EN

Gas fired condensing boiler

C 230 ECO

User Guide

300015144-001-C

De Dietrich

Contents

1 Introduction

1.1 Used symbols

Caution danger
Risk of injury and damage to equipment. Attention must be paid to the warnings on safety of persons and equipment.

Specific information
Information must be kept in mind to maintain comfort.

Reference
Refer to another manual or other pages in this instruction manual.

DHW: Domestic hot water

PCU: Primary Control Unit (Operating management electronics)

SU: Safety Unit (Safety electronics)

PSU: Parameter Storage Unit (Boiler parameter storage)

CCE: Leak proofing system

1.2 General

Congratulations on your choice of a high quality product. We strongly advise you to read the following instructions in order to guarantee the optimal operation of your appliance. We are sure that it will be entirely to your satisfaction and will meet with all of your expectations.

- Keep these instructions in a safe place close to the appliance.
- For a proper operating of the boiler, follow carefully the instructions.
- The manufacturer is not liable for any improper use of the appliance or failure to maintain or install the unit correctly (the user shall take care to ensure that the system is installed by a qualified fitter).
- In the interest of customers, De Dietrich Thermique SAS are continuously endeavouring to make improvements in product quality. All the specifications stated in this document are therefore subject to change without notice.
- Get your fitter to explain your installation to you.

2 Safety instructions and recommendations

2.1 Safety instructions

■ Fire hazard

Do not stock products of an inflammable nature close to the appliance.

If you smell gas, do not use a naked flame, do not smoke, do not operate electrical contacts or switches (doorbell, lights, motor, lift, etc.).

1. Cut the gas supply
2. Open the windows
3. Extinguish all flames
4. Evacuate the premises
5. Contact a qualified professional
6. Inform the gas supplier

■ Risk of intoxication

Do not obstruct the air inlets in the room (even partially).

If you smell flue gases

1. Switch the appliance off
2. Open the windows
3. Evacuate the premises
4. Contact a qualified professional

■ Risk of being burnt

Avoid direct contact with the flame viewport.

Depending on the settings of the appliance:

- The temperature of the flue gas conduits may exceed 60°C
- The temperature of the radiators may reach 95°C
- The temperature of the domestic hot water may reach 65°C

■ Risk of damage

Do not stock chloride or fluoride compounds close to the appliance.

Install the appliance in frost-free premises.

Do not neglect to service the appliance: Contact a qualified professional or take out a maintenance contract for the annual servicing of the appliance.

2.2 Recommendations

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

Before any work, switch off the mains supply to the appliance.

Check regularly that the installation contains water and is pressurised.

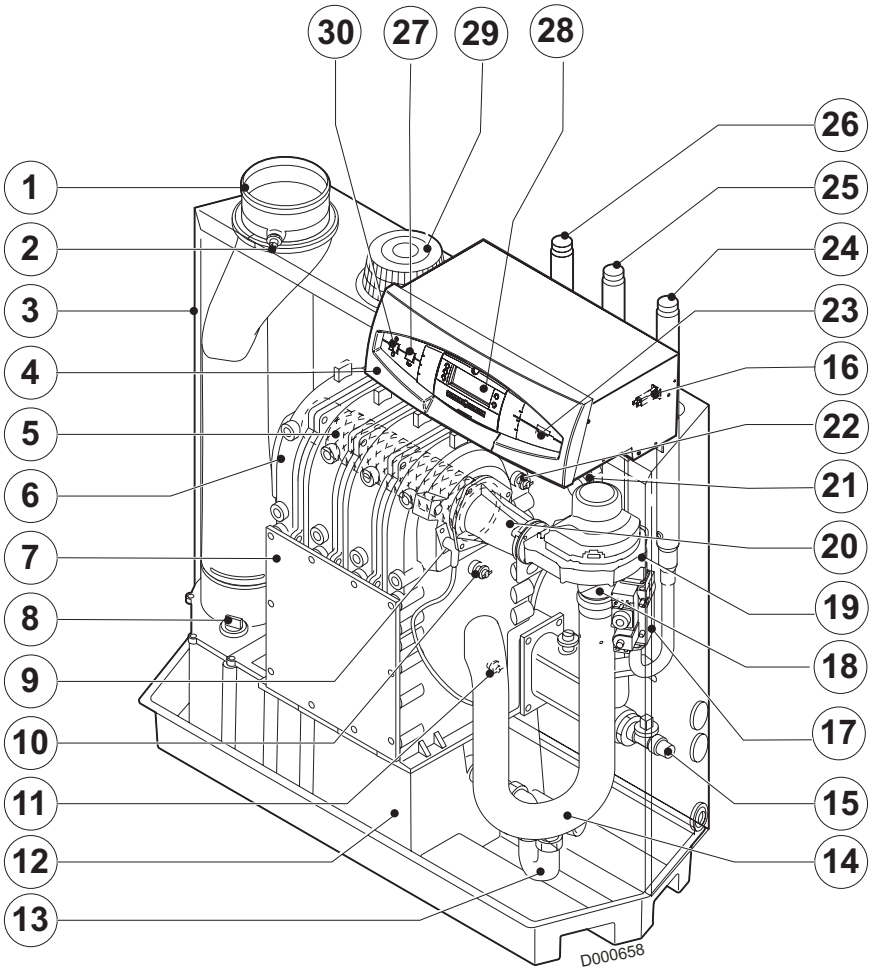
Keep the appliance accessible at all times.

