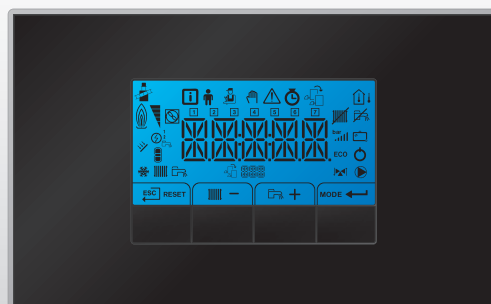
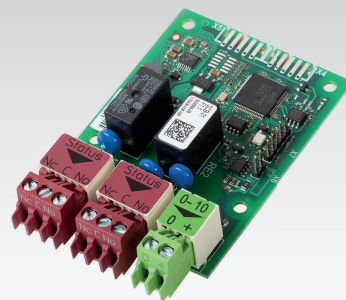




1



2



Installation and User Manual

Control panel & PCB & High-efficiency floor-standing gas boiler

Gas 220 Ace
HMI S-control
SCB-01

Dear Customer,

Thank you very much for buying this appliance.

Please read through the manual carefully before using the product, and keep it in a safe place for later reference. In order to ensure continued safe and efficient operation we recommend that the product is serviced regularly. Our service and customer service organisation can assist with this.

We hope you enjoy years of problem-free operation with the product.

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1 Safety

1.1 Liabilities

1.1.1 Manufacturer's liability

Our products are manufactured in compliance with the requirements of the various Directives applicable. They are therefore delivered with the CE marking and any documents necessary. In the interests of the quality of our products, we strive constantly to improve them. We therefore reserve the right to modify the specifications given in this document.

Our liability as manufacturer may not be invoked in the following cases:

- Failure to abide by the instructions on installing and maintaining the appliance.
- Failure to abide by the instructions on using the appliance.
- Faulty or insufficient maintenance of the appliance.

1.1.2 Installer's liability

The installer is responsible for the installation and initial commissioning of the appliance. The installer must observe the following instructions:

- Read and follow the instructions given in the manuals provided with the appliance.
- Install the appliance in compliance with prevailing legislation and standards.
- Carry out initial commissioning and any checks necessary.
- Explain the installation to the user.
- If maintenance is necessary, warn the user of the obligation to check the appliance and keep it in good working order.
- Give all the instruction manuals to the user.

1.1.3 User's liability

To guarantee optimum operation of the system, you must abide by the following instructions:

- Read and follow the instructions given in the manuals provided with the appliance.
- Call on a qualified professional to carry out installation and initial commissioning.
- Get your installer to explain your installation to you.

- Have the required inspections and maintenance carried out by a qualified installer.
- Keep the instruction manuals in good condition close to the appliance.

2 About this manual

2.1 Symbols used in the manual

This manual contains special instructions, marked with specific symbols. Please pay extra attention when these symbols are used.



Caution

Risk of material damage.



Important

Please note: important information.



See

Reference to other manuals or pages in this manual.

3 Description of the product

The Gas 220 Ace boiler is delivered with a combination of the control panel, control unit and extension PCB. The contents of this manual are based on the following software and navigation information:

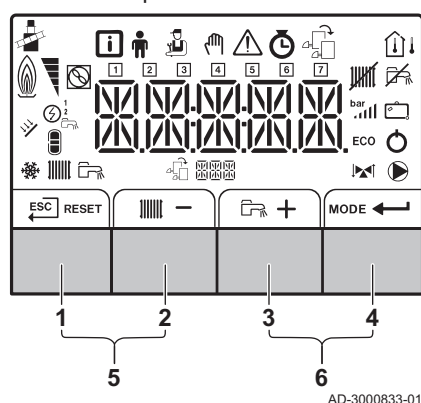
Tab.1 Software and navigation information

	Name visible in display	Software version
Boiler Gas 220 Ace	FSB-WHB-HE-150-300	01.07
Control panel HMI S-control	HMI	02.01
PCB SCB-01	SCB-01	00.02

3.1 Control panel description

3.1.1 What each key means

Fig.1 Control panel



- 1 Escape: Back to the previous level.
RESET Reset: Manual reset.
- 2 CH flow temperature Access to set temperature.
—Min. key: Lowering the value.
- 3 DHW temperature: Access to set temperature.
+ Plus key: Raising the value.
- 4 MODE CH/DHW function: Toggles function ON/OFF
← Enter key: Confirms selection or value.
- 5 Chimney-sweeping keys
- 6 Menu keys



Important

Press the 1 and 2 keys simultaneously.














Important

Press the 3 and 4 keys simultaneously.

3.1.2 Meaning of the symbols on the display

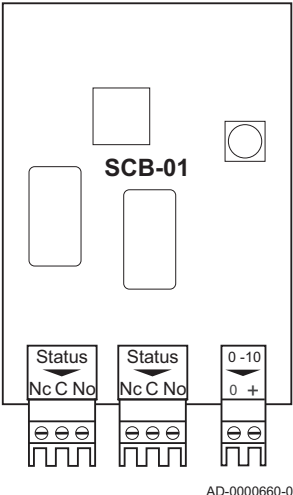
Tab.2 Possible symbols in the display (depending on available devices or functions)

	Chimney sweep mode is enabled (forced full load or part load for O ₂ /CO ₂ measurement).
	Information menu: read out various current values.
	User menu: user-level parameters can be configured.
	Installer menu: installer level parameter can be configured.
	Manual mode menu: manual mode can be configured.
	Error menu: errors can be read out.
	Hour counter/timer program/time display menu.
	Control PCB menu: (optional) control PCBs can be read out.
	The outside temperature sensor is connected.
	The room temperature sensor is connected.
	The burner output level (1 to 5 bars, with each bar representing 20% output)
	The heat pump is switched on.
	Day display
	Central heating operation is switched off.

	DHW operation is switched off.
	The solar boiler is on and its heat level is displayed.
	System water pressure display.
	The holiday program is enabled.
	Frost protection operation is enabled.
	CH operation is enabled.
	DHW operation is enabled.
	Displaying the selected PCB.
	The three-way valve is switched on.
	The circulation pump is turning.
ECO	ECO mode operation is enabled.
	Switch the appliance off then on again.

