Eco
Engineering

Installation Manual

Easypell
16 — 32kW

ENGLISH

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Eco
Engineering

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1 Dear Customer

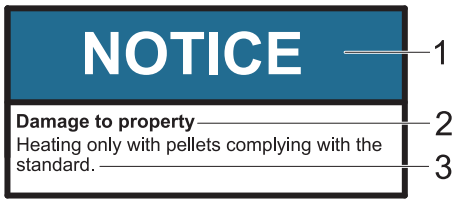
- This manual is intended to help you operate the product safely, properly and economically.
- Please read this manual right through and take note of the safety warnings.
- Keep all documentation supplied with this unit in a safe place for future reference.
  Please pass on the documentation to the new user if you decide to part with the unit at a later date.
- Please contact your authorised dealer if you have any questions.

2 Types of safety warning sign

The warning signs use the following symbols and texts.

Types of safety warning sign

1. Risk of injury
2. Consequences of risk
3. Avoiding risk



1. Risk of injury:

Danger - indicates a situation that could lead to death or life-threatening injury.

Warning - indicates a situation that could lead life-threatening or serious injury.

Caution - indicates a situation that could lead to injury.

Note - indicates a situation that could lead to property damage.

2. Consequences of risk

Effects and consequences resulting from incorrect operation.

3. Avoiding risk

Observing safety instructions ensures that the heating system is operated safely

3 Prerequisites for installing a pellet boiler

You must fulfill the following conditions before operating a fully automatic pellet boiler.

3.1 Guidelines and standards for installing a pellet boiler

Overview of standards and guidelines applying to the installation of a pellet boiler.

Check whether you need to obtain planning permission or approval from the authorities for installing a new heating system or changing your existing system. Legislation in your country must be observed.

Flue gas system	EN 13384–1	Legislation in your country must be observed.
Building and fire prevention regulations		Legislation in your country must be observed.
Type of installation	FC 42x	Fireplace with a flue gas fan for connection to an air exhaust system. The combustion air line from air shaft and the connecting piece to the chimney are part of the fireplace.
	FC 52x	Fireplace with a flue gas for connection to a chimney. The combustion air line from outside and the connecting piece to the chimney are part of the fireplace.
Sound insulation	DIN 4109	Please note the building-unique demands on sound insulation.

3.2 Central heating room

The pellet boiler is installed in the central heating room.

1. **Safety instructions for the heating room**

   DANGER

   Risk of fire
   Do not store flammable materials or liquids in the vicinity of the pellet boiler.
   Do not permit unauthorised persons to enter the central heating room - children are to be kept out.
   Always close the boiler door.

2. **Air supply and ventilation of central heating room**

   The central heating room must be fitted with air supply and ventilation openings (at least 200cm^2). Legislation in your country must be observed.

3. **Combustion air supply**

   The pellet boiler needs a supply of combustion air.

   Never operate the pellet boiler if the air intake openings are partially or completely closed.

   Contaminated combustion air can cause damage to the pellet boiler. Never store of use cleaning detergents containing chlorine, nitrobenzene or halogen in the room where the heating system is installed, if combustion air is drawn directly from the room.

   Do not hang out washing in the central heating room.

   Prevent dust from collecting at the combustion air intake to the pellet boiler.

4. **Damage due to frost and humid air**

   The central heating room must be frost-proof to ensure trouble-free operation of the heating system. The temperature of the central heating room must not fall below –3°C and must not exceed +30°C. The air humidity in the central heating room must not exceed 70%.

5. **Danger for animals**

   Make sure that household pets and other small animals cannot enter the central heating room. Fit mesh

over any openings.

6. **Flooding**

   If there is a risk of flooding, switch off the pellet boiler in good time and disconnect from the power supply before water enters the central heating room. You must have all components that come into contact with water replaced, before you start up the pellet boiler again.

7. **Cleaning**

   Clean the flue gas tube and chimney regularly.

NOTICE

Oxidation of chimney
Do not use metal brushes to clean chimneys made of stainless steel.
Legislation in your country must be observed.

3.3 Flue gas system

The flue gas system consists of a chimney and a flue gas tube. The flue gas tube connects the pellet heating system to the chimney. The chimney leads the flue gas from the pellet heating system out into the open.

1. **Design of the chimney**

   The dimensions and design of the chimney is very important. The chimney must be able to ensure sufficient draft to safely draw away the flue gas regardless of the status of the boiler. Low flue gas temperatures can cause sooting and moisture damage on chimneys that are not insulated. For this reason **moisture-resistant chimneys** (stainless steel or ceramic) should be used. Chimneys made of plastic are not permitted. An existing chimney that is not damp-resistant needs to be rennovated before use.

Boiler size	Easypell 16	Easypell 20	Easypell 25	Easypell 32
Flue gas tube diameter (at boiler) – [mm]	130		150	
Chimney diameter	as per chimney calculation, EN 13384–1			
Chimney design	damp-resistant			

2. **Flue gas temperature**

Boiler type	Easypell 16	Easypell 20	Easypell 25	Easypell 32
Flue gas temperature rating	160°C			
Flue gas temperature partial load	100°C			

   The dewpoint of flue gas with wood pellets (max. 10% water content) is approx. 50°C.

3. **Chimney draft**

   The diameter of the chimney must be selected based on a chimney calculation according to EN 13 384–1. The suction effect of the chimney draft must extend as far as the chimney connection. The maximum flow rate that can be drawn through the chimney limits the maximum performance of the pellet boiler. The boiler performance must be reduced if the chimney does not possess the necessary cross-section. This may only be performend by authorised personnel.

3.4 Safety systems

The following safety measures are the prerequisite for safe operation of your system.

Emergency stop switch

Every heating system must be able to be switched off with an Emergency Stop switch. The Emergency Stop switch must be inside the central heating room.

Safety valve

The hydraulic system must be equipped with a safety valve. This valve opens when the pressure inside the heating system increases to max. 3 bar. The safety valve must:

–be installed at the highest point of the boiler,
–must not be locked,
–and must be within 1 metre of the boiler.

Safety temperature sensor

The pellet boiler is equipped with a safety temperature sensor. This is located on the pellet boiler. If the boiler temperature exceeds 95°C then the heating system switches off.

Expansion tank

All heating systems must be equipped with a pressurised expansion tank. The plumber or heating system installer must dimension the expansion tanks according to the dimensions of the hydraulic system.

NOTICE

Starting up
Starting up for the first time has to be performed only by an authorized service technician.

3.5 Operation of a pellet boiler with an existing boiler

There are different regulations in the different European countries. Please mind the prescription of your country.

4 Warnings and safety instructions

Observing safety instructions ensures that the heating system is operated safely.

4.1 Basic safety instructions

- Never get yourself into danger; give own safety the utmost priority.
- Keep children away from the central heating room and storage room.
- Observe all safety warnings on the boiler and in this user manual.
- Observe all instructions relating to maintenance, servicing and cleaning.
- The pellet heating system may only be installed and started up for the first time by an authorised plumber. Professional installation and start up is the prerequisite for safe and economical operation.
- Never make any changes to the heating system or flue gas system.
- Never close or remove safety valves.

4.2 Warning signs

DANGER

Risk of poisoning
Make sure that the pellet boiler is supplied with sufficient combustion air.
The openings in the combustion air inlet must never be partially or completely closed.
Ventilation systems, central vacuum cleaning systems, extractor fans, air conditioning systems, flue gas blowers, dryers or similar equipment must never be allowed to draw air from the central heating room and cause a drop in pressure.
The boiler must be connected tight to the chimney using a flue gas tube.
Clean the chimney and the flue gas tube at regular intervals.
The central heating room and pellet storage room must be sufficiently supplied with air and ventilated.
Before entering the storage room it must be ventilated with sufficient air and the heating system switched off.

DANGER

Risk of electric shock
Switch off the system before performing work on the boiler.

DANGER

Risk of explosion
Never burn petrol, diesel, engine oil or other explosive materials.
Never use liquids or chemicals to ignite the pellets.
Switch off the heating system before filling the storage room.

DANGER

Risk of fire
Do not store any flammable materials in the central heating room. Do not hang out any washing in the central heating room.
Always close the boiler door.

WARNING

Risk of burns
Do not touch the flue spigot or the flue gas tube.
Do not reach into the ash chamber.
Use gloves to empty the ash box.
Do not clean the boiler until it has been allowed to cool down.

CAUTION

Risk of cut injuries due to sharp edges.
Use gloves for performing all work on the boiler.

NOTICE

Damage to property
Heat the pellet heating system using pellets that comply with EN ISO 17225–2 class A1 only.

NOTICE

Damage to property
Do not use the heating system if it, or any of its components, come into contact with water.
If water damage occurs, have the heating system checked by an service technician and have any damaged parts replaced.

4.3 What to do in an emergency

DANGER

Risk to life
Never get yourself into danger; give own safety the utmost priority.

What to do in the event of a fire

- Switch off the heating system.
- Call the fire brigade
- Use approved fire extinguishers (fire protection class ABC).

What to do if you smell smoke

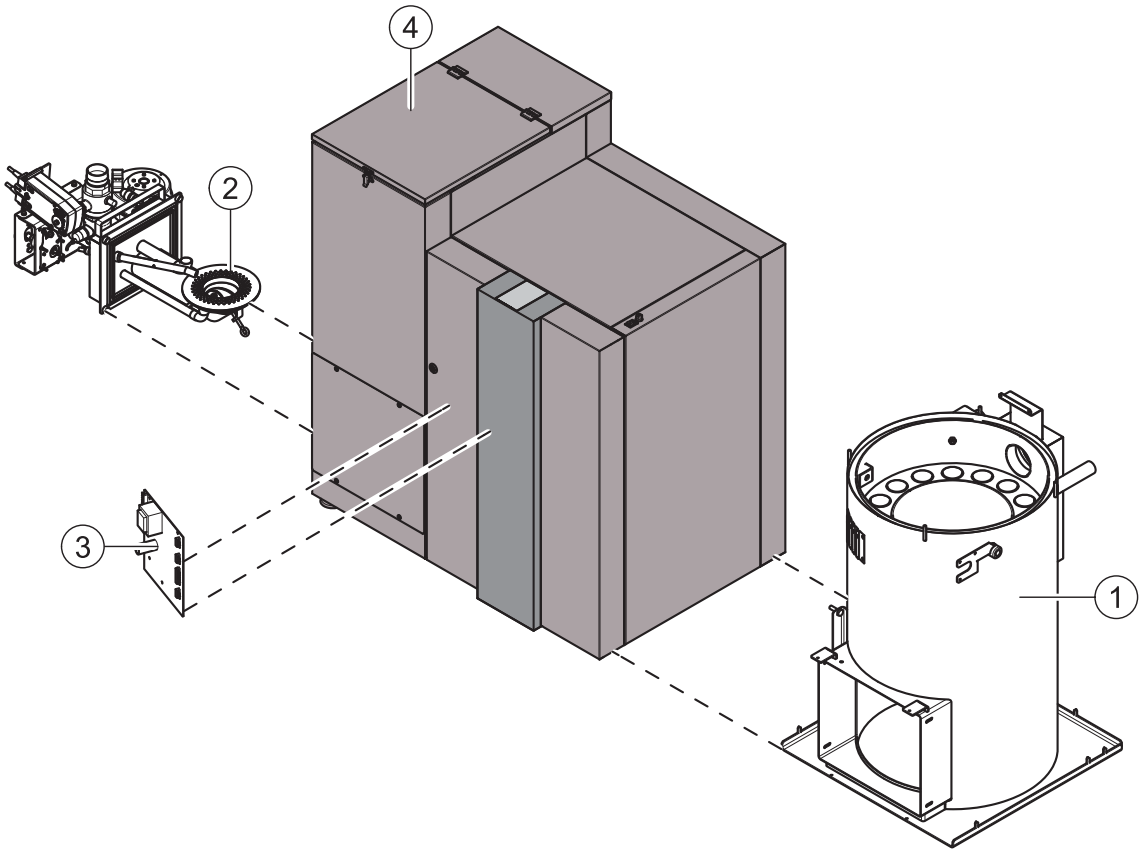
- Switch off the heating system.
- Close the doors leading to living areas.
- Ventilate the central heating room.

5 The Easypell

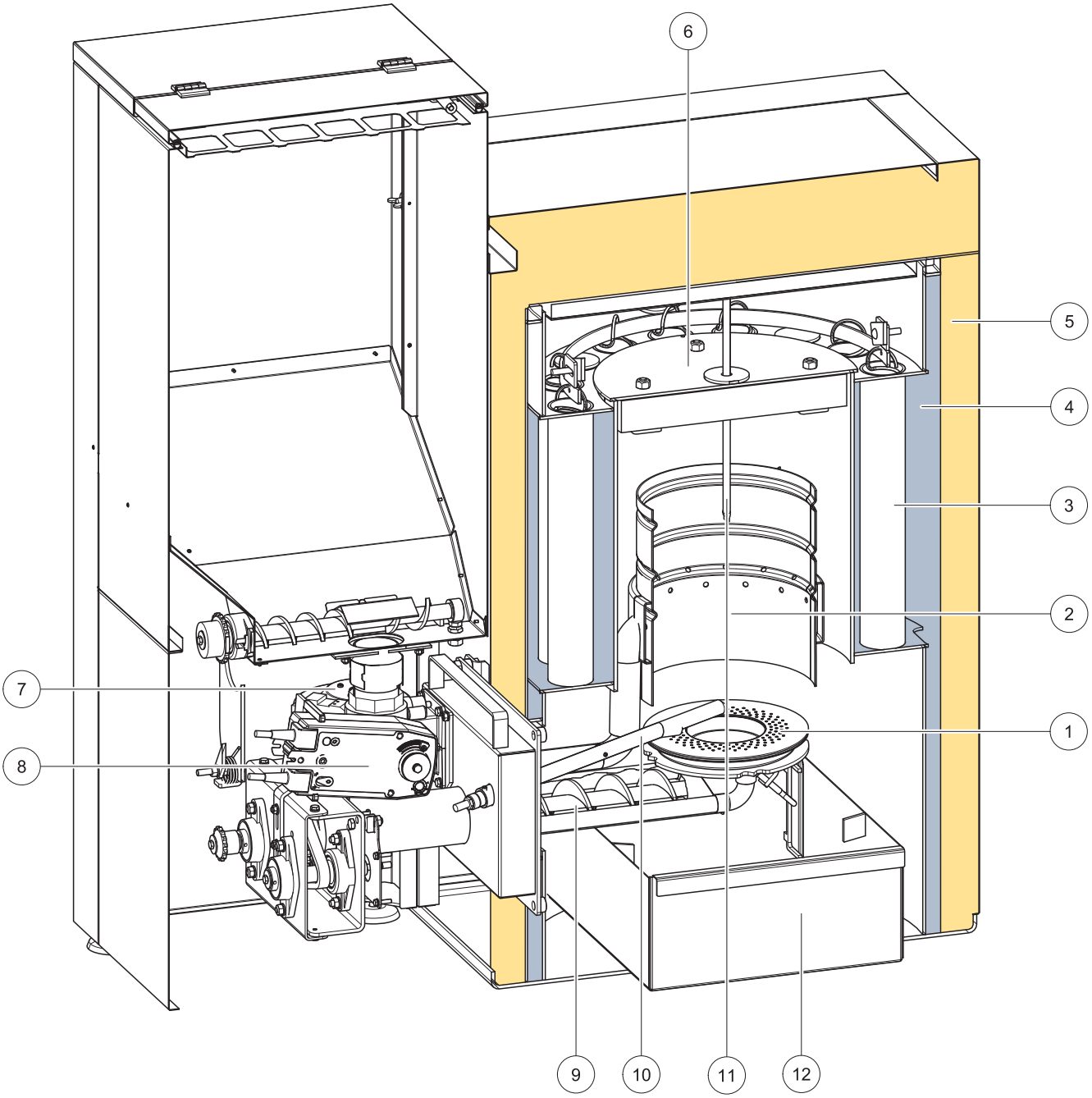
Easypell types and power ratings
Eco Engineering offers the Easypell with the following power ratings: 16, 20, 25 and 32kW.

Note:
Refer to the data plate for the power rating of your Easypell. The data plate is located on the rear side of the boiler. Here you find the type designation, manufacturer's serial number and year of build.

Key components of the Easypell



1	Boiler (heat exchanger)	3	Boiler controller
2	Burner	4	Pellet hopper



1	Burner plate	7	Suction fan
2	Flame tube	8	Anti-blowback system
3	Heat exchanger	9	Burner auger
4	Boiler water	10	Electronic ignition
5	Boiler insulation	11	Combustion chamber sensor
6	Combustion chamber cover	12	Ash box

6 Bringing the pellet boiler into the central heating room

This section describes the prerequisites as well as the working sequence required.

1. Transport
2. Notes on bringing the unit into the building
3. Casing parts
4. Dismantling the casing parts

6.1 Transport

Maine Energy Systems supplies the pellet boiler on a pallet. The pellet boiler is ready to be connected. The control unit for the boiler controller is integrated into the control panel.

If it is not possible to bring the boiler into the building at ground level, remove the casing, the burner, the boiler controller and the pellet hopper. This will reduce the weight of the unit and make it easier to carry.

Note:
Tighten the hydraulic connections firmly on site and carry out a density test.

NOTICE

Contamination and corrosion
Make sure that the pellet boiler is located under a roof if it needs to be stored outside before it is transported/ brought into the building.

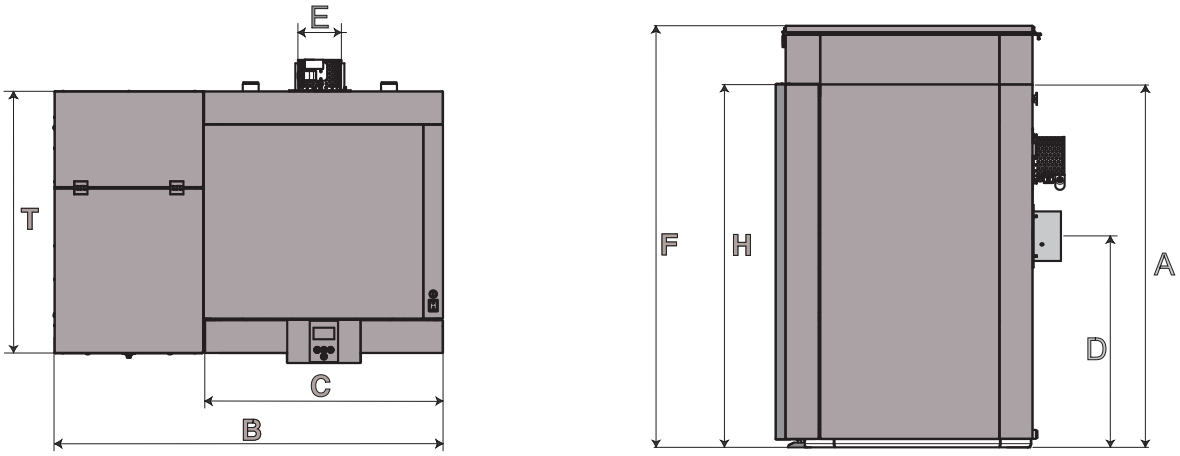
6.2 Notes on bringing the unit into the building

Before bringing the unit into the building, check the dimensions of all doors to ensure that the boiler has sufficient clearance and can be set up properly.

Minimum door width — max. unit dimension

Easypell 16 / 20	16 — 20 kW	720 mm
Easypell 25 / 32	25 — 32 kW	765 mm

Boiler dimensions



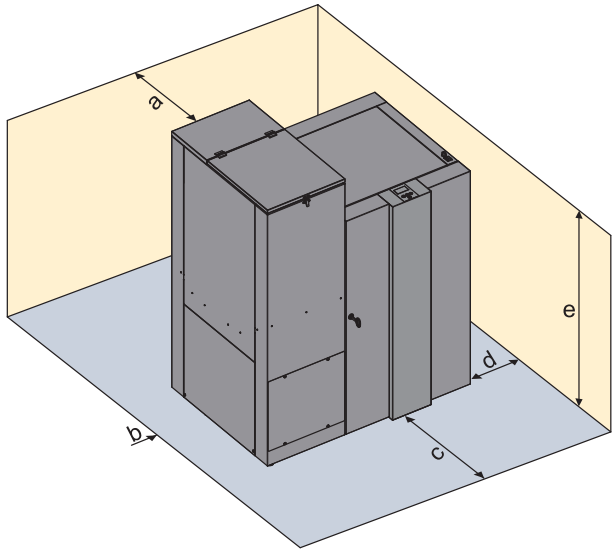
Dimensions in mm	**Easypell 16**	**Easypell 20**	**Easypell 25**	**Easypell 32**
A: flow & return	905	905	1110	1110
B: overall width of pellet boiler	1148	1148	1180	1180
C: Width of boiler casing	695	695	728,5	728,5
D: Hight flue gas tube	645	645	844	844
E: Diameter flue gas tube	130	130	150	150
H: Height of boiler casing	1091	1091	1242	1242
F: Height hopper	1417	1417	1517	1517
T: Depth of boiler casing	752	752	796,5	796,5

Boiler Weight

Dimensions in kg	**Easypell 16**	**Easypell 20**	**Easypell 25**	**Easypell 32**
Weight of boiler with casing, hopper and burner	350	350	430	430

Minimum clearance dimensions required

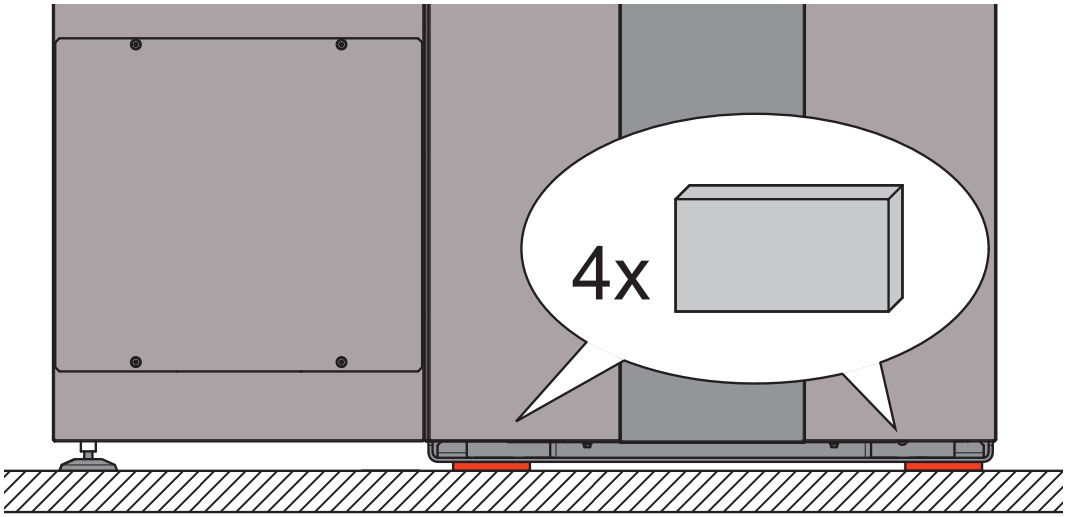
Note:
To install the heating system properly and ensure economical operation, you need to make sure that minimum clearance dimensions indicated below are observed when setting up the boiler.
In addition, make sure that legislation in your country is complied with relating to the minimum clearance of the flue gas tube.



a	Min. clearance of flue gas connection from wall or part of building	450 mm
b	Min. clearance of side of boiler from wall or part of building	300 mm
c	Min. clearance of front of boiler from wall or part of building	700 mm
d	Min. clearance of side of burner from wall or part of building	150 mm
e	Min. room height	1930 mm (16 kW) 2030 (25 kW)

Note:
Legislation in your country must be observed!

Placement of rubber plates

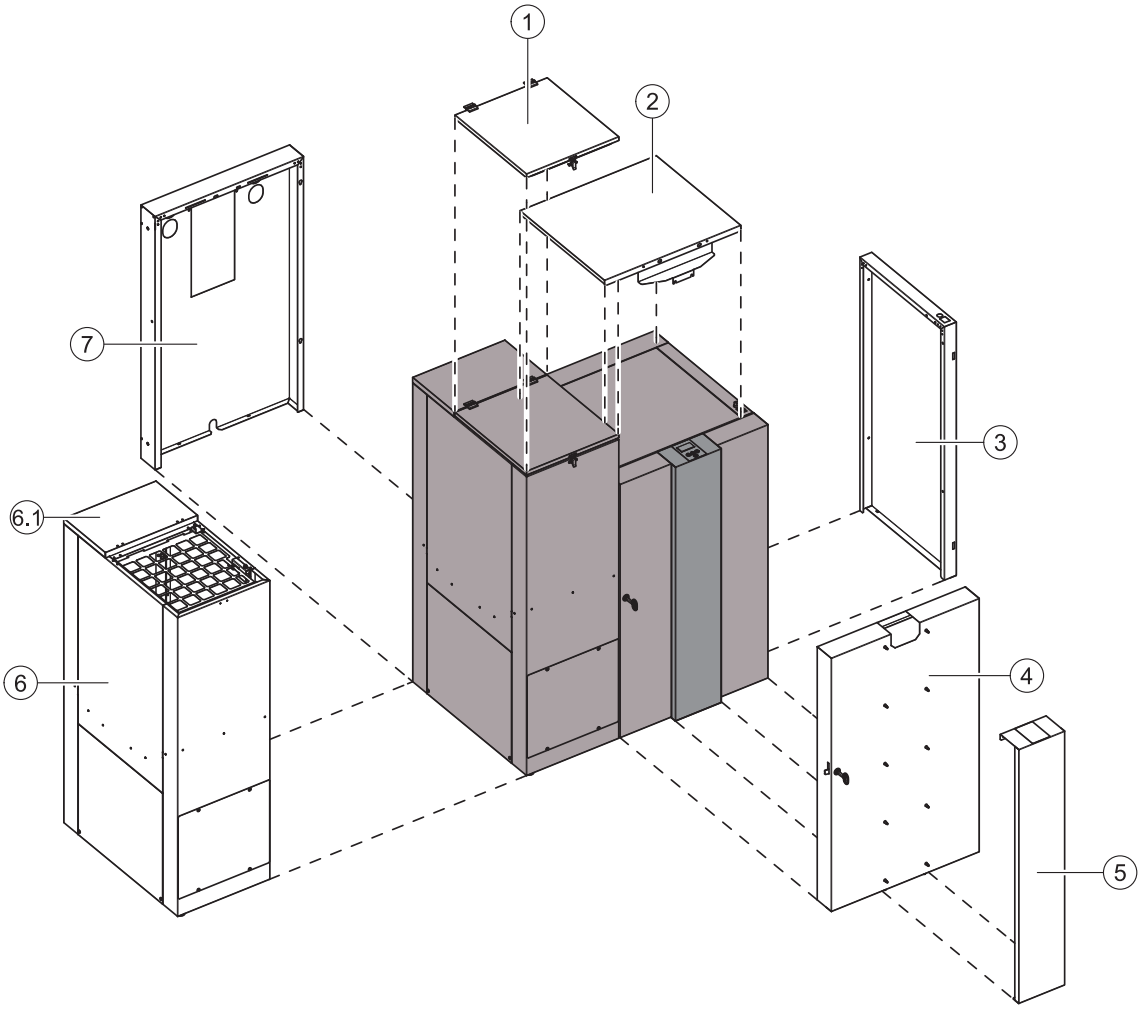


NOTICE

The pellet heating boiler must be placed on the supplied rubber plates.

6.3 Casing parts

The boiler is protected by a casing on all sides. The casing parts prevent contact with hot, moving and live components. They also give Easypell pellet boilers a unique appearance.



1	Pellet hopper casing cover	5	Front of boiler
2	Boiler casing cover	6	Pellet hopper casing
3	Boiler side panel	6.1	Cover pellet hopper casing
4	Boiler door	7	Boiler rear panel

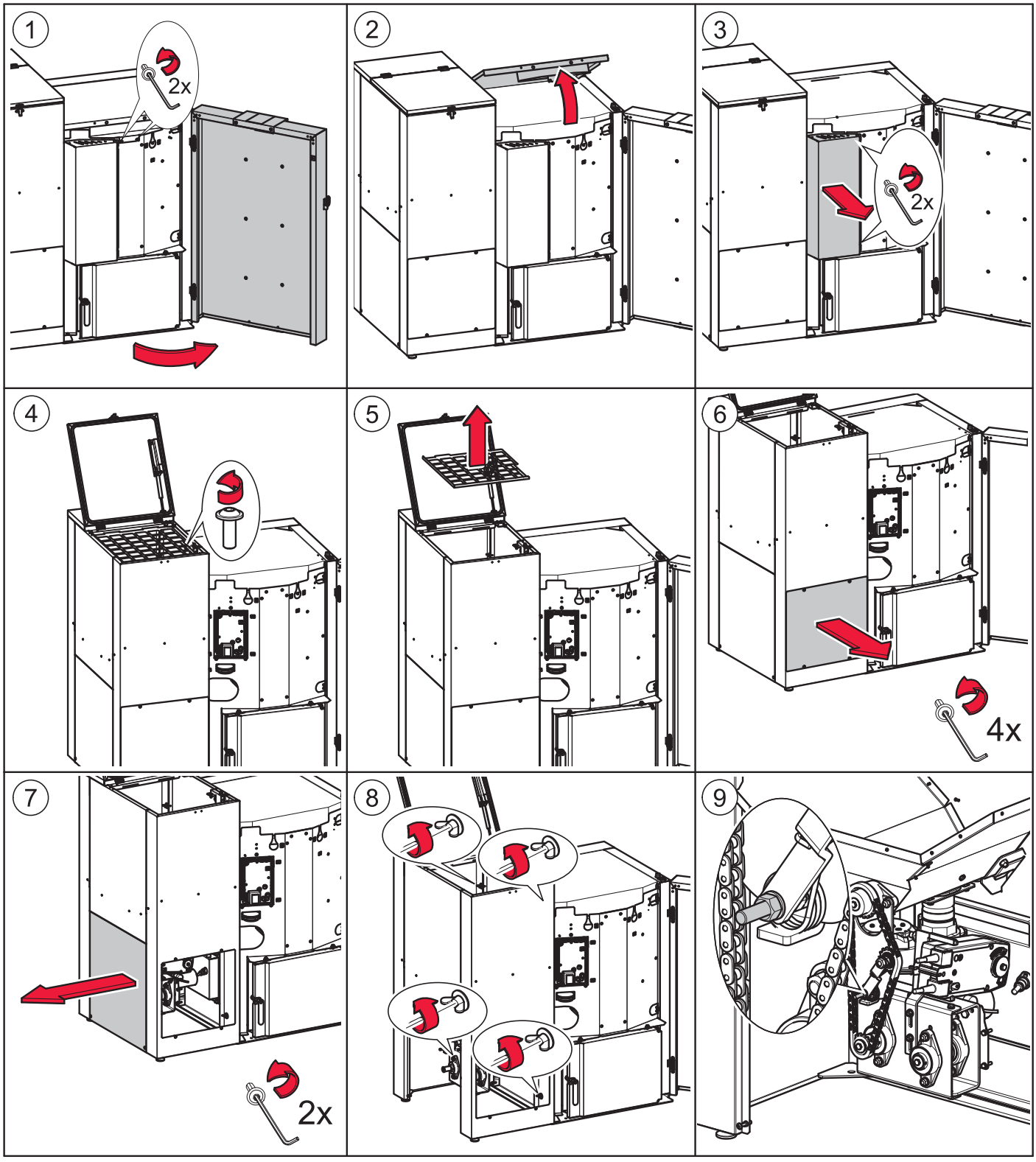
6.4 Dismantling the burner casing and the burner

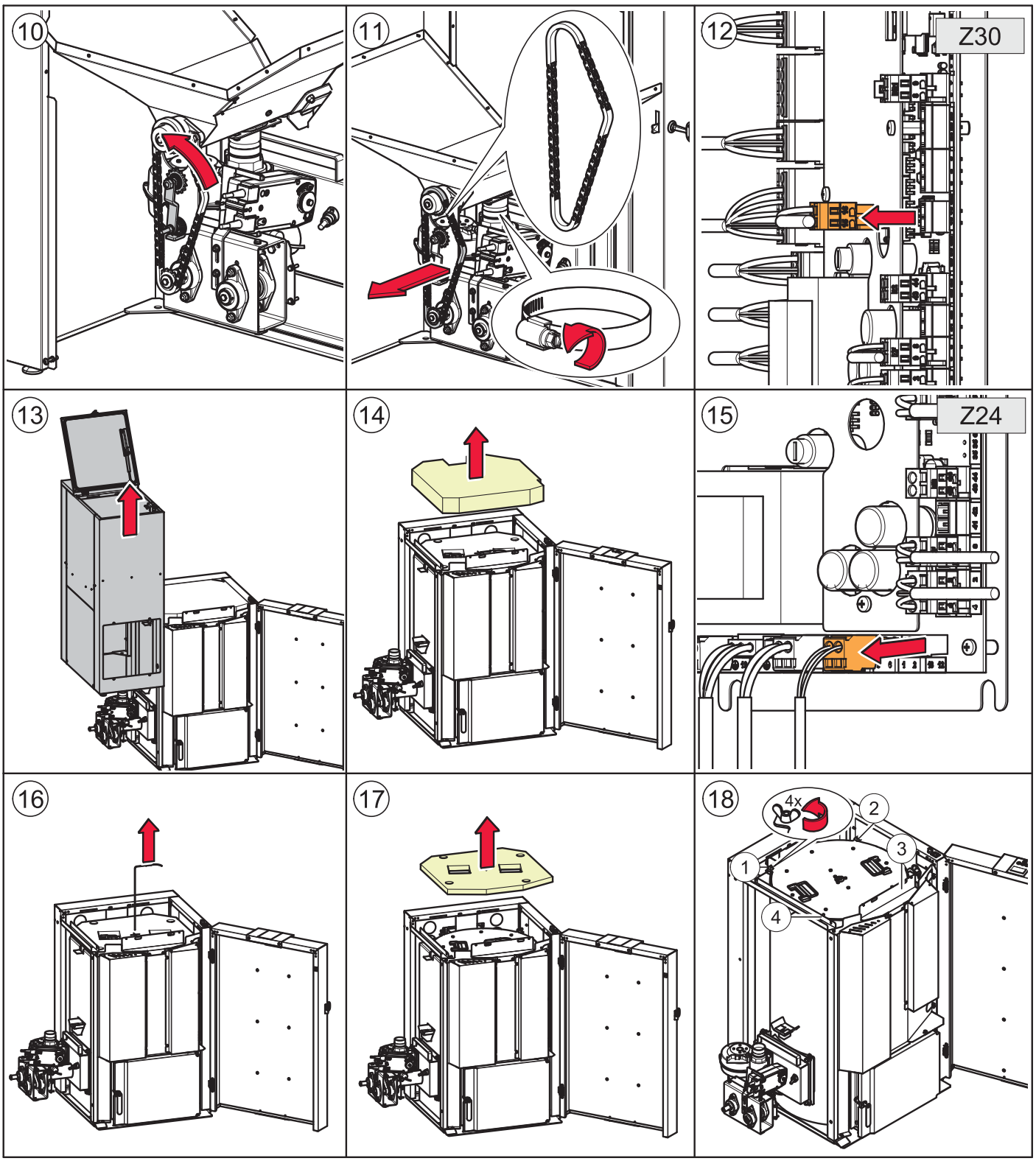
Dismantle the pellet boiler as far as necessary if site conditions require, so that the unit can be brought safely into the building.

