recessed conduit boxes or directly on the wall.
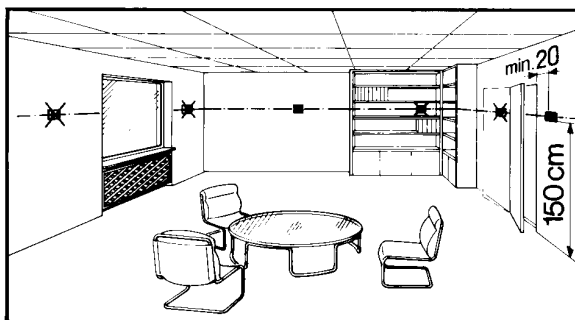
2.2 Installation

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

1. step

Open the unit at the top and remove the base from the housing front.
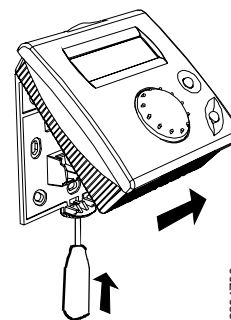
2. step

Fit the base to the wall with the help of screws.
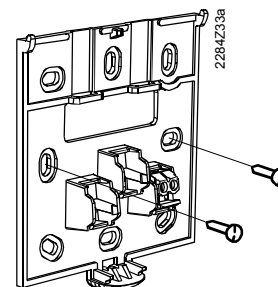
3. step	Pull the bus cable through the opening of the base and connect it to the screw teminals.	
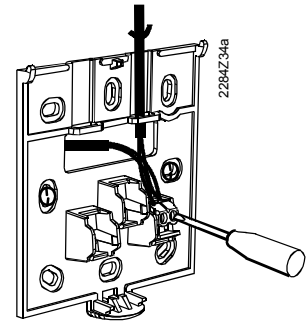
4. step	Engage the housing front at the top of the base and close the unit to the bottom.	
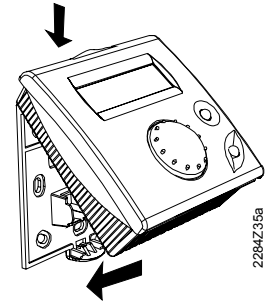
Mounting in a panel cut-out 1. step	Pull the bus cable through the opening of the base and connect it to the screw teminals.	
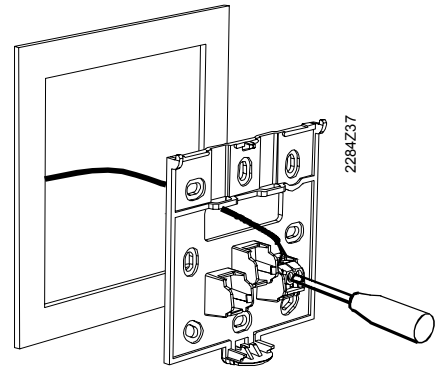
2. step	Engage the housing front at the top of the base and close the unit to the bottom.	
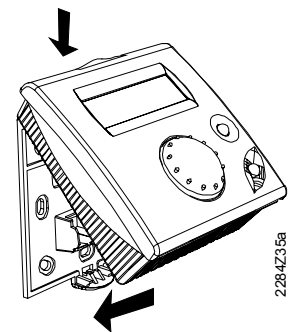
| 3. step | Slide the unit into the panel cut-out without applying any force *Note:* Do not use any tools when inserting the unit into the cut-out. If it does not fit, check the size of the cut-out and the housing. | |

| 4. step | Fit the clips (usually 4 pieces) to the rear of the housing. They engage on the housing. | |
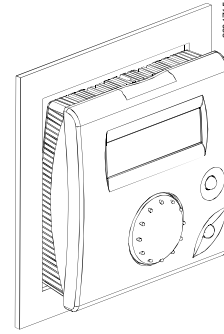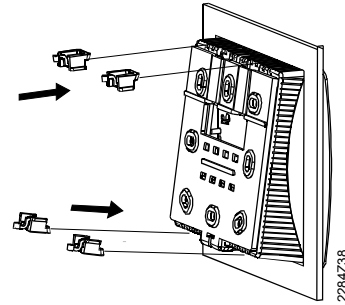
Dimensions of cut-out

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.

Siemens Building Technologies
HVAC Products

Basic Documentation QAA73.110 Room unit
Handling

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10.07.2002
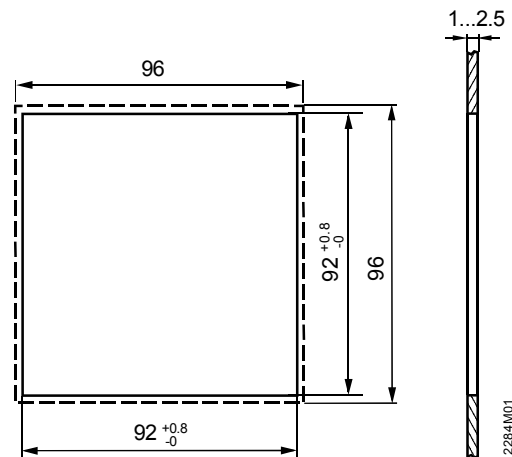
2.3　Electrical installation

Regulations for installation

The local regulations for electrical installations must be complied with.

Connection diagram
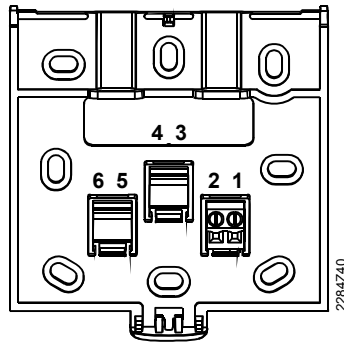
1	COA	OpenTherm terminal A (interchangeable)
2	COB	OpenTherm terminal B (interchangeable)
3	-	-
4	-	-
5	-	-
6	-	-

⚠ 23 mA max

2.4   Operation

Operating elements
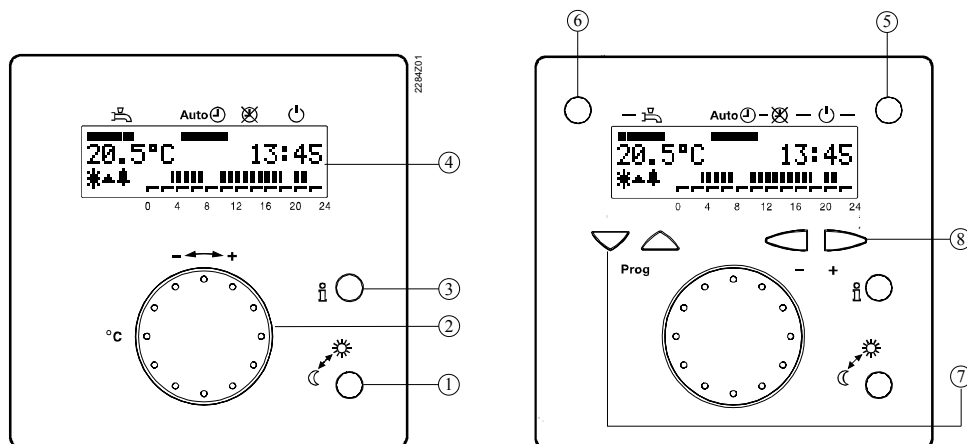
1. First operating level   2. Second operating level

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:
	Auto🕐 Automatic operation
	⊗ continuous operation
	⏻ Standby
	🚰 D.h.w. heating ON / OFF
⑥ D.h.w. operating mode button with associated symbol	
⑦ Line selection buttons (up and down)	Selection of operating line
⑧ Setting buttons (plus and minus)	Setting the parameters

