CITY TOP K

10/2020

Green Heating Technology

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City Top K - Overview

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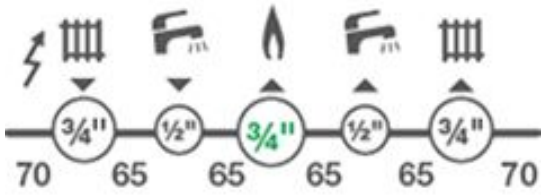
- New Condensing exchanger with bigger water flow
- I.C.S. (Intelligent Combustion System) which manages automatically Combustion
- Gas Conversion without components replacement
- Modulation Range 1:20 (35kW) - 1:15 (25kW)
- Hydraulic Brass Group with DIN connections
- Automatic water filling



City Top K - Main Components

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FLUES FLANGE

- Hole for Inlet Air
- Spots for Combustion test

NEW CONDENSING EXCHANGER

EXPANSION VESSEL 9 Lt

SEALED CHAMBER

MIXER

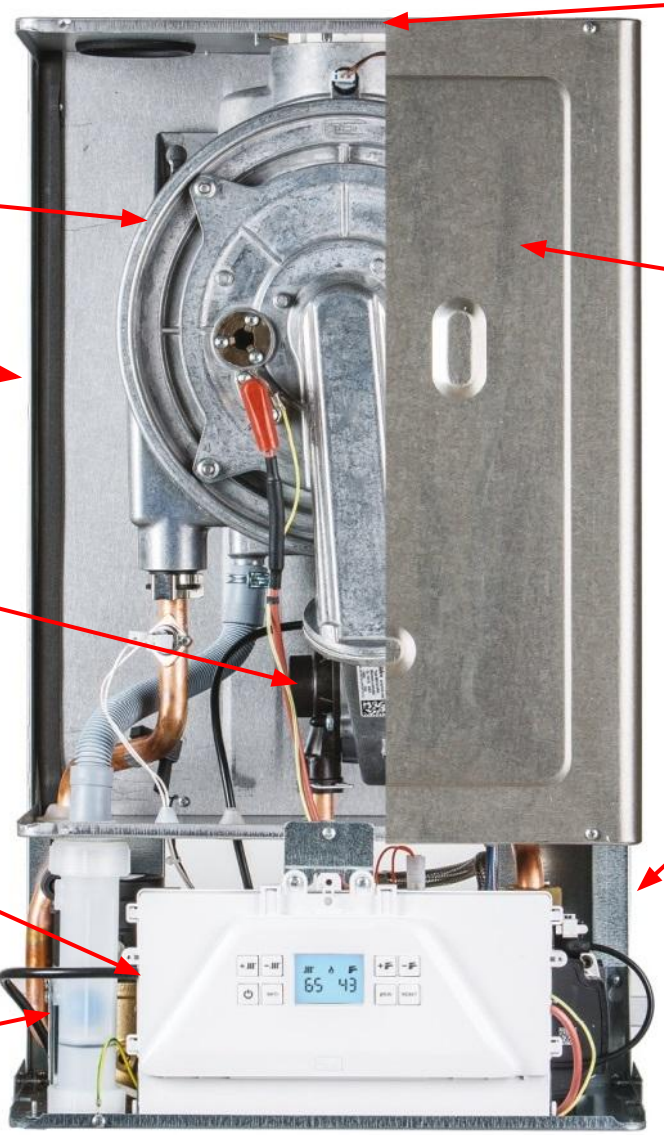
FRAME

- Hanging holes compatible with old boilers

BRASS GROUP

SIPHON FOR CONDENSE

HYDRAULIC CONNECTIONS DIN



City Top K - Hydraulic group

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- On/Off
- Magnectic float and Reed contact
- Water filter inlet

City Top K - Main Exchanger

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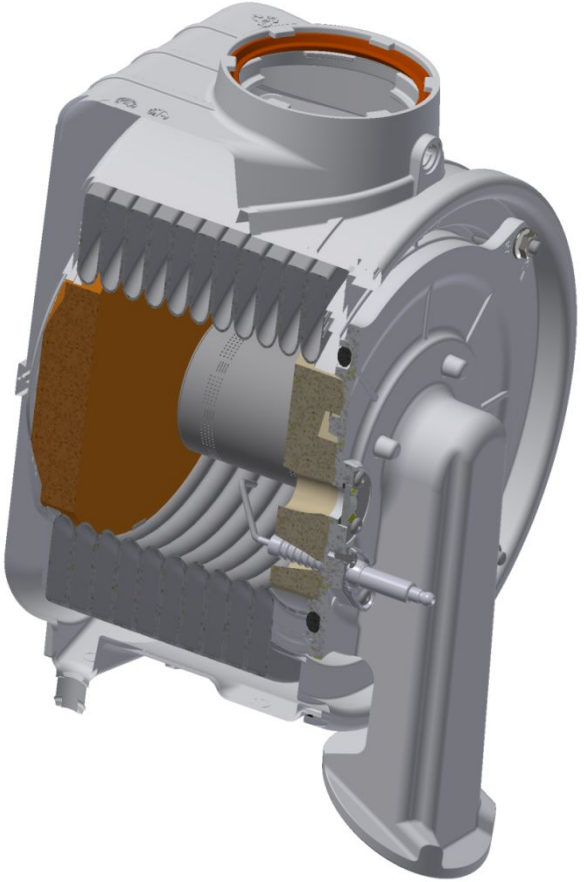
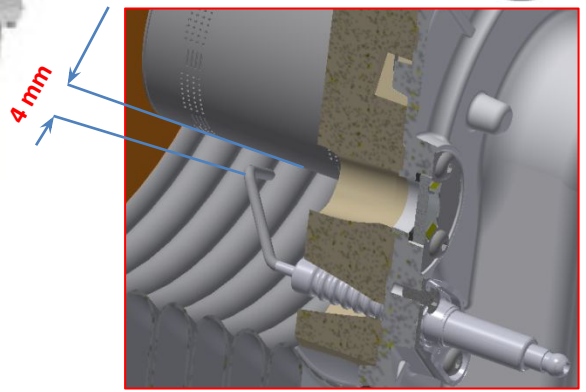
- External parts in alluminium lower boiler weigth
- Single coil in Stainless steal AISI 441
- Kind of Teflon as material in contact with Condense
- Single Electrode for Detection and Ignition

