Log wood boiler **thermi**nator **II** touch

Operation manual for the system operator

Read carefully before operating.

DR-6016-EN / v21-201706

Content

1 About this manual

Foreword

Dear customer,

To ensure reliable and efficient operation of your boiler, the following points are extremely important:

- Professional installation of the heating boiler.
- Training of customers in starting up the heating boiler.
- Complying with specifications and notes in these instructions.
- Regular maintenance by the operator.
- Regular maintenance by qualified personnel.

Software version for control unit

The guide describes the software version 17.040 of the controleco$^{manager\text{-}touch}$; *Main screen of the control unit* > 11

Language

The language of the original manual is German. All other language versions of this manual are translations of the original.

Storage

Keep the manual for the entire service life of the product and ready to hand. The manual must be passed on to the new owner when the product is dismantled/reused. If the manual is lost or destroyed, request a new copy from the manufacturer.

Warnings

The warnings used in this manual are highlighted with symbols and signal words. The signal word indicates the level and nature of the danger and how to avert it.

ⓘ	Indicates information for correct handling of the product.
!	**CAUTION** - Failure to comply with this instruction could result in damage to property.
⚠	**DANGER** - Failure to comply with this instruction poses a danger to people.

Explanation of symbols

- ☑ Precondition for an action
- ► Instruction
- ↳ Result of an action
- > Reference to page, figure, Chapter,...

Updates

Due to continuous further development, figures, functions and technical data may deviate slightly. Please send any comments and suggestions to the above address of the manufactuer.

Limitation of liability

SOLARFOCUS GmbH. accepts no liability for injury or material damage resulting from:

- Failure to observe the instructions in this manual.
- Use of the product for any purpose other than for its intended use.
- Deployment of unqualified personnel.
- Use of non-approved spare parts.
- Technical modification of the product by the system operator.

Warranty

See General Terms of Business and Delivery Conditions of SOLARFOCUS GmbH.

Manufacturer

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Technical questions about our products

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  service@solarfocus.at

2 Safety information

- Keep unauthorised personnel away: Risk of burns from hot pipes and components. Do not leave children unsupervised and check that they cannot access the boiler.
- If the electrical insulation on cables, plugs, switches becomes damaged, switch off the voltage supply and have the insulation repaired. Protect live parts against moisture.
- If visible damage is found (e.g. leakage of water, thermal deformation, traces of flue gas or scorching, mechanical damage, etc.), operation must not be continued or the boiler started up again. The system may only be operated if it is in perfect technical condition.
- If the heating system is out of use for lengthy periods, it must be ensured that all parts carrying water are fully protected against frost.
- Never decommission safety devices; should they fail, have them repaired immediately.

3 Efficient and low-emission operation

Recommendation of the EU energy efficiency directive

Use of a buffer tank

Since maximum combustion is possible only in standard operation of the boiler, and greater losses and higher emissions occur during the warm-up and burn-out phases, use of a buffer tank is recommended.

This tank stores the water heated by the boiler, allowing the connected devices (e.g. heating circuit, DHW tank, fresh water module, etc.) to access it as required. This ensures sufficiently long, uninterrupted combustion periods for the boiler.

Use of high-efficiency heating pumps

When using external heating pumps (e.g. return temperature rise, heating circuit pumps, etc.), high-efficiency pumps with energy efficiency class A should preferably be used.

This delivers savings potential of up to 80 % in drive energy (compared to conventional heating pumps) with identical feed results.

4 Product information

4.1 Proper use

- The heating boiler is intended for heating up water in closed heating systems.
- Use only fuel pursuant to the following specifications.

4.2 Fuel

Logs

- Length of logs <50 cm, Ø <6 cm; otherwise, split.
- Moisture content of the wood: < 25 %.
- Bark proportion: < 20% (related to the total fuel quantity).
- Ash content: < 2 % (related to the total fuel quantity).

4.3 Product description

The thermi^{nator}-II is a heating boiler for the combustion (gasifier technology) of log wood. The boiler has an automatic fuel ignition system (optional) and automatic cleaning of the heat exchanger surfaces.

4.4 Spare parts

Use only original spare parts from the manufacturer. The manufacturer cannot accept any liability for damage caused by spare parts not supplied by the manufacturer.

4.5 Accessories

4.5.1 Automatic ignition

- Hot air fan for automatic ignition of the fuel.
- Is installed on the left side of the boiler (also suitable for retrofitting in existing boilers).

4.6 Type plate

thermi^{nator} II Kesseltype	9999-0109F56 Seriennummer	
18 kW Leistung	90 Liter Wasserinhalt	max. 3 bar Betriebsdruck
max. 85°C Vorlauftemperatur	230 V~/50 Hz 10 A	Stückholz 350W mit Zündung 2000W Pellets direkt 2200W Pellets saugen 2300W El. Anschlussleistung ohne Pumpen
Stückholz Brennstoff	max. Scheitlänge 50cm	IP 20 Kesselklasse: 5
Art.-Nr.: 68301	Gepr.:	CE

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SOLARFOCUS macht unabhängig

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4.7 CE declaration of conformity

The conformity of the produce is declared by the manufacturer in accordance with the Machinery Directive 006/42/EC; the documents are available for inspection at the manufacturer. The product corresponds to Directive 2011/65/EU (RoHS 2) and does not use any materials containing asbestos. The product does not contain any PCB or mercury.

APPROVED PRODUCT MCS HETAS

product	certification number
thermi^{nator} II 18	HTSMCS1212/02
thermi^{nator} II 45	HTSMCS1415/01
thermi^{nator} II 45 Log	HTSMCS1415/02
thermi^{nator} II Logs 27kW	HTSMCS0911/03
thermi^{nator} II Logs 36kW	HTSMCS0911/04

4.8 Safety devices

Heat dissipation

This function of the boiler control is a safety device that prevents overheating of the boiler.

Functioning: If the boiler temperature exceeds the set *Heat dissipation maximum boiler temperature* (in the service menu - General Settings), all pumps relating to the energy consumer units (e.g. heating circuit, DHW tank, buffer tank, etc.) will be switched on and the heating circuit mixer opened. In this way, energy is drained from the boiler and it may be possible to prevent other safety devices tripping.

If the boiler temperature falls below the set *Heat dissipation maximum boiler temperature* minus 1°C again, the pumps and mixers will be operated in standard mode again.

Safety temperature limiter

The safety temperature limiter (STL) is a safety device that prevents overheating of the boiler. Function: The STL stops the heating process at a boiler temperature ~95°C (exclusively electrical function; fuel and air supply are interrupted).

After tripping, the STL must be manually released again by unscrewing the black sealing cap *1* and pressing the button as soon as the boiler temperature falls below 60°C. If the safety overtemperature reset trips, this is indicated in the boiler control display.

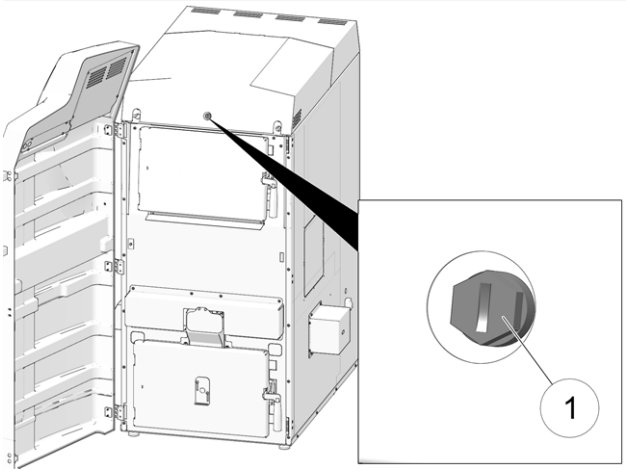
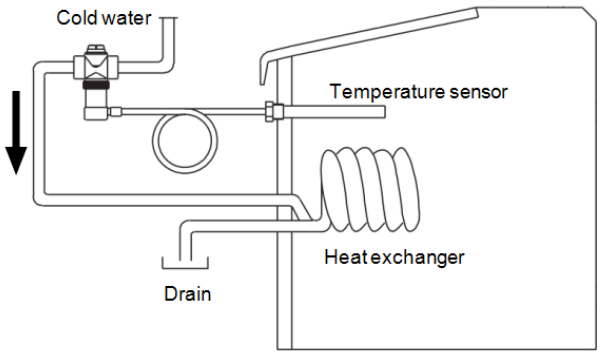


Fig. 2-1_Position of the overtemperature reset

Thermal overload protection

The thermal overload protection prevents an uncontrolled increase in temperature and pressure inside the boiler. When the boiler temperature is >95°C, it opens a valve and feeds cold water into the boiler water circuit to reduce the boiler temperature.



Safety valve to protect against excess pressure in the system

The safety valve *1* is a safety device for protecting against overpressure in the water circuit of the heating system. Function: The valve opens when the system pressure exceeds 3 bar. Water/steam are discharged into an open drain via a discharge line, which avoids consequential damage to the heating system. The valve is closed during normal operation.

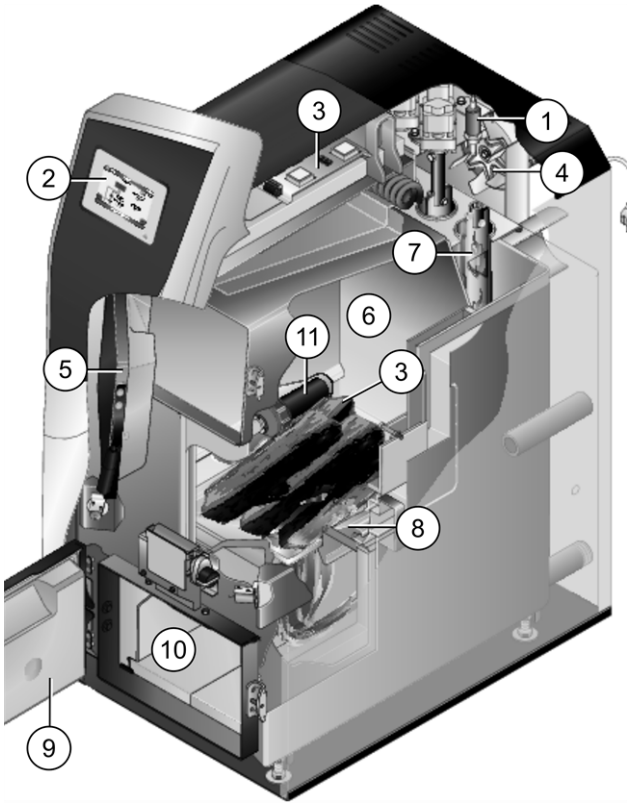
Figure: Safety valve *1* integrated into the boiler safety group.

Emergency OFF switch (X21)

The emergency OFF switch is a safety device that is triggered manually (the burner and the burner feed are switched off).

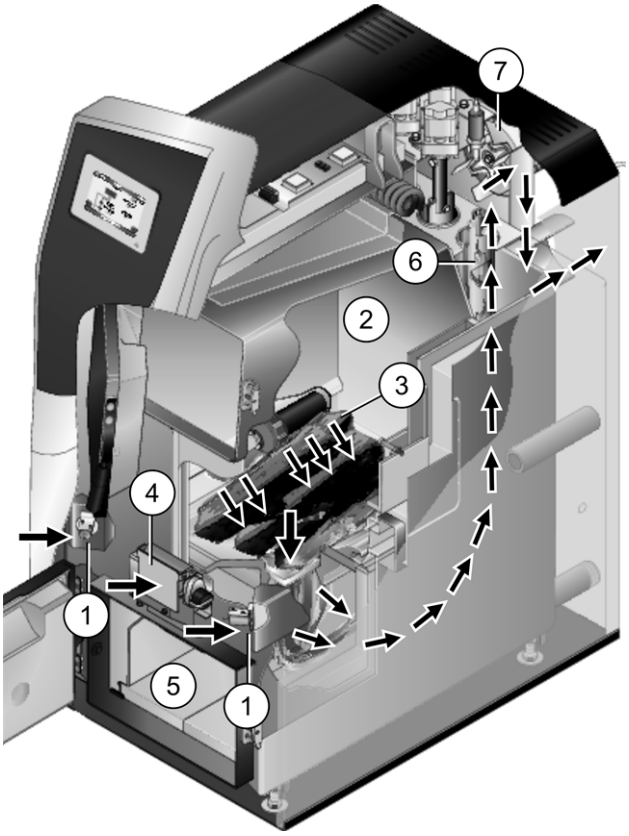
The switch must be installed outside the heating room in a safe place that is easy to access.

4.9 Functional components



1 Lambda sensor
2 Component of boiler control (colour display with touch screen function)
3 Electrical power element
4 ID fan
5 Filling chamber door
6 Filling chamber
7 Heat exchanger with interior turbulators
8 Stainless steel hopper with stainless steel combustion grate
9 Combustion chamber door
10 Combustion chamber
11 Ignition device (optional), exterior on the left side of the boiler

4.10 Combustion principle



Air conveyance in the heating boiler
The air required for combustion:

- The *primary air* is sucked through the primary air flaps *1* into the filling chamber *2* and exits into the filling chamber at the point of the primary air openings *3* (small drilled holes, arranged at the bottom left and right of the filling chamber).
- The *secondary air* is sucked for the centrally arranged secondary air flap *4*, and the air exits into the combustion chamber *5* (i.e. below the stainless steel combustion grate).

In the combustion chamber, the primary and secondary air mix; this is where the combustion process takes place (downfiring combustion technology).

The hot combustion air flows through the heat exchanger *6* and leaves the boiler through the flue pipe into the chimney. The speed-controlled ID fan *7* on the rear of the boler sucks the air through the boiler.

4.11 Technical specifications

Log wood boiler		thermi^{nator} II-18	thermi^{nator} II-27	thermi^{nator} II-36	thermi^{nator} II-49	thermi^{nator} II-60
Capacity	kW	18	27	36	49	60
Depth without fan	cm	104	104	115	136	136
Total depth	cm	120	120	130	151	151
Width without ignition	cm	62	62	67	83	83
Height incl. adjustable feet [1]	cm	155	155	166	167	167
Minimum room height [2]	cm	168	168	186	186	186
Flue gas pipe Ø	cm	13	13	15	20	20
Height to centre of flue pipe	cm	78	78	88	90	90
Weight	kg	485	485	591	904	904
Water content	l	90	90	126	188	188
Water-side resistance ΔT 10°K	kg/h	1550	2310	3090	4199	5140
Water-side resistance ΔT 20°K	kg/h	770	1160	1540	2097	2570
Maximum operating pressure	bar	3	3	3	3	3
Filling chamber capacity for log wood	l	145	145	186	290	290
Maximum log wood length	cm	56	56	56	66	66
Filling chamber opening WxH	cm	34x24	34x24	39x24	54x24	54x24
Fuel		Logs / beech				
Connection Boiler inflow/Boiler return flow	inches	AG 5/4 ”	AG 5/4 ”	AG 5/4 ”	AG 6/4 ”	AG 6/4 ”
Connection for emptying	inches	AG 1/2 ”	AG 1/2 ”	AG 1/2 ”	AG 1/2 ”	AG 1/2 ”
Thermal overload protection	inches	AG 1/2 ”	AG 1/2 ”	AG 1/2 ”	AG 1/2 ”	AG 1/2 ”
Immersion sleeves for temperature sensor	inches	IG 1/2 ”	IG 1/2 ”	IG 1/2 ”	IG 1/2 ”	IG 1/2 ”
Flue gas values from test report: Test institute / test report no.		TÜV Austria / 10-UW-Wels-EX-029-3	TÜV Austria / 13-U-500/SD	TÜV Austria / 12-UW-Wels-EX-127-1	TÜV Austria / 12-UW-Wels-EX-127	BLT / 042-06
		Full load	Full load	Full load	Full load	Full load
CO	mg/m3	158	118.5	79	99.7	191
HC	mg/m3	4.4	3.2	2	2	4
NOx	mg/m3	114	119.5	125	131.3	133
Dust content	mg/m3	8	11	14	14.9	14
Draught requirement [3]	Pa	5	5	5	5	5
Flue gas mass flow	g/s	10	14.1	20.2	26.3	31.5
Flue gas temperature, max. [4]	°C	140	140	140	140	140

[1] Adjustable feet at maximum depth of thread

[2] Required for maintenance work (e.g. replacing the heat exchanger)

