

**Slant/Fin**

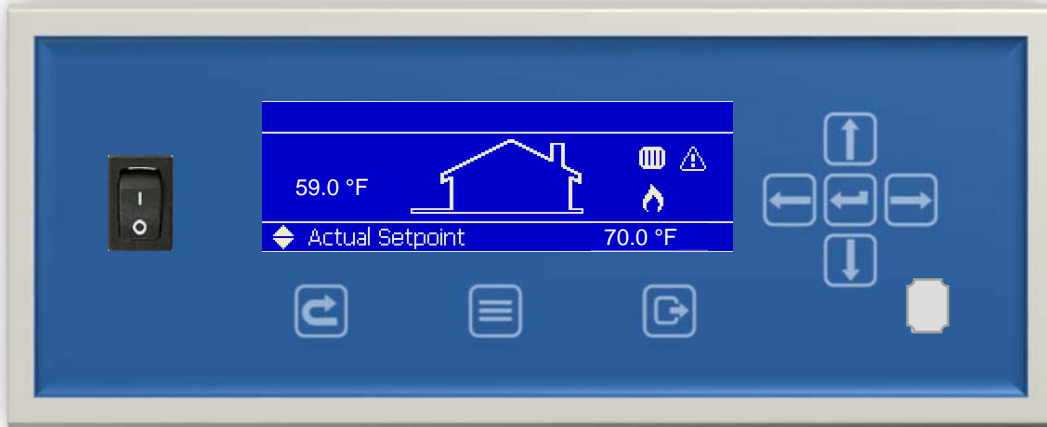
**VGH**

This manual must be left with owner and should be hung on or adjacent to the boiler for reference.

**MODELS VGH-299-CH, VGH-399-CH and VGH-500-CH**

**HIGH EFFICIENCY CONDENSING GAS BOILER**

**CH - USER'S INFORMATION MANUAL**



**QUICK CONTENTS**

FULL TABLE OF CONTENTS.....	2
1.0 SAFETY GUIDELINES .....	4
2.0 INTRODUCTION. ....	6
3.0 DISPLAY AND BUTTONS .....	8
4.0 STARTING THE BOILER.....	9
5.0 THE MENU (BUTTON).....	11

**WARNING:**

If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

**- WHAT TO DO IF YOU SMELL GAS**

- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions
- If you cannot reach your gas supplier, call the fire department.
- Installation and service must be performed by a qualified installer, service agency or the gas supplier.

**California Proposition 65 Warning:**

This product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

# TABLE OF CONTENTS

<b>1</b>	<b>SAFETY GUIDELINES</b> .....	<b>4</b>
<b>2</b>	<b>INTRODUCTION</b> .....	<b>6</b>
2.1	EXPLANATIONS.....	6
2.2	MAINTENANCE AND INSPECTION.....	6
2.2.1	<i>On a Continuous basis</i> .....	6
2.2.2	<i>On a Monthly basis</i> .....	6
2.2.3	<i>On an Annual basis (every 12 months)</i> .....	7
2.3	FOR INSTALLATIONS IN THE COMMONWEALTH OF MASSACHUSETTS.....	7
<b>3</b>	<b>Display and buttons</b> .....	<b>8</b>
3.1	DISPLAY ICONS.....	8
<b>4</b>	<b>Starting the boiler</b> .....	<b>9</b>
4.1	CHANGING THE SETPOINT AND/OR ENABLING CH/DHW.....	9
4.1.1	<i>Changing the Central Heating setpoint directly</i> .....	10
4.1.2	<i>Changing the DHW setpoint directly</i> .....	10
4.1.3	<i>Enable / Disable CH or DHW control</i> .....	10
<b>5</b>	<b>The MENU (Button)</b> .....	<b>11</b>
5.1	PASSWORD.....	11
5.2	LANGUAGE SETTING.....	11
5.3	AVAILABLE MENU ITEMS.....	11
5.3.1	<i>Central Heating (CH)</i> .....	12
5.3.2	<i>Domestic Hot Water (DHW)</i> .....	12
5.3.3	<i>Information</i> .....	12
5.3.4	<i>Software Versions</i> .....	12
5.3.5	<i>Boiler Status</i> .....	12
5.3.6	<i>Boiler History</i> .....	12
5.3.7	<i>Error log</i> .....	12
5.3.8	<i>Service</i> .....	13
5.3.9	<i>Settings</i> .....	13
5.3.10	<i>General Settings</i> .....	13
5.3.11	<i>Language</i> .....	13
5.3.12	<i>Unit Type</i> .....	13
5.3.13	<i>Date &amp; Time</i> .....	13
5.3.14	<i>Time zone settings</i> .....	13
5.3.15	<i>Display settings</i> .....	13
5.3.16	<i>Cascade mode</i> .....	14
5.3.17	<i>Other Settings</i> .....	14
5.3.18	<i>Boiler settings</i> .....	14
5.4	BOILER HISTORY.....	14
5.5	ERROR LOGGING.....	14
5.6	SERVICE REMINDER.....	15
5.7	SYSTEM TEST.....	15