The complete dismantling of all components described here is divided into the following sections:

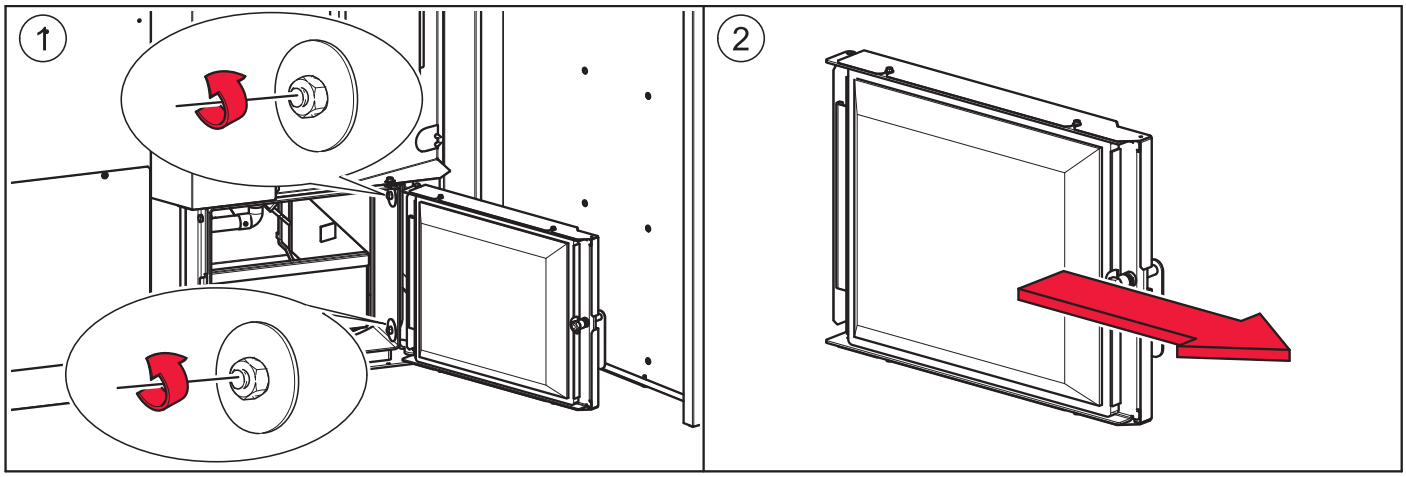
1. Dismantling the burner casing and the burner
2. Dismantling the boiler door
3. Dismantling the boiler casing

6.4.1 Dismantling the burner casing and burner

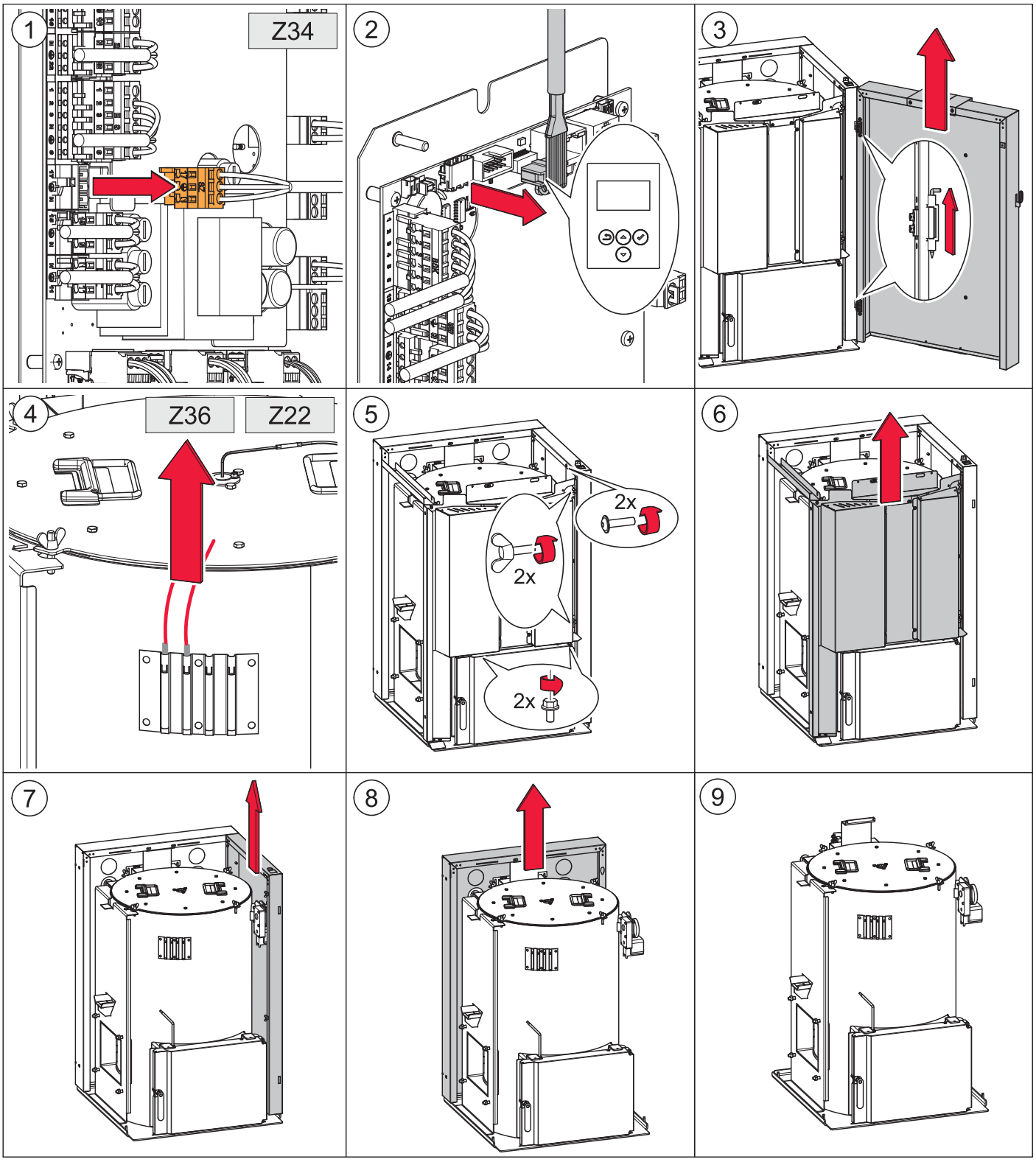



10
11
12
Z30
13
14
15
Z24
16
17
18
4x
1
2
3
4

6.4.2 Dismantling the boiler door



6.4.3 Dismantling the boiler casing



7 Adjusting power rating

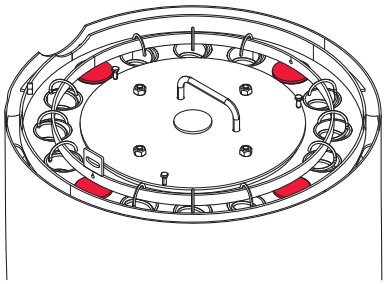
On Eco Engineering pellet boilers the effective heat exchanger area can be changed within a assembly group. This involves opening or closing the heat exchanger tubes. The power rating of the pellet boiler is adjusted as a result.
Eco Engineering supplies the pellet boilers in one of two sizes / outputs. Always observe the rating on the nameplate. The EasyPell 16 / 20 must always be set at or between 16 to 20KW. The EasyPell 25 / 32 must always be set at or between 25 to 32KW. There can be no exception to this!

7.1 Installing the turbulators and closure plugs

Heat transfer takes place in the heat exchanger tubes. The heat exchanger tubes are fitted with cleaning springs that also act as turbolators.

On the Easypell 16 and Easypell 25 boilers, some of these heat exchangers are sealed off with sealing caps. In this way, the heat exchanger area is adapted to the rated output.

Sealing caps:



Increasing the boiler power rating

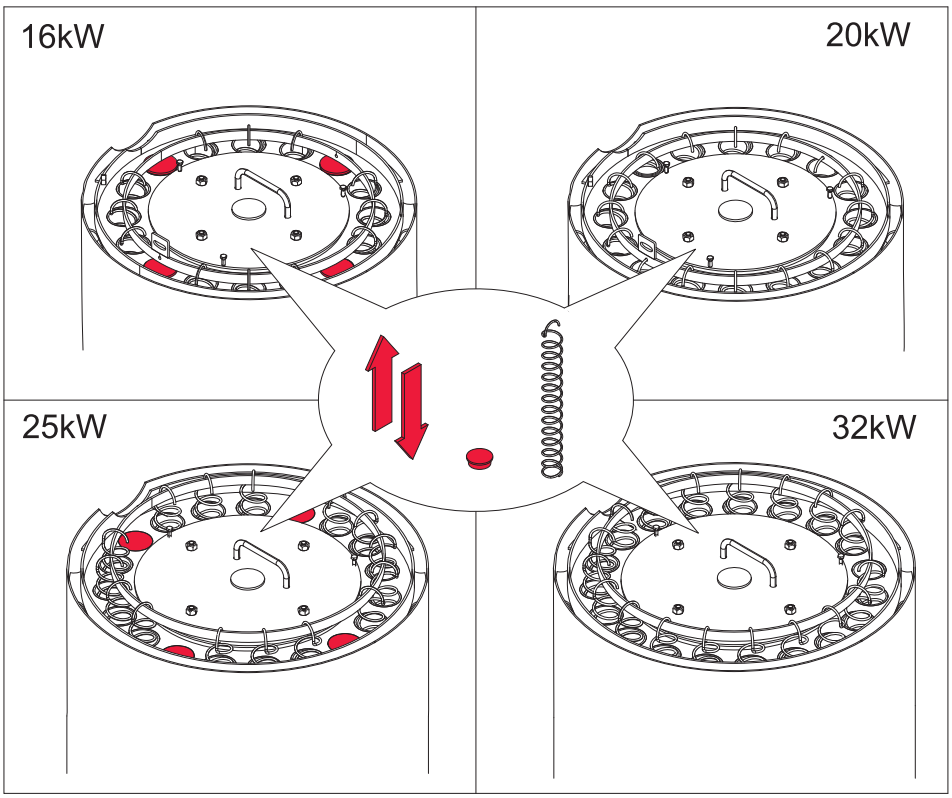
1. Remove the closure plugs from the ends of the heat exchanger tubes.
2. Insert the turbulators supplied into the heat exchanger tubes.
3. Hook the turbulators onto the ring of the cleaning system.

Reducing the boiler power rating

1. Unhook the turbulators from the ring of the cleaning system.
2. Remove the cleaning springs/turbulators from the heat exchanger tubes.
3. Close off the heat exchanger tubes using the closure plugs supplied.

Number of cleaning springs (tubulators) to be removed/installed:

Boiler power ratings as per data plate	Factory-set boiler power rating	
16 kW	16 kW	No adjustment required
20 kW	16 kW	Insert another 4 turbulators
25 kW	25 kW	No adjustment required
32 kW	25 kW	Insert another 4 turbulators



Only the adjustment of the system by an authorized Eco Engineering service technician can guarantee an optimal level of efficiency and with that a low-emission operation.

Starting up for the first time has to be performed only by an authorized Eco Engineering service technician.

8 Connecting up the hydraulics

The hydraulic connections are located on the rear side of the boiler.

DANGER

Risk of explosion
You may connect up the pellet boiler only after an authorised plumber has installed the hydraulic system completely with all safety devices.

NOTICE

Water damage, damage to pellet boiler
Only an authorised plumber may connect up hydraulics on the pellet boiler. Check the hydraulic system for leaks before starting up.

1. **Hydraulic schematics**

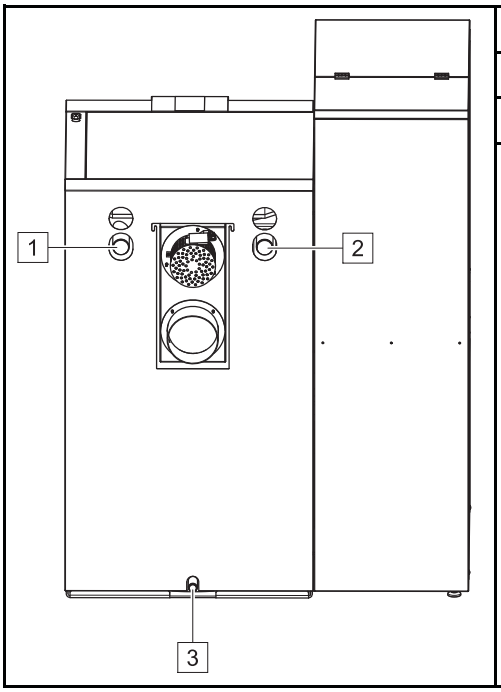
   Always refer to the Eco Engineering hydraulic schematics when connecting up the pellet boiler. The Eco Engineering hydraulic schematics are available from your Eco Engineering sales partner or from the Eco Engineering website.

2. **Connections**

   The connections between the pellet boiler and the hydraulic system must be disconnectable.

3. **Drain connection**

   When you install the pellet boiler, remove the plug from the ENTLEERUNG connection and fit a 1/2" diameter shut-off valve.

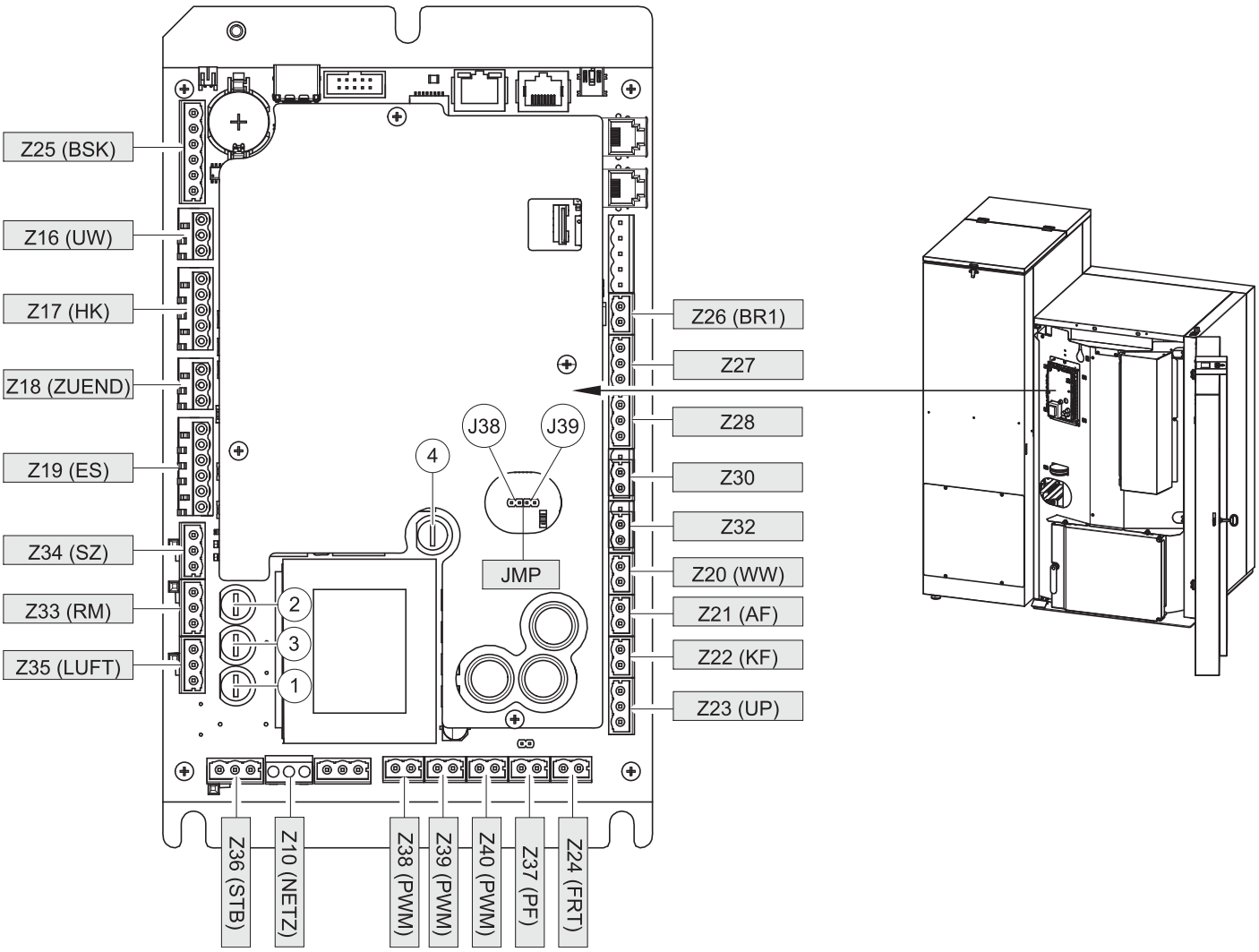


1	Feed
2	Return
3	Drain connection

9 The boiler controller

The boiler controller is located behind the front cover of the boiler.
It is used to control the combustion procedere and the fuel-feeding system.

The boiler controller is connected to the operating device by a bus-connection.
The operating device is located in the boiler door. Visualizing of measuring values and ajdustment of desired values and parameters are accomplished through through the operating device.



	Fuse type	secured terminals
1	F1: Fuse T 3,15A	LUFT, ES, ZUEND
2	F2: Fuse T 3,15A	UW, RM, SZ
3	F3: Fuse T 315mA	internal supply
4	F5: Fuse T 1A	Z28, Z30

NOTICE

Damage of property
If you change microfuses, ensure correct current rating

9.1 Plugs on the boiler control unit

All sensors and actuators are fully wired ready for connection. A plug-in connection is used for connecting to the boiler controller.
Always ensure that the labelling of the plug corresponds to that of the plug-in position.

Designation of plug-in position		Voltage	Name of sensors, motors and pumps
Z25 (BSK)	1 2 3 4 5 6	24 Volt	Flame return gate (Belimo)
Z16 (UW)	13 PE N	230 Volt	DHW pump/ Accumulator pump
Z17 (HK)	N PE 14	230 Volt	Only active if a sensor is connected to terminal 43/44.
Z18 (ZUEND)	N PE 22	230 Volt	Ignition
Z19 (ES)	1 2 3 N PE 6	230 Volt	Burner motor
Z34 (SZ)	17 PE N	230 Volt	Flue gas fan
Z33 (RM)	15 PE N	230 Volt	Motor boiler cleaning device
Z35 (LUFT)	N PE 11	230 Volt	Burner fan
Z36 (STB)	17 PE 19	230 Volt	Safety temperature sensor
Z10 (NETZ)	L PE N	230 Volt	Power supply boiler control unit
J38 (AOUT PWM 1)	16 17	24 Volt	PWM signal for room thermostat Z26 or BR1
J39	3 4	24 Volt	PWM pump signal for output of room thermostat Z27
Z40	5 6	24 Volt	PWM pump signal for output of room thermostat Z28
Z37 (PF)	1 2	24 Volt	Accumulator sensor
Z24 (FRT)	13 12	24 Volt	Combustion chamber sensor
Z23 (UP)	4 3 2	24 Volt	Negative draft measuring
Z22 (KF)	9 8	24 Volt	Boiler sensor
Z21 (AF)	41 42	24 Volt	Outdoor sensor
Z20 (WW)	43 44	24 Volt	DHW sensor
Z32	35 36	24 Volt	Not used
Z30	15 16	24 Volt	Pilot switch for hopper
Z28	3 4 5	24 Volt	Room thermostat Z40
Z27	24 25 26	24 Volt	Room thermostat Z39
Z26 (BR1)	8 7	24 Volt	Burner contact - Room thermostat Z38
JMP	—	—	Jumper for speed controlled high-efficiency pump

9.2 Cable routing

Reroute cables after dismantling the casing or other system components.

DANGER

Risk of electric shock
Switch off the system before performing work on the boiler.

Note the following points to ensure the cables are routed securely:

Cables must not be routed:

- over moving parts,
- over hot parts,
- or over sharp edges.

Cables must be:

- routed in the cable ducts provided and
- through cable leadthroughs,
- tied together,
- and secured with cable ties at the points provided.

DANGER

Risk of electric shock
Check cables for damage.
Replace any cables that are damaged.

NOTICE

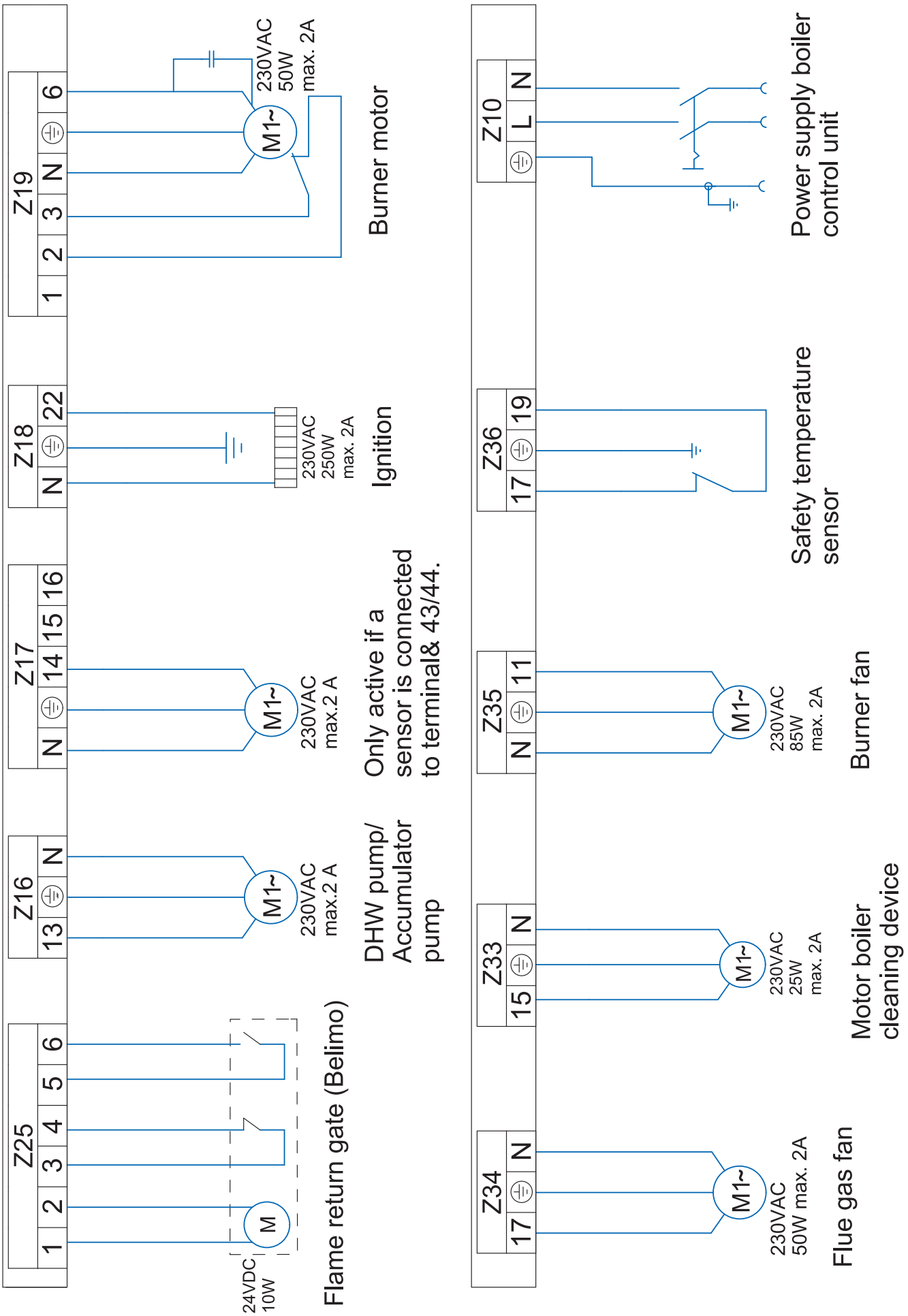
Damage to the boiler controller
Before fitting the casing components, make sure that all cables are connected to the correct points on the controller! Failure to do so can lead to damage to the controller, and such damage is not covered by warranty!

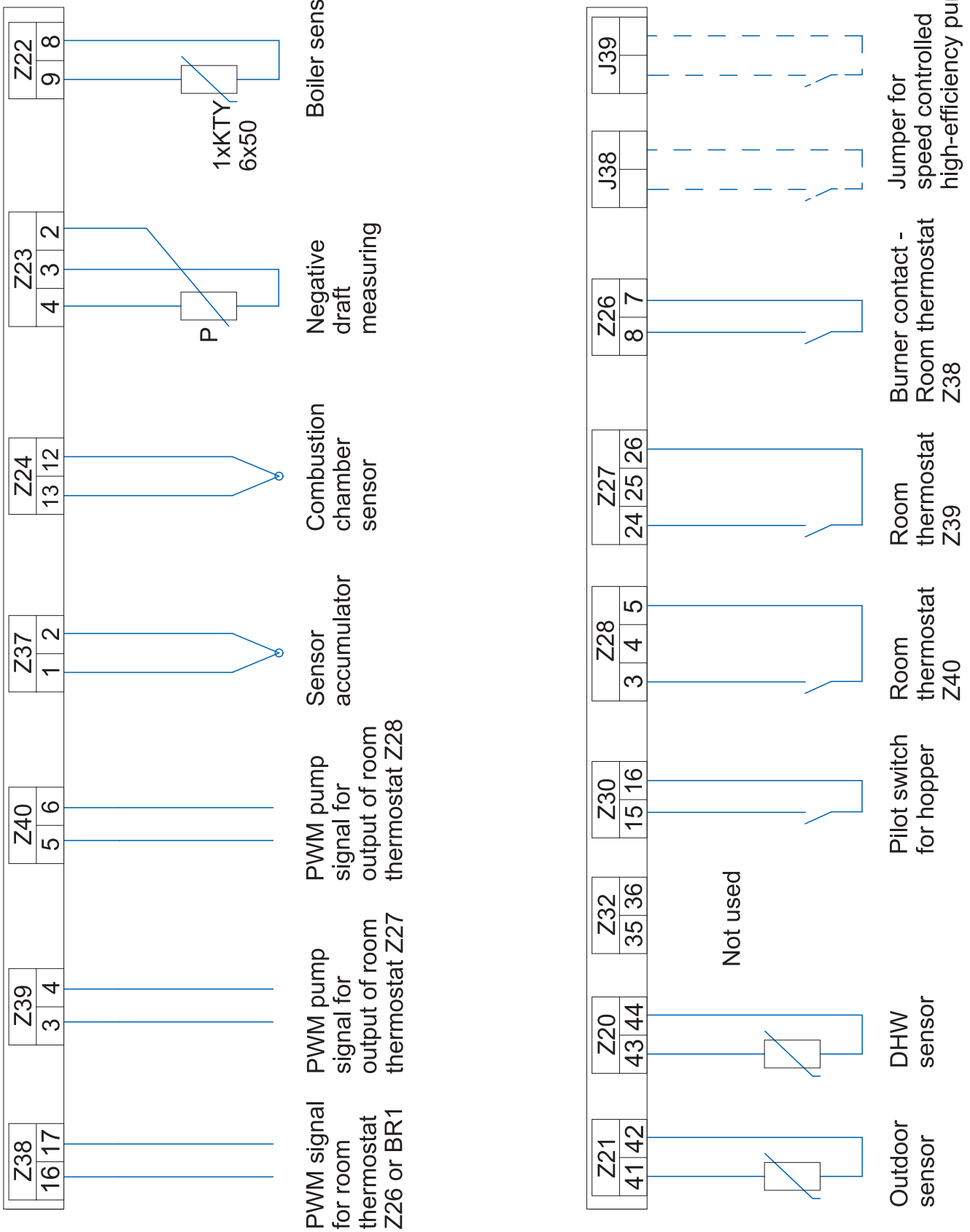
9.3 Wiring diagrams

The wiring diagrams for the boiler control unit provide detailed technical information for qualified persons. Only qualified persons or electricians under the direction of a qualified person may connect to the controller.

DANGER

Risk of electric shock
Only a qualified person may connect the pellet boiler to the power supply.
Always disconnect / de-energize the power supply before working on the boiler.


Z25
1 2 3 4 5 6
Z16
13 N
Z17
N 14 15 16
Z18
N 22
Z19
1 2 3 N 6
Z10
L N
Z36
17 19
Z35
N 11
Z33
15 N
Z34
17 N
M1~
M
24VDC
10W
230VAC
max.2 A
230VAC
250W
max. 2A
230VAC
50W
max. 2A
230VAC
85W
max. 2A
230VAC
25W
max. 2A
230VAC
50W max. 2A
Flame return gate (Belimo)
DHW pump/
Accumulator
pump
Only active if a
sensor is connected
to terminal& 43/44.
Ignition
Burner motor
Safety temperature
sensor
Power supply boiler
control unit
Burner fan
Motor boiler
cleaning device
Flue gas fan


Z38
16 17
PWM signal for room thermostat Z26 or BR1
Z39
3 4
PWM pump signal for output of room thermostat Z27
Z40
5 6
PWM pump signal for output of room thermostat Z28
Z37
1 2
Sensor accumulator
Z24
13 12
Combustion chamber sensor
Z23
4 3 2
P
Negative draft measuring
Z22
9 8
1xKTY 6x50
Boiler sensor
Z21
41 42
Outdoor sensor
Z20
43 44
DHW sensor
Z32
35 36
Not used
Z30
15 16
Pilot switch for hopper
Z28
3 4 5
Room thermostat Z40
Z27
24 25 26
Room thermostat Z39
Z26
8 7
Burner contact - Room thermostat Z38
J38
J39
Jumper for speed controlled high-efficiency pump

10 Starting up for the first time

After bringing in the boiler, connecting up the hydraulics and power supply, the unit can be started up for the first time.

NOTICE

Density of the combustion chamber
To ensure a trouble-free operation, the density of the combustion chamber must be given.

Note:
The unit must be started up for the first time by an authorised Eco Engineering service technician.

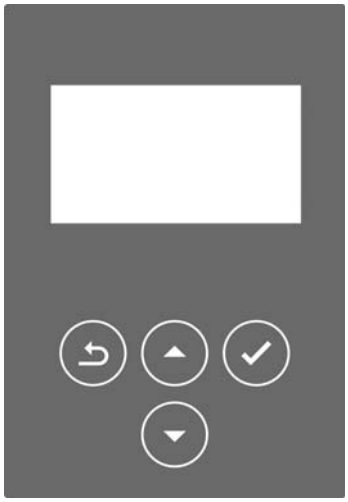
Note:
Use the checklist enclosed to document the start-up procedure.

NOTICE

Material Damage
The allowed operation temperature of the boiler controller is between 5 and 40°C.

11 Starting the pellet boiler

Navigation-icons



Icon-view	Description
	Use the up arrow to return to the previous menu screen.
	Use the down arrow to arrive at the next menu screen.
	When this symbol is displayed, the set value can be changed. When this function is selected, the value can be changed by pressing the arrow keys.
	When this function is selected, you leave the menu without saving the changed value.

Icons System status

Icon-view	Description
	Run down time
	Negative draft input open
	Accumulator
	Sensor break accumulator sensor
	Boiler
	DHW
	Sensor break DHW sensor
	Boiler cleaning **Note:** This message appears when the container cover has been open for longer than 20 seconds.
	Warning
	Heating full power


Safety temperature sensor has released


Container cover is open


OFF


Ignition


Sensor break boiler sensor


Sensor break combustion chamber sensor


Flame return gate open fault


Time programme aktive


Burner contact closed


Pump active


Temperarure too low


Outertemperature control

12 Controller for heating circuits and DHW

In principle, 5 versions are available:

Version A: Burner demand via contact Z26, Pump on the output Z16, no DHW.

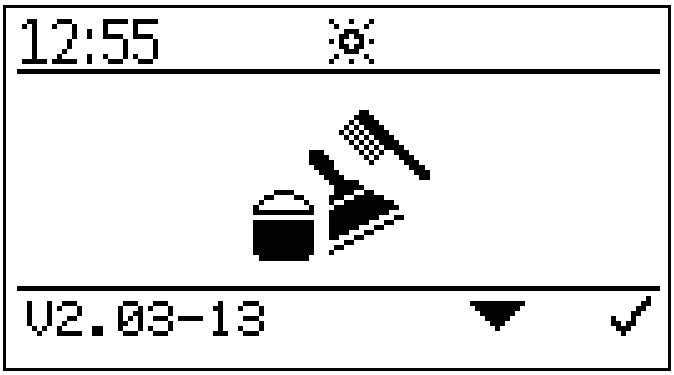
Version B: Heating circuit direct via thermostat, DHW regulation.

Version C: Heating circuit and DHW regulation.

Version D: Accumulator, heating circuit and DHW regulation for fresh water module or corrugated pipe.

Version E: Accumulator, heating circuit and DHW regulation for hot water accumulator.

12.1 Code level



For access to the code level in which you can set or change values, proceed as follows:

- Select the start mask
- Press the two buttons and together for about 3 seconds.
- The symbol appears in the upper right corner.

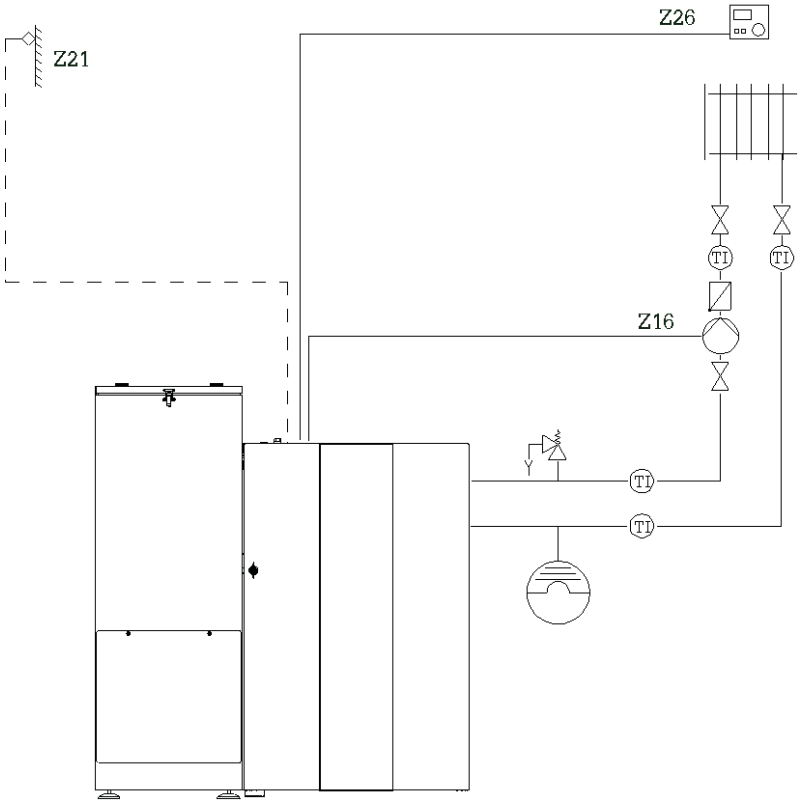
12.2 Version A

The boiler is started via the burner contact. The pumps at output Z16 (UW) are active from a boiler temperature of 60° C.
The mode of the pumps can be selected

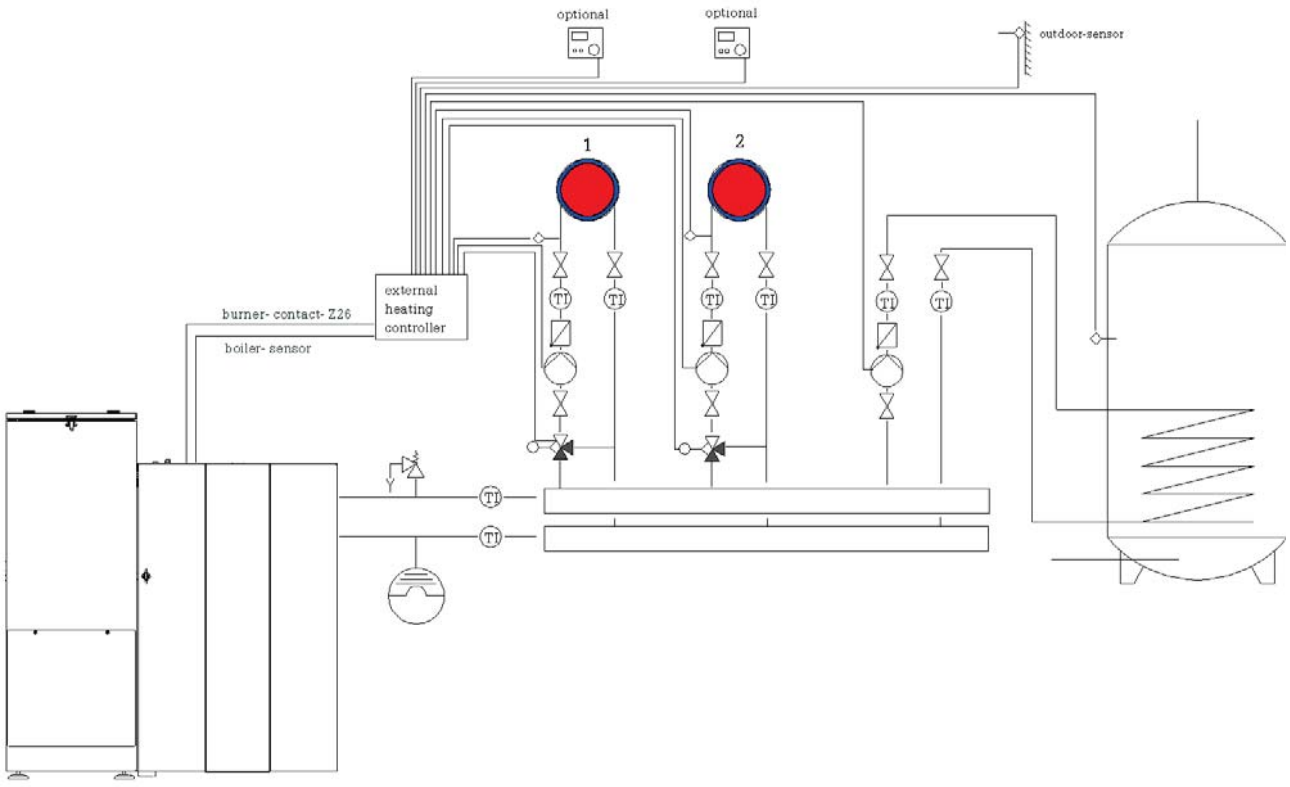
External heating controller

For an external heating controller, input Z26 is determined as burner demand.
The boiler sensor of the heating controller must be installed into the boiler to avoid a pump function below 60 ° C of the boiler pump.
Controllable pumps are regulated with regard to the boiler temperature.