Avoid draining the installation.

The appliance should be on Summer or Antrifreeze mode rather than switched off to guarantee the following functions:

- Antifreeze protection
- Protection against corrosion on domestic hot water tanks fitted with a titanium anode.

3 Description



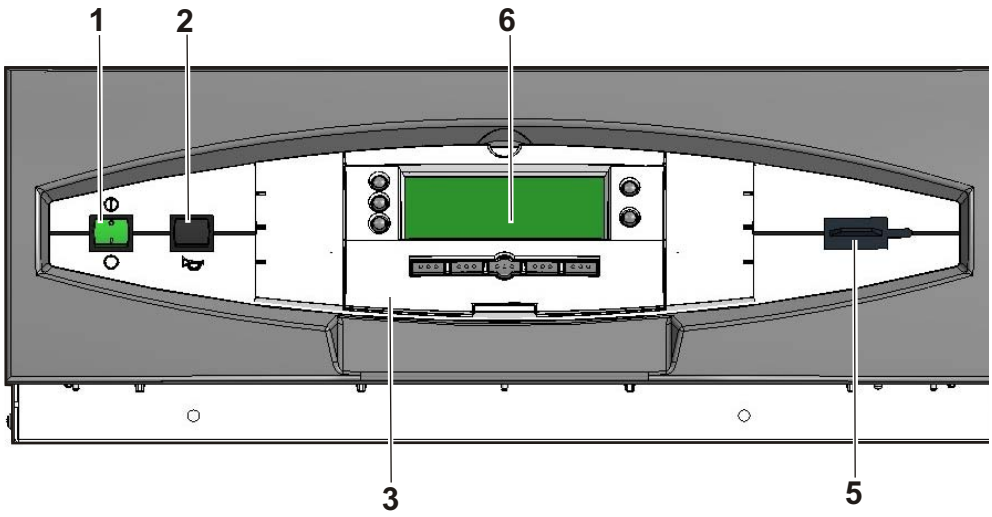
1	Flue gas discharge duct
2	Measurement point O_2/CO_2 (Emplacement for fue gas sensor, Option)
3	Air enclosure
4	Control panel
5	Burner
6	Heat exchanger
7	Inspection hatch
8	Inspection cap / Cleaning
9	Ignition electrode / Ionization probe
10	Heating body sensor
11	Return sensor
12	Condensates collector
13	Siphon
14	Silencer
15	Filling and emptying tap
16	Circuit breaker
17	Multivalve gas unit
18	Venturi
19	Fan
20	Mixer pipe
21	Flue gas pressure switch
22	Output sensor
23	Connector for the programming tool
24	Gas connection
25	Return connection
26	Flow connection
27	Reset button
28	Display DIEMATIC-m3
29	Air inlet (Protective cage)
30	General ON ⏽ / OFF ◯ switch

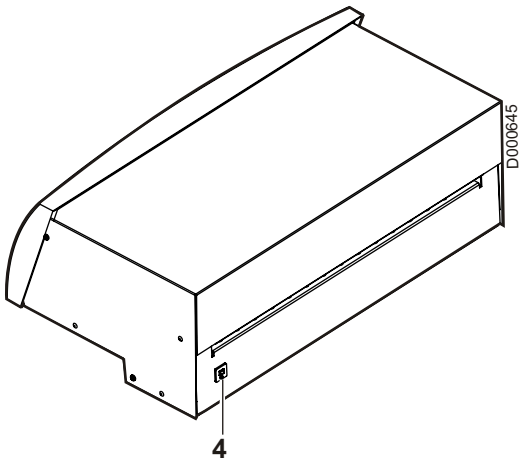
4 Operating the appliance

4.1 Control panel

4.1.1 Control panel DIEMATIC-m3

■ **Electromechanical components**





1. **General ON ⏻ / OFF ◯ switch**
2. **Reset button**
3. **Flap**
4. **Timed circuit breaker (4 A)**
5. **Connector for the programming tool**
6. **Display**

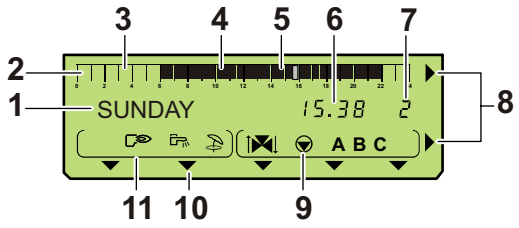
⚠ The panel must always be supplied with 230V voltage:

- to ensure the anti-grip of the heating pump,
- to ensure Titan Active System® operation when a titanium anode is protecting the DHW tank.

Furthermore, if an interactive remote control (CDI 2) is connected and the **1** switch is in the off ◯ position, there will be no display on the CDI 2.