## **IMPORTANT**

READ ALL OF THE FOLLOWING WARNINGS AND STATEMENTS BEFORE READING THE INSTALLATION INSTRUCTIONS



### **DANGER**

Danger Sign: indicates the presence of an imminently hazardous situation that will cause death, serious personal injury or substantial property damage.



### **WARNING**

Warning Sign: indicates the presence of a hazardous situation which can cause death, serious personal injury or substantial property damage.



### **CAUTION**

Caution Sign plus Safety Alert Symbol: indicates a hazardous situation which will or can cause minor or moderate personal injury or property damage.



### **CAUTION**

Caution Sign plus a lightning bolt: indicates the risk of electric shock and the potential of hazards due to electric shock.



### **NOTICE**

Notice Sign: indicates special instructions on installation, operation or maintenance that are important but not related to personal injury or property damage.



### **WARNING**

This Boiler must be installed by a licensed and trained Heating Technician or the Warranty is void. Failure to properly install this unit may result in property damage, serious injury to occupants, or possibly death.



# 1 SAFETY GUIDELINES,

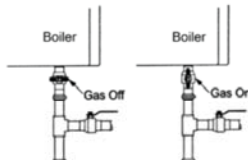
## FOR YOUR SAFETY READ BEFORE OPERATING

**WARNING: If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.**


- A. This appliance does not have a pilot. It is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.
- B. BEFORE OPERATING smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.
- WHAT TO DO IF YOU SMELL GAS
- Do not try to light any appliance.
  - Do not touch any electric switch; do not use any phone in your building.
  - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.
- C. Use only your hand to push in or turn the gas control knob. Never use tools. If the knob will not push in or turn by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.
- D. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.








## OPERATING INSTRUCTIONS

1. STOP! Read the safety information above on this label.
2. Turn off all electric power to the appliance.
3. Set the thermostat to the lowest setting.
4. This appliance does not have a pilot. It is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.
5. The manual gas shut off is located beneath the appliance cabinet, in the gas piping.
6. The manual gas shut off valve is located beneath the appliance cabinet; turn the handle  to the full OFF position (perpendicular to the gas piping).
7. Wait five (5) minutes to clear out any gas. If you then smell gas, STOP! Follow "B" in the safety information above on this label. If you don't smell gas, go to next step.
8. Turn manual gas control valve  to ON position (parallel to gas piping).
9. Turn on all electric power to the appliance.
10. Set the thermostat to the desired setting.
11. If the appliance will not operate, follow the instructions "To Turn Off Gas To Appliance" and call your service technician or gas supplier.



## TO TURN OFF GAS TO APPLIANCE

1. Turn off all electric power to the appliance if service is to be preformed.
2. Set the thermostat to lowest setting.
3. The manual gas shut off valve is located beneath the appliance cabinet; turn the handle  to the full OFF position (perpendicular to the gas piping).