3.2 Description of the SCB-01 PCB

Fig.2 SCB-01 PCB



The expansion board SCB-01 has the following features:

- 0–10 V output connection for a PWM system pump
- Two potential-free contacts for status notification



Important

- If the boiler is fitted with the SCB-01 board, then this is automatically recognised by the automatic control unit of the boiler.
- On removing this board, the boiler will show an error code. To prevent this error, carry out an auto-detect immediately after removing this board.



For more information, see
Carrying out an auto-detect, page 18

4 User instructions

4.1 Use of the control panel

4.1.1 Browsing in the menus

i Important

- Depending on the devices or control PCBs connected, the control panel shows selection options in some menus.
- First, select a device, control PCB or zone to view or amend a setting.

1. Press any key to activate the controller from the stand-by screen.

Fig.3 Step 1



MW-3000377-02

Fig.4 Step 2



MW-3000299-01

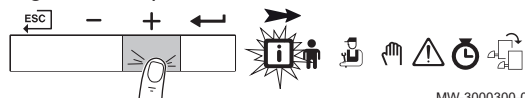
2. Access the available menu options by pressing the two keys on the right simultaneously.

Tab.3 Possible menu choices

i	Information Menu
	User menu
	Installer Menu
	Manual mode menu
	Failure Menu
	Hour Run Meters / Timer Program / Clock menu
	PCB menu ⁽¹⁾
(1) The icon is displayed only if an optional control PCB has been installed.	

3. Press the **+** key to move the cursor to the right.

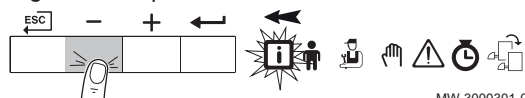
Fig.5 Step 3



MW-3000300-02

4. Press the **-** key to move the cursor to the left.

Fig.6 Step 4



MW-3000301-02

5. Press the **←** key to confirm selection of the required menu or parameter.

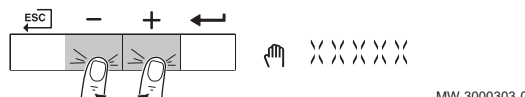
Fig.7 Step 5



MW-3000302-01

6. Press the **+** or **-** key to modify the value.

Fig.8 Step 6



MW-3000303-01

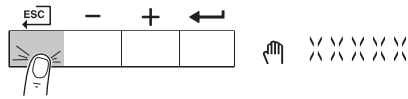
7. Press the **←** key to confirm the value.

Fig.9 Step 7



MW-3000304-01

Fig.10 Step 8



MW-3000305-01

8. Press the key to go back to the main display.

**Important**

The screen will return to stand-by if no key is pressed for three minutes.

4.2 Setting the language and time

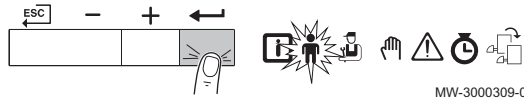
**Important**

First set the desired language, then the correct time, day and date before further use of the control panel.

4.2.1 Setting the language

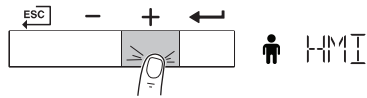
1. Navigate to the User menu.
2. Press the key to open the User menu.

Fig.11 Step 2



MW-3000309-01

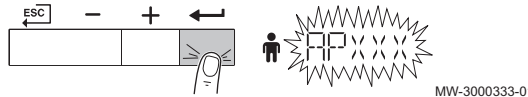
Fig.12 Step 3



MW-3000390-01

3. Keep pressing the key until **HMI** is displayed.

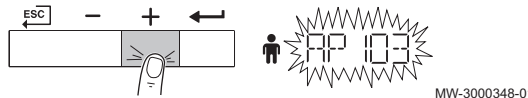
Fig.13 Step 4



MW-3000333-01

4. Press the key to confirm the selection.

Fig.14 Step 5



MW-3000348-01

5. Keep pressing the key until **AP 103** is displayed.

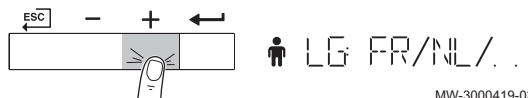
Fig.15 Step 6



MW-3000349-01

6. Press the key to confirm the parameter.

Fig.16 Step 7



MW-3000419-03

7. Keep pressing the key until the required language code is displayed.

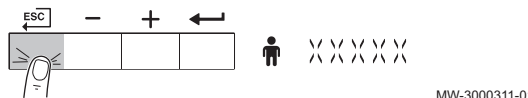
Fig.17 Step 8



MW-3000447-03

8. Press the key to confirm the choice of language.

Fig.18 Step 9



MW-3000311-01

9. Press the key repeatedly or press and hold the key to return to the main display.

4.2.2 Setting the time and date

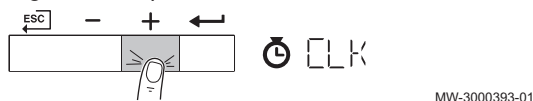
1. Navigate to the Counter menu.

Fig.19 Step 2



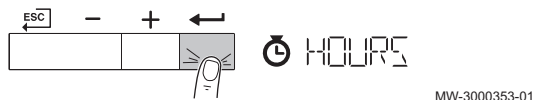
2. Press the ← key to open the counter menu.

Fig.20 Step 3



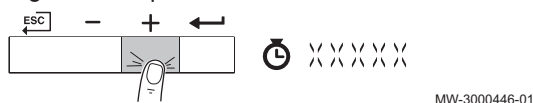
3. Keep pressing the + key until the Time display menu is displayed.

Fig.21 Step 4



4. Press the ← key to access the hours.

Fig.22 Step 5



5. Press the + key to access the following parameters:

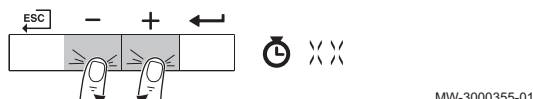
- Minutes
- Day
- Month
- Year

Fig.23 Step 6



6. Press the ← key to confirm the parameter.

Fig.24 Step 7



7. Press the key + or - to change the value.

Fig.25 Step 8



8. Press the ← key to confirm the value.

Fig.26 Step 9



9. Press the ESC key multiple times to go back to the main display.

4.3 Changing the central heating flow temperature

The central heating flow temperature can be raised or lowered separately from the heating requirement.



Important

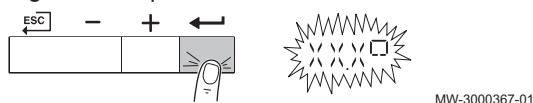
The central heating flow temperature can only be adjusted in this way if an on/off thermostat is used.