Hydraulic diagram version A:

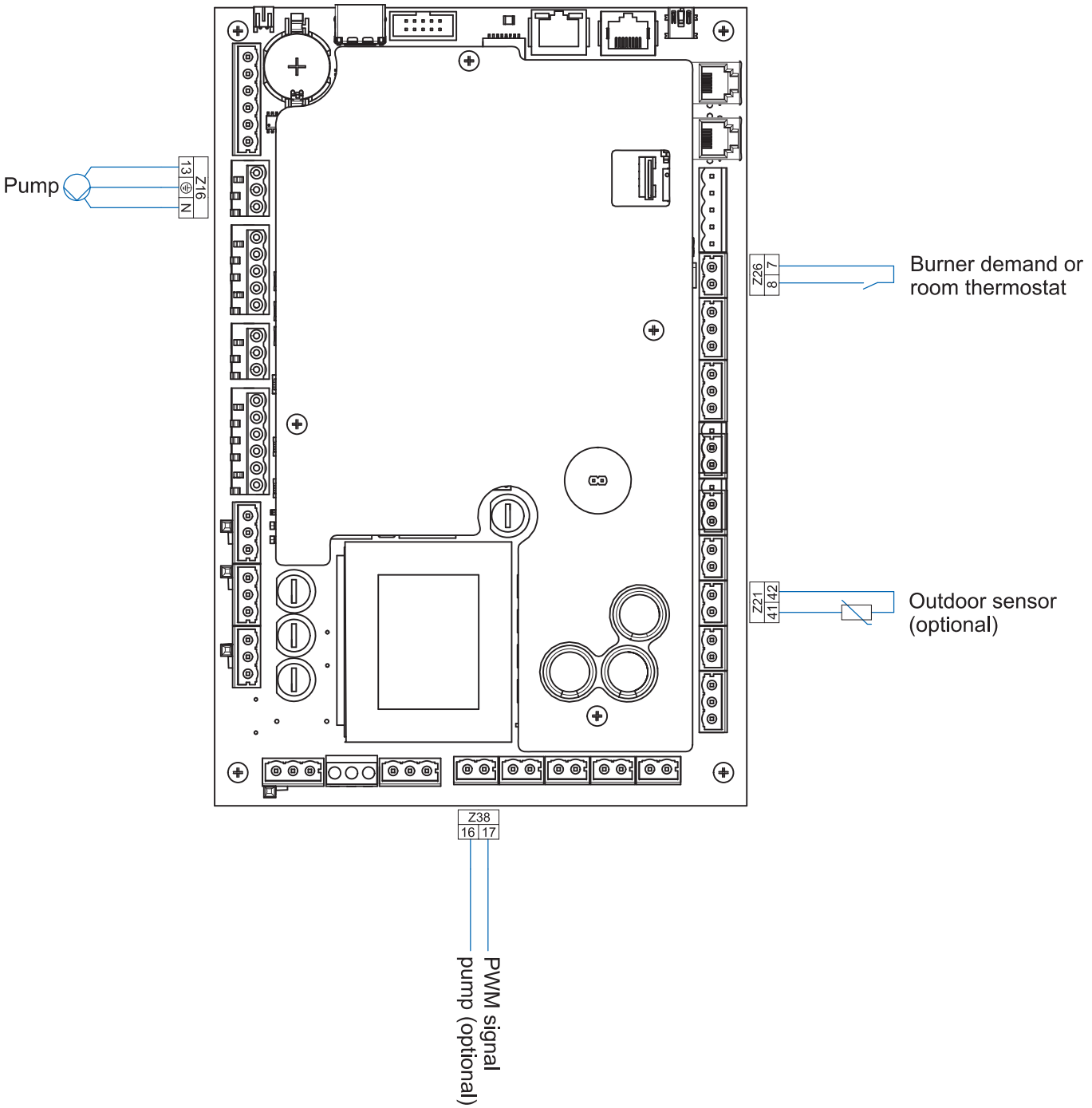


Heat consumers are shown symbolically
and can be substituted by others!



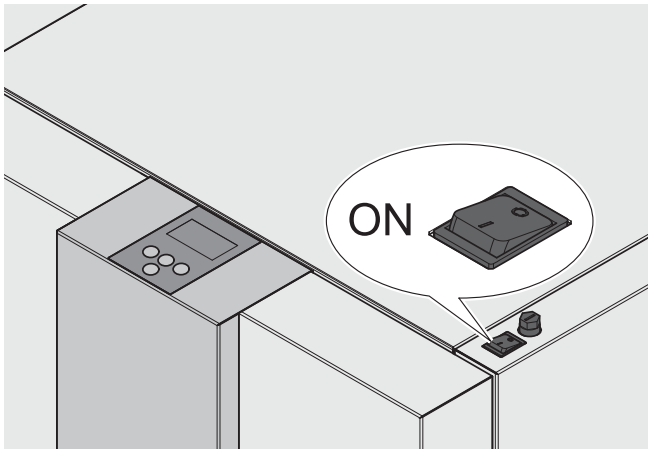
Heat consumers are shown symbolically
and can be substituted by others!

Wiring diagram version A:

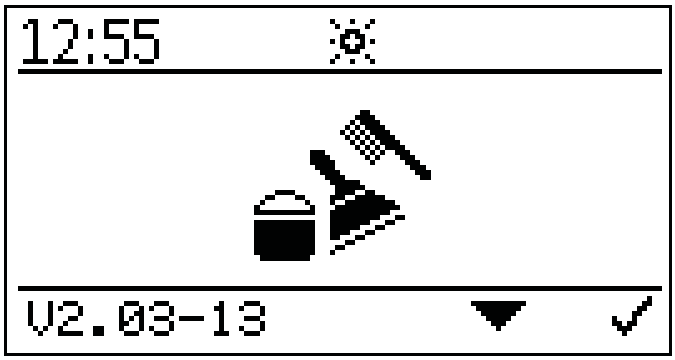


Note:
The total line length of the heating circuit pumps must not exceed 100 m!

12.2.1 Commissioning controller version A

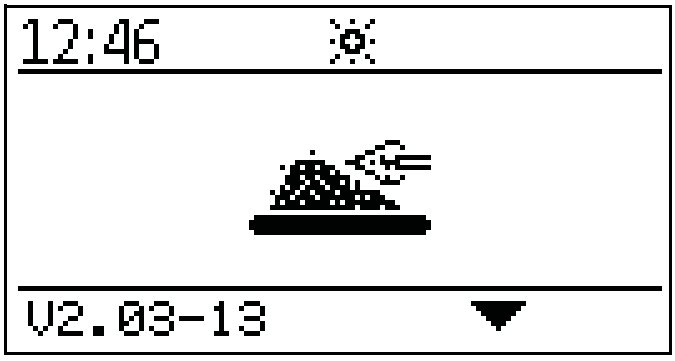


After switching on, the boiler starts (after approx. 10 seconds).
The fire protection device is opened.



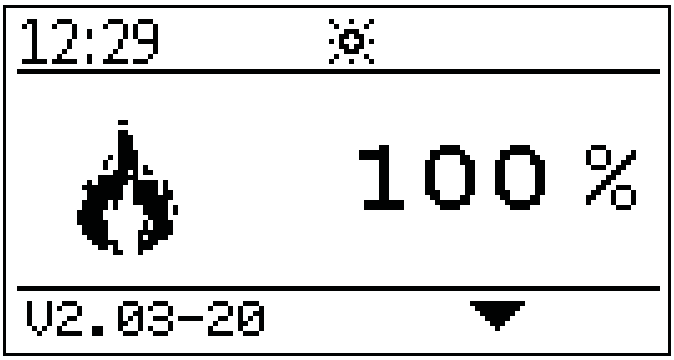
This symbol appears on the display while the fire protection device is being opened (approx. 2 minutes).

– button



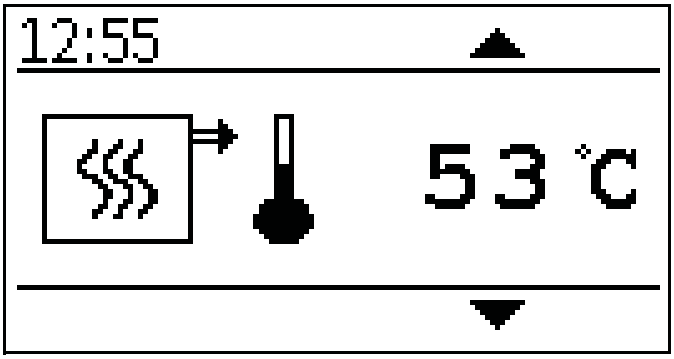
After the fire protection device has been opened, the ignition process starts and the symbol for ignition is displayed.

– button



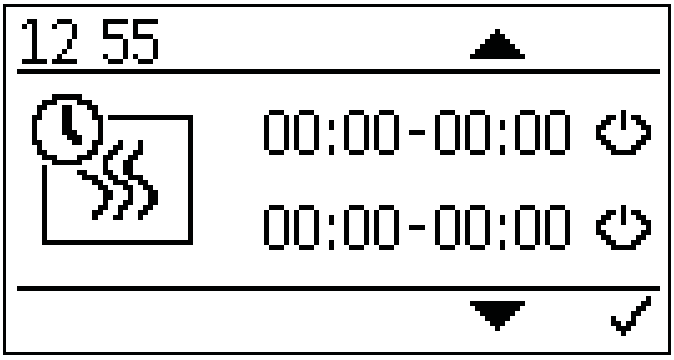
On completion of the ignition process (can last up to 15 minutes), the symbol for heating at full power appears. The boiler is now heating at full power.

– button



Display of the current boiler temperature

– button

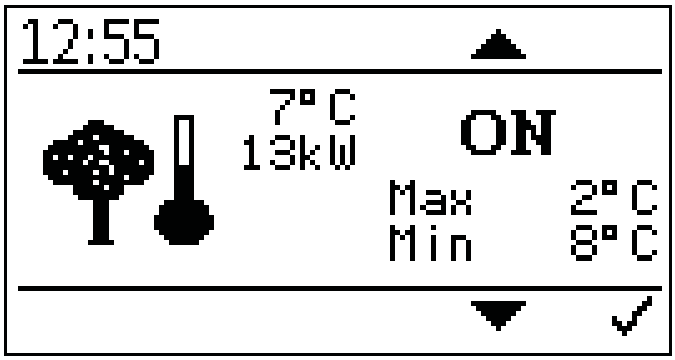


Adjusting the time programme of the boiler.

By pressing  the start and stoptime appear.

Activate the times with  .

– button



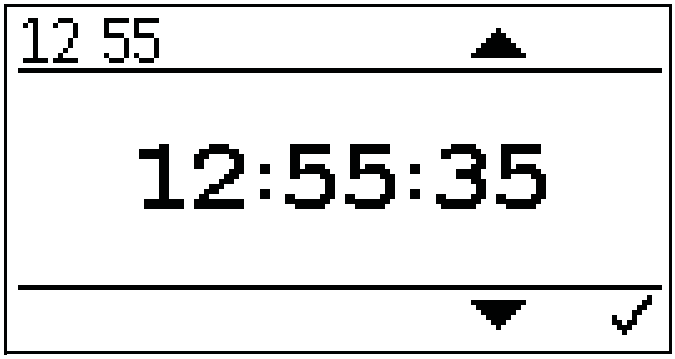
Setting Outertemperature control.

Here you can set the temperature values for the maximum and minimum boiler rating.

Adjustment range max. rated power -10° C bis +6° C

Adjustment range min. power +7° C bis +25° C

– button

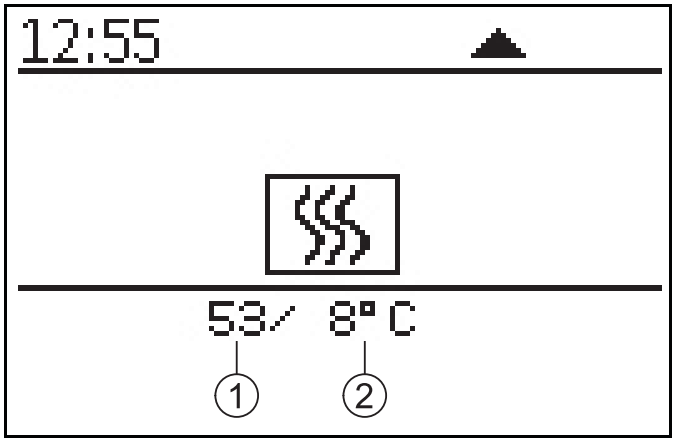


Setting current time.

Press and to set the current time.

Confirm with .

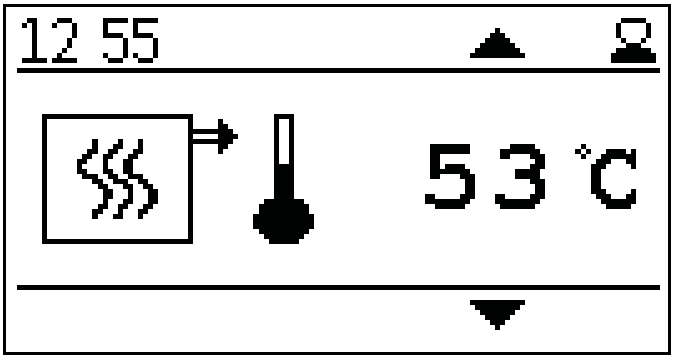
– button



Display of current boiler status.

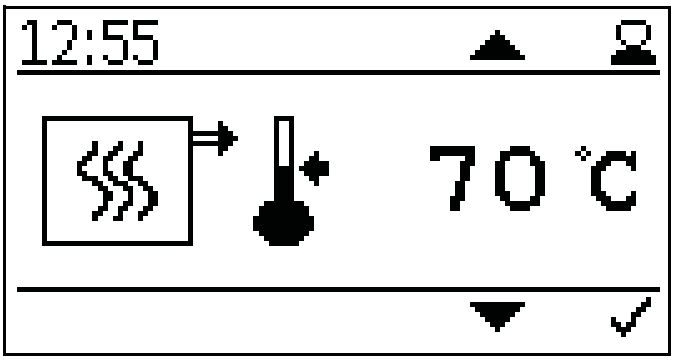
1	Current boiler temperature	2	Boiler set temperature

After code input:



Display of the current boiler temperature

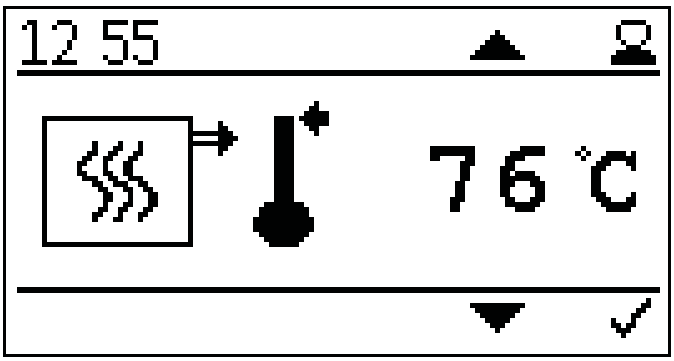
– button



Setting the boiler set temperature.

The boiler set temperature can be set in the range of 70 ° C to 90 ° C if a higher boiler temperature requirement or a larger modulation range is required.

– button

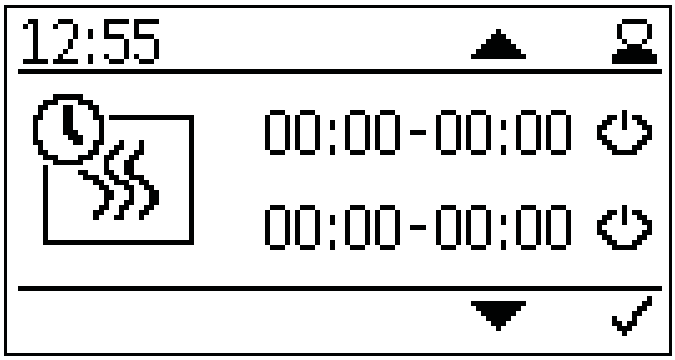


Setting of the boiler switch off temperature.

When the boiler switch off temperature is reached, the boiler switches off.

Note:
A too high switch off temperature.can cause the safety temperature limiter to release.

– button

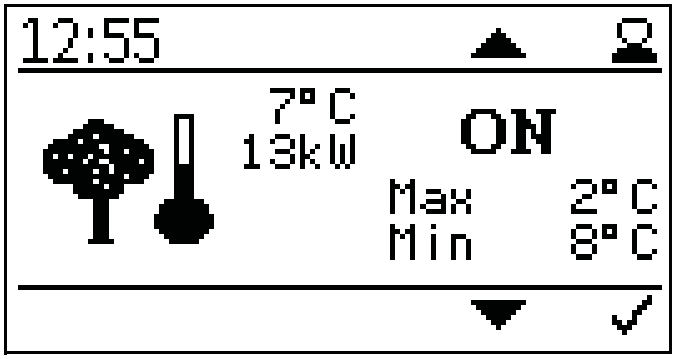


Adjusting the time programme of the boiler.

By pressing  the start and stoptime appear.

Activate the times with ✓.

 – button



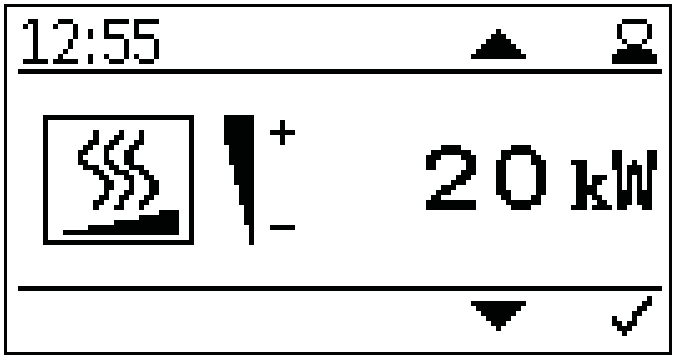
Setting Outertemperature control.

Here you can set the temperature values for the maximum and minimum boiler rating.

Adjustment range max. rated power -10° C bis +6° C

Adjustment range min. power +7° C bis +25° C

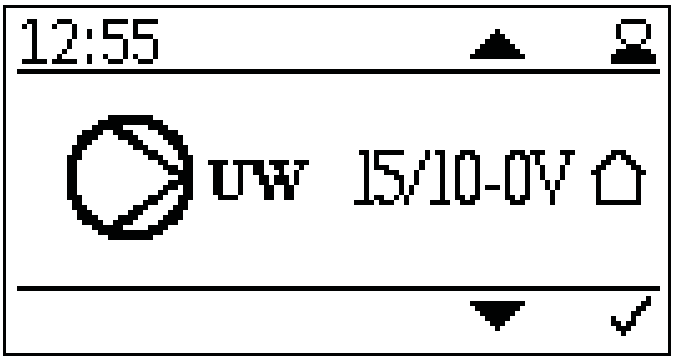
 – button



Setting boiler rated power.

Enter the desired rated output of the boiler to make a more accurate setting.
This will improve boiler runtime and modulation.

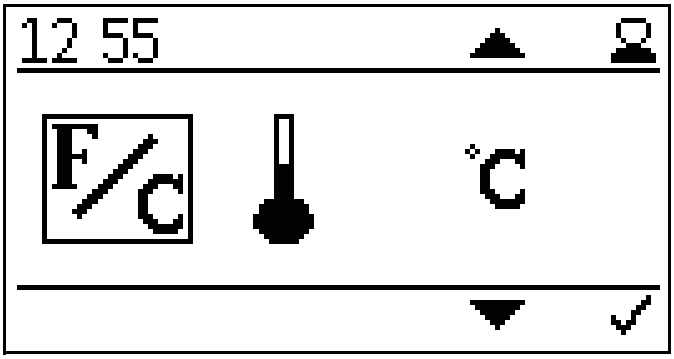
 – button



Settings pumptype:

- Heating efficient PWM1 - PWM signal inverted
- Asynchronus pump – direct output 230VAC on/off
- Heating efficient PWM 2 – PWM signal direct or Heating efficient pump analog 0-10 V

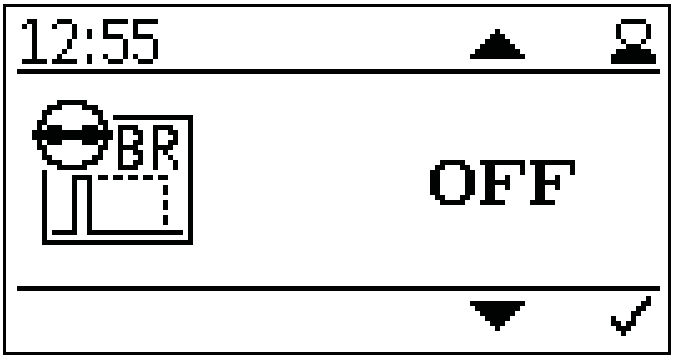
– button



Setting temperature unit.

- ° Celsius
- ° Fahrenheit

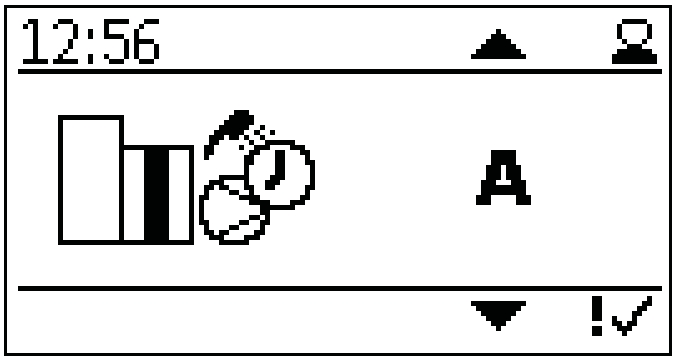
– button



Setting mode burner request.

Conversion from constant ON / OFF to pulse mode.
In pulse mode, the boiler runs according to the start pulse until it reaches the shut off temperature.

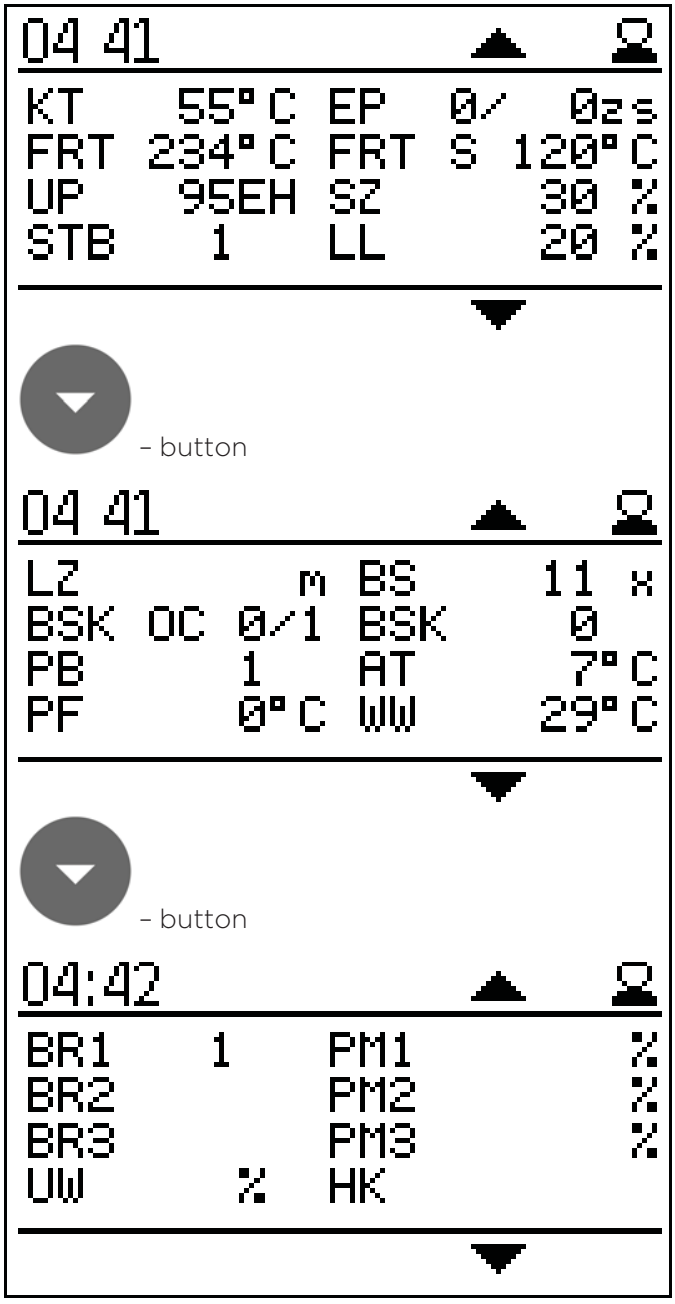
– button



Setting operation mode.

Changing the operation mode.

– button



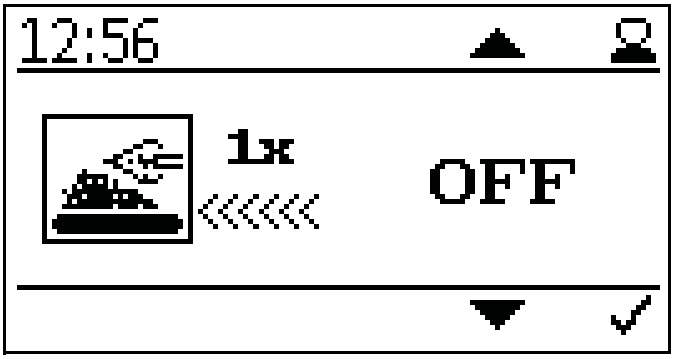
– button

– button

Display of the current values.

- **KT:** Boiler temperature
- **FRT:** Combustion chamber temperature
- **UP:** Negative draft
- **STB:** Safety temperature sensor
- **EP:** Supply/Pause time
- **FRT S:** Set combustion chamber temp
- **SZ:** Flue gas fan
- **LL:** Burner fan
- **LZ:** Run time
- **BSK OC:** Flame return gate open / closed
- **PB:** Pellet hopper casing cover
- **PF:** Accumulator sensor
- **BS:** Burner starts
- **BSK:** Flame return gate open Set
- **AT:** Outside temperature sensor
- **WW:** DHW
- **BR1:** Burner / thermostat contact Z26
- **BR2:** Burner / thermostat contact Z27
- **BR3:** Burner / thermostat contact Z28
- **UW:** Output for pump UW 230V
- **PM1:** Pump output PWM-signal Z38
- **PM2:** Pump output PWM-signal Z39
- **PM3:** Pump output PWM-signal Z40
- **HK:** Output for pump HK 230V

– button

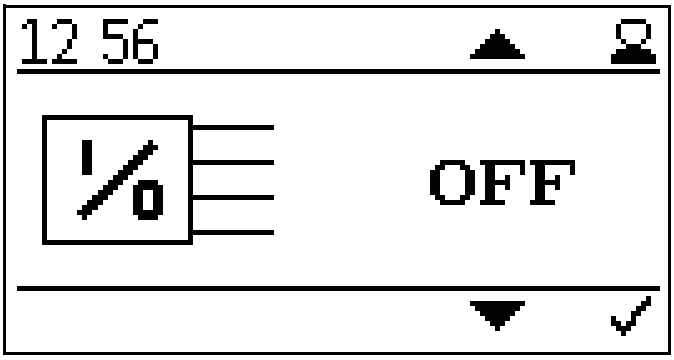


Extended supply.

When this action is activated, the pellets will be inserted 3x longer with the next ignition than standard.

This function is automatically reset after a single activation and serves for quicker ignition when the burner auger is empty.

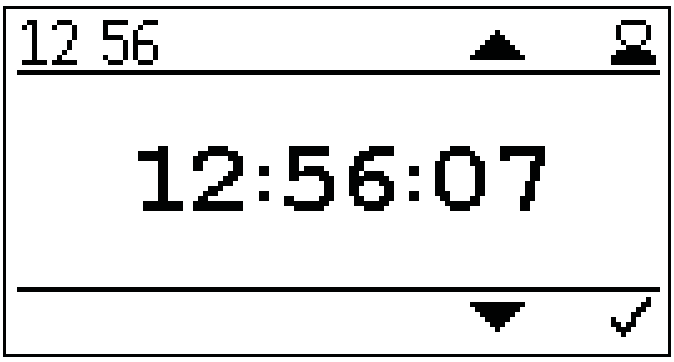
– button



Output test.

The Output Test serves to check all connected.

– button

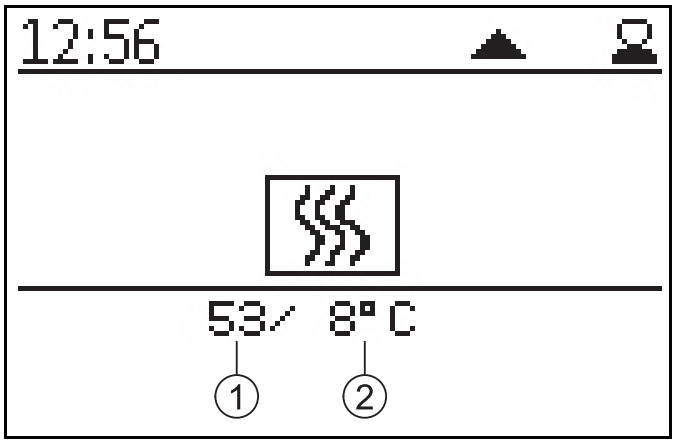


Setting current time.

Press and to set the current time.

Confirm with .

– button



Display of current boiler status.

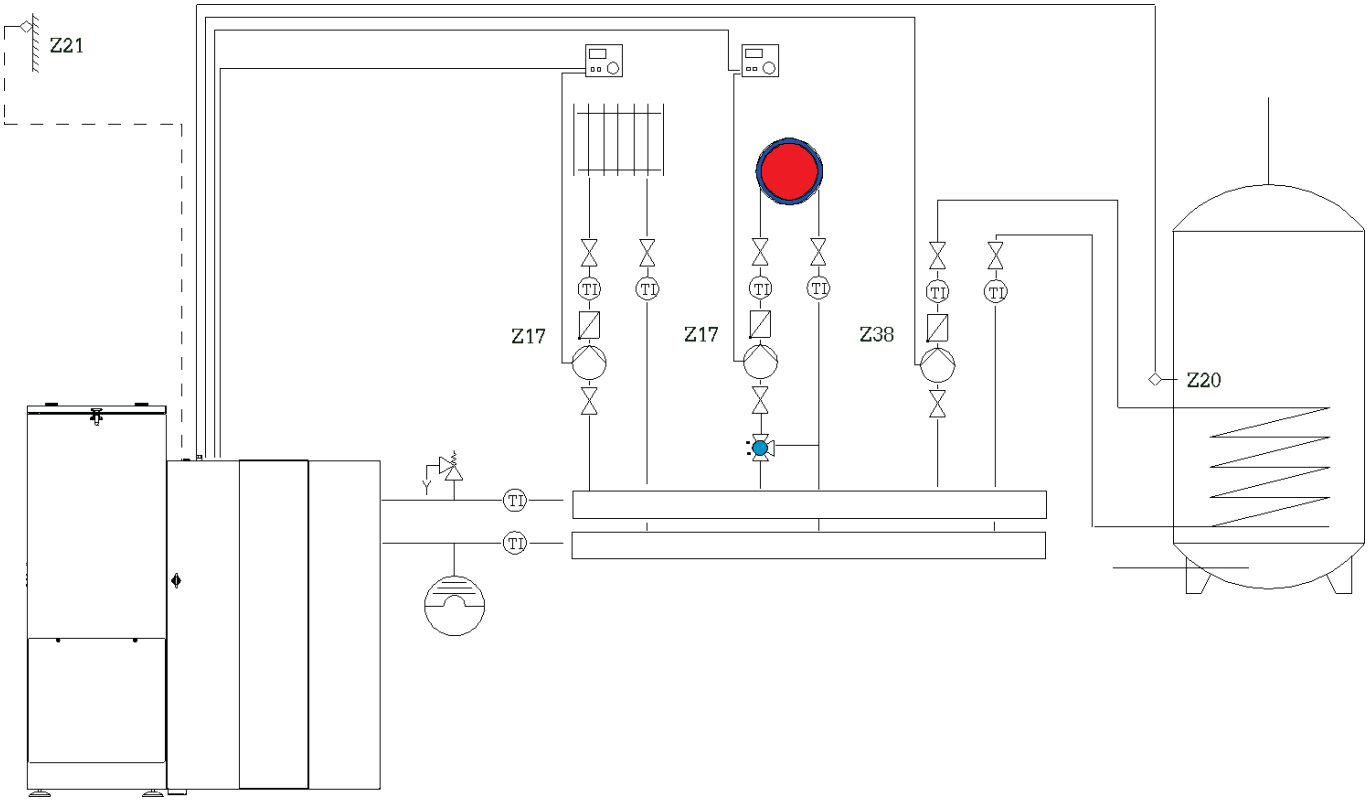
1	Current boiler temperature	2	Boiler set temperature

12.3 Version B

Heating circuits can switch on the burner demand via room thermostats directly in the pump line.
When the boiler reaches 60° C, a signal is output to Z17 (HK).
After the thermostat interrupts the pump supply, the boiler switches off when the end temperature is reached.

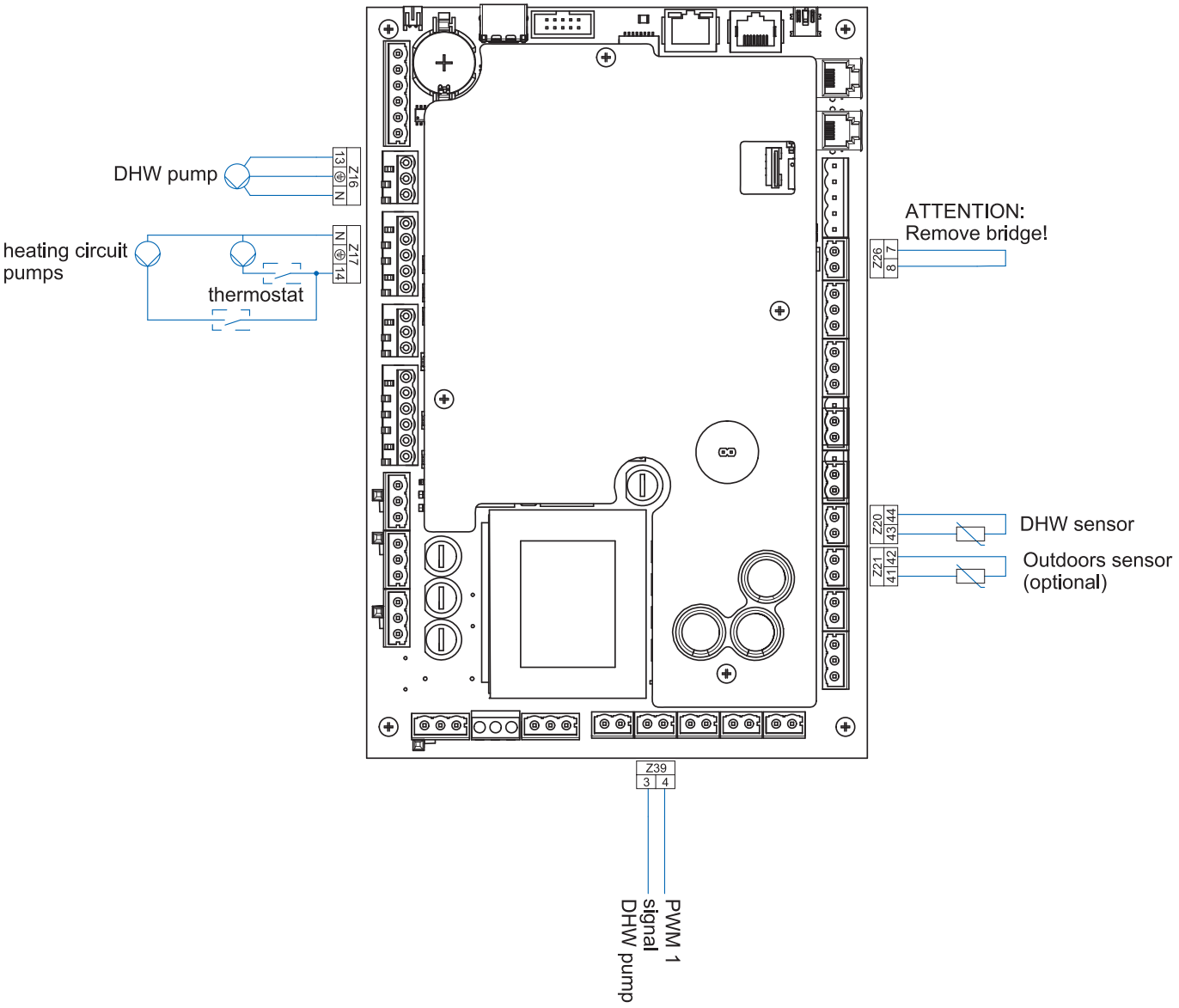
DHW is controlled via sensor Z20 (DHW) and pump output Z16 (UW).
Controllable DHW pumps are regulated with regard to the boiler temperature.

Hydraulic diagram version B:



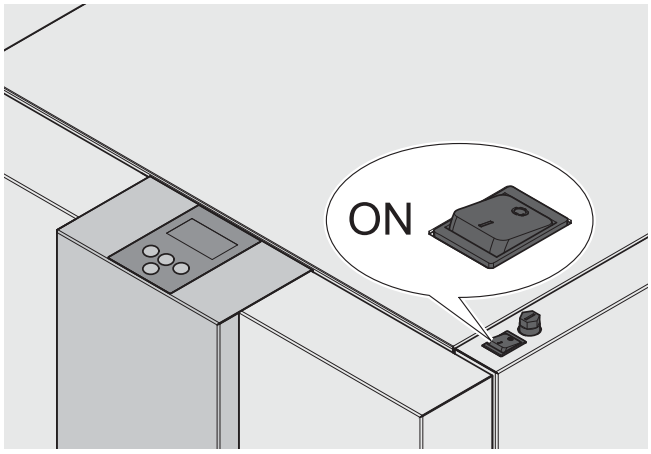
Heat consumers are shown symbolically
and can be substituted by others!

Wiring diagram version B:

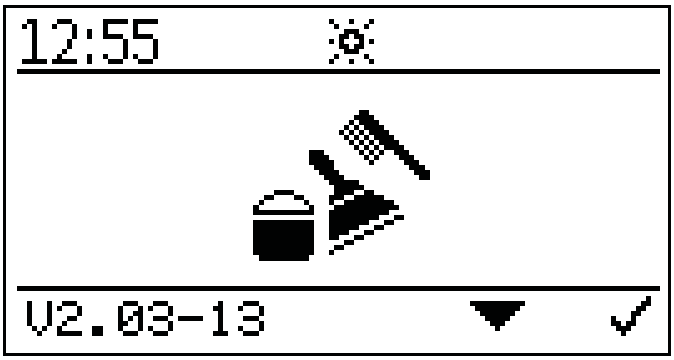


Note:
The total line length of the heating circuit pumps must not exceed 100 m!

12.3.1 Commissioning controller version B

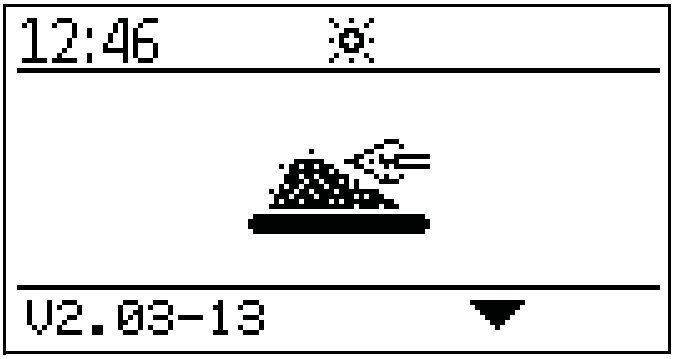


After switching on, the boiler starts (after approx. 10 seconds).
The fire protection device is opened.