1. First operating level   Operating elements 1 to 4.

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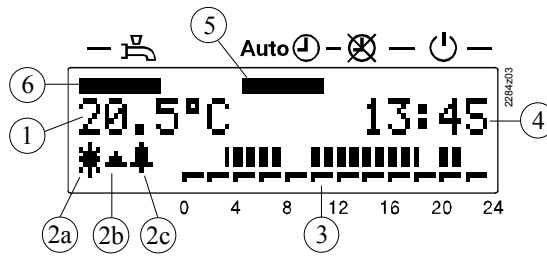
1	Actual value of room temperature
2a	Display of heating circuit operating level
✳	Nominal
【	Reduced
✴	Frost protection
2b	Flame status (activated, if flame present)
2c	Fault/service (activated, if fault present / service due)
3	Time pointer
4	Time of day
5	Heating circuit operating modes
6	D.h.w. operating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

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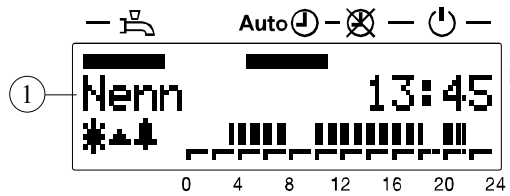
1   Current operating level

Display of measured value "Outside temperature":
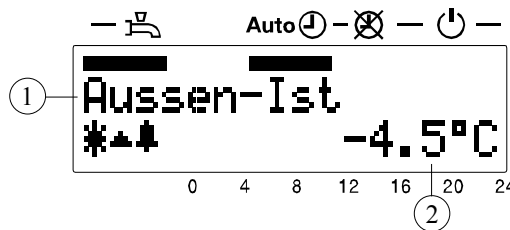
1   Parameter name
2   Parameter value

Example of parameter level

Display of parameter "Holidays start":
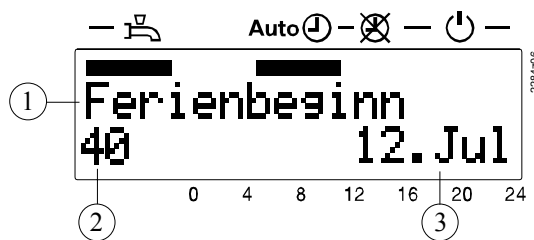
1   Parameter name
2   Parameter number
3   Parameter value

2.5 Communication with boiler control

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 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

Notes
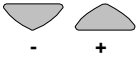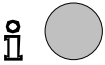
- The parameters displayed only in OpenTherm Plus mode are appropriately identified in the parameter lists
- The following descriptions of the individual parameters refer to the use of OpenTherm Plus and are based on the assumption that the relevant functions are supported by boiler control. Only then 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 enduser

Description

The following settings can be made to meet the individual needs of the enduser.

Setting

	Buttons	*Explanation*	*Line*
1	PROG	Press one of the 2 line selection buttons. *This will take you directly to the programming level "Enduser".*	**1**
2	PROG	Press the line selection buttons to select the required line. *The parameter list on the next pages contains all available lines.*	**1** **. . .** **50**
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. *The parameter list on the next 2 pages contains all settings that can be made.*	
4	i	By pressing the Info button, you leave the programming level "Enduser".	Continuous 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 enduser parameters

Line	Function	Range	Unit	Resolution	Factory setting
Time of day					
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	–
Setpoints					
5	Reduced room temperature setpoint (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 the d.h.w. temperature (TBWw)	TBWR ... TBWmax	°C	1	55
Time switch program 1 (heating circuit 1)					
10	Preselecting the weekday	Mo...Su, week	week-day	1 day	–
11	Switch-on time period 1	– –:– – / 00:00 ... 24:00	hh:mm	10 min	06:00
12	Switch-off time period 1	– –:– – / 00:00 ... 24:00	hh:mm	10 min	22:00
13	Switch-on time period 2	– –:– – / 00:00 ... 24:00	hh:mm	10 min	– –:– –
14	Switch-on time period 2	– –:– – / 00:00 ... 24:00	hh:mm	10 min	– –:– –
15	Switch-on time period 3	– –:– – / 00:00 ... 24:00	hh:mm	10 min	– –:– –
16	Switch-off time period 3	– –:– – / 00:00 ... 24:00	hh:mm	10 min	– –:– –
Time switch program 2					
20*	Preselecting the weekday	Mo...Su, week	week-day	1 day	–
21*	Switch-on time period 1	– –:– – / 00:00 ... 24:00	hh:mm	10 min	06:00
22*	Switch-off time period 1	– –:– – / 00:00 ... 24:00	hh:mm	10 min	22:00
23*	Switch-on time period 2	– –:– – / 00:00 ... 24:00	hh:mm	10 min	– –:– –
24*	Switch-off time period 2	– –:– – / 00:00 ... 24:00	hh:mm	10 min	– –:– –
25*	Switch-on time period 3	– –:– – / 00:00 ... 24:00	hh:mm	10 min	– –:– –
26*	Switch-off time period 3	– –:– – / 00:00 ... 24:00	hh:mm	10 min	– –:– –
Time switch program 3 (d.h.w.)					
30*	Preselecting the weekday	Mo...Su, week	week-day	1 day	–
31*	Switch-on time period 1	– –:– – / 00:00 ... 24:00	hh:mm	10 min	06:00
32*	Switch-off time period 1	– –:– – / 00:00 ... 24:00	hh:mm	10 min	22:00
33*	Switch-on time period 2	– –:– – / 00:00 ... 24:00	hh:mm	10 min	– –:– –
34*	Switch-off time period 2	– –:– – / 00:00 ... 24:00	hh:mm	10 min	– –:– –
35*	Switch-on time period 3	– –:– – / 00:00 ... 24:00	hh:mm	10 min	– –:– –
36*	Switch-off time period 3	– –:– – / 00:00 ... 24:00	hh:mm	10 min	– –:– –
Holidays					
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
General					
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

	Buttons	Explanation	Line
1	PROG	Press one of the 2 line selection buttons. *This will take you first to the programming level "Enduser".*	**1**
2	PROG	Press both line selection buttons for at least 3 seconds. *This will take you to the programming level "Heating engineer".*	**51**
3	PROG	Press the line selection buttons to select the required line. *The parameter list on the next pages contains all available lines.*	**51** . . . **98**
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. *The parameter list on the next pages contains all settings that can be made.*	
5	⊙	You leave the programming level "Heating engineer" by pressing the Info button.	Continuous 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
Service values					
51	Current room temperature setpoint HC1	4 ... 35.0	°C	0.5	–
	Nominal, reduced or frost protection setpoint				
52*	Current room temperature setpoint HC2	4 ... 35.0	°C	0.5	–
	Nominal, reduced or frost protection setpoint				
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*	Actual value of the 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	–	–	–
63	Current flow temperature setpoint HC1	0...100	°C	1	–
64*	Current flow temperature setpoint HC2	0...100	°C	1	–
Frost protection for the plant (HK1 and HK2)					
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	0.5
77	Adaption of the 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
D.h.w.					
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, weekly, daily	–	–	weekly
93*	Operating mode selector of d.h.w. heating	Without ECO, With ECO	–	–	Without ECO
94*	Control of d.h.w. circulating pump	D.h.w. release D.h.w. program Program 2	–	–	D.h.w. program

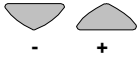| Line	Function	Range	Unit	Resolution	Factory setting
General					
95	Programming lock	Locked / released	–	–	Released
96*	Clock time master	QAA73, external	–	–	QAA73
97	Summer time start	1. Jan ... 31. Dec	dd.mm	1 day	25. March
98	Summer time end	1. Jan ... 31. Dec	dd.mm	1 day	25. Oct
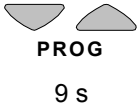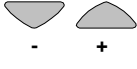
*   These lines are only displayed in OpenTherm Plus mode. Also, the relevant functions must be supported by boiler control.