(Distance from Burner = 4 mm)





City Top K - Main Exchanger

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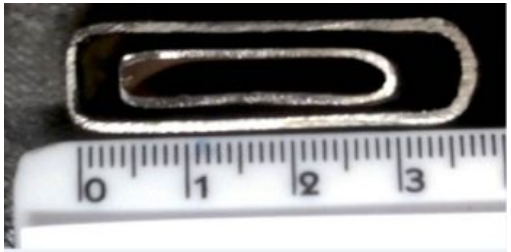
- Coil Section bigger
- Better resistance to scale and dirty deposit from plant
- Ideal for replacements on existing installations and old plant
- No parallel coils means better cleaning
- No welding points
- Lower risk of water leakage



Coil Section City Top K

Coil Section City Plus K

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I.C.S INTELLIGENT COMBUSTION SYSTEM

1

System ICS allows combustion calibration and check, completely electronic.

2

Boiler is calibrated in Production.
On the field, ICS system keeps on cheking and calibrating boiler in order to always get best working conditions.

3

Gas Valve receive electronic input from PCB in order to change its working.

No mechanical calibration is required

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ADVANTAGES SYSTEM I.C.S.

- HIGH MODULATION RANGE

- GAS ADAPTIVE FUNCTION
  Easy gas change: no components replacements, only Parameter change

- ALWAYS BEST POSSIBLE COMBUSTION

  = better efficiency and less consums

  = Less polluting emissions

- LESS INSTALLATION TIMING
  No manual operation for Boiler Calibration

City Top K - Gas Valve

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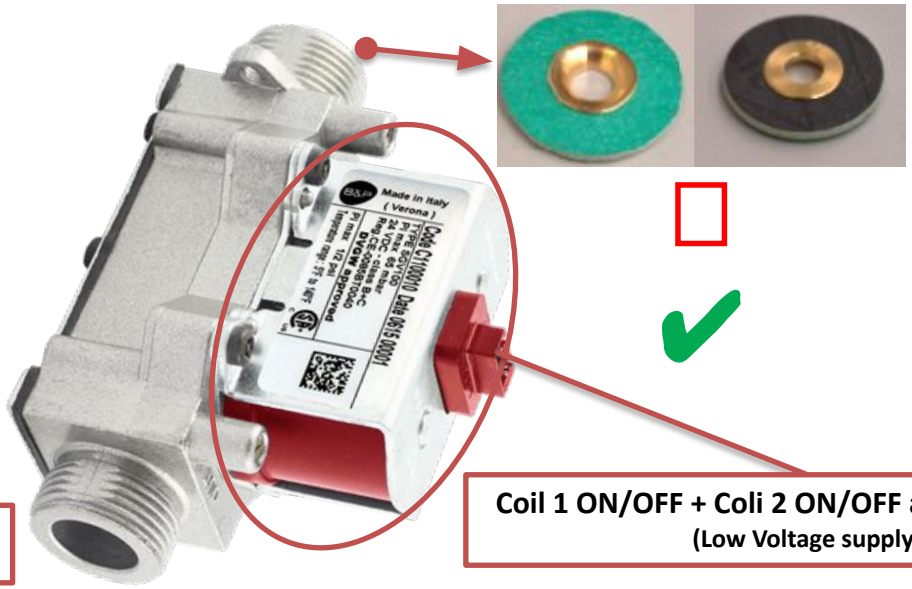
Nozzle*

*green side on the bottom (to gas valve)

ø 6 □ 25 - 35 kW

The same nozzle for both power



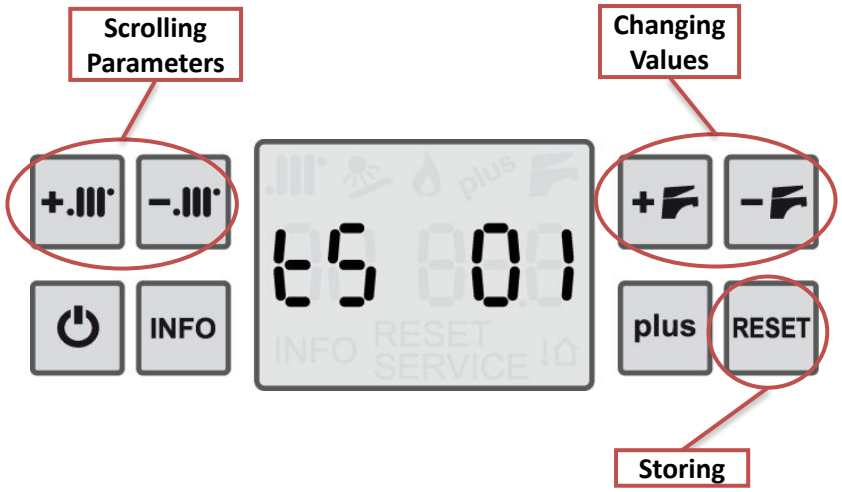
Gas Change: acting only to Par.1
Par 1 = 0 □ G20 (Natural Gas)
Par 1 = 1 □ G31 (Propane)

Coil 1 ON/OFF + Coli 2 ON/OFF and modulating
(Low Voltage supply)

Combustion Calibration table values

Mod.	Heat input	Natural gas G20		Commercial Propane G31		Air/Propane G230	
		CO_2 at **Qn** and ignition (%)	CO_2 at **Qmin** (%)	CO_2 at **Qn** and ignition (%)	CO_2 at **Qmin** (%)	CO_2 at **Qn** and ignition (%)	CO_2 at **Qmin** (%)
25	Nominal value	9.2	8.5	10.3	10.1	10.4	10.3
	Allowed range	8.2...9.7	8.0...9.0	9.5...11.0	9.0...11.0	9.5...11.0	9.0...11.0
35	Nominal value	9.2	8.5	10.2	10.1	10.1	10.0
	Allowed range	8.2...9.7	8.0...9.0	9.5...11.0	9.0...11.0	9.5...11.0	9.0...11.0