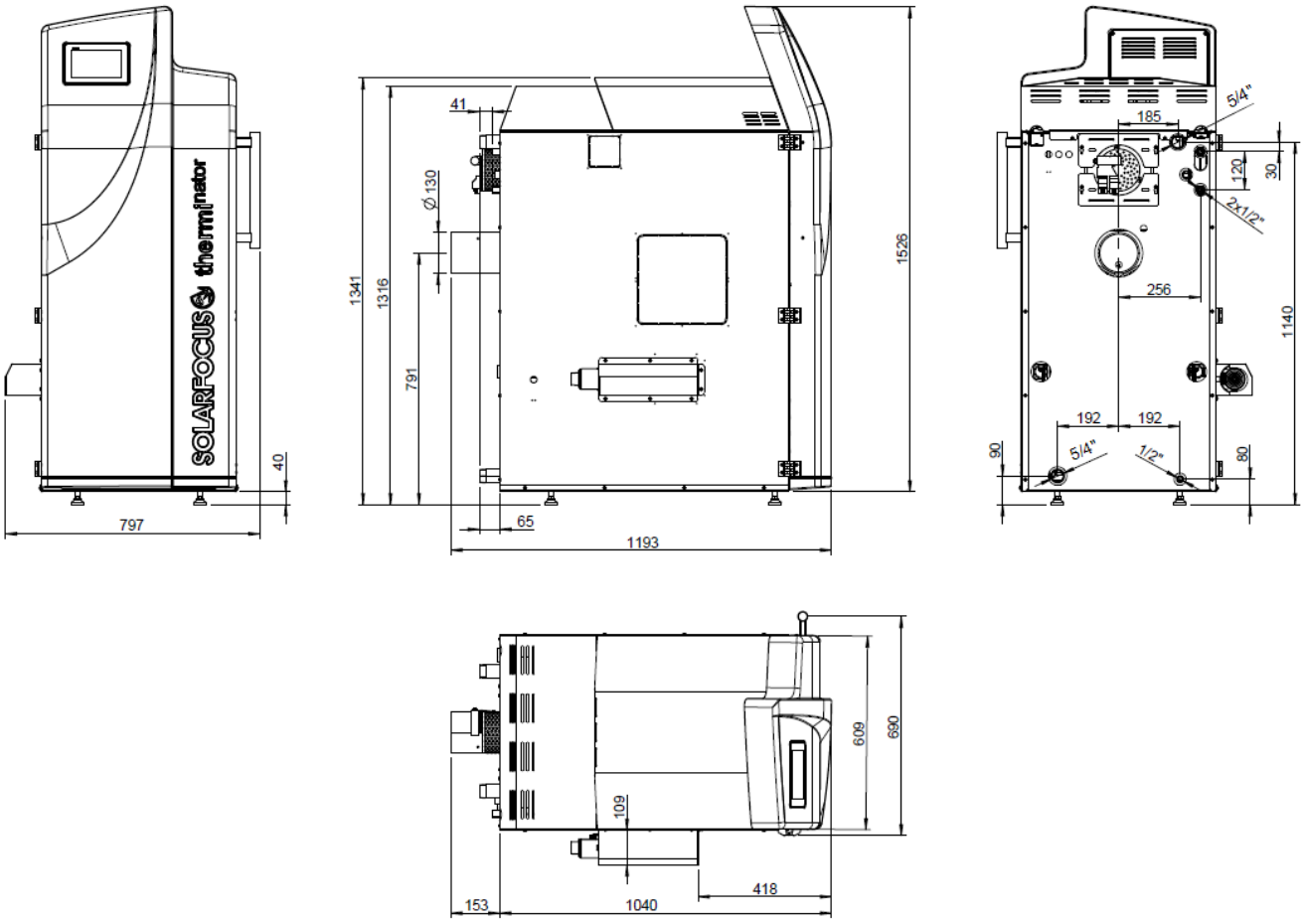
[3] A draught stabiliser must be fitted if the specified draught is exceeded

[4] Flue gas temperature can be adjusted electronically

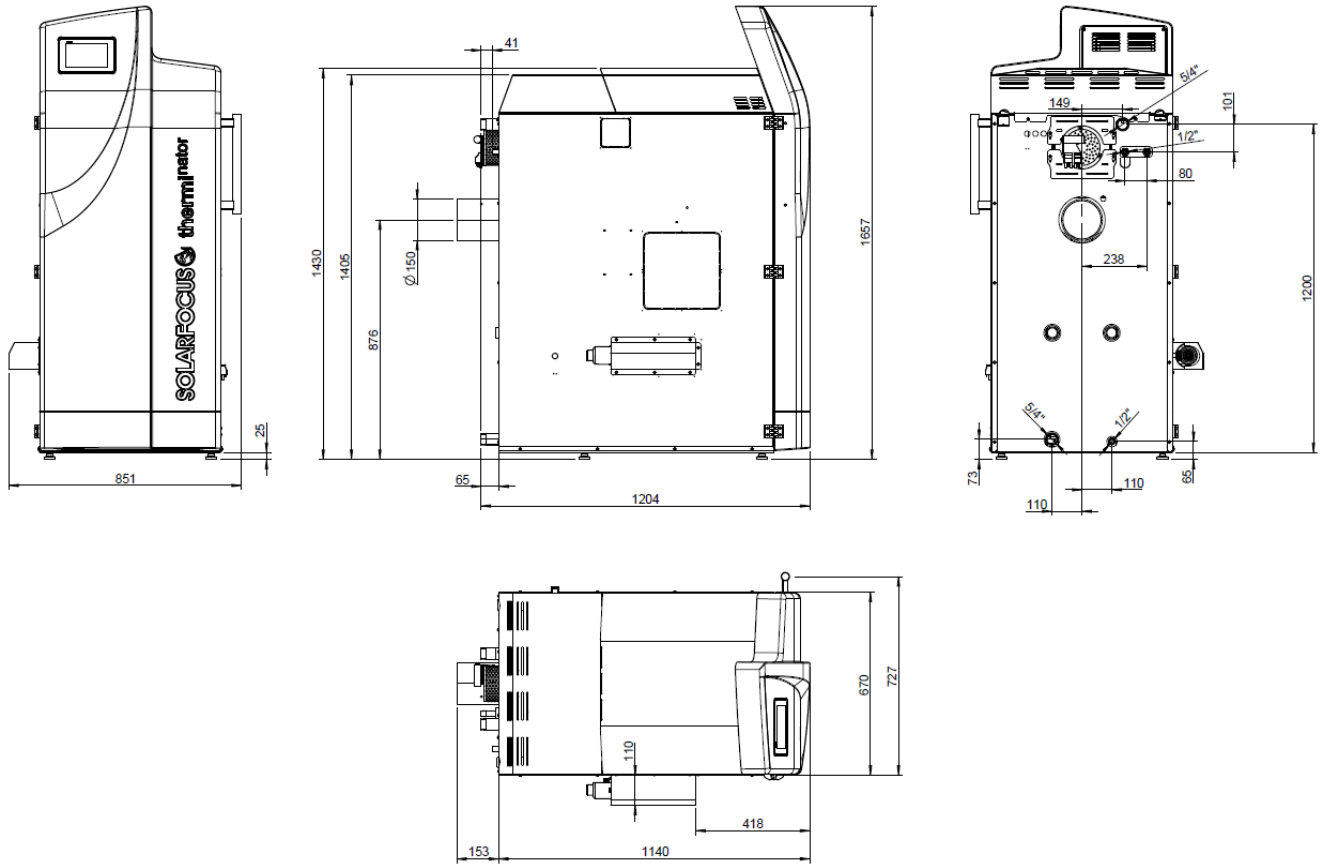
Flue gas values in mg/m^3 are baed on 13% O_2 of the volume flow

4.12 Dimensions

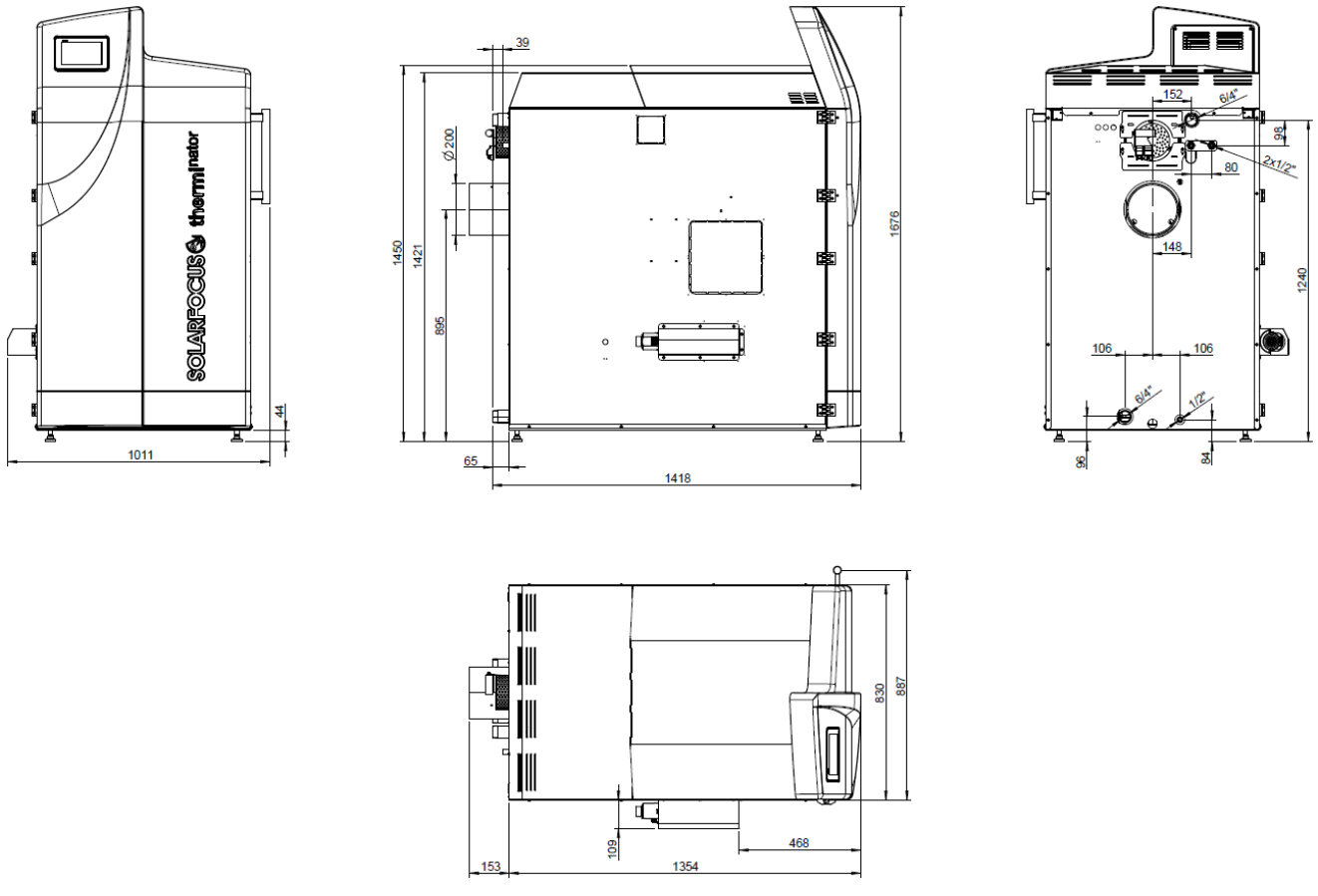
Log wood boiler thermi^{nator} II 18 and 27



Log wood boiler thermi^{nator} II 36



Log wood boiler thermi^{nator} II 49 and 60



5 Use and operation

Touch display for operation

If the boiler is supplied with a mains power supply, the boiler control startseco^manager-*touch*. The control is started up to show the main screen.

Operate the touch display with your fingers, do not use any hard objects.

If no inputs are made for 5 minutes (factory setting), the display will switch to standby mode. Tapping the display again restarts the display with the main screen.

5.1 Main screen of the control unit

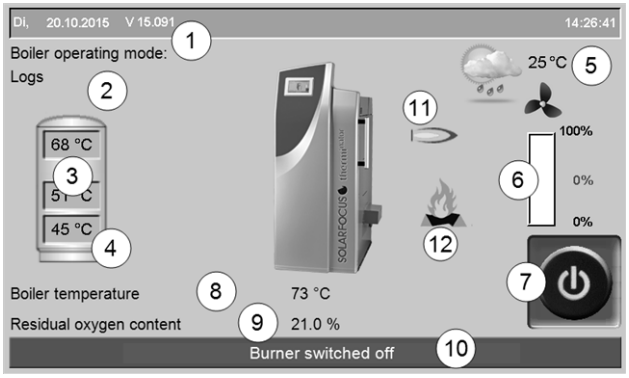
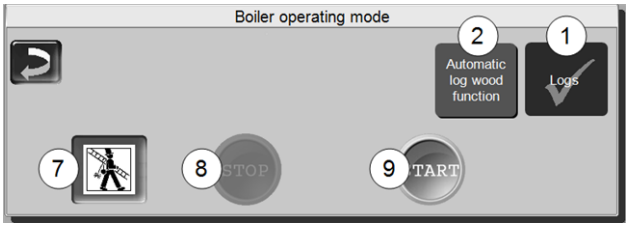


Fig. 2-2_01-003

1 Boiler control software version
2 Current boiler operating mode
3 Buffer tank temperatures
4 Temperature of X35 (optional)
5 Outside temperature/weather forecast as a symbol (when using the weatherman function)
6 Boiler output (rotational speed of induced draught fan)
7 Boiler operating mode > 11
8 Boiler temperature
9 Residual oxygen content in the flue gas
10 Boiler status line
11 Symbol for connected external boiler (optional)
12 Icon for *Add more log wood*

Tapping the main screen changes to the *Selection menu* > 11

5.2 Boiler operating mode



1 ***Log wood*** **mode** > 17

2 ***Automatic log wood function*** **mode** [1] > 20

7 **Chimney sweep function**  > 37
This function is used to perform the emission measurements prescribed by law.

8 **STOP** 
The burner is switched off (exception for the Log wood mode). No heating requirements of the consumers are fulfilled.

WARNING - The burner must not start! Only the automatic start-up of the heating circuit pump is active to protect against frost.

9 **START** 
After pressing the *START* button, the burner is in the selected operating mode and ready for operation, and is able to fulfil heating requests from the connected devices (for *log wood* operating mode, the boiler starts immediately).. The burner goes into standby as soon as a heating request is fulfilled, or the time release > 13 is no longer available (*log wood* operating mode stops the boiler after completed burn-off).

[1] This operating mode is only available if the optional item *Automatic ignition* > 4 is obtained.

5.3 Selection menu

Fig. 2-3_01-132

1 Customer menu > 12
2 Heating circuit output test > 12
CAUTION, only to be undertaken by qualified personnel.
3 Heating circuit > 22
4 Drinking water heating > 25
5 Circulation control (optional) > 27
6 Buffer tank (optional) > 28
7 Solar system (optional) > 29

8 Temperature difference, charge control (optional) > 29
9 Automatic log wood function - release type > 21
10 Weatherman function (optional) > 33
11 Information
12 Date and time > 12
15 Boiler cleaning > 35

5.3.1 Heating circuit output test

Contents of the menu: The available outputs can be switched on/off directly using the button. Can be used to test function of individual components.

! CAUTION- Only to be undertaken by qualified personnel.

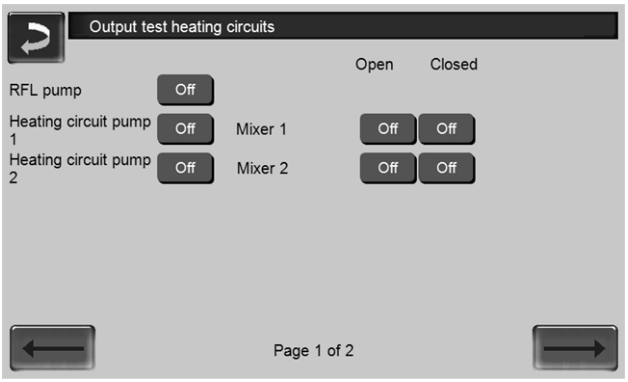


Fig. 2-4_01-195

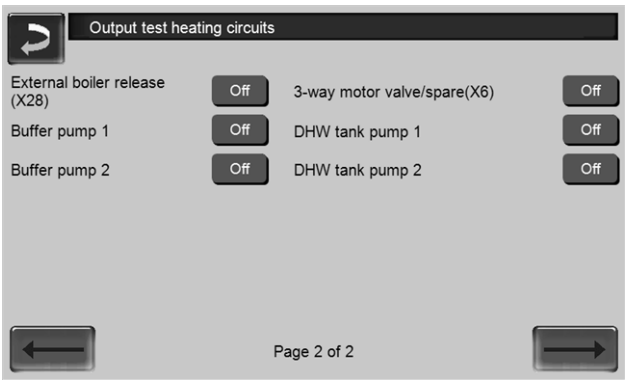


Fig. 2-5_01-196

5.3.2 Date and time

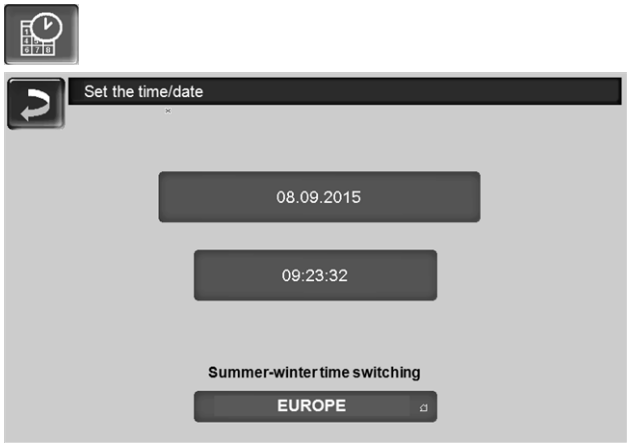


Fig. 2-6_02_005

switchover from summer/winter time is made automatically when the *Switchover Summer-Winter* parameter has the value *Europe*. Switchover takes place on the last Sunday of the months of March and October. If *America* is set, the clock is changed to summer time on the first Sunday in April.