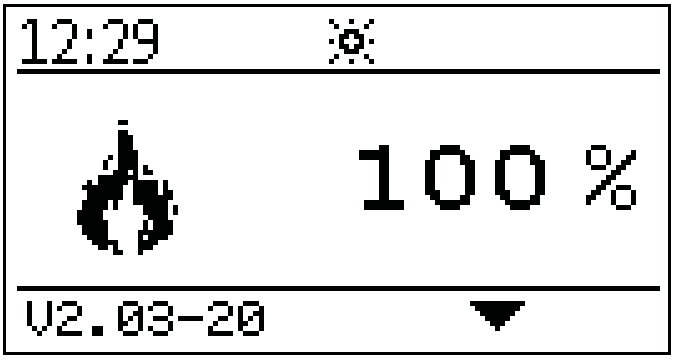
This symbol appears on the display while the fire protection device is being opened (approx. 2 minutes).

– button



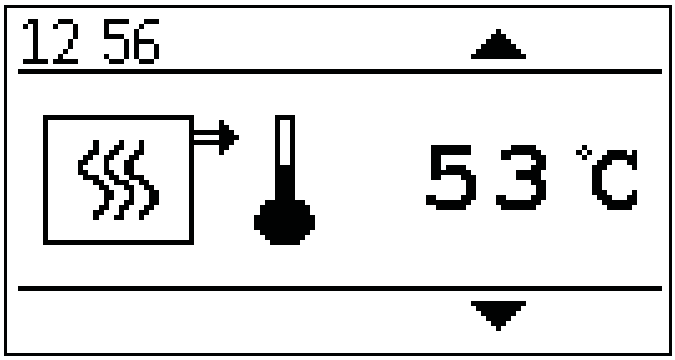
After the fire protection device has been opened, the ignition process starts and the symbol for ignition is displayed.

– button



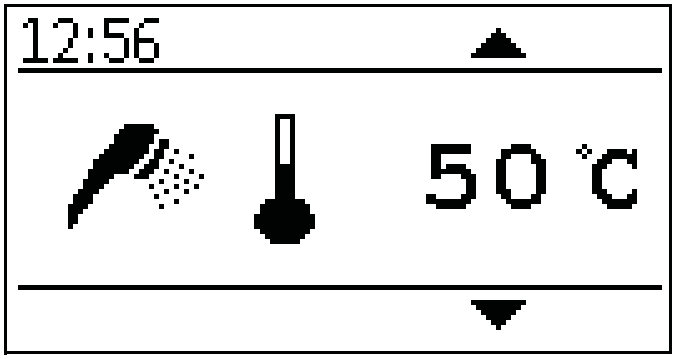
On completion of the ignition process (can last up to 15 minutes), the symbol for heating at full power appears. The boiler is now heating at full power.

– button



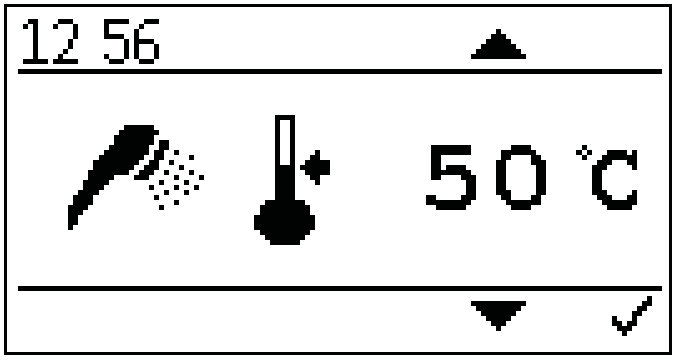
Display of the current boiler temperature

– button



Display of the current DHW temperature.

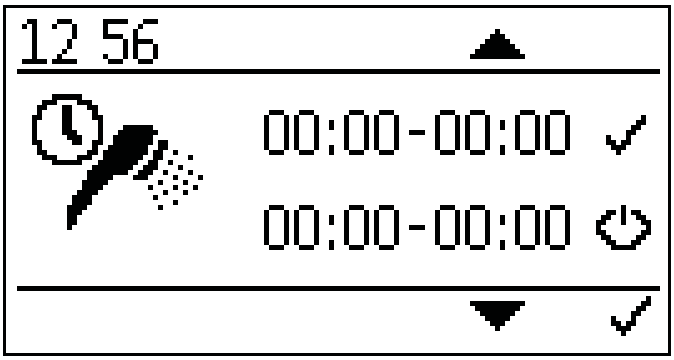
– button



Setting the DHW set temperature.

The DHW set temperature can be set in the range of 30° C to 75° C.

– button

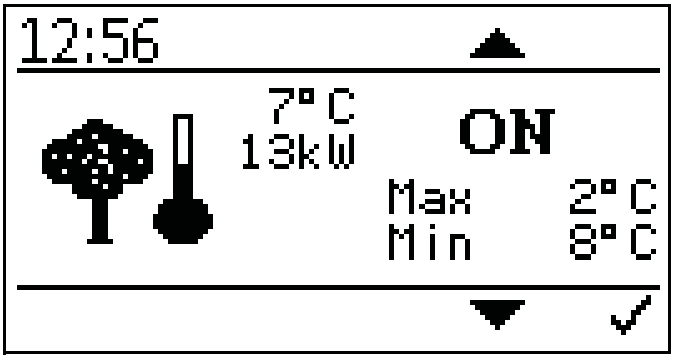


Setting the time programm of the DHW.

By pressing the start and stoptime appear.

Activate the times with .

– button



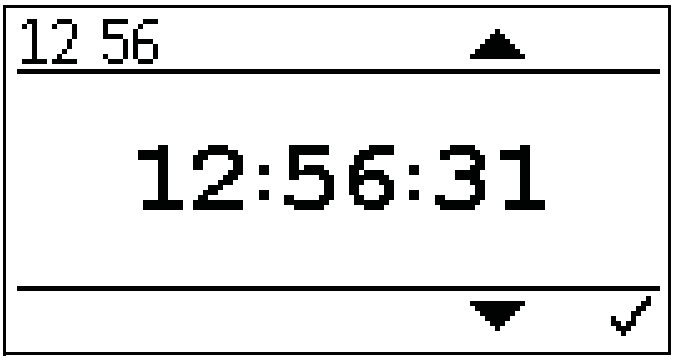
Setting Outertemperature control.

Here you can set the temperature values for the maximum and minimum boiler rating.

Adjustment range max. rated power -10° C bis +6° C

Adjustment range min. power +7° C bis +25° C

– button

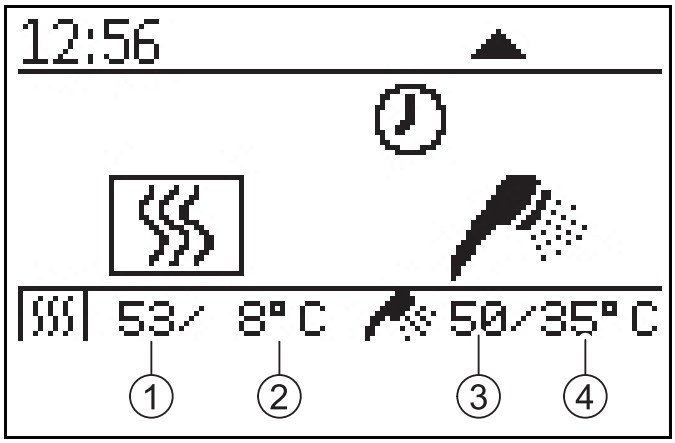


Setting current time.

Press and to set the current time.

Confirm with .

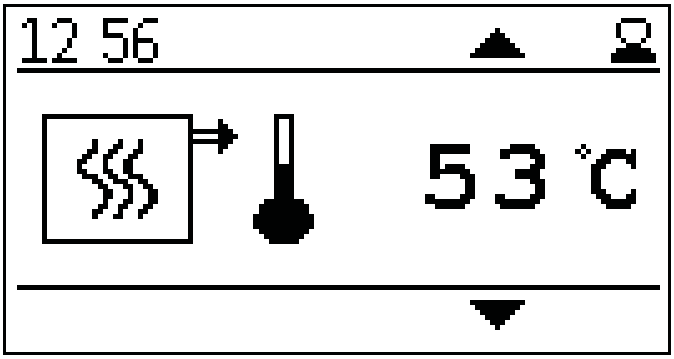
– button



Display of current boiler status.

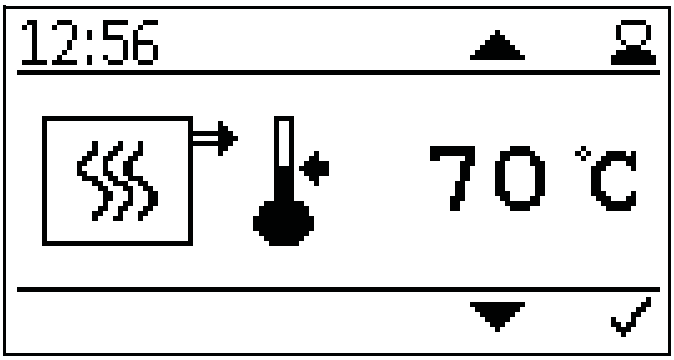
1	Current boiler temperature	3	Current DHW temperature
2	Boiler set temperature	4	DHW set temperature

After code input:



Display of the current boiler temperature

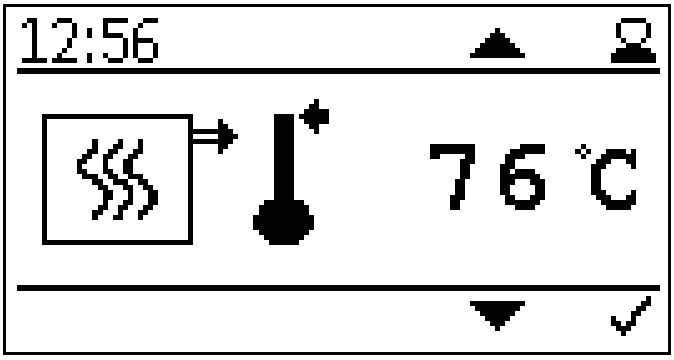
– button



Setting the boiler set temperature.

The boiler set temperature can be set in the range of 70° C to 90° C if a higher boiler temperature requirement or a larger modulation range is required.

– button

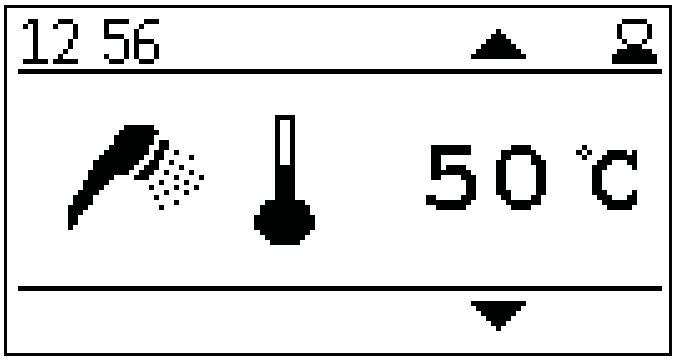


Setting of the boiler switch off temperature.

When the boiler switch off temperature is reached, the boiler switches off.

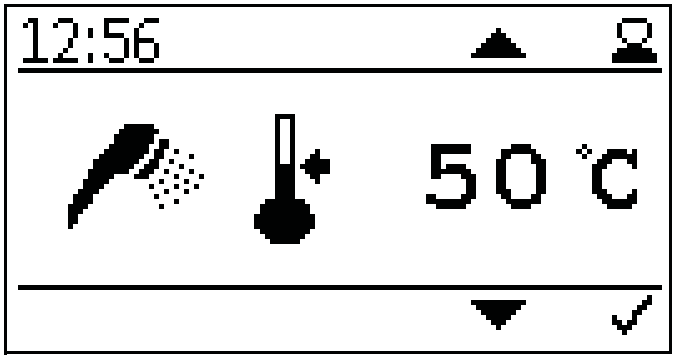
Note:
A too high switch off temperature.can cause the safety temperature limiter to release.

– button



Display of the current DHW temperature.

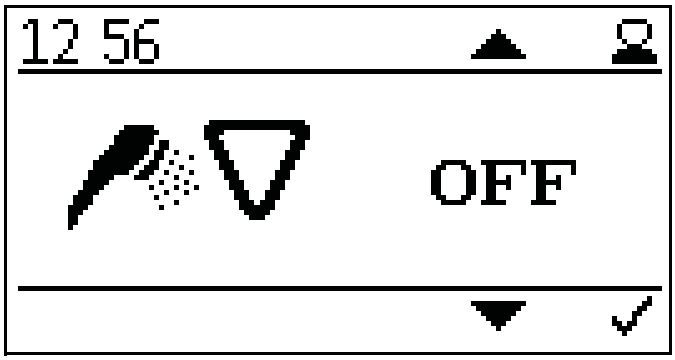
– button



Setting the DHW set temperature.

The DHW set temperature can be set in the range of 30° C to 75° C.

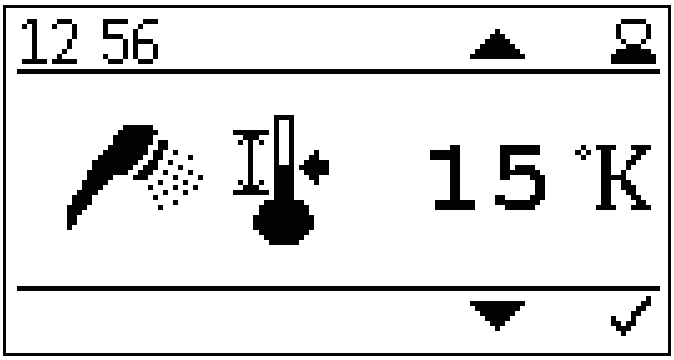
– button



Setting DHW priority.

During the hot water times, the heating circuits are only switched on when no hot water is demanded.

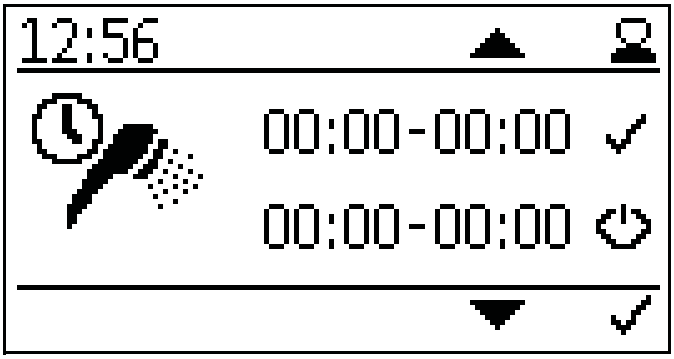
– button



Setting DHW hysteresis.

The DHW hysteresis can be set between 5K and 20 K.

– button

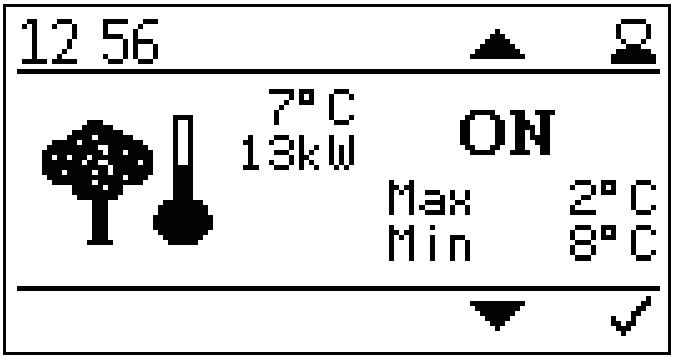


Setting the time programm of the DHW.

By pressing the start and stoptime appear.

Activate the times with

– button



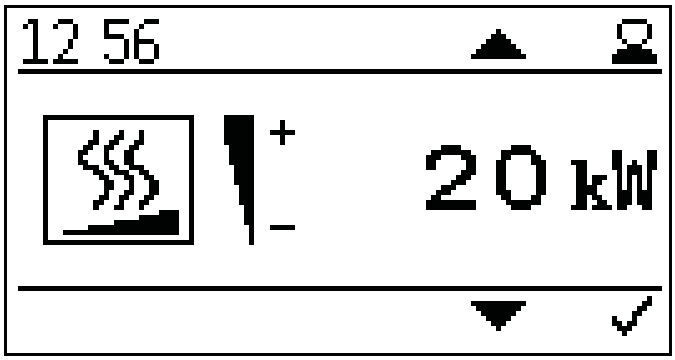
Setting Outertemperature control.

Here you can set the temperature values for the maximum and minimum boiler rating.

Adjustment range max. rated power -10° C bis +6° C

Adjustment range min. power +7° C bis +25° C

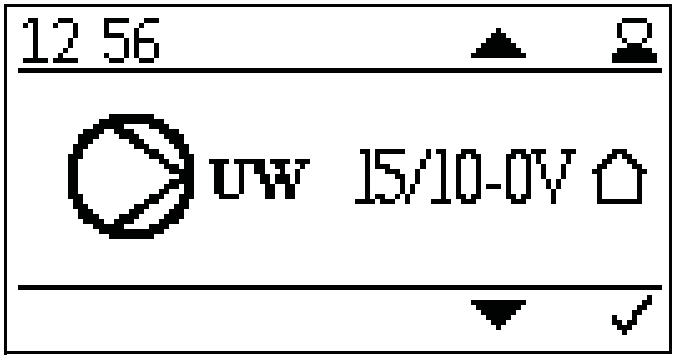
– button



Setting boiler rated power.

Enter the desired rated output of the boiler to make a more accurate setting.
This will improve boiler runtime and modulation.

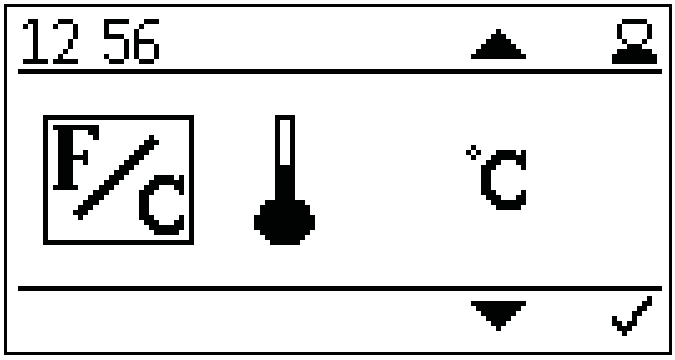
– button



Settings pumptype:

- Heating efficient PWM1 - PWM signal inverted
- Asynchronus pump – direct output 230VAC on/off
- Heating efficient PWM 2 – PWM signal direct or Heating efficient pump analog 0-10 V

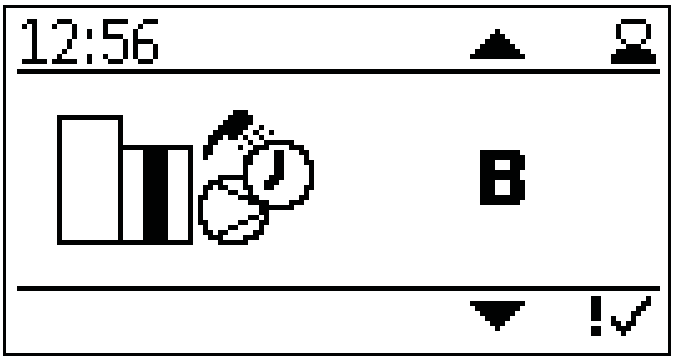
– button



Setting temperature unit.

- ° Celsius
- ° Fahrenheit

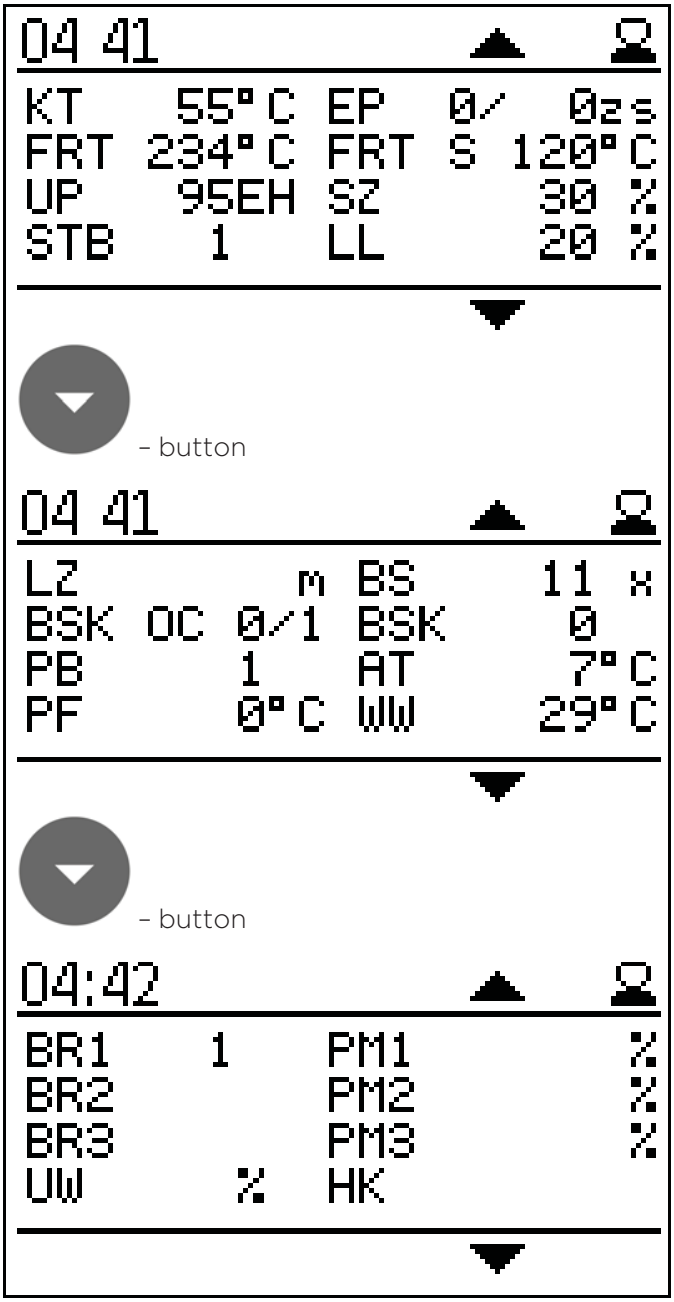
– button



Setting operation mode.

Changing the operation mode.

– button



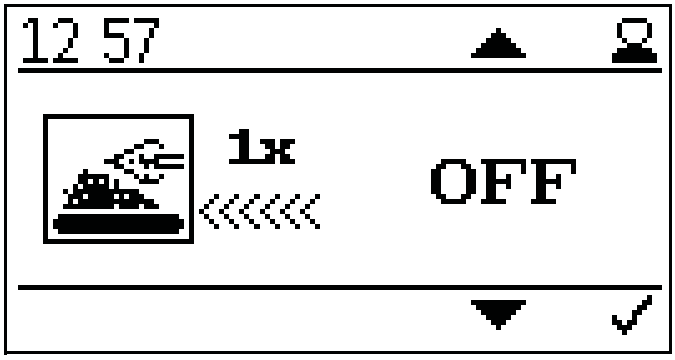
– button

– button

Display of the current values.

- **KT:** Boiler temperature
- **FRT:** Combustion chamber temperature
- **UP:** Negative draft
- **STB:** Safety temperature sensor
- **EP:** Supply/Pause time
- **FRT S:** Set combustion chamber temp
- **SZ:** Flue gas fan
- **LL:** Burner fan
- **LZ:** Run time
- **BSK OC:** Flame return gate open / closed
- **PB:** Pellet hopper casing cover
- **PF:** Accumulator sensor
- **BS:** Burner starts
- **BSK:** Flame return gate open Set
- **AT:** Outside temperature sensor
- **WW:** DHW
- **BR1:** Burner / thermostat contact Z26
- **BR2:** Burner / thermostat contact Z27
- **BR3:** Burner / thermostat contact Z28
- **UW:** Output for pump UW 230V
- **PM1:** Pump output PWM-signal Z38
- **PM2:** Pump output PWM-signal Z39
- **PM3:** Pump output PWM-signal Z40
- **HK:** Output for pump HK 230V

– button

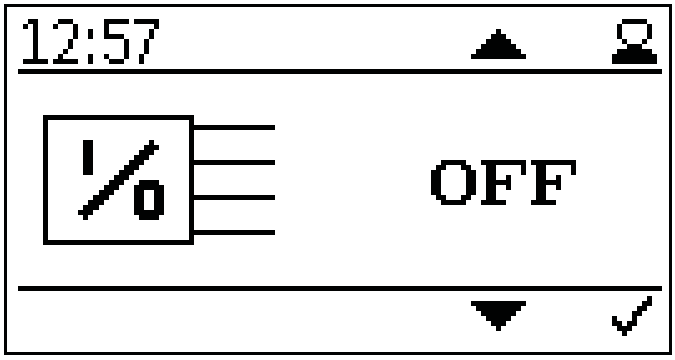


Extended supply.

When this action is activated, the pellets will be inserted 3x longer with the next ignition than standard.

This function is automatically reset after a single activation and serves for quicker ignition when the burner auger is empty.

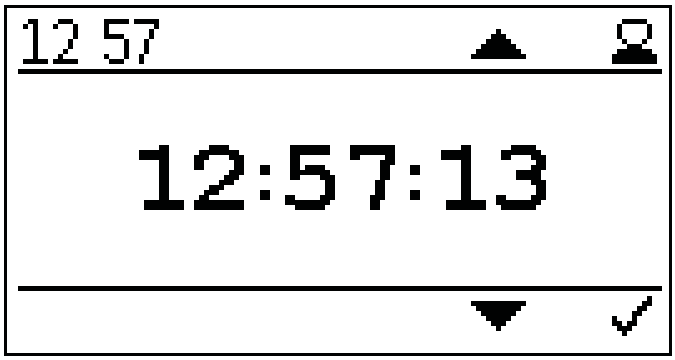
– button



Output test.

The Output Test serves to check all connected.

– button

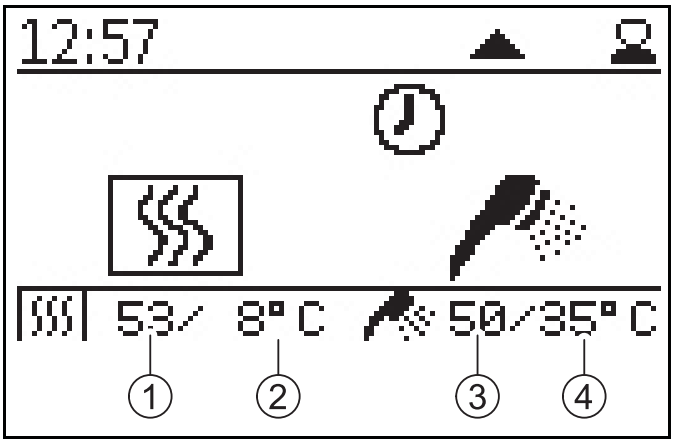


Setting current time.

Press and to set the current time.

Confirm with .

– button



Display of current boiler status.

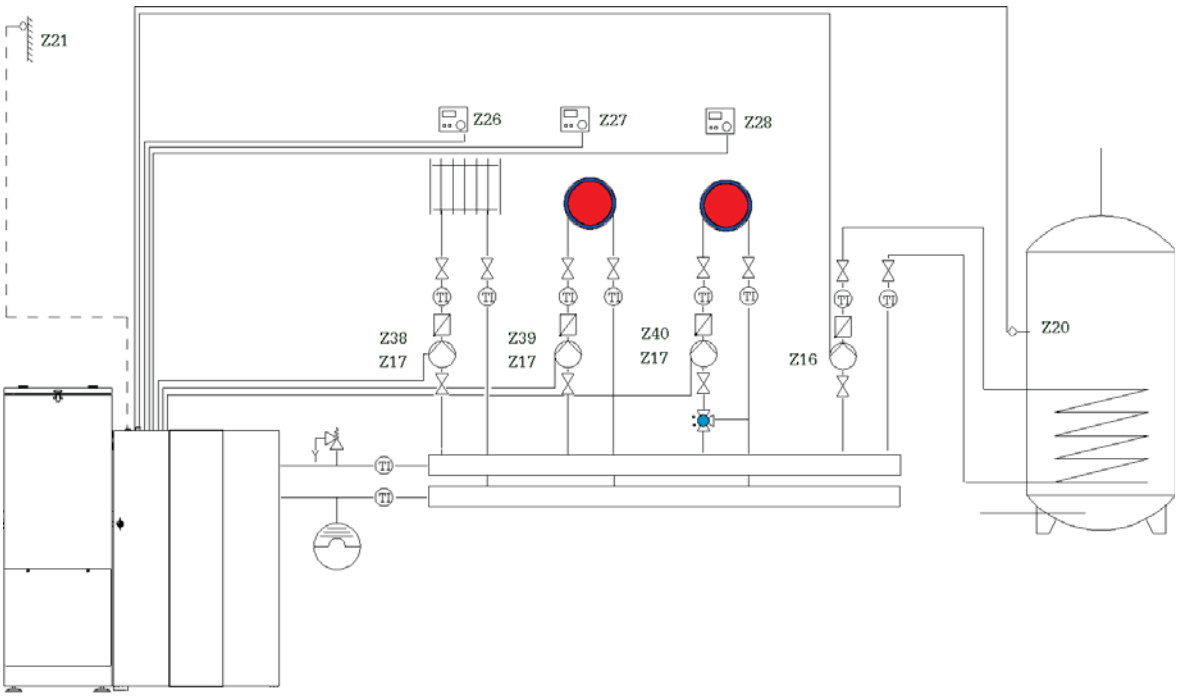
1	Current boiler temperature	3	Current DHW temperature
2	Boiler set temperature	4	DHW set temperature

12.4 Version C

Up to 3 heating circuits can be demanded via room thermostats or time program. A room thermostat (ON / OFF) can be connected via the inputs X26, X27 and X28.
The 230V supply of the pumps is provided via output Z17 (HK) (boiler temperature> 60° C).Via the terminals Z38, Z39 and Z40, a PWM signal for controlling the individual heating circuits is output.
The PWM signal can be set more or less powerful in the first code level.

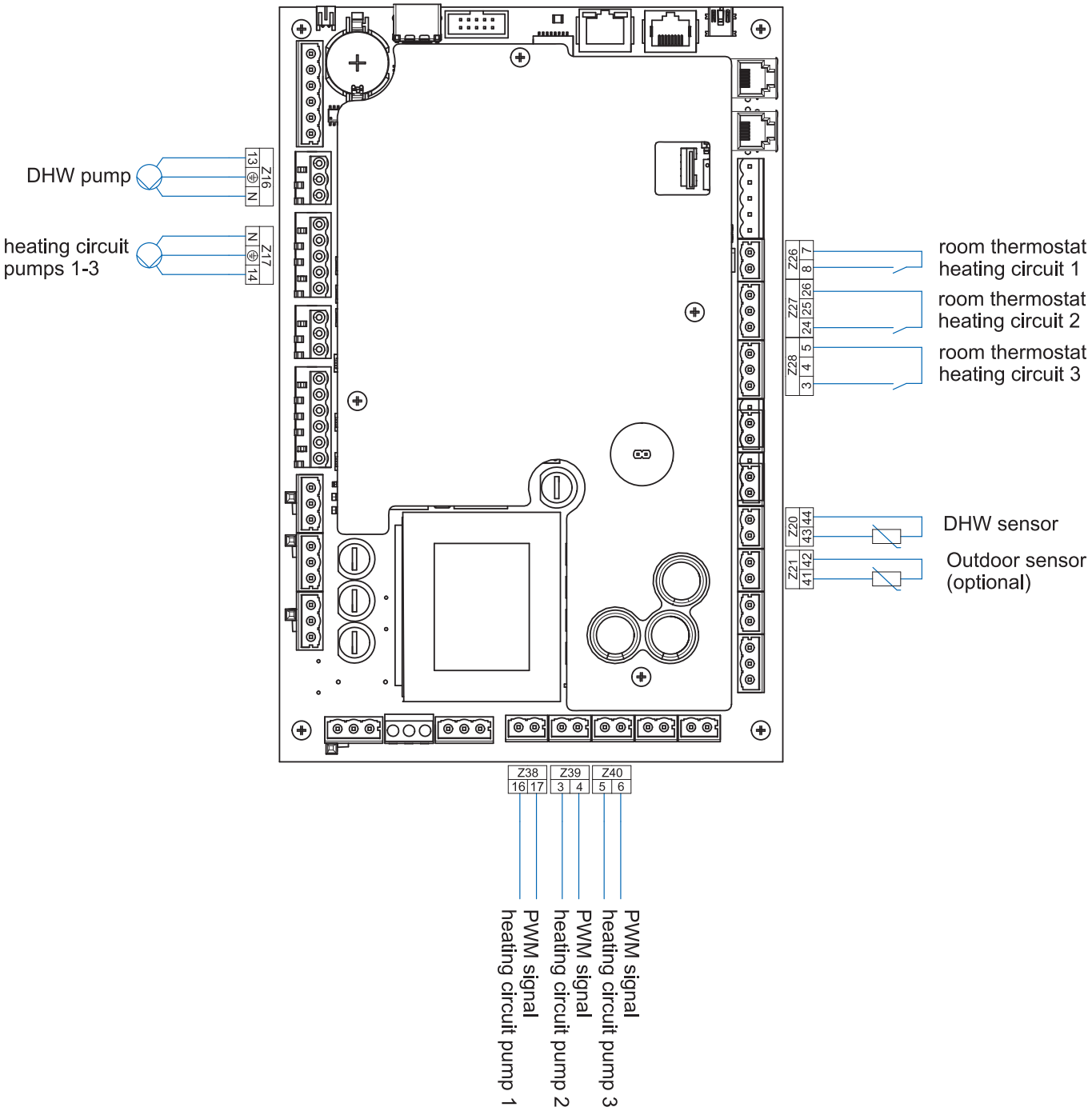
DHW for the accumulator works via sensor input Z20 (DHW) and pump output Z16 (UW).
Residual heat is dissipated via Z16 (UW) to the warm water boiler. The pump mode cannot be selected.

Hydraulic diagram version C:



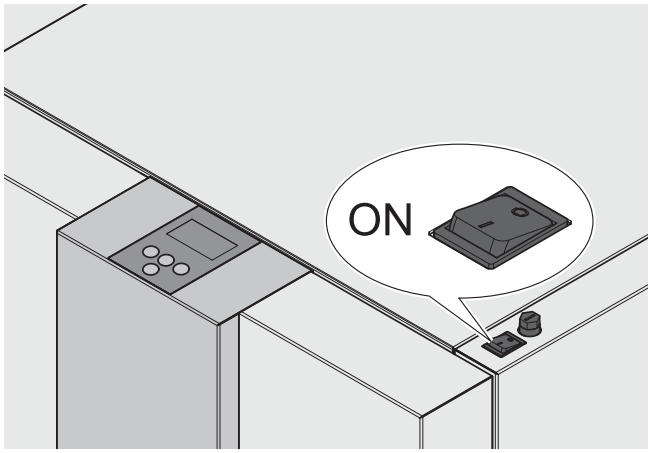
Heat consumers are shown symbolically
and can be substituted by others!

Wiring diagram version C:

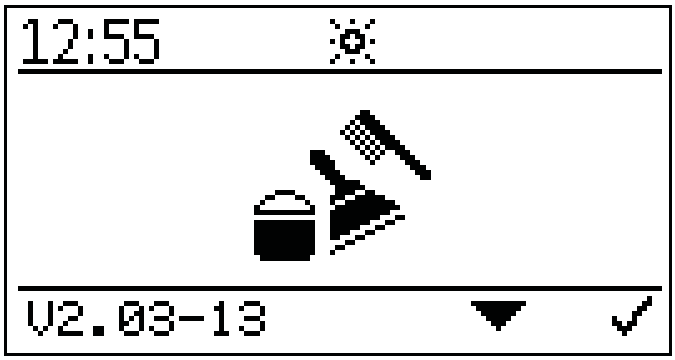


Note:
The total line length of the heating circuit pumps must not exceed 100 m!

12.4.1 Commissioning controller version C

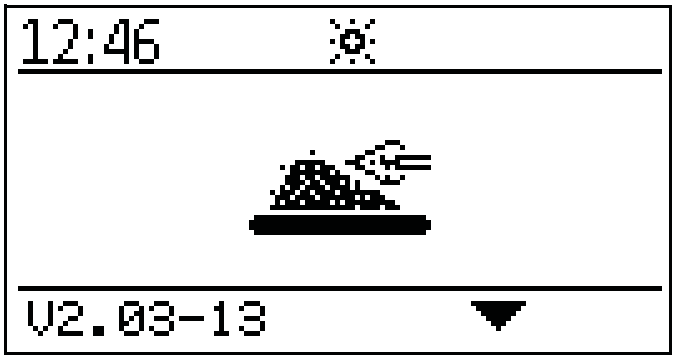


After switching on, the boiler starts (after approx. 10 seconds).
The fire protection device is opened.



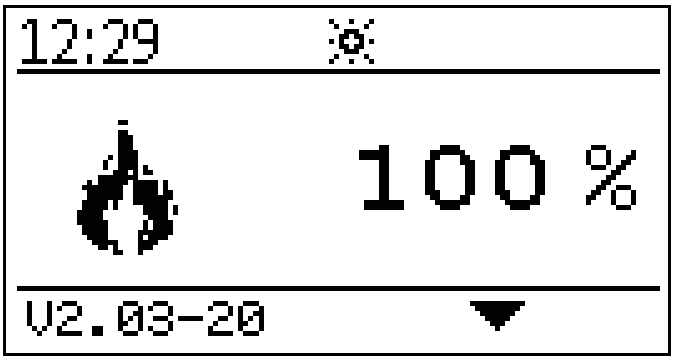
This symbol appears on the display while the fire protection device is being opened (approx. 2 minutes).

