

Handleiding

Paterno N8 Blackline Ng21 Air

Deze handleiding wordt u aangeboden door www.climacraft.nl —
service en onderhoud voor pelletkachels,
van Almere tot Harderwijk, Amersfoort, Utrecht, Mijdrecht,
Zaandam en Purmerend.

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NG21_Air		Air
CONTROL BOARD FOR PELLET STOVE		

FW Revision	Revision Date	Description	
3.9	13/06/2022	• Availability of additional local keyboards	2.3
		• Safety probe added	6.4.18
		• Door 2 management added	6.4.17
	11/10/2021	• Loading Motor operation has been modified (parameter P43)	
	22/07/2021	• Primary Air Regulator switched on also in Ignition and Stabilization	
	22/06/2021	• Celsius or Fahrenheit Temperature Scale selection • 120V mains voltage management • The management of the Primary air Regulator has been modified • Extinguishing speed has been introduced for heating and duct fans	
	08/02/2021	• Heating fan noise reduction function (parameter A95) • V2 output made configurable • Heating and Combustion Fan management in PWM • Heating Fan calibration function	
	27/01/2021	• The Auger maximum range has been extended to 99 seconds • The operation of the Pellet Sensor has been modified	
	19/10/2020	• Parameters P18 and P19 have been added for the Auger management in PWM and DAC mode • The management of the Primary air Regulator (A25) has been modified	
	17/07/2020	• Parameter P08 (Recipe) has been added to System Menu	
	12/05/2020	• Soft Mode function has been modified	
	27/03/2020	• Exhaust Flue Gas Probe Calibration has been added • Pressure switch function has been added • Combustion Fan is activated when the system is in Blocked phase • The label has been modified in Modulation for exhaust flue gas temperature • Cleaning motor 5 has been added	
	25/02/2020	• TriKey /2WAYS+ description has been added	
	16/12/2019	• Secondary Information have been modified	
	07/10/2019	• Soft Mode function has been added • Auger 2 pause-work has been added • Periodic Cleaning for recipe has been added • Auger feeding at the end of the extinguishing has been added	
	22/08/2019	• Keyboards K500 description has been added	
	05/08/2019	• Auger in PWM/DAC, keyboard K100 and automatic Power have been added	
	23/07/2019	• Minimum Flow Function Added	
	03/06/2019	• Release Date	

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NG21 is a control system for Pellet Stoves, available in Hydro/Air versions

It stands out for:

- Easy installation and use
- Simplified and intuitive user functions
- flexible and reliable functioning software with consolidated technology TiEmme elettronica
- Advanced functions for the manufacturer to adapt to the different types of stoves and installations

Composition of the Product:

- Electronic board equipped for a safe and solid 4-points fastening
- Extractable connectors kit
- Exhaust flue gas temperature probe
- Room probe
- Board-keyboard connecting wire
- Control keyboard with antistatic cover

Safety Standards

Before installation, follow

- Safety and environmental standards.
- All local regulations-including those referring to national and European Standards-must be observed.
- All the safety standards in effect.
- This manual is solely meant for the technical personnel



Conformity Declaration

Applied rules: EN 60730-1 50081-1 EN 60730-1 A1 50081-2

This manual has been produced with care and attention, however the information could be incomplete, not comprehensive or it could contain mistakes. For this reason the design, specifications and contents could be modified without notice depending on the model produced

TiEmme elettronica is not responsible for the incomplete or not correct information