City Top K - How to access Parameters



1. Boiler Mode selected (summer or winter)
2. Keep pushing buttons +.III , +F for 10 sec. until display is showing on the **left «tS»** flashing alternatively with a number (n°of Parameter) and on the **right** a number which is the value of Parameter selected.
3. Pressing +.III , −.III for scorlling Parameters.
4. Pressing +F , −F for changing Parameter values
5. Storing values changed pressing button RESET for 3 sec.
6. Parameter Access still be active for 15 min; exit function pressing ⏻

City Top K - Parameters

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Color Key

Standard Parameter for general uses

Suggested to not modify

Param	Description	Range	Factory Settings	Note
01	Type Gas	0 – 1	0	0 – G20 1 – G31
02	CH Temperature Range	0 - 1	0	0 – Standard Range 35 ÷ 80 °C 1 – Reduced Range 20 ÷ 45 °C
03	Slow Ignition Fan Revolution	80 – 160	Kind of boiler	Value in RPM = PAR03 x 25
04	Max CH power inlet	00 – 100	Kind of boiler	Percentage of Max Power inlet available. Changing this Parameter will switch ON boiler
05	Pump mode on CH demand	0 – 2	0	0 –Standard Functioning 1 – Pump always ON 2 – Pump always OFF
06	Dealy of re.ignition in CH demand	0 – 15	3	Value in minutes
07	Service Plant function activation	0 – 3	0	0 – Disabled 1 – Bleeding plant CH side 2 – Bleeding plant DHW side 3 – Bleeding plant both CH and sides
08	on/off Temperature on DHW demand	1 - 2	1	1 – fixed □ OFF= 75°C , ON = 65°C 2 – SETpoint □ OFF = SanSet + 3° ; ON = SanSet + 2°
09	Timing to reach the maximum power in CH demand	2 - 12	3	Time in Seconds (PAR x 10 sec)
10	Timing to reach the maximum power on CH demand after OFF for high temperature	1 – 10	2	Time in Minutes

City Top K - Parameters

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Param	Description	Range	Factory Settings	Note
11	Pre-heating setting	1 - 3	1	1 : T on = 25° C ; T off = 45° C 2 : T on = 30° C ; T off = 45° C 3 : T on = 35° C ; T off = 50° C
12	Chimney Sweeper function	0 - 2	0	0 – Function Disabled (normal working) 1 - Boiler forced at Max Power 2 – Boiler force d to Min Power
13	Min Fan Revolutions	-	-	RPM = Parameter x 100 - DO NOT MODIFY THIS VALUE
14	Max Fan Revolution	-	-	RPM = Parameter x 100 - DO NOT MODIFY THIS VALUE
16	Post Ventilation after demand	1 - 30	3	Seconds. Value x 10.
17	TA2 contact management	0 20 - 80	0	0 : Telephone Controller 20-80 : T Flow for Demand from this contact (TA2)
18	CH demand Min Power	0 - 30	0	Percentage of Max Power
19	Delay of switching ON after CH demand	0 - 5	0	Minutes. Timing before Boiler CH activation after receiving CH demand
20	Timing of pump functionning after CH demand	0 - 240	30	Seconds. Post-Circulation after CH demand
21	Timing of pump functionning after DHW demand	0 – 3 K. 0 – 240 KR.	0 180	Seconds. Post-Circulation after DHW demand
22	Delay of operating time for error E24 (clicson low temp)	0 5 – 120	0	0 : Function disabled 5-120 : delay in seconds
24	Max DHW Power	0 – 100	100	Percentage of Max Power

City Top K - Parameters

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Param	Description	Range	Factory Settings	Note
33	Modulating Pump on CH demand	0 - 3	0	0 – Disabled 1 – with fixed ΔT (Par. 34) 2 - with dynamic ΔT (it sets Par 34 based on CH demand range Temperature on TA1 and TA2) 3 - based on Boiler Power
34	Modulatin Pump ΔT setting	0 - 3	0	0 – ΔT = 20°C 1 – ΔT = 15°C 2 – ΔT = 10°C 3 – ΔT = 5°C
35	Max Pump circulation speed	65 - 99	Kind of boiler	Based on Boiler Power
36	Pressostat /Trasducer for plant pressure	0-4	2	0: pressostat ON/OFF 1: transducer ON=0,7 bar ; OFF= 0,4 bar 1: transducer ON=1,0 bar ; OFF= 0,5 bar 1: transducer ON=1,2 bar ; OFF= 0,8 bar 1: transducer ON=1,4 bar ; OFF= 0,9 bar
37	Water filling type	0 1 - 10	5	0 - manual filling 1-10 automatic filling; minutes before E19
38	Max SET CH temperature on TA1 or TA3	20 - 80	80	Limit when External probe is present: T Set is calculated
39	Offset External probe	0 - 10	5	0 = -5°C 5 = 0°C 10 = +5°C
41	Min SET CH temperature on TA1 or TA3	20÷50 20÷35	35 20	Degrees. STANDARD Range–> DEFAULT = 35°C REDUCED Range–> DEFAULT = 20°C
46	AUX contact management	0 - 2	0	0: Low Temperature floor plant safety Thermostat 2: TA3 contact (same CH T flow set as TA1)
49	Flues Calibration	0 – 5	0	0 : MANUAL 5 : AUTOMATIC

City Top K - Parameters

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Param	Description	Range	Factory Settings	Note
50	Service Function by Hours	10 - 99	50 (about 2 years)	Hours. Value x 100 Limit after which E09 appears
51	Service Function by Days	30 - 200	140 (about 4 years)	Days. Value x 10 Limit after which E09 appears
52	Service Function management (E09)	0 - 3	0	0 – Disabled (reset counters) 1 – Based on HOURS (par. 50) 2 – Base on DAYS (par.51) 3 – based on both: first HOURS, then DAYS
53	Total Hours from Installation	00 - 999	Only Reading	Hours x10 Total Working Hours from first Installation of PCB (max 9999h=about 5 years)
54	Total Hours from Service Function	00 - 999	Only Reading	Hours x10 Total Working Hours from last Service Function (E09) (max 9999h=about 5 years)
55	Total Days from Installation	00 – 999	0	Days x10 Total Working Days from first Installation of PCB (max 9999h=about 27 years)
56	Total Days from Service Function	00 – 999	0	Days x10 Total Working Days from last Service Function (E09) (max 9999h=about 27 years)
60	COMBUSTION Configuration code	0 – 7	Kind of Boiler	7 : 25 kW 6 : 35 kW
61	HYDRAULIC Configuration Code	0 – 8	Kind of Boiler	1: City Top
67	Firware revision		Only Reading	Firmware of PCB software

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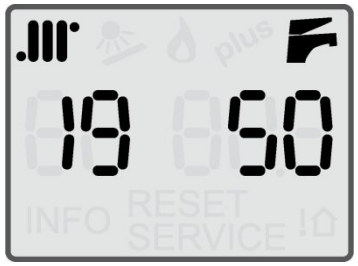
AUTOMATIC CALIBRATION Based On Tolerances Of Components.