– button



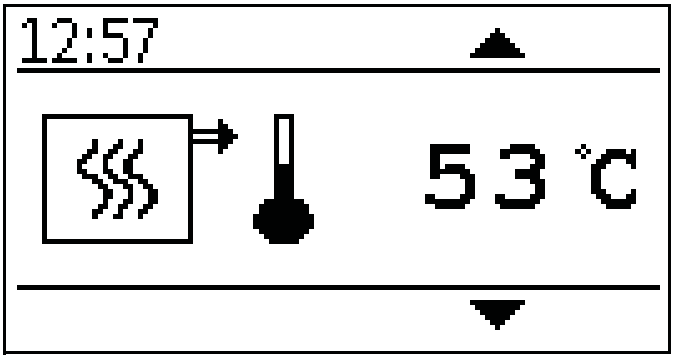
After the fire protection device has been opened, the ignition process starts and the symbol for ignition is displayed.

– button



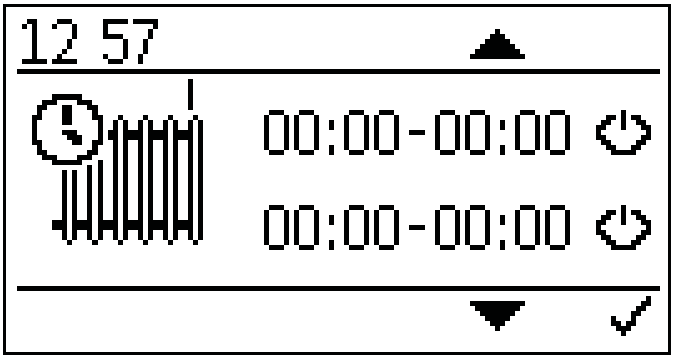
On completion of the ignition process (can last up to 15 minutes), the symbol for heating at full power appears. The boiler is now heating at full power.

– button



Display of the current boiler temperature

– button

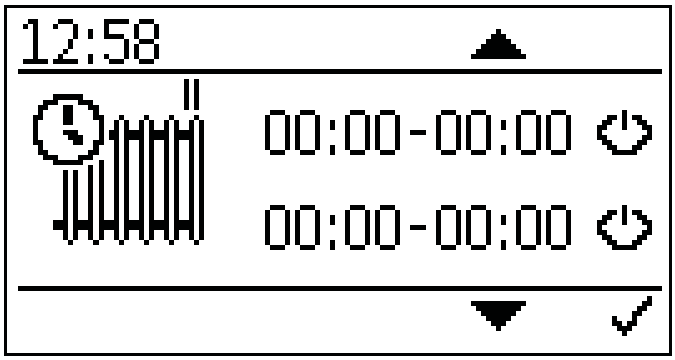


Setting the time programm of heating circuit 1.

By pressing  the start and stoptime appear.

Activate the times with 

– button

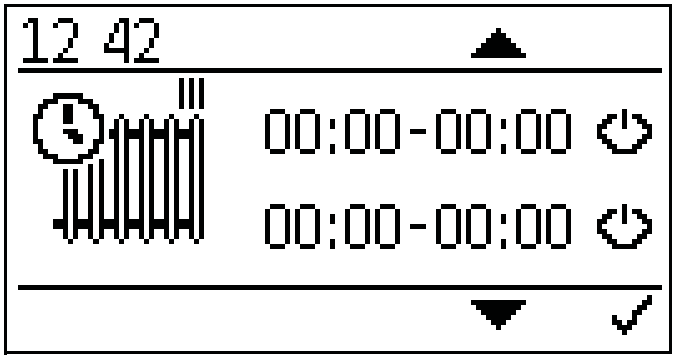


Setting the time programm of heating circuit 2.

By pressing the start and stoptime appear.

Activate the times with

– button

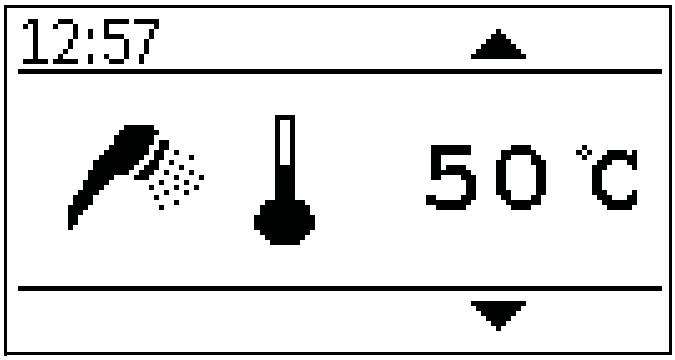


Setting the time programm of heating circuit 3.

By pressing the start and stoptime appear.

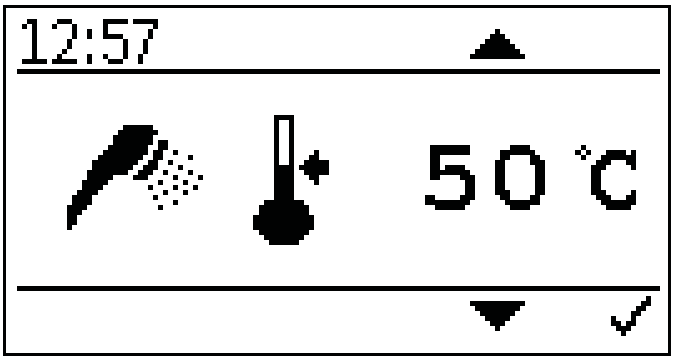
Activate the times with

– button



Display of the current DHW temperature.

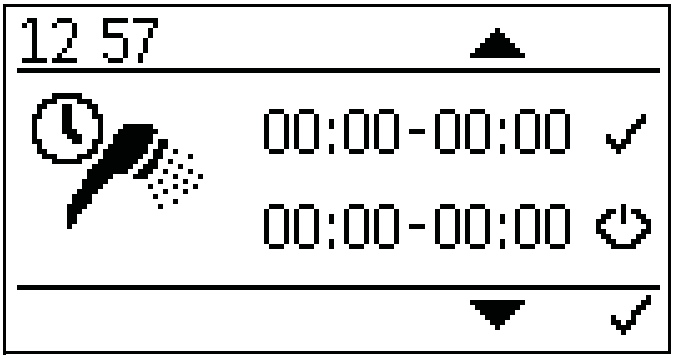
– button



Setting the DHW set temperature.

The DHW set temperature can be set in the range of 30° C to 75° C.

– button

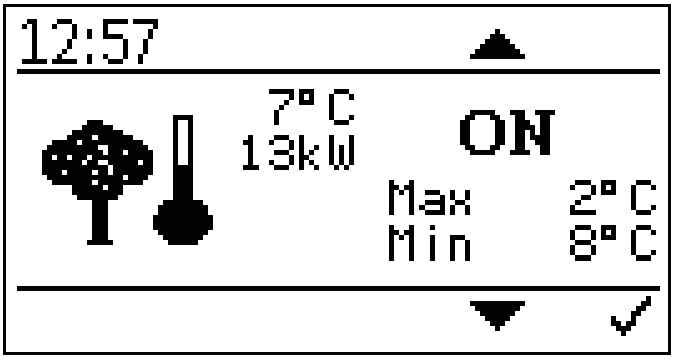


Setting the time programm of the DHW.

By pressing the start and stoptime appear.

Activate the times with

– button



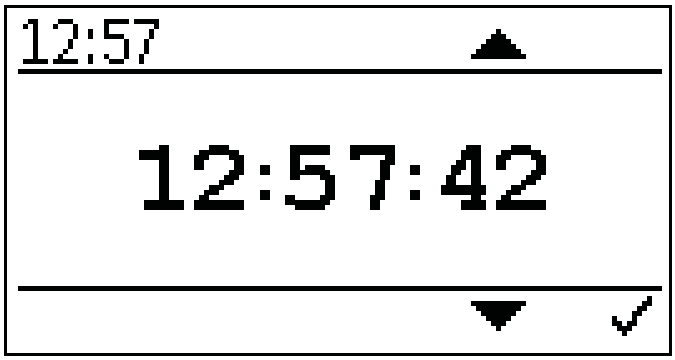
Setting Outertemperature control.

Here you can set the temperature values for the maximum and minimum boiler rating.

Adjustment range max. rated power -10° C bis +6° C

Adjustment range min. power +7° C bis +25° C

– button

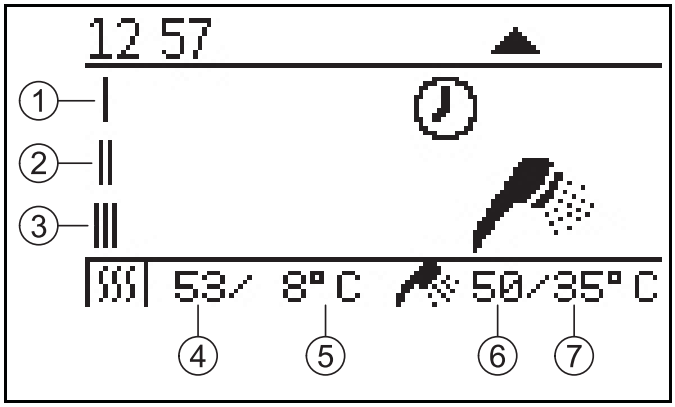


Setting current time.

Press and to set the current time.

Confirm with .

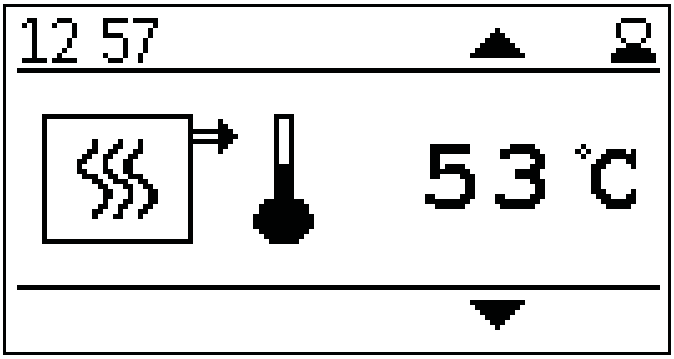
– button



Display of current boiler status.

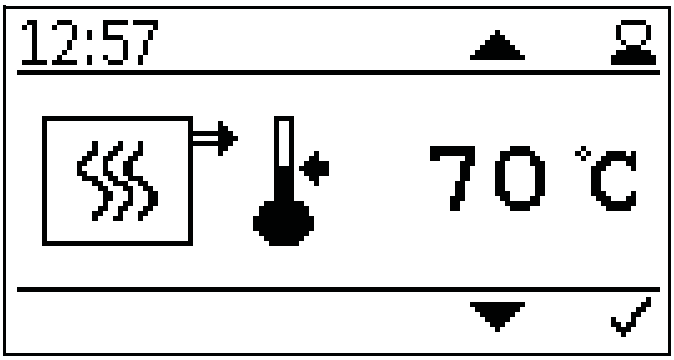
1	Heating circuit 1	5	Boiler set temperature
2	Heating circuit 2	6	Current DHW temperature
3	Heating circuit 3	7	DHW set temperature
4	Current boiler temperature		

After code input:



Display of the current boiler temperature

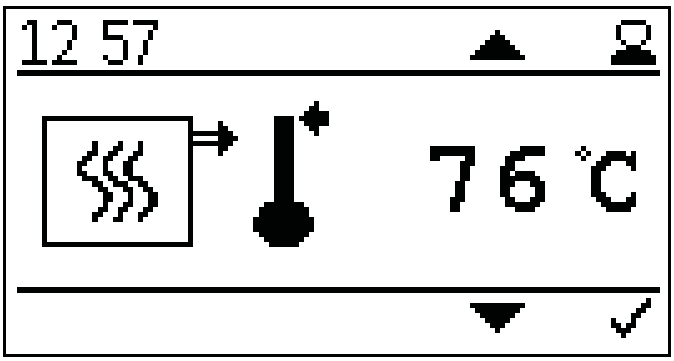
– button



Setting the boiler set temperature.

The boiler set temperature can be set in the range of 70° C to 90° C if a higher boiler temperature requirement or a larger modulation range is required.

– button

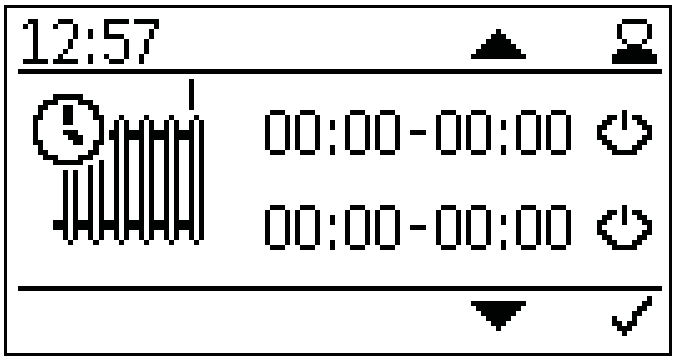


Setting of the boiler switch off temperature.

When the boiler switch off temperature is reached, the boiler switches off.

Note:
A too high switch off temperature.can cause the safety temperature limiter to release.

– button

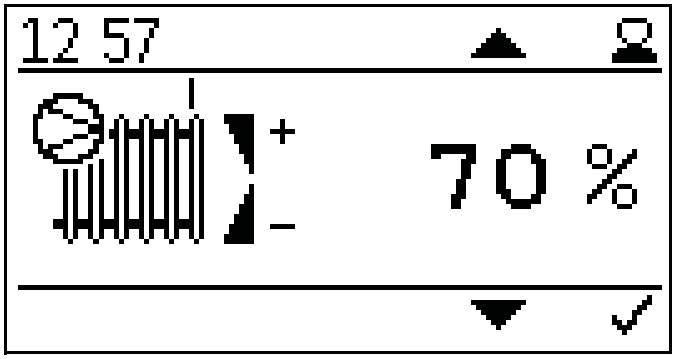


Setting the time programm of heating circuit 1.

By pressing the start and stoptime appear.

Activate the times with

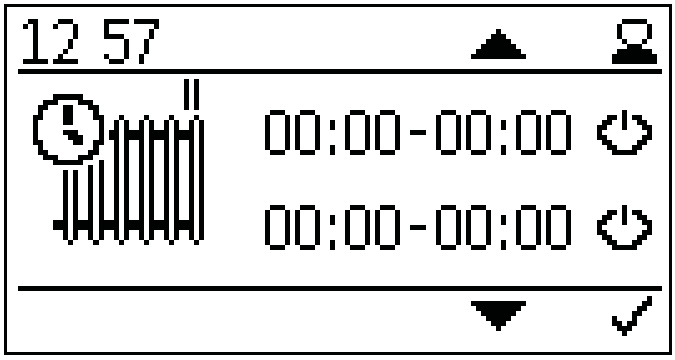
– button



Setting the power of heating circuit pump 1.

The power range can be set between 30 - 100%.
For normal use, a setting of 70% should be selected.
When adjusting too excessive noises can appear.

– button

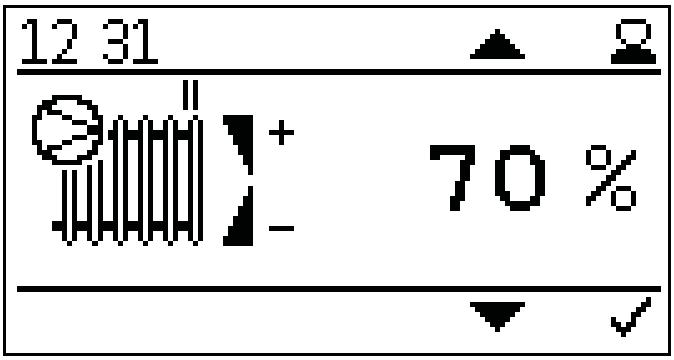


Setting the time programm of heating circuit 2.

By pressing the start and stoptime appear.

Activate the times with

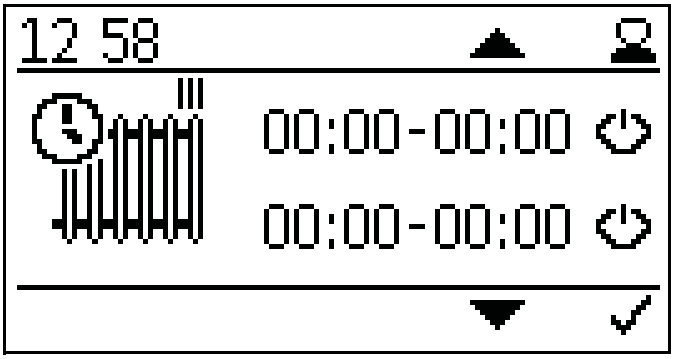
– button



Setting the power of heating circuit pump 2.

The power range can be set between 30 - 100%.
For normal use, a setting of 70% should be selected.
When adjusting too excessive noises can appear.

– button

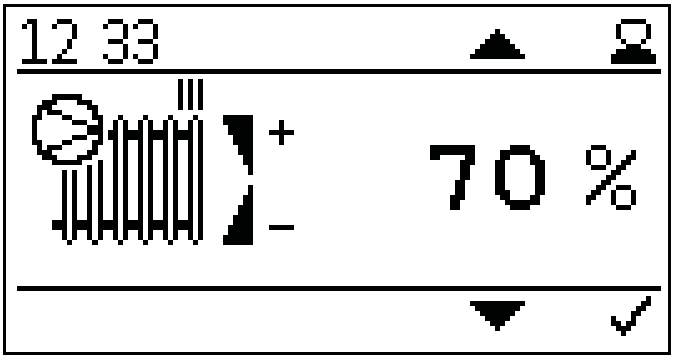


Setting the time programm of heating circuit 3.

By pressing the start and stoptime appear.

Activate the times with

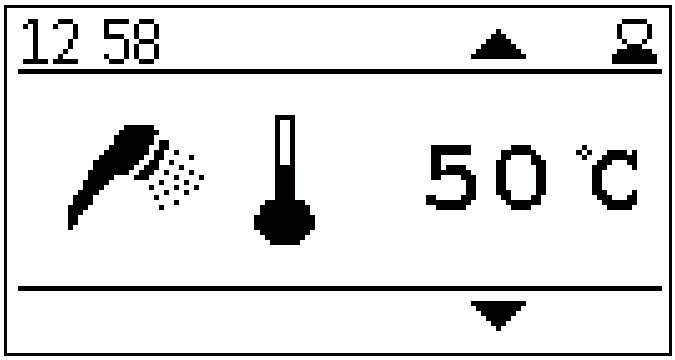
– button



Setting the power of heating circuit pump 3.

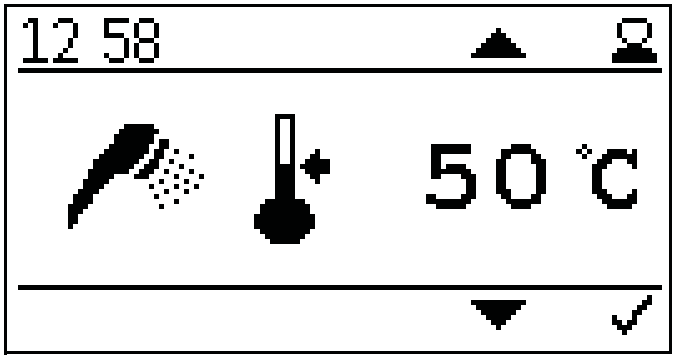
The power range can be set between 30 - 100%.
For normal use, a setting of 70% should be selected.
When adjusting too excessive noises can appear.

– button



Display of the current DHW temperature.

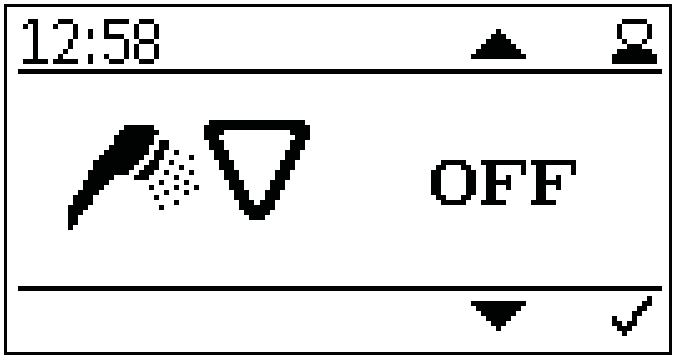
– button



Setting the DHW set temperature.

The DHW set temperature can be set in the range of 30° C to 75° C.

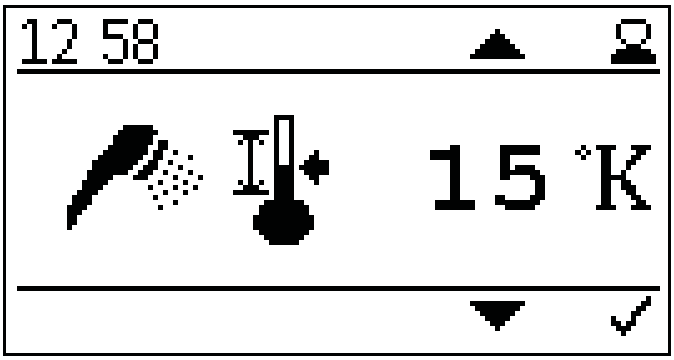
– button



Setting DHW priority.

During the hot water times, the heating circuits are only switched on when no hot water is demanded.

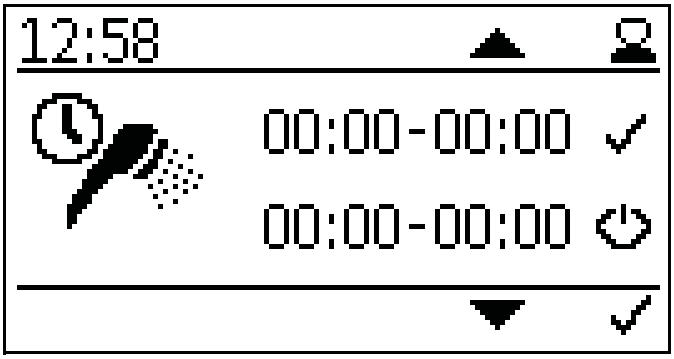
– button



Setting DHW hysteresis.

The DHW hysteresis can be set between 5K and 20 K.

– button

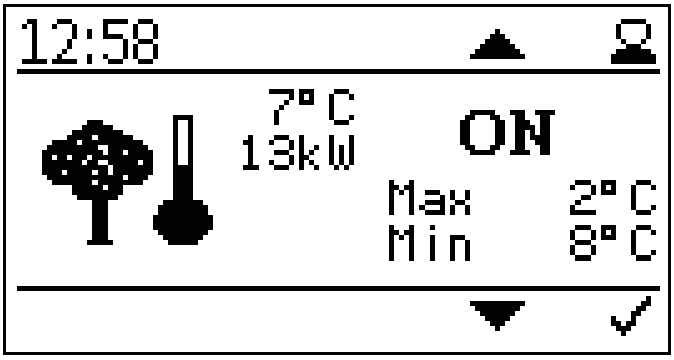


Setting the time programm of the DHW.

By pressing the start and stoptime appear.

Activate the times with

– button



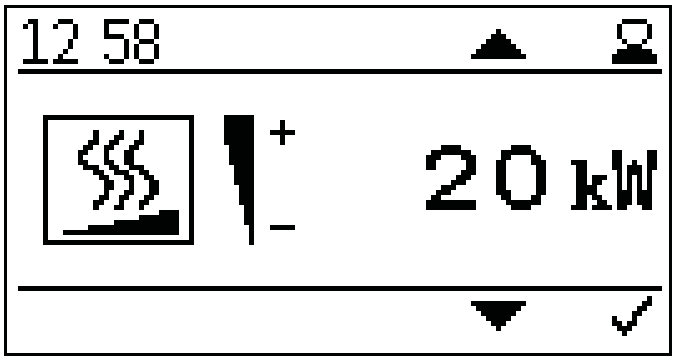
Setting Outertemperature control.

Here you can set the temperature values for the maximum and minimum boiler rating.

Adjustment range max. rated power -10° C bis +6° C

Adjustment range min. power +7° C bis +25° C

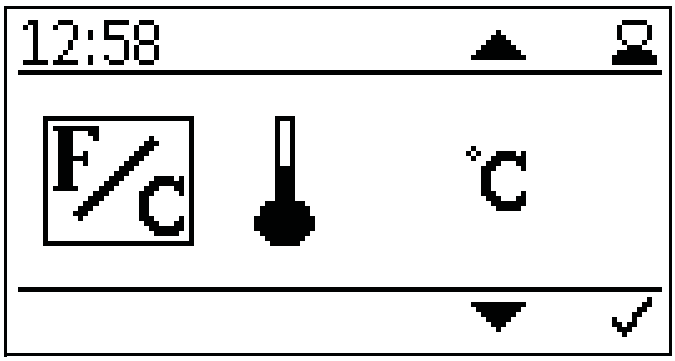
– button



Setting boiler rated power.

Enter the desired rated output of the boiler to make a more accurate setting.
This will improve boiler runtime and modulation.

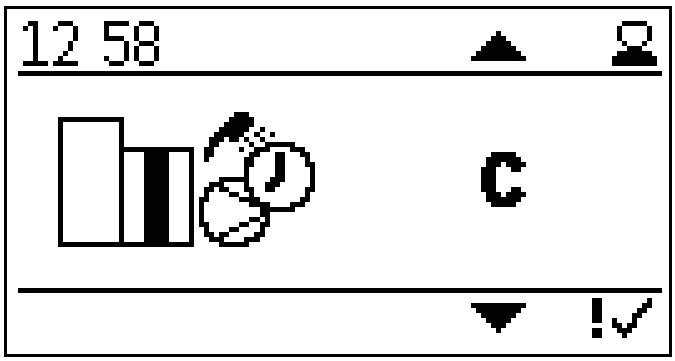
– button



Setting temperature unit.

- ° Celsius
- ° Fahrenheit

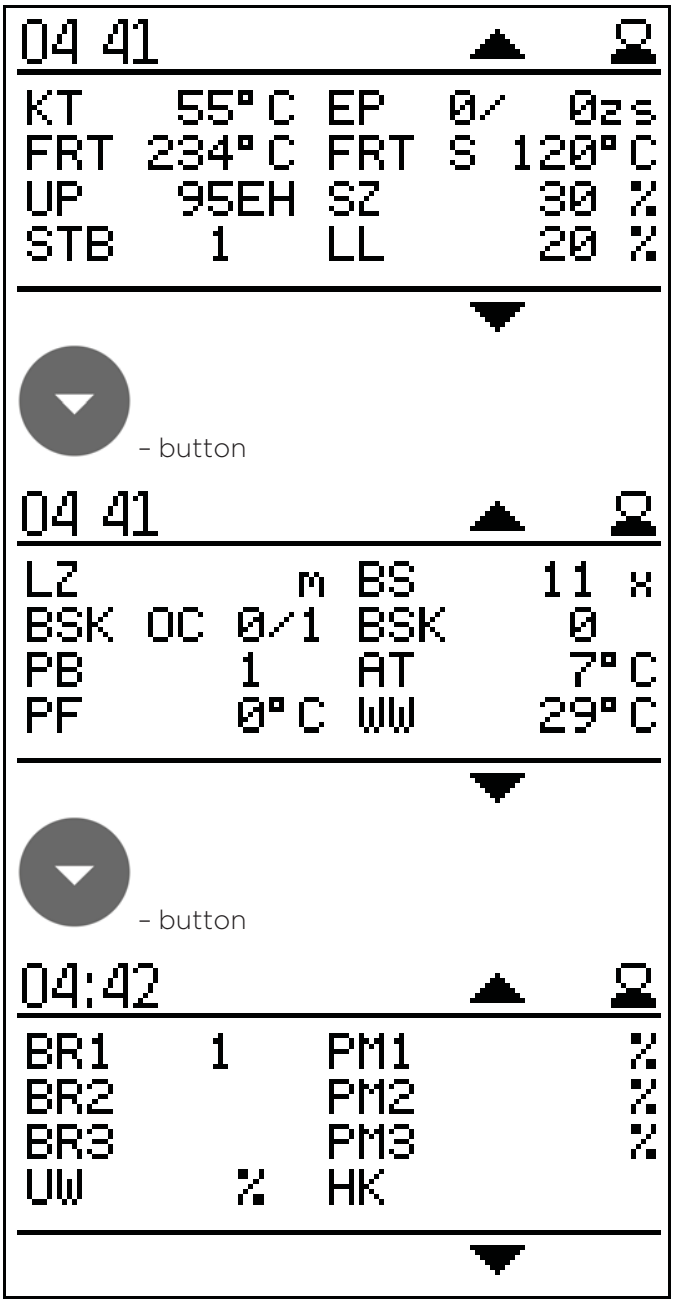
– button



Setting operation mode.

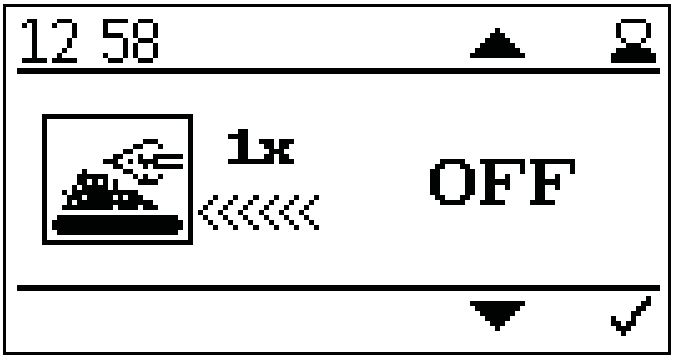
Changing the operation mode.

– button



Display of the current values.

- **KT:** Boiler temperature
- **FRT:** Combustion chamber temperature
- **UP:** Negative draft
- **STB:** Safety temperature sensor
- **EP:** Supply/Pause time
- **FRT S:** Set combustion chamber temp
- **SZ:** Flue gas fan
- **LL:** Burner fan
- **LZ:** Run time
- **BSK OC:** Flame return gate open / closed
- **PB:** Pellet hopper casing cover
- **PF:** Accumulator sensor
- **BS:** Burner starts
- **BSK:** Flame return gate open Set
- **AT:** Outside temperature sensor
- **WW:** DHW
- **BR1:** Burner / thermostat contact Z26
- **BR2:** Burner / thermostat contact Z27
- **BR3:** Burner / thermostat contact Z28
- **UW:** Output for pump UW 230V
- **PM1:** Pump output PWM-signal Z38
- **PM2:** Pump output PWM-signal Z39
- **PM3:** Pump output PWM-signal Z40
- **HK:** Output for pump HK 230V

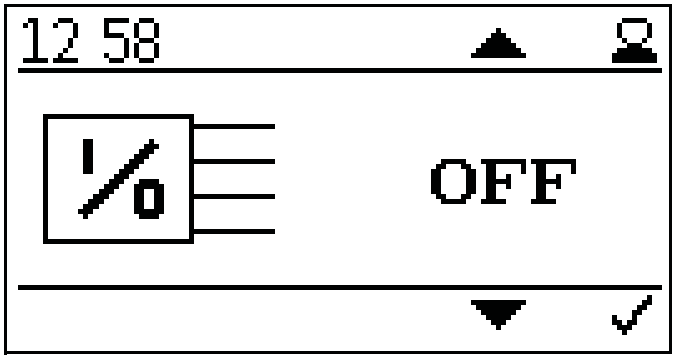


Extended supply.

When this action is activated, the pellets will be inserted 3x longer with the next ignition than standard.

This function is automatically reset after a single activation and serves for quicker ignition when the burner auger is empty.

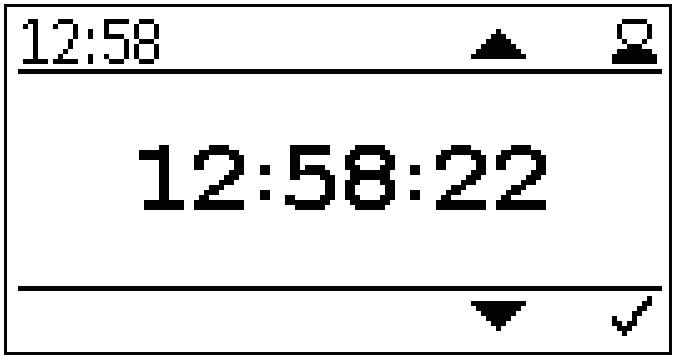
– button



Output test.

The Output Test serves to check all connected.

– button

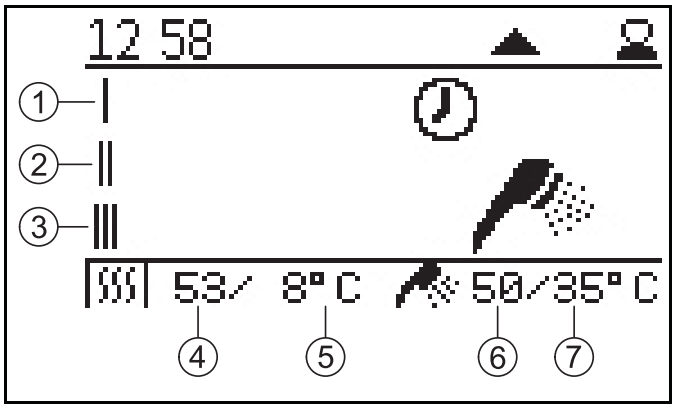


Setting current time.

Press and to set the current time.

Confirm with .

– button



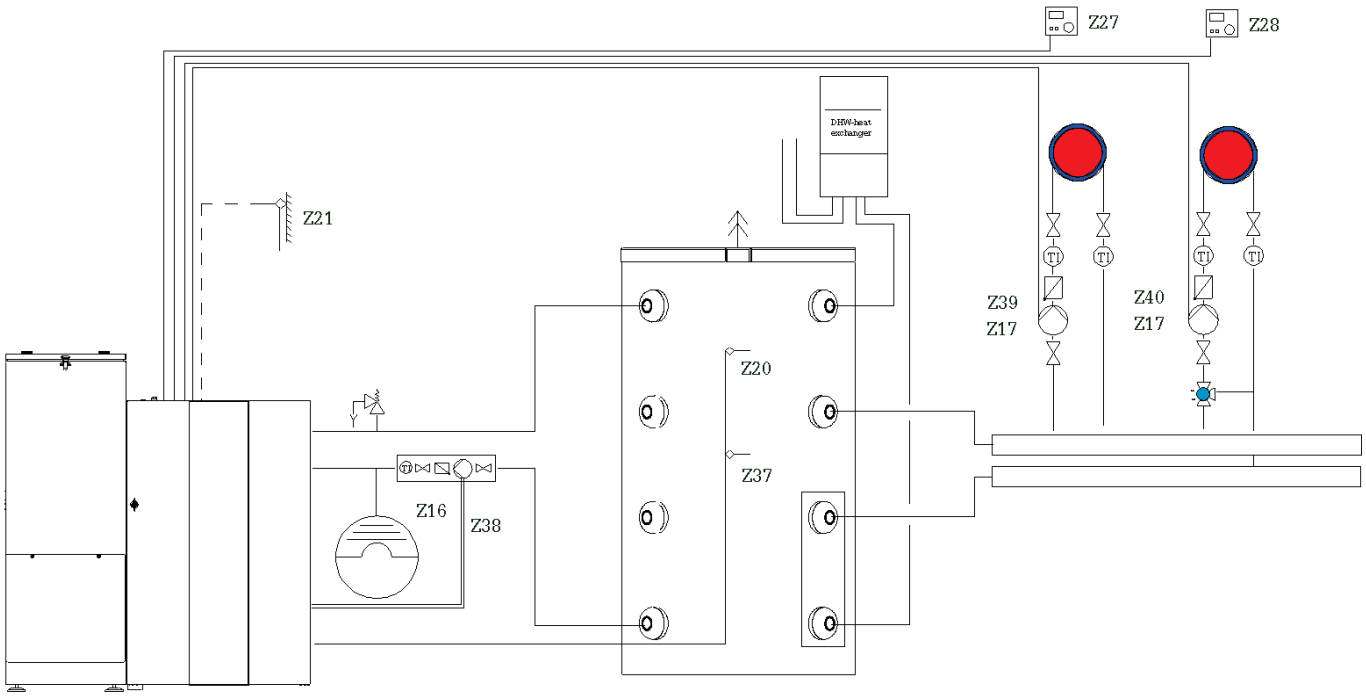
Display of current boiler status.