5.4 Customer menu

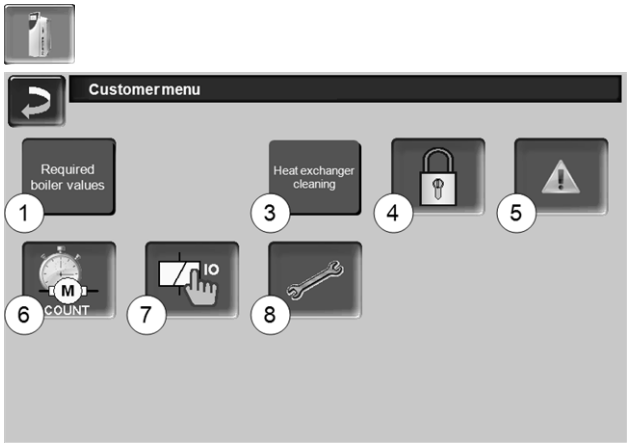


Fig. 2-7_01-025-02

1 Required boiler values
3 Heat exchanger cleaning [1] > 13
4 User lock > 13
5 Message log [2] Record alarm and notifications > 14
6 Operating hour counter > 14
7 Boiler output test: CAUTION, only to be undertaken by qualified personnel.
8 Qualified personnel menu > 14

[1] The button is only visible if qualified personnel are logged in.
[2] Button is only visible if a message is active.

5.4.1 Required boiler values

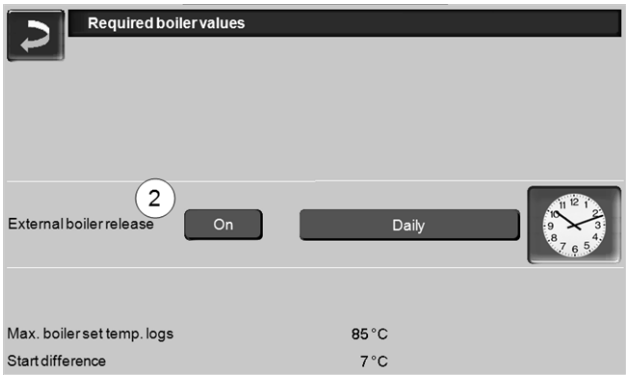


Fig. 2-8_01_031b

External boiler release *2*

On switches the function to standby. I.e. a connected external boiler may only start when it receives the release from the SOLARFOCUS boiler (e.g. on the basis of a lack of fuel, operating fault).

Additionally You can set whether the external boiler can start at any time, or whether you want to restrict a start to certain activation times.

5.4.2 Heat exchanger cleaning

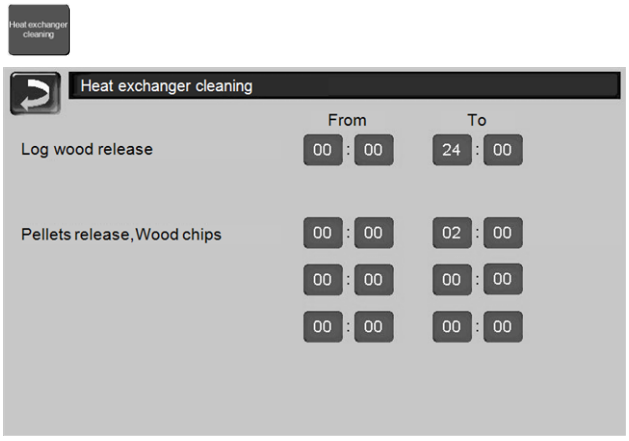


Fig. 2-9_02-100a-sn

Release from-to

Within the release times, heat exchanger cleaning can start. A release time from 00:00 to 24:00 means that no restriction is pending and the functions can start at any time.

5.4.3 User lock

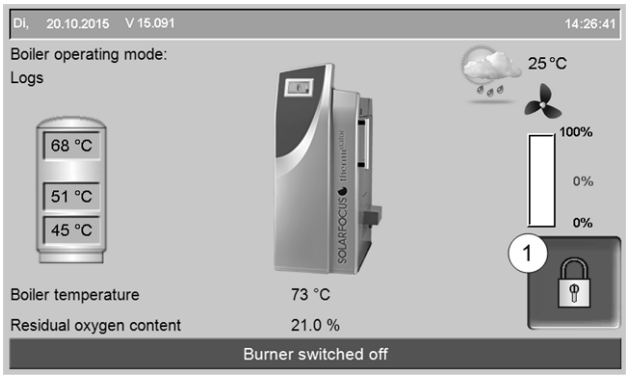


Fig. 2-10_01-001th

The function serves as protection against unauthorised modification of the control parameters. When the user lock is active, the parameters of the individual screens are displayed but cannot be changed. The active user lock is indicated by the padlock icon *1* in the screens.

User lock screen

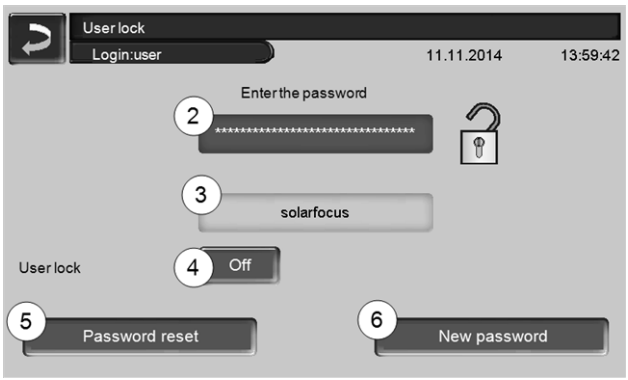


Fig. 2-11_02-003

Enter the password *2*

To define a new password (maximum 20 characters).

Password *3*

The currently valid password is displayed.

User lock *4*

Off: The user lock is switched off.
On: Switches on the user lock function. If the display is not touched for one minute, the user lock is active in the screens.

Password reset *5*

The current password is reset to the value *solarfocus*.

Accept as new password *6*

Enter a new password in the input field and press the button. Note on screen keyboard; Confirm input with the  button.

5.4.4 Message log

Fig. 2-12_12_006

Every message which has occurred in the control unit is recorded here, with the time that it began and ended (marked in red, then white after acknowledgement).

Press the *1* button to quit messages. Possible messages > 38

5.4.5 Operating hours counter

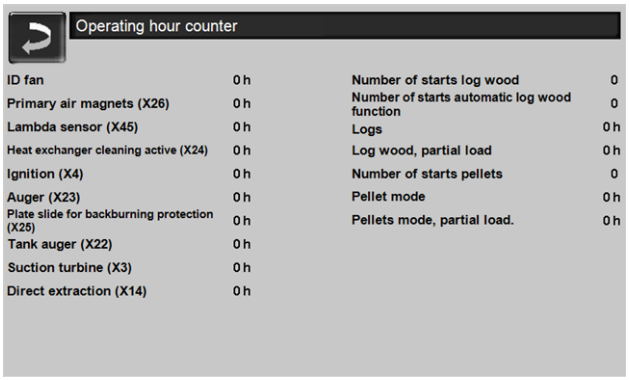


Fig. 2-13_01-043

5.4.6 Qualified personnel menu

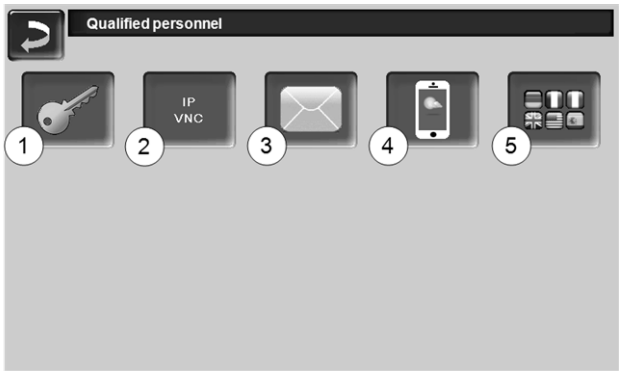


Fig. 2-14_01-126-04

1 Service menu > 14
2 IP VNC (for remote access) > 14
3 Sending emails > 16
4 mySOLARFOCUS-App > 30
5 Language selection > 17

5.4.6.1 Service menu

In the*Service menu* there are technical (factory predefined) settings for an optimum combustion process in the boiler. These can only be accessed by qualified personnel (code input required).

5.4.6.2 IP VNC (for remote access)

The control unit eco^manager-*touch* allows access to the control unit screens from a PC or mobile device (e.g. smartphone). This is effected via *VNC* (Virtual Network Computing) software. The control has an integrated VNC server, while the *VNC Viewer*, which is available free of charge on the Internet, is required for remote access.

A cable connection is required on site for the connection of the control unit to the router. Use the Ethernet socket (type RJ45) on the rear of the control panel (Touch display).

Installation and configuration of this function must be performed on site (i.e. not included in the commissioning and service activities).

The following points are helpful for setting up a PC/-router to control the VNC server, which requires knowledge of networking technology.

IP configuration

► To access the *IP-VNC* icon, select it in the control
– *Selection menu* screen
– *Customer menu* screen
– Trained qualified personnel button 
► Enter the data for your router. Recommend process:
  – Select *DHCP ON*.
    ↳ The IP address is determined.
  – Select the *DHCP OFF* + *Apply button* .

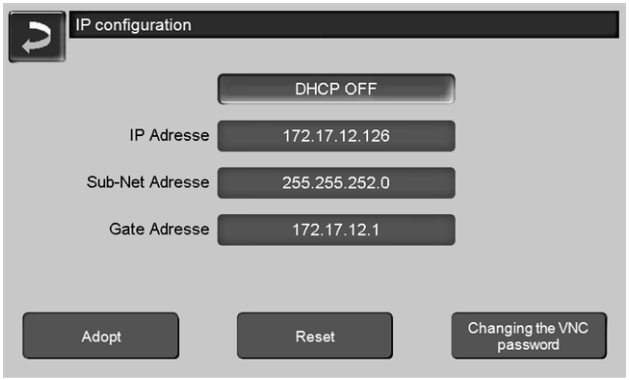
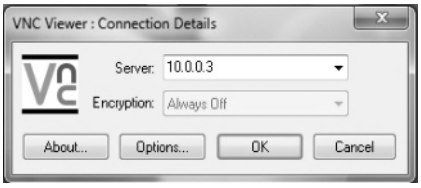


Fig. 2-15_02-031

- The IP address must be unique in each Ethernet network and is dependent on the other network components (PC, modem/router, etc).
- It is recommended to set a fixed IP address (=*DHCP OFF*), i.e. the control unit has a constant IP address.

Version 1: Installation of VNC viewer for access from a local PC (PC in the home network)



- Download the free VNC Viewer from the Internet, install it on the PC and start the application.
- Enter the previously defined IP address of the control.
  – As soon as the VNC Viewer is able to access the control unit, a password must be entered.
  – The password predefined by the manufacturer is *solarfocus*
  – After login, the screen view of the control unit is available.

Changing the VNC password

Fig. 2-16_01-054

- Press the *Change VNC password* button on the *IP setup* view.
- To change it, first enter the old password, then the new password, then press the *Accept* button.
- The new password must be used to log on after restarting the VNC Viewer on the local PC.
- Press the *Reset password* button to reset the password to the default password *solarfocus*.

Version 2: Installation of VNC viewer for access from an external PC (PC outside the home network)

- The user's local router does not always have the same IP address on the Internet (it is allocated by an *Internet Service Provider – ISP*).
- Nevertheless, Dynamic Domain Name Systems, also referred to as *DynDNS* or *DDNS*, allows access to the router.
- These systems allow a unique host name to be assigned on the Internet; the unique name is then also entered in the router. If the router is then assigned a different address by the ISP, it enters the updated IP address as the defined host name on the DynDNS server. The router and therefore the home network can then be reached using this host name.
- To create a connection with the control unit, a **port diversion** is required from the external port of the router[1] to the IP address and to VNC port 5900 of the control unit.
  [1]Port 5950 is recommended

Avoid any **port forwarding** from external port 5900 of the router to IP address and VNC port 5900 of the control.

5.4.6.3 Sending e-mails

Function: The boiler control eco^manager-*touch* automatically sends status e-mails and alarm e-mails to predefined addresses if required.

Status email: An automatic e-mail (e.g. sent daily) provides information on the current boiler status.

Alarm email: a message is sent when a fault occurs.

Installation and configuration of this function must be performed on site (i.e. not included in the commissioning and service activities).

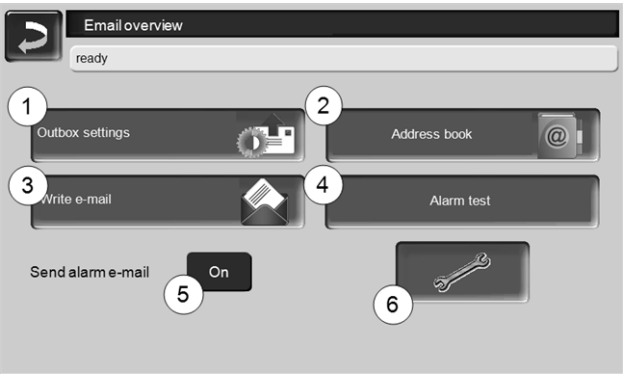


Fig. 2-17_01-048

Outgoing mail server *1*

Enter the access data for the e-mail server you use.

Fig. 2-18_01-049

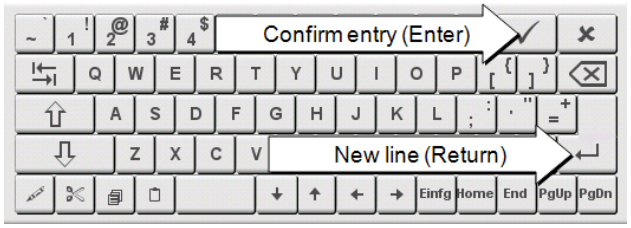
Use SSL: Select if the e-mail server uses a TLS/SSL encryption protocol.

Address book *2*

A maximum of 10 contacts can be added. If there are several addresses for a contact, these should be comma-separated.

Write e-mail *3*

Used to manually send e-mails. The recipient's address can be selected from the address book using *To* and *CC* or manually entered in the recipient line.



Alarm test *4*

Used to test the e-mail settings. Pressing the button sends an e-mail to the *Recipient status email.*

Send alarm email *5*

Activates/deactivates the automatic sending of alarm e-mails. The sending of status e-mails is not affected by this.

Alarm configuration *6*

Settings for the alarm e-mails to be sent automatically.

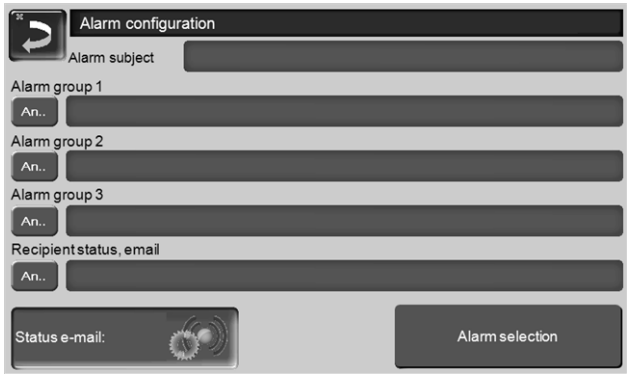


Fig. 2-19_01-051

Alarm subject: is used for all alarm e-mails and status e-mails, therefore it should be as meaningful as possible (e.g. boiler type / name of system operator; 40 characters available).