 <b>CAUTION</b>	<p>This boiler is equipped with a pressure switch in the event of a blocked vent the boiler will lockout. No attempt by the user/owner may be made to put the boiler back into operation. A qualified service technician must be notified of the issue. The boiler may only be reset by a qualified service technician after they have diagnosed and corrected the issued that caused the safety lockout of the boiler.</p>
 <b>DANGER</b>	<p>“Should overheating occur or the gas supply fail to shut off, do not turn off or disconnect the electrical supply to the circulator. Instead, shut off the gas supply at a location external to the appliance.”</p>
 <b>NOTICE</b>	<p>Slantfin recommends the installation of a carbon monoxide detector in the boiler room for all installations.</p>
 <b>WARNING</b>	<p><b>WARNING:</b> There are no user serviceable parts on this boiler. Warranty does not cover defects caused by attempts to service this boiler by someone other than a qualified gas service technician. These attempts could cause property damage, personal injury or loss of life.</p>
 <b>WARNING</b>	<p><b>WARNING:</b> Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury (exposure to hazardous materials) * or loss of life. Installation and service must be performed by a qualified installer, service agency or the gas supplier (who must read and follow the supplied instructions before installing, servicing, or removing this boiler. This boiler contains materials that have been identified as carcinogenic, or possibly carcinogenic, to humans)</p>
 <b>DANGER</b>	<p>Do not use this boiler if any part has been under water. Immediately call a qualified service technician to inspect the boiler and to replace any part of the control system and any gas control which has been under water</p>
 <b>WARNING</b>	<p><b>WARNING: Crystalline Silica</b> - Certain components in the combustion chamber may contain this potential carcinogen. Improper installation, adjustment, alteration, service or maintenance can cause property damage, serious injury (exposure to hazardous materials) or death. Refer to Section 19 for information on handling instructions and recommended personal protective equipment. Installation and service must be performed by a qualified installer, service agency or the gas supplier (who must read and follow the supplied instructions before installing, servicing, or removing this boiler. This boiler contains materials that have been identified as carcinogenic, or possibly carcinogenic, to humans).</p>

## 2 INTRODUCTION

This manual is written for the User. Slant/Fin is not accountable for any damage caused by failure to correctly follow these instructions. For service and repair purposes use only original Slant/Fin spare parts. All documentation produced by the manufacturer is subject to copyright law. This manual is subject to change without notice.

### 2.1 Explanations.

VGH = Condensing Boiler

DHW = Domestic Hot Water

CH = Central Heating (for central heating purposes and/or indirect hot water)

PB = display board/ control panel (Pixel Button)

299/399/500 = Model number of the boiler.

Pump = Circulator (Sometimes, in the software e.g., the word "pump" is used, this is a circulator).

### 2.2 Maintenance and inspection

**Maintenance and inspection of the boiler must be carried out at the following occasions:**

- **When a number of similar error codes and/or lock-outs appear.**
- **At least every 12 months maintenance must be done to ensure safe and efficient operation.**

**Damage caused by lack of maintenance will not be covered under warranty**

#### 2.2.1 ON A CONTINUOUS BASIS


- Do not store or use flammable vapors or liquids, such as gasoline, in the vicinity of the boiler.
- Do not store or use in the boiler room and keep the boiler area free from the following items
  - Spray cans containing chloro-/fluorocarbons
  - Ammonium and/or ammonium solutions
  - Permanent wave solutions (hair product)
  - Chlorinated waxes and/or cleaners
  - Swimming pool chemicals based on chlorine
  - Calcium chloride used for thawing
  - Sodium chloride used for water softening
  - Refrigerant leaks
  - Paint or varnish removers
  - Hydrochloric acid/muriatic acid
  - Cements and glues
  - Antistatic fabric softeners used in clothes dryers
  - Chlorine-type bleaches, detergents, and cleaning solvents
  - found in household laundry rooms
  - Adhesives used to fasten building products and other similar products
- Do not expose the boiler to dust from construction or woodworking


#### 2.2.2 ON A MONTHLY BASIS

- Visually inspect the venting system for proper size and horizontal pitch and determine there is no blockage or restriction, leakage, corrosion and other deficiencies which could cause an unsafe condition.
- Inspect around the exhaust vent and air inlet terminations outside the home for obstructions. Keep area clear of snow and debris. Inspect also for any gaps at the wall penetration(s) which could allow vented gasses to reenter the home.
- Visually inspect water and gas pipes for leaks.
- Visually inspect to see that the condensate trap not blocked and is filled with water.
- If there is a condensate neutralizer installed check to see if it has neutralizing media in it.
- Inspect the pressure relief valve for signs of leakage
- If any problems are found during inspection notify a qualified service technician

### 2.2.3 ON AN ANNUAL BASIS (EVERY 12 MONTHS)

- Have a qualified service technician perform a complete service and maintenance of the boiler in accordance with the Installation, Operation, and Service manual.