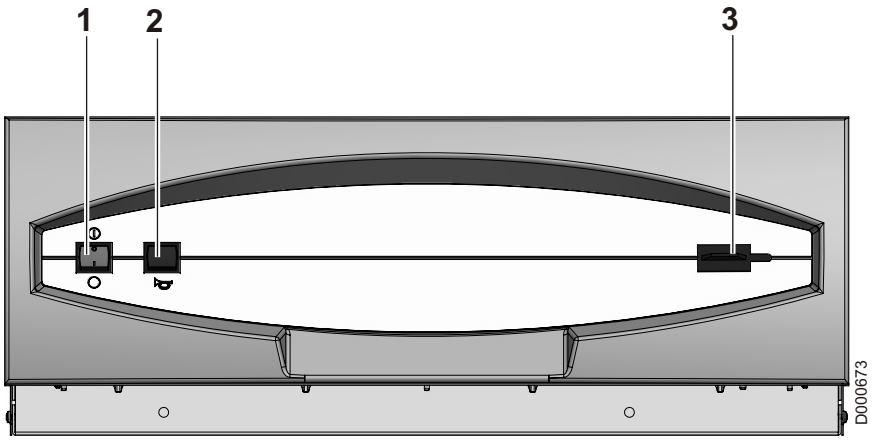
See: "Control panel instructions"

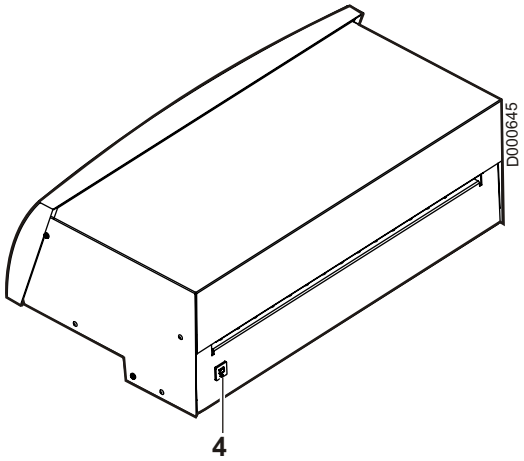
■ Display



1	Text and numerical display
2	Graphic display bar for the programme in circuit A, B or C
3	Light area: Reduced temperature heating period or tank load disabled
4	Dark area: Comfort temperature heating period or tank load enabled
5	Flashing cursor showing the current time
6	Number display (current time, adjusted values, parameters, etc.)
7	Number of the boiler for which the parameters are displayed Control panel instructions - See section 6.1: Access to the parameters of the slave boilers (Panel K3) in a cascade
8	The arrows flash when setting values can be modified using the **+** and **-** keys
9	**Circuit operation symbols**
	Opening the 3-way valve
	Closing the 3-way valve
	Displayed circuit pump on
A B C	Name of the circuit displayed
10	Arrows indicating the chosen time programme (P1, P2, P3 or P4) for the circuit displayed, A, B, C, or the activation of the manual summer mode
11	**Symbols indicating that the following inputs/outputs are active**
	DHW load pump on
	Summer mode (Automatic or Manual)
	Burner on switch request

4.1.2 Control panel K3



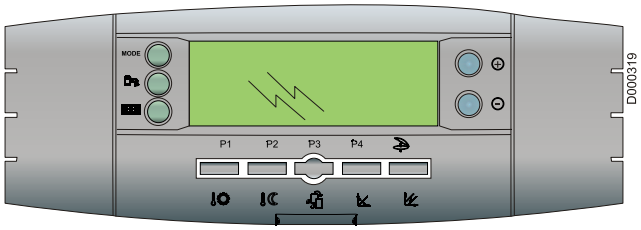


1. General ON ⏻ / OFF ◯ switch
2. Reset button
3. Connector for the programming tool
4. Timed circuit breaker (4 A)

4.2 Changing the settings

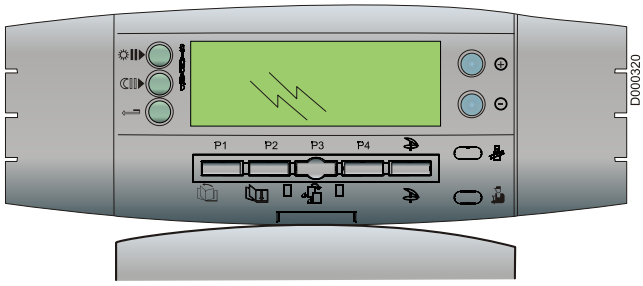
4.2.1 Control panel DIEMATIC-m3

■ Keys accessible when the flap is closed



Adjustment keys	
MODE	Various operating modes can be selected by successively pressing key **MODE**: ▸ **AUTOMATIQUE** ▸ **DAY 7/7**: Forced operation at permanent Day temperature ▸ **DAY** (Until midnight): Forced operation at temporary Day temperature ▸ **NIGHT 7/7**: Forced operation at permanent Night temperature ▸ **NIGHT** (Until midnight): Forced operation at temporary Night temperature ▸ **DAYS ANTIFREEZ**: Antifreeze mode for the number of days set ▸ **ANTIFREEZ 7/7**: Permanent antifreeze mode
	Restart key for a DHW calorifier load ▸ **AUTOMATIQUE** ▸ **DHW**: Restarts DHW load until midnight ▸ **DHW 7/7**: DHW load is forced permanently After a few seconds, the display disappears but the mode is activated.
	Display key for the various counters (number of burner start-ups, number of burner operating hours, etc.)
	Set temperatures Day (Heating / DHW / Pool)
	Set temperatures Night (Heating / DHW)
	Access key to the slave boilers (Panel K3) in a cascade If using only one boiler, this key is inactive.
	Setting the gradients for circuits A, B and C
	Setting the parallel offsets **DECAL.// DEP.A**, **DECAL.// DEP.B** or **DECAL.// DEP.C** for the heating curves on circuits A, B or C. If the Day setting for one of the circuits, A, B or C, is above 30°C, you no longer have access parallel offset on this circuit.
+/-	Adjustment keys