Alarm groups: For prioritisation of the alarm messages (e.g. Alarm group 1 receives all messages, Alarm group 2 receives only non-critical messages, such as information on necessary maintenance, boiler cleaning, etc.).

Status email: Set time at which the status e-mail is sent. The automatically generated content of the status e-mail is:

- Current status of the heating system
- Fault present, and which

Alarm selection: This is where you define which alarm group is reported for which event.

5.4.6.4 mySOLARFOCUS app

Pressing the button displays the screen with information relating to online registration for the *mySOLARFOCUS app* (serial number, PIN, status, etc.) > Fig. 2-43, page 31

Detailed information on using the *mySOLARFOCUS app* > 30

5.4.6.5 Language selection

Fig. 2-20_02-006

6 Operating mode *Logs*

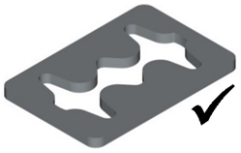
Description of operating mode

- The log wood stacked in the boiler filling chamber must be ignited manually.
- Note: The function *glow holding* > 19 simplifies the next ignition process.

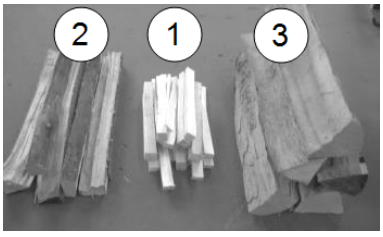
6.1 Preparations for the operating type.

Combustion grate

► Use this stainless steel combustion grate to heat with log wood.



Fuel to be used



1 Dry, easily combustible small piece of material (e.g. small chopped logs, wood shavings, bush wood chips).

2 Split logs, medium-sized, dry (recommended: 0.5 m lang).

3 Split logs, large, dry (recommended: 0.5 m long).

Select operating mode and start

► Select the *Log wood* operating mode and press the *Start* button.

↳ The ID fan starts.

↳ Status line message: *Ignite logs manually,*

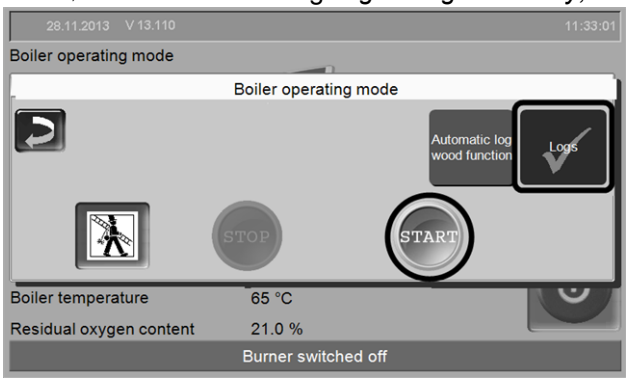


Fig. 2-21_01-164-01

Starting in *Logs* mode is possible only in the status *Burner* switched off or *Log burning is terminated*.

6.2 Stack the log wood in the filling chamber and ignite

Basic information: Stack the log wood parallel to the side wall of the boiler, in the filling chamber.

Note regarding thermi^{nator}-II 49 and 60 : Due to the wide filling chamber, the space can be better used if the log wood is stacked transversely in the filling chamber.

► Stack the smaller pieces of wood *1* and *2* parallel to the side wall of the boiler high enough that the floor of the filling chamber is covered.

► Set up and ignite one layer of igniting material (e.g. kindling, wood waste splits).

► When the kindling is burning, add a layer of medium-sized log wood *2* on top.

► Fill the boiler with log wood *3* in accordance with the temperature in the buffer tank, or the current heat needed.

► Close the filling chamber door.
  ↳ The residual oxygen content in the flue gas (value is visible on the display) should fall quickly.
  ↳ After a while, the status line in the display changes from *Ignite log wood manually* to *Log wood*
  ↳ The residual oxygen content in the flue gas (value is visible on the display) should fall quickly.
  ↳ After a while, the status line in the display changes from *Ignite log wood manually* to *Log wood*

6.3 Replenish with logs

► Before adding more wood, check whether sufficient energy dissipation is ensured by the consumer units (heating circuit, buffer tank, etc.).

Icon for *Add more log wood*

The icon indicates that more log wood needs to be added (appears in the main screen > 11).

When the icon is displayed:

Option 1 - the boiler is currently burning log wood (active burning):

– A heating request is pending on the boiler (from connected devices, e.g. heating circuit, DHW tank, buffer tank, etc.)
– And: the burn duration is> 2 hours
– And: the measurement parameter for exhaust temperature and residual oxygen content indicate upcoming completed combustion.

Option 2 - boiler is switched off (STOP mode), or *Log wood combustion is completed* status:

– If there is a heating request on the boiler.

End of burning

The combustion period that has passed so far is shown in the boiler control display. The combustion period differs depending on log wood quality and boiler performance.

The boiler stops combustion, if

– the flue gas temperature falls below the *Exhaust cutoff temperature.*
– the residual oxygen content in the flue gas exceeds a predefined value for a long period of time.
  ↳ Message on the status line: *Burn-off logs finished.*

6.4 *Glow holding* function

Function must be activated by qualified personnel.

The log wood located in the filling chamber has not been fully combusted. The embers or charcoal that remain in this way can easily be re-ignited (manually or automatically by the hut air blower).

Figure: Unburned, charred log residue after burning with glow holding.

- The time to wait between switching off glow holding and repeated ignition is unimportant. What is important for straightforward ignition is the presence of the charred log wood residue.
- Each time the heat-up process is performed, you will be asked whether you would like to start burn-off with or without glow holding.

Fig. 2-22_01-100

Manual ignition after combustion with *Glow holding*

► Push the charred pieces together on the stainless steel combustion grate using the poker.

► In the boiler control, select the *Log wood* operating mode and press the *Start* button.
► Ignite a sheet of paper and let it fall, burning, into the filling chamber (the flame is sufficient to ignite the rest of the material).
► Wait for a moment until the rest of the material is visibly burning.
► As described above, add more log wood and close the filling chamber door.

7 Operating mode *Logs automatic*

Description of operating mode

- This is an optional additional function.
- The log wood stacked in the boiler filling chamber is ignited using the automatic ignition device (hot air fan).
- Note: The function *Glow holding* function simplifies the next ignition process.

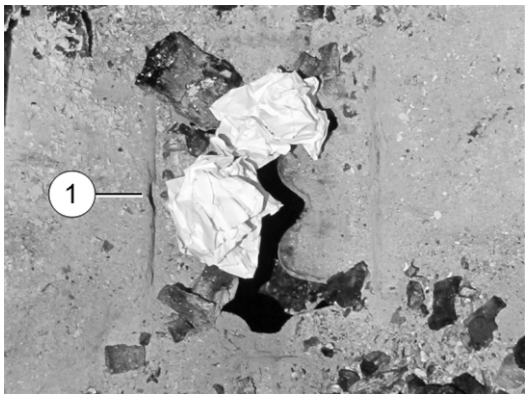
Recommendation for your first (three to four) ignition attempts with the automatic log wood function: Only fill the boiler filling chamber with log wood once ignition has been performed successfully. This means that you will not have clear out all of the filled material if you have a failed attempt at ignition.

7.1 Preparations for the operating type.

see > *6.1 Preparations for the operating type.* > 17

7.2 Stack the log wood in the filling chamber

► IMPORTANT: Before filling with log wood, place slightly flammable material (balled up paper, cardboard or similar) on the stainless steel combustion grate, directly before igniting *1* the hot air fan.



► Fill the boiler with fuel in the following sequence:
  – Dry, slightly flammable material in small pieces
  – Split logs, medium-sized
  – Split logs, large

see also > *6.2 Stack the log wood in the filling chamber and ignite* > 17

► After filling the boiler, close the filling chamber door.

Select operating mode and start

► After filling the boiler: Select the *Log wood* operating mode and press the *Start* button.

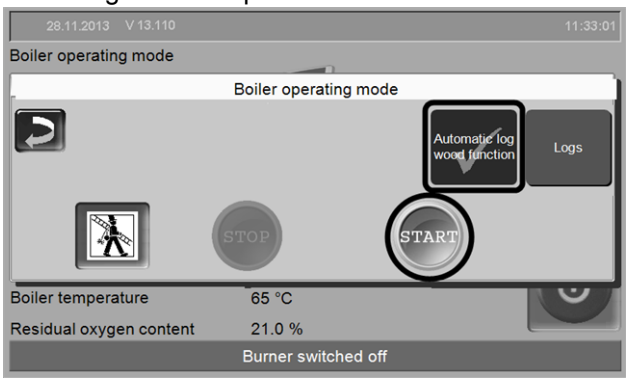


Fig. 2-23_01-164_06sn

↳ The ID fan and and hot air fan start when a time release is available > *7.5 Automatic log wood function - release type* > 21 and, if a heating request is issued to the boiler.

Starting the boiler in *automatic log wood function* mode is possible only in the status *Burner* switched off or *Log burning is terminated*.

7.3 Replenish with logs

see > *6.3 Replenish with logs* > 18

7.4 Glow holding function

see > *6.4 Glow holding function* > 19

Automatic ignite (with hot air fan) after combustion with *glow holding*

► Push the charred pieces together on the stainless steel combustion grate using the poker.

► Fill the boiler with log wood as usual, i.e. in layers of different fuel; see detailed description > 17
► In the boiler control, select the *Automatic log wood function* operating mode and press the *Start* button.

7.5 Automatic log wood function - release type

 Button in the *selection menu* > 11

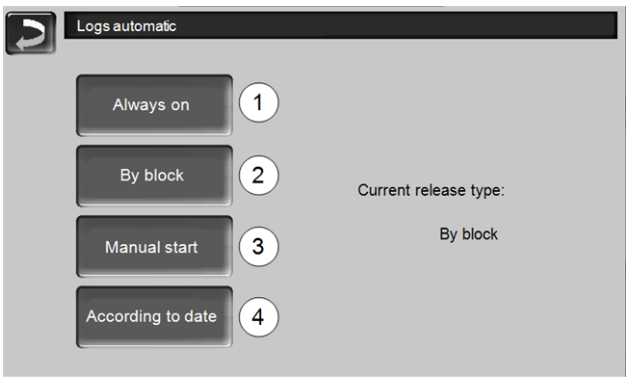


Fig. 2-24_01-104sn

Always on *1*

- The burner starts as soon as a heating request is present; i.e. no temporal restriction.

In blocks *2*

- The burner starts as soon as a heating request is present and the time release is available.

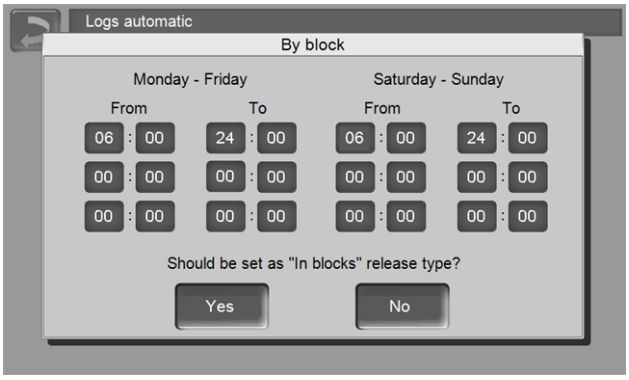


Fig. 2-25_01-105sn

- Define non-required release times *with from 00:00 to 00:00 h*, i.e. the time block is inactive.

Example of use for the *In blocks* release type: daily heating mode, the boiler is filled with log wood in the evening and the burner is to start every day at 06:00 (if there is a heating request).

Manual start *3*

- The burner starts the ignition device as soon as *automatic log wood function* mode is selected. Condition: The current boiler temperature is less than the required boiler temperature minus the start difference).
- The burner starts, even if there is no heating request. This means that you should ensure that sufficient output acceptance is guaranteed, e.g. the buffer tank is not fully loaded.
- The burner starts the ignition device as soon as *automatic log wood function* mode is selected. Condition: The current boiler temperature is less than the required boiler temperature minus the start difference).
- The burner starts, even if there is no heating request. This means that you should ensure that sufficient output acceptance is guaranteed, e.g. the buffer tank is not fully loaded.

According to date *4*

- Set the date and time of automatic ignition. The burner starts as soon as this point in time is reached (and a heating request is pending).

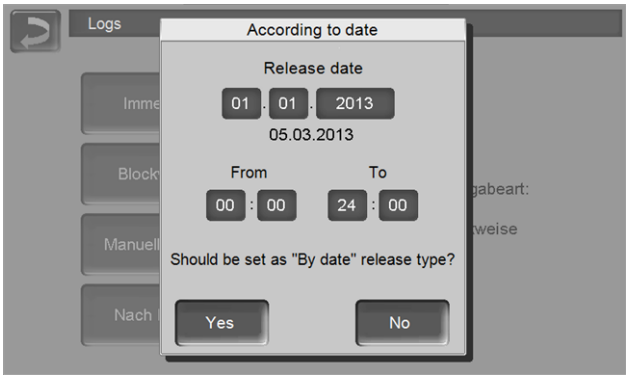


Fig. 2-26_01-106sn

Usage example: A boiler in a weekend house' fill the boiler with log wood on the day you leave; the next day you arrive, the burner should start automatically.

8 Heating circuit

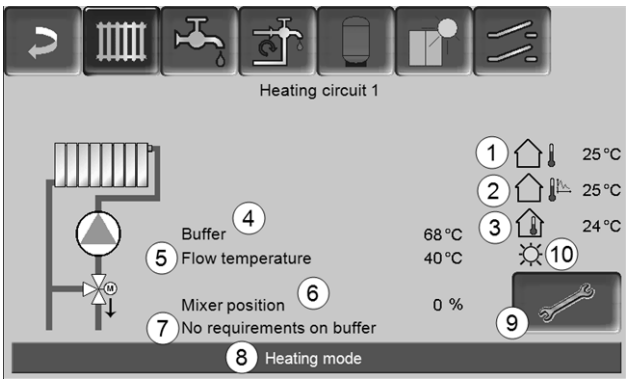


Fig. 2-27_08_003a

1 Outside temperature
2 Average outside temperature
3 Room temperature (optional)
4 Temperature of the energy source, (e.g.boiler, buffer)
5 Flow temperature of the heating circuit
6 Position of the heating circuit mixer
0 % - the mixer is closed, the heating circuit is supplied from the heating circuit return.100% - the mixer is open, the heating circuit is supplied from the heating boiler flow.
7 Info line: Heating requirement (Yes/No) to the energy source.
8 Status line of the heating circuit
9 Heating circuit settings
10 Sliding switch position of the optional room thermostat (item no. 6160)

8.1 Heating circuit settings

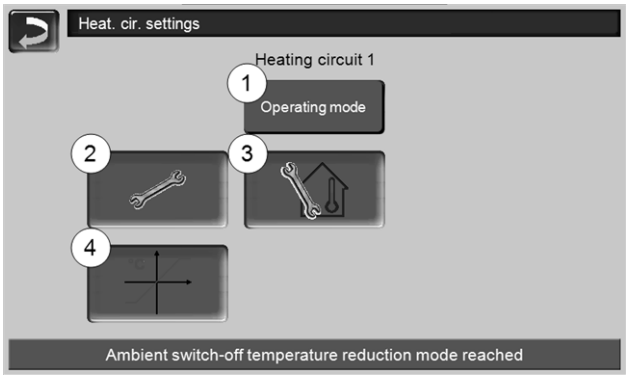


Fig. 2-28_08-504sn

1 Heating circuit operating mode > 22
2 General settings > 23
3 Room settings
(Button is only visible when the *Room effect* parameter is set to *On* or *Sliding*; this can be found in the *Specialist personnel system parameters)*
4 Heating curve > 23

8.1.1 Heating circuit operating mode

Heating mode 

The heating circuit pump is activated. A shutdown occurs whenever

– the *external shutdown temperature for heating mode* is reached
– when a room temperature sensor is used and where *room nominal temperature for heating mode* has been reached.

The heating circuit is supplied with the *calculated inlet nominal temperature* > Fig. 2-29.

Reduced mode 

Heating circuit pump is activated. A shutdown occurs whenever

– the *external shutdown temperature for reduced mode* is reached
– a room temperature sensor is used and where *room nominal temperature for reduced mode* has been reached.

The heating circuit is provided with the reduced temperature, i.e. *calculated inlet nominal temperature* minus *reduction*; > Fig. 2-29.

Time switching 

In this operating mode, the timed switch-over between *Heating mode* and *Reduced mode* is defined. You can enter the times for heating mode *Daily* or *In blocks**.