 <b>WARNING</b>	<b>WARNING:</b> Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury (exposure to hazardous materials) * or loss of life. Installation and service must be performed by a qualified installer, service agency or the gas supplier (who must read and follow the supplied instructions before installing, servicing, or removing this boiler. This boiler contains materials that have been identified as carcinogenic, or possibly carcinogenic, to humans)
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 <b>WARNING</b>	<b>WARNING: Crystalline Silica</b> - Certain components in the combustion chamber may contain this potential carcinogen. Improper installation, adjustment, alteration, service or maintenance can cause property damage, serious injury (exposure to hazardous materials) or death. Refer to Section 19 for information on handling instructions and recommended personal protective equipment. Installation and service must be performed by a qualified installer, service agency or the gas supplier (who must read and follow the supplied instructions before installing, servicing, or removing this boiler. This boiler contains materials that have been identified as carcinogenic, or possibly carcinogenic, to humans).
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### 2.3 For installations in the Commonwealth of Massachusetts.

The following local requirements apply in addition to all other applicable NFPA requirements:

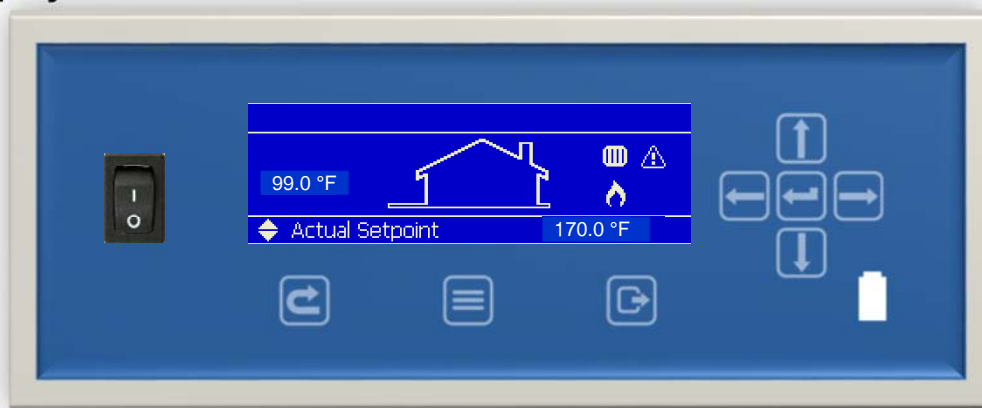
For direct-vent boilers, mechanical-vent heating appliances or domestic hot water equipment, where the bottom of the vent terminal and the intake is installed below four feet above grade the following requirements must comply:











- 1) If not present on each floor level where there are bedrooms, a carbon monoxide detector and alarm must be placed in a living area outside the bedrooms. The carbon monoxide detector and alarm must comply with NFPA 720 (2005 Edition).
- 2) **A carbon monoxide detector and alarm shall be located in the room that houses the boiler and/or equipment and shall:**
  - a) Be powered by the same electrical circuit as the boiler and/or equipment such that only one service switch services both the boiler and the carbon monoxide detector;
  - b) Have battery back-up power;
  - c) Meet ANSI/UL 2034 Standards and comply with NFPA 720 (2005 Edition); and
  - d) Have been approved and listed by a Nationally Recognized Testing Lab as recognized under 527 CMR.
- 3) A product-approved vent terminal must be used, and if applicable, a product approved air intake must be used. Installation shall be performed in strict compliance with the manufacturer's instructions. A copy of the installation instructions shall remain with the boiler and/or equipment at the completion of the installation.
- 4) A metal or plastic identification plate shall be mounted at the exterior of the building, four feet directly above the location of vent terminal. The plate shall be of sufficient size to be easily read from a distance of eight feet away, and read "Gas Vent Directly Below".

For direct-vent boilers mechanical-vent heating boilers or domestic hot water equipment where the bottom of the vent terminal and the intake is installed higher than four feet above grade the following requirements must comply:






- 1) If not present on each floor level where there are bedrooms, a carbon monoxide detector and alarm must be placed in a living area outside the bedrooms. The carbon monoxide detector and alarm must comply with NFPA 720 (2005 Edition).
- 2) **A carbon monoxide detector shall:**
  - a) Be located in the room where the boiler and/or equipment is located;
  - b) Be either hard-wired or battery powered or both; and
  - c) Shall comply with NFPA 720 (2005 Edition).
- 3) A product-approved vent terminal must be used, and if applicable, a product-approved air intake must be used. Installation shall be in strict compliance with the manufacturer's instructions. A copy of the installation instructions shall remain with the boiler and/or equipment at the completion of the installation.