Fig.27 Step 1



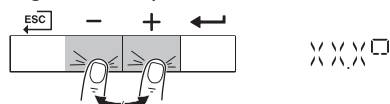
1. Press the MODE key to select the central heating flow temperature.

Fig.28 Step 2



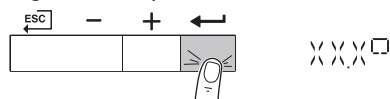
2. Press the ← key to access the central heating flow temperature.

Fig.29 Step 3



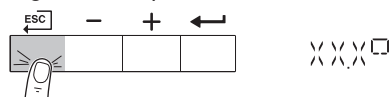
MW-3000368-01

Fig.30 Step 4



MW-3000369-01

Fig.31 Step 5



MW-3000370-01

3. Press the **+** or **-** key for the required CH flow temperature.

4. Press the **←** key to confirm the value.

5. Press the **ESC** key to go back to the main display.

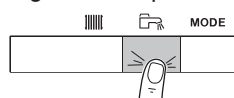
**Important**

The flow temperature is matched automatically when using a:

- weather-dependent regulator
- **OpenTherm** regulator
- eTwist modulating thermostat

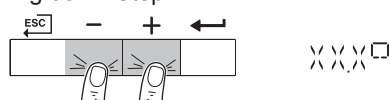
4.4 Changing the DHW temperature

Fig.32 Step 1



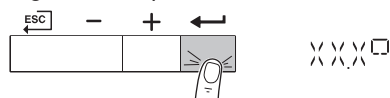
MW-3000371-01

Fig.33 Step 2



MW-3000368-01

Fig.34 Step 3



MW-3000369-01

The temperature of the domestic hot water can be changed as needed.

1. Press the **MODE** key to select the domestic hot water temperature.

2. Press the **+** or **-** key for the required DHW temperature.

3. Press the **←** key to confirm the value.

4.5 Setting the Timer Program

If a timed thermostat is not being used, the timer program for the appliance can be used. The Timer Program can be used to lower the heating temperature during the night or an absence during the day. A start and end time for the lower temperature can be set in the Timer Program.

**Important**

- Activate the timer program using the parameter:

CP320

- The timer program can be set for each zone (heating, domestic hot water or cooling).

1. Navigate to the Counter menu.

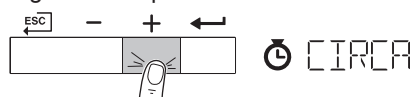
2. Press the **←** key to open the menu.

Fig.35 Step 2



MW-3000320-01

Fig.36 Step 3

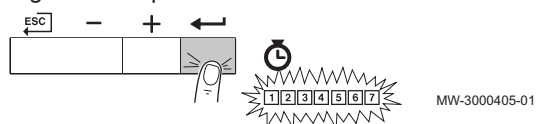


MW-3000404-01

3. Keep pressing the **+** key until the required zone is displayed.

⇒ If there is only a direct heating group, the only option that appears is CIRCA (circuit A).

Fig.37 Step 4



MW-3000405-01

Fig.38 Step 5



MW-3000360-01

Fig.39 Step 6



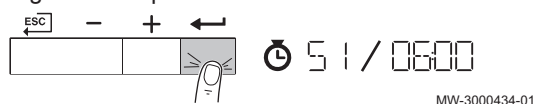
MW-3000433-01

Fig.40 Step 7



MW-3000361-01

Fig.41 Step 8



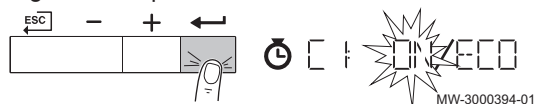
MW-3000434-01

Fig.42 Step 9



MW-3000391-01

Fig.43 Step 10



MW-3000394-01

4. Press the key to confirm the selection.

⇒ The icons dedicated to the days of the week all flash at the same time: **1 2 3 4 5 6 7**.

5. Select the required day number by keeping the **+** or **-** key pressed until the icon for the required day flashes.

Tab.4 Day numbers

Day selected	Description
1 2 3 4 5 6 7	Every day of the week
1	Monday
2	Tuesday
3	Wednesday
4	Thursday
5	Friday
6	Saturday
7	Sunday

6. Press the key to confirm the selection.

7. Set the start time **S1** by pressing the **+** or **-** key.

Tab.5 Options

Abbreviation	Description
END	End of programming
S	Switching time or end of day indication (max. 6 switching times)
C	Temperature setting (lower night or comfort temperature)

8. Press the key to confirm the selection.

9. Select the status **C1** corresponding with the switch time **S1** by pressing the **+** or **-** key.

Tab.6 Statuses **C1** to **C6** for the periods **S1** to **S6**

C1 to C6	Description
ON	Comfort temperature
ECO	Lower night temperature

10. Press the key to confirm the selection.

11. Repeat the steps to define the switch times (**S1** to **S6**) and the corresponding statuses (**C1** to **C6**).


12. Press the key multiple times to go back to the main display.


Tab.7 Example

Times	1 Monday	2 Tuesday	3 Wednesday	4 Thursday	5 Friday	6 Saturday	7 Sunday
06:00	S1 C1 = ON	S1 C1 = ON	S1 C1 = ON	S1 C1 = ON	S1 C1 = ECO	S1 C1 = ECO	S1 C1 = ON
08:00							
10:00	S2 C2 = ECO	S2 C2 = ECO	S2 C2 = ECO	S2 C2 = ECO	S2 C2 = ON	S2 C2 = ON	S2 C2 = ECO
12:00							
14:00		S3 C3 = ON	S3 C3 = ON	S2 C2 = ECO	S2 C2 = ON	S3 C3 = ECO	
16:00							
18:00	S3 C3 = ON	S4 C4 = ECO	S4 C4 = ECO	S3 C3 = ON	S2 C2 = ON	S4 C4 = ON	
20:00							
22:00	S4 C4 = ECO			S4 C4 = ECO	S2 C2 = ON	S5 C5 = ECO	
23:50							

4.6 Changing user parameters

The parameters in the user menu can be changed by the end user or the installer.