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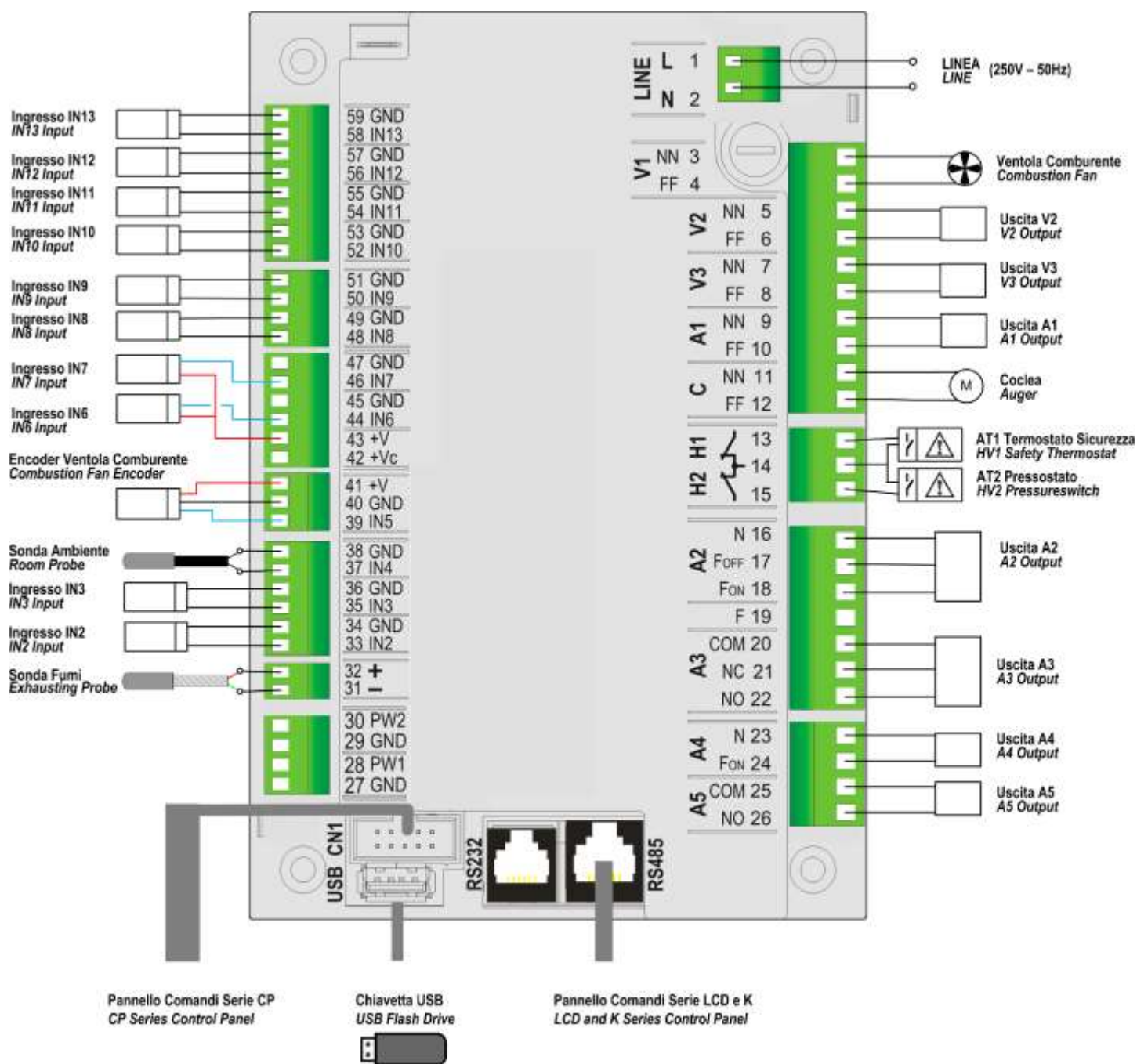
1 FIRMWARE CODE AND LANGUAGES

Languages			
The Kkey boards have the following languages:			
Italian	Polish	Dutch	Latvian
Portuguese	Serbian	Danish	Estonian
German	Romanian	Swedish	Hungarian
French	Czech	Turkish	Lithuanian
Spanish	Russian	Greek	Slovakian
English	Bulgarian	Croatian	Slovenian
The 2Ways2 remote control have the following languages:			
<i>Set 1</i>		<i>Set 2</i>	
English		English	
Portuguese		Turkish	
German		Italian	
French		Romanian	
Spanish		Czech	
Italian		Serbian	
Dutch		Slovakian	
Danish		Polish	
Swedish		Croatian	
Greek		Slovenian	

