





Service manual High-efficiency standing gas boiler

> **Gas 210 Ace** 80 - 120 - 160 - 200

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 About this manual

1.1 Additional documentation

The following documentation is available in addition to this manual:

- Installation and user manual
- Product information
- Water quality instructions

1.2 Symbols used in the manual

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





Please note: important information.

The symbols mentioned below are of lower importance, but they can help you navigate or give useful information.



Reference to other manuals or pages in this manual.



Direct menu navigation, confirmations will not be shown. Use if you are familiar with the system.

2 Description of the product

2.1 Boiler types

The following boiler types are available:

Tab.1 Boiler types

Name	Output ⁽¹⁾	Heat exchanger size
Gas 210 Ace 80	93 kW	3 sections
Gas 210 Ace 120	129 kW	4 sections
Gas 210 Ace 160	179 kW	5 sections
Gas 210 Ace 200	217 kW	6 sections
(1) Nominal output P _{nc} 50/30 °C		

2.2 Main components

Fig.1 General

Fig.2

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Internal



- **1** Flue gas outlet connection
- 2 Air inlet connection
- 3 Flow connection
- 4 Return connection
- **5** Gas supply connection
- 6 Control box
- 7 Data plate



Heat exchanger

Flame inspection glass Inspection cover

Condensate collector

Condensate collector cap

Flow temperature sensor

11 Ignition / ionisation transformer

Flue gas temperature sensor

- 12 Heat exchanger temperature sensor
- 13 Return temperature sensor
- 14 Water pressure sensor
- 15 Fill and drain valve
- 16 Trap

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AD-3002430-01

2 Burner





AD-3002431-01

- 1 Gas supply tube
- 2 Fan
- 3 Gas air connection piece
- 4 Venturi
- 5 Gas control valve
- 6 Air inlet silencer



- Display cover
 Power button
 Control panel
 Service connector
 Control box front part for expansion PCBs and gateways
- 6 Control box rear part for the control unit and expansion PCBs

2.3 Introduction to the e-Smart controls platform

The Gas 210 Ace boiler is equipped with the e-Smart controls platform. This is a modular system, and offers compatibility and connectivity between all products that make use of the same platform.



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Tab.2 Components in the example

Item	Description	Function
CU	Control Unit: Control unit	The control unit handles all basic functionality of the appli- ance.
СВ	Connection Board: Connection PCB	The connection PCB provides easy access to all connectors of the control unit.
SCB	Smart Control Board: Expansion PCB	An expansion PCB provides extra functionality, like an internal calorifier or multiple zones.
GTW	Gateway: Conversion PCB	A gateway can be fitted to an appliance or system, to provide one of the following:
		 Extra (wireless) connectivity Service connections Communication with other platforms
MK	Control panel: Control panel and display	The control panel is the user interface to the appliance.
RU	Room Unit: Room unit (for example, a thermo- stat)	A room unit measures the temperature in a reference room.
L-Bus	Local Bus: Connection between devices	The local bus provides communication between devices.
S-Bus	System Bus: Connection between appliances	The system bus provides communication between appliances.
R-Bus	Room unit Bus: Connection to a room unit	The room unit bus provides communication to a room unit.
A	Device	A device is a PCB, control panel or a room unit.
В	Appliance	An appliance is a set of devices connected via the same L- Bus
С	System	A system is a set of appliances connected via the same S-Bus

Name visible in display	Software ver- sion	Description	Function
CU-GH13	2.0	Control unit CU-GH13	The CU-GH13 control unit handles all basic functionality of the Gas 210 Ace boiler.
МК3	1.94	Control panel HMI T-control	The HMI T-control is the user interface to the Gas 210 Ace boiler.
SCB-01	1.3	Expansion PCB SCB-01	The SCB-01 provides a 0-10 V connection for a PWM system pump and two potential-free contacts for status notification.
SCB-02	1.3	Expansion PCB SCB-02	The SCB-02 provides functionality for a DHW and central heating zone, a 0-10 V connection for a PWM system pump and two potential-free contacts for status notification.

Tab.3 Specific devices delivered with the Gas 210 Ace boiler

3 Use of the control panel

3.1 Control panel components





- 1 Rotary knob to select a tile, menu or setting
- 2 Confirm button \checkmark to confirm the selection
- 3 Back button **5**:
 - Short button press: Return to the previous level or previous menu
 - Long button press: Return to home screen
- 4 Menu button ≔ to go to the main menu
- 5 Display
- 6 Status LED

This screen is shown automatically after start-up of the appliance. The control panel automatically enters standby mode (black screen) if the buttons are not used for 5 minutes. Press one of the buttons on the control panel to activate the screen again.

You can navigate from any menu to the home screen by pressing the back button \clubsuit for several seconds.

The tiles on the home screen provide quick access to the corresponding menus. Use the rotary knob to navigate to the desired item and press the button \checkmark to confirm the selection.

- 1 Tiles: the selected tile is highlighted
- 2 Date and time | Name of the screen (actual position in the menu)
- 3 Information about the selected tile
- 4 Icons indicating navigation level, operating mode, errors and other information.



3.3 Description of the main menu

You can navigate from any menu directly to the main menu by pressing the menu button \equiv . The number of accessible menus depends on the access level (user or installer).



A Date and time | Name of the screen (actual position in the menu)

- B Available menus
- C Brief explanation of the selected menu

Tab.4 Available menus for the user

Description	Icon
Enable installer access	97 171
Bluetooth	*
System Settings	0
Version Information	i

Tab.5 Available menus for the installer 🖁

Description	Icon
Disable installer access	্রু ।স
Installation Setup	। হি
Commissioning Menu	• ।त्र
Advanced Service Menu	्र त
Error History	े जि
Bluetooth	*
System Settings	0
Version Information	i

3.4 Description of the icons in the display

Tab.6 Icons

Icon	Description
<u>۵</u>	User menu: user-level parameters can be configured.
	Installer menu: installer-level parameter can be configured.
i	Information menu: read out various current values.
Q	System settings: system parameters can be configured.
్	Error indicator.
	Gas boiler indicator.
	Domestic hot water tank is connected.
क [₿]	The outdoor temperature sensor is connected.
۹ <u>۲</u>	Boiler number in cascade system.
<u>نگ</u>	The solar calorifier is on and its heat level is displayed.
₹	Burner output level (1 to 5 bars, with each bar representing 20% output).
	The pump is running.
	Three-way valve indicator.
bar	Display of the system water pressure.
	Chimney sweep mode is enabled (forced full load or low load for O_2/CO_2 measurement).
ECO Ø	Energy-saving mode is enabled.
R	DHW boost is enabled.
	Timer program is enabled: The room temperature is controlled by a timer program.
6	Manual mode is enabled: The room temperature is set to a fixed setting.
B O	Temporary overwrite of the timer program is enabled: The room temperature is changed temporarily.
	The holiday program (including frost protection) is active: The room temperature is reduced during your holiday to save energy.

Icon	Description
A A A A A A A A A A A A A A A A A A A	Frost protection is enabled: Protect the boiler and installation from freezing in winter.
ير ا	Service notification: service needed. Installer contact details are displayed or can be filled in.

Tab.7 Icons - On/off

lcon	Description	Icon	Description
11111	CH operation is enabled.	JHHI	CH operation is disabled.
1	DHW operation is enabled.	Ă	DHW operation is disabled.
٨	The burner is on.	K	The burner is off.
*	Bluetooth enabled and connected (icon is non-transparent).	*	Bluetooth enabled and disconnected (icon is transparent).
^	Heating enabled.		
	Cooling enabled.		
	Heating/cooling enabled.	OFF	Heating/cooling disabled.

Tab.8 Icons - Zones

Icon	Description
۲	All zones (groups) icon.
12	Living room icon.
	Kitchen icon.
ب	Bedroom icon.
V İ TT	Study icon.
b.	Cellar icon.

4 Installer instructions

4.1 Accessing the user level menus

The tiles on the home screen provide quick access for the user to the corresponding menus.

1. Use the rotary knob to select the required menu.



Fig.10 Confirm menu selection



- 2. Press the \checkmark button to confirm the selection.
- ⇒ The available settings of this selected menu appear in the display.
- 3. Use the rotary knob to select the desired setting.
- 4. Press the \checkmark button to confirm the selection.
 - ⇒ All options for change will appear in the display (if a setting cannot be changed, **Cannot edit read-only datapoint** will appear in the display).
- 5. Use the rotary knob to change the setting.
- 6. Press the \checkmark button to confirm the selection.
- 7. Use the rotary knob to select the next setting or press the **b** button to return to the home screen.

Installer level

2 2 3 4

3 3 4 5

4 4 5 6

Installer level

T

0 0

2 2 3 4

3 3 4 5

4 4

Fig.11

Fig.12

00:12

(j)

00:12

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Some settings are protected by installer access. Enable installer access in order to change these settings.

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Use the rotary knob to navigate.

Use the \checkmark button to confirm your selection.

1. Access the installer level via the tile:

- 1.1. Select the tile [N].
- 1.2. Use code: 0012.
 - ⇒ The tile [#] shows that the installer access is On, and the icon in the top right of the display changes into #.

2. Access the installer level via the menu:

- 2.1. Select Enable installer access from the Main Menu.
- 2.2. Use code: 0012.
 - ⇒ When the installer level is enabled or disabled, the status of the tile [∦] changes into On or Off.

When the control panel is not used for 30 minutes, the installer access is disabled automatically. You can manually disable installer access by:

- Selecting the tile [].
- Selecting Disable installer access from the Main Menu.

4.3 Establishing a Bluetooth connection

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Proceed as follows to establish a Bluetooth connection:

IN Sector Sector IN Sector</p

- \bigcirc Use the rotary knob to navigate.
- Use the ✓ button to confirm your selection.
- 1. Enable Bluetooth on the appliance:
 - A Bluetooth is enabled when the Bluetooth icon is displayed

In most cases Bluetooth is enabled in the factory settings.

- 1.1. Press the ≔ button.
- 1.2. Select Bluetooth.
- 1.3. Select Bluetooth.
- 1.4. Select On.
- ⇒ Bluetooth is now enabled.
 Connect to the appliance with a mobile device:
 - 2.1. On the mobile device, connect to .
 - The appliance detects the incoming pairing request and displays the pairing code and Bluetooth status.
 - 2.2. Use the pairing code displayed on the appliance.
 - Wait for the pairing process to finish before interacting with the appliance.





4.4 Commissioning the appliance

At first start-up of the appliance, the display will show the commissioning wizard. Depending on the appliance, some steps take a few minutes to complete, for example appliances that need to deaerate after installation or need to configure a boiler.

- Use the rotary knob to navigate.
 - Use the 🗸 button to confirm your selection.
- Start up the appliance.
 Follow the instructions on the display.
- i Important
 - The appliance might take a few minutes during certain steps while commissioning. Do not shut off the appliance or try to bypass steps, unless stated otherwise on the display.
- 3. You can access individual commissioning steps:
 - 3.1. Press the ≔ button.
 - 3.2. Select Commissioning Menu.
 - 3.3. Select the commissioning step you wish to perform.

4.4.1 Chimney sweep menu

Select the tile [] to open the chimney sweep menu. The **Change load test mode** menu will appear:

- A Change load test mode
- B Load test mode





Tab.9 Load tests in the chimney sweep menu 🎍

Change load test mode	Settings
Off	No test
Low power	Part load test
Medium power	Full load test for Central Heating mode
High power	Full load test for Central Heating + Domestic Hot Water mode

Tab.10 Load test settings

Load Test menu	Settings	
Func test status	Select the load test to start the test.	
System Flow Temp	Read the central heating flow temperature	
T return	Read the central heating return temperature	
Actual fan RPM	Read the actual fan speed	
Actual flame current	Read the actual flame current	
Fan RPM Max CH	Adjust the maximum fan speed during Central Heating mode	
Fan RPM Min	Adjust the minimum fan speed during Central Heating + Domestic Hot Water mode	
Fan RPM Start	Adjust the start fan speed	



See also Checking/setting values for O2/CO2 at full load, page 47 Checking/setting values for O2/CO2 at low load, page 48

Performing the full load test

- 1. Select the tile [4].
 - \Rightarrow The Change load test mode menu appears.
- 2. Select the test Medium power.
 - A Change load test mode
 - B Medium power
 - ⇒ The full load test starts. The selected load test mode is shown in the menu and the icon ♣ appears in the top right of the screen.
- Check the load test settings and adjust if necessary.
 ⇒ Only the parameters shown in bold can be changed.

Performing the low load test

- If the full load test is still running, press the ✓ button to change the load test mode.
- 2. If the full load test was finished, select the tile [🎍] to restart the chimney sweep menu.
 - A Change load test mode
 - B Low power
- 3. Select the Low power test in the menu Change load test mode.
 - ⇒ The low load test starts. The selected load test mode is shown in the menu and the icon ♣ appears in the top right of the screen.
- Check the load test settings and adjust if necessary.
 ⇒ Only the parameters shown in bold can be changed.
- 5. End the low load test by pressing the **b** button.
 - ⇒ The message **Running load test(s) stopped!** is displayed.

4.4.2 Saving the commissioning settings

You can save all current settings on the control panel. These settings can be restored if necessary, for example after replacement of the control unit.

Save as commissioning settings

- Use the rotary knob to navigate.
 - Use the 🗸 button to confirm your selection.
- 1. Press the ≔ button.
- 2. Select Advanced Service Menu.
- 3. Select Save as commissioning settings.
- 4. Select **Confirm** to save the settings.

When you have saved the commissioning settings, the option **Revert** commissioning settings becomes available in the Advanced Service Menu.

4.5 Configuring the installation at installer level

Configure the installation by pressing the \equiv button and selecting Installation Setup \mathbb{M} . Select the control unit or circuit board you want to configure:



Full load test

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В

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Fig.15

11:20

Tab.11

Icon	Zone or function	Description
	Internal DHW	Domestic hot water produced by boiler
11111	CIRCA / CH	Central heating circuit
bar	Auto filling CH	Adjust or start the automatic filling unit
	Commercial boiler	Gas boiler
	Gas fired appliance	Gas boiler
	Shower time function	Activate the shower time function

Tab.12 Configuring a zone or function of CU-GH08 or SCB-02

Parameters, counters, signals	Description
Parameters	Set the parameters at installer level
Counters	Read the counters at installer level
Signals	Read the signals at installer level

4.5.1 Changing the control panel settings

You can change the control panel settings within system settings.

► := > System Settings

We the rotary knob to navigate.
 Use the ✓ button to confirm your selection.

- 1. Press the ≔ button.
- Select System Settings Q.
- 3. Perform one of the operations described in the table below:

System Settings menu	Settings
Set Date and Time	Set the current date and time
Select Country and Language	Select your country and language
Daylight Saving Time	Enable or disable daylight saving time. When enabled daylight saving time will update the systems internal time to correspond with summer and winter time.
Installer Details	Read out the name and phone number of the installer
Set Heating Activity Names	Create the names for the activities of the timer program
Set Screen Brightness	Adjust the brightness of the screen
Set click sound	Enable or disable the click sound of the rotary knob
License Information	Read out detailed license information from the appliance

Tab.13 Control panel settings

4.5.2 Setting the installer details

You can store your name and phone number in the control panel to be read by the user. When an error occurs these contact details will be displayed.