### 3 Display and buttons



	On / off switch. Switches electrical power to the boiler
	Connector for computer cable
	Reset lockout error
	Main Menu
	Escape / Return to the status overview
	<b>Right</b> Enter a menu item or confirm selection in Status overview (when directly setting Actual setpoint or DHW setpoint)
	<b>Left</b> Return to previous menu item or Status overview
	<b>Up</b> Directly select Actual setpoint of DHW setpoint in the Status overview, push RIGHT to confirm and use UP or DOWN to adjust value.
	<b>Down</b> Directly select Actual setpoint of DHW setpoint in the Status overview, push RIGHT to confirm and use UP or DOWN to adjust value.
	<b>Enter</b> Confirm a setting or enter a menu item

#### 3.1 Display Icons

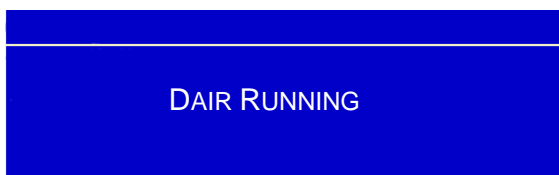
Icon	Description
	Central Heating demand
	Domestic Hot Water demand
	Indicates that the appliance burner is ON
	Cascade Emergency Mode active
	Error notification

## 4 Starting the boiler.

If the boiler is not on make sure the gas valve beneath the boiler is open and the power to the boiler has been connected and is turned on, use the on/off button to switch the boiler on. The following screen will occur:

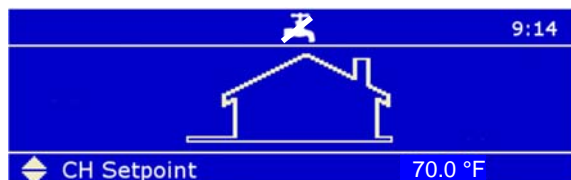


This screen is active during power up until communication with the main Control has been established. After communication has been established the Dair mode starts and the following screen appears:



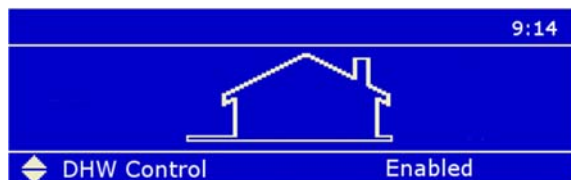
The "De-Air" sequence is a safety function that starts at every power-up and is used to remove the air from the heat exchanger. The De-Air sequence takes around 14 minutes to complete. It can be cancelled by pressing the Enter button for over 5 seconds.

After completion or manual ending the "De-Air" sequence one of the following Status overview screens appears:



Central Heating only

OR



Central Heating  
AND  
Domestic Hot Water

### 4.1 Changing the Setpoint and/or Enabling CH/DHW.

This can be done directly via the Status overview (as shown above) or via the MENU.

When CH is active, you can adjust the Actual setpoint directly on the bottom of the Status overview. When DHW is active, you can adjust the DHW setpoint directly on the bottom of the Status overview.

This means that when CH is active, you cannot set the DHW setpoint directly via the Status overview. When DHW is active, you also cannot set the Actual setpoint (CH setpoint) directly via the Status overview.

#### 4.1.1 CHANGING THE CENTRAL HEATING SETPOINT DIRECTLY.

Press the UP or DOWN button to select the mode:

◆ CH Setpoint	70.0 °F
---------------	---------

70.0 °C is just an example of a possible temperature value.

Use the left/right buttons to move the ◆ sign to the front of the temperature digits.

CH Setpoint	◆ 70.0 °F
-------------	-----------

Use UP/DOWN buttons to increase/decrease the setpoint.

Press the ENTER or RIGHT button to confirm your alteration or press the BACK or LEFT button to cancel

A setpoint is only visible on the main screen when no error or alert is active. In case of an active error or alert, the bottom right part of the PB screen is used to display the error or alert

#### 4.1.2 CHANGING THE DHW SETPOINT DIRECTLY.

Only applicable if this function is available.

Press the UP or DOWN button to select the mode:

◆ DHW Store Setpoint	57.0 °F
----------------------	---------

57.0 °C is just an example of a possible temperature value.

Use the left/right buttons to move the ◆ sign to the front of the temperature digits.

DHW Store Setpoint	◆ 57.0 °F
--------------------	-----------

Use UP/DOWN buttons to increase/decrease the setpoint.

Press the ENTER or RIGHT button to confirm your alteration or press the BACK or LEFT button to cancel.

A setpoint is only visible on the main screen when no error or alert is active. In case of an active error or alert, the bottom right part of the PB screen is used to display the error or alert

#### 4.1.3 ENABLE / DISABLE CH OR DHW CONTROL.

The CH or DHW Enable/Disable option is available when its set-up in the software (by the installer) only.