NO opportunity to modify these calibration values

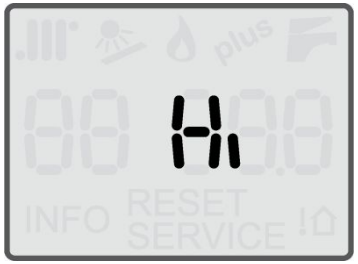
The main PCB checks physical limits of main components, in order to supply them with right values and getting a good combustion quality.

- Set **par. 49** at value **5**

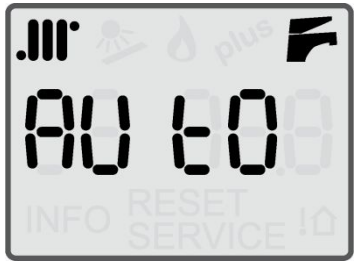
- Exit parameter mode pressing ⏻ and put boiler **ON** (Winter or Summer)



- Keep pressing buttons ⏻ and +.



- After 6 sec, release previous buttons; display shows **HI**, press RESET release it when display shows **AUTO**



City Top K - Gas Valve AUTOMATIC Calibration

- Boiler starts AUTOMATIC Calibration
  1. it starts calibrating appliance on Max power "**HI**"
  2. then calibrating Ignition power "**ME**"
  3. finishing with Min power "**LO**"

- On the right of display it is shown **" - - - "** for each Power **(HI, ME, LO)**

  This means "CALIBRATION is RUNNING in this boiler power"

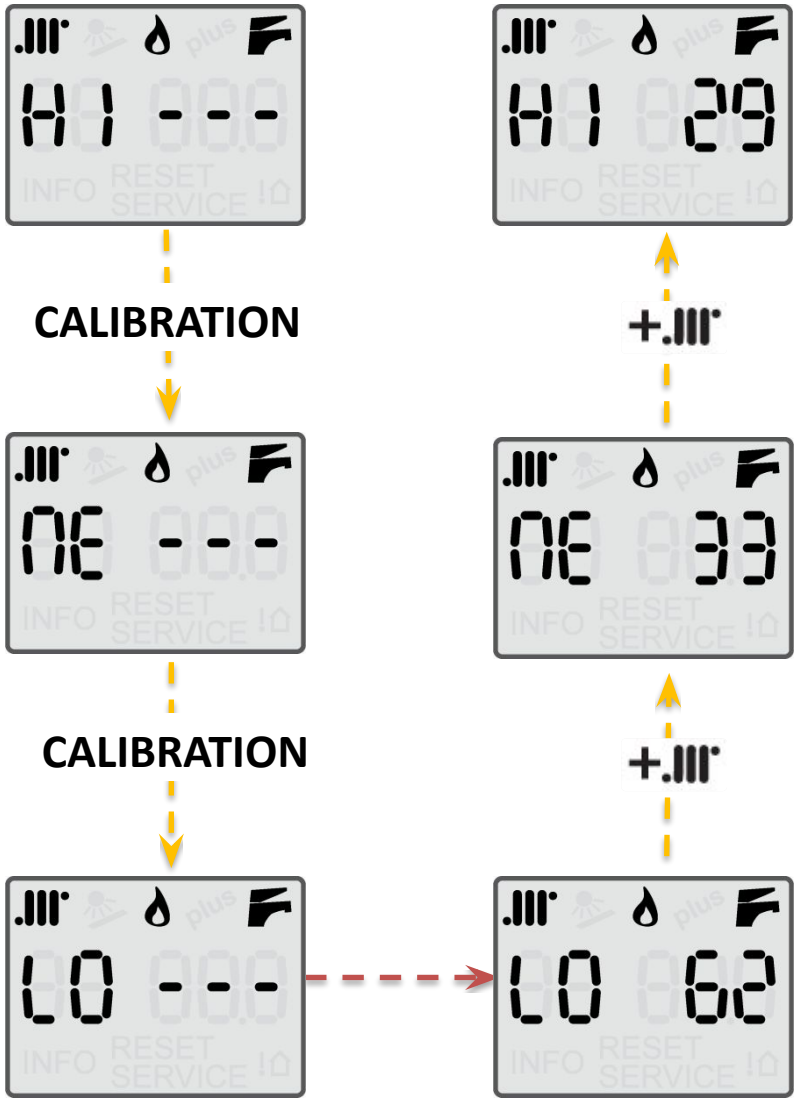
  (Complete Calibration could take approximately 10 min)

- Once finished Calibration on "**LO**" power, on the right side of display, a number is shown. This is "Calibration Value" for **LO** power and it is stored on PCB.

- Pressing + or − is possible to scroll other powers (**ME** or **HI**) just for checking different Calibration Values on different Boiler power, but...

- **DO NOT MODIFY VALUES ON THE RIGHT:**
  Boiler Could Not Working Property

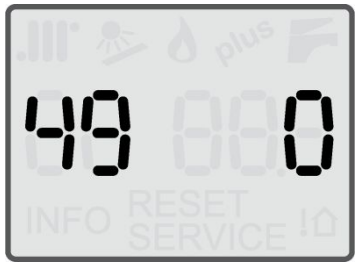
- Exit Calibration pressing ⏻ for 2 sec.