Usage example: *Heating mode* should be active during the day, but be changed to *reduced mode* at night.

* If you are using the *mySOLARFOCUS app* > 30, *In blocks* time switching is available.

Switch off heating circuit 

The heating circuit pump and heating circuit mixing valve are switched off. The anti-freeze function for the heating circuit is enabled (i.e. the heating circuit pump is switched on whenever the ambient temperature drops below the *anti-freeze temperature*).

Holiday mode 

Holiday mode deactivates the active operating mode for the entered duration.

 activates the frost protection mode for the heating circuit for the duration of the holiday.

 activates the reduced mode for the heating circuit for the duration of the holiday.

 This icon indicates an activated holiday mode in the *heating circuit* screen.

8.1.2 General settings

Cutoff temperature

If the outdoor temperature exceeds the value set here, the heating circuit pump is switched off and the heating circuit mixer closes.

Cutoff temperature for heating mode: 18°C

Cutoff temperature for reduced mode: 5°C

> This means: the heating circuit is normally automatically switched off during the summer month due to the outdoor temperature.
> You can also switch the heating circuit off manually (=operating mode: Switch off heating circuit).

Anti-freeze temperature

If the outdoor temperature drops below the value set here, the heating circuit pump is switched on.

Buffer difference

The burner starts when the tank temperature top falls below the required flow temperature minus the buffer difference.

Example:
- Current flow required temperature = 50°C
- Buffer difference = 5°C
starts as soon as *tank temperature top* < 45°C.

A negative buffer difference value is added, i.e. the burner starts earlier.

Example:
- Current flow required temperature = 50°C
- Buffer difference = - 5°C
The burner starts as soon as tank temperature top < 55°C.

Ext. temperature delay

The delay set here is used to determined an average value for the outdoor temperature (= Average outdoor temperature).

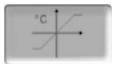
The heating circuit pump switches on if the Average temperature and the Current outdoor temperature fall below the cutoff temperature (within the heating period), or below the reduced mode cutoff temperature (outside the heating period).

The heating circuit pump switches off again as soon as the current outdoor temperature rises above the value of the cutoff temperature.

Heating circuit name

Individual naming of the heating circuit is possible.

8.1.3 Heating curve



The heating circuit flow temperature is controlled by the heating circuit operating mode > 8.1.1 and by the outdoor temperature. The heating curve represents the relationship between these two temperatures. I.e. the control unit uses the outdoor temperature to calculate the temperature (=calculated nominal flow temperature) with which the heating circuit is supplied.

In *heating mode* the heating curve for heating mode ***4*** (red) is used.

In *reduced mode* the heating curve for reduced mode ***5*** (= heating curve for heating mode minus *reduction*) is used.

The heating curve must be adapted to suit each building and its heating system.

2-point heating curve

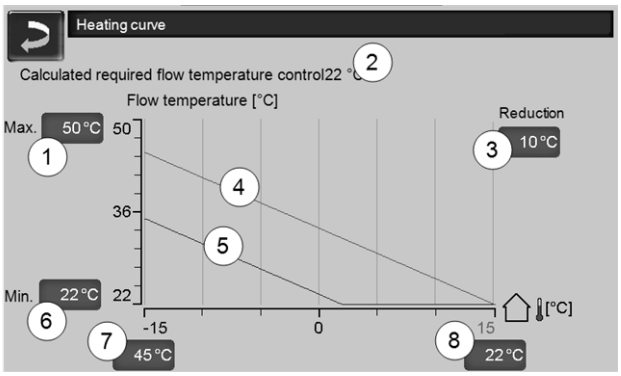


Fig. 2-29_08_008_01sn

1 Maximum heating circuit flow temperature [1)]
2 Calculated required flow temperature
3 Reduction (the value by which the reduced temperature is lower than the heating temperature)
4 Heating curve for heating mode (shown in red)
5 Heating curve for reduction mode (blue)
6 Minimum heating circuit flow temperature [1)]
7 Flow temperature at outside temperature -15°C
8 Flow temperature at outdoor temperature +15°C

! [1)] **WARNING** - This temperature is system-specific and must be agreed with the heating engineer. If there is a risk of the boiler overheating, the hot water is discharged to the heating circuits at the *Maximum heating circuit flow temperature* *1*. Only to be set by qualified personnel.

The desired heating circuit nominal flow temperature in heating mode is set for an outside temperature of -15°C *7* and +15°C *8*. Between these outside temperatures, the nominal flow temperature is calculated from the characteristics of the heating curve (interpolated).

Example for calculation of nominal flow temperature (see the following illustration):
Flow temperature at outside temperature of -15°C = 45°C
Flow temperature at outside temperature of +15°C = 22°C
Current external temperature = -5°C

In the heating circuit operating mode *Heating mode,* this applies:
> The computed flow nominal temperature (**Pos.9**) is 37.4°C
> The heating circuit is supplied with 37.4°C.

In the heating circuit operating mode *Reduced mode,* this applies:
Reduction = 10°C
> The computed flow nominal temperature (**Pos.10**) is 27.0°C
> The heating circuit is supplied with 27.0°C.

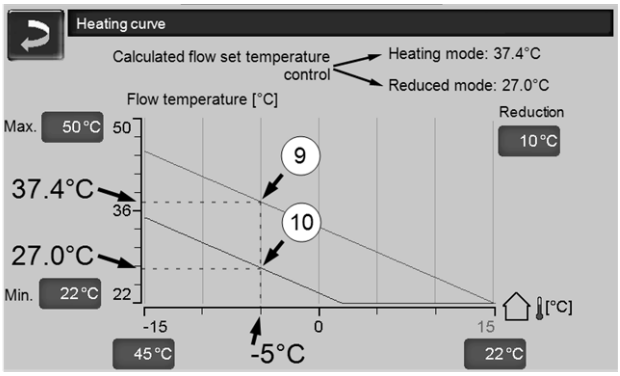


Fig. 2-30_08_008_03sn

Adaptation of the 2-point heating curve (in *heating mode*)

Note the currently set temperature before you change the values.

A change in heating curve cannot be felt immediately. Instead, this depends largely on the kind of heat distribution system (e.g. underfloor heating) and the building standard (brick, lightweight construction etc.). It is advisable to adapt the heating curve in small increments (+/- 2°C) with corresponding pauses (1 to 2 days). Depending on the current outside temperature, different adjustments need to be made.

Current outside temperature	Perceived room temperature	Recommended adaptation of heating curve
-15°C to -5°C	too cold	Increase temperature value at *7*
	too hot	Reduce temperature value at *7*
-5°C to +5°C	too cold	Increase temperature value at *7* and *8*
	too hot	Reduce temperature value at *7* and *8*
+5°C to +15°C	too cold	Increase temperature value at *8*
	too hot	Reduce temperature value at *8*

3-point heating curve

Function must be activated by qualified personnel.

Depending on the standard of building and insulation, it is advisable to change over from the 2-point to a 3-point heating curve. In contrast to the 2-point heating curve, it is possible to stipulate a third temperature *11*,

i.e. the heating curve can include a sharp deflection or bend.

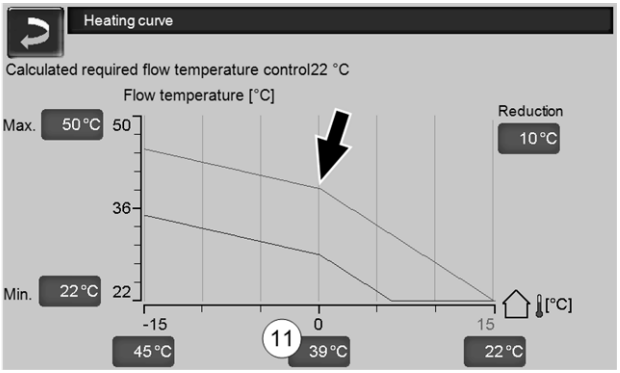


Fig. 2-31_08_008_02sn

Adaptation of the 3-point heating curve (in *heating mode*)

Note the currently set temperature before you change the values.

Current outside temperature	Perceived room temperature	Recommended adaptation of heating curve
-15°C to -5°C	too cold	Increase temperature value at *7*
	too hot	Reduce temperature value at *7*
-5°C to +5°C	too cold	Increase temperature value at *11*
	too hot	Reduce temperature value at *11*
+5°C to +15°C	too cold	Increase temperature value at *8*
	too hot	Reduce temperature value at *8*

9 DHW heating

DHW can be heated up in two ways:

- With a DHW tank: the energy source of the DHW tank is the heating boiler or a buffer tank [1)]
- With a fresh water module: the energy source of the fresh water module is the buffer tank [1)]

[1)] The upper layer area (=drinking water area) in the buffer is reserved for supplying the DHW tank/fresh water module.

9.1 DHW tank/drinking water area

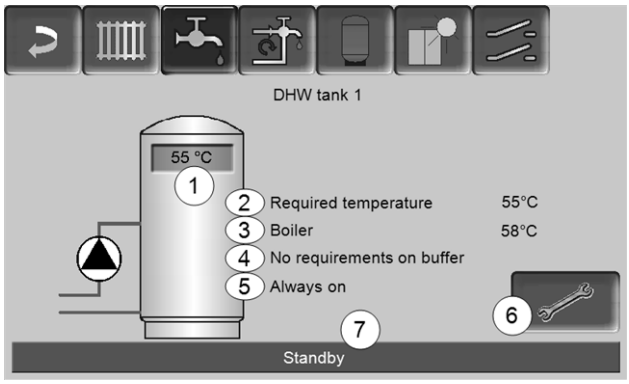


Fig. 2-32_05-002-01

1 DHW tank temperature
2 Required DHW tank temperature
3 Temperature of the energy source (e.g. buffer tank)
4 Info line: Charging requirement (Yes/No) to the energy source.
5 DHW tank operating mode
6 DHW tank settings
7 Status line DHW tank

9.1.1 DHW tank settings

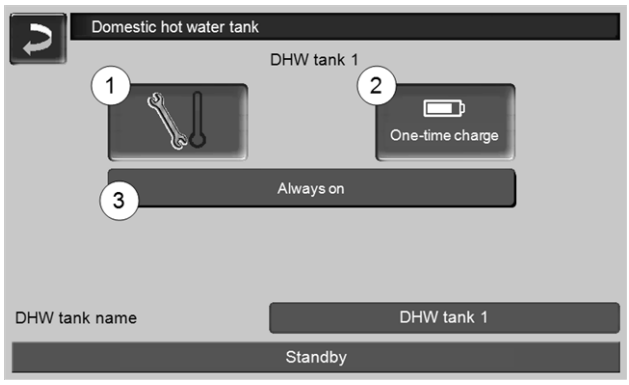


Fig. 2-33_16-076-02

1 Temperatures and hystereses
2 One-time charge
3 DHW tank operating mode

Temperatures and hystereses *1*

Required temperature / hystereses 1

The DHW (or the drinking water area in the buffer tank) is charged when required until the set *Required temperature 1* is reached. A new charge starts when the DHW tank temperature falls to the value *Required temperature 1* less *Hysteresis*.

Example
- Required temperature 1 = 55°C
- Hysteresis = 10°C

The DHW charge starts when the DHW temperature falls to 45°C (requirement: The temperature of the energy source is 5°C above 45°C).

One-time charge *2*

Is used to perform one-off re-heating of the DHW tank (e.g. if no release times are defined or the operating mode *Always Off* is set). By pressing the button, the drinking water storage tank is recharged as soon as a charging request is made by the drinking water storage.

DHW tank operating mode *3*

Always off: The DHW tank charge pump is switched off permanently.

Exception for frost protection mode: The DHW tank charging pump is activated if

- the outside temperature is <2°C, and

- the DHW tank temperature goes to <10°C.

Always on: The DHW tank charge pump is switched on permanently. The pump is controlled taking the parameters *Required temperature 1, Minimal temperature* and *Hysteresis* into account.

Time switching (*Monday-Sunday, daily*,…): different time ranges can be set, in which the DHW tank charge pump is switched to *ON*.

The operating modes *Monday - Sunday* and *In blocks* are not available if you are using the *mySOLARFOCUS app* > 30.

9.2 Fresh water module (FWM), optional

A fresh water module heats domestic hot water in the continuous flow principle. The circulation pump of the fresh water module starts if a DHW output point (e.g. shower or batch, etc.) is opened. The energy for heating up domestic hot water is taken from the upper area (DHW area) of the buffer tank.

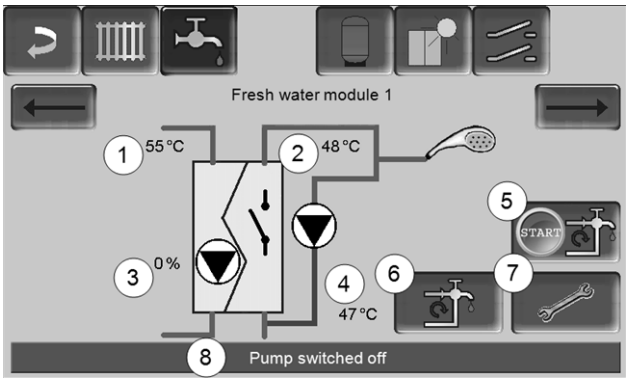


Fig. 2-34_06_003

1 Buffer tank temperature
2 Required DHW temperature
3 Speed of the fresh water module pump
4 Recirculation temperature [1] (only visible if a recirculation sensor is connected).
5 Start recirculation pump [1] (serves for immediate start of the recirculation pump)
6 Recirculation pump settings [1] > 27
7 Fresh water module settings
8 Fresh water module status line

[1] Recirculation control is an optional additional function.

Fresh water module settings *7*

Pump control

Always off: The fresh water module pump is permanently switched off; no drinking water is heated up.

Always on: (= manual mode); the fresh water module pump is always switched on.

Automatic: (= default setting), the fresh water module pump starts when a flow is detected in the pipework by an electronic sensor (e.g. the tap is opened at a consumer).

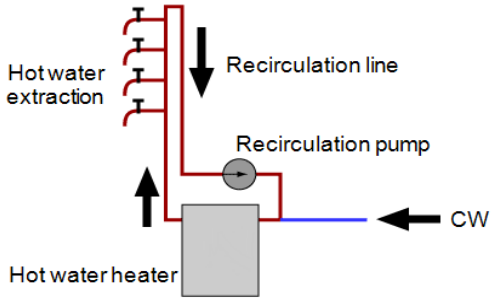
Required DHW temperature

This parameter is only active in the case of release type *Automatic*. The fresh water module regulates the temperature at which the connected hot water devices receive water.

10 Recirculation control


(optional additional function)

A recirculation line means that hot water can be quickly available at the extraction points (basin, shower, bath, ...), even with long supply pipes. Recirculation control is possible with a fresh water module or for a DHW tank.



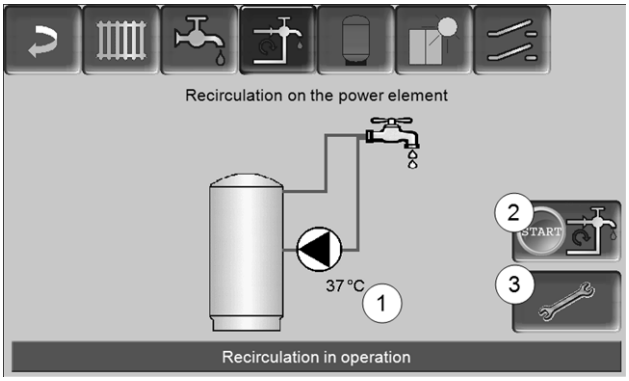


Fig. 2-35_07-002

1 Recirculation temperature (only visible if a recirculation sensor on the boiler power element is connected).
2 Start recirculation pump (serves for immediate start of the recirculation pump).
3 Recirculation pump settings

10.1 Settings

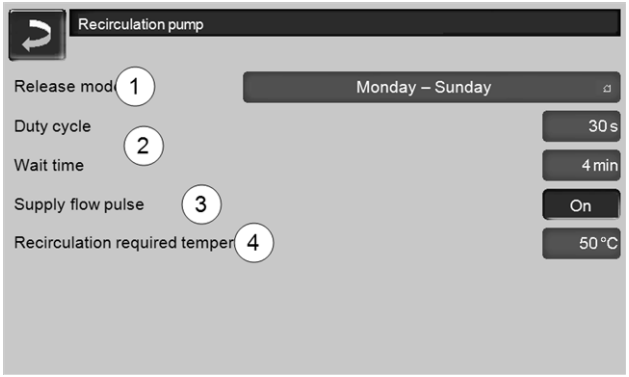


Fig. 2-36_07-003

Release mode *1*

Always off: The recirculation control is switched off permanently.