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. *This will take you first to the programming level "Enduser".*	**1**
2	▽ △ PROG 9 s	Press both line selection buttons for at least 9 seconds. *A special display for entering the code will appear.*	
3	**CODE**	Press buttons ▽△ - + and ▽△ PROG to enter the required combination of the access code. *If the combination of buttons is correct, you reach the programming mode "OEM".* ➔ 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. *The parameter list on the next 2 pages contains all available lines.*	**100** . . . **199**
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. *The following parameter list contains all available lines.*	
6	ⓘ ⬤	You leave the programming level "OEM" by pressing the Info button.	Continuous 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
Space heating OEM					
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
D.h.w. OEM					
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
132*	Dwelling time legionella function	0...360	min	10	0
133*	Effect of legionella function on circulating pump	No / yes	–	–	Yes
Service functions OEM					
150	Info display	Temporary, continuously	–	–	Temporary
151	Frost warning –. – = inactive	–10 ... +10	°C	0.5	3.0
152	Operation lock	Locked, released	–	–	Released
153*	Action occupancy button	On HC1 + HC2, on HK1	–	–	On HC1+HC2
199	Software version (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
- Enduser 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 checks

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 main switch turned 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 the 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 enduser settings

User interface

3.1 Heating circuit operating modes

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 selected operating mode
Auto ⏲	Automatic operation	• Heating circuit 1 according to time switch program 1 • Heating circuit 2 according to time switch program 2 • Holiday function is active
⊗	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 • Holiday function is not active • Frost protection functions are active

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.
D.h.w. heating ON is indicated by a pointer under the d.h.w. symbol ⌂.

No pointer	OFF
Complete pointer	ON
Half the pointer	ON with ECO function ➔ This operating mode must be enabled on setting line 93!

Effect

OFF   D.h.w. is not being heated.

ON   D.h.w. heating is switched on; a setpoint is generated based on the demand for heat and the settings and passed on to the BMU.

ON ECO   D.h.w. operating mode for plants with instantaneous d.h.w. heating. The setpoint is generated and passed on to the BMU. Die Temperatur wird jedoch durch die Kesselregelung nicht ständig auf dem Sollwert gehalten. D.h.w. heating is started only when d.h.w. is consumed.

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. This changeover is maintained until the next level changeover point of the time switch program is reached.
	The change taking place after pressing the occupancy button will be indicated by the time pointer and appears on the display.
	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 *	Status 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 the 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 and 3

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

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

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

24/70

3.6 Nominal room temperature setpoint

Description

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

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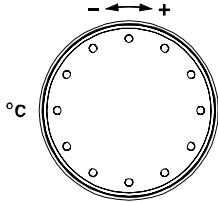
The nominal room temperature setpoint is adjusted with the knob for the nominal temperature, which is located on the controller front for direct access by the user. When turning the knob, the current room temperature setpoint is displayed and – when turning further – readjusted. The value applies to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

Setting range	Unit	Factory setting
TRwMin ... TRwMax	°C	20.0
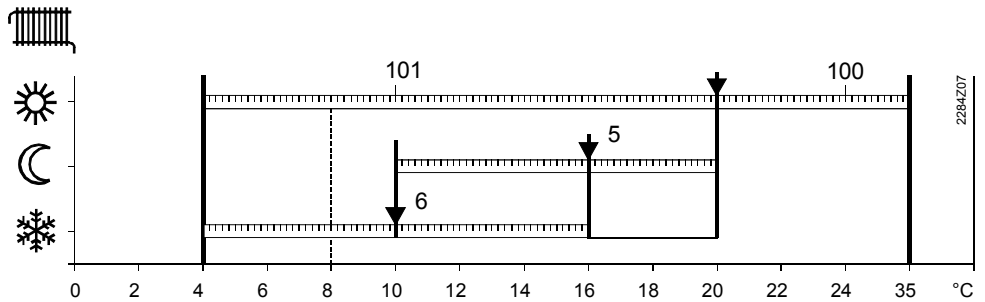
Room temperature setpoint setting ranges

5   Reduced room temperature setpoint
6   Frost protection setpoint of the 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 setpoint 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.
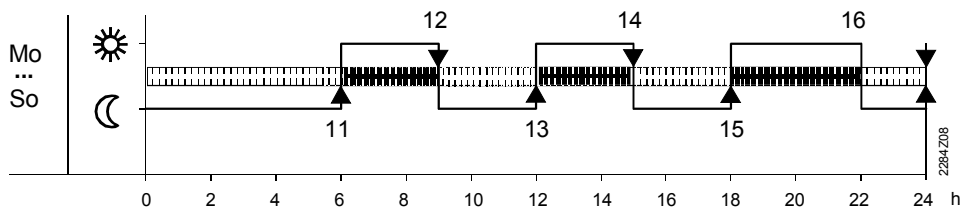
Nominal temperature and reduced temperature phases for heating circuit 1

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.

Setting range	Unit	Factory setting
TRF...TRN	°C	16

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

TRN   Nominal room temperature setpoint (to be 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.

Setting range	Unit	Factory setting
4...TRRw	°C	10

TRRw   Reduced room temperature setpoint (setting on operating 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 d.h.w. temperature setpoint

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.

Setting range	Unit	Factory setting
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.
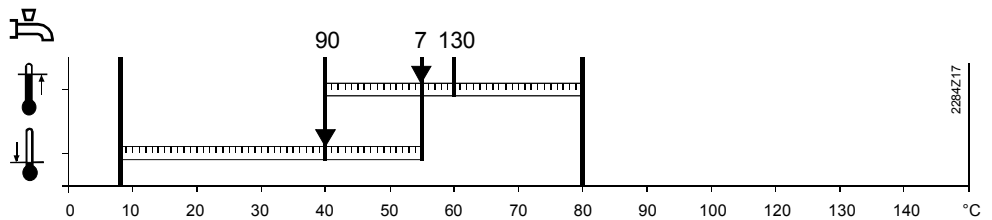
7   Nominal d.h.w. temperature setpoint
90   Reduced setpoint of the d.h.w. temperature
130   Maximum nominal setpoint of d.h.w. temperature

D.h.w. temperature setpoints

D.h.w. heating has 2 different setpoints that can be used:

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

Reduced d.h.w. temperature setpoint (setting on operating line 90): It ensures the d.h.w. temperature required during 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.

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

For TSP1, parameters 10 through 16 are provided, für TSP2, the parameters 20 through 26 and for TSP3 the parameters 30 through 36.

Notes

- The time switch programs operate independently of each other.
- Die Parameter 20 ... Parameters 20 through 26 are visible only if boiler control supports a second heating circuit
- Die Parameter 30 ... Parameters 30 through 36 are visible only if line 91 is set for use by the d.h.w. time switch program

3.10 Preselecting the 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.

Zeilen 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.

Setting range	*Unit*
Week Mo...Su	7-day block
	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

7-day block:
Entry of the switching times on lines 11 through 16 (for HC1), or of lines 21 through 26 (for HC2), or of lines 31 through 36 (for HC3), is identical for every day from Monday through Sunday

Example of a time switch program valid for all weekdays

Basic Documentation QAA73.110 Room unit
Description of enduser settings
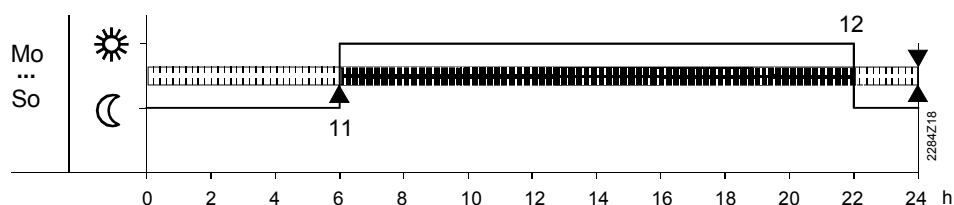
Entry of individual days