► := > System Settings > Installer Details



Use the rotary knob to navigate.

Use the ✓ button to confirm your selection.

Press the ≡ button.

- Enable installer access if it is not enabled.
- 1.1. Select Enable installer access.
- 1.2. Use code **0012**.
- 2. Select System Settings 😳.

- 3. Select Installer Details.
- 4. Enter the following data:

Installer name	Your company's name	
Installer phone	Your company's phone number	

4.5.3 Setting the parameters

You can change the settings of the control unit and the connected expansion boards, sensors etc. to configure the installation. The factory settings support the most common heating systems. The user or the installer can optimise the parameters as required.



Important

Changing the factory settings may adversely affect the operation of the installation.

Installation Setup > select zone or device > Parameters, counters, signals > Parameters

Use the rotary knob to navigate.
 Use the ✓ button to confirm your selection.

1. Press the ≔ button.

- 2. Select Installation Setup.
- 3. Select the zone or device you want to configure.
- 4. Select Parameters, counters, signals.
- 5. Select Parameters.
 - A Parameters
 - Counters
 - Signals
 - B List of settings or values
 - ⇒ The list of available parameters is displayed.



Fig.17

11:20

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Parameters, counters, signals

4.5.4 Setting the heating curve

When an outdoor temperature sensor is connected to the installation, the relation between the outdoor temperature and the central heating flow temperature is controlled by a heating curve. This curve can be adjusted to the requirements of the installation.

Select zone > Heating Curve



Use the rotary knob to navigate.

Use the \checkmark button to confirm your selection.

- 1. Select the tile of the zone you want to configure.
- 2. Select Control strategy.
- 3. Select the setting **Outdoor temp based** or **Outdoor & room based**. ⇒ The option **Heating Curve** appears in the **Zone setup** menu.
- 4. Select Heating Curve.
 - ⇒ A graphic display of the heating curve is shown.

Fig.18 The heating curve



5. Adjust the following parameters:

Tab.14 Settings

Tab. 1	Tab. 14 Settings		
A	Slope:	 Slope of the heating curve: Underfloor heating circuit: slope between 0.4 and 0.7 Radiator circuit: slope at approximately 1.5 	
В	Max:	Maximum temperature of the heating circuit	
С	Base:	Ambient temperature setpoint	
D	xx°C ; xx °C	Relationship between the heating circuit flow temperature and the outdoor temperature. This information is visible throughout the slope.	

4.5.5 Increasing the domestic hot water temperature temporarily

You can temporary increase the hot water temperature when the time program is active with the reduced temperature setpoint. Use this to deviate from the time program or testing of the hot water production.

Installation Setup > Internal DHW > Hot water boost > Duration of temporary overwrite

 \bigcirc Use the rotary knob to navigate.

Use the ✓ button to confirm your selection.

- 1. Press the ≔ button.
- 2. Select Installation Setup.
- 3. Select Internal DHW.
- 4. Select Hot water boost.
- 5. Select Duration of temporary overwrite.
- 6. Set the duration in hours and minutes.
 - ⇒ The hot water temperature is increased to the DHW comfort setpoint.

You can abort the temporary increase by selecting Reset.

4.6 Maintaining the installation

4.6.1	Viewing the service notification	
		When a service notification appears on the display, you can view the details of the notification.
		 We see the rotary knob to navigate. Use the ✓ button to confirm your selection.
		 Select the tile [♣^k]. ⇒ The View Service Notification menu opens. Select the parameter or value you want to view.
4.6.2	Reading out measured values	
		The appliance continually registers various measured values from the system. You can read these values on the control panel.
		Installation Setup > select zone or device > Parameters, counters, signals > Counters or Signals
		 We use the rotary knob to navigate. Use the ✓ button to confirm your selection.
		1. Press the ≔ button.

- 2. Select Installation Setup.
 - Enable installer access if Installation Setup is not available.
 - 2.1. Select Enable installer access.
 - 2.2. Use code 0012.
- 3. Select the zone or device you want to read out.
- 4. Select Parameters, counters, signals.
- 5. Select Counters or Signals to read out a counter or signal.
 - Parameters А
 - Counters
 - Signals
 - B List of settings or values



4.6.3 Viewing production and software information

You can read details about the production dates, hardware and software versions of the appliance and all connected devices.

----≔ > Version Information

- Use the rotary knob to navigate. 6
 - Use the ✓ button to confirm your selection.
- 1. Press the ≔ button.
- 2. Select Version Information.
- 3. Select the appliance, control board or any other device you want to view.
 - Select the appliance, control board or device Α
 - **B** List of information
- 4. Select the information you want to view.



4.6.4 Manual deaeration

You can manually deaerate your appliance.

>> :≡ > Commissioning Menu > Deaeration program

 \odot

Use the rotary knob to navigate.

Use the ✓ button to confirm your selection.

- 1. Press the ≔ button.
- 2. Select Commissioning Menu.
- 3. Select Deaeration program.

⇒ The manual de-aeration menu opens.

4. Follow the instructions on the display.



You can press and hold **5** to abort the procedure.

4.7 Resetting or restoring settings

4.7.1 Resetting the configuration numbers CN1 and CN2



4.7.2 Carrying out an auto detect

The configuration numbers must be reset when indicated by an error message or when the control unit has been replaced. The configuration numbers can be found on the data plate of the appliance.

All custom

i

All custom settings will be erased when the configuration numbers are reset. Depending on the appliance, there can be factory set parameters to enable certain accessories.

- Use the saved commissioning settings to restore these settings after the reset.
- If no commissioning settings were saved, write down custom settings before resetting. Include all relevant accessory related parameters.

► := > Advanced Service Menu > Set Configuration Numbers

- Use the rotary knob to navigate. Use the ✔ button to confirm your selection.
- A Select the control unit
- B Extra information
- C Configuration numbers
- 1. Press the ≔ button.
- 2. Select Advanced Service Menu.
- 3. Select Set Configuration Numbers.
- 4. Select the device you want to reset.
- 5. Select and change the CN1 setting.
- 6. Select and change the CN2 setting.
- 7. Select **Confirm** to confirm the changed numbers.

The auto detect-function scans the installation for devices and other appliances connected to the L-Bus and S-Bus. You can use this function when a connected device or appliance has been replaced or removed from the installation.

► := > Advanced Service Menu > Auto Detect



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- Use the ✓ button to confirm your selection.
- 1. Press the ≔ button.
- 2. Select Advanced Service Menu.
- 3. Select Auto Detect.
- 4. Select Confirm to carry out the auto-detect.

4.7.3 Restoring the commissioning settings

This option is only available when the commissioning settings were saved on the control panel and allows you to restore these settings.

Severt commissioning settings

Use the rotary knob to navigate.

Use the \checkmark button to confirm your selection.

- Press the ≡ button.
- 2. Select Advanced Service Menu.
- 3. Select Revert commissioning settings.

4. Select **Confirm** to restore the commissioning settings.

4.7.4 Resetting to factory settings

You can reset the appliance to the default factory settings.

Advanced Service Menu > Reset to Factory Settings

- We the rotary knob to navigate.
 Use the ✓ button to confirm your selection.
- 1. Press the ≔ button.
- 2. Select Advanced Service Menu.
- 3. Select Reset to Factory Settings.
- 4. Select **Confirm** to restore the factory settings.

4.8 Advanced settings

4.8.1 Service notification settings

This appliance can notify the user when service is needed. The controls will keep track of two counters:

• The total of burner operating hours since the last service (AC002)

• The total of hours on mains power supply since the last service (AC003)

When one of these counters meet the value set in parameters **AP009** or **AP011**, the user will be notified on the control panel.

Tab.15 Service notification parameter settings

Code	Display text	Advice
AP009	Service hours	Set this to a value that fits the operation conditions. Typically this is 3000 hours for a commercial boiler in a normal heating set-up.
AP010	Service notification	Set this to 1 = Custom notification as to use the values set in AP009 and AP011
AP011	Service hours mains	Set this to a value that fits the operation conditions. Typically this is 8750 hours (1 year) for a commercial boiler in a normal heating set-up.

4.8.2 Changing the ΔT setting

The ΔT is factory set to 25 °C. It can be increased by a Remeha service technician. Contact Remeha for more information.



| Important

When increasing the ΔT , the control unit limits the flow temperature to a maximum of 80 °C.

4.8.3 Settings for open-vented application

For this application, adjust the following parameter:

- 1. Set parameter **DP006** to 0,0 bar.
- 2. Set parameter GP021 to 20°C.

4.8.4 Screed drying

The screed drying function is used to force a constant flow temperature or a series of successive temperature levels to accelerate screed drying on underfloor heating.

Important

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- The settings for these temperatures must follow the screed layer's recommendations.
- Activation of this function via the parameter ZP090 deactivates all other regulator functions in the zone.
- When the screed drying function is active on one circuit, all other circuits and the domestic hot water circuit continue to run.
- It is possible to use the screed drying function on circuits A and B. The parameter settings must be made on the PCB that controls the circuit concerned.



4.8.5 Cascade control

With the HMI T-control mounted in the master boiler it is possible to manage up to 7 boilers in cascade. The system sensor is connected to the master boiler. All the boilers in the cascade are connected by an S-BUS cable. The boilers are automatically numbered:

- 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).

The cascade control management can be changed with parameter NP006.









- 1 First boiler starts running when system temperature is 3°C below set point.
- 2 After 4 minutes the second boiler starts running if ΔT < 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 ΔT< 6K and the system temperature is still more than 3°C above set point.</p>
- T Duration between start and stop of boilers can be changed with parameter NP009.
- 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.
- T Duration between start and stop of boilers can be changed with parameter **NP009**.

Temperature type cascade algorithm; the setpoint sent to the running boiler is:

- Output; requested by the zones.
- Temperature; output setpoint requested by the zones + error calculation.

Output type cascade algorithm; the setpoint sent to the running boiler is:

- Output; according to PI algorithms.
- Temperature; -90°C

The type of cascade algorithm can be changed with parameter NP011.

5 Installation examples

5.1 The SCB-01 expansion PCB

Fig.26 SCB-07

SCB-01 PCB



The SCB-01 has the following features:

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

Expansion PCBs are automatically recognised by the control unit of the boiler. If expansion PCBs are removed, the boiler will show an error code. To resolve this error, an auto-detect must be carried out after removal.

5.2 Connecting diagrams





Tab.16 Parameter list

P13

Code	Display text	Menu path	Set to
AP102	Boiler Pump function	Installation Setup > CU-GH13 > Gas fired appliance > Parameters, counters, signals > Parameters > General	0 = No
CP020	Zone Function	:≡ > Installation Setup > CU-GH13 > CIRCA > Parameters, counters, signals > Parameters > General	0 = Disable
DP007	Dhw 3wv Standby	:≡ > Installation Setup > CU-GH13 > Internal DHW > Parameters, counters, signals > Parameters > General	0 = CH position
CP020	Zone Function	Installation Setup > SCB-10 > CIRCA 1 > Parameters, counters, signals > Parameters > General	1 = Direct
CP021	Zone Function	≔ > Installation Setup > SCB-10 > CIRCB 1 > Parameters, counters, signals > Parameters > General	0 = Disable
CP023	Zone Function	Installation Setup > SCB-10 > CIRCC 1 > Parameters, counters, signals > Parameters > General	0 = Disable
CP022	Zone Function	Installation Setup > SCB-10 > DHW 1 > Parameters, counters, signals > Parameters > General	10 = DHW Layered
EP037	Sensor input config	Installation Setup > SCB-10 > DHW 1 > Parameters, counters, signals > Parameters > Advanced	2 = DHW tank top

P8

S17 S18

D1

AD-6000039-01

Code	Display text	Menu path	Set to
CP024	Zone Function	:= > Installation Setup > SCB-10 > AUX 1 > Parameters, counters, signals > Parameters > General	0 = Disable
CP294	ConfigZonePump- Out	≔ > Installation Setup > SCB-10 > AUX 1 > Parameters, counters, signals > Parameters > General	8 = DHW looping

5.2.2 1 boiler - 2 circuits (radiator, underfloor heating) - DHW cylinder with loop



Tab.17 Parameter list

Code	Display text	Menu path	Set to
AP102	Boiler Pump function	:≡ > Installation Setup > CU-GH13 > Gas fired appliance > Parameters, counters, signals > Parameters > General	0 = No
CP020	Zone Function	:= > Installation Setup > CU-GH13 > CIRCA > Parameters, counters, signals > Parameters > General	0 = Disable

Code	Display text	Menu path	Set to
DP007	Dhw 3wv Standby	≔ > Installation Setup > CU-GH13 > Internal DHW > Parameters, counters, signals > Parameters > General	0 = CH position
CP020	Zone Function	≔ > Installation Setup > SCB-10 > CIRCA 1 > Parameters, counters, signals > Parameters > General	1 = Direct
CP021	Zone Function	Installation Setup > SCB-10 > CIRCB 1 > Parameters, counters, signals > Parameters > General	2 = Mixing Circuit
CP023	Zone Function	≔ > Installation Setup > SCB-10 > CIRCC 1 > Parameters, counters, signals > Parameters > General	0 = Disable
CP022	Zone Function	≔ > Installation Setup > SCB-10 > DHW 1 > Parameters, counters, signals > Parameters > General	10 = DHW Layered
EP037	Sensor input config	≔ > Installation Setup > SCB-10 > DHW 1 > Parameters, counters, signals > Parameters > Advanced	2 = DHW tank top
CP024	Zone Function	≔ > Installation Setup > SCB-10 > AUX 1 > Parameters, counters, signals > Parameters > General	0 = Disable
CP294	ConfigZonePump- Out	≔ > Installation Setup > SCB-10 > AUX 1 > Parameters, counters, signals > Parameters > General	8 = DHW looping

5.2.3 Cascade of 2 boilers - 2 circuits (radiator, underfloor heating)



- CircB Circuit B (underfloor heating) CircC Circuit C
- DHW
- DHW circuit Aux Auxiliary circuit
- Lead boiler A1
- A2 Lag boiler
- H1 Low loss header
- P1 Lead boiler pump
- P2 Lag boiler pump
- P8 Circuit A pump

- P10 Circuit B pump
- Circuit A room unit (thermostat) **R1**
- R2 Circuit B room unit (thermostat)
- **S1** Outdoor temperature sensor
- **S**3 Low loss header temperature sensor
- S9 Radiator flow temperature sensor
- S11 Underfloor heating safety temperature limiter
- S12 Underfloor heating flow temperature sensor
- Circuit A mixing valve V7
- V9 Circuit B mixing valve



Pump PWM 0-10 ① I On/Off ſ A2 CB-01 0 + 0 Tout OT BL RL + **P**2

AD-6000041-01

Fig.34 Electrical connections cascade lead boiler A1 - SCB-10 and lag boiler A2 - CB-01



AD-6000044-01

N1 S-Bus terminator

N2 S-Bus connection between lead boiler and lag boiler

Code	Display text	Menu path	Set to
AP102	Boiler Pump function	≔ > Installation Setup > CU-GH13 > Gas fired appliance > Parameters, counters, signals > Parameters > General	0 = No
CP020	Zone Function	Installation Setup > CU-GH13 > CIRCA > Parameters, counters, signals > Parameters > General	0 = Disable
DP007	Dhw 3wv Standby	Installation Setup > CU-GH13 > Internal DHW > Parameters, counters, signals > Parameters > General	0 = CH position
CP020	Zone Function	Installation Setup > SCB-10 > CIRCA 1 > Parameters, counters, signals > Parameters > General	2 = Mixing Circuit
CP021	Zone Function	Installation Setup > SCB-10 > CIRCB 1 > Parameters, counters, signals > Parameters > General	2 = Mixing Circuit
CP023	Zone Function	Installation Setup > SCB-10 > CIRCC 1 > Parameters, counters, signals > Parameters > General	0 = Disable
CP022	Zone Function	Installation Setup > SCB-10 > DHW 1 > Parameters, counters, signals > Parameters > General	0 = Disable
CP024	Zone Function	Installation Setup > SCB-10 > AUX 1 > Parameters, counters, signals > Parameters > General	0 = Disable

Fig.36

6 Settings

6.1 Introduction to parameter codes

Fig.35 Code on a HMI T-control

First letter



The controls platform makes use of an advanced system to categorise parameters, measurements and counters. Knowing the logic behind these codes, makes it easier to identify them. The code consists of two letters and three numbers.