1	Heating circuit 1	5	Boiler set temperature
2	Heating circuit 2	6	Current DHW temperature
3	Heating circuit 3	7	DHW set temperature
4	Current boiler temperature		

12.5 Version D

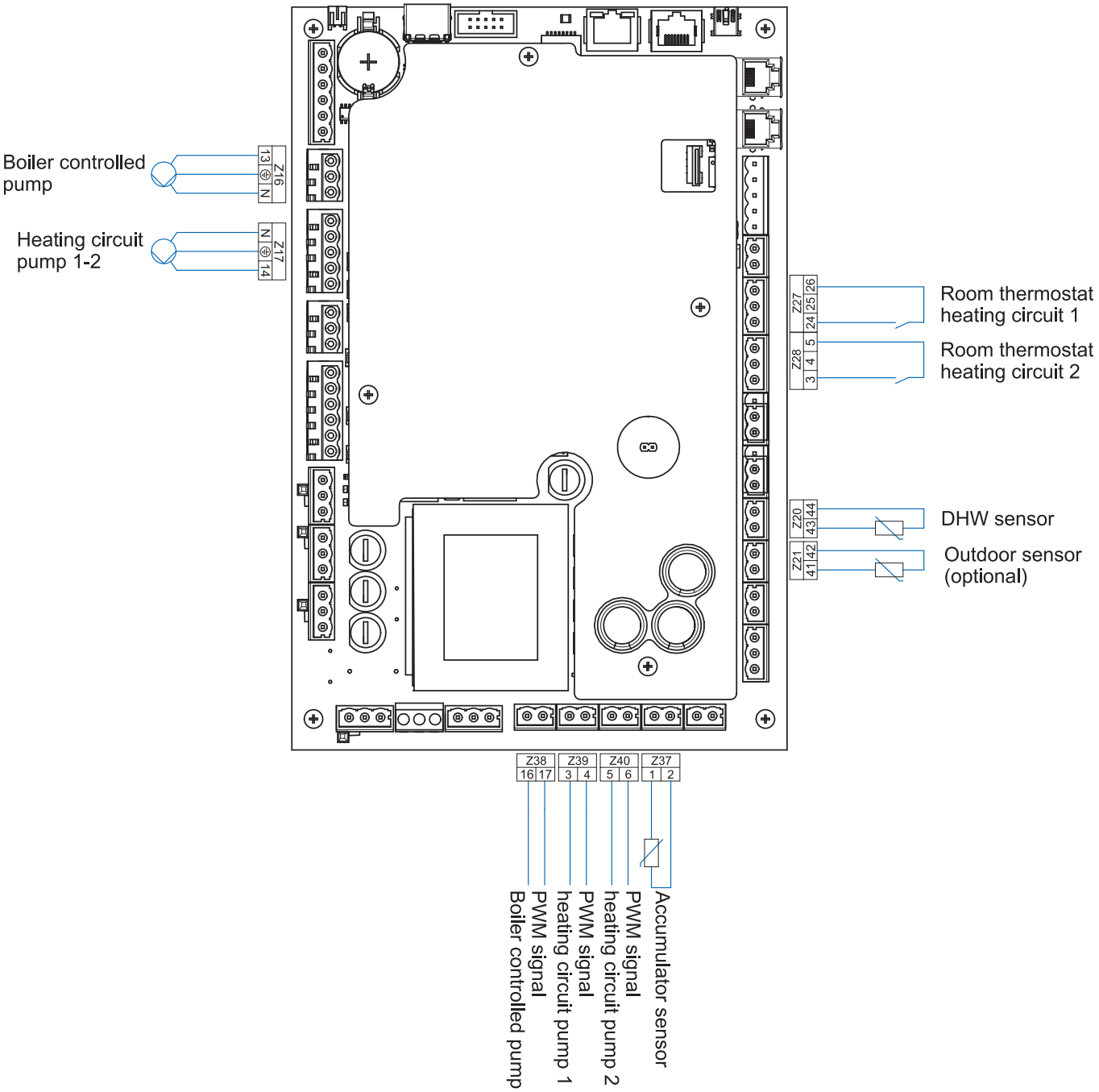
The accumulator sensor is connected to terminal Z37.
The burner demand regulates the accumulator temperature.
The pump output X16 (UW) and X38 (PWM) are used for the boiler controlled pump, which is not active below 60° C. A room thermostat can be connected via inputs Z27 and Z28. This room thermostat controls the two heating circuits via pump output Z17 (HK) and the outputs X39 and X40.
The DHW sensor (Z20) is attached to the accumulator and regulates the burner demand outside the heating period.

Hydraulic diagram version D:



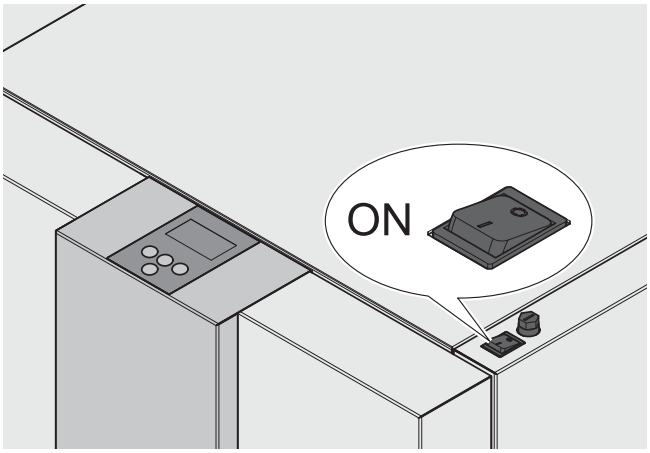
Heat consumers are shown symbolically and can be substituted by others!

Wiring diagram version D:

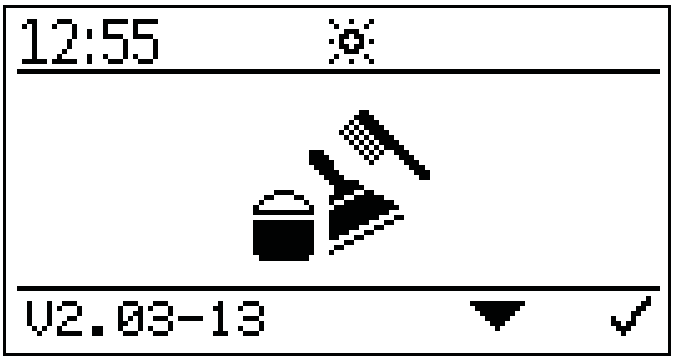


Note:
The total line length of the heating circuit pumps must not exceed 100 m!

12.5.1 Commissioning controller version D

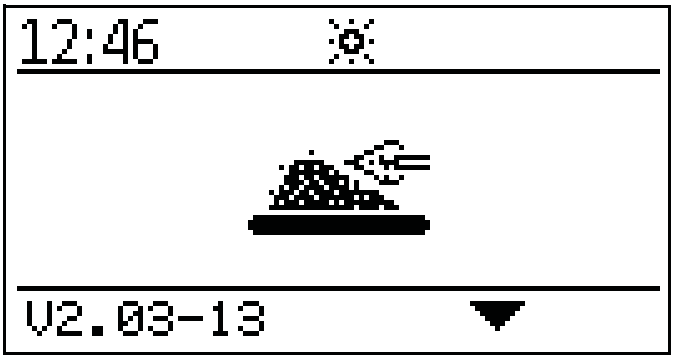


After switching on, the boiler starts (after approx. 10 seconds).
The fire protection device is opened.



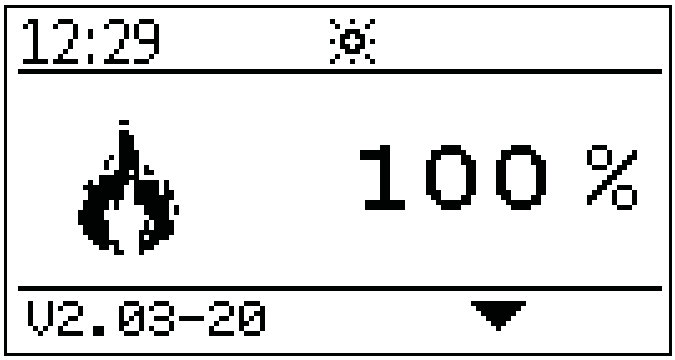
This symbol appears on the display while the fire protection device is being opened (approx. 2 minutes).

– button



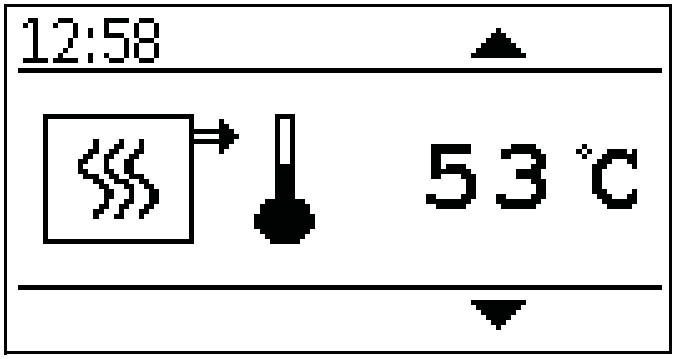
After the fire protection device has been opened, the ignition process starts and the symbol for ignition is displayed.

– button



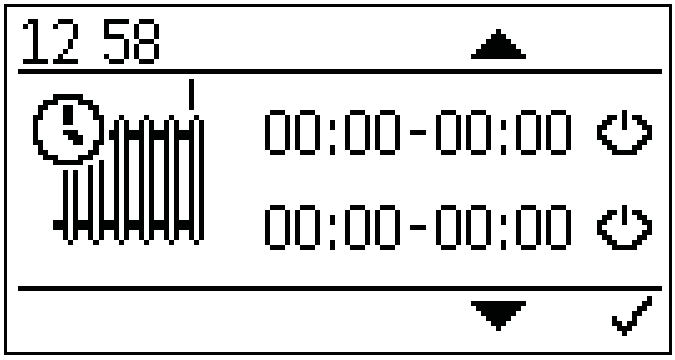
On completion of the ignition process (can last up to 15 minutes), the symbol for heating at full power appears. The boiler is now heating at full power.

– button



Display of the current boiler temperature

– button

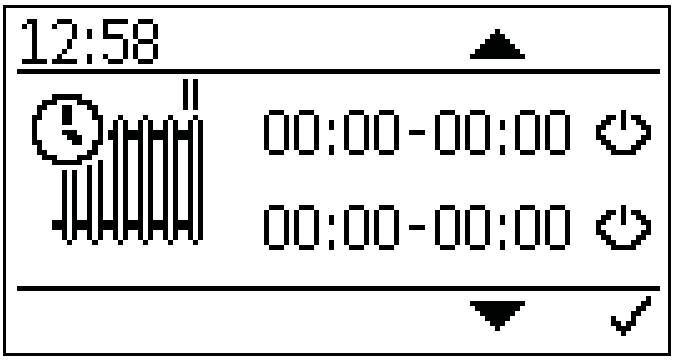


Adjusting the time programme of the heating circuit 1.

By pressing  the start and stoptime appear.

Activate the times with  .

– button

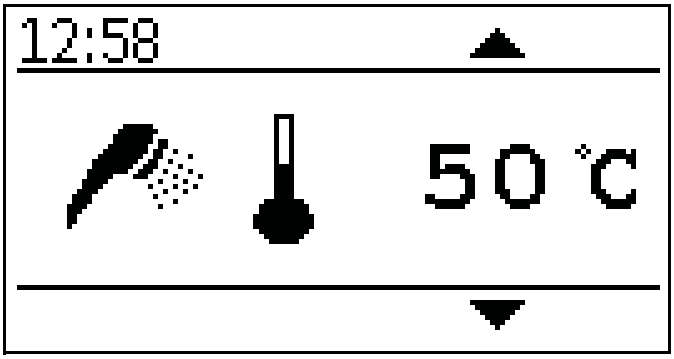


Adjusting the time programme of the heating circuit 2.

By pressing the start and stoptime appear.

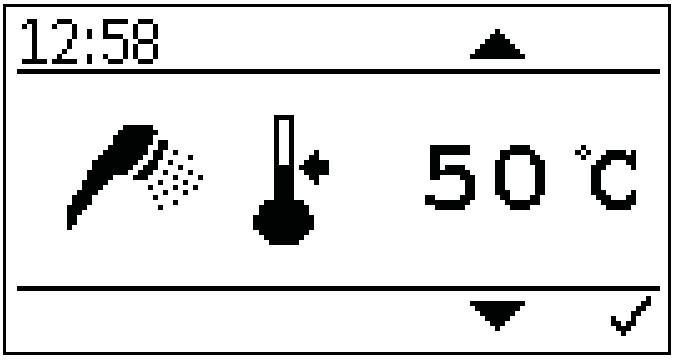
Activate the times with .

– button



Display of the current DHW temperature.

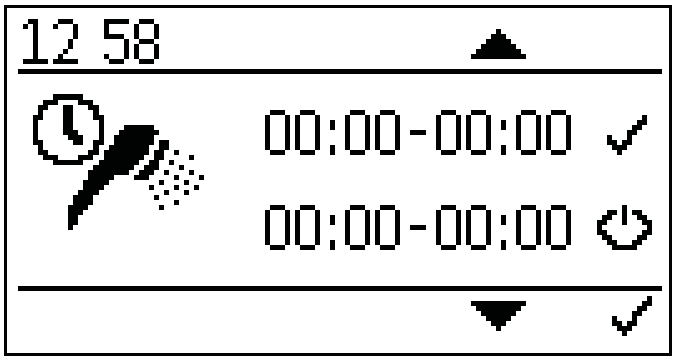
– button



Setting the DHW set temperature.

The DHW set temperature can be set in the range of 30° C to 75° C.

– button

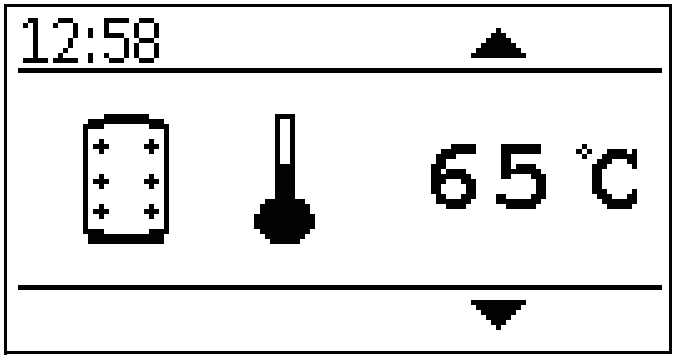


Setting the time programm of the DHW.

By pressing the start and stoptime appear.

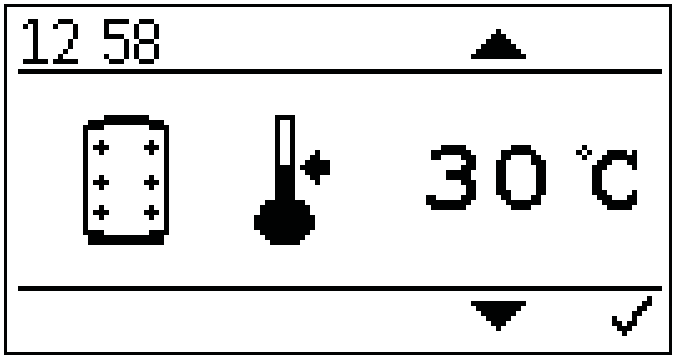
Activate the times with

– button



Display current accumulator temperature.

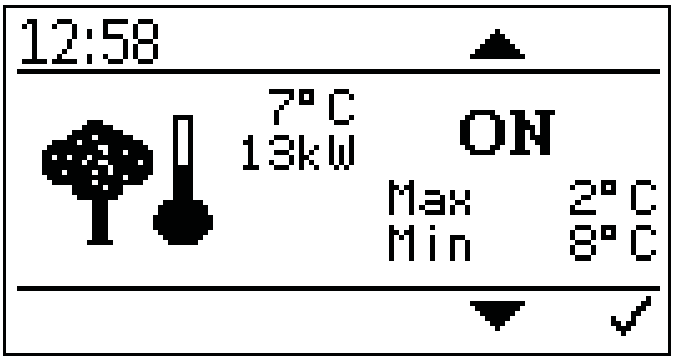
– button



Setting the accumulator set temperature.

The accumulator set temperature can be set in the range of 30° C to 75° C.

– button



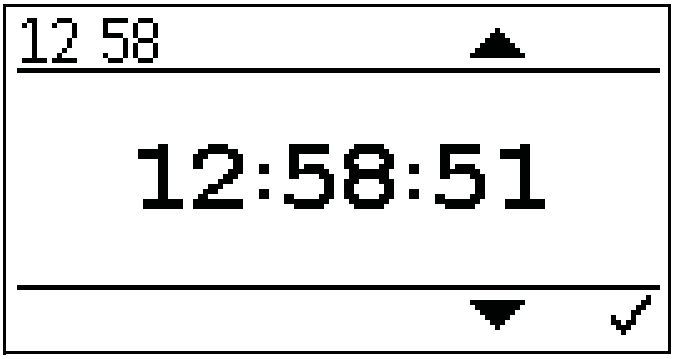
Setting Outertemperature control.

Here you can set the temperature values for the maximum and minimum boiler rating.

Adjustment range max. rated power -10° C bis +6° C

Adjustment range min. power +7° C bis +25° C

– button

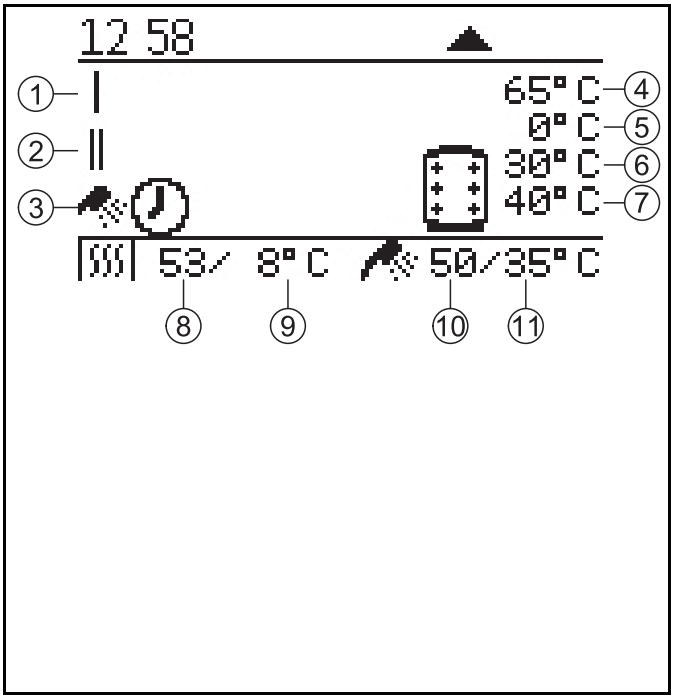


Setting current time.

Press  and  to set the current time.

Confirm with ✓.

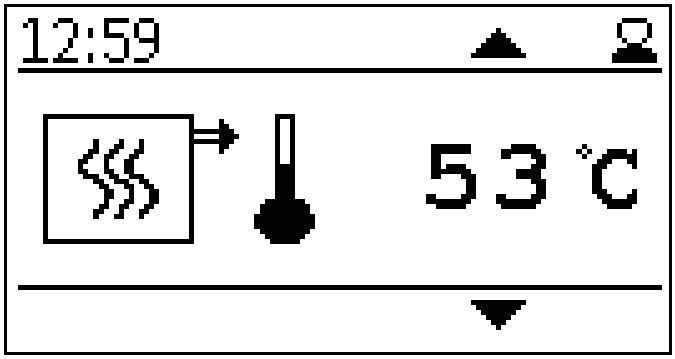
– button



Display of current boiler status.

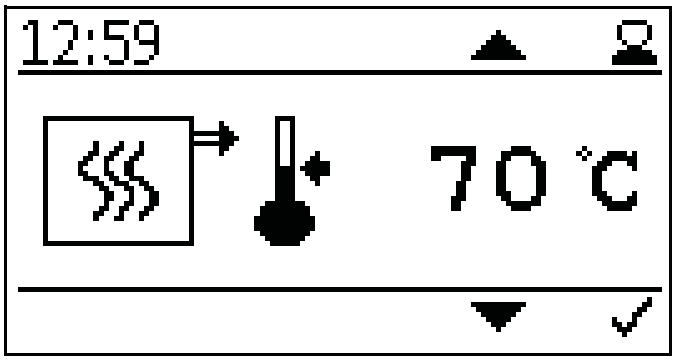
1	Heating circuit 1	7	Accumulator set temperature
2	Heating circuit 2	8	Current boiler temperature
3	DHW	9	Boiler set temperature
4	Current accumulator temperature	10	Current DHW temperature
5	currently demanded accumulator set temperature from the boiler (depending on current demand)	11	DHW set temperature
6	Pump on temperature		

After code input:



Display of the current boiler temperature

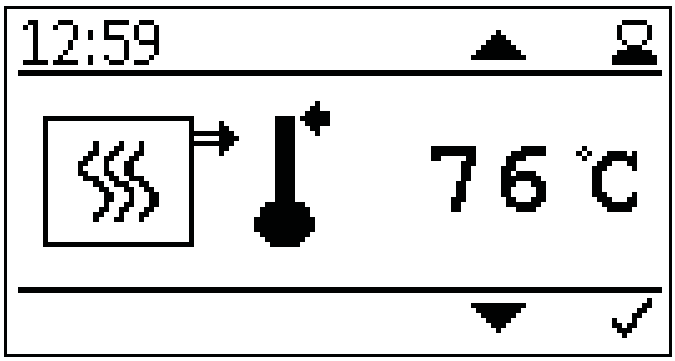
– button



Setting the boiler set temperature.

The boiler set temperature can be set in the range of 70° C to 90° C if a higher boiler temperature requirement or a larger modulation range is required.

– button

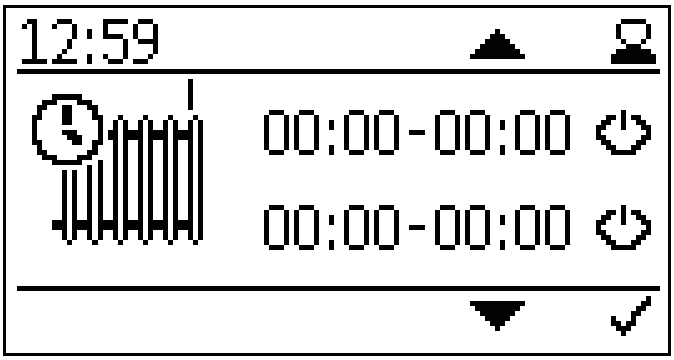


Setting of the boiler switch off temperature.

When the boiler switch off temperature is reached, the boiler switches off.

Note:
A too high switch off temperature.can cause the safety temperature limiter to release.

– button

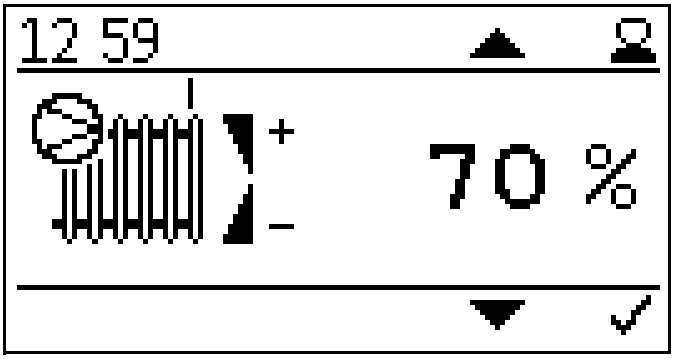


Setting the time programm of heating circuit 1.

By pressing the start and stoptime appear.

Activate the times with

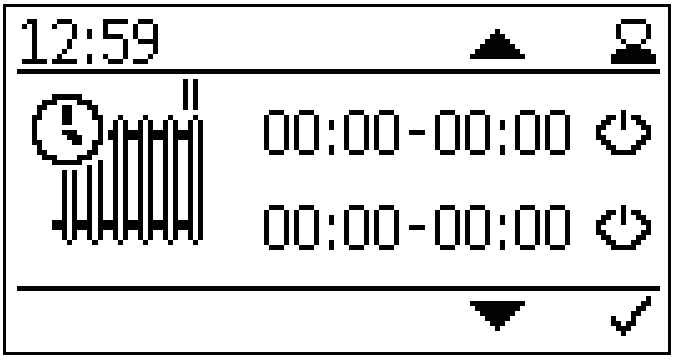
– button



Setting the power of heating circuit pump 1.

The power range can be set between 30 - 100%.
For normal use, a setting of 70% should be selected.
When adjusting too excessive noises can appear.

– button

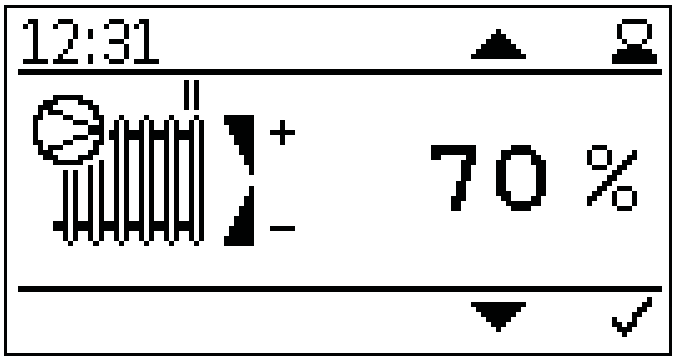


Setting the time programm of heating circuit 2.

By pressing the start and stoptime appear.

Activate the times with

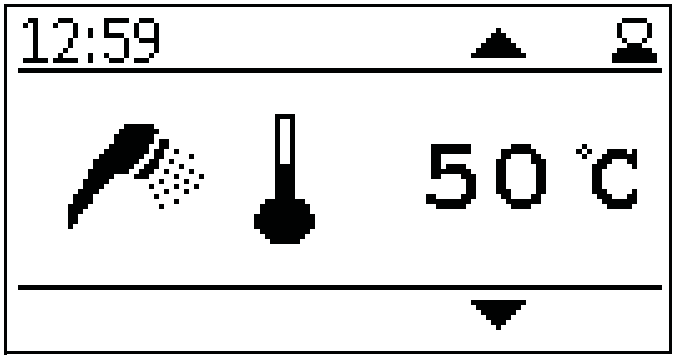
– button



Setting the power of heating circuit pump 2.

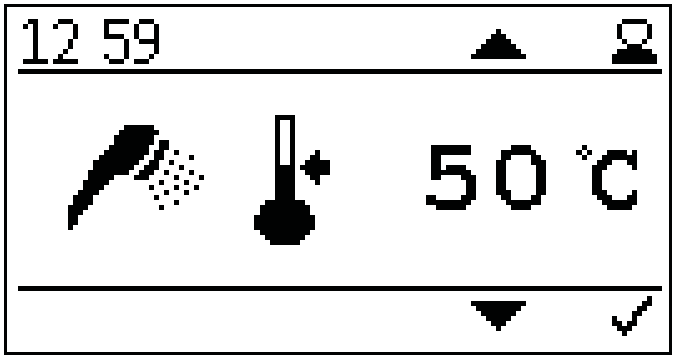
The power range can be set between 30 - 100%.
For normal use, a setting of 70% should be selected.
When adjusting too excessive noises can appear.

– button



Display of the current DHW temperature.

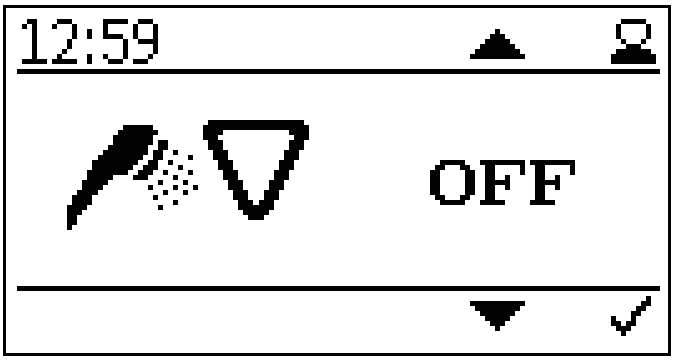
– button



Setting the DHW set temperature.

The DHW set temperature can be set in the range of 30° C to 75° C.

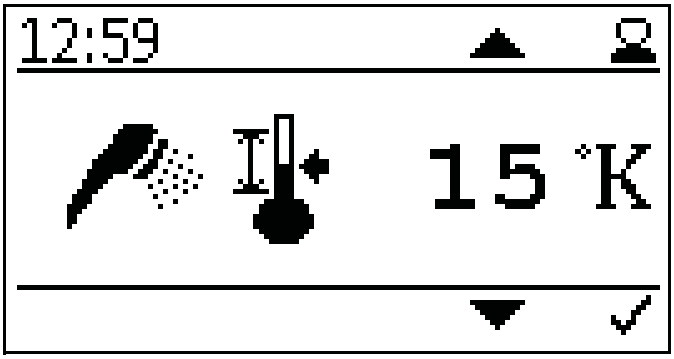
– button



Setting DHW priority.

During the hot water times, the heating circuits are only switched on when no hot water is demanded.

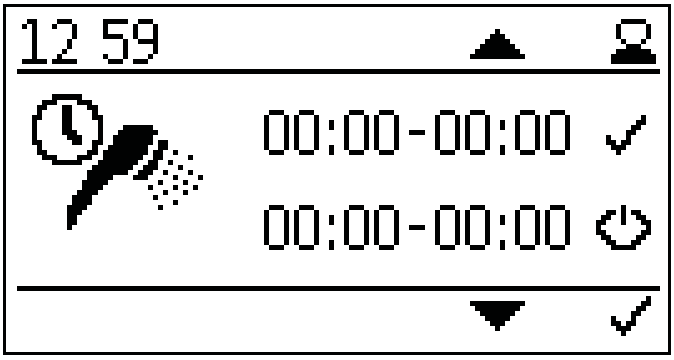
– button



Setting DHW hysteresis.

The DHW hysteresis can be set between 5K and 20 K.

– button

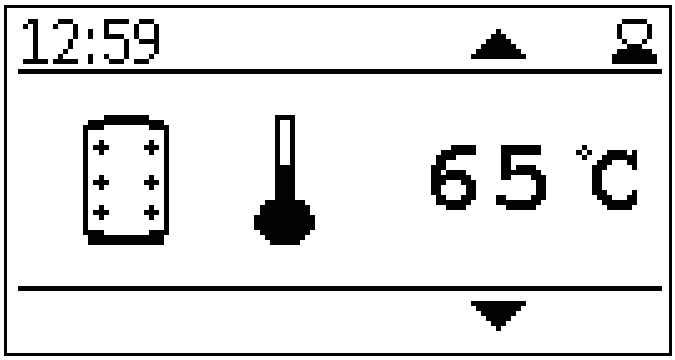


Setting the time programm of the DHW.

By pressing the start and stoptime appear.

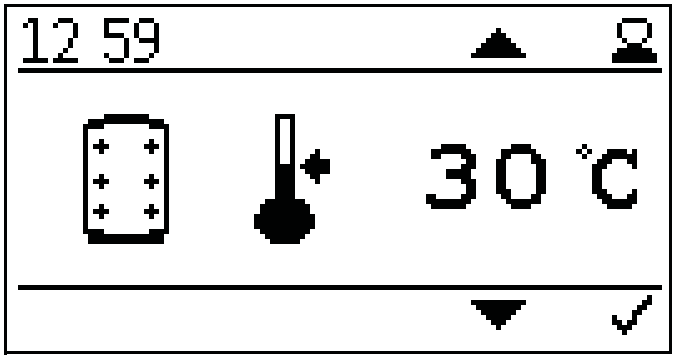
Activate the times with

– button



Display current accumulator temperature.

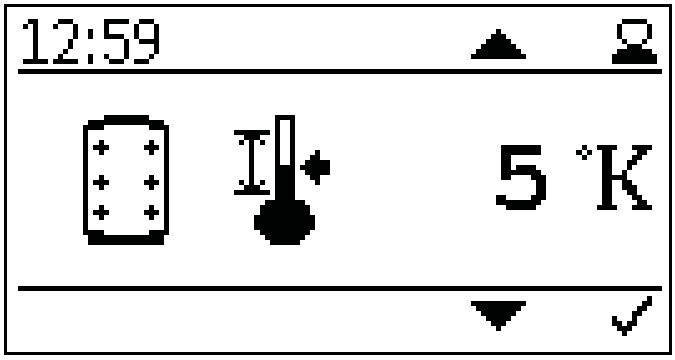
– button



Setting the accumulator set temperature.

The accumulator set temperature can be set in the range of 30° C to 75° C.

– button

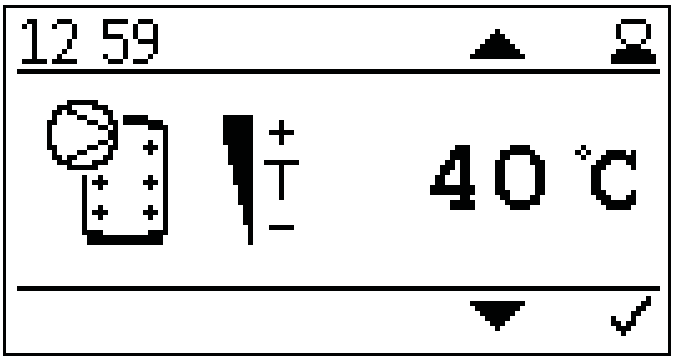


Setting hysteresis Accumulator set temperature.

The accumulator hysteresis can bet set between 5 K and 20 K.

The boiler switches on when the difference of the set temperature is higher than adjusted.

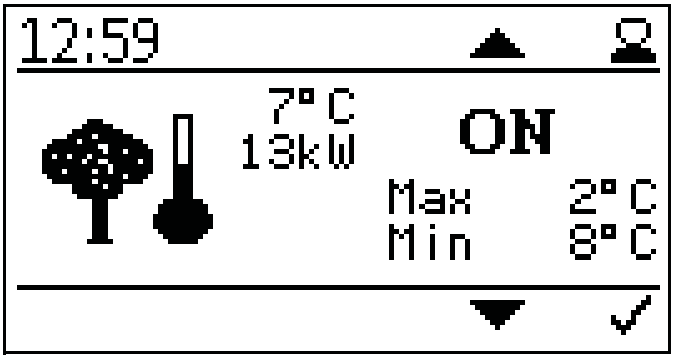
– button



Setting pump release temperature of the heating circuit.

The pump release temperature can be set between 10° C and 80° C.
If the temperature is too low, the DHW reserve outside the DHW time program may be limited.

– button



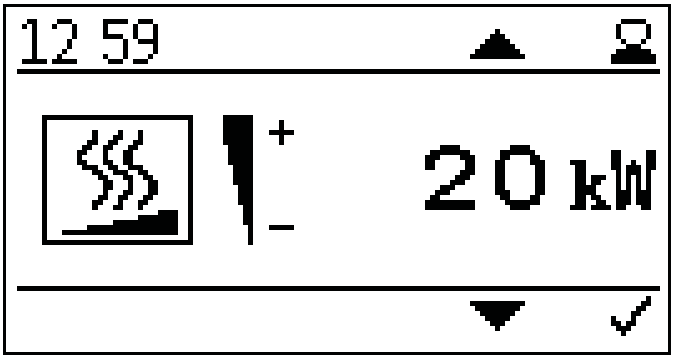
Setting Outertemperature control.

Here you can set the temperature values for the maximum and minimum boiler rating.

Adjustment range max. rated power -10° C bis +6° C

Adjustment range min. power +7° C bis +25° C

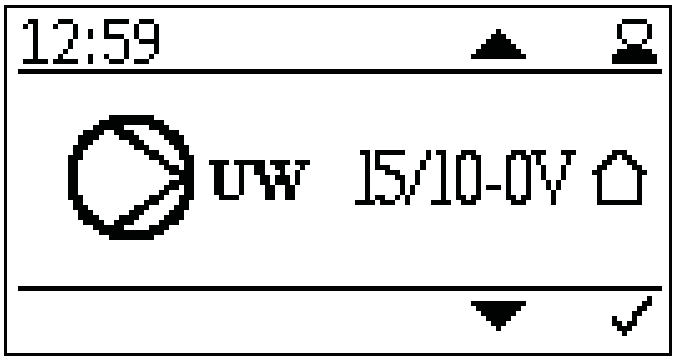
– button



Setting boiler rated power.

Enter the desired rated output of the boiler to make a more accurate setting.
This will improve boiler runtime and modulation.

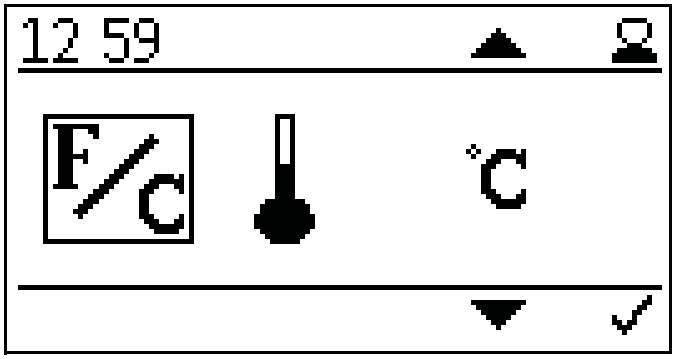
– button



Settings pumptype:

- Heating efficient PWM1 - PWM signal inverted
- Asynchronus pump – direct output 230VAC on/off
- Heating efficient PWM 2 – PWM signal direct or Heating efficient pump analog 0-10 V

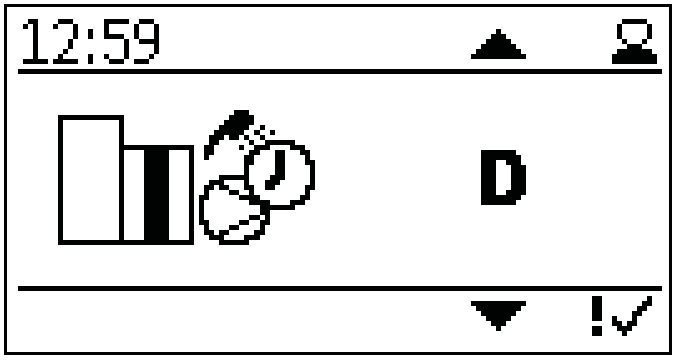
– button



Setting temperature unit.