7-day block: Entry of the switching times on lines 11 through 16 (for HC1), or of lines 21 through 26 (for HC2), or 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:
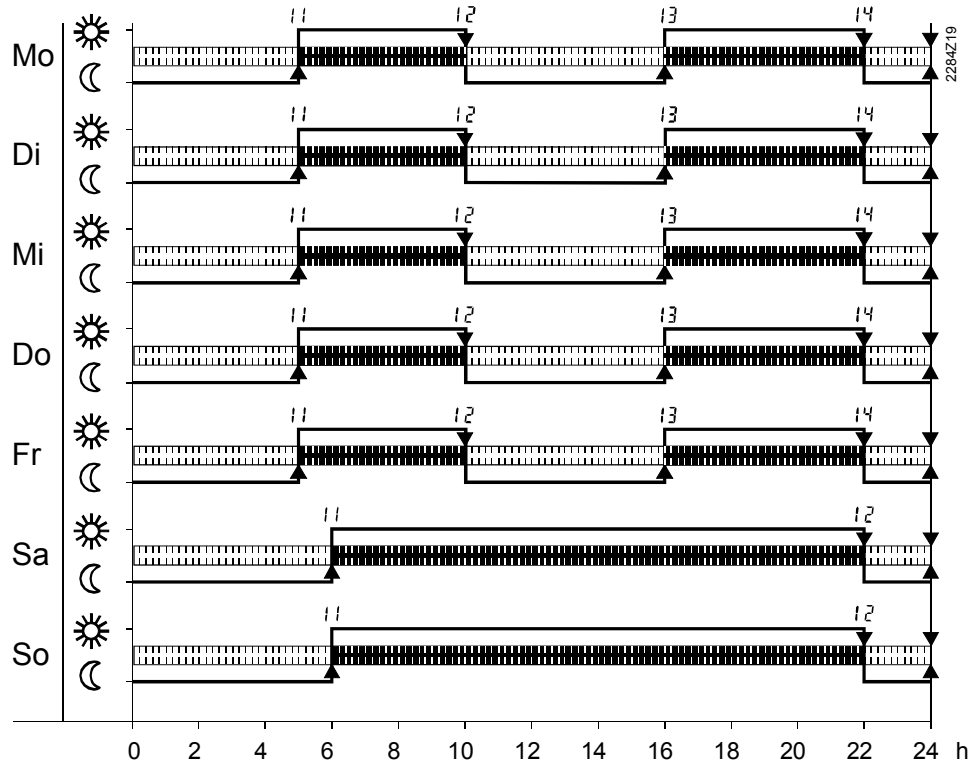
Tip

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

Description

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.

Lines 11 ... 16 for TSP1
21 ... 26 for TSP2
31 ... 36 for d.h.w

1. Press the line selection buttons to select lines **11** through **16** (for HC1), or lines **21** through **26** (for HC2), or lines **31** through **36** (for d.h.w.).
2. Press the + / – buttons to set the switching time on each line.

Setting range	*Unit*	*Factory setting*
$--:--$ / 24:00	h : min	see standard time switch programs

Important

First, select the weekday for which the switching times shall be entered! (operating line 10 or 20 or 30)

Note

The room unit then makes a check to ensure the entries have been made in the correct order.

Effect

At the times entered, the program will switch to the respective functions:
$--:--$ Switching point inaktiv

00:00...24:00 At the time entered, a change to the respective function takes place.

Siemens Building Technologies
HVAC Products

Basic Documentation QAA73.110 Room unit
Description of enduser settings

CE1P2284en
10.07.2002

3.12 Holiday setting

Description

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.

Line 40, 41

1. Press the line selection buttons to select line **40** for the start of the holiday period and line **41** for the end of the holiday period.
2. 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.

Line	Display	Unit	Factory setting	
40	1. Jan ... 31. Dec	Day.Month	$--:--$	(inactiv)
41	1. Jan ... 31. Dec	Day.Month	$--:--$	(inactiv)

Note

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.

Effect

*   After the start of the holiday period, the heating level will be reduced either to "Reduced" or " Frost" according to the parameter setting made on programming line 42. During the holidays, d.h.w. heating is locked
*   On completion of the holiday period, the current room unit settings apply again
*   The dates of the start and the end of the holiday period will automatically be cleared when the holidays are over

Clearing

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.

Display	Unit	Factory setting
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.

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".

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

Standard values

Switching point	*Setting line TSP1 or 2*	*d.h.w.*	*Standard time*
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	– – : – –

– – : Inactive

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.

Setting range	Unit	Factory setting
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 (± a fixed switching differential) is compared with the attenuated outside temperature.

Heating **OFF** (from winter to summer)	TAged > SuWi +1 °C
Heating **ON** (from summer to winter)	TAged < SuWi -1 °C

Notes

- This function only acts in automatic mode **Auto**🕐
- During summer operation, Info line 4 Eco is displayed
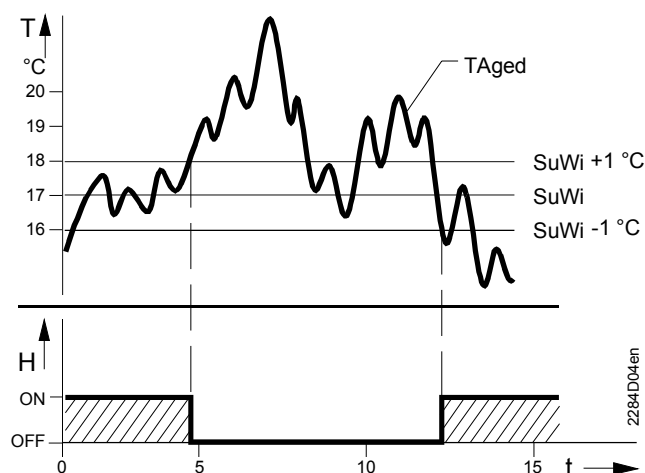
Changeover between summer and winter operation:

TAged   Attenuated outside temperature
SuWi   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 fault / status code symbol 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 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 #.
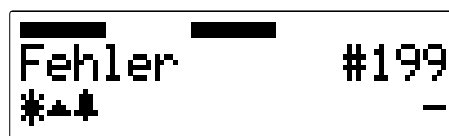
Example of other fault display

Error code list

Error code	*Display QAA73.110*	*Description of error*
0	No error	No error
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 Boiler status code

Description   The room unit displays status codes 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 status code is indicated, the fault / status code symbol flashes.
When pressing the Info button, the relevant status code is displayed in clear text.

Status display:

Display QAA73.110	*Description of error*
None	No service required
Maintenance	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
Para-mode	Unit is in parameter setting mode
Floor	Unit performes floor curing function
Modem	Standby by external BMU contact
BMU	Service non-Siemens boiler control required

4 Description of the 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.

Line 51, 52

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

Line	Display	Unit	Setpoint
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.

Display	Unit
–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 affects directly only summer / winter changeover. The attenuated outside temperature acts indirectly on flow temperature control via the composite outside temperature.
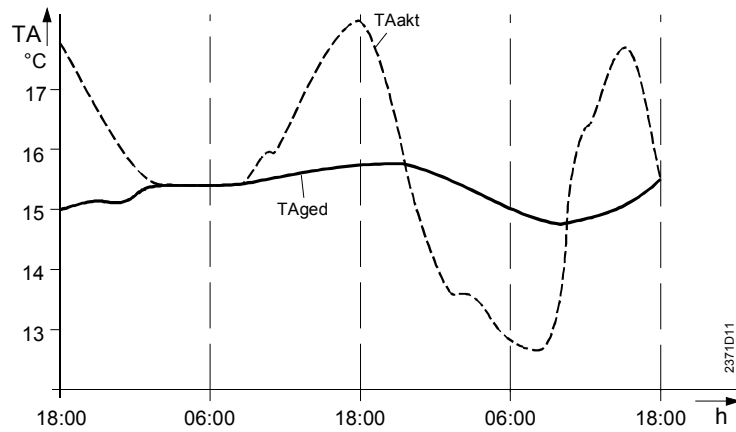
Attenuated outside temperature