The first letter is the category the code relates to.

- A Appliance: Appliance
- C Circuit: Zone
- D Domestic hot water: Domestic hot water
- E External: External options
- **G** Gas fired: Gas-fired heat engine
- P Producer: Central heating
- Z Zone: Zone

Category D codes are appliance controlled only. When the domestic hot water is controlled by an SCB, it is handled like a circuit, with C-category codes.

Fig.37 Second letter



CP010

AD-3001375-01

The second letter is the type.

- P Parameter: Parameters
- C Counter: Counters
- M Measurement: Signals



The number is always three digits. In certain cases, the last of the three digits relates to a zone.

AD-3001377-01

6.2 Searching the parameters, counters and signals

You can search and change data points (Parameters, counters, signals) of the appliance, connected control boards and sensors.

► := > Installation Setup > Search datapoints



Use the rotary knob to navigate.

Use the \checkmark button to confirm your selection.

- 1. Press the ≔ button.
- 2. Select Installation Setup.
- 3. Select Search datapoints.



Fig.40 List of datapoints



- 4. Select the search criteria (code):
 - 4.1. Select the first letter (datapoint category).
 - 4.2. Select the second letter (datapoint type).
 - 4.3. Select the first number.
 - 4.4. Select the second number.
 - 4.5. Select the third number.
- W The * symbol can be used to indicate any character within the search field.
 - ⇒ The list of datapoints appears in the display. Only the first 30 results are shown when searching.
- 5. Select the desired datapoint.

6.3 List of parameters

6.3.1 CU-GH13 control unit parameters

All tables show the factory setting for the parameters.

i	lm Th

Important

The tables also list parameters that are only applicable if the boiler is combined with other equipment.

Tab.19 Navigation for basic installer level

Level	Menu path
Basic installer	= > Installation Setup > CU-GH13 > Submenu (1) > Parameters, counters, signals > Parameters > General (2)
(1) See the column "Se	ubmenu" in the following table for the correct navigation. The parameters are grouped in specific functionalities.
(2) The parameters ca	n also be accessed directly via the Search datapoints function: ≔ > Installation Setup > Search datapoints

Code	Display text	Description	Adjustment range	Submenu	80	120	160	200
AP016	CH function on	Enable central heating heat demand processing	0 = Off 1 = On	Gas fired appliance	1	1	1	1
AP017	DHW function on	Enable domestic hot water heat demand processing	0 = Off 1 = On	Gas fired appliance	1	1	1	1
AP074	Force sum- mer mode	The heating is stopped, Hot water is maintained, Force summer mode	0 = Off 1 = On	Outdoor tempera- ture	0	0	0	0
CP080 CP081 CP082 CP083 CP084 CP085	User T.Room Activity	Room setpoint temperature of the user zone activity	5 – 30 °C	CIRCA	16 16 16 16 16 16	16 16 16 16 16 16	16 16 16 16 16 16	16 16 16 16 16 16
CP200	Manu ZoneR- oomTempSet	Manually setting the room temperature setpoint of the zone	5 – 30 °C	CIRCA	20	20	20	20
CP320	OperatingZo- neMode	Operating mode of the zone	0 = Scheduling 1 = Manual 2 = Off	CIRCA	0	0	0	0
CP510	Temporary Room Setp	Temporary room setpoint per zone	5 – 30 °C	CIRCA	20	20	20	20

Tab.20 Factory settings at basic installer level

6 Settings

Code	Display text	Description	Adjustment range	Submenu	80	120	160	200
CP550	Zone, fire place	Fire Place mode is active	0 = Off 1 = On	CIRCA	0	0	0	0
CP570	ZoneTime- Prog Select	Time Program of the zone se- lected by the user	0 = Schedule 1 1 = Schedule 2 2 = Schedule 3	CIRCA	0	0	0	0
CP660	Icon display zone	Choice icon to display this zone	0 = None 1 = All 2 = Bedroom 3 = Livingroom 4 = Study 5 = Outdoor 6 = Kitchen 7 = Basement	CIRCA	0	0	0	0
CP750	MaxZone Pre- heat time	Maximum zone preheat time	0 – 240 Min	CIRCA	0	0	0	0

Tab.21 Navigation for installer level

Level	Menu path
Installer	≔ > Installation Setup > CU-GH13 > Submenu (1) > Parameters, counters, signals > Parameters >
	General ⁽²⁾
(1) See the column "Se	ubmenu" in the following table for the correct navigation. The parameters are grouped in specific functionalities.
(2) The parameters ca	n also be accessed directly via the Search datapoints function: ≔ > Installation Setup > Search datapoints

Tab.22 Factory settings at installer level

Code	Display text	Description	Adjustment range	Submenu	80	120	160	200
AP001	BL function	BL input function selection	1 = Full blocking 2 = Partial blocking 3 = User reset locking	Gas fired appliance	1	1	1	1
AP006	Min water pressure	Appliance will report low water pressure below this value	0 – 6 bar	Gas fired appliance	0.8	0.8	0.8	0.8
AP008	Release wait time	Waiting time after closing the release contact to start the heat generator.	0 – 255 Sec	Gas fired appliance	0	0	0	0
AP009	Service hours	Number of heat generator op- erating hours for raising a service notification	100 – 25500 Hours	Gas fired appliance	8750	8750	8750	8750
AP010	Service notification	Select the type of service noti- fication	0 = None 1 = Custom notifica- tion 2 = ABC notification 3 = D notification	Gas fired appliance	3	3	3	3
AP011	Service hours mains	Hours powered to raise a service notification	100 – 51000 Hours	Gas fired appliance	17500	17500	17500	17500
AP013	Release func- tion	Function of the release input contact	0 = Disabled 1 = Full blocking 2 = Central heat blocked	Gas fired appliance	1	1	1	1
AP018	Sets release input	Configuration of the release input contact (normally open or normally closed)	0 = Normally open 1 = Normally closed	Gas fired appliance	0	0	0	0
AP056	Outdoor sen- sor	Enable outdoor sensor	0 = No outside sensor 1 = AF60	Outdoor tempera- ture	0	0	0	0
AP063	Max CH flow setpoint	Maximum central heating flow temperature setpoint	20 – 90 °C	Producer Generic Gas fired appliance	90	90	90	90

Code	Display text	Description	Adjustment range	Submenu	80	120	160	200
AP073	Summer Win- ter	Outdoor temperature; Upper limit for heating	15 – 30.5 °C	Outdoor tempera- ture	22	22	22	22
AP079	Building Iner- tia	Inertia of the building used for heat up speed	0 – 10	Outdoor tempera- ture	3	3	3	3
AP080	Frost min out temp	Outside temperature below which the antifreeze protec- tion is activated	-30 – 20 °C	Outdoor tempera- ture	-10	-10	-10	-10
AP091	Outside sens source	Type of outside sensor con- nection to be used	0 = Auto 1 = Wired sensor 2 = Wireless sensor 3 = Internet measured 4 = None	Outdoor tempera- ture	0	0	0	0
AP098	BL1 contact config.	BL1 input contact configura- tion	0 = Open 1 = Closed	Gas fired appliance	1	1	1	1
CP000	MaxZoneT- FlowSetpoint	Maximum Flow Temperature setpoint zone	7 – 100 °C	CIRCA	80	80	80	80
CP020	Zone Function	Functionality of the zone	0 = Disable 1 = Direct 2 = Mixing Circuit 3 = Swimming pool 4 = High Temperature 5 = Fan Convector 6 = DHW tank 7 = Electrical DHW 8 = Time Program 9 = ProcessHeat 10 = DHW Layered 11 = DHW Internal tank	CIRCA	1	1	1	1
CP040	Postrun zone pump	Pump post runtime of the zone	0 – 20 Min	CIRCA	0	0	0	0
CP060	Room T holi- day	Wished room zone tempera- ture on holiday period	5 – 20 °C	CIRCA	6	6	6	6
CP070	MaxReduce- dRoomT.Lim	Max Room Temperature limit of the circuit in reduced mode, that allows switching to com- fort mode	5 – 30 °C	CIRCA	16	16	16	16
CP210	Zone HCZP Comfort	Comfort footpoint of the tem- perature of heat curve of the circuit	15 – 90 °C	CIRCA	15	15	15	15
CP220	Zone HCZP Reduced	Reduced footpoint of the tem- perature of heat curve of the circuit	15 – 90 °C	CIRCA	15	15	15	15
CP230	Zone Heating Curve	Heating curve temperature gradient of the zone	0 – 4	CIRCA	1.5	1.5	1.5	1.5
CP240	ZoneRoomU- nitInfl	Adjustment of the influence of the zone room unit	0 – 10	CIRCA	3	3	3	3
CP250	CalSon- deAmbZone	Calibration of Zone Room Unit	-5 – 5 °C	CIRCA	0	0	0	0
CP340	TypeRedu- cedNight- Mode	Type of reduced night mode, stop or maintain heating of cir- cuit	0 = Stop heat demand 1 = Continue heat de- mand	CIRCA	1	1	1	1
CP640	OTH LogicLev contact	Opentherm Logic level con- tact of the zone	0 = Open 1 = Closed	CIRCA	1	1	1	1

Code	Display text	Description	Adjustment range	Submenu	80	120	160	200
CP730	Zone Heat up speed	Selection of heat up speed of the zone	0 = Extra Slow 1 = Slowest 2 = Slower 3 = Normal 4 = Faster 5 = Fastest	CIRCA	0	0	0	0
CP740	Zone cool down speed	Selection of cool down speed of the zone	0 = Slowest 1 = Slower 2 = Normal 3 = Faster 4 = Fastest	CIRCA	0	0	0	0
CP780	Control strat- egy	Selection of the control strat- egy for the zone	0 = Automatic 1 = Room temp based 2 = Outdoor temp based 3 = Outdoor & room based	CIRCA	0	0	0	0
EP014	SCB func 10V PWMin	Smart Control Board function 10 Volt PWM input	0 = Off 1 = Temperature con- trol 2 = Power control	0-10 volt input	0	0	0	0
GP007	Fan RPM Max CH	Maximum fan speed during Central Heating mode	1000 – 4500 Rpm	Gas fired appliance	5100	6400	4800	5700
GP008	Fan RPM Min	Minimum fan speed during Central Heating + Domestic Hot Water mode	900 – 3700 Rpm	Gas fired appliance	1200	1300	1000	1200
GP009	Fan RPM Start	Fan speed at appliance start	900 – 5000 Rpm	Gas fired appliance	1700	1700	1700	1700
GP021	Temp diff Modulating	Modulate back when delta temperature is larger than this threshold	5 – 40 °C	Gas fired appliance	30	30	30	30
PP015	CH Pump postrun time	Central heating pump post run time	1 – 99 Min	Gas fired appliance	3	3	3	3
PP016	Max CH pump speed	Maximum central heating pump speed (%)	20 – 100 %	Gas fired appliance	100	100	100	100
PP018	Min CH pump speed	Minimum central heating pump speed (%)	20 – 100 %	Gas fired appliance	20	20	20	20
PP023	CH Hysteresis	Temperature hysteresis for the generator to start on cen- tral heating	1 – 25 °C	Gas fired appliance	10	10	10	10
ZP000	Screed drying time 1	Set the number of days spent in the first screed drying step	0 – 30 Days	Direct zone	3	3	3	3
ZP010	Screed start temp 1	Set the start temperature for the first step of screed drying	7 – 60 °C	Direct zone	20	20	20	20
ZP020	Screed end temp 1	The end temperature for the first step of screed drying	7 – 60 °C	Direct zone	32	32	32	32
ZP030	Screed drying time 2	Set the number of days spent in the second screed drying step	0 – 30 Days	Direct zone	11	11	11	11
ZP040	Screed start temp 2	Set the start temperature for the second step of screed dry- ing	7 – 60 °C	Direct zone	32	32	32	32
ZP050	Screed end temp 2	The end temperature for the second step of screed drying	7 – 60 °C	Direct zone	32	32	32	32
ZP060	Screed drying time 3	Set the number of days spent in the third screed drying step	0 – 30 Days	Direct zone	2	2	2	2
ZP070	Screed start temp 3	Set the start temperature for the third step of screed drying	7 – 60 °C	Direct zone	32	32	32	32

Code	Display text	Description	Adjustment range	Submenu	80	120	160	200
ZP080	Screed end temp 3	The end temperature for the third step of screed drying	7 – 60 °C	Direct zone	24	24	24	24
ZP090	Screed drying enable	Enable the screed drying of the zone	0 = Off 1 = On	Direct zone	0	0	0	0

Tab.23 Navigation for advanced installer level

Level	Menu path
Advanced installer	= > Installation Setup > CU-GH13 > Submenu ⁽¹⁾ > Parameters, counters, signals > Parameters > Advanced ⁽²⁾
(1) See the column "Se	ubmenu" in the following table for the correct navigation. The parameters are grouped in specific functionalities.
(2) The parameters ca	n also be accessed directly via the Search datapoints function: ≔ > Installation Setup > Search datapoints