Always on: The recirculation control is switched on permanently. The recirculation pump is only triggered in consideration of the parameters *Switch-on duration* and *Hold-on time*.

Time switching (*Monday-Sunday, in blocks, etc.*: In this respect, time releases can be set for recirculation control.

Switch-on duration / Hold-on time *2*

Depending on the recirculation control selected, the pump is cycled in consideration of these two parameters, i.e. alternation between *Switch-on duration* and *Hold-on time*.

Recirculation required temperature *4*

Is the required temperature in the recirculation line (only displayed when a recirculation sensor is connected).

10.2 Recirculation control - Options

In order to be able to make use of the following controls, time switching (Monday-Sunday, in blocks, etc.) must be selected for the release type *1*.

10.2.1 Time-controlled recirculation

In the event of time-controlled recirculation, the recirculation pumps are triggered on a cycled basis if a time release (*release type 1*) is present. Cycling (i.e. switching between control/no control) is conducted in accordance with the *Switch-on duration* and *Hold-on time2* parameters.

Example:
- Release type = *Monday-Sunday,*
- The recirculation control currently has, for example, a time release of 06:00 to 08:00
- Switch-on duration = 30 seconds
- Hold-on time = 4 minutes

The recirculation pump runs for 30 seconds. After this, the pump pauses for 4 minutes in order to then run for 30 seconds again. This repeats in a time release from 06:00 to 08:00. Outside the time release, the pump is not triggered.

10.2.2 Temperature- and time-controlled recirculation

Temperature-controlled recirculation is only available if a temperature sensor is connected for the recirculation temperature. The control takes the recirculation temperature (*required recirculation temperature*) into

account within the time release. This means that the pump is only cycled if the recirculation temperature is below the *required recirculation temperature* of minus 5°C.

Example:
- Release type = *Monday-Sunday*
- The recirculation control currently has, for example, a time release of 06:00 to 08:00
- Switch-on duration = 30 seconds
- Hold-on time = 4 minutes
- Required recirculation temperature = 50°C
- Recirculation temperature = 48°C

The recirculation pump is not triggered as the recirculation temperature (48°C) is above the *required recirculation temperature* of minus 5°C (50°C minus 5°C = 45°C). If the recirculation temperature goes below 45°C, the recirculation pump is triggered for 30 seconds. After this, the pump pauses for 4 minutes in order to then run for 30 seconds again. This repeats until the recirculation temperature reaches the *required recirculation temperature*. Outside the time release, the pump is not triggered.

10.2.3 Extension of recirculation by means of a flow impulse

Recirculation being controlled by a flow impulse *3* is only possible in fresh water modules > 26, and is used as an extension of the control options previously named.

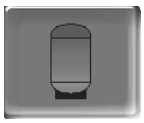
In order to activate this function, the *Flow Impulse 3* parameter must be set to *on*. When a hot water extraction point is opened briefly, an electronic sensor detects the pressure drop in the line. The recirculation pump is triggered even if there is no time release.

Exception: If a temperature sensor for the recirculation pump (=recirculation sensor) is connected and the recirculation temperature us sufficient (see *Temperature- and time-controlled recirculation*), then the recirculation pump is not triggered.

Example:
- Release type = *Monday-Sunday*
- No time release has been set.

As soon as DHW is drawn, the recirculation pump is triggered.

11 Buffer tank



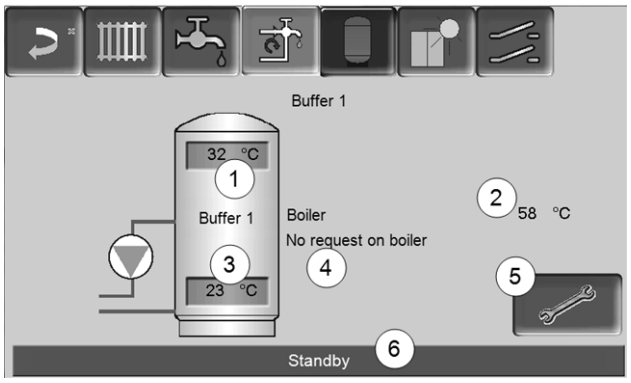


Fig. 2-37_09-002-02

1 Buffer cylinder temperature top
2 Temperature of the energy source
3 Buffer cylinder temperature bottom
4 Info line: Heating requirement (Yes/No) to the energy source.
5 Buffer tank settings
Button is only visible when *Timer* is selected as the buffer cylinder operating mode; only qualified personnel may set it.
6 Buffer tank status line

Set buffer tank temperatures

Min. buffer temp. top

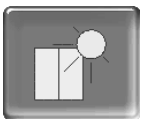
When *Buffer cylinder temperature top* falls below this value, the energy source for the buffer cylinder starts (e.g. boiler) and the buffer cylinder is re-charged (upon time release).

Max. buffer temp. Down

The buffer tank is charged until the *Buffer tank temperature bottom* has reached this value.

In order to ensure optimum and efficient use of the buffer tank, the difference between these two temperatures should be > 15°C.

12 Solar system



(optional additional function)

The solar yield is loaded into a solar tank. This tank can be a buffer tank or a DHW tank.

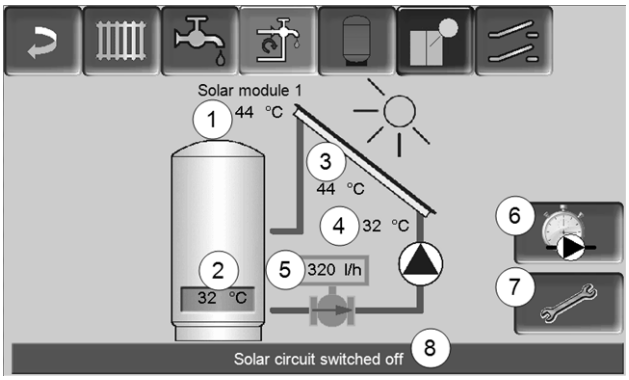


Fig. 2-38_10-005

1 Collector temperature (measured at the collector sensor)
2 Tank temperature bottom
3 Collector flow temperature
4 Collector return temperature
5 Solar circuit flow rate
6 Operating hours counter
7 Solar circuit settings
8 Solar circuit status line

Additional information on the solar functions, for which a charge is due, (e.g. controlling two or three solar cycles) will be provided in a separate manual upon purchase.

The solar yield is displayed in the *mySOLARFOCUS app* > 30 (prerequisite: A solar system controlled by the controleco$^{manager\text{-}touch}$, including thermal unit counter).

13 Temperature difference charge control

(optional additional function)

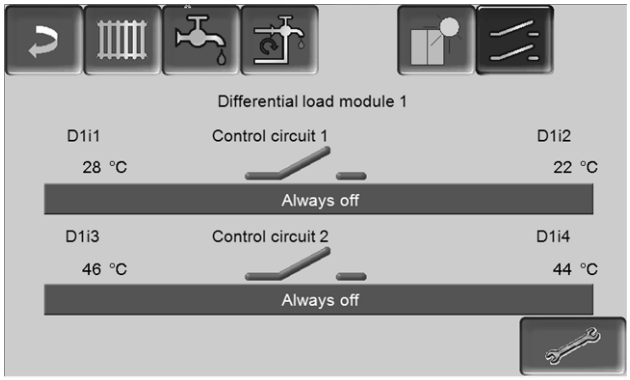


Fig. 2-39_11-002

- This function expands the control eco$^{manager\text{-}touch}$ with two (independent) differential control circuits. Suitable, for example, for charge pump control systems, for (rapid) tank charge, or return-stratification in the tank.
- The components of this charging circuit (e.g. circulation pump, motor valve, etc.) can be regulated by means of temperature differences between sensors.

Further information can be obtained in a separate set of instructions when you purchase this function.

14 mySOLARFOCUS app

Function: The *mySOLARFOCUS app* allows you to use your smartphone to access specific control eco^manager-*touch* functions:

- Setting the room temperature and heating circuit flow temperature, including heating times.
- Hot water programs, with one-time hot water tank loading.
- Display of the solar yield of your solar power system.

Installation and configuration of this function must be performed on site (i.e. not included in the commissioning and service activities).

14.1 Requirements for use

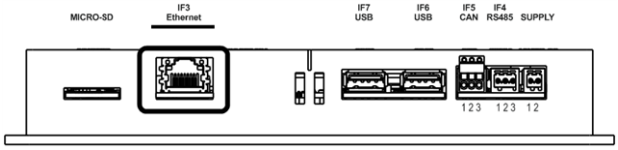
- The software version of the control is ≥ V 15.090; for thermi^nator II touch.
- The control must be connected to the internet.
- Smartphone with Apple IOS 7.0 or Android OS 4.4

14.2 Connecting the control to the internet

Create a connection between the router and the boiler control panel (touch display)

Use the following socket (RJ45) on the rear of the display:

- for boiler thermi^nator II touch *IF3 Ethernet*



IP configuration

► To access the *IP-VNC* icon, select it in the control

- *Selection menu* screen
- *Customer menu* screen
- Trained qualified personnel button 

► Enter the data for your router. Recommend process:

- Select *DHCP ON*.
  - ↳ The IP address is determined.
- Select the *DHCP OFF + Apply button* .

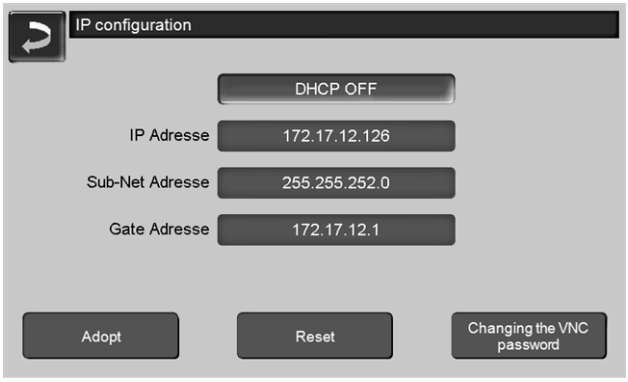


Fig. 2-40_02-031

- The IP address must be unique in each Ethernet network and is dependent on the other network components (PC, modem/router, etc).
- It is recommended to set a fixed IP address (=*DHCP OFF*), i.e. the control unit has a constant IP address.

14.3 Register on the web server

The touch display must be registered on the SOLARFOCUS Web server:

► Press the app button

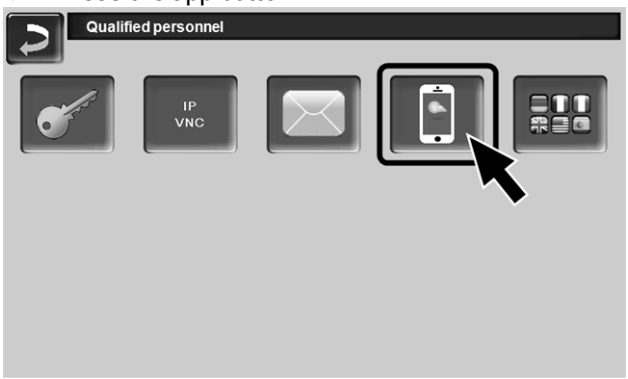


Fig. 2-41_01-126-05

► Continue by pressing *Accept*

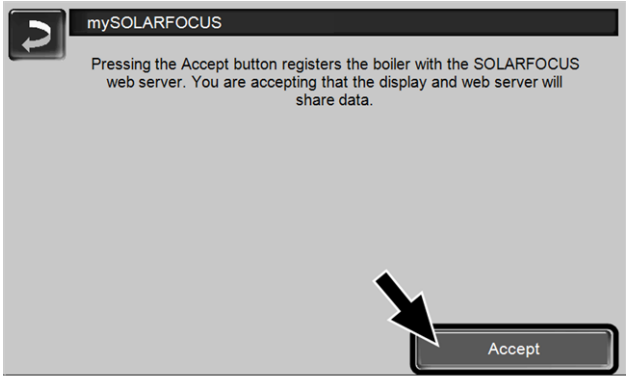


Fig. 2-42_01_127

► Note the serial number and PIN
► Switch the *Send data parameter* to *Yes*.

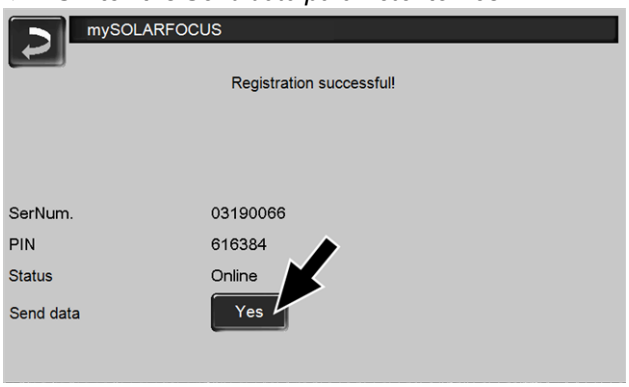


Fig. 2-43_01_129

If the connection is faulty, possible causes include:
► Check the connection from the display to the router.
► Check the IP addresses you have entered.
► Check your network router (e.g. status, etc.).

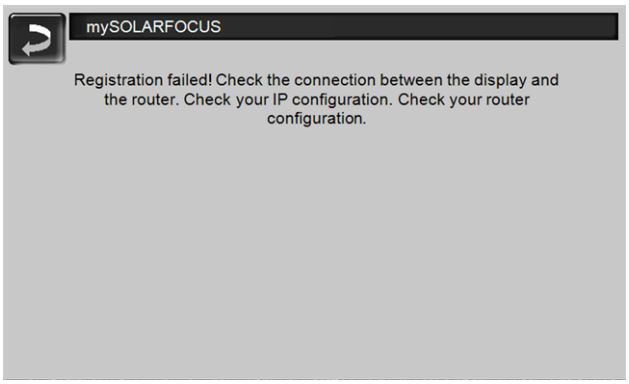


Fig. 2-44_01_128

14.4 Install App, Register

The *mySOLARFOCUS app* is available in the Apple Store and Google Play Store.
► Download, install and start the app.
► Press the *Register new user* button.

Fig. 2-45_01_130sn

► Enter the information required and press the *Register* button.
  ↳ An email will be sent to the email address you provided.
► Open the email and click on the *Confirm account* link.
  ↳ You can now sign into the app (to sign in, enter your email address and password).

14.5 Add system

☑ You have successfully signed into the app.
► Press the *Add new system* button.

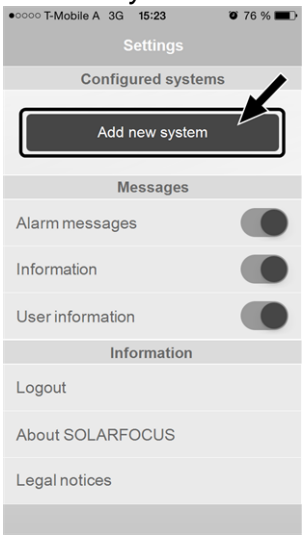


Fig. 2-46_15_002

► Enter the data for your heating system (serial number and PIN).

The weather forecast data for the weatherman function are sent to the boiler control on the basis of the Postcode and Location fields.

As an alternative to the app, you can also add systems on the website: https://www.mysolarfocus.com

Important: In principle only *one* user may access a system. If additional users wish to access a system, then they must be approved in advance *Approve additional users* > 32.

14.6 Use of the mySOLARFOCUS app

In the boiler control, the app icon indicates that the parameter has been changed on the basis of an entry in the app; e.g.

- in the *heating circuit* screen: If *short-term mode* has been activated in the app.
- in the *heating circuit* screen, in *room settings*
- in the *heating curve* screen

Changes using the app:

- In the heating circuit screen, only *Daily time switching* is available in heating circuit mode, and not *In blocks*.
- In the *heating drinking water* screen, the time switches Monday - Sunday and *In blocks* are not available for DHW tank mode.

14.7 Approve additional users

You can enable access to your control for additional users, for example heating engineers.

Issuing approval.

► Select the *Approval* menu item.

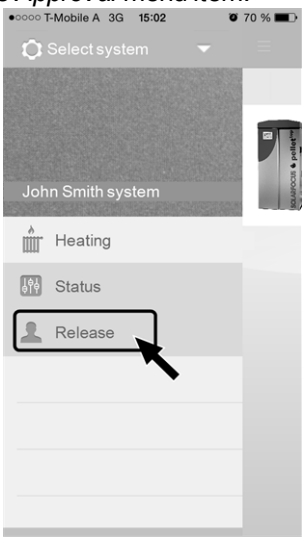


Fig. 2-47_15_005

► Enter the user's email address and select the *Invite* button.

↳ The invited user will receive an email with an approval code for the system. He can use this to add the system to his app account.