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.
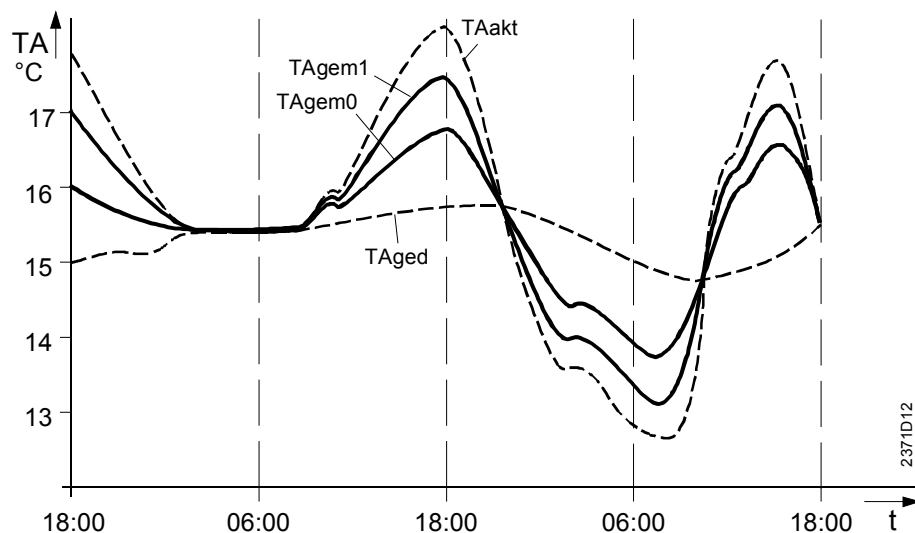
Composite outside temperature

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.

Display	*Unit*
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.

Display	*Unit*
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.

Display	*Unit*
–40 ... +127	°C

4.7   Actual value of the flue gas temperature

Description

The current flue gas temperature is displayed.

Line 58

Press the line selection buttons to select line 58.

Display	*Unit*
–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.

Display	*Unit*
–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.

Display	*Unit*
–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.

Display	*Unit*
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   *OpenTherm Lite* protocol is used
Plus   *OpenTherm Plus* protocol is used

4.11 Current flow temperature setpoint HC1 and HC2

Description

The current flow temperature setpoint is displayed. For heating circuit 1 on line 63, for heating circuit 2 on line 64.

Line 63, 64

Press the line selection buttons to select line **63** or **64**.

Display	*Unit*
0...100	°C

Space heating

4.12 Heating curve slope

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 HC 1
Line 80 for HC 2

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 --.-

Setting range	Unit	Factory setting
--.- / 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 be **raised 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
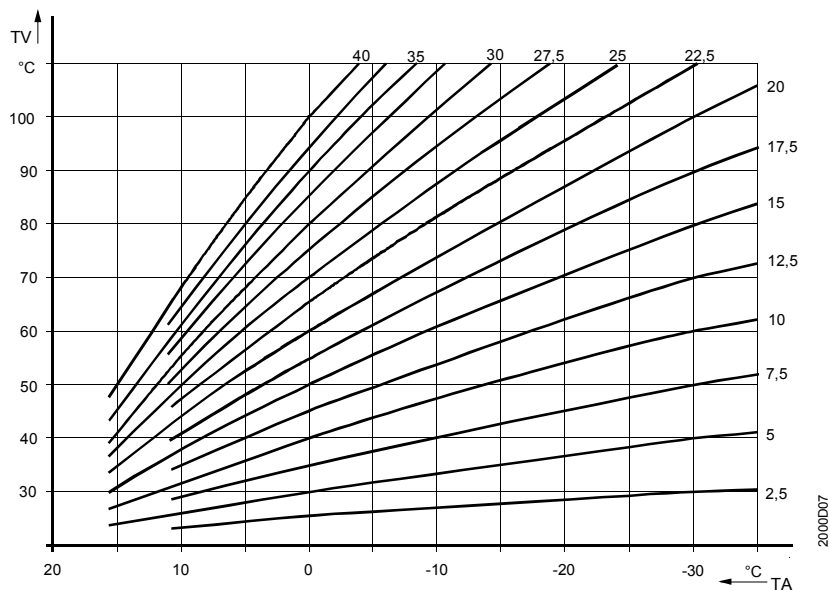
Heating circuit diagram

TV Flow temperature
TA Composite outside temperature

4.13 Minimum and maximum limitation of 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 and 72 for HC1
81 and 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.

Line	Setting range	Unit	Factory setting
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
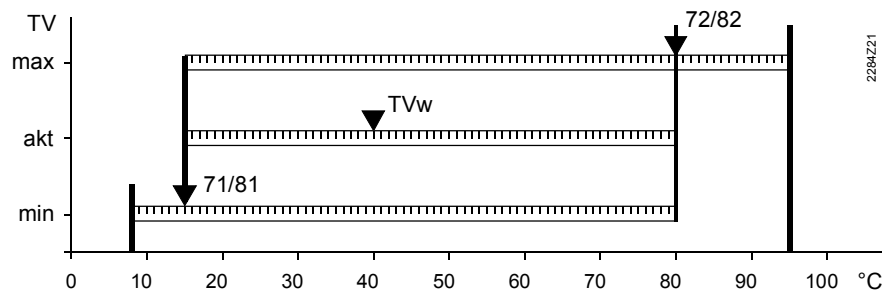
TVw	Current flow temperature setpoint
71	minimum limitation of flow temperature
72	maximum limitation of flow temperature
81	minimum limitation of flow temperature
82	maximum limitation of flow temperature

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.

4.14 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.

Line 73, 83

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

Line	HK	Setting range	Unit	Factory setting
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.
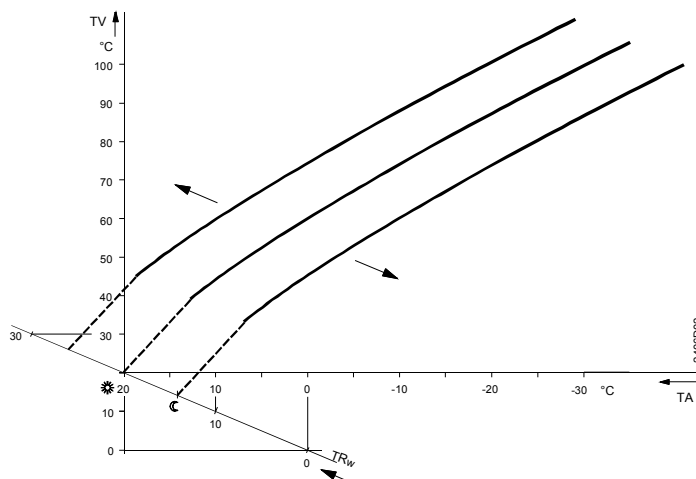
TV   Flow temperature
TA   Composite outside temperature
TRw   Room temperature setpoint

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4.15 Type of building construction

Description

Enables the control system's rate of response to be matched to the type of building construction.

Line 74

1. Press the line selection buttons to select line 74.
2. Press the + / – buttons to select the type of building construction.

Setting range	Unit	Factory setting
Heavy, light	–	Light

Effect

When the outside temperature varies, the room temperature changes at different rates, depending on the building's thermal storage capacity.

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".

Entry:

Heavy building structures:
> The room temperature will respond *slower* to outside temperature variations

Light   Light building structures:
> The room temperature will respond *quicker* to outside temperature variations

Building construction

- Heavy building structures:
  Buildings with thick walls or with external insulation
- Light building structures:
  Buildings with a light envelope

4.16 Room influence

Description

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.

Line 75

1. Press the line selection buttons to select line 75.
2. Press the + / – buttons to select the room influence.

Setting range	Unit	Factory setting
None, on HC1, on HC2, on HC1 + HC2	–	On HC1

Effect

The setting will activate the room influence on the required heating circuits.

Entry: None   Room influence inactive: The measured room temperature will not affect 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 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).