Tab.24 Factory settings at advanced installer level

Code	Display text	Description	Adjustment range	Submenu	80	120	160	200
AP002	Manual Heat Demand	Enable manual heat demand function	0 = Off 1 = With setpoint	Gas fired appliance	0	0	0	0
AP003	Flue valve wait time	Heat generator wait time to open the flue gas	0 – 255 Sec	Gas fired appliance	0	0	0	0
AP004	Hydr Valve Wait Time	Heat generator wait time to open the hydraulic valve	0 – 255 Sec	Gas fired appliance	0	0	0	0
AP026	Setpoint man- ual HD	Flow temperature setpoint for manual heat demand	7 – 90 °C	Gas fired appliance	40	40	40	40
AP061	Max corr sys- tem sens	Maximum system temperature correction when a system temperature sensor is availa- ble	0 – 20 °C	Gas fired appliance	10	10	10	10
AP062	P-factor sys- tem sens	P-factor (gain factor) for the system temperature correction	0.5 – 5	Gas fired appliance	1	1	1	1
AP102	Boiler Pump function	Configuration of the boiler pump as zone pump or sys- tem pump (feed lowloss head- er)	0 = No 1 = Yes	Gas fired appliance	0	0	0	0
CP010	Tflow setpoint zone	Zone flow temperature set- point, used when the zone is set to a fixed flow setpoint.	7 – 100 °C	CIRCA	90	90	90	90
CP290	ConfigZone- PumpOut	Configuration of Zone Pump Output	0 = Zone output 1 = CH mode 2 = DHW mode 3 = Cooling mode 4 = Error report 5 = Burning 6 = Service flag 7 = System error 8 = DHW looping 9 = Primary pump	CIRCA	0	0	0	0
CP450	Pump type	The connected pump type	0 = On/Off 1 = Modulating PWM 2 = Modulating LIN	CIRCA	0	0	0	0
CP520	Zone Power setpoint	Power setpoint per zone	0 – 100 %	CIRCA	100	100	100	100
CP530	Zone PWM Pump speed	Pulse Width Modulation pump speed per zone	20 – 100 %	CIRCA	100	100	100	100
CP680	ConfPairing RU Zone	Select the Bus channel of the room unit for this zone	0 – 255	CIRCA	0	0	0	0
CP850	Hydronic bal- ancing	Hydronic balancing operation possible	0 = No 1 = Yes	CIRCA	0	0	0	0

Code	Display text	Description	Adjustment range	Submenu	80	120	160	200
DP003	Abs max fan DHW	Maximum fan speed on Do- mestic Hot Water	1000 – 7000 Rpm	Gas fired appliance	5100	6400	4800	5700
DP010	Hysteresis DHW	Temperature hysteresis for the heat generator to start on domestic hot water production	1 – 10 °C	Gas fired appliance	5.5	5.5	5.5	5.5
DP011	Stop offset DHW	Temperature offset to stop heat generator on domestic hot water production	0 – 100 °C	Gas fired appliance	5	5	5	5
DP020	Postrun DHW pump/3wv	Post run time of the DHW pump/3 way valve after DHW production	0 – 99 Sec	Gas fired appliance	15	15	15	15
DP140	DHW load type	DHW load type (0 = Combi, 1 = Solo)	0 = Combi 1 = Solo	Gas fired appliance	1	1	1	1
GP010	GPS Check	Gas Pressure Switch check on/off	0 = No 1 = Yes	Gas fired appliance	1	1	1	1
GP017	Max power	Maximum power percentage in kilo Watt	0 – 1000 kW	Gas fired appliance	92.4	126.9	177.3	212.3
GP019	Pre Purge Time	Fan running time before burn- er start	1 – 255 Sec	Gas fired appliance	20	20	20	20
GP022	Tfa Filter Tau	Tau factor for average flow temperature calculation	0 – 255	Gas fired appliance	10	10	10	10
GP024	VPS Check	Valve Proofing System check on / off	0 = No 1 = Yes	Gas fired appliance	1	1	1	1
GP050	Power Min	Minimum power in kilo Watt for RT2012 calculation	0 – 300 kW	Gas fired appliance	17	23	31	41
GP082	Chimney over DHW	Enable the DHW circuit during chimney sweep	0 = Off 1 = On	Gas fired appliance	0	0	0	0
PP007	Min anti-cycle time	Minimum heat generator hold- ing time that can be reached after a stop	1 – 20 Min	Gas fired appliance	3	3	3	3
PP012	Stabilization time	Stabilization time after heat generator start for central heating	0 – 180 Sec	Gas fired appliance	30	30	30	30
PP017	ChPump- SpeedMax- Factor	Maximum central heating at minimum load as percentage of max pump speed	0 – 100 %	Gas fired appliance	30	30	30	30

6.3.2 SCB-01 expansion PCB parameters

All tables show the factory setting for the parameters.



Important The tables also list parameters that are only applicable if the boiler is combined with other equipment.

Tab.25 Navigation for installer level

Level	Menu path			
Installer	≔ > Installation Setup > SCB-01 > Submenu ⁽¹⁾ > Parameters, counters, signals > Parameters > General			
(1) See the column "Submenu" in the following table for the correct navigation. The parameters are grouped in specific functionalities.				

Tab.26 Factory settings at installer level

Code	Display text	Description	Adjustment range	Submenu	Default setting
EP018	Status relay func.	Status relay function	0 = No Action 1 = Alarm 2 = Alarm Inverted 3 = Generator on 4 = Generator off 5 = Reserved 6 = Reserved 7 = Service request 8 = Generator on CH 9 = Generator on DHW 10 = CH pump on 11 = Locking or Blocking 12 = Cooling mode	Status infor- mation	No Ac- tion
EP019	Status relay func.	Status relay function	 0 = No Action 1 = Alarm 2 = Alarm Inverted 3 = Generator on 4 = Generator off 5 = Reserved 6 = Reserved 7 = Service request 8 = Generator on CH 9 = Generator on DHW 10 = CH pump on 11 = Locking or Blocking 12 = Cooling mode 	Status infor- mation	No Ac- tion
EP028	Function 10V- PWM	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)	0-10 volt or PWM out	0-10V 1 (Wilo)
EP029	Source 10V-PWM	Selects the source signal for the 0-10 Volt output	0 = PWM 1 = Requested power 2 = Actual power	0-10 volt or PWM out	PWM

6.3.3 SCB-02 expansion PCB parameters

All tables show the factory setting for the parameters.



Important

The tables also list parameters that are only applicable if the boiler is combined with other equipment.

Tab.27 Navigation for basic installer level

Level	Menu path			
Basic installer	:= > Installation Setup > SCB-02 > Submenu ⁽¹⁾ > Parameters, counters, signals > Parameters > General			
(1) See the column "Submenu" in the following table for the correct navigation. The parameters are grouped in specific functionalities.				

Code	Display text	Description	Adjustment range	Submenu	Default setting
AP074	Force summer mode	The heating is stopped, Hot water is maintained, Force summer mode	0 = Off 1 = On	Outdoor temperature	Off
CP010 CP011	Tflow setpoint zone	Zone flow temperature setpoint, used when the zone is set to a fixed flow setpoint.	7 - 90 °C	DHW 1 CIRCB 1	90 °C 50 °C
CP080 CP081 CP082 CP083 CP084 CP085	User T.Room Ac- tivity	Room setpoint temperature of the user zone activity	5 - 30 °C	DHW 1	16 °C 16 °C 16 °C 16 °C 16 °C 16 °C 16 °C
CP086 CP087 CP088 CP089 CP090 CP091	User T.Room Ac- tivity	Room setpoint temperature of the user zone activity	5 - 30 °C	CIRCB 1	16 °C 16 °C 16 °C 16 °C 16 °C 16 °C
CP200 CP201	Manu ZoneR- oomTempSet	Manually setting the room tempera- ture setpoint of the zone	5 - 30 °C	DHW 1 CIRCB 1	20 °C 20 °C
CP320 CP321	OperatingZone- Mode	Operating mode of the zone	0 = Scheduling 1 = Manual 2 = Off 3 = Temporary	DHW 1 CIRCB 1	Manual Manual
CP350 CP351	ComfortZo- neDHWtemp	Comfort Domestic Hot Water Tem- perature Setpoint of zone	40 - 80 °C	DHW 1 CIRCB 1	65 °C 40 °C
CP360 CP361	ReducedZo- neDHWtemp.	Reduced Domestic Hot Water Tem- perature Setpoint of zone	10 - 60 °C	DHW 1 CIRCB 1	10 °C 10 °C
CP510 CP511	Temporary Room Setp	Temporary room setpoint per zone	5 - 30 °C	DHW 1 CIRCB 1	20 °C 20 °C
CP550 CP551	Zone, fire place	Fire Place mode is active	0 = Off 1 = On	DHW 1 CIRCB 1	Off Off
CP570 CP571	ZoneTimeProg Select	Time Program of the zone selected by the user	0 = Schedule 1 1 = Schedule 2 2 = Schedule 3 3 = Cooling	DHW 1 CIRCB 1	Sched- ule 1 Sched- ule 1
CP660 CP661	Icon display zone	Choice icon to display this zone	0 = None 1 = All 2 = Bedroom 3 = Livingroom 4 = Study 5 = Outdoor 6 = Kitchen 7 = Basement 8 = Swimming Pool 9 = DHW Tank 10 = DHW Electrical Tank 11 = DHW Layered Tank 12 = Internal Boiler Tank 13 = Time Program	DHW 1 CIRCB 1	DHW Tank Living- room
CP750 CP751	MaxZone Preheat time	Maximum zone preheat time	0 - 240 Min	DHW 1 CIRCB 1	0 Min 60 Min

Tab.28 Factory settings at basic installer level

Tab.29 Navigation for installer level

Level	Menu path			
Installer	≔ > Installation Setup > SCB-02 > Submenu ⁽¹⁾ > Parameters, counters, signals > Parameters > General			
(1) See the column "Submenu" in the following table for the correct navigation. The parameters are grouped in specific functionalities.				

Code	Display text	Description	Adjustment range	Submenu	Default setting
AP056	Outdoor sensor	Enable outdoor sensor	0 = No outside sensor 1 = AF60 2 = QAC34	Outdoor temperature	No out- side sensor
AP073	Summer Winter	Outdoor temperature; Upper limit for heating	15 - 30.5 °C	Outdoor temperature	22 °C
AP075	Season cross- over	Temperature variance from set out- door upper temp limit in which the generator will not heat or cool	0 - 10 °C	Outdoor temperature	4 °C
AP079	Building Inertia	Inertia of the building used for heat up speed	0 - 10	Outdoor temperature	3
AP080	Frost min out temp	Outside temperature below which the antifreeze protection is activated	-30 - 30.5 °C	Outdoor temperature	-10 °C
AP091	Outside sens source	Type of outside sensor connection to be used	0 = Auto 1 = Wired sensor 2 = Wireless sensor 3 = Internet measured 4 = None	Outdoor temperature	Auto
CP000 CP001	MaxZoneTFlowS- etpoint	Maximum Flow Temperature setpoint zone	7 - 90 °C	DHW 1 CIRCB 1	90 °C 55 °C
CP020 CP021	Zone Function	Functionality of the zone	0 = Disable 1 = Direct 2 = Mixing Circuit 3 = Swimming pool 4 = High Temperature 5 = Fan Convector 6 = DHW tank 7 = Electrical DHW 8 = Time Program 9 = ProcessHeat 10 = DHW Layered 11 = DHW Layered 11 = DHW Internal tank 12 = DHW Commercial Tank 13 = DHW FWS 31 = DHW FWS 31 = DHW FWS EXT 200 = BSB 254 = Occupied	DHW 1 CIRCB 1	DHW tank Mixing Circuit
CP030 CP031	Bandwidth mix valve	Bandwidth of mixing valve zone where modulation takes place.	4 - 16 °C	DHW 1 CIRCB 1	12 °C 12 °C
CP040 CP041	Postrun zone pump	Pump post runtime of the zone	0 - 99 Min	DHW 1 CIRCB 1	2 Min 4 Min
CP050 CP051	Mixing Valve shift	Shift between calculated setpoint and mixing valve circuit setpoint	0 - 16 °C	DHW 1 CIRCB 1	0 °C 4 °C
CP060 CP061	Room T holiday	Wished room zone temperature on holiday period	5 - 20 °C	DHW 1 CIRCB 1	0°C 6°C
CP070 CP071	MaxReduce- dRoomT.Lim	Max Room Temperature limit of the circuit in reduced mode, that allows switching to comfort mode	5 - 30 °C	DHW 1 CIRCB 1	16 °C 16 °C
CP210 CP211	Zone HCZP Com- fort	Comfort footpoint of the temperature of heat curve of the circuit	15 - 90 °C	DHW 1 CIRCB 1	15 °C 15 °C