**Important**
First, select a device, control PCB or zone to view or amend a setting.

**Caution**
Modification of the factory settings may impair operation of the device, control PCB or zone.

1. Navigate to the User menu.
2. Press the ← key to open the menu.
3. Keep pressing the + key until the required device, control PCB or zone is displayed.
4. Press the ← key to confirm the selection.
5. Keep pressing the + or − key until the required parameter is displayed.
6. Press the ← key to confirm the selection.
7. Press the + or − key to modify the value.

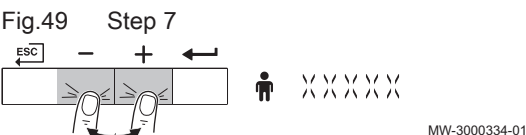
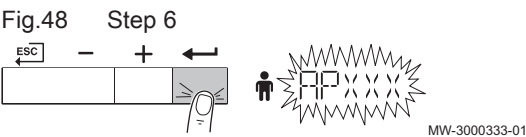
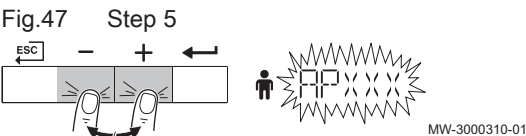
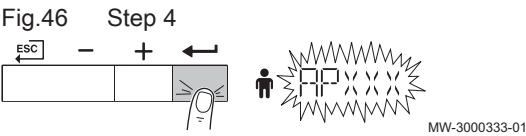
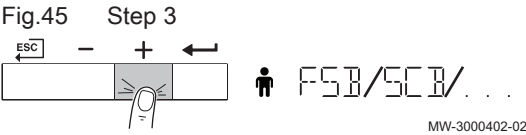
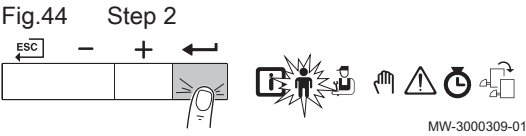
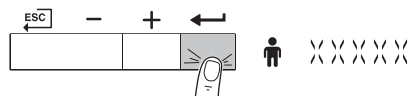


Fig.50 Step 8



MW-3000335-01


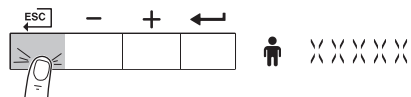
8. Press the  key to confirm the value.

Fig.51 Step 9



MW-3000311-01

9. Press the  key multiple times to go back to the main display.

5 Installer instructions

5.1 Changing installer parameters

The parameters in the Installer Menu must only be changed by a qualified professional. Code **0012** must be entered in order to change the parameters.



Important

First, select a device, control PCB or zone to view or amend a setting.



Caution

Modification of the factory settings may impair operation of the device, control PCB or zone.

Fig.52 Step 2



Fig.53 Step 3

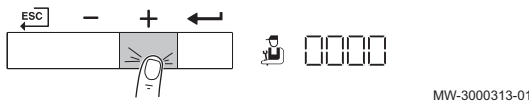


Fig.54 Step 4

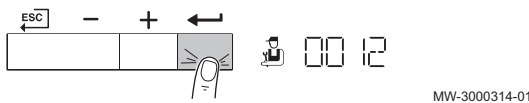


Fig.55 Step 5



Fig.56 Step 6



Fig.57 Step 7

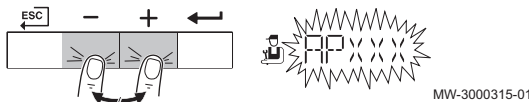


Fig.58 Step 8

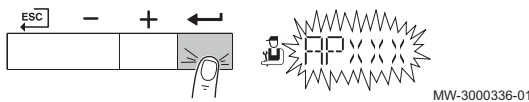


Fig.59 Step 9

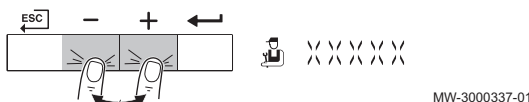


Fig.60 Step 10



1. Navigate to the Installer menu.
2. Press the key to open the menu.

3. Keep pressing the **+** key until the code **0012** is displayed.

4. Press the key to confirm opening the menu.

5. Keep pressing the **+** key until the required device, control PCB or zone is displayed.

6. Press the key to confirm the selection.

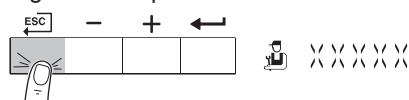
7. Keep pressing the **+** or **-** key until the required parameter is displayed.

8. Press the key to confirm the selection.

9. Press the **+** or **-** key to modify the value.

10. Press the key to confirm the value.

Fig.61 Step 11



MW-3000316-01

11. Press the key multiple times to go back to the main display.

5.2 Adjusting advanced parameters

The advanced parameters at installer level may only be changed by a qualified professional. Code must be entered in order to change the parameters.



Important

First, select a device, control PCB or zone to view or amend a setting.



Caution

Modification of the factory settings may impair operation of the device, control PCB or zone.

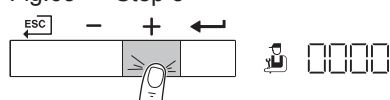
1. Navigate to the Installer menu.
2. Press the key to open the menu.

Fig.62 Step 2



MW-3000312-01

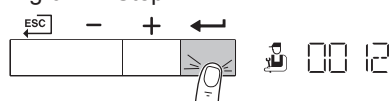
Fig.63 Step 3



MW-3000313-01

3. Keep pressing the key until the code is displayed.

Fig.64 Step 4



MW-3000314-01

4. Press the key to confirm opening the menu.

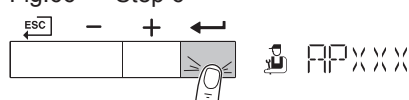
Fig.65 Step 5



MW-3000406-02

5. Keep pressing the key until the required device, control PCB or zone is displayed.

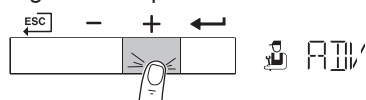
Fig.66 Step 6



MW-3000407-01

6. Press the key to confirm the selection.

Fig.67 Step 7



MW-3000408-01

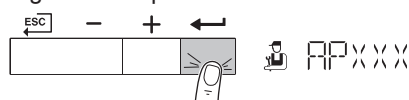
7. Keep pressing the key until is displayed.



Important

The text can only appear if the advanced parameters for the appliance, control PCB or zone are available.