4.17 Switching differential of the 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.

Setting range	Unit	Factory setting
– – . –	–	0.5
0.5...4.0	°C	

Effect

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

– – . –	Switching differential is inaktiv
	• 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.
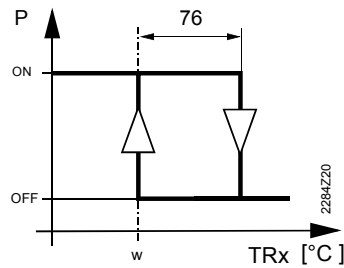
Functioning
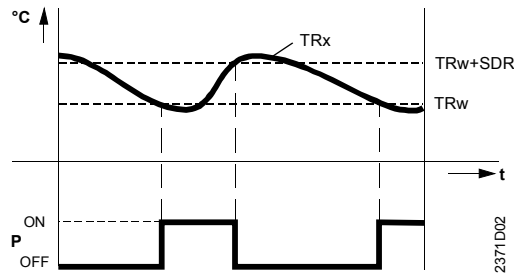
Legend

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

Switching differential

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

Legend

TRx	Actual value of the room temperature
TRw	Room temperature setpoint
SDR	Switching differential of room temperature
P	Pump (ON / OFF)
w	Setpoint
△	Switch-on 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.

4.18 Adaption of the 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.

Setting range	*Unit*	*Factory setting*
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".

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| 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 an optimum adaptation, the following situations should occur as rarely as possible - especially after commissioning - since this would reset certain calculations required for the adaptation: − 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. • Simple adaption (range) 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. • Combined adaption (range) 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. • No adaption (range) 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.

2371D07
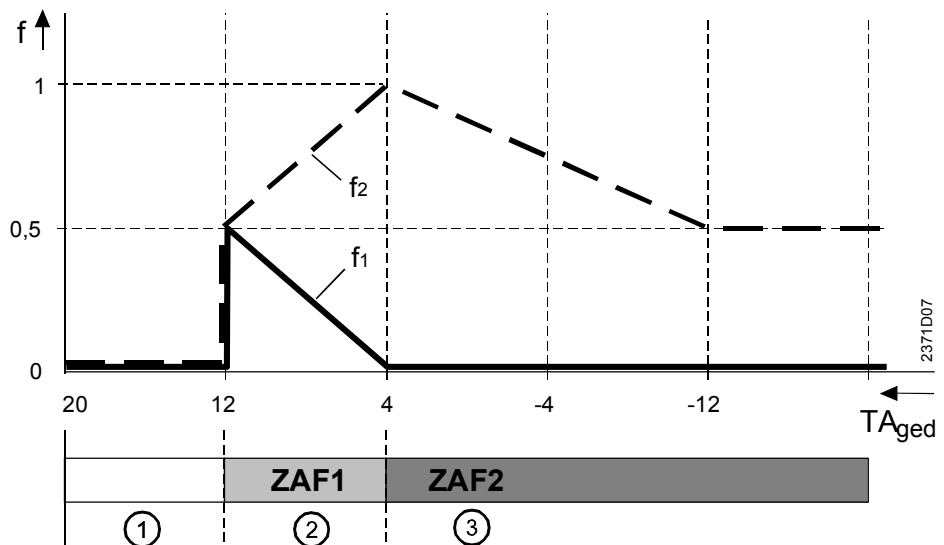
f	Factor
f1	Factor for parallel displacement
f2	Factor for slope
TAged	Attenuated outside temperature
ZAF1	adaption sensitivity 1
ZAF2	adaption sensitivity 2

4.19 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.

Setting range	Unit	Factory setting
0 ... 360	min	100

Effect

0	Optimum start control switched off
10 ... 360	Optimum start control switched on

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.

During non-occupancy hours, the heating is maintained at the reduced level. 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.

4.20 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.

Setting range	Unit	Factory setting
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 heating is maintained at the nominal level. Towards the end of the occupancy time, the control switches to the reduced level.
Optimization calculates the changeover time such that, at the end of occupancy time, the room temperature will be 0.5 °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.

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

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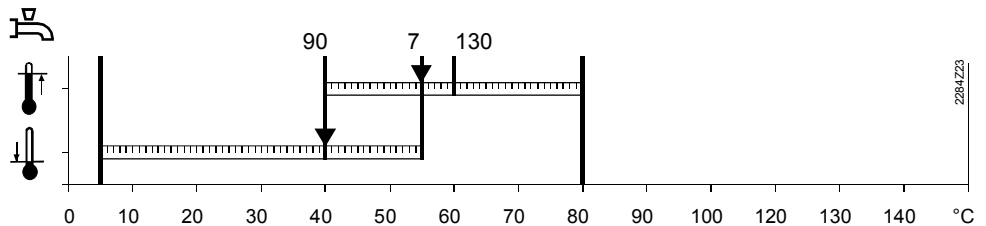
Line 90   1. Press the line selection buttons to select line 90.
2. Press the + / – buttons to adjust the reduced setpoint of the d.h.w. temperature.

Setting range	*Unit*	*Factory setting*
8...TBWw	°C	40

TBWw   Nominal d.h.w. temperature setpoint

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

7   Nominal d.h.w. temperature setpoint
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 different setpoints that can be used:

- Nominal d.h.w. temperature setpoint
  Produces the d.h.w. temperature required during the 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.

4.22 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. |

Setting range	Unit	Factory setting
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 to 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

4.23 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.

Important

When using d.h.w. systems with instantaneous heaters, this function may not be activated!

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

Setting range	Unit	Factory setting
off / weekly/ daily	–	weekly

Effect

The setting activates or deactivates the legionella function.

Entry:

OFF	Function inactive
Weekly	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.
Daily	Function is activated every day 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

- If on the starting day of the legionella function, d.h.w. is not heated, or if the function is aborted, it will be repeated the next day when d.h.w. is heated for the first time.
- This function is possible only when d.h.w. heating is released by the d.h.w. heating program.

4.24 D.h.w. operating mode selector

Description

The operating mode button for d.h.w. on the controller front can be extended by the d.h.w. operating mode "ON eco". This additional operating mode is used for d.h.w. systems with instantaneous heating. Also refer to section "D.h.w. operating mode".

Line 93

1. Press the line selection buttons to select line 93.
2. Press the + / – buttons to release or lock operating mode "ON eco".

Setting range	*Unit*	*Factory setting*
Without ECO / With ECO	–	Without ECO

Effect

When using setting "With ECO", the user can also select operating mode "ON Eco" via the d.h.w. operating mode button.

4.25 Control of d.h.w. circulating pump

Description

The d.h.w. circulating pump is used for circulating the d.h.w. D.h.w. circulation prevents the d.h.w. from cooling down by the time it reaches the consumer. With this setting, the temporal dependence for operation of the circulating pump can be selected.

Line 94

Setting range	*Unit*	*Factory setting*
Release of d.h.w. / Prog 2	–	D.h.w. program

Release of d.h.w. – according to d.h.w. release
The d.h.w. circulating pump is activated and deactivated according to the d.h.w. release selected on line 91. During that period of time, the circulating pump operates continuously, without giving consideration to actual d.h.w. heating.

Prog 3 – according to time switch program 3
The d.h.w. circulating pump is controlled according to the switching times of time switch program 3. It is thus possible to operate the circulating pump only during the times of usage individually set.

Prog 2 - according to time switch program 2
The d.h.w. circulating pump is controlled according to the switching times of time switch program 2. It is thus possible to operate the circulating pump only during individually set times of usage.

Forward shift

The circulating pump does not follow any forward shift. This means it is operated in accordance with the actual times of usage.

General

4.26 Programming

Description

If the parameter values shall not be changed, entry can be locked.

Line 95

1. Press the line selection buttons to select line 95.
2. Press the + / – buttons to activate or deactivate programming.

Setting range	*Unit*	*Factory setting*
Locked / released	–	Released

Effect

Released   The parameter values can be changed.

locked   The parameter values can still be displayed, but changes are no longer possible.
When pressing the + / – buttons, the display shows symbol ⌁ in place of the value.

Temporary cancellation of programming

On the programming or parameter setting level, locked programming 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 programming lock is maintained until the next change to the Info level is made.