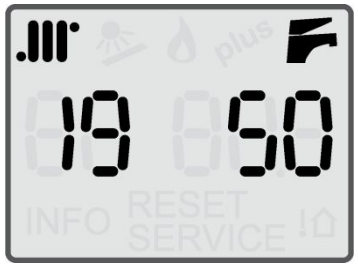
MANUAL CALIBRATION for fine adjustment of CO2 values

Opportunity to modify the values of CO2 found during AUTOMATIC Calibration

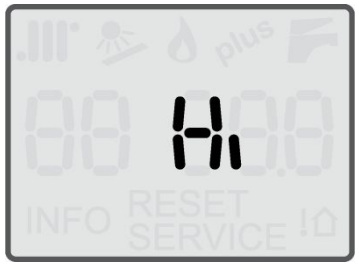
- Set **par. 49** at value **0**



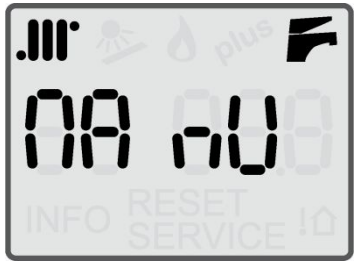
- Exit parameter mode pressing ⏻ and put boiler **ON** (Winter or Summer)



- Keep pressing 6 sec. buttons ⏻ and +.III



- After 6 sec, release previous buttons; display shows **HI**, press RESET release it when display shows **MANU**



City Top K - Gas Valve MANUAL Calibration

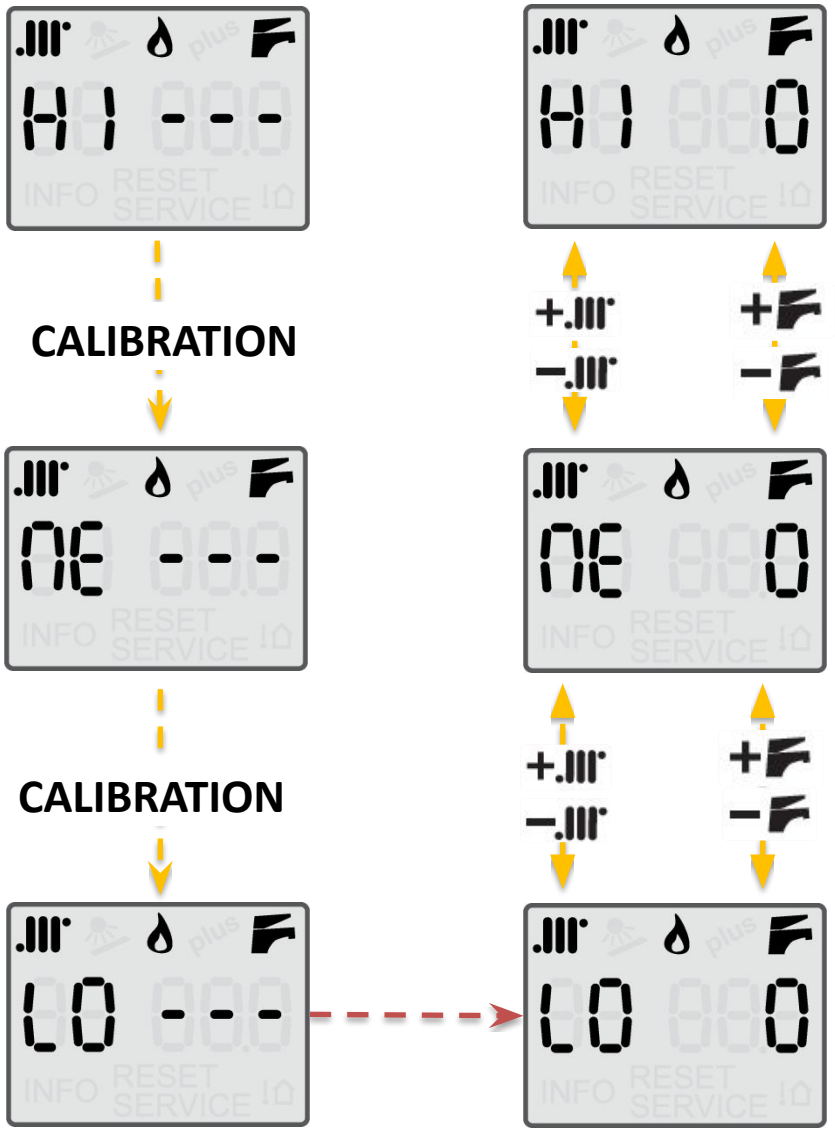
- Boiler starts MANUAL Calibration
  1. it starts calibrating appliance on Max power "**HI**"
  2. then calibrating Ignition power "**ME**"
  3. finishing with Min power "**LO**"

- On the right of display it is shown " **- - -** " for each Power (**HI, ME, LO**)

  This means "CALIBRATION is RUNNING in this boiler power"

  (Complete Calibration could take approximately 5 min)

- Once finished Calibration on "**LO**" power, on the right side of display, a number is shown **0** (zero)
- This number can be changed pressing or , between **±3** (step 1);
  Every step means about **± 0,1-0,2% di CO_2**
- Pressing or is possible to scroll other powers (**ME** or **HI**) and acting on that value for finding the best combustion value you can
- Exit Calibration pressing for 2 sec.



City Top K - Advised procedure on the field

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Operation / Components Replaced	Advised Procedure on Boiler		
	# 1	# 2	# 3
Gas Conversion	**AUTOMATIC CALIBRATION**	Check Combustion (CO2 values)	If necessary, **MANUAL CALIBRATION**
Main PCB	**AUTOMATIC CALIBRATION**	Check Combustion (CO2 values)	If necessary, **MANUAL CALIBRATION**
Gas Valve	**AUTOMATIC CALIBRATION**	Check Combustion (CO2 values)	If necessary, **MANUAL CALIBRATION**
Fan	**AUTOMATIC CALIBRATION**	Check Combustion (CO2 values)	If necessary, **MANUAL CALIBRATION**
Combustion Chamber	**AUTOMATIC CALIBRATION**	Check Combustion (CO2 values)	If necessary, **MANUAL CALIBRATION**
First Commissioning	Check Combustion (CO2 values)	If necessary, **MANUAL CALIBRATION**	--
Burner	Check Combustion (CO2 values)	If necessary, **MANUAL CALIBRATION**	**AUTOMATIC CALIBRATION**
Detection/Ignition Electrode	Check Combustion (CO2 values)	If necessary, **MANUAL CALIBRATION**	**AUTOMATIC CALIBRATION**
Gas nozzle	Check Combustion (CO2 values)	If necessary, **MANUAL CALIBRATION**	**AUTOMATIC CALIBRATION**
Air-Gas Mixer	Check Combustion (CO2 values)	If necessary, **MANUAL CALIBRATION**	**AUTOMATIC CALIBRATION**