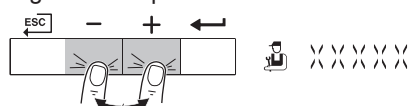
Fig.68 Step 8



MW-3000407-01

8. Press the key to confirm the selection.

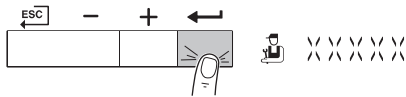
Fig.69 Step 9



MW-3000337-01

9. Press the or key to modify the value.

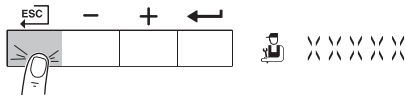
Fig.70 Step 10



MW-3000338-01

10. Press the ← key to confirm the value.

Fig.71 Step 11



MW-3000316-01

11. Press the ESC key multiple times to go back to the main display.

5.3 Carrying out an auto-detect

Carry out an auto-detect after removing or replacing an (optional) control PCB.

1. Navigate to the Installer menu.
2. Press the ← key to open the menu.

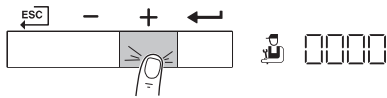
Fig.72 Step 2



MW-3000312-01

3. Keep pressing the + key until the code 0012 is displayed.

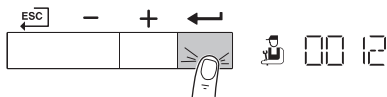
Fig.73 Step 3



MW-3000313-01

4. Press the ← key to confirm opening the menu.

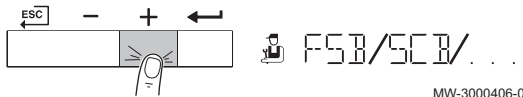
Fig.74 Step 4



MW-3000314-01

5. Keep pressing the + key until the device is displayed.

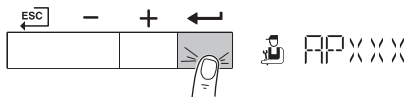
Fig.75 Step 5



MW-3000406-02

6. Press the ← key to confirm the selection.

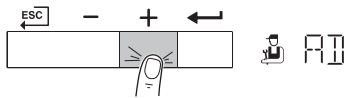
Fig.76 Step 6



MW-3000407-01

7. Keep pressing the + key until AD is displayed.

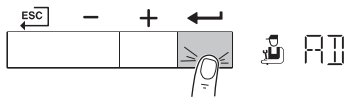
Fig.77 Step 7



MW-3000412-01

8. Press the ← key to carry out the auto-detect.
9. After a while, the main display is shown; auto-detect is complete.

Fig.78 Step 8



MW-3000413-01

5.4 Restoring to factory settings

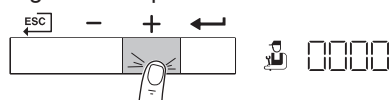
1. Navigate to the Installer menu.
2. Press the ← key to open the menu.

Fig.79 Step 2



MW-3000312-01

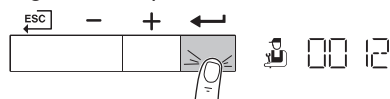
Fig.80 Step 3



MW-3000313-01

3. Keep pressing the **+** key until the code **0012** is displayed.

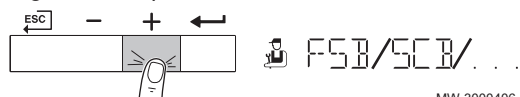
Fig.81 Step 4



MW-3000314-01

4. Press the **←** key to confirm opening the menu.

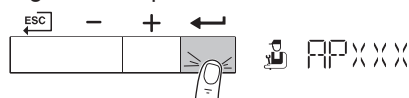
Fig.82 Step 5



MW-3000406-02

5. Keep pressing the **+** key until the required device or PCB is displayed.

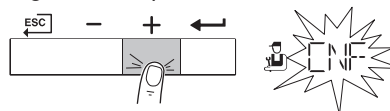
Fig.83 Step 6



MW-3000407-01

6. Press the **←** key to confirm the selection.

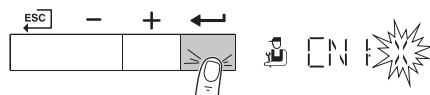
Fig.84 Step 7



MW-3000448-01

7. Keep pressing the **+** key until **CNF** is displayed.

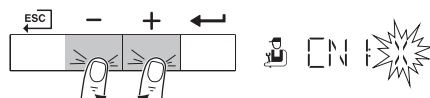
Fig.85 Step 6



MW-3000343-01

8. Press the **←** key to open the first factory setting **CN1**.

Fig.86 Step 7

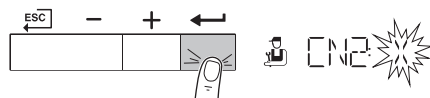


MW-3000344-01

9. Press the **+** or **-** keys to modify the value.

**See**The data plate for the **CN1** value.

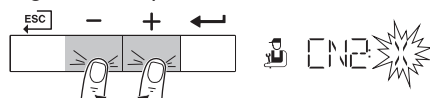
Fig.87 Step 8



MW-3000345-01

10. Press the **←** key to confirm the value.

Fig.88 Step 9

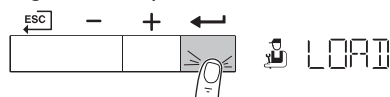


MW-3000346-01

11. Press the **+** or **-** keys to modify the value.

**See**The data plate for the **CN2** value.

Fig.89 Step 10



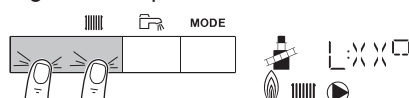
MW-3000347-01

12. Press the **←** key to confirm the value.

⇒ The factory settings are reset. The display shows various information and returns to the main display after 3 minutes.

5.5 Chimney sweep mode (forced full load or part load)

Fig.90 Step 1

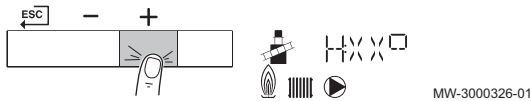


MW-3000325-01

1. Press the two keys on the left simultaneously to select chimney sweep mode.

⇒ The device is now running at part load. Wait until **L:XXX** appears on the display.

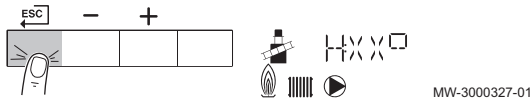
Fig.91 Step 2



2. Press the **+** key twice.

⇒ The device is now running at full load. Wait until **H:XX.X** appears on the display.