Tab.30 Factory settings at installer level

Code	Display text	Description	Adjustment range	Submenu	Default setting
CP220 CP221	Zone HCZP Re- duced	Reduced footpoint of the temperature of heat curve of the circuit	15 - 90 °C	DHW 1 CIRCB 1	15 °C 15 °C
CP230 CP231	Zone Heating Curve	Heating curve temperature gradient of the zone	0 - 4	DHW 1 CIRCB 1	0.7 0.7
CP240 CP241	ZoneRoomUni- tInfl	Adjustment of the influence of the zone room unit	0 - 10	DHW 1 CIRCB 1	3 3
CP250 CP251	CalSondeAmb- Zone	Calibration of Zone Room Unit	-5 - 5 °C	DHW 1 CIRCB 1	0°C 0°0
CP340 CP341	TypeReduced- NightMode	Type of reduced night mode, stop or maintain heating of circuit	0 = Stop heat demand 1 = Continue heat demand	DHW 1 CIRCB 1	Contin- ue heat demand Contin- ue heat demand
CP370 CP371	Holiday Zo- neDHWtemp	Holiday Domestic Hot Water Temper- ature Setpoint of zone	10 - 80 °C	DHW 1 CIRCB 1	65 °C 10 °C
CP380 CP381	Antileg Zo- neDHWtemp	Antilegionellosis Domestic Hot Water Temperature Setpoint of zone	40 - 80 °C	DHW 1 CIRCB 1	70 °C 70 °C
CP390 CP391	Start Antileg	Start time of the function Antilegionel- losis	0 - 143 HoursMinutes	DHW 1 CIRCB 1	18 Hours- Minutes 18 Hours- Minutes
CP400 CP401	Zone Dhw anti- leg.	Duration of the function Antilegionel- losis	1 - 600 Min	DHW 1 CIRCB 1	60 Min 60 Min
CP420 CP421	ZoneDhwHysteri- sis	Trip differential for DHW production	1 - 60 °C	DHW 1 CIRCB 1	6 °C 1 °C
CP430 CP431	Optimise DHW Zone	Used to force DHW tank loading ac- cording to the primary temperature	0 - 1	DHW 1 CIRCB 1	0 0
CP440 CP441	Release DHW zone	Prevents the cooling of the Tank at the start	0 - 1	DHW 1 CIRCB 1	0 0
CP460 CP461	DHW Zone Priori- ty	Choice of DHW Priority 0:TOTAL 1:RELATIVE 2:NONE	0 = Total 1 = Relative 2 = None	DHW 1 CIRCB 1	Total Total
CP470 CP471	Zone screed dry- ing	Setting of the screed drying program of the zone	0 - 30 Days	DHW 1 CIRCB 1	0 Days 0 Days
CP480 CP481	ScreedStartTemp	Setting of the start temperature of the screed drying program of the zone	20 - 50 °C	DHW 1 CIRCB 1	20 °C 20 °C
CP490 CP491	ScreedStopTemp	Setting of the stop temperature of the screed drying program of the zone	20 - 50 °C	DHW 1 CIRCB 1	20 °C 20 °C
CP500 CP501	Tflow Sensor En- able	Enable/Disable Flow temperature sensor of the zone	0 = Off 1 = On	DHW 1 CIRCB 1	Off Off
CP560 CP561	ZoneConfigDH- WAntileg	Configuration of the Domestic Hot Watter Antilegionnella Protection of the zone	0 = Disabled 1 = Weekly 2 = Daily 3 = External	DHW 1 CIRCB 1	Weekly Disa- bled
CP600 CP601	ProcessHeat Spt zone	Heat demand setpoint during process heat of zone	20 - 100 °C	DHW 1 CIRCB 1	60 °C 60 °C
CP610 CP611	Hys PH on per zone	Hysteresis switched on for process heat per zone	1 - 15 °C	DHW 1 CIRCB 1	6 °C 6 °C
CP620 CP621	Hys PH off per zone	Hysteresis switched off for process heat per zone	1 - 15 °C	DHW 1 CIRCB 1	6 °C 6 °C
Code	Display text	Description	Adjustment range	Submenu	Default setting
----------------	---------------------------	---	---	-------------------------	----------------------------------
CP630 CP631	StartdayAntileg zone	Startday of the function antilegionella of the zone	1 = Monday 2 = Tuesday 3 = Wednesday 4 = Thursday 5 = Friday 6 = Saturday 7 = Sunday	DHW 1 CIRCB 1	Satur- day Satur- day
CP640 CP641	OTH LogicLev contact	Opentherm Logic level contact of the zone	0 = Open 1 = Closed 2 = Off	DHW 1 CIRCB 1	Closed Closed
CP690 CP691	RevContactOTH cool	Reversed OpenTherm contact in cooling mode for heat demand per zone	0 = No 1 = Yes	DHW 1 CIRCB 1	No No
CP700 CP701	DHW Cal Offset zone	Offset for calorifier sensor per zone	0 - 30 °C	DHW 1 CIRCB 1	0°C 0°0
CP710 CP711	Zone In- cTFlowStp DHW	Increase primary temperature set- point for heating DHW calorifier of the zone	0 - 40 °C	DHW 1 CIRCB 1	15 °C 0 °C
CP720 CP721	Zone, IncFT Pro- cHeat	Increase Primary Temperature set- point for process heat calorifier of the zone	0 - 40 °C	DHW 1 CIRCB 1	0°C 0°0
CP780 CP781	Control strategy	Selection of the control strategy for the zone	0 = Automatic 1 = Room temp based 2 = Outdoor temp based 3 = Outdoor & room based	DHW 1 CIRCB 1	Auto- matic Auto- matic
EP018	Status relay func.	Status relay function	0 = No Action 1 = Alarm 2 = Alarm Inverted 3 = Generator on 4 = Generator off 5 = Reserved 6 = Reserved 7 = Service request 8 = Generator on CH 9 = Generator on DHW 10 = CH pump on 11 = Locking or Blocking 12 = Cooling mode	Status infor- mation	No Ac- tion
EP019	Status relay func.	Status relay function	0 = No Action 1 = Alarm 2 = Alarm Inverted 3 = Generator on 4 = Generator off 5 = Reserved 6 = Reserved 7 = Service request 8 = Generator on CH 9 = Generator on DHW 10 = CH pump on 11 = Locking or Blocking 12 = Cooling mode	Status infor- mation	No Ac- tion
EP028	Function 10V- PWM	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)	0-10 volt or PWM out	0-10V 1 (Wilo)
EP029	Source 10V-PWM	Selects the source signal for the 0-10 Volt output	0 = PWM 1 = Requested power 2 = Actual power	0-10 volt or PWM out	PWM

Tab.31 Navigation for advanced installer level

Level	Menu path	
Advanced installer	== > Installation Setup > SCB-02 > Submenu (1) > Parameters, counters, signals > Parameters > Advanced	
(1) See the column "See the column"" "See the column "See the column "See the	(1) See the column "Submenu" in the following table for the correct navigation. The parameters are grouped in specific functionalities.	

Tab.32 Factory settings at advanced installer level

Code	Display text	Description	Adjustment range	Submenu	Default setting
CP290 CP291	ConfigZone- PumpOut	Configuration of Zone Pump Output	0 = Zone output 1 = CH mode 2 = DHW mode 3 = Cooling mode 4 = Error report 5 = Burning 6 = Service flag 7 = System error 8 = DHW looping 9 = Primary pump 10 = Buffer pump	DHW 1 CIRCB 1	Zone output Zone output
CP330 CP331	Opening Valve Time	The time needed by the valve to be fully opened	0 - 240 Sec	DHW 1 CIRCB 1	60 Sec 60 Sec
CP520 CP521	Zone Power set- point	Power setpoint per zone	0 - 100 %	DHW 1 CIRCB 1	100 % 100 %
CP680 CP681	ConfPairing RU Zone	Select the Bus channel of the room unit for this zone	0 - 255	DHW 1 CIRCB 1	0 0
CP730 CP731	Zone Heat up speed	Selection of heat up speed of the zone	0 = Extra Slow 1 = Slowest 2 = Slower 3 = Normal 4 = Faster 5 = Fastest	DHW 1 CIRCB 1	Normal Normal
CP740 CP741	Zone cool down speed	Selection of cool down speed of the zone	0 = Slowest 1 = Slower 2 = Normal 3 = Faster 4 = Fastest	DHW 1 CIRCB 1	Normal Normal
CP770 CP771	Zone Buffered	The zone is after a Buffer tank	0 = No 1 = Yes	DHW 1 CIRCB 1	Yes Yes

6.4 List of measured values

6.4.1 CU-GH13 control unit counters

Tab.33 Navigation for basic installer level

Level	Menu path	
Basic installer	= > Installation Setup > CU-GH13 > Submenu (1) > Parameters, counters, signals > Counters > General (2)	
(1) See the column "Submenu" in the following table for the correct navigation. The counters are grouped in specific functionalities.		
(2) The counters can also be accessed directly via the Search datapoints function: ≔ > Installation Setup > Search datapoints		

Tab.34 Counters at basic installer level

Code	Display text	Description	Range	Submenu
AC001	Hours on mains	Number of hours that the appliance has been on mains power	0 - 4294967295Hours	System Func- tionality
AC002	Service run hours	Number of hours that the appliance has been producing energy since last service	0 - 131070Hours	Gas fired ap- pliance
AC003	Hours since service	Number of hours since the previous servicing of the appliance	0 - 131070Hours	Gas fired ap- pliance
AC004	Starts since service	Number of heat generator starts since the previous servicing.	0 - 4294967295	Gas fired ap- pliance
AC005	CH energy con- sumed	Energy consumed for central heating	0 - 4294967295kWh	Producer Ge- neric Gas fired ap- pliance
AC006	DHW energy con- sumed	Energy consumed for domestic hot water	0 - 4294967295kWh	Producer Ge- neric Gas fired ap- pliance
AC007	Cool energy con- sumed	Energy consumed for cooling	0 - 4294967295kWh	Producer Ge- neric
AC026	Pump running hours	Counter that shows the number of pump running hours	0 - 4294967295Hours	Gas fired ap- pliance
AC027	Pump starts	Counter that shows the number of pump starts	0 - 4294967295	Gas fired ap- pliance
DC004	DHW starts	Number of starts for domestic hot water	0 - 4294967295	Gas fired ap- pliance
DC005	DHW run hours	Total number of hours that the appliance has been producing energy for domesti- cal hot water	0 - 4294967295Hours	Gas fired ap- pliance
PC003	Heat gen run hrs	Total Number of hours that the appliance has been producing energy for central heating and DHW	0 - 65534Hours	Gas fired ap- pliance

Tab.35 Navigation for installer level

Level	Menu path	
Installer	= > Installation Setup > CU-GH13 > Submenu (1) > Parameters, counters, signals > Counters > General (2)	
(1) See the column "Submenu" in the following table for the correct navigation. The counters are grouped in specific functionalities.		
(2) The counters can a	(2) The counters can also be accessed directly via the Search datapoints function: = > Installation Setup > Search datapoints	

Tab.36 Counters at installer level

Code	Display text	Description	Range	Submenu
DC001	DhwTotalPower Cons	Total power consumption used by Do- mestic Hot Water	0 - 4294967295kW	Gas fired ap- pliance
GC007	Failed starts	Number of failed starts	0 - 65534	Gas fired ap- pliance
PC002	Total starts	Total number of heat generator starts for heating and domestic hot water	0 - 65534	Gas fired ap- pliance
PC004	Burner flame loss	Number of burner flame loss	0 - 65534	Gas fired ap- pliance

Tab.37 Navigation for advanced installer level

Level	Menu path		
Advanced installer	= > Installation Setup > CU-GH13 > Submenu (1) > Parameters, counters, signals > Counters > Advanced (2)		
(1) See the column "Submenu" in the following table for the correct navigation. The counters are grouped in specific functionalities.			
(2) The counters can a	(2) The counters can also be accessed directly via the Search datapoints function: => Installation Setup > Search datapoints		

Tab.38 Counters at advanced installer level

Code	Display text	Description	Range	Submenu
AM033	Next Service Ind.	Next service indication		Gas fired ap- pliance
PC001	ChCtrTotalPower- Cons.	Total power consumption used by Cen- tral Heating	0 - 4294967295kW	Gas fired ap- pliance

6.4.2 SCB-01 expansion PCB counters

Tab.39 Navigation for basic installer level

Level	Menu path	
Basic installer	= > Installation Setup > SCB-01 > Submenu (1) > Parameters, counters, signals > Counters > General	
(1) See the column "Submenu" in the following table for the correct navigation. The counters are grouped in specific functionalities.		

Tab.40 Counters at basic installer level

Code	Display text	Description	Range	Submenu
AC001	Hours on mains	Number of hours that the appliance has	0 - 4294967295Hours	System Func-
		been on mains power		tionality

6.4.3 CU-GH13 control unit signals

Tab.41 Navigation for basic installer level

Level	Menu path
Basic installer	≔ > Installation Setup > CU-GH13 > Submenu (1) > Parameters, counters, signals > Signals > General (2)
(1) See the column "Submenu" in the following table for the correct navigation. The signals are grouped in specific functionalities.	
(2) The signals can also be accessed directly via the Search datapoints function: => Installation Setup > Search datapoints	

Tab.42 Signals at basic installer level

Code	Display text	Description	Range	Submenu
AM010	Pump speed	The current pump speed	0 - 100%	Gas fired ap- pliance
AM012	Status Appliance	Current main status of the appliance.	See Status and sub-status, page 43	Status infor- mation System Func- tionality
AM014	Sub status Appli- ance	Current sub status of the appliance.	See Status and sub-status, page 43	Status infor- mation System Func- tionality
AM015	Pump running?	Is the pump running?	0 = Inactive 1 = Active	Gas fired ap- pliance

Code	Display text	Description	Range	Submenu
AM016	System Flow Temp	Flow temperature of appliance.	-327.68 - 327.67°C	Zone manag- er Producer Ge- neric Gas fired ap- pliance Prod manager bridge
AM017	T heat exchanger	The temperature of heat exchanger	-25 - 150°C	Gas fired ap- pliance
AM018	T return	Return temperature of appliance. The temperature of the water entering the appliance.	-327.68 - 327.67°C	Zone manag- er Gas fired ap- pliance
AM019	Water pressure	Water pressure of the primary circuit.	0 - 25.5bar	Gas fired ap- pliance
AM027	Outside tempera- ture	Instantaneous outside temperature	-70 - 70°C	Outdoor tem- perature Gas fired ap- pliance
AM028	0to10Vinput	Value of the 0 to 10 Volt input, meaning is dependant on the current input func- tion setting.	0 - 25V	0-10 volt input
AM040	Control tempera- ture	Temperature used for hot water control algorithms.	-327.68 - 327.67°C	Gas fired ap- pliance
AM046	Internet T.Outside	Outside temperature received from an internet source	-70 - 70°C	Outdoor tem- perature
AM091	SeasonMode	Seasonal mode active (summer / winter)	0 = Winter 1 = Frost protection 2 = Summer neutral band 3 = Summer	Outdoor tem- perature
AM101	Internal setpoint	Internal system flow temperature set- point	0 - 120°C	Gas fired ap- pliance
CM030	Zone RoomTem- perature	Measure of the room temperature of the zone	0 - 50°C	CIRCA
CM120	ZoneCurrentMode	Zone Current Mode	0 = Scheduling 1 = Manual 2 = Off 3 = Temporary	CIRCA
CM130	ZoneCurrent activi- ty	Current activity of the zone	0 = Off 1 = Reduced 2 = Comfort 3 = Anti legionella	CIRCA
CM190	Zone Troom set- point	Wished room temperature setpoint of the zone	5 - 30°C	CIRCA
CM210	ZoneTout temp	Current outdoor temperature of the zone	-70 - 70°C	CIRCA

Tab.43 Navigation for installer level

Level	Menu path	
Installer	≔ > Installation Setup > CU-GH13 > Submenu (1) > Parameters, counters, signals > Signals > General (2)	
(1) See the column "Submenu" in the following table for the correct navigation. The signals are grouped in specific functionalities.		
⁽²⁾ The signals can als	(2) The signals can also be accessed directly via the Search datapoints function: = > Installation Setup > Search datapoints	

Code	Display text	Description	Range	Submenu
AM006	Release input	Current status of the release input	0 = Open 1 = Closed 2 = Off	Gas fired ap- pliance
AM036	Flue gas tempera- ture	Temperature of the exhaust gas leaving the appliance	0 - 250°C	Gas fired ap- pliance
AM044	Nr sensors suppor- ted	Number of sensors supported by the de- vice	0 - 255	Gas fired ap- pliance
AM045	Water Psensor pre- sen	Water pressure sensor present?	0 = No 1 = Yes	Gas fired ap- pliance
CM070	Zone Tflow Set- point	Current Flow temperature setpoint of zone	0 - 150°C	CIRCA
CM140	ZoneOTContr present	OpenTherm controller is connected to the zone	0 = No 1 = Yes	CIRCA
CM150	ZoneState Heatde- mand	State of On Off heat demand per zone	0 = No 1 = Yes	CIRCA
CM160	Zone Mod HeatDe- mand	Presense of modulating heat demand per zone	0 = No 1 = Yes	CIRCA
CM200	ZoneCurrentHeat- Mode	Displaying current operating mode of the zone	0 = Standby 1 = Heating 2 = Cooling	CIRCA
GM001	Actual fan RPM	Actual fan RPM	0 - 8500Rpm	Gas fired ap- pliance
GM002	Fan RPM setpoint	Actual fan RPM setpoint	0 - 8500Rpm	Gas fired ap- pliance
GM008	Actual flame cur- rent	Actual flame current measured	0 - 25µA	Gas fired ap- pliance
NM001	CascSystemTF	Cascade system flow temperature	-10 - 120°C	Producer Ge- neric Produc- er<>Consum- er
PM002	CH Setpoint	Central heating setpoint of the appliance	0 - 125°C	Gas fired ap- pliance
ZM000	Screed temp set- point	The current flow temperature setpoint for screed drying	7 - 60°C	Direct zone