- ° Celsius
- ° Fahrenheit

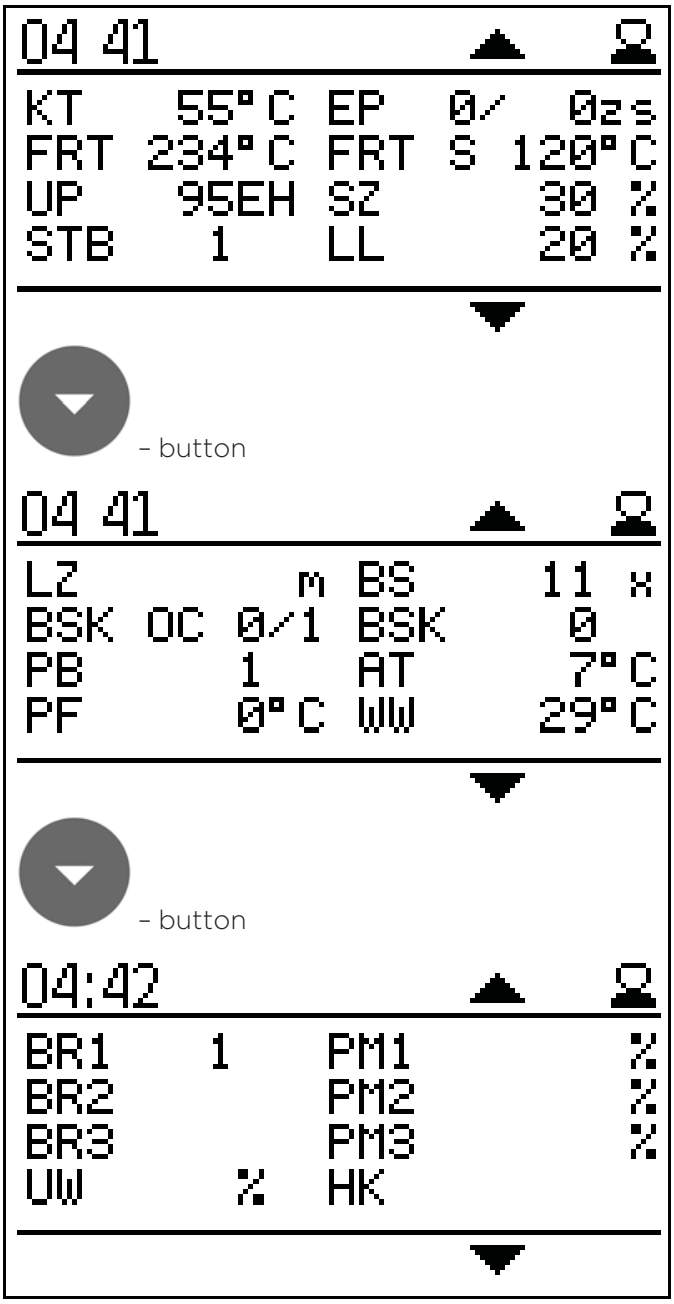
– button



Setting operation mode.

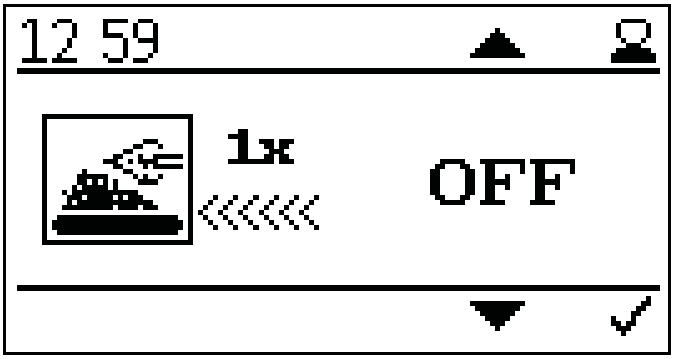
Changing the operation mode.

– button



Display of the current values.

- **KT:** Boiler temperature
- **FRT:** Combustion chamber temperature
- **UP:** Negative draft
- **STB:** Safety temperature sensor
- **EP:** Supply/Pause time
- **FRT S:** Set combustion chamber temp
- **SZ:** Flue gas fan
- **LL:** Burner fan
- **LZ:** Run time
- **BSK OC:** Flame return gate open / closed
- **PB:** Pellet hopper casing cover
- **PF:** Accumulator sensor
- **BS:** Burner starts
- **BSK:** Flame return gate open Set
- **AT:** Outside temperature sensor
- **WW:** DHW
- **BR1:** Burner / thermostat contact Z26
- **BR2:** Burner / thermostat contact Z27
- **BR3:** Burner / thermostat contact Z28
- **UW:** Output for pump UW 230V
- **PM1:** Pump output PWM-signal Z38
- **PM2:** Pump output PWM-signal Z39
- **PM3:** Pump output PWM-signal Z40
- **HK:** Output for pump HK 230V

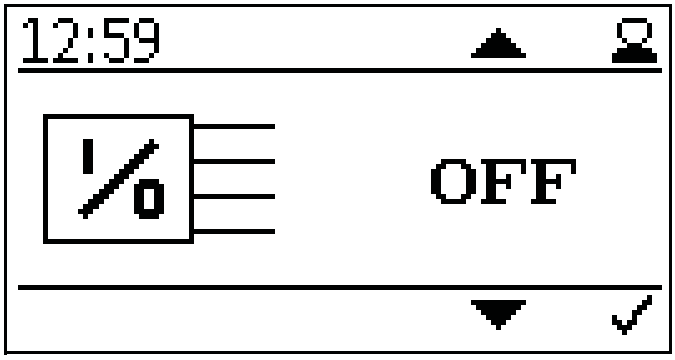


Extended supply.

When this action is activated, the pellets will be inserted 3x longer with the next ignition than standard.

This function is automatically reset after a single activation and serves for quicker ignition when the burner auger is empty.

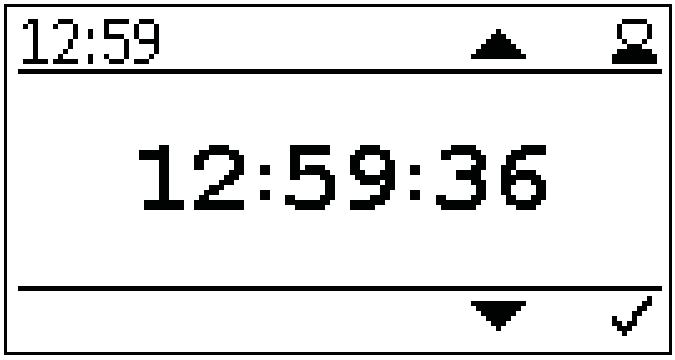
– button



Output test.

The Output Test serves to check all connected.

– button

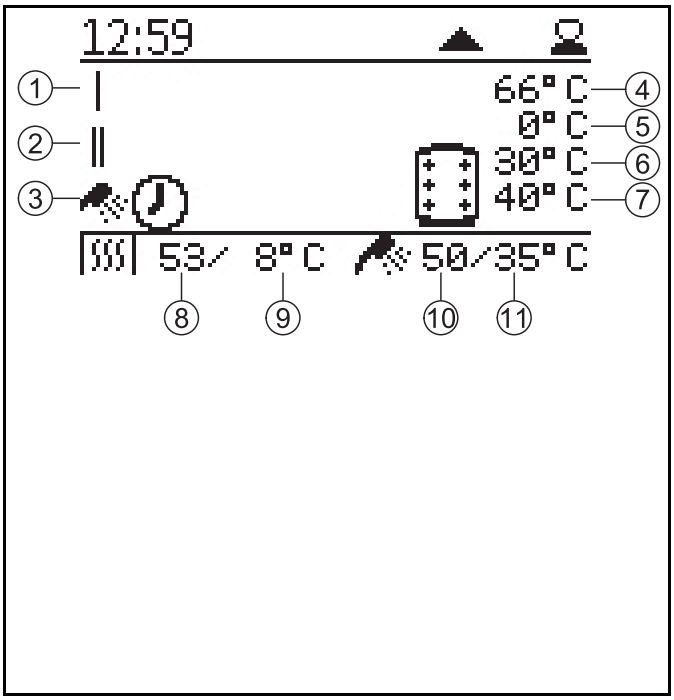


Setting current time.

Press and to set the current time.

Confirm with .

– button



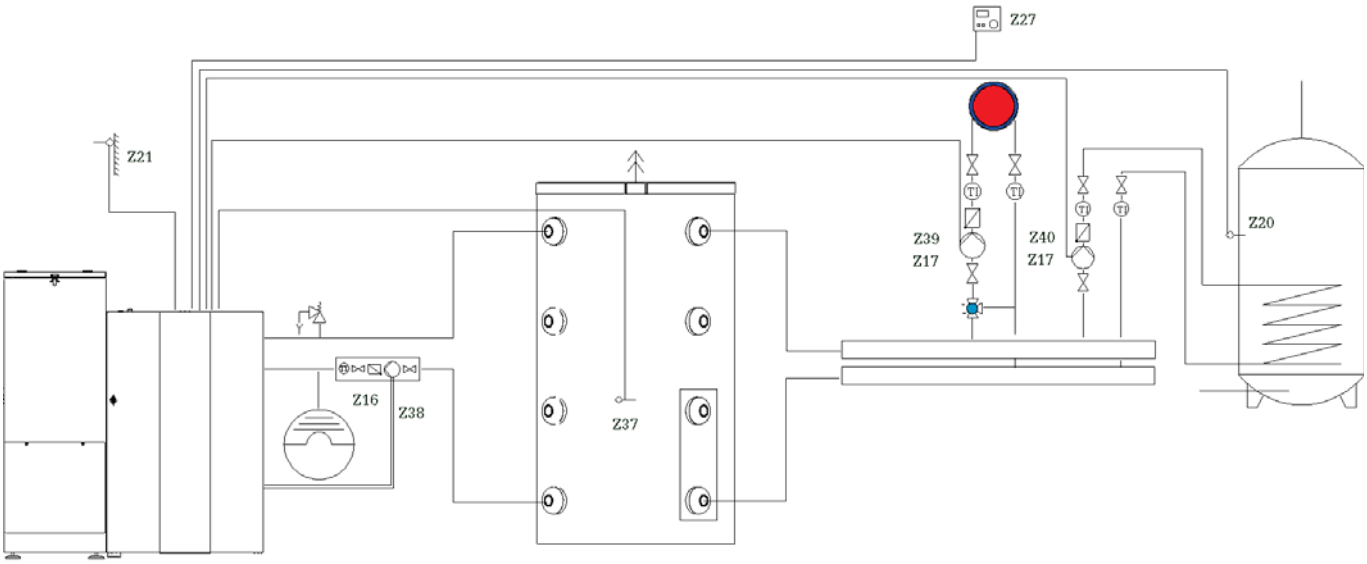
Display of current boiler status.

1	Heating circuit 1	7	Accumulator set temperature
2	Heating circuit 2	8	Current boiler temperature
3	DHW	9	Boiler set temperature
4	Current accumulator temperature	10	Current DHW temperature
5	currently demanded accumulator set temperature from the boiler (depending on current demand)	11	DHW set temperature
6	Pump on temperature		

12.6 Version E

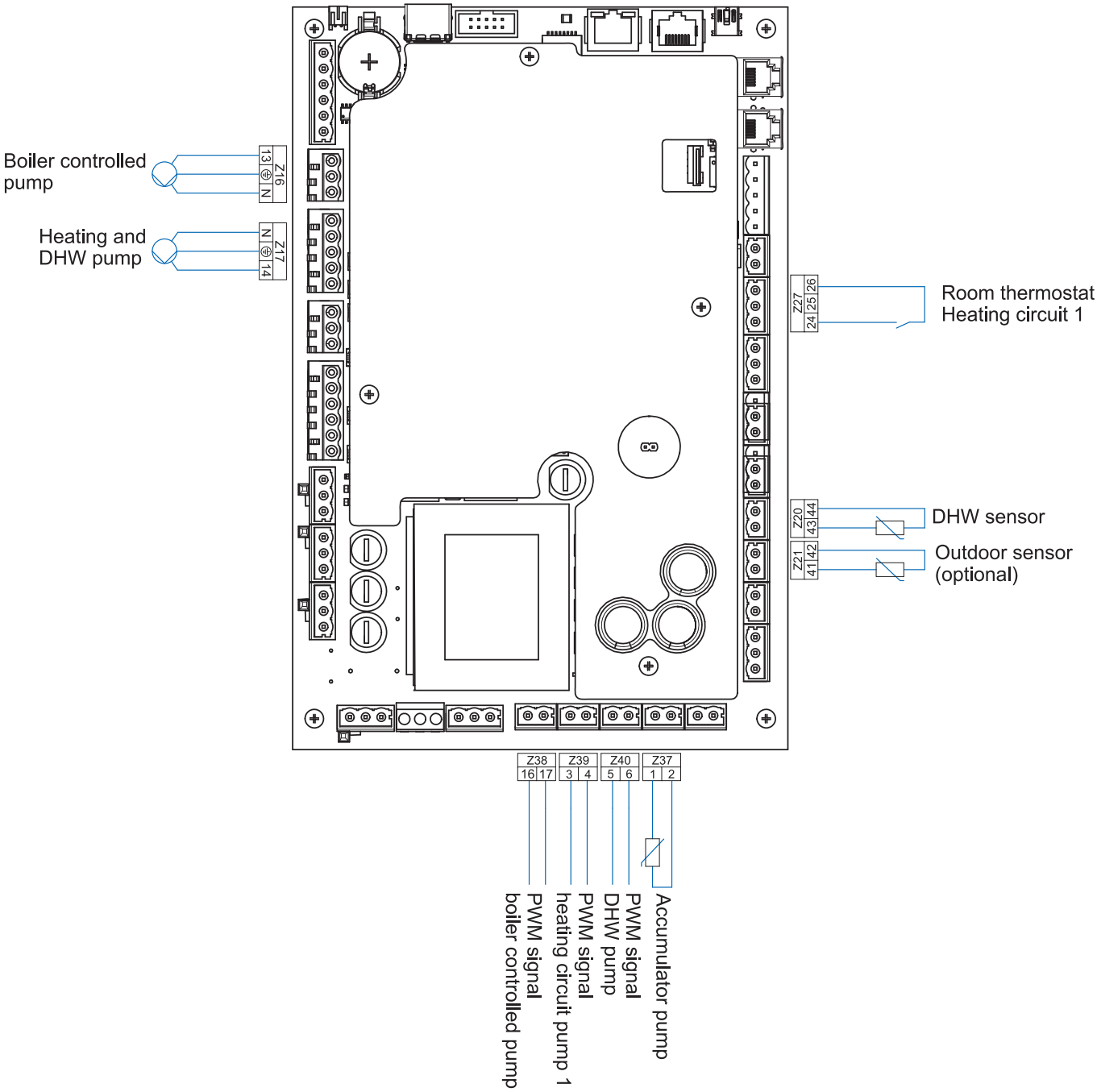
The accumulator sensor is connected to terminal Z37.
The set accumulator temperature regulates the burner demand. The pump output X16 (UW) and X38 (PWM) are used for the boiler controlled pump, which is not active below 60° C.
A room thermostat can be connected via input Z27. This room thermostat controls the heating circuit via pump output Z17 (HK) and output X39.
The DHW is regulated in a warm water boiler via the sensor Z20 and the pump Z40-Z17, the DHW sensor (Z20) is attached to the warm water boiler.
The residual heat of the boiler is loaded into the accumulator.

Hydraulic diagram version E:



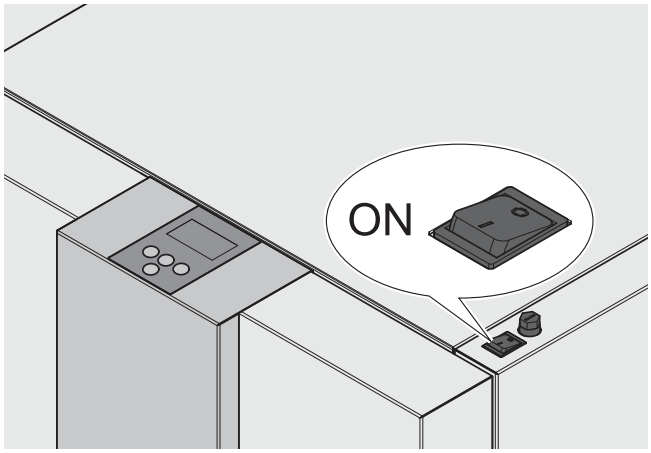
Heat consumers are shown symbolically
and can be substituted by others!

Wiring diagram version E:

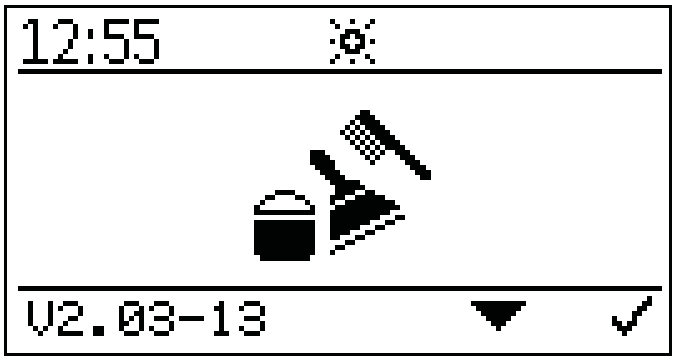


Note:
The total line length of the heating circuit pumps must not exceed 100 m!

12.6.1 Commissioning controller version E

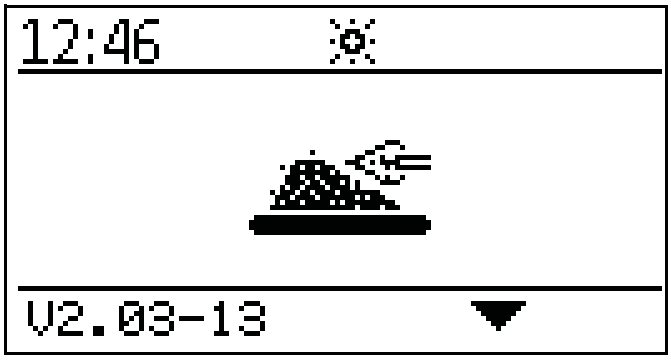


After switching on, the boiler starts (after approx. 10 seconds).
The fire protection device is opened.



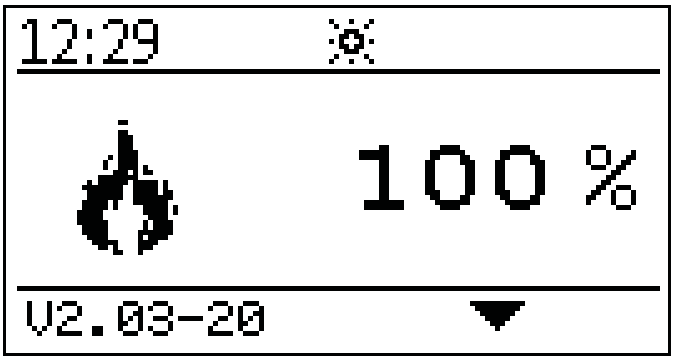
This symbol appears on the display while the fire protection device is being opened (approx. 2 minutes).

– button



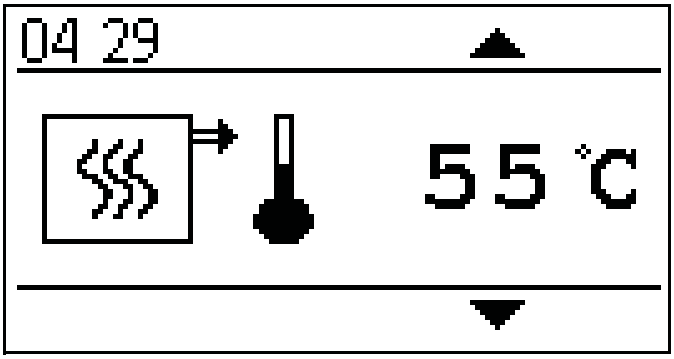
After the fire protection device has been opened, the ignition process starts and the symbol for ignition is displayed.

– button



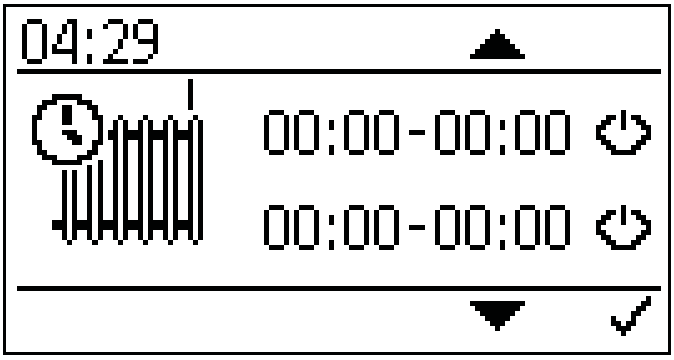
On completion of the ignition process (can last up to 15 minutes), the symbol for heating at full power appears. The boiler is now heating at full power.

– button



Display of the current boiler temperature

– button

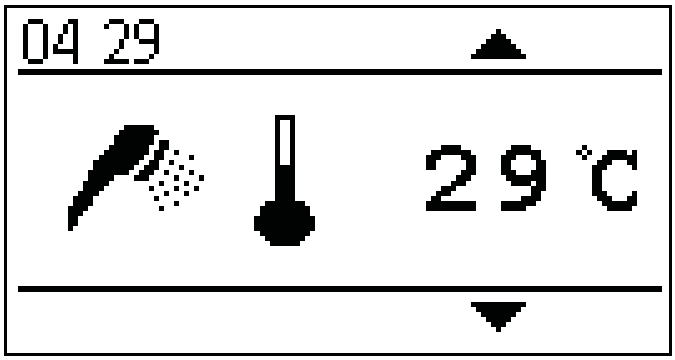


Adjusting the time programme of the heating circuit 1.

By pressing  the start and stoptime appear.

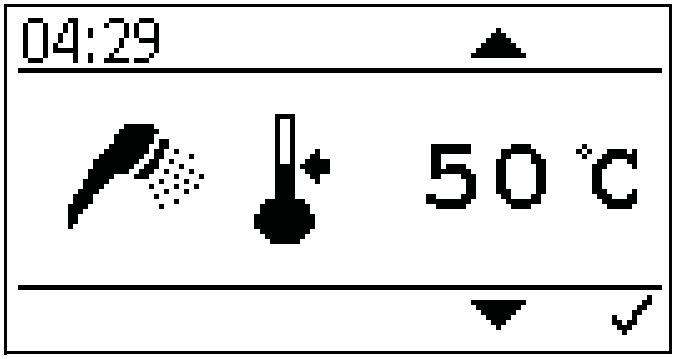
Activate the times with 

– button



Display of the current DHW temperature.

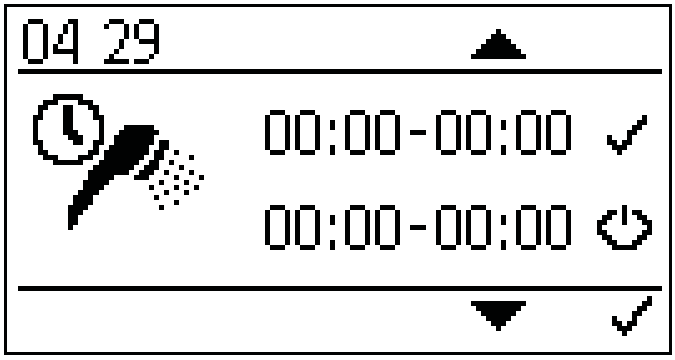
– button



Setting the DHW set temperature.

The DHW set temperature can be set in the range of 30° C to 75° C.

– button

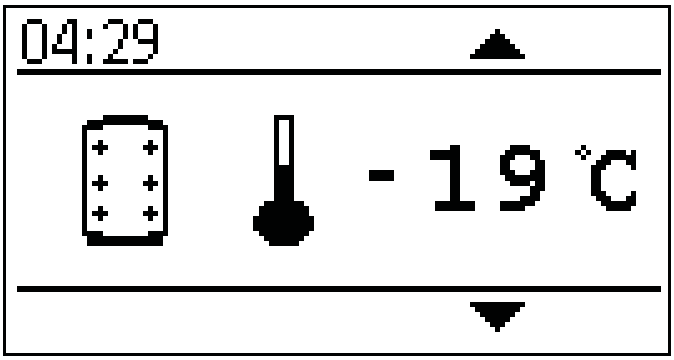


Setting the time programm of the DHW.

By pressing the start and stoptime appear.

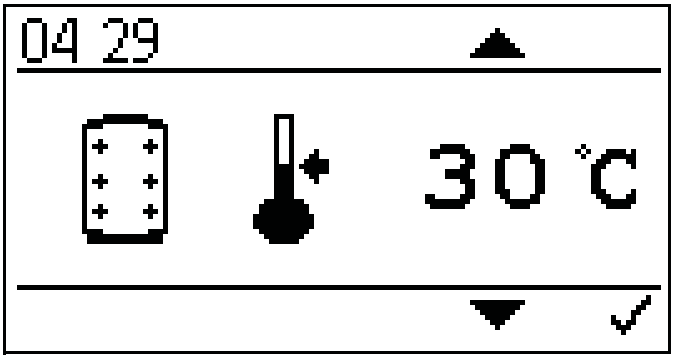
Activate the times with

– button



Display current accumulator temperature.

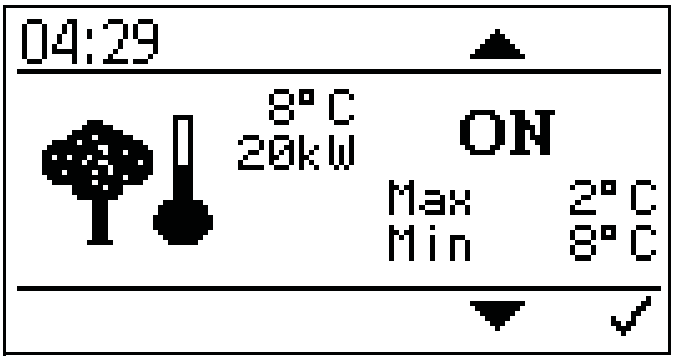
– button



Setting the accumulator set temperature.

The accumulator set temperature can be set in the range of 30° C to 75° C..

– button



Setting Outertemperature control.

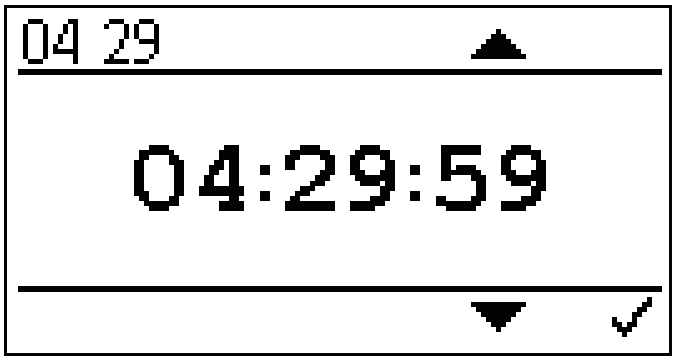
Here you can set the temperature values for the maximum and minimum boiler rating.

Adjustment range max. rated power -10° C bis +6° C

Adjustment range min. power +7° C bis +25° C

.

– button

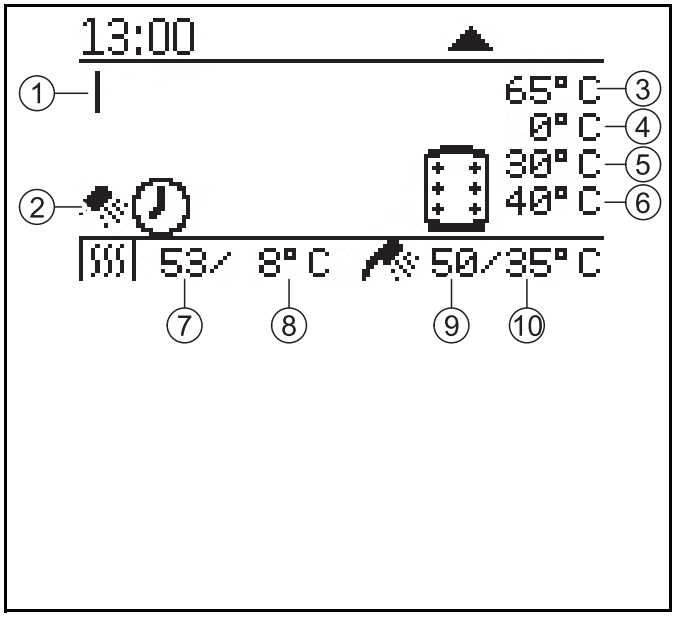


Setting current time.

Press ▲ and ▼ to set the current time.

Confirm with ✓.

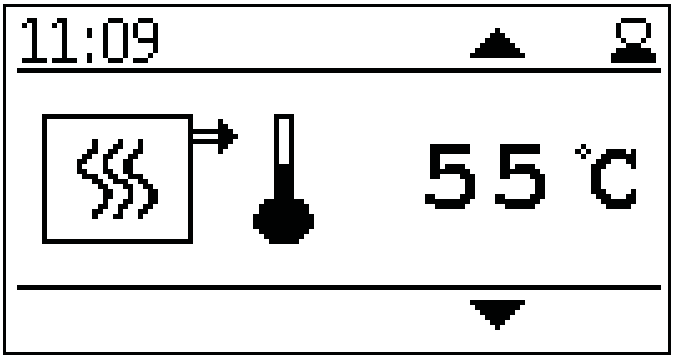
▼ – button



Display of current boiler status.

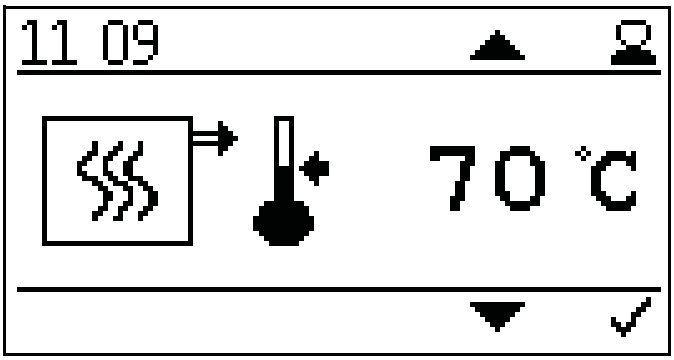
1	Heating circuit 1	6	Accumulator set temperature
2	DHW	7	Current boiler temperature
3	Current accumulator temperature	8	Boiler set temperature
4	currently demanded accumulator set temperature from the boiler (depending on current demand)	9	Current DHW temperature
5	Pump on temperature	10	DHW set temperature

After code input:



Display of the current boiler temperature

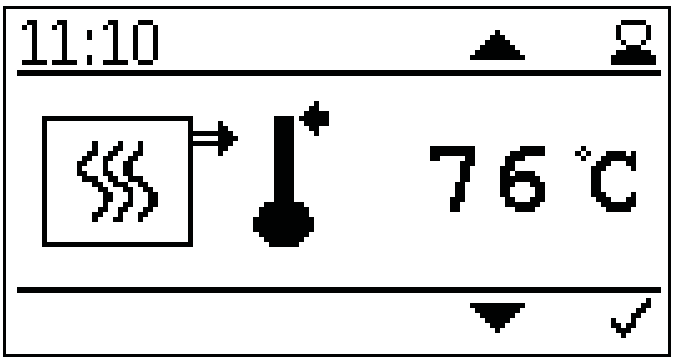
– button



Setting the boiler set temperature.

The boiler set temperature can be set in the range of 70° C to 90° C if a higher boiler temperature requirement or a larger modulation range is required.

– button

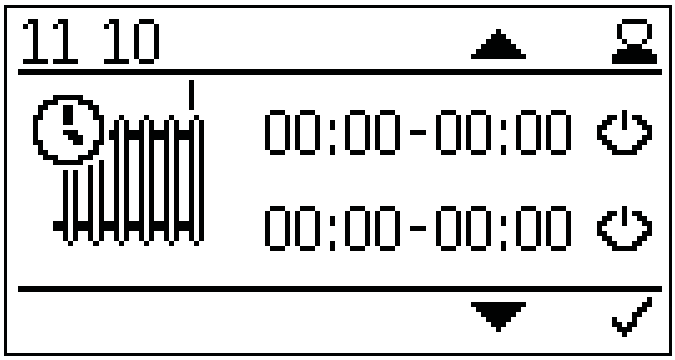


Setting of the boiler switch off temperature.

When the boiler switch off temperature is reached, the boiler switches off.

Note:
A too high switch off temperature.can cause the safety temperature limiter to release.

– button

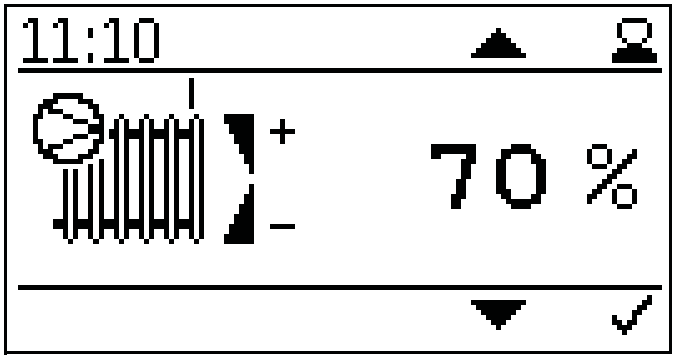


Setting the time programm of heating circuit 1.

By pressing the start and stoptime appear.

Activate the times with

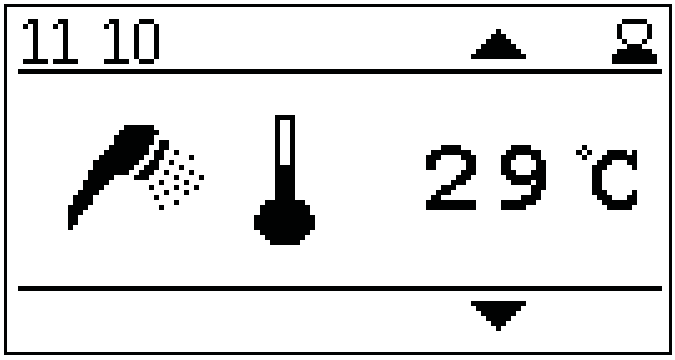
– button



Setting the power of heating circuit pump 1.

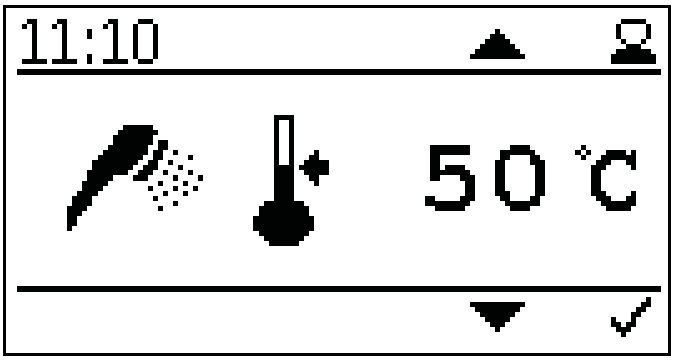
The power range can be set between 30 - 100%.
For normal use, a setting of 70% should be selected.
When adjusting too excessive noises can appear.

– button



Display of the current DHW temperature.

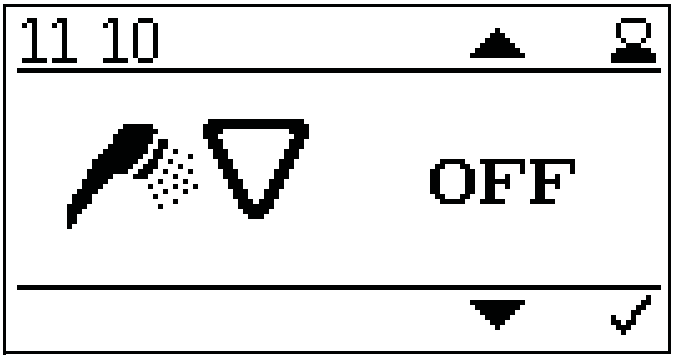
– button



Setting the DHW set temperature.

The DHW set temperature can be set in the range of 30° C to 75° C.

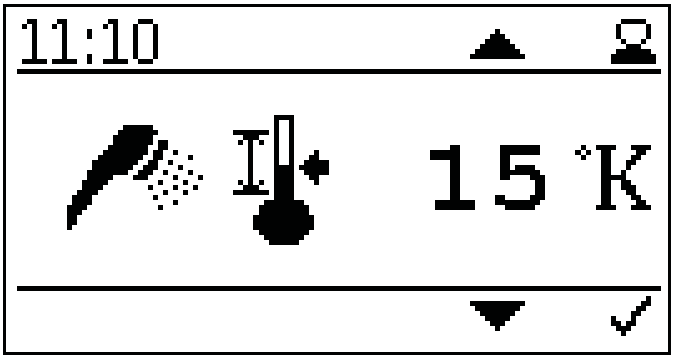
– button



Setting DHW priority.

During the hot water times, the heating circuits are only switched on when no hot water is demanded.

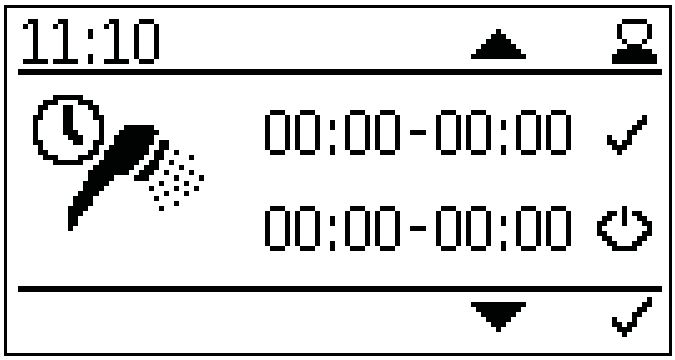
– button



Setting DHW hysteresis.

The DHW hysteresis can be set between 5K and 20 K.

– button

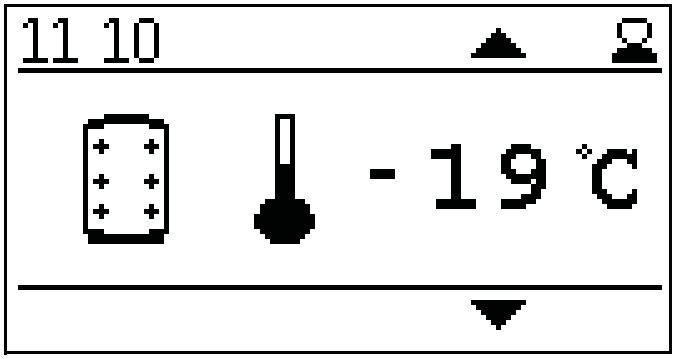


Setting the time programm of the DHW.

By pressing the start and stoptime appear.

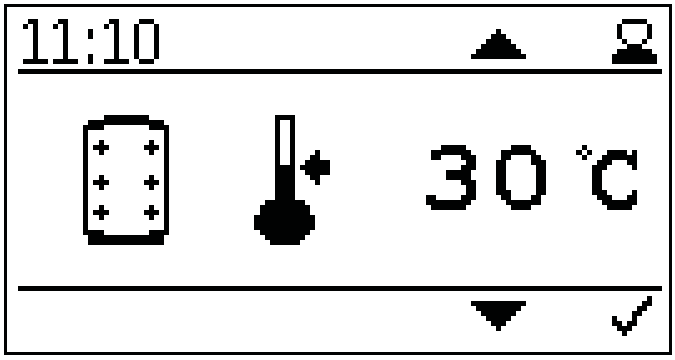
Activate the times with

– button



Display current accumulator temperature.