■ Keys accessible when the flap is open



Adjustment keys	
	Enter (per 1/2 hour) the comfort temperature period or tank load enabled (dark area).
	Enter (per 1/2 hour) the reduced temperature period or tank load disabled (light area).
STANDARD	Simultaneously pressing the 2 keys, and , resets all of the time programmes.
	Return key
	Page scrolling
	Line scrolling
	Scroll of boilers connected
	Manual "Summer" shutdown key. The heating is switched off and DHW production is ensured.
	Fitter settings access key
	Sweep key

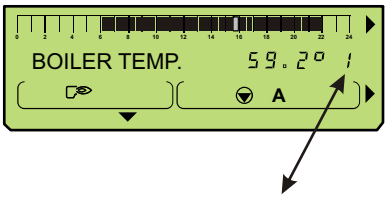
See Control panel instructions

4.2.2 Control panel K3

Make all settings on the master boiler fitted with a **DIEMATIC-m3** control panel
Press the key.

■ Access to the parameters of the slave boilers (Panel K3) in a cascade

- **Boiler temperature display on the master boiler**



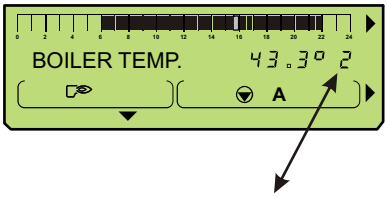
Number of the boiler for which the parameters are displayed

▸ Press the key

The number of the boiler displayed corresponds to the setting on the coding wheel.

Adjustment (Code wheel)	Number of the boiler for which the parameters are displayed	
0	1	Master boiler (Control panel DIEMATIC-m3)
1	2	”Follower - 1” boiler (Control panel K3)
2	3	”Follower - 2” boiler (Control panel K3)
etc.		

- **Boiler temperature display on the slave boiler**



Number of the boiler for which the parameters are displayed

All parameters and measurements on the slave boilers (Control Panel K3) can be accessed with the control panel keys DIEMATIC-m3.

Key is used to transmit all information from the slave boilers (Control Panel K3) to the master boiler (DIEMATIC-m3 Control Panel).

The parameters on the slave boilers can be read on the control panel display DIEMATIC-m3.

If no keys are pressed for 10 seconds, the control panel display returns to the master boiler (Number 1).

4.3 Stopping the boiler

- Cut the power supply to the boiler.
- Close the gas valve.

Don't forget the risk of frost.

4.3.1 Precautions to take if there is a danger of frost

Heating circuit:
Use a correctly dosed antifreeze to prevent the heating water freezing. If this cannot be done, drain the system completely. In all cases, consult the fitter.

Domestic hot water circuit:
Drain the domestic water tank and pipes.

4.3.2 Precautions required in the case of long boiler stops (one or more years)

- Close the gas valve
- The boiler and the chimney must be swept carefully.
- Close the door of the boiler to prevent the internal circulation of air.

4.4 Commissioning the boiler

Initial commissioning must be done by a qualified professional.

4.4.1 Commissioning

- Ensure that the boiler is switched off
- Remove the front casing
- Open the main gas valve
- Open the boiler control panel (Control panel instructions)
- Check the electrical connection
- Fill the installation with water and check hydraulic tightness (Pmin: 0.8 bar)
- Bleed the heating installation
- Fill the condensates siphon with water
- Check the connection of the combusted gas evacuation and the air inlet
- Empty the gas inlet
- Open the gas valve on the gas pipe to the boiler
- Check the gas connection
- Turn the boiler on
- Turn the main switch to ⏻
- The boiler type is displayed on the screen for 5 seconds
- Provoke a heating request
- The boiler starts to operate
- Check the settings (See "Gas settings" - Installation and Service Manual). If necessary, correct the settings

5 Checking and maintenance

The boiler is almost maintenance-free if it is set correctly. The boiler only requires an annual check and cleaning if necessary.

Make the following checks at least 1 time a year:

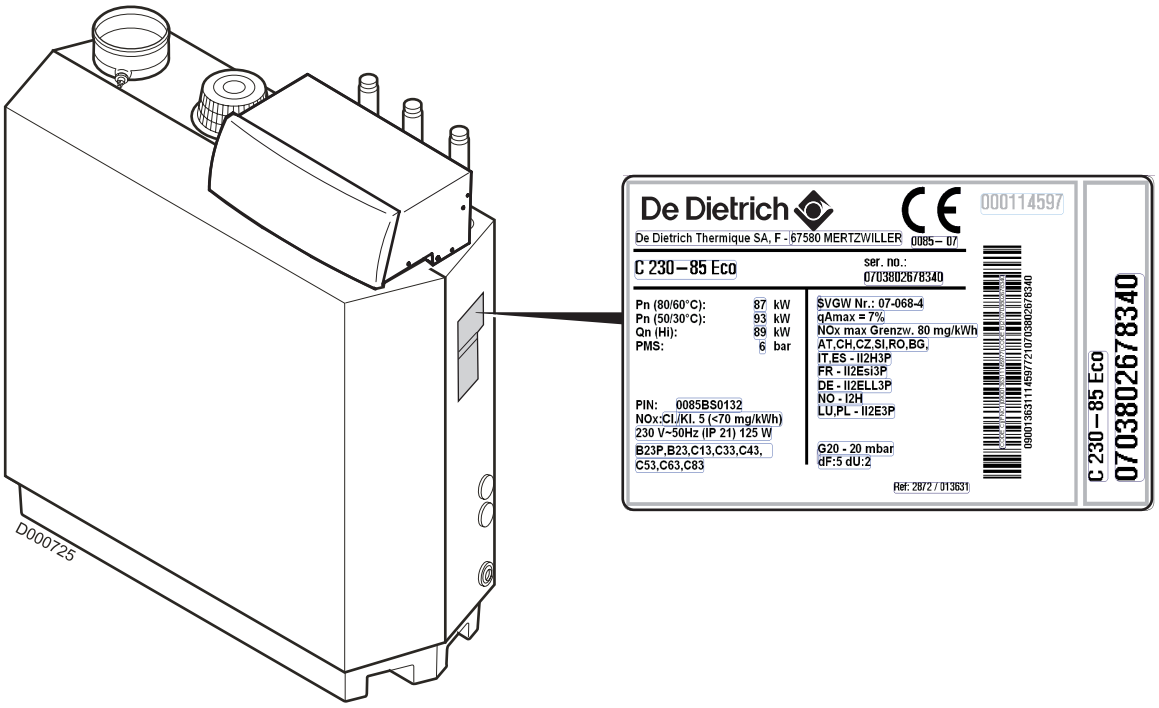
- Checking the combustion in the boiler
- Setting the ignition electrode
- Checking tightness (hydraulics, combusted gas discharge and gas)
- Checking the hydraulic pressure

Carry out the following maintenance at least 1 time a year:

- Clean the fan
- Clean the heat exchanger using the tool provided
- Clean the burner
- Clean the siphon.

6 Troubleshooting

6.1 Rating plate



6.2 Messages - Faults

6.2.1 Messages

Message	Code no.	Probable causes	Action
SHOW REM. CTRL		The message **SHOW REM.CTRL** indicates the presence of an override on a remote control	To cancel the overrides on all remote controls, press the **AUTO** key for 5 seconds
REVISION		Boiler service required	Contact the professional responsible for maintenance of the boiler
BL.PSU ERROR	**0**	Error parameters	- Switch the boiler off and switch back on - Set the boiler type parameter (See **#CONFIGURATION**)
BL.MAX BOILER	**1**	Boiler temperature > 110 °C	Wait 10 minutes for the temperature to come down
BL.MAX EXCHAN	**3**	Heat exchanger temperature > 95 °C	- Wait 10 minutes for the temperature to come down - Check the water flow - Check that the installation and boiler are adequately filled with water and correctly irrigated and bled - Check: Heat exchanger fouled
BL.DERIVE EXCH	**4**	The speed at which the exchanger temperature is rising is too high	- Wait 10 minutes for the temperature to come down - Check the water flow - Check that the installation and boiler are adequately filled with water and correctly irrigated and bled - Check: Heat exchanger fouled
BL.DT EXC.BACK	**5**	The temperature difference between the exchanger sensor and the return sensor is too great (35 K)	- Wait 10 minutes for the temperature to come down - Check the water flow - Check that the installation and boiler are adequately filled with water and correctly irrigated and bled - Check: Heat exchanger fouled
BL.DT BOI.EXC.	**6**	The temperature difference between the boiler sensor and the exchanger sensor is too great	- Wait 10 minutes for the temperature to come down - Check the water flow - Check that the installation and boiler are adequately filled with water and correctly irrigated and bled - Check: Heat exchanger fouled
BL.RL OPEN	**8**	The **RL** inlet on the PCU is open	- Switch the boiler off and switch back on - Set the boiler type parameter (See **#CONFIGURATION**)
BL.INV. L/N	**9**	- Phase and neutral inverted - Mains electricity with floating or two-phase neutral	- Respect the rating plate on the connection terminal block - Set the boiler type parameter (See **#CONFIGURATION**)
BL.CS OPEN	**11**	The contact inlet **CS** is open	Check the cause of the open contact **CS**
BL.COM PCU-M3	**13**	Communication breakdown between PCU and DIEMATIC-m3	Check the link and the connectors
BL.GAS PRESS	**15**	Gas pressure too low	Check: - Opening the gas valve on the boiler - Gas supply pressure - Correct installation of the pressure switch (Replace if necessary)
BL.BAD SU	**16**	The SU is not compatible with the PCU	- Switch the boiler off and switch back on - SU: Change them
BL.PCU ERROR	**17**	Error parameters	- Switch the boiler off and switch back on - PCU: Change them