Press the UP or DOWN button to select the mode:

◆ CH Control	*****
--------------	-------

OR

◆ DHW Control	*****
---------------	-------

Use the left/right buttons to move the ◆ sign to the front of Enable/Disable text.

CH Setpoint	◆ Enabled
-------------	-----------

Use UP/DOWN buttons to change from Enabled to Disabled or vice versa

Press the ENTER or RIGHT button to confirm your alteration or press the BACK or LEFT button to cancel

## 5 The MENU (Button).

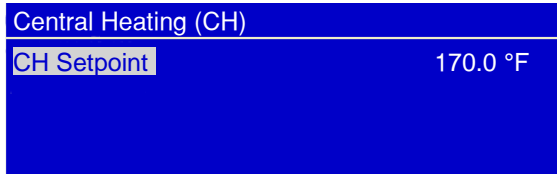
Enter the menu by pressing the MENU button once. The header in the screen shows you are inside the main menu. Whilst scrolling through the menu you will see that the selected menu item is shown in a white rectangle. At the right, there will be an icon shown, depending on the selected item.

The number of items depends on the selected/programmed options by the installer.



Enter a menu item by pressing ENTER or RIGHT.

The header shows your location inside the menu, as seen in the following image on the next screen:



If you are inside the menu (or a menu item) and want to return directly to the Status overview press MENU/ESC. If you want to go back one step in the menu press BACK/LEFT. Going to the Start-up screen directly is achieved by pressing the Menu button once.

It's also possible to set the setpoint at this stage by performing the same steps as described above at § 4.1.1 and § 4.1.2.

### 5.1 Password



Menu's protected by a password are only accessible by the installer.

Passwords are always customer specific and (for safety reasons) will be provided to the installer only!

The following menu items require a password:

Menu item	Location inside menu
Startup Settings	Settings/General Settings/Other Settings/Startup Settings
Boiler Parameters	Settings/Boiler Settings/Boiler Parameters
Module Cascade Settings	Settings/Boiler Settings/Module Cascade Settings
Boiler Cascade Settings	Settings/Boiler Settings/Boiler Cascade Settings

### 5.2 Language setting

Be aware DO NOT set the language to the Chinese Language if you are not familiar with this language. Contact your supplier for instructions if the language is set to Chinese and needs to be reset to another language.

### 5.3 Available Menu items

Depending on the installed/programmed options by the installer following menu items could be visible.

Menu / Parameter	Description	Value / Unit
Central Heating (CH)	Enter the Central Heating (CH) menu	
Domestic Hot Water (DHW)	Enter the Domestic Hot Water (DHW) menu	
Information	Enter the Information menu	
Settings	Enter the Settings menu	
System Test	Enter the System Test menu	

### 5.3.1 CENTRAL HEATING (CH)

Menu / Parameter	Description	Value / Unit
CH Setpoint	Set the CH setpoint	°C/°F
Outdoor reset	Enter the Outdoor Reset menu	

### 5.3.2 DOMESTIC HOT WATER (DHW)

Menu / Parameter	Description	Value / Unit
DHW Setpoint	Set the DHW setpoint	°C/°F
DHW Store Setpoint	Set the DHW store setpoint for DHW mode 1 and 2	°C/°F

### 5.3.3 INFORMATION

Menu / Parameter	Description	Value / Unit
Software versions	Enter the Software Versions menu	
Boiler Status	Enter the Boiler Status menu	
Boiler History	Enter the Boiler History menu	
Error Log	Enter the Error Log menu	
Service	Enter the Service menu	

### 5.3.4 SOFTWARE VERSIONS

Menu / Parameter	Description	Value / Unit
Display	Display the software checksum	[xxxx xxxx]
Boiler	Display the boiler software checksum	[xxxx xxxx]
Device Group	Display the boiler group ID	xxxMN