City Top K - PCB Configuration Code

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Configuration Code is placed close to the control panel and it is visible leaving metal cover

City Class 25 K

G20
10710
G30/G31
11710

City Class 35 K

G20
10610
G30/G31
11610

G20
10710

Digits	1st	2nd	3rd	4th	5th
Value	Aesthetic	Gas type	Power	Hydraulic	Not used

City Top K - PCB Configuration

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Once replaced PCB or after «Total RESET» procedure, Boiler has to be configured for model where it is mounted

- Display shows **“Co nF.E”**

- Keep pressing buttons ⏻ and +.III: this way PCB recognize **Boiler Aesthetic** (1st digit)

- Set Parameter* 60 (**Boiler Power**), which is equal to 3rd digit of Configuration Code, on left corner of Control Panel (i.e. 1 on picture) and store value pressing **RESET**.

- Set Parameter* 61 (**Boiler Hydraulic**), which is equal to 4th digit of Configuration Code, on left corner of Control Panel (i.e. 2 on picture) and store value pressing **RESET**.

- Ending, PCB shows Configuration done.
  On display and on the sticker there must be the same **Configuration Code**

City Class 25 K

G20	10710
G30/G31	11710

City Class 35 K

G20	10610
G30/G31	11610

*** Acting on +F or −F for changing value**

City Top K - PCB Total Reset

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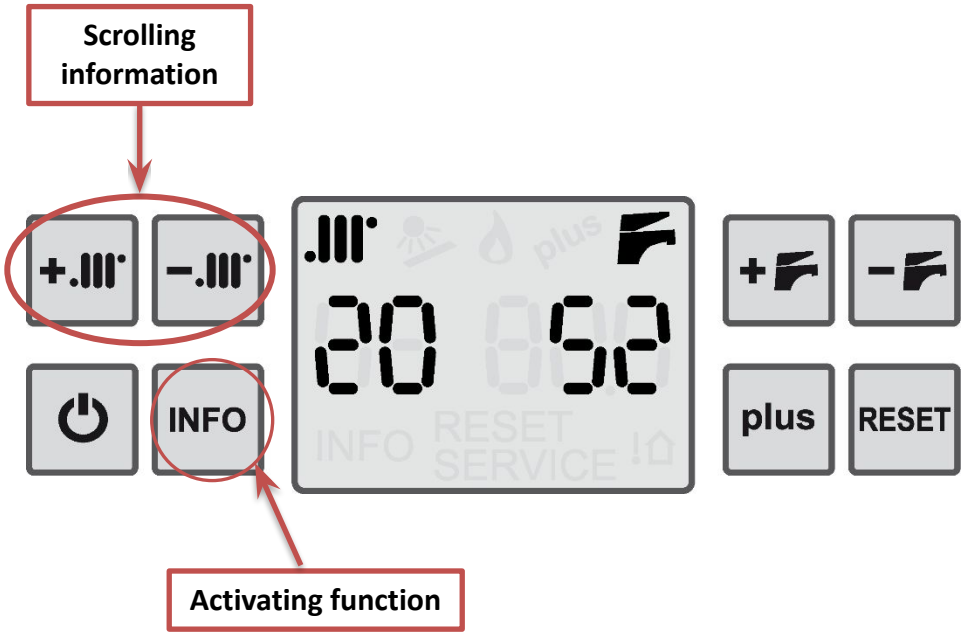
TOTAL RESET = PCB is forced to factory settings

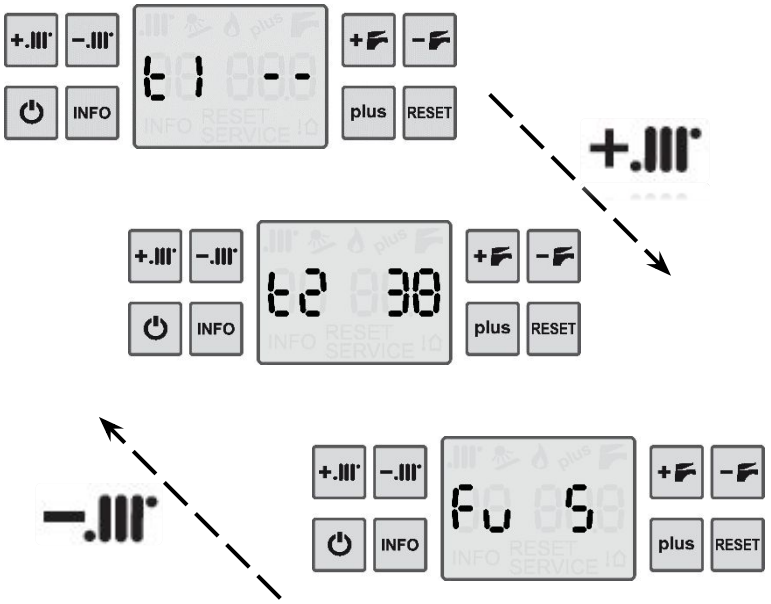
It is advised for solving some puzzling problem on the field

- Boiler Mode **OFF**
- Keep pressing for 15 sec buttons  and INFO and plus
- When display shows **"-"** sliding, release button and press RESET to confirm procedure.
- Display switches OFF and switches ON again showing **"Co nF.E"**
  It means: "I need **AESTHETIC CONFIGURATION !"**