Continuous cancellation of programming

To have programming continuously released, the down button (▾) and the (+) button must be pressed simultaneously for at least 3 seconds. Then, parameter "Programming" can be set to **released**.

4.27 Clock time master

Description

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.

Line 96

1. Press the line selection buttons to select line 96.
2. Press the + / – buttons to define the clock time master.

Setting range	Unit	Factory setting
QAA73, external	–	QAA73

Effect

The setting defines the clock time master.

Display:

QAA73   QAA73.110 is the clock time master. OpenTherm transmits the time of day to the boiler control, either periodically or after an adjustment.

Externally 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.

4.28 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.

Setting range	Unit	Factory setting
1. Jan ... 31. Dec	dd.mm	25. March

Effect

On the Sunday following the set date, the time of day of the room unit will switch to summertime. For that purpose, the time of day is shifted 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.

4.29 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.

Setting range	*Unit*	*Factory setting*
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.
For that purpose, the time of day is shifted backward by one hour.

5 Description of the 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).

Line 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.

Line	Setting range	Unit	Factory setting
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 of 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.

Setting range	Unit	Factory setting
0...20	–	4

Effect

Changing this setting has the following impact:

Increase: Authority of room influence will increase

Decrease: Authority of 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 $\quad$ TRw $\quad$ = Actual room temperature

$\qquad\qquad\qquad\qquad\qquad\qquad$ TRx $\quad$ = 22 °C

Correction factor $\qquad\qquad$ KORR $\quad$ = 8
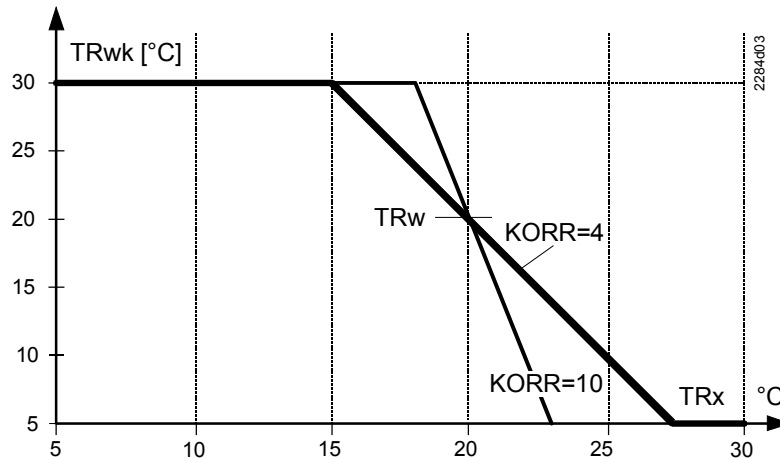
$$TRwk = TRw + \frac{KORR}{2}\ (TRw - TRx)$$

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

KORR $\quad$ Constant for room influence
TRx $\qquad$ Actual value of the room temperature
TRw $\qquad$ Room temperature setpoint
TRwk $\quad$ Room temperature setpoint (readjusted)

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.

Example with graph

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.

Setting range	Unit	Factory setting
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 operating 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.

Setting range	*Unit*	*Factory setting*
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.
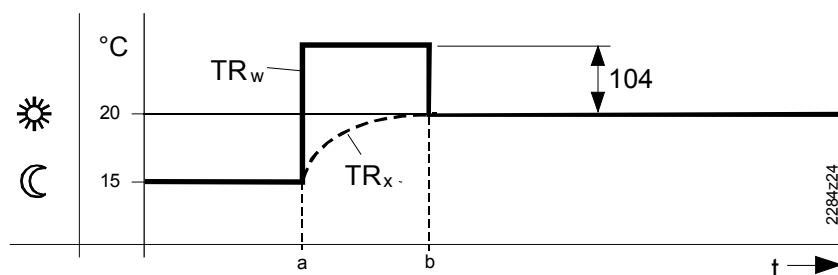
TRx   Actual value of the room temperature
TRw   Room temperature setpoint
104   Setpoint boost
t   Time

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.

Setting range	Unit	Factory setting
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.

Setting range	Unit	Factory setting
–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 enduser
- 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.

Setting range	Unit	Factory setting
TBWw...80	°C	60

TBWw Nominal d.h.w. temperature setpoint

Effect	The setting will ensure maximum limitation of the nominal d.h.w. temperature setpoint.
Note	A d.h.w. setpoint maximum (TBWmax) of a BMU transmitted via OpenTherm is given priority and replaces that of the controller (setting 130).

5.8 Setpoint of the 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.

Setting range	*Unit*	*Factory setting*
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.

5.9 Dwelling time at legionella function setpoint

Description

The setpoint of the legionella function (operating line 92) is maintained for at least the period of time set here.

Line 132

Setting range	*Unit*	*Factory setting*
0...360	min	0

Effect

The dwelling time starts as soon as the legionella setpoint is reached.

During the entire dwelling time, the temperature may not fall below the legionella setpoint by more than the set BMU d.h.w. switching differential (standard setting LMU). The legionella function is terminated when this criterion is met.

5.10 Effect of legionella function on the circulating pump

Description

Flushing the circulation piping ensures that the legionella viruses will also be killed in that part of the plant.

Setting on operating line 133

Setting range	*Unit*	*Factory setting*
No / yes		Yes

Effect

No	The circulating pump **does not run** during the time of the legionella function.
Yes	The circulating pump **runs** during the time of the legionella function, even if it would not be allowed to run based on control of the d.h.w. circulating pump (setting 94).

➔ **Important**

If this function is deactivated, there is a risk that legionella viruses will return from the circulation piping to the d.h.w. storage tank right after the storage tank has been thermally desinfected.

5.11 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.

Setting range	*Unit*	*Factory setting*
Temporary, continuously	–	Temporary

Effect

This setting selects the display mode of the Info display:

When entering X:

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.

5.12 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.

Setting range	*Unit*	*Factory setting*
– – . – / –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.

Siemens Building Technologies
HVAC Products

Basic Documentation QAA73.110 Room unit
Description of the OEM settings

CE1P2284en
10.07.2002

5.13 Operation

Description

Using this setting, operation 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.

Setting range	Unit	Factory setting
Locked / released	–	Released

Effect

The following operating elements are now locked, thus preventing tampering:
- Button for selecting the heating circuit's operating mode
- D.h.w. operating mode button
- Setpoint knob for nominal temperature
- Occupancy button

5.14 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.

Setting range	Unit	Factory setting
On HC1 + HC2, on HC1	–	On HC1 + HC 2

Effect

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

5.15 Software version

Description

The software version installed represents the state of the software available at the time the controller 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.

Display	Unit
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 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 impact on the plant.
For the rectification of faults, planning and plant maintenance, it may therefore be very advantageous to know about their impact on plant operation.

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.

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

Description

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.

Prerequisites

The room influence (line 75) must be activated for the required heating circuits and, in addition, no outside sensor may be connected.

Effect

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

Description

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.

Notes

- The automatic 24-hour heating limit does not function in continuous operation ⊗
- When the 24-hour heating limit is activated, the Info line displays Eco

6.2.1 Without room influence

Introduction

If no room influence is activated, the 24-hour heating limit switches depending on the flow temperature setpoint and the adjusted setpoint ☼, ☾ or ❄.

Process

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

Switching off

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

Heating OFF:

TVw	=	TRw +2 S/10

Switching on

If the flow temperature setpoint exceeds the room temperature setpoint plus a correction value, the heating will be switched on.