### 5.3.5 BOILER STATUS

Menu / Parameter	Description	Value / Unit
Flow Temperature	Actual supply flow temperature	°C/°F
Flow 2 Temperature	Actual supply 2 flow temperature	°C/°F
Return Temperature	Actual return temperature	°C/°F
DHW Temperature	Actual DHW temperature	°C/°F
DCW Temperature	Actual DCW temperature	°C/°F
Outside Temperature	Actual outside temperature	°C/°F
Flue Temp	Actual flue gas temperature	°C/°F
Flue 2 Temp	Actual flue gas 2 temperature	°C/°F
System Temperature	Actual system temperature	°C/°F
0-10 V Input	Actual 0-10 V input value	V
Flowrate	Actual DHW flowrate	l/min
RT Input	Actual RT input status	open/closed
Water Pressure	Actual CH water pressure	bar/psi
Fan Speed	Actual fan speed	RPM
Ionization	Actual ionization current	uA
State	Actual burner state	
Error	Actual internal error code	#
Calculated Setpoint	Actual CH setpoint	°C/°F

### 5.3.6 BOILER HISTORY

Menu / Parameter	Description	Value / Unit
Successful Ignitions	Display the number of successful ignitions	#
Failed Ignitions	Display the number of failed ignitions	#
Flame Failures	Display the number of flame losses	#
Operation Days	Display the total time in operation	days
CH Burner Hours	Display the amount of burn hours for CH	hrs.
DHW Burner Hours	Display the amount of burn hours for DHW	hrs.

### 5.3.7 ERROR LOG

Menu / Parameter	Description	Value / Unit
Error Log	Display the complete error log	
Filter Error Type	Set the error log filter	
Clear Error Log	Clear the complete error log	

### 5.3.8 SERVICE

Menu / Parameter	Description	Value / Unit
Service history	Display the service history	
Burn hours since last service	Display the burn hours since last service	hrs.
Burn hours till service	Display the hours remaining until next service	hrs.
Reset Service Reminder	Reset the service reminder	

### 5.3.9 SETTINGS

Menu / Parameter	Description	Value / Unit
General Settings	Enter the General Settings menu	
Boiler Settings	Enter the Boiler Settings menu	

### 5.3.10 GENERAL SETTINGS

Menu / Parameter	Description	Value / Unit
Language	Enter the Language menu	
Unit Type	Enter the Unit Type menu	
Date & Time	Enter the Date & Time menu	
Cascade mode	Enter the Cascade Mode menu	
Other Settings	Enter the Other Settings menu	

### 5.3.11 LANGUAGE

Menu / Parameter	Description	Value / Unit
English	Select the English language	English
Français	Select the French language	Français
中文	Select the Chinese language	中文
Italiano	Select the Italian language	Italiano

### 5.3.12 UNIT TYPE

Menu / Parameter	Description	Value / Unit
Metric (°C, bar)	Select Metric units	°C, bar
Imperial (°F, psi)	Select Imperial units	°F, psi

### 5.3.13 DATE & TIME

Menu / Parameter	Description	Value / Unit
Date	Set the current date	dd-mm-yyyy
Time	Set the current time	hh:mm
Time Zone Settings	Enter the time zone settings menu	
Display Settings	Enter the display settings menu	

### 5.3.14 TIME ZONE SETTINGS

Menu / Parameter	Description	Value / Unit
Time Zone Correction	Set the Time Zone Correction	
Daylight Savings Time	Select the daylight savings time mode	

### 5.3.15 DISPLAY SETTINGS

Menu / Parameter	Description	Value / Unit
Time Notation	Select 24h or 12h time notation	24h/12h
Date Order	Select the date-format	
Day of Month	Select how the day of month is displayed	1 or 2 digits
Month	Select how the month is displayed	
Year	Select how the year is displayed	2 or 4 digits
Date Separation Character	Select the date separation character	
Day of Week	Select how the day of week is displayed	
Seconds	Select if seconds are displayed	yes/no

### 5.3.16 CASCADE MODE

Menu / Parameter	Description	Value / Unit
Full	Select full cascade mode	
Basic	Select basic cascade mode	

Note: for proper functioning of the cascade system, some settings have to be changed, see § 15.4.2 "Emergency mode" in the installation manual.

### 5.3.17 OTHER SETTINGS

Menu / Parameter	Description	Value / Unit
Modbus Address	Select the Modbus communication address	0...255
Modbus Stopbits	Select the number of Modbus communication stopbits	1 – 2
Startup Settings	Select the start-up logo (if enabled)	

### 5.3.18 BOILER SETTINGS

Menu / Parameter	Description	Value / Unit
Boiler Parameters	Enter the Boiler Parameters menu	
Module Cascade Settings	Enter the Module Cascade Settings menu	
Boiler Cascade Settings	Enter the Boiler Cascade Settings menu	
Service	Enter the Service menu	

## 5.4 Boiler History

The boiler history (found in the information menu) displays several history counters that keep track of the boiler usage. The following boiler history data is available:

(Sub) Menu item	Description
Successful Ignitions	Number of successful ignitions.
Failed Ignitions	Number of failed ignitions.
Flame Failures	Number of flame failures (loss of flame).
Operation Days	Number of days that the appliance is operational (powered ON).
CH Burner Hours	Number of hours that the appliance has burned for Central Heating.
DHW Burner Hours	Number of hours that the appliance has burned for Domestic Hot Water.