Tab.44 Signals at installer level

Tab.45 Navigation for advanced installer level

Level	Menu path
Advanced installer	= > Installation Setup > CU-GH13 > Submenu (1) > Parameters, counters, signals > Signals > Advanced (2)
(1) See the column "Submenu" in the following table for the correct navigation. The signals are grouped in specific functionalities.	
(2) The signals can als	so be accessed directly via the Search datapoints function: == > Installation Setup > Search datapoints

Tab.46 Signals at advanced installer level

Code	Display text	Description	Range	Submenu
AM001	DHW active	Is the appliance currently in domestic hot water production mode?	0 = Off 1 = On	Gas fired ap- pliance
AM011	Service required?	Is service currently required?	0 = No 1 = Yes	Gas fired ap- pliance
AM022	On / Off heat de- mand	On / Off heat demand	0 = Off 1 = On	Gas fired ap- pliance
AM024	Actual rel power	Actual relative power of the appliance	0 - 100%	Gas fired ap- pliance

Code	Display text	Description	Range	Submenu
AM043	Pwr dwn reset nee- ded	A power down reset is needed	0 = No 1 = Yes	Gas fired ap- pliance
AP078	Out sensor detec- ted	Outside sensor detected in the applica- tion	0 = No 1 = Yes	Outdoor tem- perature
CM240	Zone Tout connec- ted	Outdoor temperature sensor is connec- ted to the zone	0 = No 1 = Yes	CIRCA
CM280	ZoneRTC Tcal- cRoomStp	Internal room temperature setpoint cal- culated by the room temperature control- ler of the zone	0 - 100°C	CIRCA
CM390	Reason zone is off	Reason why zone activity is off	0 = None 1 = Holiday mode 2 = On/Off contact 3 = Hydronic balancing	CIRCA
GM015	Vps Switch	Valve Proving System switch open / closed	0 = Open 1 = Closed 2 = Off	Gas fired ap- pliance
PM003	ChTflowAverage	Actual average flow temperature	-25 - 125°C	Gas fired ap- pliance

6.4.4 SCB-01 expansion PCB signals

Tab.47 Navigation for basic installer level

Level	Menu path	
Basic installer	≔ > Installation Setup > SCB-01 > Submenu (1) > Parameters, counters, signals > Signals > General	
(1) See the column "Submenu" in the following table for the correct navigation. The signals are grouped in specific functionalities.		

Tab.48 Signals at basic installer level

Code	Display text	Description	Range	Submenu
AM012	Status Appliance	Current main status of the appliance.	See Status and sub-status, page 43	System Func- tionality
AM014	Sub status Appli- ance	Current sub status of the appliance.	See Status and sub-status, page 43	System Func- tionality

6.4.5 Status and sub-status

Tab.49 AM012 - Status

Code	Display text	Explanation
0	Standby	The appliance is in standby mode.
1	Heat Demand	A heat demand is active.
2	Generator start	The appliance starts.
3	Generator CH	The appliance is active for central heating.
4	Generator DHW	The appliance is active for domestic hot water.
5	Generator stop	The appliance has stopped.
6	Pump Post Run	The pump is active after the appliance stopped.
8	Controlled Stop	The appliance does not start because the starting conditions are not met.
9	Blocking Mode	A blocking mode is active.
10	Locking Mode	A locking mode is active.
11	Load test min	Low load test mode for central heating is active.
12	Load test CH max	Full load test mode for central heating is active.
13	Load test DHW max	Full load test mode for domestic hot water is active.

Code	Display text	Explanation
15	Manual Heat Demand	Manual heat demand for central heating is active.
16	Frost Protection	Frost protection mode is active.
19	Reset In Progress	The appliance resets.
21	Halted	The appliance has stopped. It must be reset manually.
23	Factory test	The factory test mode is active.
200	Device Mode	The service tool interface controls the functions of the appliance.
254	Unknown	The actual state of the appliance is undefined.

Code	Display text	Explanation
0	Standby	The appliance waits for a process or an action.
1	AntiCycling	The appliance waits to restart, because there were too many consecutive heat demands (anti-short cycle).
4	WaitingForStartCond.	The appliance waits for the temperature to meet the start conditions.
10	CloseExtGasValve	An external gas valve is opened, when this option is connected to the appliance. An external option board must be connected to drive the valve.
12	CloseFlueGasValve	The flue gas valve opens.
13	FanToPrePurge	The fan runs faster to pre-purge.
14	WaitForReleaseSignal	The appliance waits for the release input to close.
15	BurnerOnCommandToSu	A burner start command is sent to the safety core.
17	Prelgnition	Ignition starts before the gas valve opens.
18	Ignition	Ignition is active.
19	FlameCheck	The flame detection is active after the ignition.
20	Interpurge	The fan runs to purge the heat exchanger after a failed ignition.
30	Normal Int.Setpoint	The appliance operates to reach the desired value.
31	Limited Int.Setpoint	The appliance operates to reach the reduced internal desired value.
32	NormalPowerControl	The appliance operates on the desired power level.
33	GradLevel1PowerCtrl	The modulation is stopped due to a faster heat exchanger temperature change than gradient level 1.
34	GradLevel2PowerCtrl	The modulation is set to low load due to a faster heat exchanger tempera- ture change than gradient level 2.
35	GradLevel3PowerCtrl	The appliance is in blocking mode due to a faster heat exchanger tempera- ture change than gradient level 3.
36	ProtectFlamePwrCtrl	The burner power is increased due to a low ionisation signal.
37	StabilizationTime	The appliance is in stabilisation time. Temperatures should stabilise and temperature protections are switched off.
38	ColdStart	The appliance runs at start load to prevent cold start noise.
39	ChResume	The appliance resumes central heating after a domestic hot water interrup- tion.
40	SuRemoveBurner	Burner demand is removed from safety core.
41	FanToPostPurge	The fan runs to purge the heat exchanger after the appliance stopped.
44	StopFan	The fan has stopped.
45	LimitedPwrOnTflueGas	The power of the appliance is decreased to lower the flue gas temperature.
48	Reduced Set Point	The desired flow temperature is reduced to protect the heat exchanger.
60	PumpPostRunning	The pump is active after the appliance stopped in order to bring the re- maining heat into the system.
61	OpenPump	The pump has stopped.
63	SetAntiCycleTimer	
105	Calibration	The electronic combustion process calibrates the combustion.
200	Initialising Done	Initialisation is finished.
201	Initialising Csu	The CSU is initialising.
202	Init identifiers	The identifiers are initialising.
203	Init.BL.Parameter	The blocking parameters are initialising.

Code	Display text	Explanation
204	Init safety unit	The safety unit is initialising.
205	Init blocking	The blocking is initialising.
254	StateUnknown	The sub state is undefined.
255	SuOutOfResetsWait1Hr	The safety unit is blocking due to too many resets. Wait for 60 minutes or turn the power off and on again.

7 Maintenance

7.1 Maintenance regulations



Danger of electric shock

Ensure that the boiler is switched off.

7.2 Opening the boiler

Fig.41 Removing the panel



- 1. Unlock the over centre latches on both sides of the boiler.
- 2. Remove the panel.

7.3 Standard inspection and maintenance operations

For a service, always perform the following standard inspection and maintenance operations.

7.3.1 Preparation

Carry out the following steps before commencing inspection and maintenance activities:

- 1. Set the boiler to full load until the return temperature is around 65 °C, to dry the heat exchanger on the flue gas side.
- Check the water pressure. The minimum water pressure is 0.8 bar. The recommended water pressure is between 1.5 bar and 2.0 bar.
 If necessary, top up the central heating system.
- Check the ionisation current at full load and at low load.
 - The value is stable after 1 minute.
 - 3.1. If the value is lower than 4 μ A, clean or replace the ionisation and ignition electrode.
- 4. Check the condition and tightness of the flue gas outlet and air supply system.
- Check the combustion by measuring the O₂/CO₂ percentage in the flue gasses.

Important

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- This appliance is suitable for category I_{2H} containing up to 20% Hydrogen gas (H₂). Due to variations in the H₂ percentage, the O₂/CO₂ percentage can vary over time. (For example: a percentage of 20% H₂ in the gas can lead to an increase of 1,5% of O2 in the flue gasses)
- A significant adjustment of the gas valve may be needed.
 Adjustment can be done using the standard O₂/CO₂ values of the gas used.

See also

Chimney sweep menu, page 12

Performing the full load test

- 1. Select the tile [4].
 - ⇒ The Change load test mode menu appears.
- 2. Select the test Medium power.
 - A Change load test mode
 - **B** Medium power
 - ⇒ The full load test starts. The selected load test mode is shown in the menu and the icon ♣ appears in the top right of the screen.
- Check the load test settings and adjust if necessary.
 ⇒ Only the parameters shown in bold can be changed.

■ Checking/setting values for O₂/CO₂ at full load

- 1. Set the boiler to full load.
- 2. Measure the percentage of O_2/CO_2 in the flue gases.
- 3. Compare the measured value with the checking values in the table.

Tab.51 Checking/setting values for O₂/CO₂ at full load for G20 (H gas)

Values at full load for G20 (H gas)	O ₂ (%) ⁽¹⁾	CO ₂ (%) ⁽²⁾	
Gas 210 Ace 80	3,9 - 5,2 ⁽¹⁾ - 6,5	8,1 - 8,8 ⁽²⁾ - 9,5	
Gas 210 Ace 120	3,9 - 5,2 ⁽¹⁾ - 6,5	8,1 - 8,8 ⁽²⁾ - 9,5	
Gas 210 Ace 160	4,3 - 5,2 ⁽¹⁾	8,8 ⁽²⁾ – 9,3	
Gas 210 Ace 200	4,3 – 5,2 ⁽¹⁾	8,8 ⁽²⁾ – 9,3	
(1) Nominal value.(2) Nominal value.			

Tab.52 Checking/setting values for O2/CO2 at full load for G31 (propane)

Values at full load for G31 (propane)	O ₂ (%) ⁽¹⁾	CO ₂ (%) ⁽²⁾
Gas 210 Ace 80	4,7 - 5,7 ⁽¹⁾ - 6,7	9,3 - 10,0 ⁽²⁾ - 10,7
Gas 210 Ace 120	4,7 - 5,7 ⁽¹⁾ - 6,7	9,3 - 10,0 ⁽²⁾ - 10,7
Gas 210 Ace 160	4,9-5,7(1)	10,0 ⁽²⁾ – 10,5
Gas 210 Ace 200	4,9-5,7(1)	10,0 ⁽²⁾ – 10,5
(1) Nominal value. (2) Nominal value.		

Fig.43 Adjusting screw A



- 4. If the measured value is outside of the values given in the table, correct the gas/air ratio.
- 5. Use the adjustment screw **A** to set the percentage of O₂/CO₂ for the gas type being used to the nominal value.

Increasing the gas flow, will decrease O_2 and increase CO_2 . The direction in which the adjusting screw must be turned to increase or decrease the gas flow is indicated on the gas control valve. The 3- to 4-section boilers are supplied with a different gas control valve from the 5- to 6-section boiler. The 3- to 4-section boilers can therefore only be set at low load.

See drawing for the position of adjusting screw A for full load.

6. Check the flame through the inspection glass. The flame must not blow off.



Fig.44 Low load test



Performing the low load test

- If the full load test is still running, press the ✓ button to change the load test mode.
- 2. If the full load test was finished, select the tile [🎍] to restart the chimney sweep menu.
 - A Change load test mode
 - B Low power
- 3. Select the **Low power** test in the menu **Change load test mode**. ⇒ The low load test starts. The selected load test mode is shown in the menu and the ison the ten right of the sereen
- the menu and the icon appears in the top right of the screen.
 4. Check the load test settings and adjust if necessary.
 ⇒ Only the parameters shown in bold can be changed.
- 5. End the low load test by pressing the button.
 ⇒ The message Running load test(s) stopped! is displayed.

■ Checking/setting values for O₂/CO₂ at low load

- 1. Set the boiler to low load.
- 2. Measure the percentage of O₂/CO₂ in the flue gases.
- 3. Compare the measured value with the checking values in the table.

Tab.53 Checking/setting values for O2/CO2 at low load for G20 (H gas)

Values at low load for G20 (H gas)	O ₂ (%) ⁽¹⁾	CO ₂ (%) ⁽²⁾
Gas 210 Ace 80	3,8 - 4,3 ⁽¹⁾	9,3 ⁽²⁾ – 9,6
Gas 210 Ace 120	3,8 - 4,3 ⁽¹⁾	9,3 ⁽²⁾ – 9,6
Gas 210 Ace 160	3,4 - 4,3 ⁽¹⁾	9,3 ⁽²⁾ – 9,8
Gas 210 Ace 200	3,4 - 4,3 ⁽¹⁾	9,3 ⁽²⁾ – 9,8
(1) Nominal value.(2) Nominal value.		

Tab.54 Checking/setting values for O₂/CO₂ at low load for G31 (propane)

Values at low load for G31 (propane)	O ₂ (%) ⁽¹⁾	CO ₂ (%) ⁽²⁾
Gas 210 Ace 80	4,1-4,9(1)	10,5 ⁽²⁾ – 11,0
Gas 210 Ace 120	4,1-4,9(1)	10,5 ⁽²⁾ – 11,0
Gas 210 Ace 160	4,1-4,9(1)	10,5 ⁽²⁾ – 11,0
Gas 210 Ace 200	4,1-4,9(1)	10,5 ⁽²⁾ – 11,0
(1) Nominal value. (2) Nominal value.		

4. If the measured value is outside of the values given in the table, correct the gas/air ratio.





 Use the adjustment screw B to set the percentage of O₂/CO₂ for the gas type being used to the nominal value. Increasing the gas flow, will decrease O₂ and increase CO₂. The

direction in which the adjusting screw must be turned to increase or decrease the gas flow is indicated on the gas control valve. The 3- to 4-section boilers are supplied with a different gas control valve from the 5- to 6-section boilers.

- See drawing for the position of adjusting screw B for low load.6. Check the flame through the inspection glass. The flame must not blow off.
- 7. Repeat the full load test and the low load test as often as necessary until the correct values are obtained.
- 8. Set the boiler back to the normal operating status.

7.3.2 Checking the water quality



Checking the air pressure differential switch

The requirements for the water quality can be found in our **Water quality** instructions.

Caution

- Not fulfilling the water quality requirements can damage the boiler and will void the warranty.
- 1. Fill a clean bottle with some water from the boiler using the filling/drain valve.
- 2. Check the quality of this water sample or have it checked.

1. Switch off the boiler.

- 2. Remove any dirt from all the connection points for hoses and the air pressure differential switch.
- Check the condition and tightness of the hoses of the air pressure differential switch.
 - \Rightarrow Replace the hoses if necessary.