Message	Code no.	Probable causes	Action
BL.BAD PSU	**18**	The PSU is not compatible with the PCU	- Switch the boiler off and switch back on - PSU: Change them - Set the boiler type parameter
BL. COM SU	**21**	Communication breakdown between PCU and SU	Check the installation of the SU on the PCU
BL.FLAME LOS	**22**	Flame lost	- Wait 10 seconds - If, after 5 attempts, the error persists, **BL.FLAME LOS** changes to **I-CURRENT FAIL** Check: - Opening the gas valve on the boiler - Gas pressure - Setting the gas valve unit - Check the connection of the combusted gas evacuation and the air inlet - Checking the heat exchanger
BL.CCE TEST	**24**	The cyclical leak proofing kit (CCE) has detected a problem	- Wait 10 seconds - If, after 5 attempts, the error persists, **BL.CCE TEST** changes to **CCE TEST FAIL** Check: - Opening the gas valve on the boiler - Gas pressure - Correct installation of the pressure switch handling the CCE function (Replace if necessary) - Gas valve (Replace if necessary) - Wiring
BL.SU ERROR	**25**	SU: Internal error	- Wait 10 seconds - SU: Change them
BL.UNKNOWN	**254**	Blockage unknown	- Switch the boiler off and switch back on - SU: Change them

Messages are not memorised.

6.2.2 Faults

Faults	Code no.	Probable causes	Action
BOILER S.FAIL.	**32**	The boiler sensor is short circuited	- Reset the box - Check the link and the connectors - Replace the sensor if necessary
	33	The boiler sensor is off	
BACK S.FAILURE	**6**	The return sensor is short circuited	- Reset the box - Check the link and the connectors - Replace the sensor if necessary
	7	The return sensor is off	
	8	The sensor reading is under -10°C	
EXCHAN.S.FAIL.	**2**	The exchanger sensor is short circuited	- Reset the box - Check the link and the connectors - Replace the sensor if necessary
	3	The exchanger sensor is off	
	4	The sensor reading is under -10°C	
OUTSI. S.FAIL. **DHW S. FAILURE** **AUX1.SENS.FAIL** **AUX2.SENS.FAIL** **UNIV.SENS.FAIL** **OUTL S.A FAIL.** **OUTL S.B FAIL.** **OUTL S.C FAIL.** **ROOM S.A FAIL.** **ROOM S.B FAIL.** **ROOM S.C FAIL.** **SWIM.P.A S.FAIL** **SWIM.P.B. S.FAIL** **SWIM.P.C. S.FAIL** **SOLAR S. FAIL** **ST.TANK S.FAIL** **DHW 2 S. FAIL**		The corresponding sensor is off or short-circuited.	Check the link and the connectors. Replace the sensor if necessary. See comments below.
BOILER 2 FAIL. **BOILER 3 FAIL.** **BOILER 4 FAIL.** **BOILER 5 FAIL.** **BOILER 6 FAIL.** **BOILER 7 FAIL.** **BOILER 8 FAIL.** **BOILER 9 FAIL.** **BOILER 10 FAIL.**		Error on a slave boiler, in a cascade installation.	Press key to see the error.
TA-S SHORT-CIR		The Titan Active System® is short-circuited.	Check that the Titan Active System® is not short-circuited.
TA-S DISCONNEC		The Titan Active System® is on an open circuit.	Check that the Titan Active System® is correctly connected.

Faults	Code no.	Probable causes	Action
TA-S FAILURE		Internal problem.	- Switch off the current. - Contact the professional responsible for maintenance of the boiler.
PSU FAIL	**0**	PSU not connected or faulty	- Reset the box - Check the link and the connectors - PSU: Replace if necessary
PSU PARAM FAIL	**1**	Safety parameter errors	- Reset the box - Check the link and the connectors - PSU: Replace if necessary
STB EXCHANGE	**5**	Exchanger temperature too high	- Reset the box - Check that the installation and boiler are adequately filled with water and correctly irrigated and bled - Check: Heat exchanger fouled
STB BACK	**9**	Return temperature too high	- Reset the box - Check that the installation and boiler are adequately filled with water and correctly irrigated and bled - Check: Heat exchanger fouled
EXCH-BACK<MIN	**10**	- The temperature difference between the exchanger sensor and the boiler flow sensor is too little - Sensor defective - No flow rate or flow rate too low - Sensor installed incorrectly	- Reset the box - Check that the installation and boiler are adequately filled with water and correctly irrigated and bled Check: - Heat exchanger fouled - Sensor installed correctly - Level differences on the temperature sensors
EXCH-BACK>MAX	**11**	- The temperature difference between the exchanger sensor and the boiler flow sensor is too great - Sensor defective - No flow rate or flow rate too low - Sensor installed incorrectly	- Reset the box - Check that the installation and boiler are adequately filled with water and correctly irrigated and bled Check: - Heat exchanger fouled - Sensor installed correctly - Level differences on the temperature sensors
SMOKE.P.FAIL	**12**	- The flue gas pressure switch is open - Bad connection - The pressure in the combusted gases evacuation duct is too high	- Reset the box - Check the wiring - Ensure that the siphon is not empty. Top up with more water if necessary - It is possible that the combustion products evacuation pipe is totally or partially obstructed - Check: Open flue damper