Fig.92 Step 3



3. Press the **ESC** key to go back to the main display.

5.6 Connected control PCBs

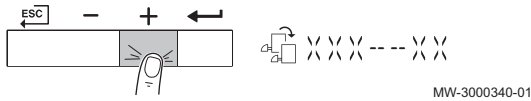
Fig.93 Step 2



1. Navigate to the control PCB menu.

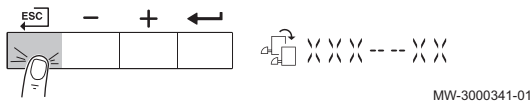
2. Press the **←** key to open the menu.

Fig.94 Step 3



3. To see which control PCBs are connected, press the **+** key.

Fig.95 Step 4



4. Press the **ESC** key twice to go back to the main display.

5.7 Activating the manual mode menu

In some cases, it may be necessary to set the device to manual mode, for example when the controller has not yet been connected.

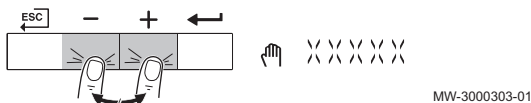
Fig.96 Step 2



1. Navigate to the manual mode menu.

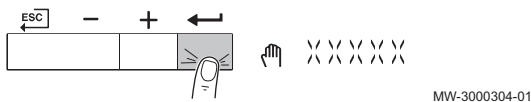
2. Press the **←** key to open the menu.

Fig.97 Step 3



3. Press the **+** or **-** keys to modify the required flow temperature in manual mode.

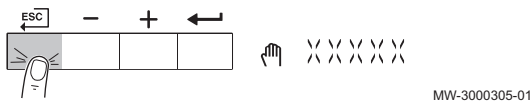
Fig.98 Step 4



4. Press the **←** key to confirm the value.

⇒ Manual mode is switched on.

Fig.99 Step 5



5. Press the **ESC** key twice to go back to the main display.

⇒ Manual mode is switched off.

5.8 Shutdown

Fig.100 Step 1

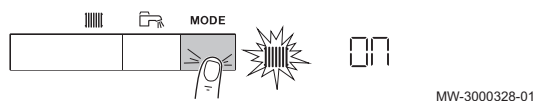


Fig.101 Step 2

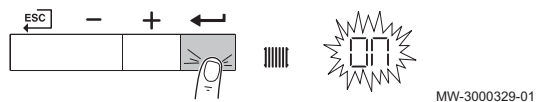


Fig.102 Step 3

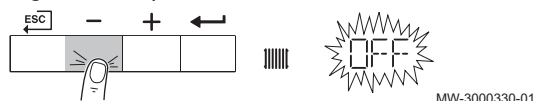
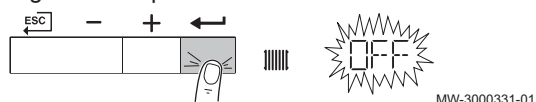


Fig.103 Step 4



5.8.1 Switching off the central heating

1. Press the **MODE** key for about 2 seconds.
2. Press the **←** key to confirm the selection for the central heating.
3. Press the **—** key to change the current CH status.
4. Press the **←** key to confirm the changed status.
⇒ The heating has been switched off. The main display appears, together with the symbol.



Important

The frost protection function continues to run.

5.8.2 Switching off DHW production

Fig.104 Step 1

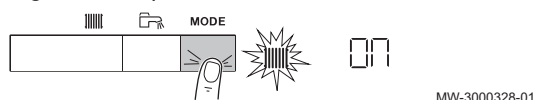


Fig.105 Step 2

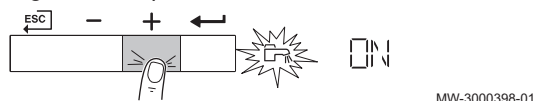


Fig.106 Step 3

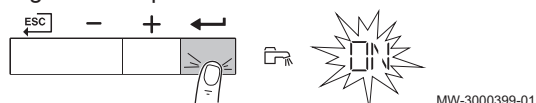


Fig.107 Step 4

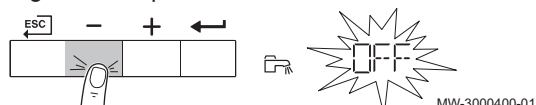
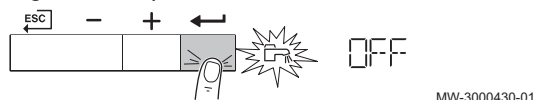


Fig.108 Step 5



1. Press the **MODE** key for about 2 seconds.
2. Press the **+** key to select DHW production.
3. Press the **←** key to confirm the selection of DHW production.
4. Press the **—** key to change the current status of DHW production.
5. Press the **←** key to confirm the changed status.
⇒ DHW production is switched off. The main display appears, together with the symbol.



Important

The frost protection function continues to run.

5.9 Reading out the Counter menu

1. Navigate to the Counter menu.

Fig.109 Step 2



Fig.110 Step 3

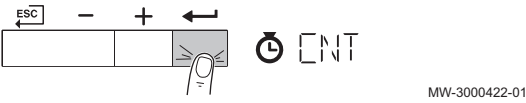


Fig.111 Step 4



Fig.112 Step 5



2. Press the ← key to open the menu.

3. Press the ← key to confirm the selection.

4. Press the + or - key to navigate through the counters.

Tab.8 Counter menu

Value	Description
SERVICE	Resetting service hours

5. Press the ESC key multiple times to go back to the main display.



For more information, see
Counters - SCB-01, page 27

5.10 Reading out current values

Fig.113 Step 2

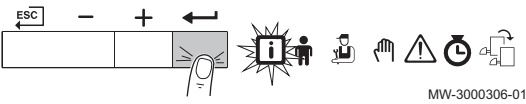


Fig.114 Step 3



Fig.115 Step 4



1. Navigate to the Information menu.
2. Press the ← key to open the menu.

3. Press the + or - key to navigate through the values.

Tab.9 Current values

Value	Description
FXX.XX	Software version
PXX.XX	Parameter version

4. Press the ESC key multiple times to go back to the main display.



For more information, see
Signals - SCB-01, page 27

5.11 Status and Sub-status

The information menu **i** gives the Status and Sub-status numbers.