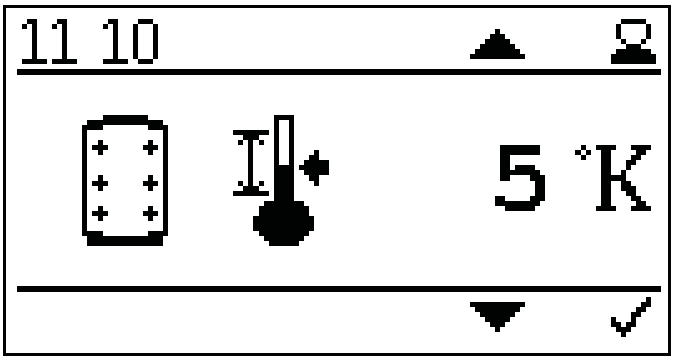
– button



Setting the accumulator set temperature.

The accumulator set temperature can be set in the range of 30° C to 70° C.

– button

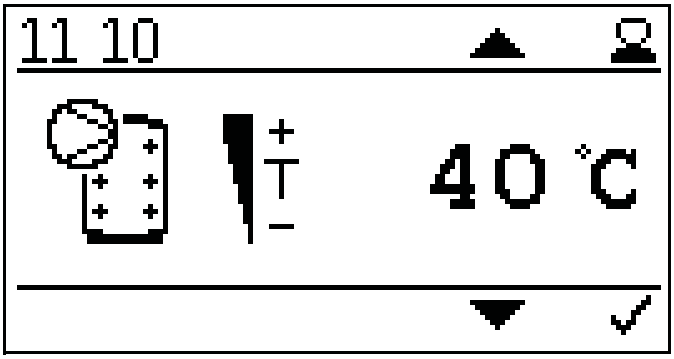


Setting hysteresis Accumulator set temperature.

The accumulator hysteresis can bet set between 5 K and 20 K.

The boiler switches on when the difference of the set temperature is higher than adjusted.

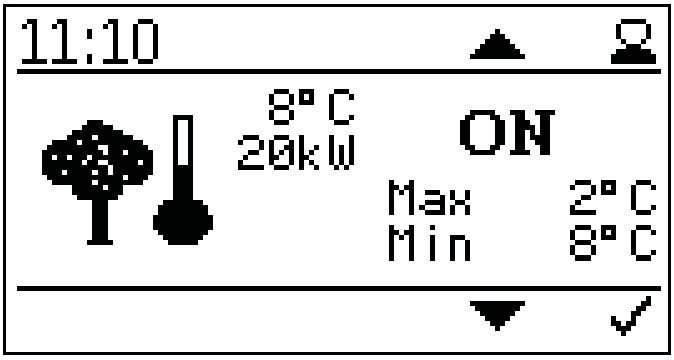
– button



Setting pump release temperature of the heating circuit.

The pump release temperature can be set between 10° C and 80° C.
If the temperature is too low, the DHW reserve outside the DHW time program may be limited.

– button



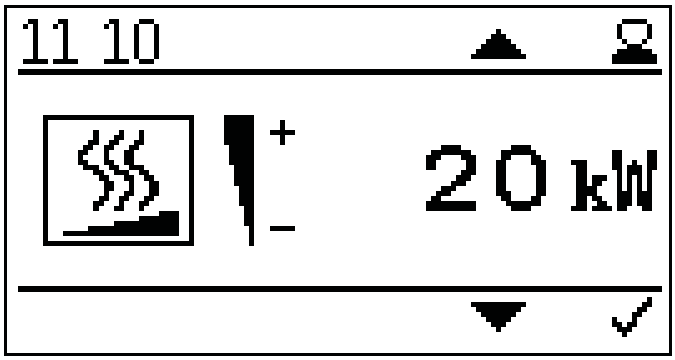
Setting Outertemperature control.

Here you can set the temperature values for the maximum and minimum boiler rating.

Adjustment range max. rated power -10° C bis +6° C

Adjustment range min. power +7° C bis +25° C

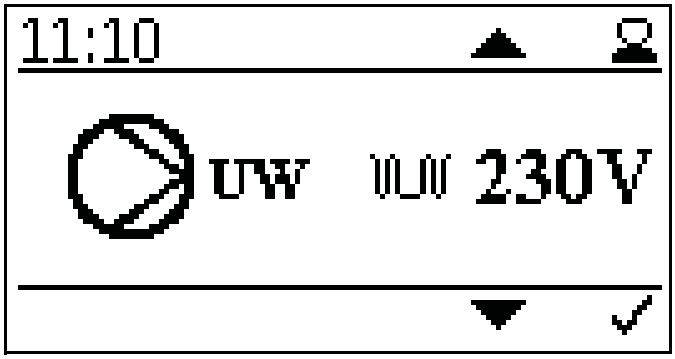
– button



Setting boiler rated power.

Enter the desired rated output of the boiler to make a more accurate setting.
This will improve boiler runtime and modulation.

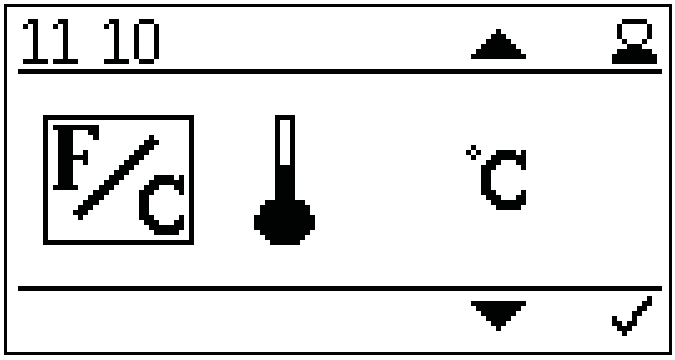
– button



Settings pumptype:

- Heating efficient PWM1 - PWM signal inverted
- Asynchronus pump – direct output 230VAC on/off
- Heating efficient PWM 2 – PWM signal direct or Heating efficient pump analog 0-10 V

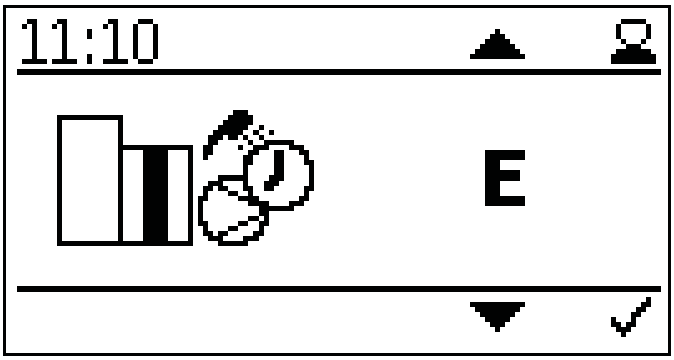
– button



Setting temperature unit.

- ° Celsius
- ° Fahrenheit

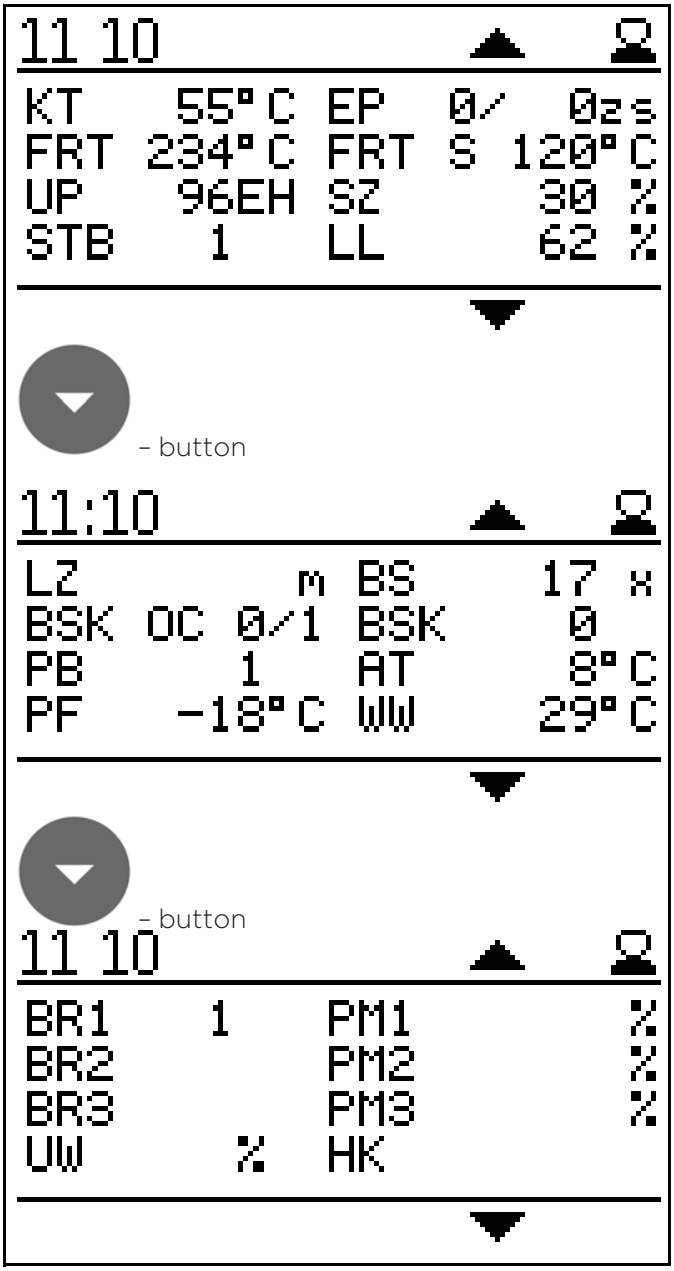
– button



Setting operation mode.

Changing the operation mode.

– button



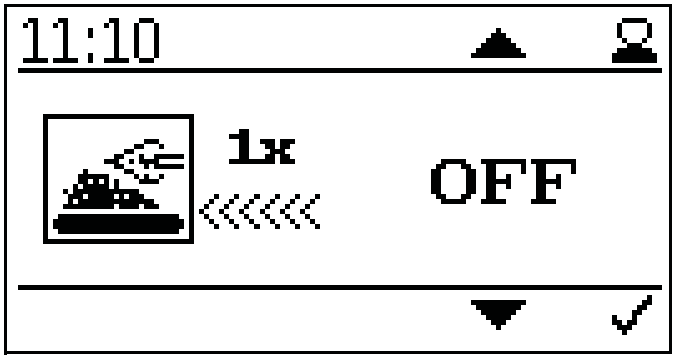
– button

– button

Display of the current values.

- **KT:** Boiler temperature
- **FRT:** Combustion chamber temperature
- **UP:** Negative draft
- **STB:** Safety temperature sensor
- **EP:** Supply/Pause time
- **FRT S:** Set combustion chamber temp
- **SZ:** Flue gas fan
- **LL:** Burner fan
- **LZ:** Run time
- **BSK OC:** Flame return gate open / closed
- **PB:** Pellet hopper casing cover
- **PF:** Accumulator sensor
- **BS:** Burner starts
- **BSK:** Flame return gate open Set
- **AT:** Outside temperature sensor
- **WW:** DHW
- **BR1:** Burner / thermostat contact Z26
- **BR2:** Burner / thermostat contact Z27
- **BR3:** Burner / thermostat contact Z28
- **UW:** Output for pump UW 230V
- **PM1:** Pump output PWM-signal Z38
- **PM2:** Pump output PWM-signal Z39
- **PM3:** Pump output PWM-signal Z40
- **HK:** Output for pump HK 230V

– button

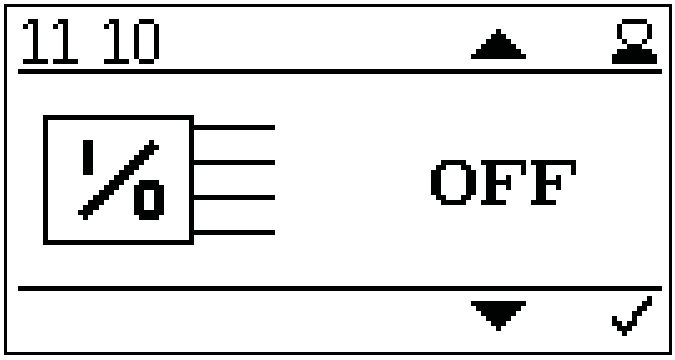


Extended supply.

When this action is activated, the pellets will be inserted 3x longer with the next ignition than standard.

This function is automatically reset after a single activation and serves for quicker ignition when the burner auger is empty.

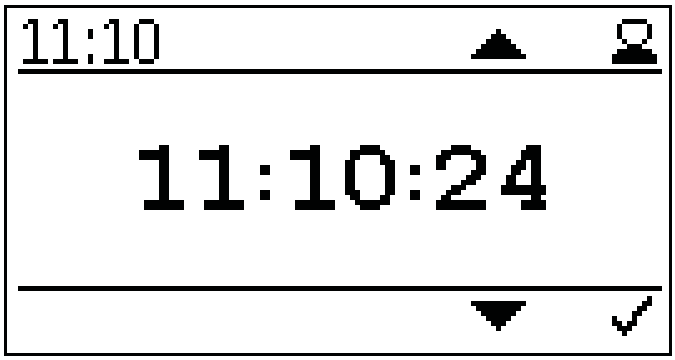
– button



Output test.

The Output Test serves to check all connected.

– button

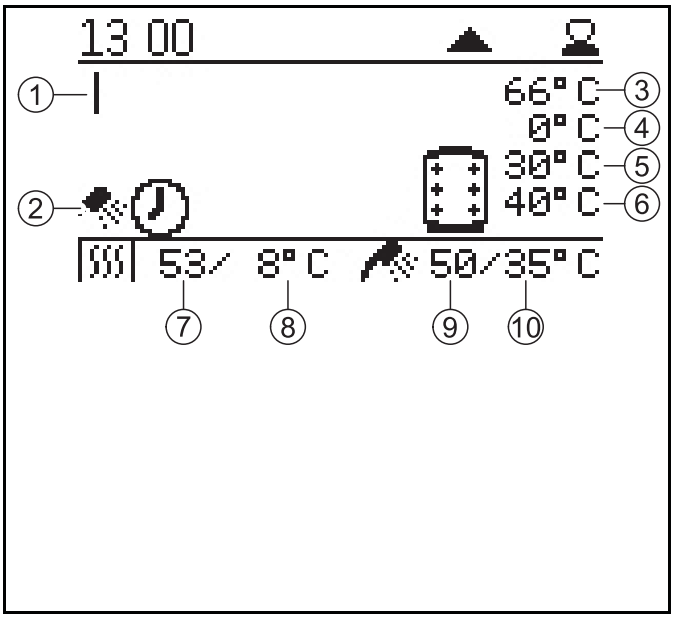


Setting current time.

Press and to set the current time.

Confirm with .

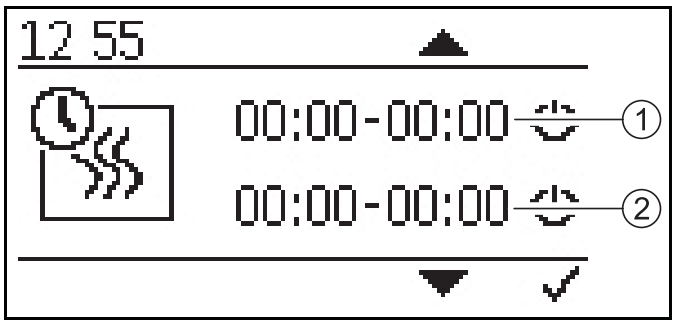
– button



Display of current boiler status.

1	Heating circuit 1	6	Accumulator set temperature
2	DHW	7	Current boiler temperature
3	Current accumulator temperature	8	Boiler set temperature
4	currently demanded accumulator set temperature from the boiler (depending on current demand)	9	Current DHW temperature
5	Pump on temperature	10	DHW set temperature

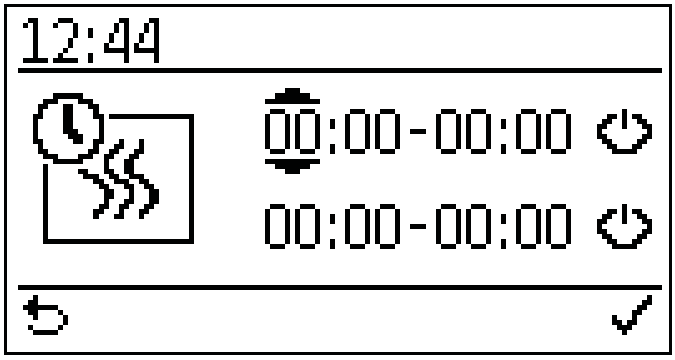
13 Setting the time program



1. Heating period 1
2. Heating period 2

Press the confirm button to request a change, then use the arrow key to select the desired value and select it with the confirmation button.

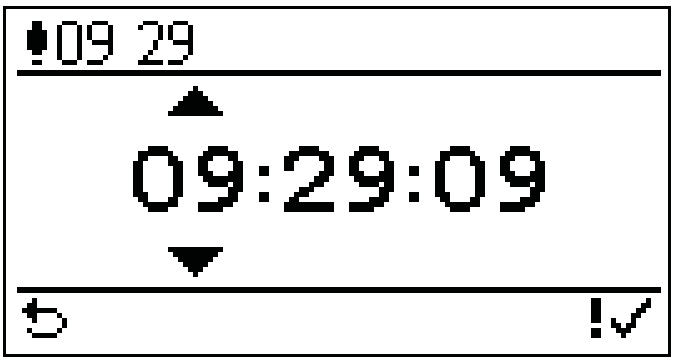
– button



The value can be raised or lowered by pressing the keys  .

– button = save value

14 Setting the time



The current time is displayed.

Note:
The setting of the time is analog to the setting of the time programes!

15 Default values and settings

	Default	Minimum	Maximum
Pump type – Boiler controlled pump	Energy-efficient	–	–
Boiler control temperature	70° C	70° C	90° C
Switch off temperature	76° C	76° C	95° C
Outdoor sensor min power	8° C	7° C	25° C
Outdoor sensor max power	2° C	-10° C	6° C
Boiler power rating	16 / 20 / 25 / 32	10 / 21kW	20 / 32 kW
PWM pump	70 %	30 %	100 %
DHW set temperature	50° C	30° C	75° C
DHW hysteresis	15° C	5° C	20° C
Accumulator set temperature	30° C	30° C	75° C
Accumulator hysteresis	5	5	20
Pump on temp (accumulator mode)	40° C	10° C	80° C

16 Malfunctions

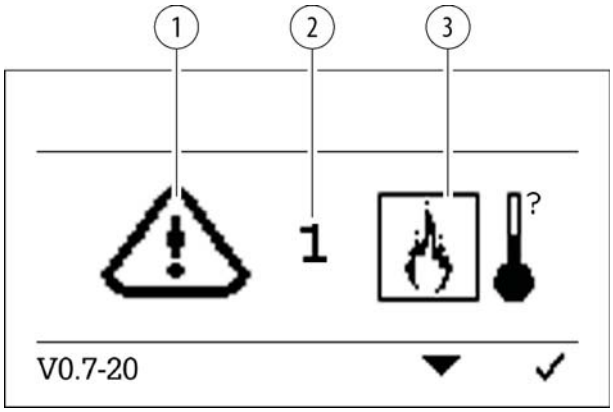
16.1 Malfunctions - what to do

Follow the sequence described for handling malfunctions.

- The heating system switches off automatically if a malfunction occurs.
- The control unit display shows a malfunction alarm text.
- You have to rectify the cause of the malfunction.
- After eliminating the underlying causes, you can restart the boiler.

16.2 Fault texts

The fault text displayed on the screen provides information on the type and status of the malfunction as well as help for troubleshooting.



1. Warning symbol
2. Error code
3. Error symbol

Note:
The system restarts automatically when the cause has been eliminated.

Overview of malfunction alarm texts:

Display:			
Error code:	0		
Description:	Boiler sensor fracture, measuring circuit from boiler sensor is open		
Cause and Remedy:	sensor not connected	►	connect sensor at input
	sensor defect	►	measure sensor (approx. 2kΩ at 25° C) replace if required
	sensor cable defect	►	replace sensor
	sensor temperature too high	►	sensor temperature above measuring range (1100° C)
Description:	Boiler sensor short circuit, measuring circuit from boiler sensor is shorted out		
Cause and Remedy:	sensor defect	►	measure sensor (approx. 2kΩ at 25° C) replace if required
	sensor cable defect	►	replace sensor
	sensor temperature too low	►	sensor temperature below measuring range (-10° C)

Display:			
Error code:	1, 2, 3		
Description:	Combustion chamber sensor fracture, measuring circuit from combustion chamber sensor is open		
Cause and Remedy:	sensor not connected	►	connect sensor at input
	sensor defect	►	Measure sensor (approx. 5mV at 125° C) replace if required
	sensor cable defect	►	replace sensor
	sensor temperature too high	►	sensor temperature above measuring range (1100° C)

Display:			
Error code:	4		
Description:	Negative draft input open, measuring circuit from negative draft measurement open		
Cause and Remedy:	signal incorrect	►	check polarity and signal (0-10V)
	signal cable defect	►	replace sensor
	signal too low	►	signal below 0V
	combustion chamber leak	►	check closure of boiler door
Error code:	5		
Description:	Negative draft input short-circuit, measuring circuit from negative draft measurement is shorted out		
Cause and Remedy:	signal incorrect	►	check polarity and signal (0-10V)
	signal cable defect	►	replace sensor
	signal too high	►	signal above 10V
Error code:	6		
Description:	Negative draft pressure in boiler is not achieved		
Cause and Remedy:	negative draft tube disconnected	►	connect up negative draft tube
	negative draft does not change	►	Check negative draft tube for leaks. Check flue gas tube for blockage.
	Negative draft pressure too low	►	Close boiler door, check tube to negative draft sensor, check whether boiler flue gas outlet is clear, check whether condensation heat exchanger is clear. Make sure flue gas fan is running.

Display:			
Error code:	7		
Description:	Safety temperature limiter has tripped		
Cause and Remedy:	safety temperature limiter unplugged	►	connect up safety temperature limiter and check cable connections
	safety temperature limiter has tripped	►	check boiler controller
	safety temperature limiter defect	►	allow boiler to cool and reset alarm

Display:			
Error code:	8, 9		
Description:	Combustion chamber minimum temperature not reached during ignition phase		
Cause and Remedy:	no pellets available	►	fill up with pellets
	ignition electrode defect	►	check ignition electrode (approx. 200Ω) replace if required
	ignition nozzle blocked	►	clean burner plate and ignition tube
	Combustion chamber sensor contaminated	►	clean combustion chamber sensor and fcombustion chamber tube
	Combustion chamber sensor is not inserted into tube	►	insert combustion sensor into combustion sensor tube
	Combustion chamber sensor short-circuit	►	Measure sensor (approx. 5mV at 125° C) replace if required

Display:			
Error code:	10		
Description:	Flame return gate open fault.		
Cause and Remedy:	flame return gate unplugged	►	Connect up flame return gate and check cable connections
	Flame return gate does not reach OPEN limit switch	►	check ball valve to see if it is jammed
	no signal although open	►	check cables and flame return gate
Error code:	11		
Description:	Flame return gate closed fault.		
Cause and Remedy:	flame return gate unplugged	►	Connect up flame return gate and check cable connections

	Flame return gate does not reach CLOSE limit switch	►	check whether ball valve is jammed, check ball valve throughway to see if foreign objects are preventing it from closing
	no signal although closed	►	check cables and flame return gate
Error code:	12		
Description:	Both flame return gate limit switches are closed at the same time		
Cause and Remedy:	both limit switches activated	►	check flame return gate, check cables, check connectors

Display:			
Error code:	14		
Description:	Container cover open		
Cause and Remedy:	Cover open	►	close cover
	End-switch defect	►	replace end-switch

Display:			
Error code:	15		
Description:	DHW sensor fracture, measuring circuit from DHW sensor is open		
Cause and Remedy:	sensor not connected	►	connect sensor at input
	sensor defect	►	measure sensor (approx. 2kΩ at 25° C) replace if required
	sensor cable defect	►	replace sensor
	sensor temperature too high	►	sensor temperature above measuring range (1100° C)
Description:	DHW sensor short circuit, measuring circuit from boiler sensor is shorted out		
Cause and Remedy:	sensor defect	►	measure sensor (approx. 2kΩ at 25° C) replace if required
	sensor cable defect	►	replace sensor
	sensor temperature too low	►	sensor temperature below measuring range (-10° C)

Display:			
Error code:	16		
Description:	Sensor break accumulator sensor, measuring circuit of acculmulator sensor is open		
Cause and Remedy:	sensor not connected	►	connect sensor at input
	sensor defect	►	measure sensor (approx. 2kΩ at 25° C) replace if required

	sensor cable defect	►	replace sensor
	sensor temperature too high	►	sensor temperature above measuring range (1100° C)
Description:	Accumulator sensor short circuit, measuring circuit from acculmulator sensor is shorted out		
Cause and Remedy:	sensor defect	►	measure sensor (approx. 2kΩ at 25° C) replace if required
	sensor cable defect	►	replace sensor
	sensor temperature too low	►	sensor temperature below measuring range (-10° C)

17 Appendix

17.1 Checklist for checking the heating system

The checklist is intended to help authorised specialists perform and document a comprehensive check on the heating system.

Name and adress of the customer	**Heating device**
Name:	Type of boiler:
Street:	Rated power:
Place:	Year of build:
Name and adress of the seller	Manufacturer's serial number:
Name:	Type of heating controller:
Street:	Type of accumulator:
Place:	Solar device:

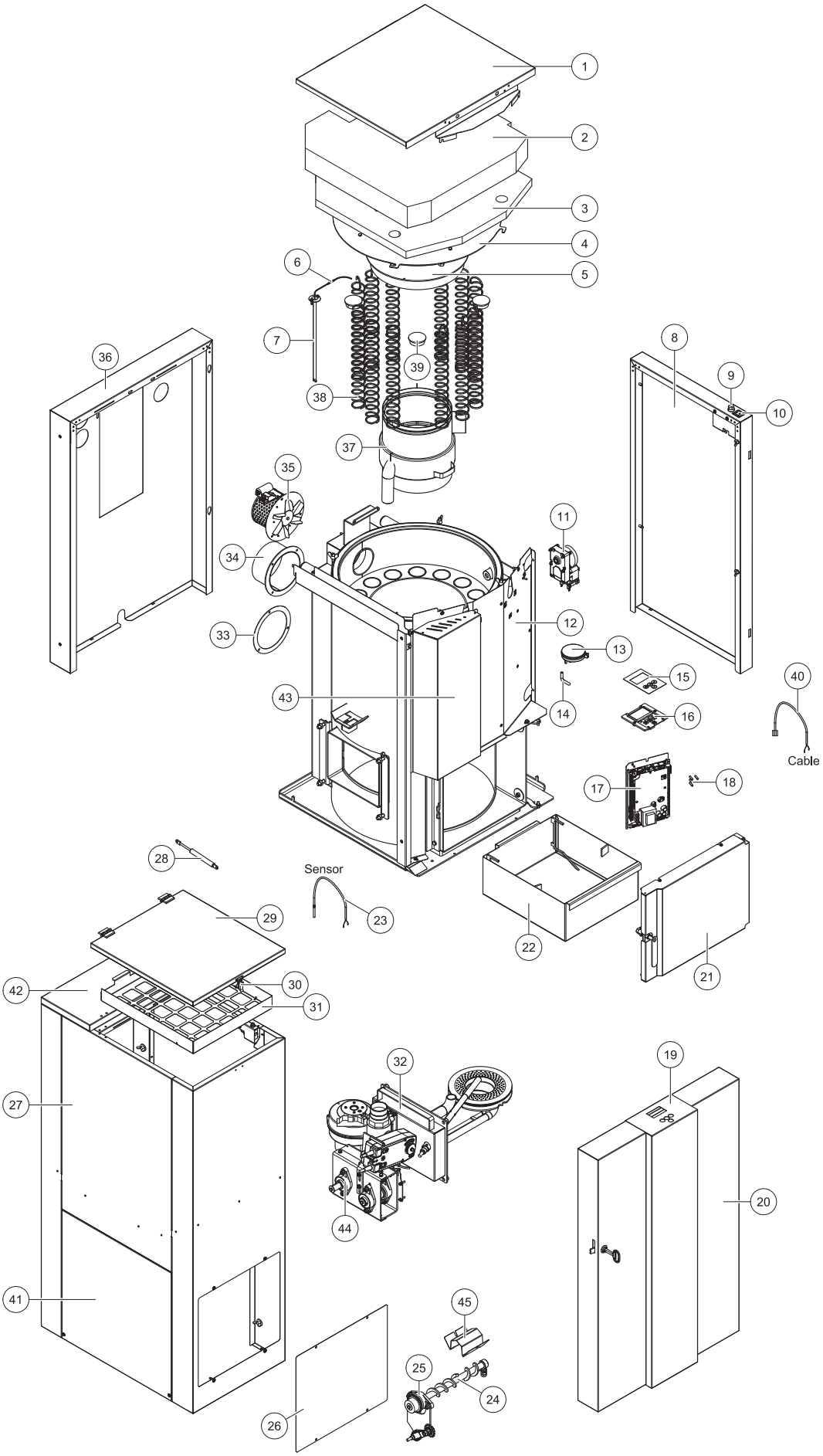
NOTICE

Damage to property
Use the checklist to check the heating system before starting up for the first time.

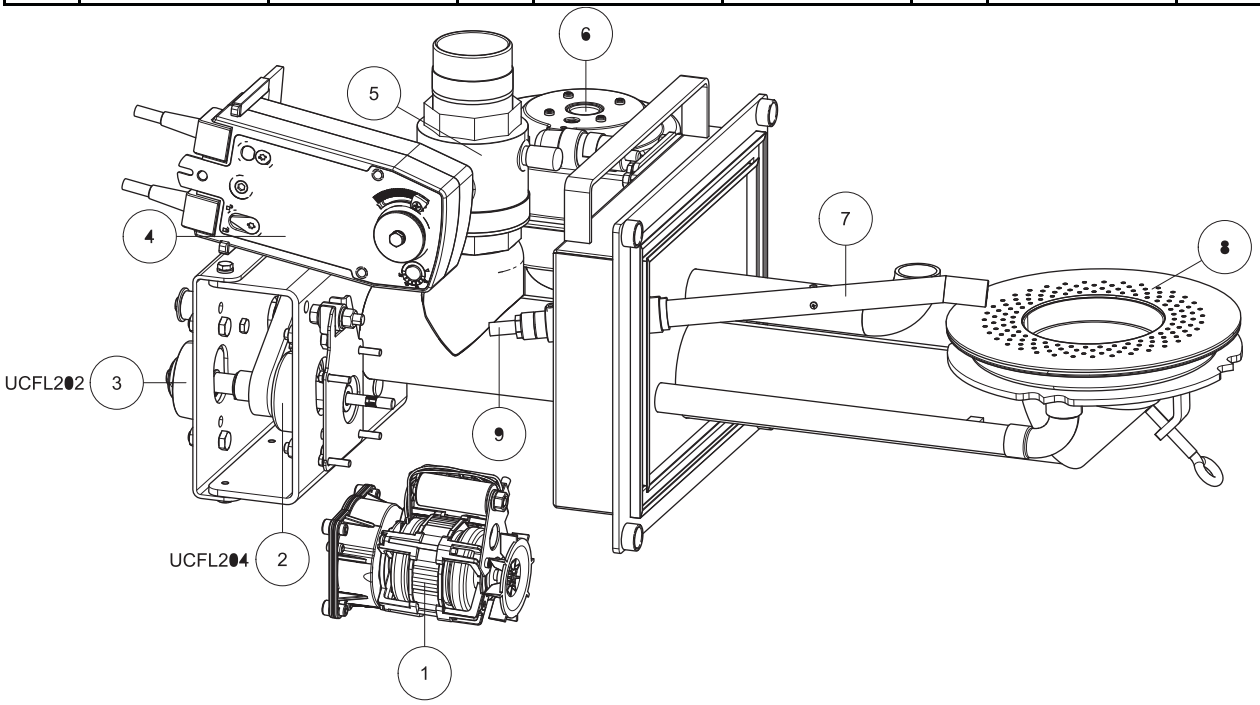
CHECKLIST		Yes	Comment
Pellet boiler			
Burner plate	Is the screw fixing the burner plate, tightened?		
Flame tube	Is the flame tube placed correctly?		
Combustion chamber cover	Are the adjusting screws for the increasing of the flue gas temperature adjusted correctly?		
Flue gas connection	Is the connection line insulatet?		
	Is a chimney draft regulator, barometric damper implemented?		
Airation/boiler room	Exists the required aeration opening?		
Nameplate	Is the nameplate placed on the boiler?		
Electric installation and regulation			
Power supply	Check the electrical connection		
	Check the dimensions of the fuses.		
Boiler sensor	Securing location and connection		
Hydraulic Connection			
Circuit pumps	Check the switch on temperature (min. 60°C)		
Boiler connection	Is the pellet boiler correctly connected (flow and return)?		
	Is the hydraulic system deaerated?		
	Is the system filled up with water? Check the pressure.		
Safety systems			

CHECKLIST		Yes	Comment
Safety temp. sensor	Check the installation and explain the function, securing location and connection		
Emergency stop switch	Exists an emergency stop switch?		
Fire extinguisher	Exists a fire extinguisher?		
Instruction			
Heating-up	Explanation of functions, malfunctions and maintenance		
Operating manual	Explanation of the operating and maintenance regulations		
Maintenance contract	Notice to the legal regulations		

18 Spare parts



	16 /20 kW	25 / 32 kW		16 /20 kW	25 / 32 kW		16 /20 kW	25 / 32 kW
1	200056	200074	16	200005	200005	31	200085	200085
2	200063	200093	17	200048	200048	32	200002	200015
3	200062	200094	18	200027	200027	33	PE273	PE273
4	PE156	PE157	19	200057	200075	34	PE107A	PE153A
5	PE243	PE244	20	200053	200071	35	E1001A	E1001A
6	E1194	E1194	21	200095	200095	36	200055	200073
7	PE255S	PE255S	22	200043	200045	37	B103	B104
8	200054	200072	23	E1074	E1074	38	PE129	PE130
9	E1073	E1073	24	SZB	SZB	39	PE103	PE103
10	200007	200007	25	121010	121010	40	200016	200016
11	E1204–1	E1204–1	26	200052	200052	41	200052-1	200052-2
12	200060	200092	27	200050	200070	42	200051-1	200051-2
13	24155	24155	28	PE523	PE523	43	200059	200084
14	121198	121198	29	200051	200051	44	121011	121011
15	200003	200003	30	200030	200030	45	200091	200091



	16 /20 kW	25 / 32 kW		16 /20 kW	25 / 32 kW		16 /20 kW	25 / 32 kW
1	E1030	E1030	4	E1413E	E1413E	7	B105	B105
2	121010	121010	5	B144	B144	8	B101	B203
3	121195	121195	6	E1005	E1005	9	E1004	E1004

19 Technical data

Here you can find the technical data according to the boiler type.

Boiler – Type	**Easypell 16**	**Easypell 20**	**Easypell 25**	**Easypell 32**
Boiler-rated power [kW]	16	20	25	32
Boiler-partial load [kW]	5	6	8	10
Energy efficiency class	A+			
Energy efficiency index (EEI)	118	119	120	122
Seasonal space heating energy efficiency ηs	80	81	82	83
Boiler efficiency rated power [%]	93,4	93,9	94,5	95,3
Boiler efficiency partial power [%]	91,5	92,3	93,3	94,7
Tank volume [%]	165	165	190	190
Water area				
Water capacity [litres]	70		108	
Water supply/return Ø [inch]	1	1	5/4	5/4
Water supply/return Ø [DN]	25	25	32	32
Water resistance at 10K [mBar]	74,9		208,3	
Water resistance at 20K [mBar]	18,5		51,4	
Boiler temperature [°C]	69–90			
Boiler input temperature minimum [°C]	55			
Operating pressure maximum [Bar]	3			
Test pressure [Bar]	4,6			
Flue gas area (Flue gas = F.g.)				
Fire vault temperature [°C]	700 – 900			
Need of draught rated power [mBar]	0,08			
Flue gas temperature partial load [mBar]	0,03			
Suction draught necessary	yes			
Flue gas temperature rated power [°C]	98,4		85,3	
Flue gas temperature partial load [°C]	70,4		70,9	
F.g. volume rated power at f.g. tem. [kg/h]	39,1	44,4	51,1	60,4
F.g. volume partial load at f.g. tem. [kg/h]	9,4	13,4	18,3	25,2
F.g. volume rated power at AGT [m^3/h]	54,7	62,2	71,5	74,4

F.g. volume partial load at AGT [m^3/h]	13,2	18,7	25,6	35,3
Flue gas tube diameter [mm]	130		150	
Chimney diameter	**as per chimney calculation**			
Chimney construction	**Steel or ceramic lined, damp resistant**			
Fuel				
Colorific value [MJ/kg]	≥ 16,5			
Colorific value [kWh/kg]	≥ 4,6			
Bulk density [kg/m^3]	≥ 600			
Water content [weight %]	≤ 10			
Ash parts [weight %]	≤ 0,7			
Length [mm]	≤ 40			
Diameter [mm]	5 – 7			
Weight				
Overall Weight [kg]	350		430	
Electrical Components				
Connection value	230 VAC, 50 Hz			
Main Drive [W]	40			
Standby power [W]	4			
Combustion Air Blower [W]	62			
Flue gas fan [W]	25			
Electrical Ignition [W]	250			
Cleaning Motor [W]	40			
Flame Return Gate [W]	5			
Noise generation [dB]	43,7 ± 3,2			

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