## 5.5 Error logging

Errors will be logged for a stand-alone system or for a complete cascade system (based on the cascade settings). The display will monitor the error number(s) it receives from the boiler(s): new errors will be stored in the error log.

An error will be logged with a (Real Time Clock) time stamp (date and time) when the error was detected and a boiler ID of the boiler on which the error was detected.

Note: the error log is a completely different error logging mechanism than the one used by the burner control itself. Therefore, the error log is different from the (internal) error history of the burner control.

The error log can be seen from the error log menu, which is located in the Information menu. In the Error log menu the following options can be selected:

(Sub) Menu item	Description
Error Log	Show the error log (based on the selected filter options)
Filter Error Type	Filter errors based on the Error type (lockout/blocking)
Filter Boiler ID (Cascade System only)	Filter errors based on Boiler ID (Managing, Dep 1, Dep2, etc.)
Clear Error Log	Clear the error log (protected by password)

When no filtering option is selected (disabled) the error log will show all errors for that category. So, if both filters are disabled, the error log will show all the errors in the log.

The following table describes what is displayed inside the Error log:

Error Log content	Description
First line	- Boiler ID (for which boiler the error was detected – cascade system only) - Error code (internal) - Error number - Error type (lockout/blocking)
Second line	- Error description
Bottom line	- Time Stamp (date and time) when the error was detected (in the format configured in the Date & Time settings menu) - The selected error index from the total numbers of errors in the (filtered) error log

## 5.6 Service reminder

The Service reminder will remind the owner/user of the appliance to service the appliance every 2000 burn hours. When service is not done within this time, a message will be shown on the screen: "Service is required!", alternating with the normal status display.

NOTE: with the message "Service is required" the boiler keeps running, but maintenance must be done before resetting this message.

When the Service reminder has become active, the time it takes before service is actually done is being logged (in hours). This time is called the Service Overdue Time.

The Service reminder can be reset by the installer who services the appliance.

Service status information can be viewed: Menu/ Information/ Service:

(Sub) Menu item	Description
Service history	View the Service history (log). For each service moment the Service overdue counter is stored. When the overdue counter is 0 hrs, it means service was done before the Service reminder was active. The log is ordered so the most recent service moment is shown first (on top of the list).
Burn hours since last service	Shows the number of burn hours since the last service moment.
Burn hours till service	Shows the number of burn hours until service is required.
Reset service reminder	Reset the Service reminder (and store Service overdue counter in the service history). Installer must enter the installer password first before it can be reset.

## 5.7 System test

For testing the system at fixed power rates a system test can be activated via the menu. Via the system test the boiler can be started without CH or DHW being present. The system test has priority.

The following modes are available:

System test mode	Description
0 (Not active)	System test mode not active
1 (Fan only)	The fan is forced to run at maximum speed without starting the burner
2 (Low power)	The burner starts and after the ignition period has finished the burner stays at low power
3 (Ignition power)	The burner starts and stays at ignition power
4 (High power)	The burner starts and after the ignition period has finished the burner stays at high power
5 (High power limited)	The burner starts and after the ignition period has finished the burner stays at high power limited by the CH max. power parameter
6 (High limit error test)	Simulates the <i>Max_Temp_Error</i>
7 (Low Water Cut Off 1 error test)	Simulates the <i>LWCO_1_Error</i>
8 (Low Water Cut Off 2 error test)	Simulates the <i>LWCO_2_Error</i>

Before running the system test modes first check if the heat can also be dissipated. Note that during this mode the supply temperature can be raised above 203 °F (95 °C). When this temperature is reached the burner will switch OFF. When the supply temperature cools down to 194 °F (90 °C) the burner will start again.

During the system test the general and CH pump will be ON.

As the boiler will run at fixed power rates there is no setpoint control active.

Also the flame recovery is not active during system test demand. All other safety functions remain active.

The system test automatically stops after 10 minutes, after this the system continues with normal demand handling.

When the system test mode is changed during an active system test, the 10 minute timer is reloaded.



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