Firmware Codes		
Control Board		
NG21	FSYSR03000001	
K Keyboards		
K100	FSYSF04000037	
K400	FSYSF13000022 FSYSF33000001	
K500M	FSYSF25000001	
K500T	FSYSF27000001 until revision 1.9 (06/12/2021) FSYSF27000013 from revision 2.0 (07/12/2021)	
K505M	FSYSF49000002	
K505T	FSYSF51000002	
WiKey keyboard		
WiKey	FSYSF29000001	
Radio controls		
2Ways2	FSYSC02000036	FSYSC02000041
2Ways2+/Monolite	FSYSC03000001	
TriK	FSYSF30000001	
Communication Modules		
PinKey	FSYSS01000001	

2 INSTALLATION

2.1 ELECTRICAL WIRINGS



PIN		Function	Technical Specifications
1	L	Voltage Power Supply	230 Vac $\pm$ 10% 50/60 Hz
2	N		
3	NN	Combustion Fan	Triac Regulation 0,9 A max
4	FF		
5	NN	V2 configurable output (configuration parameter: P44)	Triac Regulation 0,9 A max
6	FF	Configurable V3 output (configuration parameter: P48)	Triac Regulation 0, 9 A max
7	NN		
8	FF	A1 Configurable Output (configuration parameter: P52)	Triac Regulation 1,6 A max
9	NN		
10	FF	Pellet Auger Motor	Triac Regulation 1,6 A max
11	NN		
12	FF	AT1 Input Safety Thermostat	ON/OFF contact usually OFF Short-circuit if not used
13			
14		AT2 Input Safety Pressure switch	ON/OFF contact usually OFF Short-circuit if not used
14			
15		Configurable A2 Output (configuration parameter: P47)	Relay 3 A max
16	N		
17	F _{OFF}	Phase	
18	F _{ON}		
19	F	A3 Configurable Output (configuration parameter: P36)	Relay, free contacts output 3 A max
20	COM		
21	NC	A4 Configurable Output (configuration parameter: P51)	Relay 3 A max
22	NO		
23	N	A5 Configurable output (configuration parameter: P46)	Relay, free contacts output 3 A max
24	F _{ON}		
25	COM	PWM1/DAC1 configurable output (configuration parameters: P140 and P142)	Signal 0-10 V, 10 mA, frequency 1 KHz
26	NO		
27	GND	PWM2/DAC2 configurable output (configuration parameters: P141 and P143)	Signal 0-10 V, 10 mA, frequency 1 KHz
28	PW1		
29	GND	Exhaust flue gas Probe	Thermocouple K: 500 or 1200 °C Max
30	PW2		
31	Green —	IN2 Configurable Input (configuration parameter: P77)	Configurable analogue input (NTC 10K probe) / digital
32	Red+		
33	SEG	IN3 Configurable Input (configuration parameter: P75)	Configurable analogue input (NTC 10K probe) / digital
34	GND		
35	SEG	Local Room Probe	NTC 10K @25 °C: 120 °C Max
36	GND		
37	SEG	Combustion Fan Encoder Sensor	TTL 0 / 5 V Signal
38	GND		
39	SEG	+10 ÷ +14 Volts	-
4	GND		
41	+V	+5 Volts	-
42	+Vc		
43	+V	IN6 Configurable Input (configuration parameter: P78)	Analogue Input / digital
44	SEG		
45	GND	IN7 Configurable Input (configuration parameter: P82)	Analogue Input / digital
46	SEG		
47	GND	IN8 Configurable Input (configuration parameter: P71)	Analogue Input (probe NTC 10K) / digital
48	SEG		
49	GND	IN9 Configurable Input (configuration parameter: P70)	Analogue Input (probe NTC 10K) / digital
50	SEG		
51	GND	IN10 Configurable Input (configuration parameter: P73)	Analogue Input (probe NTC 10K) / digital
52	SEG		
53	GND	IN11 Configurable Input (configuration parameter: P74)	Analogue Input (probe NTC 10K) / digital
54	SEG		
55	GND	IN12 Configurable Input (configuration parameter: P83)	Analogue Input (probe NTC 10K) / digital
56	SEG		
57	GND	IN13 Configurable Input (configuration parameter: P84)	Analogue Input / digital
58	SEG		
59	GND	USB Connector	USB Pen connection