7.3.3

Fig.47



Positive (+) side of the air pressure

Negative (-) side of the air pressure Fig.48 differential switch



- 4. Disconnect the silicon hose from the + side (A1) of the air pressure differential switch.
- 5. Connect a hose to the + side of the air pressure differential switch.
- 6. Take a T piece and connect it as follows:
 - 6.1. Connect one end of the T piece to the hose from the + side of the air pressure differential switch.
 - Connect one end of the T piece to a large plastic syringe. 6.2.
 - 6.3. Connect the other end of the T piece to a pressure gauge.
- 7. Switch on the boiler.
- 8. Push the syringe in very slowly until error code E.04.08 appears on the display.
- 9. Check the pressure indicated by the pressure gauge at that point. This is the switch pressure.
 - ⇒ A switch pressure between 5.5 and 6.5 mbar is good. A lower or higher switch pressure indicates a problem with the air pressure differential switch.
- 10. Remove the syringe hose from the + side of the air pressure differential switch and reconnect the original hose.
- 11. Connect the side (A2) of the air pressure differential switch the hose coming from the T piece.
- 12. Pull out the syringe very slowly until error code E.04.08 appears on the display.
- 13. Check the pressure indicated by the pressure gauge at that point. This is the switch pressure.
 - ⇒ A switch pressure between -5.5 and -6.5 mbar is good. A lower or higher switch pressure indicates a problem with the air pressure differential switch.

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7.4 Specific maintenance work

Perform the specific maintenance work if this proves to be necessary following the standard inspection and maintenance work. To conduct the specific maintenance work:

Fig.49 Disassembling the fan unit

Fig.50



Cleaning the fan and venturi

(7)

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6

3- to 4-section boilers

- 1. Remove the electrical connections from the fan.
- 2. Remove the air inlet silencer from the venturi.
- 3. Unscrew the nut under the gas control valve.
- 4. Unscrew the nuts on the fan output.

- 5. Disconnect the fan from the venturi.
- 6. Clean the fan with compressed air.
- 7. Clean the venturi with a soft plastic brush.
- 8. Reassemble the unit in reverse order.

■ 5- to 6-section boilers

- 1. Remove the electrical connections from the fan.
- 2. Remove the air inlet silencer bracket.
- 3. Remove the air inlet silencer from the venturi.
- 4. Unscrew the nuts on the venturi.
- 5. Unscrew the nuts on the fan output.



Fig.53

Fig.52 Cleaning the fan and venturi



- 6. Disconnect the fan from the venturi.
- 7. Clean the fan with compressed air.
- 8. Clean the venturi with a soft plastic brush.

The ionisation/ignition electrode must be replaced if:

• The specific maintenance activities are carried out.

The ionisation current is lower than 4 µA.The electrode is damaged or worn.

9. Reassemble the unit in reverse order.

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7.4.2 Replacing the ionisation/ignition electrode

electrode

Replacing the ionisation/ignition

1. Remove the plug of the electrode from the ignition transformer.

- **i** Important The ignition cable is fixed to the electrode and may not be removed.
- 2. Unscrew the 2 screws on the electrode.
- 3. Remove the electrode.
- 4. Fit the new electrode.



To prevent damage, do not fit the new electrode until the burner has been cleaned and refitted.

5. Reassemble the unit in reverse order.

7.4.3 Cleaning the burner



- 1. Unscrew the nuts from the adaptor and remove the adaptor.
- 2. Lift the burner out of the heat exchanger.

Fig.55 Checking the burner



Check the burner.
 ⇒ Replace the burner if faulty or seriously damaged.

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7.4.4 Cleaning the heat exchanger

Fig.58 Removing the inspection cover



Fig.59 Cleaning the heat exchanger



4. Clean the outside of burner using compressed air with a pressure of 2 to 5 bar.

Caution

- Maintain a minimum distance of 1 cm from the surface of the burner.
 - Never clean the burner's surface with a brush or similar item.
- 5. Clean the inside of the burner using a vacuum cleaner.
- 6. Set the burner aside, making sure it can not be damaged.

Caution

- Do not refit the burner until the heat exchanger, condensate collector and trap have been cleaned.
- 7. Visually inspect the burner area.
- 8. Use a vacuum cleaner to remove any visible soiling from the burner area.

- 1. Unscrew the nuts from the inspection cover on the heat exchanger.
- 2. Carefully remove the inspection cover, the gasket and the silicon insulation cord from the heat exchanger.
- 3. Inspect the gasket and replace if it is faulty or seriously damaged.

4. Clean the areas between the pins of the heat exchanger using the cleaning knife. Always work from the bottom to the top. Move the cleaning knife between the pins horizontally and diagonally.

Caution

- Always use the cleaning knife specially designed for this boiler. This knife is 460 mm long.
- 5. Use compressed air to blow the cleaned parts through in turn. Do this from the service side and from the burner area.

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Fig.60 Cleaning the heat exchanger



- 6. Fit the inspection cover and the gasket with a new silicon cord.
- 7. Use clean water to thoroughly rinse the heat exchanger from the burner area.

7.4.5 Cleaning the condensate collector

Fig.61 Cleaning the condensate collector



1. Remove the sealing cap from the condensate collector.

- 2. Thoroughly rinse the condensate collector for at least 5 minutes, with the largest possible water flow.
- 3. Refit the sealing cap on the condensate collector.

7.4.6 Cleaning the trap



- 1. Remove the trap.
- 2. Clean the trap with water.
- 3. Put the trap back in place.

- 4. Remove the sealing cap from the condensate collector.
- 5. Fill the trap with water via the condensate collector.



Danger

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The trap must always be sufficiently filled with water. This prevents flue gases from entering the room.

6. Refit the sealing cap on the condensate collector.

7.4.7 Assembly after maintenance

Fig.64 Mounting the burner



3- to 4-section boilers

- 1. Mount the burner.
 - ⇒ The burner has one slot at the front. Position this over the pin at the burner opening.
- 2. Place a new burner gasket.
- 3. Mount the adapter.
- 4. Mount the new ionisation/ignition electrode.

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Fig.65 Mounting the fan and venturi

- 5. Mount the fan and venturi assembly: 5.1. Place the new gaskets.
 - 5.2. Mount the assembly.
 - 5.3. Tighten the nuts on the fan output.
 - 5.4. Tighten the nut under the gas control valve.



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Fig.66 Fitting the electrical connections

- 6. Mount the air inlet silencer to the venturi.
- 7. Connect the electrical connections to the fan.





■ 5- to 6-section boilers

- 1. Mount the burner.
 - ⇒ The burner has one slot at the front. Position this over the pin at the burner opening.
- 2. Place a new burner gasket.
- 3. Mount the adapter.
- 4. Mount the new ionisation/ignition electrode.

Fig.68 Mounting the fan and venturi



- 5. Mount the fan and venturi assembly:
 - 5.1. Place the new gaskets.
 - 5.2. Mount the assembly.
 - 5.3. Tighten the nuts on the fan output.
 - 5.4. Tighten the nuts on the venturi.

Fig.69 Fitting the electrical connections

- 6. Mount the air inlet silencer to the venturi.
- 7. Mount the air inlet silencer bracket.
- 8. Connect the electrical connections to the fan.



1. Fit all removed parts in the reverse order, but do not close the casing yet.



During inspection and maintenance operations, always replace all gaskets on the parts removed.

- 2. Fill the trap with water.
- 3. Put the trap back in place.
- 4. Carefully open all system and supply valves which were closed to carry out the maintenance.
- 5. Fill the central heating system with water if necessary.
- 6. Vent the central heating system.
- 7. Top up with more water if necessary.
- 8. Check the tightness of the gas and water connections.
- 9. Put the boiler back into operation.
- 10. Carry out an auto-detect when a control board has been replaced or removed from the boiler.
- 11. Set the boiler to full load and carry out a gas leak detection and a thorough visual check.
- 12. Set the boiler to normal operation.
- 13. Close the casing.

8 Troubleshooting

8.1 Error codes

The Gas 210 Ace is fitted with an electronic regulation and control unit. The heart of the control is a **e-Smart** microprocessor, which controls and also protects. In the event of an error, a corresponding code is displayed.

Tab.55 Error codes are displayed at three different levels

Code	Туре	Description
A .00.00 ⁽¹⁾	Warning	The controls continue to operate, but the cause of the warning must be investigated. A warning can change into a blocking or lock-out.
H .00.00 ⁽¹⁾	Blocking	The controls will stop normal operation, and will check with set intervals if the cause of the blocking still exists. ⁽²⁾ Normal operation will resume when the cause of the blocking has been rectified. A blocking can become a lock-out.
E .00.00 ⁽¹⁾	Lock out	The controls will stop normal operation. The cause of the lock-out must be rectified and the controls must be reset manually.
(1) The firs (2) For sor Wait te	t letter indicates the type of end ne blocking errors, this check n minutes before resetting	rror. ing interval is ten minutes. In those cases, it may seem that the controls do not start automatically.

The meaning of the code can be found in the various error code tables.



The error code is needed to find the cause of the error quickly and correctly and for any support from Remeha.

8.1.1 Display of error codes

When an error occurs in the installation, the control panel will show the following:

Fig.70 Error code display on HMI T-control



- 1 The display will show a corresponding code and message.
- 2 The status LED of the control panel will show:
 - Continuous green = Normal operation
 - Flashing green = Warning
 - Continuous red = Blocking
 - Flashing red = Lock out

When an error occurs, proceed as follows:

1. Press and hold the \checkmark button to reset the appliance.

Important

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You can reset the appliance for a maximum of 10 times. After that the appliance will be blocked for one hour. Do a restart (disconnect the power) to avoid the one hour delay.

- ⇒ The appliance starts up again.
- 2. If the error code reappears, correct the problem by following the instructions in the error code tables.



Important

Only qualified professionals are authorised to work on the appliance and system.

- ⇒ The error code remains visible until the problem is solved.
- 3. Note the error code when the problem cannot be resolved.
- 4. Contact Remeha for support.

8.1.2 Warning

Tab.56 Warning codes

Code	Display text	Description	Solution
A.00.00	TFlow Open	Flow temperature sensor is either removed or measures a temperature below range	 Zone flow temperature sensor open: Sensor is not present. Wrong Zone Function setting: check the setting of parameter CP02x. Bad connection: check the wiring and connectors. Incorrectly fitted sensor: make sure that the sensor has been correctly fitted. Faulty sensor: replace the sensor.
A.00.01	TFlow Closed	Flow temperature sensor is either shorted or measures a temperature above range	 Zone flow temperature sensor short-circuited: Sensor is not present. Bad connection: check the wiring and connectors. Incorrectly fitted sensor: check that the sensor has been correctly fitted. Faulty sensor: replace the sensor.
A.01.21	Dhw Temp GradLevel3	Maximum Dhw Temperature Gradi- ent Level3 Exceeded	Temperature warning: • Check the flow.
A.02.06	Water Press Warning	Water Pressure Warning active	Water pressure warning:Water pressure too low; check the water pressure
A.02.37	Uncritic device lost	Uncritical device has been discon- nected	SCB not found:Bad connection: check the wiring and connectorsFaulty SCB: Replace SCB
A.02.45	Full Can Conn Matrix	Full Can Connection Matrix	SCB not found: • Carry out an auto-detect
A.02.46	Full Can Device Adm	Full Can Device Administration	SCB not found: • Carry out an auto-detect

Code	Display text	Description	Solution
A.02.49	Failed Init Node	Failed Initialising Node	SCB not found:
			Carry out an auto-detect
A.02.55	Inval or miss SerNR	Invalid or missing device serial num- ber	Contact your supplier.
A.03.17	Safety check	Periodically safety check ongoing	Safety check procedure active:
			No action

8.1.3 Blocking

Tab.57 Blocking codes

Code	Display text	Description	Solution
H.00.16	DHW sensor Open	Domestic Hot Water tank tempera- ture sensor is either removed or measures a temperature below range	 Domestic hot water temperature sensor open: Sensor is not present Incorrectly fitted sensor: check that the sensor has been correctly fitted Bad connection: check the wiring and connec- tors Faulty sensor: replace the sensor
H.00.17	DHW sensor Closed	Domestic Hot Water tank tempera- ture sensor is either shorted or measures a temperature above range	 Domestic hot water temperature sensor short- circuited: Incorrectly fitted sensor: check that the sensor has been correctly fitted Bad connection: check the wiring and connec- tors Faulty sensor: replace the sensor
H.00.36	T 2nd Return Open	Second return temperature sensor is either removed or measures a tem- perature below range	 Second return temperature sensor open: Bad connection: check the wiring and connectors. Incorrectly fitted sensor: check that the sensor has been correctly fitted. Faulty sensor: replace the sensor.
H.00.37	T 2nd Return Closed	Second return temperature sensor is either shorted or measures a tem- perature above range	 Second return temperature sensor short-circuited: Bad connection: check the wiring and connectors. Incorrectly fitted sensor: check that the sensor has been correctly fitted. Faulty sensor: replace the sensor.
H.01.00	Comm Error	Communication Error occured	Communication error with the security kernel: Restart the boiler Replace the CU-GH
H.01.06	Max Delta TH-TF	Maximum difference between heat exchanger temperature and flow temperature	 Maximum difference between heat exchanger and flow temperature exceeded: No flow or insufficient flow: Check the circulation (direction, pump, valves). Check the water pressure. Check the cleanliness of the heat exchanger. Check that the installation has been de-aired. Check water quality according to supplier's specifications. Sensor error: Check that the sensors are operating correct- ly. Check that the sensor has been fitted proper- ly.