After this procedure, Boiler needs PCB Configuration

City Top K - Info Menu





With a mode selected (summer or Winter) press INFO

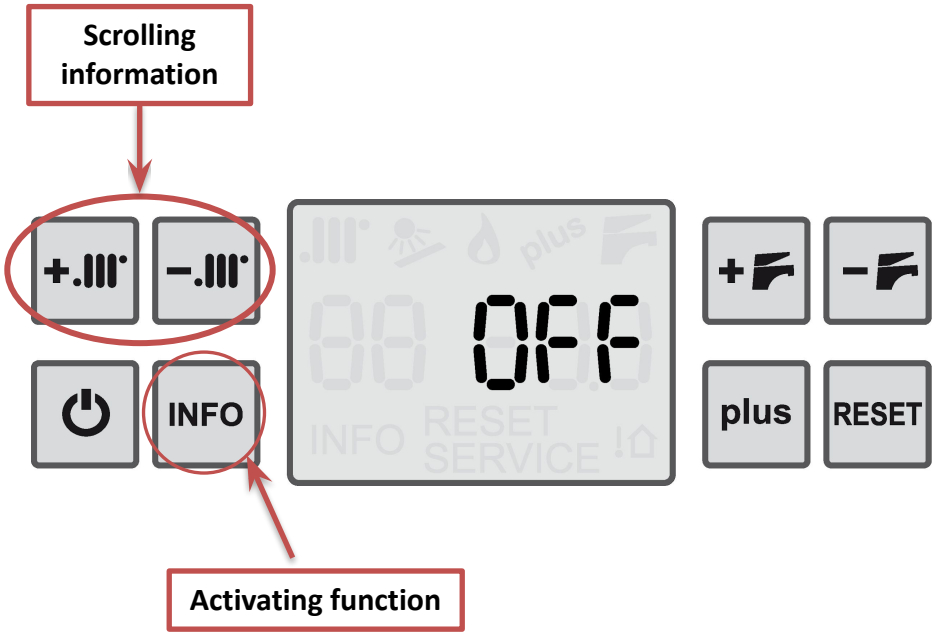
Info shown:

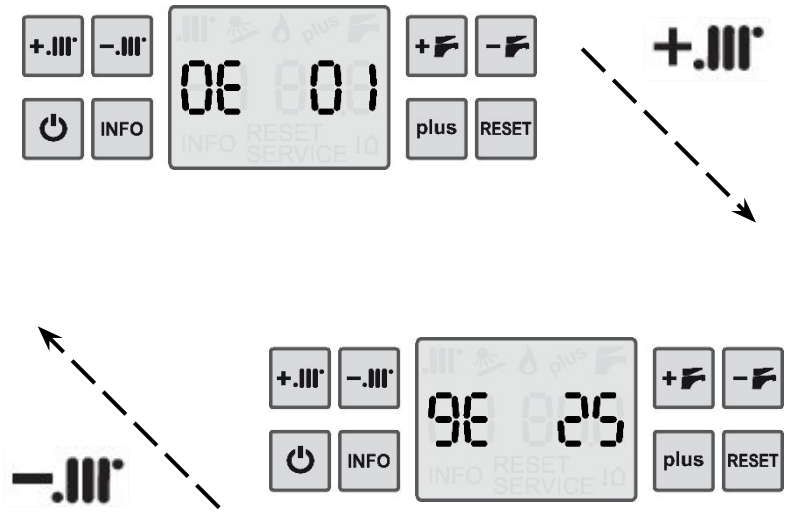
t1 : External Temperature (if present)
t2 : Return Temperature
~~t3 : not used~~
~~t4 : not used~~
P : Plant Pressure
Fu : Boiler Status code

Exit function keep pressing

0 : No Heat demand present
1 : TA1 CH demand present
2 : TA2 CH demand present
3 : TA3 CH demand present
4 : CH antifreeze function (T CH <5°C)
5 : DHW demand present
6 : Pre-heating mode
7 : DHW antifreeze function (if Temp DHW <5°C)

City Top K - Errors History





With mode **OFF** press INFO

It shows **last 10 errors code**.

0E means **last error** appeared chronologically, **9E** is the **10th error** appeared chronologically).
"Number" on the right is **Code Error**.