RS232	RS232 Connector	Connection to Programmer, KeyPro, Modem, PC
RS485	RS485 Connector	Connection to LCD and K, 4Heat keyboard
CN1	Flat Cable	CP keyboard connection

2.2 PROBES TYPE

<i>Probe</i>	<i>Use</i>
Thermocouple K 500 ÷ 1200 °C Max	Exhaust flue gas Probe
NTC10K @25 °C -10 ÷ 120 °C Max	Room Probe, Remote Room Probe , Remote Room Probe 2
PT1000 -40 ÷ 600 °C Max	Safety Probe

2.3 PANELS CONNECTION

The System is able to manage up to two remote control boards, one for each heating zone and the identification is done by the communication address.

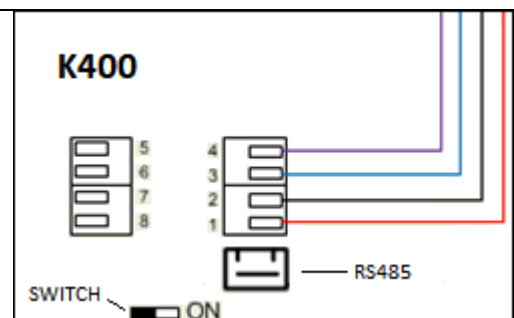
<i>Control Panel</i>	<i>Communication Address</i>
Local panel	12, 13, 14, 15, 16 (the default address is 16)

Since all panels are programmed with the address 16, in case of a remote panel or additional local panel in sue, it is necessary to change the address to avoid conflicts. To perform this, go on Display -> Panel control address (for further details see par 4.1.2).

2.4 RS485 LINE TERMINATION

Use a line termination resistor, if more than one RS485 device is connected to the board.

In order to do this, move to ON only the device switch with the longest connection cable.