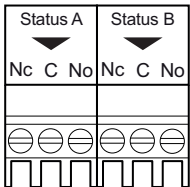


For more information, see
Status and sub-status - SCB-01, page 27

6 Installation

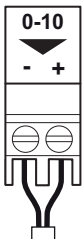
6.1 Electrical connections

Fig.116 Status notifications



AD-3001312-01

Fig.117 0–10 V output connector



AD-3001305-01

6.1.1 Connecting status notifications

The two potential-free contacts, **Status**, can be configured as required. Depending on the setting, a particular status can be transmitted by the boiler.

Connect a relais as follows:

- Nc** Normally closed contact. Contact will open when status occurs.
- C** Main contact.
- No** Normally opened contact. Contact will close when status occurs.

Select the desired status notification (setting) using parameter **EP018** and **EP019**.



For more information, see
Changing user parameters, page 14
Description of the parameters - SCB-01, page 26

6.1.2 Connecting 0–10 V output

The **0-10** contact can be used to connect a PWM system pump. The speed of the pump is modulated based on the signal received from the boiler. Depending on the make and type of pump, the pump can be controlled by a 0–10 V or a PWM signal.

Connect the system pump controller to connector **0-10**.

- Select the type of signal that will be sent from the boiler using the parameter **EP029**.
- Select the type of signal that controls the pump using the parameter **EP028**.



Caution

- If possible, use the pump modulation signal. This provides the most accurate pump control.
- If the automatic burner unit does not support pump modulation, the pump will behave as an on/off pump.

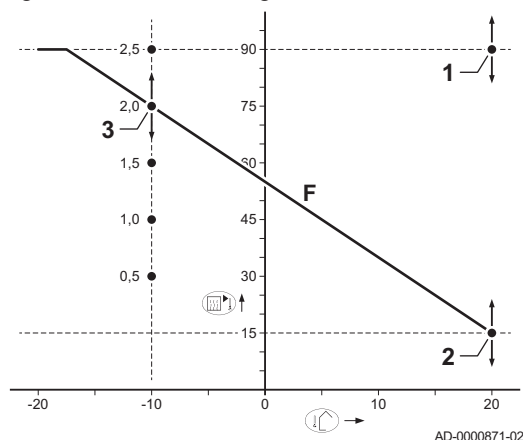


For more information, see
Changing user parameters, page 14
Description of the parameters - SCB-01, page 26

7 Operation

7.1 Setting the heating curve

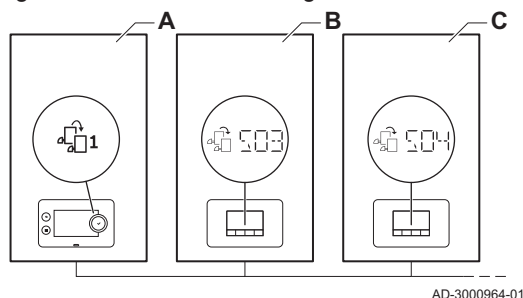
Fig.118 Internal heating curve



7.2 Cascade control

Up to 7 boilers equipped with the HMI S-control can be managed in cascade with the HMI T-control mounted in the master boiler. The system sensor is connected on the master boiler. All the boilers from the cascade are connected by a S-BUS cable. The boilers are automatically numbered:

Fig.119 Cascade numbering

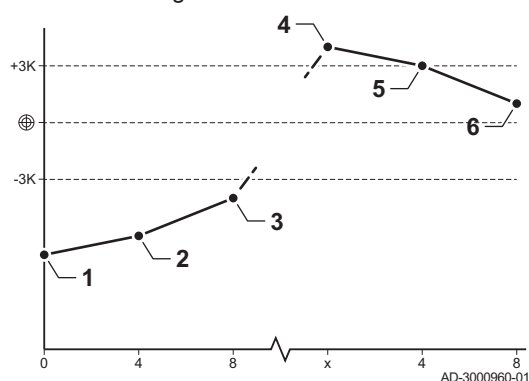


- A The master boiler is number 1.
- B The first slave boiler is number 3 (number 2 does not exist).
- C The second slave boiler is number 4; and so on.

There are two options for cascade control management:

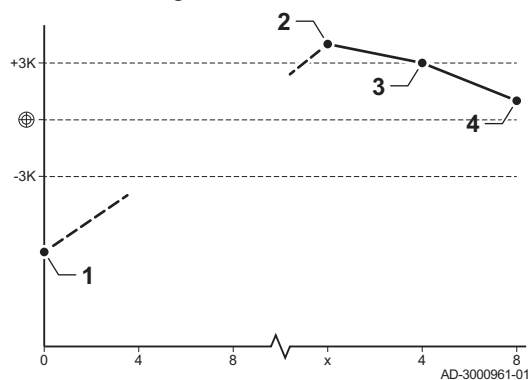
- Adding supplementary boilers successively (traditional control).
- Adding supplementary boilers simultaneously (parallel control).

Fig.120 Traditional cascade control management



- 1 First boiler starts running when system temperature is 3°C below set point.
- 2 After 4 minutes the second boiler starts running if $\Delta T < 6K$ and the system temperature is still more than 3°C below set point.
- 3 After 8 minutes the third boiler starts running if $\Delta T < 6K$ and the system temperature is still more than 3°C below set point.
- 4 First boiler stops running when system temperature is 3°C above set point.
- 5 After 4 minutes the second boiler stops running if $\Delta T < 6K$ and the system temperature is still more than 3°C above set point.
- 6 After 8 minutes the third boiler stops running if $\Delta T < 6K$ and the system temperature is still more than 3°C above set point.

Fig.121 Parallel cascade control management



- 1 All boilers in cascade start running when system temperature is 3°C below set point.
- 2 First boiler stops running when system temperature is 3°C above set point.
- 3 After 4 minutes the second boiler stops running if $\Delta T < 6K$ and the system temperature is still more than 3°C above set point.
- 4 After 8 minutes the third boiler stops running if $\Delta T < 6K$ and the system temperature is still more than 3°C above set point.

Cascade algorithm type temperature, the setpoint sent to the running boiler is :

- Power; requested by the zones.
- Temperature; flow setpoint requested by the zones + error calculation.