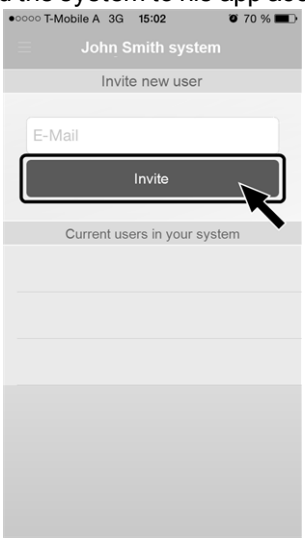


Fig. 2-48_15_006

15 Weatherman function

Function: The control eco^manager-*touch* receives current weather forecast data on an ongoing basis. If good weather is forecast, then the control delays starting the burner when there is a heating request.

The requirements for using the weatherman function are as follows:

- The software version of the control is ≥ V 15.090; for thermi^nator II touch.
- Registration of the heating boiler on the web server SOLARFOCUS, or in the *mySOLARFOCUS app*, > 30.

After successful online registration of the heating system, after approx. 2 to 3 hours, the 'weatherman' button *1* is displayed in the *Selection menu*.

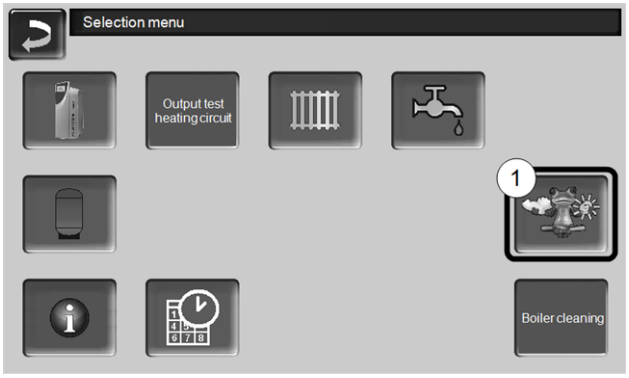


Fig. 2-49_01-132-01

Press the button *1* to access the weatherman menu.

If you cannot see the button, check the following (see *mySOLARFOCUS app*, > 30).

- Has your heating system been correctly registered on the SOLARFOCUS web server?
- Is the connection status between the control and the SOLARFOCUS web server *online*?
- Is the *Send data parameter* set to *Yes*?

15.1 Information

The *weatherman information* menu visualises the current weather forecast.

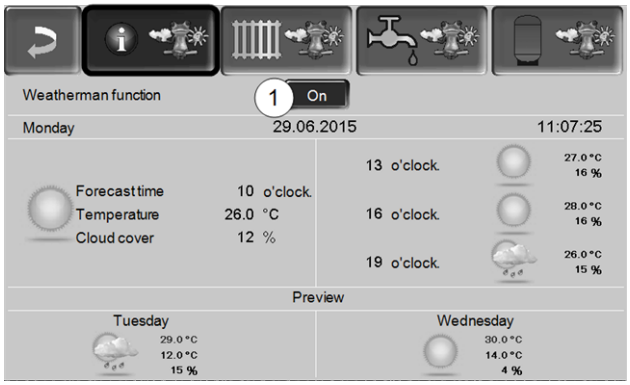


Fig. 2-50_01_121

Weatherman function *1*

Off: The weather forecast is shown in the display, but does not influence the control at all.

On: The weather forecast influences the behaviour of the control in the menus

- Heating circuit
- DHW heating
- Buffer tank

The following applies for three menus: The level of influence can be set using the plus/minus buttons on the bars, in 10 % steps,

- 0% means that good weather being forecast has no influence on the control of the heating circuit/drinking water/buffer tank charging.
- 100% means a maximum level of influence.

15.2 Heating circuit

This menu *1* is only visible when a heating circuit in the boiler control is enabled.

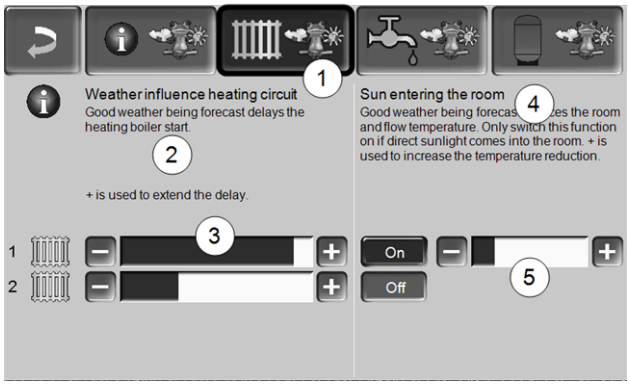


Fig. 2-51_01_122

Weather influence heating circuit *2*

This area is only visible when the heating circuit obtains its energy from a buffer tank enabled in the control.

Activate the *weather influence heating circuit function* only if the buffer tank is connected to a solar power system.

Good weather being forecast delays the start of the burner in the event of a request from the heating circuit. The bar *3* can be used to set the duration of the request delay for each heating circuit individually.

0% = no delay to burner start.
100% = maximum delay to burner start in the event of good weather being forecast.

If the function delays burner start due to good weather being forecast, then the weatherman icon appears in the main heating circuit menu.

The green column indicates the delay. When 100% is reached, it starts.

Solar yield in the room *4*

Activate this function only if solar radiation directly influences the heating circuit (e.g. solar radiation through a glass panel).

Good weather being forecast means that

- the flow temperature of the heating circuit is reduced (within the heating period),
- the room temperature is reduced (if the *Room influence* parameter is activated in the heating circuit menu).

The bar *5* can be used to set the temperature reduction for each heating circuit individually.

0% = no reduction in the heating circuit flow temperature, or the room temperature.

100% = maximum reduction in the heating circuit flow temperature, or the room temperature, in the event of good weather being forecast.

Within the heating period, the heating circuit flow temperature is reduced by a maximum of the *reduction* set in the *heating curve* screen.

Within the heating period, the inside setpoint temperature is reduced as a maximum to the inside setpoint temperature reduced mode set in the heating circuit room settings screen.

If the *Solar yield in the room* reduces the temperature (s) due to good weather being forecast, then the weatherman icon appears in the main heating circuit menu.

15.3 Domestic hot water

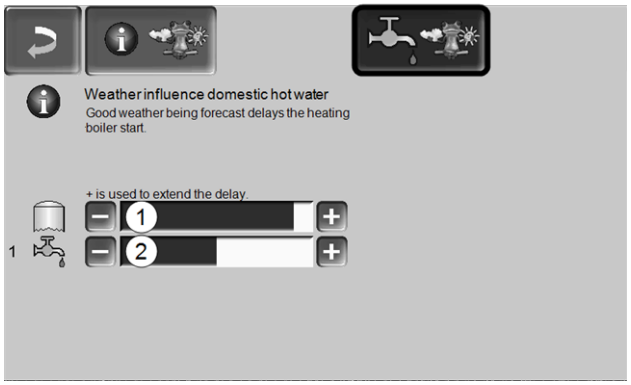


Fig. 2-52_01_123

1 DHW range for the boiler octo^{plus}
2 DHW tank / drinking water area 1 to 4

Activate the *weather influence drinking water* function only if the DHW tank/drinking water area is heated by a solar power system, or is charged from a buffer tank that is heated by a solar power system.

Good weather forecast delays the start of the burner in the event of a request from the DHW tank/drinking water area.

The bar can be used to set the duration of the request delay for each DHW tank/drinking water area individually.

0% = no delay to burner start.

100% = maximum delay to burner start in the event of good weather being forecast.

If the function delays burner start due to good weather being forecast, then the weatherman icon appears in the main drinking water menu.

The green column indicates the delay. When 100% is reached, it starts.

15.4 Buffer tank loading

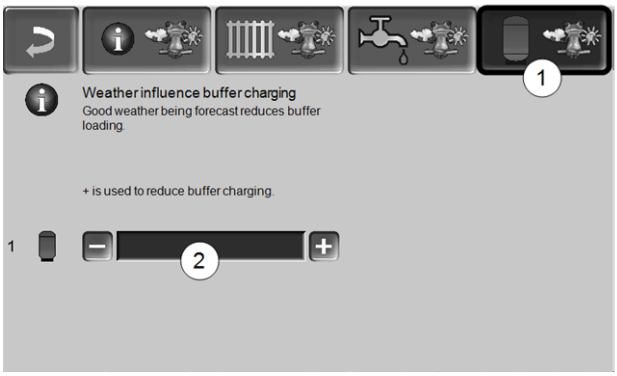


Fig. 2-53_01_124

This menu *1* is only visible when a buffer control in the boiler control is enabled.

In the event of good weather being forecast, the buffer tank is charged for a shorter time within the time release.

The bar *2* can be used to set the level of influence for each buffer tank individually.

0% = if the burner has started and the buffer tank is within a time release, the buffer tank is completely charged. The charge request is fulfilled when the *buffer temperature, lower,* has reached the *maximum buffer temperature, lower* (in the buffer tank main menu).

100 % = if the burner has started and the buffer tank is within a time release, the buffer tank is not completely charged. The charge request is already fulfilled when the *buffer temperature, lower,* has exceeded the *minimum buffer temperature, upper* (in the buffer tank main menu).

16 Maintenance and cleaning

Regular maintenance and cleaning of the heating system are a prerequisite

- for permanently reliable functioning of the boiler,
- for energy-saving and environmentally friendly operation of the boiler,
- for a long service life of the boiler.

Activities required

Depending on the type and scope of the maintenance, a distinction is made as to who can perform it (system operator SO or qualified personnel QP).

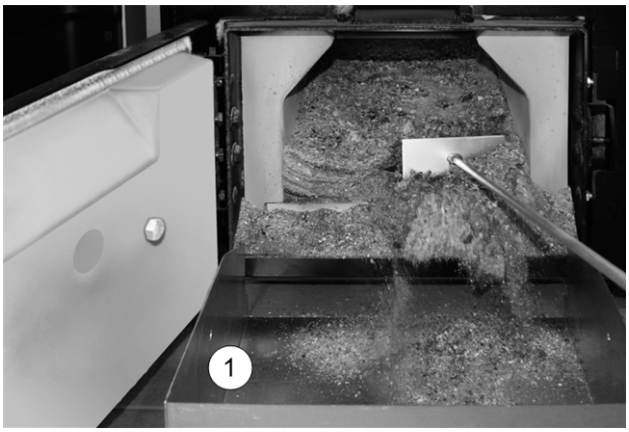
Activity	Interval	AB	FP
Remove ash from the combustion chamber	if there is a note relating to boiler cleaning	X	
Cleaning the primary air openings in the filling chamber	regularly	X	
Visual inspection of the combustion grate	regularly	X	
Visual check of the fire clay bricks	half-yearly	X	
Check system pressure	monthly	X	
Clean exhaust gas duct	yearly	X	
Check safety valve of the boiler safety group	yearly	X	
Maintenance by qualified personnel	yearly		X
Perform emissions measurement	as per regional regulations		X

Always perform the cleaning activities detailed above with the *boiler cleaning* function.

- The operating hour counter for the cleaning internal is set to zero.
- Heat exchanger cleaning is activated.

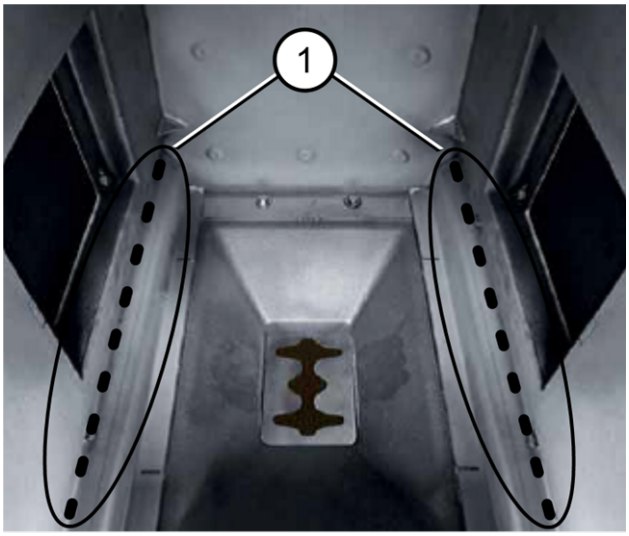
Remove ash from the combustion chamber

► Open the cladding door and combustion chamber door.
► Place the ash pans *1* in front of the combustion chamber.
► Clear the ash present in the combustion chamber using the ash scraper in the ash pan.

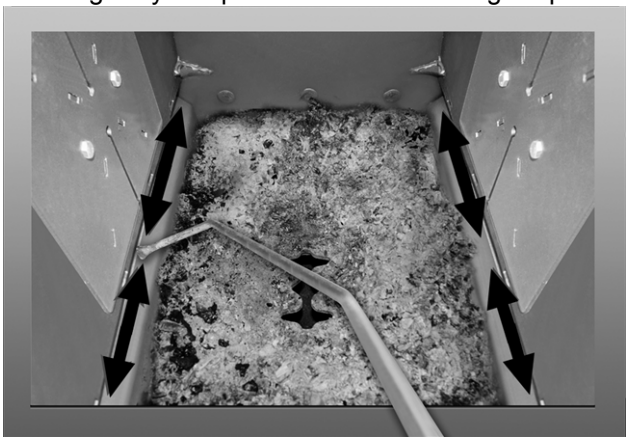


Cleaning the primary air openings

Cleaning is necessary if log wood is frequently used for heating. The primary air openings *1* are arranged in the left and right at the bottom of the boiler filling chamber. With log wood heating, deposits can form at these drilled holes (Ø ~8 mm), which restrict air outlet.



► Regularly scrape the drilled holes using the poker.



Visual inspection of the combustion grate

The stainless steel combustion grate is a wearing part and must be regularly checked for wear. In the event of advanced wear (visual check), replace the stainless steel combustion grate.

Visual check of the fire clay bricks

Check the fire clay bricks in the combustion chamber of the boiler for mechanical damage, e.g. breakage or cracks.

Check system pressure

The water pressure in the heating system can be read on the pressure gauge. As a rule of thumb (for buildings of up to three storeys), the pressure should be 1 to 2 bar for a cold system and 1.5 to 2.5 bar for a hot system.

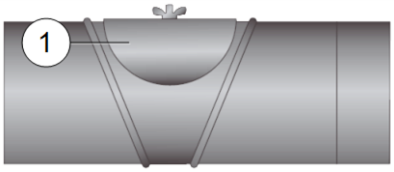
It is important that the pressure remains constant at all times. A constant fall in pressure requires the addition of extra water and indicates a fault in the system (e.g. a leak).

TIP: Make a note of the set system pressure during initial commissioning.

Clean exhaust gas duct

The flue pipe is located between boiler and chimney.

► Remove cover *1* in the flue gas pipe.



► Remove combustion deposits (e.g. dust, fly ash) from the pipe.

Check safety valve

Carry out a visual check for leaks at the valve (inspect around outlet of dump hose). The plant operator is advised not to turn the valve cap, as the valve may no longer seal completely afterwards.

Maintenance by qualified personnel

Depending on the operating hours (in each case after 1800 hours, fixed value) or a defined duration (in months), the control shows an indication of the necessary professional maintenance of the boiler.

Please contact your heating engineer or the SOLARFOCUS Service Hotline Biomass > 3

Boiler maintenance agreement

By purchasing a boiler maintenance agreement, SOLARFOCUS will manage the annual appointment and contact you directly when a maintenance appointment is due. Information on the maintenance agreement > 40

17 Perform emissions measurement

- The emissions measurement at the boiler is a legal requirement and must be performed by qualified personnel on a regular basis.
- Contact the competent chimney sweep and your heating installer for more information.
- The emissions measurement must be performed using the following function:

Chimney sweep measurement release

The chimney sweep function is available in the boiler operating mode screen > 11

Notes on chimney sweep measurement release

- May only be performed by qualified personnel.
- Before measuring (~1 week earlier), perform boiler cleaning > 35
- Ensure that the fuel is of the appropriate quality, and ensure that log wood is correctly filled.
- Do not open the boiler door during the measurement.
- Ensure sufficient heat removal for the boiler (e.g. energy removal to buffer store or heating circuit).
- The removal of heat is increased by opening the heating circuit mixer and by switching on the heating circuit pumps.

Start of the chimney sweep measurement release

► Press the  button.