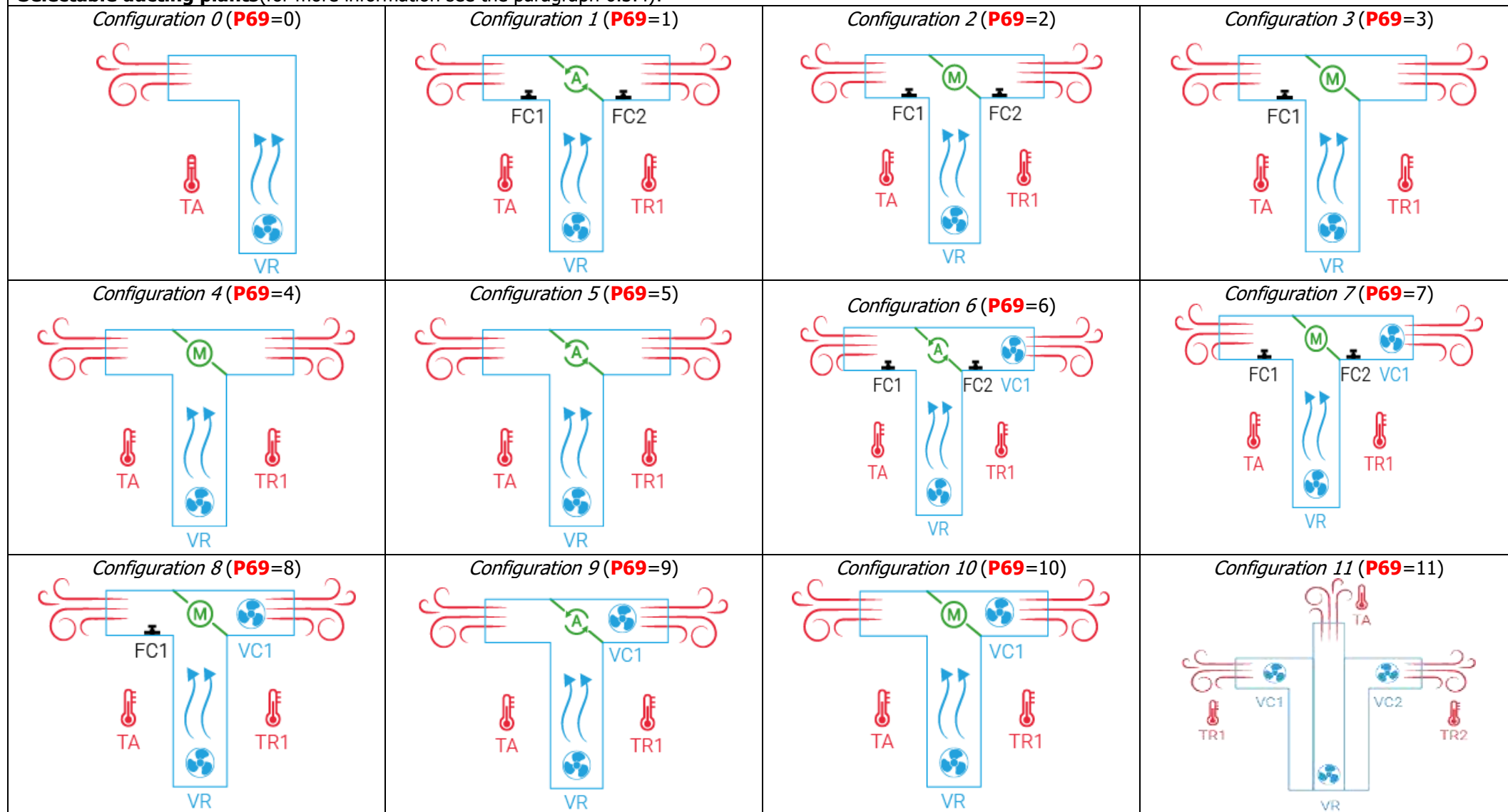


2.5 FIRST CONFIGURATION

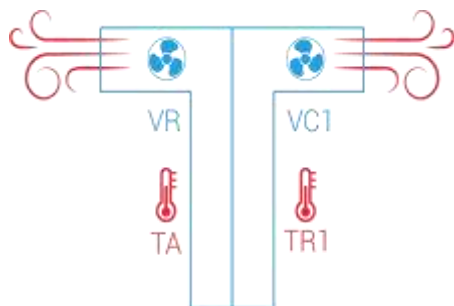
First, you should select the ducting plant through the parameter **P69**, in the menu Settings in the System Menu and then, go on setting the parameters of the configurable outputs and inputs. At the end, set **P25** to select the type of combustion fan (with or without encoder) and **P81** to select the Auger type (with or without encoder).

Set also parameters **P111** and **P112** to use the Refill feature.

Selectable ducting plants(for more information see the paragraph 6.3.4):



Configuration 12 (P69=12)



Configurable Inputs (for more details see paragraph 6.4):