Faults	Code no.	Probable causes	Action
BURNER FAILURE	**14**	- No flame after 5 ignition attempts - No ignition spark	- Reset the box - Check the correct connection of the ignition cable and that there is no breakdown or short circuit on the earth Check: - the gap between the electrodes (3 to 4 mm) - Burner cover status (Burner / electrode cover closed) - Faulty control by the SU board
		- No flame after 5 ignition attempts - No flame	- Reset the box - First check that the gas valve is open, that the gas supply pressure is present, that the gas conduit has been sufficiently bled, that the air/flue gas conduit is not blocked and is not leaking, that the siphon is full and not blocked - The gas valve unit must be set with precaution - Gas block: Wiring OK - Faulty control by the SU board
		- No flame after 5 ignition attempts - Flame present (insufficient ionization)	Check the correct connection of the ignition cable and that there is no breakdown or short circuit on the earth Check: - Check the electrode condition - Opening the gas valve on the boiler - Gas supply pressure
CCE TEST FAIL	**15**	- The cyclical leak proofing kit (CCE) has detected a leak	- Reset the box Check: - Opening the gas valve on the boiler - Gas supply pressure - Replace the gas valve (If necessary)
PARASIT FLAME	**16**	Detection of a parasite flame	- Reset the box Check: - Ignition/ionization electrode - Leak on the gas valve - Gas inlet valve closed (Compulsory)
VALVE FAIL	**17**	Gas valve defective	- Reset the box - Check the link and the connectors - Check the gas valve and replace if necessary
FAN FAILURE	**34**	The fan is not running at the right speed	- Reset the box Check: - Cabling error - Fan error
BACK>BOIL FAIL	**35**	The return temperature is higher than the boiler temperature	- Reset the box - Check the water circulation direction in the boiler - Check that the boiler sensor and the return sensor have not been reversed
I-CURRENT FAIL	**36**	The flame went out more than 5 times in 24 hours while the burner was operating	- Reset the box Check: - Gas supply pressure - Pressure regulator - Setting the gas valve unit
SU COM.FAIL	**37**	Communication breakdown between PCU and SU	- Reset the box - Check the installation of the SU on the PCU
PCU-M3 COM.FAIL	**38**	Communication breakdown between PCU and DIEMATIC-m3	- Reset the box - Check the link and the connectors

Faults	Code no.	Probable causes	Action
CS OPEN FAIL	**39**	The contact inlet **CS** is open	- Check the cause of the open contact **CS** - Reset the box
FAIL. UNKNOWN	**254**	Fault unknown	- Switch the boiler off and switch back on - SU: Change them
PCU COM. FAIL		Communication breakdown between DIEMATIC-m3 and PCU	- Reset the box - Check the link and the connectors - Switch the boiler off and switch back on
5 RESET:ON/OFF		5 resets done in less than an hour	- Switch the boiler off and switch back on. The current error is displayed and can be reset
MC COM.FAIL		Communication error between DIEMATIC M3 and the boiler module for the CDI radio (CDR)	- Check the link between the DIEMATIC M3 and the boiler module

Comments	
OUTSI. S.FAIL.	The boiler operates on **BOILER MAX** temperature - The valve setting is no longer ensured but monitoring the maximum temperature of the circuit after the valve is ensured. - Valves may be manually operated. - Reheating the domestic hot water remains ensured.
DHW S. FAILURE	The hot water storage tank reheating operation is no longer assured.
OUTL S.A FAIL., **OUTL S.B FAIL.** and **OUTL S.C FAIL.**	The circuit concerned goes from automatic to manual mode: The pump operates.
ROOM S.A FAIL., **ROOM S.B FAIL.** and **ROOM S.C FAIL.**	The circuit concerned operates without any influence from the room sensor.
SWIM.P.A S.FAIL, **SWIM.P.B. S.FAIL**, **SWIM.P.C. S.FAIL**	Pool reheating is independent of its temperature.
SOLAR S. FAIL	Reheating domestic hot water using the solar panel is no longer ensured.
ST.TANK S.FAIL	The hot water storage tank reheating operation is no longer assured.
TAS...	Domestic hot water production is shut down and can be restarted using key . **The tank is no longer protected.** **Contact the professional responsible for maintenance of the boiler.** A tank without Titan Active System® is connected to the boiler: Check that the Titan Active System® simulation connector (delivered with package AD212) is fitted to the sensor card."