Exit function keep pressing

City Top K - Pre-Heating DHW

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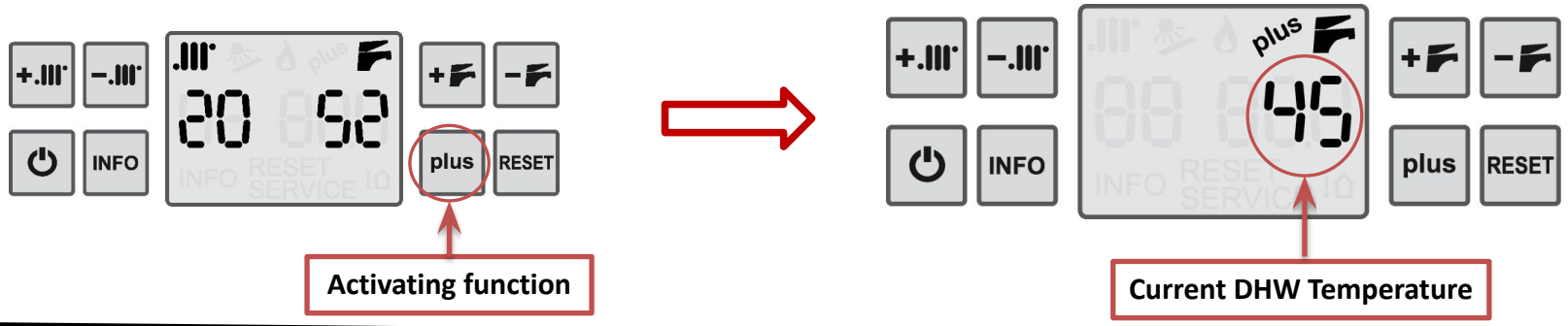
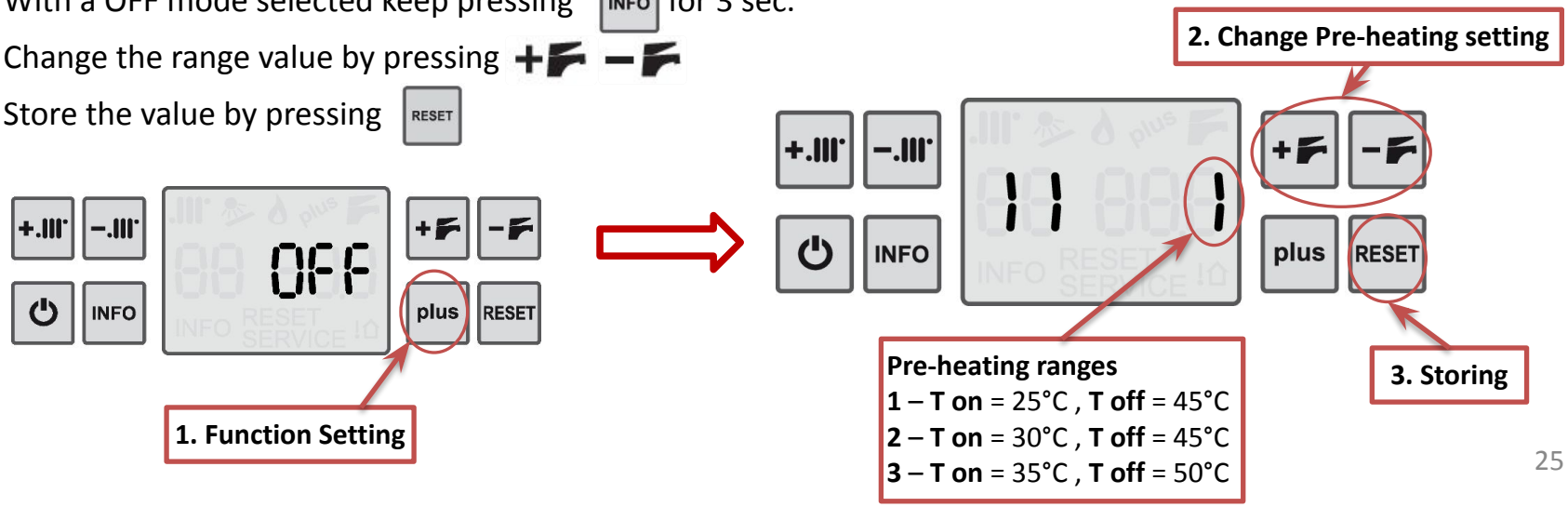
Boiler keeps the primary temperature (on the main exchanger) in a pre-heating range chosen by Par 11.
In this way boiler provides DHW quicker than standards instantaneous boiler

1. With a mode selected (summer or Winter) press briefly INFO
2. Symbols plus and flame will be flashing; temperature showed is the current DHW detected.



1. With a OFF mode selected keep pressing INFO for 3 sec.
2. Change the range value by pressing + flame - flame
3. Store the value by pressing RESET



City Top K - Errors

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RESET = Pressing Reset, Error disappears and Boiler restarts
SERVICE = Boiler rerstarts only if root cause is OFF

Code	Error Kind	Description	Suggestion
E01	RESET	No flame ignition (after 5 attempts)	• Gas pressure inlet • Electrode position • PCB
E02	RESET	High Water Temperature on Primary (Safety Thermostat)	• Safety Thermostat • Water plant circulation on the plant
E03	RESET	High Flues Temperature (Thermofuse)	• Flues configuration • Cleaness main exchanger
E05	SERVICE	CH NTC probe out of order	• CH Probe • Water plant circulation on the plant
E06	SERVICE	DHW NTC probe out of order	• DHW Probe
E07	SERVICE	Max Reset Alarms number Reached (5 times)	• Check last errors for service
E08	SERVICE	Flame lost 6 time after being detected	• Flues mixed with air back to boiler • Electrode positioning
E09	SERVICE	Service Function needed	• Reset the counter of Maintenance function
E13	SERVICE	Gas Valve not supplied electrically and after 6 PCB Reset	• Gas valve connection • Gas valve functioning
E15	SERVICE	Return NTC probe out of order	• Return probe

City Top K - Alarms

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Code	Error Kind	Description	Suggestion
E16	RESET	Revolutions fan not correct	• Fan • PCB
E17	SERVICE	Buttons Anomaly (if a button remains pressed)	• Check Keyboard buttons
E18	-----	Automatic Water filling is running	• Check if filling is correct, bleeding the plant
E19	SERVICE	Automatic water filling failed (more than 'minutes' in PAR 37)	• Check if filling is correct, bleeding the plant
E21	SERVICE	3 automatic water filling attempts in 24 h	• Check if there is water inlet or a plant leakage
E23	SERVICE	Electric supply Frequency not correct (not 50 Hz ± 1)	• Inlet electric supply
E24	RESET	Floor plant Thermostat open	• Check on connector X10 on PCB
E25	SERVICE	Boiler AUTOMATIC Calibration needed after PCB replacement	• Make Automatic Calibration
E29	SERVICE	Flues Pipes close completely or partially	• Check flues configuration • Check presence silicon gasket
E31	SERVICE	Wrong communication between Boiler and Remote Control	• Procedure to connect Remote control • Connection wire shielded

City Top K - Alarms

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Code	Error Kind	Description	Suggestion
E35	RESET	Spurious Flame (Detection while no flame)	• Electrode positioning
E38	SERVICE	External probe out of order	• Check external probe
E39	SERVICE	Antifreeze function	• Check boiler and ice
E43	SERVICE	High Temperature felt by Return Probe (>85°C for 10 sec)	• Plant circulation • Pump
E44	SERVICE	Plant Circulation uncorrect (T Flow is increasing > +5°C/sec)	• Plant circulation • Pump
E45	SERVICE	Flow and Return NTC probe are inverted (if T Return > T Flow +10°C for10 sec)	• Probes positioning • Plant circulation • Pump
E50	SERVICE	Electric supply Voltage not correct (under 160 V)	• Inlet electric supply
E91	SERVICE	Transducer out of order	• Replacer transducer
E92	SERVICE	High pressure in the plant (> 2,6 bar)	• Inlet electric supply not under specifications

City Top K - Note

GRAZIE PER LA VOSTRA ATTENZIONE!

THANKS FOR YOUR ATTENTION!

MERCI DE VOTRE ATTENTION!

GRACIAS POR SU ATENCIÓN!

СПАСИБО ЗА ВНИМАНИЕ!

感谢您的关注

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