↳ The chimney sweep icon appears in the main screen *1*

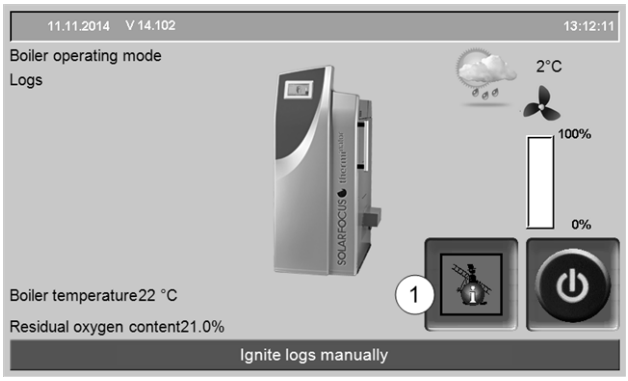


Fig. 2-54_01-188sn

A red icon *1* means: The function has started, but no *measurement enable* is available yet.

A green icon *1* means: The function has started and *measurement enable* is available.

When you press the icon *1*, a window opens with the following information:

– Have the criteria for *measurement enable* been fulfilled (yes/no).
– Remaining measuring period (this can be extended 5 minutes before expiry; notification appears).

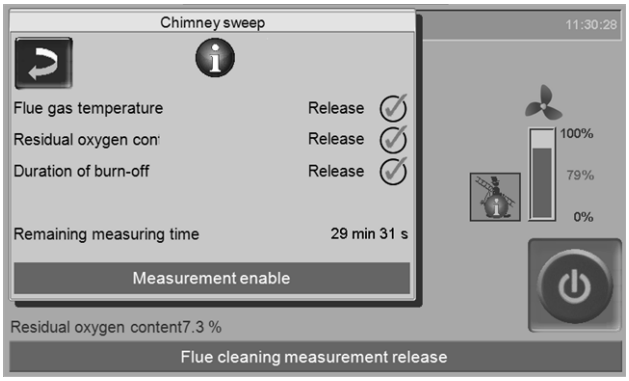


Fig. 2-55_01-190sn

When is it not possible to activate the chimney sweep function

– An alarm message is active in the boiler control.
– The boiler is in the fan lag period.
– The current boiler temperature is 2 °C < than the parameter *maximum required boiler temperature*.
– In the event of a power failure while this function is active, this must be reactivated after the boiler is started.

***Measurement enable status* - the boiler is ready for emissions measurement**

– Emissions measurement can be performed.
– The duration of *measurement enable* is 30 minutes.

End of chimney sweep measurement release

– Automatically, after the expiry of the *measurement period*.
– Manually, by pressing the *End* button in the notification that appears.

17.1 Emission measurement for external boilers

If necessary, use the menu *output test heating circuit* > 12 to carry out the emission measurement on an external boiler. In this menu, the electrical outputs for the remote boiler, 3-way motor valve as well as for the heating circuit pump and heating circuit can be switched on/off manually.

18 Troubleshooting

Faults that occur are displayed in an information window in the control and each message is save in the *message log* > 14.

Possible handling of messages

– Button *1*: Close window, change to main screen. The fault message remains active, ie the burner may not start depending on the type of message.
– Button *2*: Switch to the message log
– Button *3*: Acknowledge the message.
An acknowledgment is only possible if the cause of the fault has been rectified; the burner may then restart after a heating request is received.

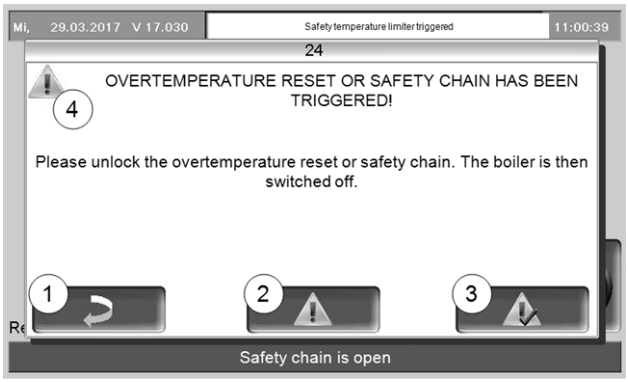


Fig. 2-56_14-021

Alarm/note symbol *4*

This symbol indicates an alarm message: The boiler is no longer ready for operation if such a message occurs.

This symbol indicates an alarm message: The boiler is still ready for operation.

An alarm message is visible at the top edge of the main screen until it is acknowledged *1*. Press to acknowledge the message (message window opens)

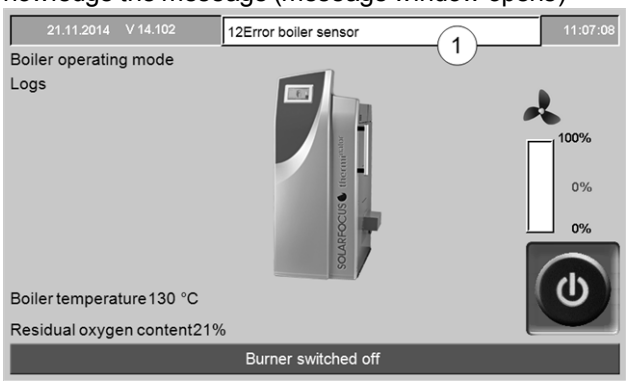


Fig. 2-57_01-102

Possible messages:

In accordance with the prevailing message, a distinction is made about who can take the required action (system operator SO or qualified personnel QP).

No.	Message	AB	FP
1	Bus disconnection		X
2	Mains fuse defective		X
3	Triac fuse defective		X
4	Fault in 24 V DC power supply		X
5	Safety temperature limiter has triggered!	X	
11	Safety chain has triggered		X
12	Error boiler sensor		X
14	Error in flue gas sensor		X
16	ID fan error		X
18	Combustion stopped	X	X
21	Logs automatic ignition fault	X	
24	Error lambda sensor measurement		X
27	Alarm - Heat exchanger blockage		X
28	Alarm - No current flow in the heat exchangers		X
29	Warning - Heat exchanger blockage	X	
32	Fresh water module fuse(s) defective		X
33	Solar module fuse(s) defective		X
34	Differential module fuse(s) defective		X
35	Network error RS485		X
38	Factory settings loaded		X
39	Read error setting data		X
40	Warning - No current flow in heat exchangers		X
44	Error HC module communication		X
45	Error SOL module communication		X
46	Error FW module communication		X
47	Error SSUE module communication		X
48	Error DIFF module communication		X
49	Error HCXL module communication		X
51	Door open	X	
52	Door open	X	

5 - Safety temperature limiter (STB) has tripped

Due to excessively low energy take-up, the boiler temperature may rise above ~90°C. In this case, the integrated safety temperature limiter (STL) trips and initiates a rapid shut-down of the boiler.

Information on the STB (unlocking on release) > 5

Feeding too much fuel (log wood), the boiler could provide too little energy.

– Check the buffer cylinder temperature before refilling; only supply as much fuel as required.

Power failure during operation

– If this occurs frequently: Contact qualified personnel (cause may be due a defect in the electrical power line/distributor)

Operating pressure in the heating system too low

– Too low pressure (possibly air in the line system) can be the reason for poor removal of the heat energy. Check the pressure, bleed the system.

18 - Combustion stopped

This message appears in the boiler operating mode *Log wood* when the combustion process had to be stopped due to multiple temperature limit violations.

Supply of too much fuel (log wood), although no energy reduction was provided

– Check the buffer cylinder temperature before igniting; only supply as much fuel as required.

Fault in circulation pump (return booster pump, buffer cylinder charging pump) or heating circuit mixing valve

– Check the pumps/ mixers by means of the screen *Output test*
– Pump /mixing valve is not electrically connected
– Air in the pump/ line - bleed

Operating pressure in the heating system too low

– Too low pressure (possibly air in the line system) can be the reason for poor removal of the heat energy. Check the pressure, bleed the system.

21 - Ignition fault, *automatic log wood function*

There was no need for automatic ignition using an ignition blower. The ignition fan is on the outside of the left or right boiler cladding. The hot ignition air is transferred to the fuel through an ignition pipe. The ignition pipe opens into the filling chamber just above the stainless steel combustion grate.)

Defective fuel filling

– refer to description of operating mode > 7 *Operating mode Logs automatic* > 20

Filling chamber or combustion chamber door not closed properly.

– Check.

Sediment in the mouth of the ignition pipe (in the filling chamber)

– Visual inspection, cleaning

Insufficient boiler cleaning

– see chapter on *Maintenance and cleaning* > 35

Fuel does not comply with specifications.

– see Chapter on *Fuel* > 4

Ignition blower defective

– Listening test to ensure that blower starts up; Contact qualified personnel.

Exhaust temperature sensor is not in the correct position (e.g. due to cleaning)

– Visual inspection (the sensor is positioned in the exhaust pipe, between boiler and chimney.

26 - Warning - Heat exchanger blockage

On the motor of the heat exchanger cleaning, increased current consumption was measured, i.e. a temporary stiffness of the heat exchanger cleaning has occurred. The boiler is operationally ready again.

Insufficient boiler cleaning

E.g. ash accumulation below the heat exchanger turbulators.

– Remove the ash from the combustion chamber all the way to the rear.

Fuel does not comply with specifications.

e.g. deposits on the heat exchangers possible.

– see Chapter on *Fuel* > 4

Boiler often works in partial load operation, the overtemperature reset (STB) often triggers

An indication of this problem is also when message *no.18* (*combustion stopped*) occurs frequently.

– Check the buffer cylinder temperature before refilling; only supply as much fuel as required.

51 - Door open

The cladding door is open, the burner stops the burn process when the time is exceeded (the remaining time is shown on the display).

52 - Door open

There is a heating request, the burner must not start because of the opened cladding door.

19 Maintenance contract

In order to maximise the convenience in use and lifetime of your boiler, it is recommended that you take out a maintenance contract. Under the maintenance contract, we take care of your boiler – because just like your car, your boiler should be serviced annually. The maintenance packages only become payable after the annual service.

For questions concerning the maintenance contract, please contact our biomass customer service > 3

Basic package

Runtime

The term of the Basic Package is unlimited. The Basic Package can be purchased at any time for one-off servicing work on commissioning by SOLARFOCUS plant customer service or by a certified specialist service partner. The confirmed commissioning format is a prerequisite.

Services performed

- Annual boiler inspection and inspection according to maintenance checklist. The travel costs and working time are included as part of the annual maintenance charge. Checking of control parameters and if necessary a free software update will be performed.
- In addition, another free service application, if required, is included in the basic package.
- The replacement work for spare parts and wearing parts are included as part of the annual or one-off service.
- Spare parts and wearing parts are charged in line with actual consumption.

Other

- If cleaning is required or desired, it will be charged separately (€ 25).
- The servicing of boiler cascade systems is charged separately.

The maintenance dates will be scheduled by headquarters. Unless cancelled by you, the basic package is automatically extended by one year and billed accordingly. We reserve the right to impose annual price adjustments and this should be taken into account. The prices quoted are without the statutory value-added tax.

Premium package

Runtime

The Premium Package has a 10-year term. After this time, it is converted to a Basic package.
The premium package can only be obtained from the SOLARFOCUS factory customer service at commissioning or
by a certified service partner up to 6 months afterwards. The commissioning form signed by the customer is a prerequisite. A copy of the commissioning form must be transferred to SOLARFOCUS within 10 days of commissioning. The warranty starts upon the date of commissioning. Annual maintenance on the system must be performed in accordance with the maintenance checklist, and by the SOLARFOCUS plant customer service or a specialist service partner. A copy of the maintenance checklist, signed by the customer, must be transferred to SOLARFOCUS within 10 days of the maintenance.

Services performed

- Annual boiler inspection and inspection according to maintenance checklist.
- The replacement work for spare parts and wearing parts are included as part of the annual or one-off service.
- 10 years full warranty on the seal of the water-carrying components in the boiler body.
- 5 years full warranty on electromechanical components for the automatic fuel feed to the boiler (pellets & wood chips), such as suction turbine, gearmotors.
- 5 years full warranty on all electrical components on the boiler, such as motors, sensors, control, touch control unit or ignition.
- 5 years warranty on wear parts. Wearing parts are charged from the 6th year. Wear parts include seals, refractory lining (clay bricks) in the combustion and ash chamber, hoppers made from cast chrome steel and stainless steel, fire-contacting components of the heat exchanger and flying ash cleaning unit as well as motor condensers.

Other

- If cleaning is required or desired, it will be charged separately (€ 25).
- The servicing of boiler cascade systems is charged separately.

The maintenance dates will be scheduled by headquarters. The premium package will, unless you cancel it,

Be renewed automatically and billed annually. We reserve the right to impose annual price adjustments and this should be taken into account. The prices quoted are without the statutory value-added tax.

Applicable for all packages: The maintenance dates will be scheduled by the SOLARFOCUS company. Unless cancelled by you, maintenance packages are automatically extended by one year and billed accordingly. We reserve the right to impose annual price adjustments/increases and this should be taken into account.

Checklist (for all maintenance packages)

The annual boiler service includes the following:

- Visual assessment of the boiler, including wearing parts.
- Inspection and function check of all electrical and mechanical components, including automatic fuel feed to the boiler (pellets & wood chips)
- Visual inspection of the hydraulic safety fittings and the seal on the flue gas side; (however, correction of faulty seals is not included).
- Functional test of all connected measurement and control devices on the boiler.
- Functional test of the electrical safety devices.
- Test operation of the system and flue gas measurement (does not replace any local legal requirements for measurement).

Warranty and guarantee

- The warranty begins at the time at the time of handover (delivery note, commissioning form).
- If the system has defects despite correct installation (in compliance with the technical documentation), we grant a warranty provided that the system has been examined by the plant customer service (commissioning form).
- The warranty periods are based on the relevant regulations.
- The warranty period is calculated from the date of initial commissioning.
- The guarantee applies to technical, construction-related faults and faults in the manufacture of the system that prevent correct and problem-free usage.
- We shall not be liable for components that we have not manufactured; however, we will be prepared to transfer our rights to claim against the manufacturer of defective components to the purchaser.
- No claims can be accepted under the warranty if unauthorised intervention (or action that has not been explicitly approved by us) has been carried

out. In addition, the goods must be paid for within the specified payment timeframe.
- We must be notified promptly and accurately of any damage incurred, so that the cause can be clarified.
- In fulfilling the warranty/guarantee services, we shall cover only the assembly time and the materials used, but not any travel or accommodation costs necessary for the fitters/engineers or any return transport costs.
- No liability is accepted for any consequential costs.
- The repair and/or warranty replacement shall be carried out on site or in the SOLARFOCUS factory at our discretion.
- The company SOLARFOCUS will determine whether such work requires a repair or whether the parts are to be replaced free of charge.
- The warranty period is calculated from the date of initial commissioning.
- The guarantee applies to technical, construction-related faults and faults in the manufacture of the system that prevent correct and problem-free usage.
- We shall not be liable for components that we have not manufactured; however, we will be prepared to transfer our rights to claim against the manufacturer of defective components to the purchaser.
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- The company SOLARFOCUS will determine whether such work requires a repair or whether the parts are to be replaced free of charge.

Expiry of maintenance, warranty and guarantee services:

The maintenance, warranty and guarantee services expire if one of the following points applies:

- Non-observance of information in the planning, installation and operating instructions.
- Non-functional return booster module installed (for pellet^{top} / thermi^{nator} II).
- Commissioning and maintenance carried out by non-certified companies.
- Undocumented commissioning and maintenance checklist
- Wilful damage.
- Incorrect operation and failure to perform maintenance and cleaning as prescribed.
- Damage due to force majeure (water, fire, etc.).
- Damage during transport.
- It is almost impossible to produce flawless painted parts; for this reason, slight defects that do not adversely affect proper use shall not be deemed as grounds for complaint.
- Faults that occur due to use of unsuitable fuels.
- Insufficient energy or water, fault in the hydraulics.

Addendum: All values listed in our documentation are non-binding. We reserve the right to make changes to the design, modify the construction (also with respect to the values and samples) in the course of continuous product improvement.

20 ErP product data sheet

According to Regulation (EU) 2015/1187 and 2015/1189

Manufacturer	SOLARFOCUS GmbH., Werkstraße 1, 4451 St.Ulrich/Steyr				
Model designation	thermi^{nator} II 18	thermi^{nator} II 27	thermi^{nator} II 36	thermi^{nator} II 49	thermi^{nator} II 60
Energy efficiency class	A+	A+	A+	A+	A+
Nominal heat output P_r kW	18	27	36	49	60
Energy Efficiency Index EEI %	120	118	118	119	118
Space heating annual usage η_s %	82	80	80	81	80
Special precautions to be taken for assembly, installation and maintenance	The enclosed technical data sheets, assembly instructions and warranty passes must be observed before assembly, installation or maintenance. The relevant, country-specific standards and guidelines must be observed for the installation and operation of the solid fuel boiler.				

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Austria

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