Cascade algorithm type power, the setpoint sent to the running boiler is :

- Power; accordingly PI algorithms.
- Temperature; -90°C

8 Settings

8.1 List of parameters

The code of the parameters always contain two letters and three numbers.
The letters stand for:

AP	Appliance related parameters
CP	Zone related parameters
DP	Domestic hot water related parameters
EP	Smart Solutions related parameters
GP	Gas-fired heat engine related parameters
PP	Central heating related parameters



Important

All possible options are indicated in the adjustment range. The display of the boiler only shows the relevant settings for the appliance.


8.1.1 Description of the parameters - SCB-01

Tab.10  > SCB-01 - Factory settings at user level

Code	Description	Adjustment range	Factory setting
EP018	Status relay function	0 = No Action 1 = Alarm 2 = Alarm Inverted 3 = Burning 4 = Not burning 5 = Reserved 6 = Reserved 7 = Service request 8 = Boiler on CH 9 = Boiler on DHW 10 = CH pump on 11 = Locking or Blocking	0
EP019	Status relay function	0 = No Action 1 = Alarm 2 = Alarm Inverted 3 = Burning 4 = Not burning 5 = Reserved 6 = Reserved 7 = Service request 8 = Boiler on CH 9 = Boiler on DHW 10 = CH pump on 11 = Locking or Blocking	0
EP028	Selects the function of the 0-10 Volt output	0 = 0-10V 1 (Wilo) 1 = 0-10V 2 (Gr. GENI) 2 = PWM signal (Solar) 3 = 0-10V 1 limited 4 = 0-10V 2 limited 5 = PWM signal limited 6 = PWM signal (UPMXL)	0
EP029	Selects the source signal for the 0-10 Volt output	0 = PWM 1 = Requested power 2 = Actual power	0


8.2 List of measured values

8.2.1 Counters - SCB-01

Tab.11  > SCB-01 - Counters at installer level

Code	Description	Range
AC001	Number of hours that the appliance has been on mains power	0 Hours - 4294967295 Hours

8.2.2 Signals - SCB-01

Tab.12  > SCB-01 - Signals at user level

Code	Description	Range
AM010	The current pump speed	0 % - 6553.5 %
AM015	Is the pump running?	0 = Inactive 1 = Active
GM011	Power setpoint in % of maximum	0 % - 655.35 %

8.2.3 Status and sub-status - SCB-01

Tab.13 Status numbers

Status	
0	Standby
1	Heat Demand
2	Burner Start
3	Burning CH
4	Burning Dhw
5	Burner Stop
6	Pump Post Run
7	Cooling Active
8	Controlled Stop
9	Blocking Mode
10	Locking Mode
11	Load test min
12	Load test CH max
13	Load test DHW max
15	Manual Heat Demand
16	Frost Protection
17	DeAiration
18	Control unit Cooling
19	Reset In Progress
20	Auto Filling
21	Halted
200	Device Mode

Tab.14 Sub-status numbers

Sub-status	
0	Standby
1	AntiCycling
2	CloseHydraulicValve
3	ClosePump

Sub-status	
4	WaitingForStartCond.
10	CloseExtGasValve
11	StartToGlueGasValve
12	CloseFlueGasValve
13	FanToPrePurge
14	WaitForReleaseSignal
15	BurnerOnCommandToSu
16	VpsTest
17	Prelgnition
18	Ignition
19	FlameCheck
20	Interpurge
30	Normal Int.Setpoint
31	Limited Int.Setpoint
32	NormalPowerControl
33	GradLevel1PowerCtrl
34	GradLevel2PowerCtrl
35	GradLevel3PowerCtrl
36	ProtectFlamePwrCtrl
37	StabilizationTime
38	ColdStart
39	ChResume
40	SuRemoveBurner
41	FanToPostPurge
42	OpenExt&FlueGasValve
43	StopFanToFlueGVRpm
44	StopFan
45	LimitedPwrOnTflueGas
60	PumpPostRunning
61	OpenPump
62	OpenHydraulicValve
63	SetAntiCycleTimer
200	Initialising Done
201	Initialising Csu
202	Init. Identifiers
203	Init.BL.Parameter
204	Init. Safety Unit
205	Init. Blocking

9 Troubleshooting

9.1 Error memory

The control panel includes an error memory in which the last 32 errors are stored. Details of the error are stored with the error codes. Included are the status, sub-status, flow temperature, return temperature, fan rotation speed and the ionisation current.

9.1.1 Reading out the Error memory











1. Navigate to the Error menu.
2. Press the  key to open the menu.
3. Keep pressing the  key until the required device, control PCB or zone is displayed.
4. Press the  key to confirm the selection.
5. Press the  key to view the error messages.
XX is the number of stored error messages.
6. Press the  or  key to scroll through the list of messages.
7. Press the  key to view details of the message.
8. Press the  or  key to scroll through the details.
9. Press the  key multiple times to go back to the main display.

Fig.122 Step 2



Fig.123 Step 3



Fig.124 Step 4



Fig.125 Step 5

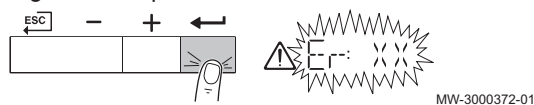


Fig.126 Step 6



Fig.127 Step 7



Fig.128 Step 8



Fig.129 Step 9



Fig.130 Step 2



9.1.2 Clearing the error memory


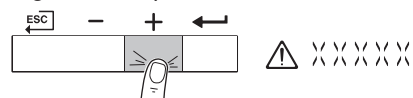
1. Navigate to the Error menu.
2. Press the  key to open the menu.

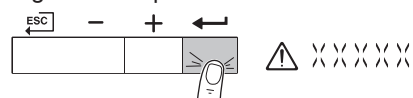
Fig.131 Step 3



MW-3000374-02

3. Keep pressing the **+** key until the required device, control PCB or zone is displayed.

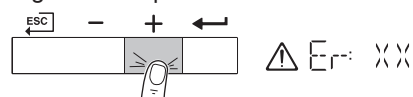
Fig.132 Step 4



MW-3000454-01

4. Press the **←** key to confirm the selection.

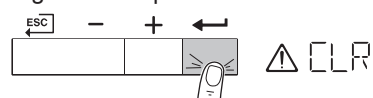
Fig.133 Step 5



MW-3000375-01

5. Keep pressing the **+** key until the clear error memory menu is displayed.

Fig.134 Step 6



MW-3000376-01

6. Press the **←** key to delete the errors from the error memory.

Fig.135 Step 7



MW-3000440-01

7. Press the **ESC** key to go back to the main display.

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