Code	Display text	Description	Solution
H.01.07	Max Delta TH-TR	Maximum difference between heat exchanger temperature and return	Maximum difference between heat exchanger and return temperature exceeded:
		temperature	 No flow or insufficient flow: Check the circulation (direction, pump, valves). Check the water pressure. Check the cleanliness of the heat exchanger. Check that the installation has been correctly vented to remove air. Sensor error: Check that the sensors are operating correctly. Check that the sensor has been fitted properly.
H.01.08	CH temp grad level3	Maximum CH temperature gradient level3 exceeded	Maximum heat exchanger temperature increase has been exceeded:
			 No flow or insufficient flow: Check the circulation (direction, pump, valves) Check the water pressure Check the cleanliness of the heat exchanger Check that the central heating system has been correctly vented to remove air Sensor error: Check that the sensors are operating correctly Check that the sensor has been fitted properly
H.01.09	Gas Pressure Switch	Gas Pressure Switch	Gas pressure too low:
			 No flow or insufficient flow: Make sure that the gas valve is fully opened Check the gas supply pressure If a gas filter is present: Make sure that the filter is clean Wrong setting on the gas pressure switch: Make sure that the switch has been fitted properly Replace the switch if necessary
H.01.13	Max THeat Ex	Heat Exchanger temperature has exceeded the maximum operating	Maximum heat exchanger temperature excee- ded:
		value	 Check the circulation (direction, pump, valves). Check the water pressure. Check that the sensors are operating correctly. Check that the sensor has been fitted properly. Check the cleanliness of the heat exchanger. Check that the central heating system has been correctly vented to remove air.
H.01.14	Max Tflow	Flow temperature has exceeded the maximum operating value	 Flow temperature sensor above normal range: Bad connection: check the wiring and connectors No flow or insufficient flow: Check the circulation (direction, pump, valves) Check the water pressure Check the cleanliness of the heat exchanger
H.01.15	Max Tflue Gas	Flue gas temperature has exceeded the maximum operating value	 Maximum flue gas temperature exceeded: Check the flue gas outlet system Check the heat exchanger to ensure that the flue gas side is not clogged Faulty sensor: replace the sensor
Ĺ			

Code	Display text	Description	Solution
H.02.00	Reset In Progress	Reset In Progress	Reset procedure active:
			No action
H.02.02	Wait Config Number	Waiting For Configuration Number	Configuration error or unknown configuration number:
			Reset CN1 and CN2
H.02.03	Conf Error	Configuration Error	Configuration error or unknown configuration number:
			Reset CN1 and CN2
H.02.04	Parameter Error	Parameter Error	Factory settings incorrect:
			 Parameters are not correct: Restart the boiler Reset CN1 and CN2 Replace the CU-GH PCB
H.02.05	CSU CU mismatch	CSU does not match CU type	Configuration error:
			• Reset CN1 and CN2
H.02.09	Partial block	Partial blocking of the device recog-	Blocking input active or frost protection active:
		nized	 External cause: remove external cause Wrong parameter set: check the parameters Bad connection: check the connection
H.02.10	Full Block	Full blocking of the device recog-	Blocking input is active (without frost protection):
		nized	 External cause: remove external cause Wrong parameter set: check the parameters Bad connection: check the connection
H.02.12	Release Signal	Release Signal input of the Control	Waiting time release signal has elapsed:
		Unit from device external environ- ment	 External cause: remove external cause Wrong parameter set: check the parameters Bad connection: check the connection
H.02.15	Ext CSU Timeout	External CSU Timeout	CSU time out:
			 Bad connection: check the wiring and connectors. Faulty CSU: replace CSU.
H.02.18	OBD Error	Object Dictionary Error	• Reset CN1 and CN2
			See The data plate for the CN1 and CN2 values.
H.02.36	Funct device lost	Functional device has been discon-	Communication error with the SCB PCB:
		nected	 Bad connection with BUS: check the wiring. No PCB: reconnect PCB or retrieve from memory using auto-detect.
H.02.48	Funct Gr Conf Fault	Function Group Configuration Fault	SCB not found:
			Carry out an auto-detect
H.02.50	Funct Gr Comm Err	Function Group Communication Er-	SCB not found:
		ror	Carry out an auto-detect.
H.02.62	Unsupported function	Zone B doesn't support the selected function	Zone B function setting is not correct or is not al- lowed on this circuit:
			Check the setting of parameter CP021.
H.02.64	Unsupported function	Zone D doesn't support the selected function	Zone C function (DHW) setting is not correct or is not allowed on this circuit:
			Check the setting of parameter CP022.
H.02.80	Missing Cascade Ctrl	Missing Cascade controller	Cascade controller not found:
			Reconnect the cascade masterCarry out an auto-detect

Code	Display text	Description	Solution
H.03.00	Parameter Error	Safety parameters level 2, 3, 4 are not correct or missing	Parameter error: security kernel Restart the boiler Replace the CU-GH
H.03.01	CU to GVC data error	No valid data from CU to GVC re- ceived	Communication error with the CU-GH: • Restart the boiler
H.03.02	Flame loss detected	Measured ionisation current is below limit	 No flame during operation: No ionisation current: Vent the gas supply to remove air Check that the gas valve is fully opened Check the gas supply pressure Check the operation and setting of the gas valve unit Check that the air supply inlet and flue gas outlet are not blocked Check that there is no recirculation of flue gases
H.03.05	Internal blocking	Gas Valve Control internal blocking occured	Security kernel error: • Restart the boiler • Replace the CU-GH

8.1.4 Locking

Tab.58 Locking codes

Code	Display text	Description	Solution
E.00.00	TFlow Open	Flow temperature sensor is either removed or measures a temperature below range	 Zone flow temperature sensor open: Sensor is not present. Wrong Zone Function setting: check the setting of parameter CP02x. Bad connection: check the wiring and connectors. Incorrectly fitted sensor: make sure that the sensor has been correctly fitted. Faulty sensor: replace the sensor.
E.00.01	TFlow Closed	Flow temperature sensor is either shorted or measures a temperature above range	 Zone flow temperature sensor short-circuited: Sensor is not present. Bad connection: check the wiring and connectors. Incorrectly fitted sensor: check that the sensor has been correctly fitted. Faulty sensor: replace the sensor.
E.00.04	TReturn Open	Return temperature sensor is either removed or measures a temperature below range	 Return temperature sensor open: Bad connection: check the wiring and connectors Incorrectly fitted sensor: check that the sensor has been correctly fitted Faulty sensor: replace the sensor
E.00.05	TReturn Closed	Return temperature sensor is either shorted or measures a temperature above range	 Return temperature sensor short-circuited: Bad connection: check the wiring and connectors Incorrectly fitted sensor: check that the sensor has been correctly fitted Faulty sensor: replace the sensor

Code	Display text	Description	Solution
E.00.08 T	THeat Ex Open	Heat exchanger temperature sensor is either removed or measures a temperature below range	Heat exchanger temperature sensor open:
			 Bad connection: check the wiring and connectors. Incorrectly fitted sensor: check that the sensor has been correctly fitted.
E 00 00	THeat Ex Closed	Heat exchanger temperature sensor	Faulty sensor, replace the sensor.
L.00.09	Theat Ex Closed	is either shorted or measures a tem- perature above range	 Bad connection: check the wiring and connectors. Incorrectly fitted sensor: check that the sensor has been correctly fitted. Faulty sensor: replace the sensor.
E.00.20	TFlue Gas Open	Flue gas temperature sensor is ei-	Open circuit in flue gas sensor:
		ther removed or measures a temper- ature below range	 Bad connection: check the wiring and connectors. Incorrectly fitted sensor: check that the sensor has been correctly fitted. Faulty sensor: replace the sensor.
E.00.21	TFlue Gas Closed	Flue gas temperature sensor is ei-	Flue gas sensor short-circuited:
		ther shorted or measures a tempera- ture above range	 Bad connection: check the wiring and connectors. Incorrectly fitted sensor: check that the sensor has been correctly fitted. Faulty sensor: replace the sensor.
E.00.40	WaterPressureOpen	Water pressure sensor is either re-	Hydraulic pressure sensor open:
		moved or measures a temperature below range	 Bad connection: check the wiring and connectors. Incorrectly fitted sensor: check that the sensor has been correctly fitted. Faulty sensor: replace the sensor.
E.00.41	WaterPressureClosed	Water pressure sensor is either	Hydraulic pressure sensor short-circuited:
		shorted or measures a temperature above range	 Bad connection: check the wiring and connectors. Incorrectly fitted sensor: check that the sensor has been correctly fitted. Faulty sensor: replace the sensor.
E.01.04	5x Flame Loss Error	5x Error of unintended Flame Loss	Flame loss occurs 5 times:
		occurance	 Vent the gas supply to remove air Check that the gas valve is fully opened Check the gas supply pressure Check the operation and setting of the gas valve unit Check that the air supply inlet and flue gas outlet are not blocked Check that there is no recirculation of flue gases
E.01.12	Return Higher Flow	Return temperature has a higher temperature value than the flow tem- perature	 Flow and return reversed: Bad connection: check the wiring and connectors Water circulation in wrong direction: check the circulation (direction, pump, valves) Incorrectly fitted sensor: check that the sensor has been correctly fitted Malfunctioning sensor: check the Ohmic value of the sensor Faulty sensor: replace the sensor

Code	Display text	Description	Solution
E.02.04	Parameter Error	Parameter Error	Configuration error:
			Reset CN1 and CN2
			See The data plate for the CN1 and CN2 values.
E.02.13	Blocking Input	Blocking Input of the Control Unit	Blocking input is active:
		from device external environment	External cause: remove external causeWrong parameter set: check the parameters
E.02.15	Ext CSU Timeout	External CSU Timeout	CSU time out:
			Bad connection: check the wiring and connec- tors
E 00.47	OV/O O Time out		• Faulty CSU: Replace CSU
E.02.17	GVC Comm Limeout	tion has exceeded feedback time	Restart the boiler Replace the CU-GH
E.02.35	Safety device lost	Safety critical device has been dis-	Communication fault
		connected	Carry out an auto-detect
E.02.47	Failed Conn Funct Gr	Failed Connecting Function Groups	Function group not found:
			 Carry out an auto-detect Restart the boiler Replace the CU-GH
E.02.48	Funct Gr Conf Fault	Function Group Configuration Fault	SCB not found:
			Carry out an auto-detect.
E.02.70	HRU test error	External heat recovery unit test	Heat recovery unit non-return valve check failed:
		failed	 Check the external heat recovery unit non-re- turn valve.
E.04.00	Parameter error	Safety parameters Level 5 are not correct or missing	Replace the CU-GH.
E.04.01	TFlow Closed	Flow temperature sensor is either shorted or measuring a temperature above range	 Flow temperature sensor short circuited: Bad connection: check the wiring and connectors Incorrectly fitted sensor: check that the sensor has been correctly fitted Faulty sensor: replace the sensor
E.04.02	TFlow Open	Flow temperature sensor is either removed or measuring a tempera- ture below range	 Flow temperature sensor open: Bad connection: check the wiring and connectors Faulty sensor: replace the sensor
E.04.03	Max Flow temp	Measured flow temperature above savety limit	 No flow or insufficient flow: Check the circulation (direction, pump, valves) Check the water pressure Check the cleanliness of the heat exchanger
E.04.04	TFlue Closed	Flue temperature sensor is either shorted or measuring a temperature above range	 Flue gas temperature sensor short-circuited: Bad connection: check the wiring and connectors Incorrectly fitted sensor: check that the sensor has been correctly fitted Faulty sensor: replace the sensor
E.04.05	TFlue Open	Flue temperature sensor is either re- moved or measuring a temperature below range	 Flue gas temperature sensor open: Bad connection: check the wiring and connectors Incorrectly fitted sensor: check that the sensor has been correctly fitted Faulty sensor: replace the sensor

Code	Display text	Description	Solution
E.04.07	TFlow Sensor	Deviation in flow sensor 1 and flow	Flow temperature sensor deviation:
		sensor 2 detected	Bad connection: check the connectionFaulty sensor: replace the sensor
E.04.08	Safety input	Safety input is open	Air pressure differential switch activated:
			 Bad connection: check the wiring and connectors Pressure in flue gas duct is or was too high: Non-return valve does not open Trap blocked or empty Check that the air supply inlet and flue gas outlet are not blocked Check the cleanliness of the heat exchanger
E.04.09	TFlue Sensor	Deviation in flue sensor 1 and flue	Flue gas temperature sensor deviation:
		sensor 2 detected	Bad connection: check the connectionFaulty sensor: replace the sensor
E.04.10	Unsuccessful start	5 Unsuccessful burners starts detec-	Five failed burner starts:
		ted	 No ignition spark: Check the wiring between the CU-GH and the ignition transformer Check the ionisation/ignition electrode Check the condition of the burner cover Check the condition of the burner cover Check the earthing Replace the CU-GH Ignition spark but no flame: Vent the gas pipes to remove air Check that the air supply inlet and flue gas outlet are not blocked Check the gas supply pressure Check the operation and setting of the gas valve unit Replace the CU-GH Flame present, but ionisation has failed or is inadequate: Check that the gas valve is fully opened Check that the gas valve is fully opened Check the deruge valve is fully opened Check the the gas valve is fully opened Check the das supply pressure
E.04.11	VPS	VPS Gas Valve proving failed	Gas leakage control fault:
E 04 42			 Bad connection: check the wiring and connectors Gas leakage control VPS faulty: Replace the valve proving system (VPS) Gas valve unit faulty: Replace the gas valve unit
E.04.12	False flame	False flame detected before burner	False flame signal:
			 The burner remains very hot: Set the O₂ Ionisation current measured but no flame should be present: check the ionisation/ignition electrode Faulty gas valve: replace the gas valve Faulty ignition transformer: replace the ignition transformer

Code	Display text	Description	Solution
E.04.13	Fan	Fan speed has exceeded normal op- erating range	 Fan fault: Bad connection: check the wiring and connectors. Fan operates when it should not be operating: check for excessive chimney draught Faulty fan: replace the fan
E.04.15	FlueGas Pipe Blocked	The flue gas pipe is blocked	Flue gas outlet is blocked:Check that the flue gas outlet is not blockedRestart the boiler
E.04.17	GasValve Driver Err.	The driver for the gas valve is bro- ken	 Gas valve unit fault: Bad connection: check the wiring and connectors Faulty gas valve unit: Replace the gas valve unit
E.04.23	Internal Error	Gas Valve Control internal locking	Restart the boilerReplace the CU-GH
E.04.250	Internal error	Gas valve relay error detected	Internal error: • Replace the PCB.
E.04.254	Unknown	Unknown	Unknown error: • Replace the PCB.

8.2 Error history

The control panel has an error history that stores the last 32 errors. Specific details are stored for each error, for example:

- Status
- Sub-status
- Flow temperature
- Return temperature

These details and others can contribute to the error solution.

8.2.1 Reading out and clearing the error history

You can read out the errors on the control panel. The error history can also be cleared.

► := > Error History



Use the rotary knob to navigate.

Use the \checkmark button to confirm your selection.

Press the ≡ button.
 Select Error History.

Enable installer access if **Error History** is not available.

- 2.1. Select Enable installer access.
- 2.2. Use code 0012.
- ⇒ A list up to 32 most recent errors is displayed with:
 - The error code.
 - A short description.
 - The date.

Fig.71 Error details



- 3. Select the error code you want to investigate.
 - ⇒ The display shows an explanation of the error code and several details of the appliance when the error occurred.
- 4. To clear the error memory, press and hold the ✓ button.

9 Technical specifications

9.1 Electrical diagram



- 1 Line filter
- 2 On / off switch
- 3 SCB zone expansion board power supply
- 4 SCB expansion board power supply
- 5 SCB expansion board power supply
- CB-01 connection board power supply (X19) and 6 CAN connections (X36 and X39)
- 7 SCB expansion board CAN connections (X37-1 -X37-7)
- 8 Service connector
- Control panel (HMI) 9
- Control unit (CU-GH13) 10
- Configuration storage unit (CSU) 11

- Ignition transformer power supply 12
- 13 Fan power supply
- Gas control valve 14
- 15 Air pressure differential switch
- 16 Water pressure sensor
- Return temperature sensor 17
- Heat exchanger temperature sensor 18
- 19 Flow temperature sensor
- 20 Flue gas temperature sensor
- 21 Valve proving system (VPS)
- Gas pressure switch (GPS) 22
- 23 Fan PWM signal

9.2 Bluetooth[®] wireless technology

Fig.73 Logo



This product is equipped with Bluetooth wireless technology.

The Bluetooth[®] word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by BDR Thermea Group is under license. Other trademarks and trade names are those of their respective owners.

AD-3001854-01

10 Spare parts

10.1 General

Only replace defective or worn boiler parts with original parts or recommended parts.

Send the part to be replaced to the Remeha Quality Control department if the relevant part is covered by the guarantee (see the General Terms of Sale and Delivery).

10 Spare parts

10 Spare parts

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