The last ten failures are memorised in the paragraph **#DEF. HISTORY**

See: "Parameter and input/output check (mode tests) - Control panel instructions

6.3 Technical characteristics

C 230-...		Unit	85	130	170	210
General						
Number of sections			3	4	5	6
Burner operation			**Modulating**			
Useful output (80/60°C) PN (G20)	minimum	kW	16	22	29	39
	maximum	kW	87	113(1)/120	166	200
Useful output (50/30°C) PN (G20)	minimum	kW	18	24	33	44
	maximum	kW	93	121(1)/129	179	217
Burner output (PCI) (G20)	minimum	kW	17	23	31	41
	maximum	kW	89	115(1)/123	170	205
Combustion gas and by-products						
Gas supply pressure G20		mbar	17 - 30			
Gas flow rate G20 (15 °C - 1013 mbar)	minimum	m^3/h	1.8	2.4	3.3	4.3
	maximum	m^3/h	9.4	12.2(1)/13	18	21.7
Gas flow rate G25 (15 °C - 1013 mbar)	minimum	m^3/h	2.1	2.8	3.8	5.0
	maximum	m^3/h	11	14.4	20.9	25.2
Gas flow rate G27 (15 °C - 1013 mbar)	minimum	m^3/h	2.2	3.0	4.0	-
	maximum	m^3/h	11.5	15.9	22.0	-
Gas flow rate G31	minimum	Kg/h	1.94	1.94	3.42	3.19
	maximum	Kg/h	6.91	9.56	13.21	15.93
CO_2 (G20-G25) Qmin.-Qmax (Open air box)		%	9.3-8.8	9.3-8.8	9.3-8.8	9.3-8.8
CO_2 (G20-G25) Qmin.-Qmax (Closed air box)		%	9.5-9.0	9.5-9.0	9.5-9.0	9.5-9.0
CO_2 (G27) Qmin.-Qmax (Open air box)		%	9.3-8.8	9.3-8.8	9.3-8.8	-
CO_2 (G27) Qmin.-Qmax (Closed air box)		%	9.5-9.0	9.5-9.0	9.5-9.0	-
CO_2 (G31) Qmin.-Qmax (Open air box)		%	10.5-9.8	10.5-9.8	10.5-9.8	10.5-9.8
CO_2 (G31) Qmin.-Qmax (Closed air box)		%	10.7-10.0	10.7-10.0	10.7-10.0	10.7-10.0
Average nitrogen oxide emission (NOx)		mg/kWh	62	54	49	58
Average CO emission		mg/kWh	19	15	16	19
Maximum pressure at the flue gas nozzle		Pa	130	130	130	130
Combusted gas flow (2)	minimum	Kg/h	27.2	36.7	49.5	65.5
	maximum	Kg/h	149.7	193.5(1)/ 206.9	286.0	344.9
Classification of type according to the discharge of combusted gases and air supply			B23, B23P, C13, C33, C43, C53, C63, C83			
Heating						
Safety temperature		°C	110			
Water setting range		°C	20 - 90			
Water pressure	minimum	bar	0,8			
	maximum	bar	6			
Water content		l	12	16	20	24
Water resistance at ΔT = 10K		mbar	660	540	680	720
Water resistance at ΔT = 20K		mbar	165	135	170	180
Electricity characteristics						
Power supply voltage		V/Hz	230 / 50			

C 230-...		Unit	85	130	170	210
Power consumption (Panel DIEMATIC M3	minimum	W	34	36	56	59
	maximum	W	125	193	206	317
Insulation class		IP	21			
Miscellaneous						
Weight without water		kg	130	150	170	200
Acoustic level at 1 meter		dBA	≤ 57			≤ 63

(1) For Italy
(2) G20 - Gas H

7 Energy savings

Here are a few tips for saving energy:

- Install reflector panels behind the radiators.
- Do not cover the radiators. Do not hang curtains in front of the radiators.
- Insulate pipes to prevent thermal losses and condensation.
- Do not obstruct aeration grates (even partially). They help to reduce humidity in the home. The more humid a home, the more heating it consumes.
- Turn heating off when airing a room (5 minutes a day is sufficient) Avoid deregulating the thermostat. Place the start/stop switch on Off.
- Do not shut down heating completely if you are absent. Lower the thermostat by 3-4°C.
- Use the sun's heat as much as possible.
- Take showers rather than baths. Use a water-saving shower head.

Warranty

You have just purchased one of our appliances and we thank you for the trust you have placed in our products.

Please note that your appliance will provide good service for a longer period of time if it is regularly checked and maintained.

Your fitter and our customer support network are at your disposal at all times.

■ Warranty terms

Starting from the purchase date shown on the original fitter's invoice, your appliance has a contractual guarantee against any manufacturing defect.

The length of the guarantee is mentioned in the price catalogue.

The manufacturer is not liable for any improper use of the appliance or failure to maintain or install the unit correctly (the user shall take care to ensure that the system is installed by a qualified fitter).

In particular, the manufacturer shall not be held responsible for any damage, loss or injury caused by installations which do not comply with the following:

- applicable local laws and regulations
- specific requirements relating to the installation, such as national and/or local regulations
- the manufacturer's instructions, in particular those relating to the regular maintenance of the unit
- the rules of the profession

The warranty is limited to the exchange or repair of such parts as have been recognised to be faulty by our technical department and does not cover labour, travel and carriage costs.

The warranty shall not apply to the replacement or repair of parts damaged by normal wear and tear, negligence, repairs by unqualified parties, faulty or insufficient monitoring and maintenance, faulty power supply or the use of unsuitable fuel.

Sub-assemblies such as motors, pumps, electric valves etc. are guaranteed only if they have never been dismantled.

■ France

The preceding dispositions are not exclusive of benefits for the purchaser of the legal guarantee as stated in Civil Code articles 1641 to 1648.

■ Belgium

The preceding dispositions about the contractual guarantee are not exclusive of profit if the need arises for the purchaser in Belgium of the applicable legal dispositions on hidden defects.

■ Switzerland

The application of the warranty is subject to the terms and conditions of sale, delivery and warranty of the company marketing our products.

■ Poland

Warranty conditions are included in the warranty card.

■ Other countries

The above provisions do not restrict the benefit of the legal laws regarding hidden defects applicable in the buyer's country.

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Subject to alterations.

20/02/09

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De Dietrich

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