Heating ON:

TVw	=	TRw +4 S/10

TVw   Flow temperature setpoint
TRw   Room temperature setpoint
s   Slope of the heating curve

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 exceeds the room temperature setpoint plus a correction factor, 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 the 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 (TRx = TRw).
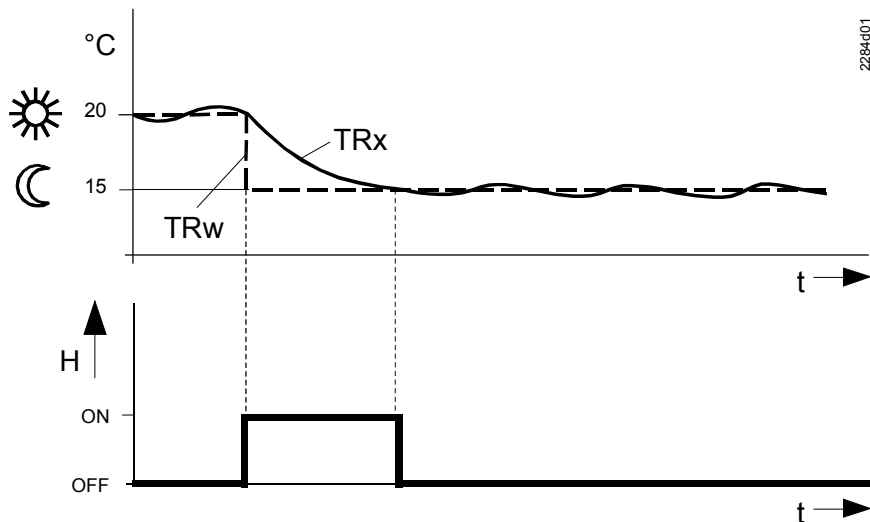
TRx	Actual value of the room temperature
TRw	Room temperature setpoint
H	Quick setback

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 flow or 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.

Exception

The d.h.w. push is not active when instantaneous d.h.w. heating is used.

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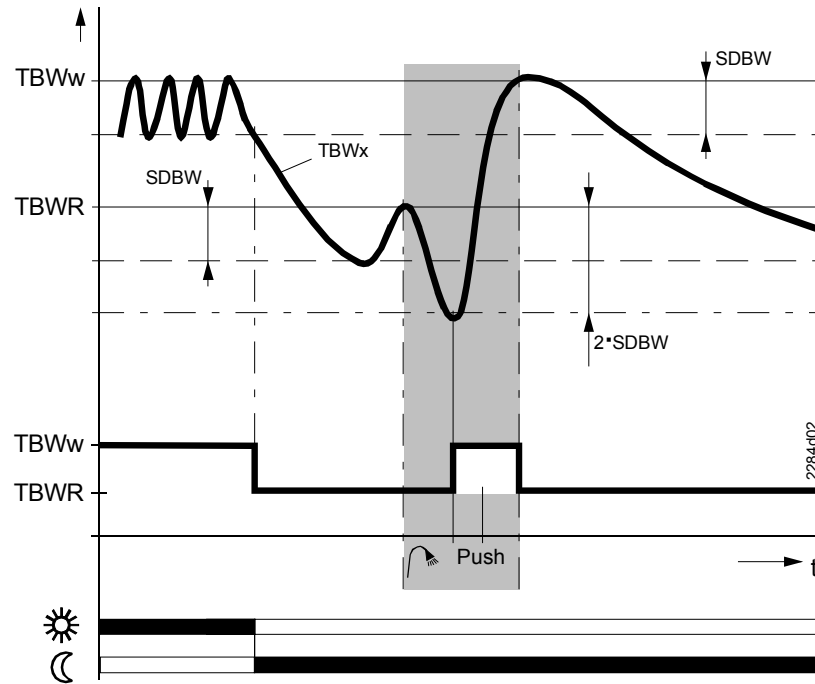
SDBW   Switching differential d.h.w.
TBWw   Nominal d.h.w. temperature setpoint
TBWR   Reduced setpoint of the d.h.w. temperature

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

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

Room unit

96

96 91

2284M02

96

47

Panel cutout

1...2

96

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

96

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

2284M01
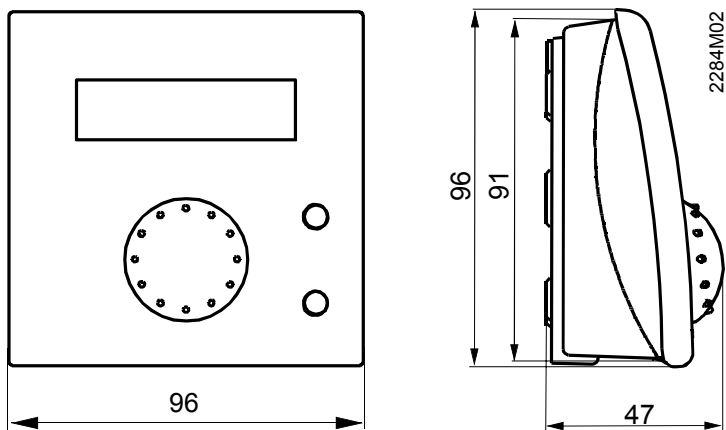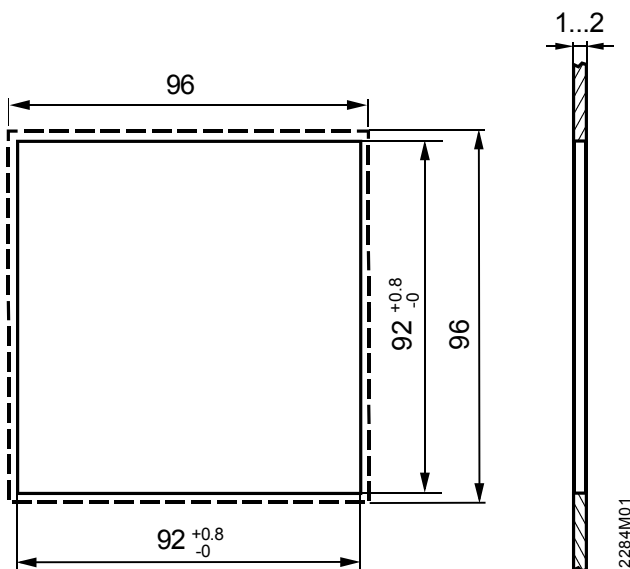
8 Technical data

Operating voltage	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 EN 60 730 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..0.50 °C
	Humidity	< 85 % r.h.
	Transport	IEC 721-3-2 class 2K 3
	Temperatures	-25...70 °C
	Humidity	< 95 % r.h.
	Storage	IEC 721-3-1 class 1K 3
	Temperatures	–25...70 °C
	Humidity	< 95 % r.h.
Standards	CE conformity	
	EMC directive	89/336/EEC
	– Immunity	EN 50 082-1, EN 50 082-2
	– Emissions	EN 50 081-1, EN 50 081-2
	Low voltage directive	73/23/EEC
	– Electrical safety	EN 60 730-1, EN 60 730-2-9
Room sensor	Measuring range	0...45 °C
Other features	Backup of time switch	min. 12 h
	Software class	A to EN 60 730
	Weight	approx. 0.17 kg

Index

Corrigenda

The following changes have been made in this document compared to the last edition. The page numbers are those of the present edition. The pages numbers are those of the present edition.

Page	Modification:
1	Former version: V1.0 of 16.08.2001 New version: V1.1 of 23.04.2002
15	Setting lines 10 to 36: Function text changed Setting lines 30 to 36: Footnote * amended
17	Setting lines 63, 64 added Setting line 92: Setting range and basic value changed Setting line 94 added Setting line 95: Completely changed
20	Setting lines 132, 133 added Setting line 152: Function text changed
23	Info button line 3 changed
28	Description changed
29	Entry of individual days HC2 to TSP changed Chapter Switching times: HC2 to TSP changed
31	Block "Effect and standard values": Changed to TSP
34	Title "Maintenance indication" changed to "Boiler status code" Table: Boiler changed to maintenance, lines: Floor curing and modem added
38	Section: Current flow temperature setpoint HC1 and HC2 added
48	Chapter "Legionella funktion": Setting range and description of block "Effect" changed
49	Chapter "Control of d.h.w. circulating pump" changed
50	Chapter "Operating lock for programming " changed
57	Chapter "Dwlling time of legionella funkcion" and "Effect of legionella funkcion on circulating pump" added
59	Section "Operating lock" added
65	Panel thickness changed