Connectable Devices	Parameter Value	Input									
		uIN2 (P77)	IN3 (P75)	IN6 (P78)	IN7 (P82)	IN8 (P71)	IN9 (P70)	IN10 (P73)	IN11 (P74)	IN12 (P83)	IN13 (P84)
Not-used input	0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Door Sensor	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pellet Thermostat	3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pellet Level Sensor	6	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cleaning Motor 3 Limit switch	10	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cleaning Motor 2 limit switch	11	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cleaning Motor limit switch	12	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Selector Limit Switch	13	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Primary Air Regulator	16	—	—	✓	✓	—	—	—	—	—	—
External Chrono	17	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Remote Room Thermostat	19	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Remote Room Probe	20	✓	✓	—	—	✓	✓	✓	✓	✓	—
Selector Limit Switch 2 Sensor	24	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Remote Room Thermostat 2	25	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Remote Room Probe 2	26	✓	✓	—	—	✓	✓	✓	✓	✓	—
Auger Encoder Input	28	✓	—	—	—	—	—	—	—	—	—
Cleaning Motor 5 Limit switch	30	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Door 2 Sensor	38	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Safety Probe	42	✓	✓	—	—	✓	✓	✓	✓	✓	—

PWM Configurable outputs (for further information see 6.5):

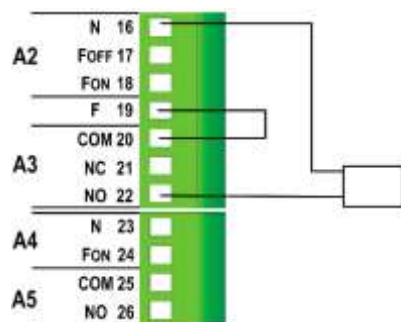
Connectable Devices	Parameter Value	Output	
		PW1 (P142)	PW2 (P143)
Disabled output	0	✓	✓
Auger	2	✓	✓
Combustion Fan	3	✓	✓
Heating Fan	4	✓	✓

Configurable Outputs (for more details see paragraph 6.5):

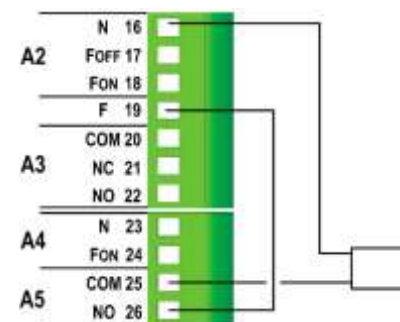
Connectable Devices	Parameter Value	Output						
		V2 (P44)	V3 (P48)	A1 (P52)	A2 (P47)	A3 * (P36)	A4 (P51)	A5 * (P46)
Disabled output	0	✓	✓	✓	✓	✓	✓	✓
Pellet Safety Valve	1	✓	✓	✓	✓	✓	✓	✓
Loading Motor	2	✓	✓	✓	✓	✓	✓	✓
Output under thermostat	3	✓	✓	✓	✓	✓	✓	✓
Cleaning Motor 3	4	✓	✓	✓	✓	✓	✓	✓
Combustion Fan 2	5	—	—	✓	—	—	—	—
Heating Fan	6	✓	—	—	—	—	—	—
Selector	10	✓	✓	✓	✓	✓	✓	✓
Cleaning Motor 2	13	✓	✓	✓	✓	✓	✓	✓
Auger 2 (work-pause)	16	✓	✓	✓	—	—	—	—
Auger 2 (always on)	17	✓	✓	✓	✓	✓	✓	✓
Selector Direction	18	—	—	—	—	✓	—	—
Igniter	19	—	—	✓	✓	✓	✓	✓
Cleaning Motor	25	✓	✓	✓	✓	✓	✓	✓
Auger Block	26	—	—	—	—	✓	—	✓
Duct Fan	29	—	✓	—	—	—	—	—
Duct Fan 2	30	—	—	✓	—	—	—	—
Cleaning Motor (direction)	33	—	—	—	—	✓	—	—
Cleaning Motor 5	39	✓	✓	✓	✓	✓	✓	✓
Auger Voltage Supply PWM / DAC	44	—	—	—	—	✓	—	✓

Output A3 has free contacts; if you need to use it to check a charge on voltage 230 Vac follow the instructions below: if the output is on, there is 230 Vac voltage between terminals 20-22, if the output is off there is 230 Vac voltage between terminals 20-21.

Output A5 has free contacts too; if you need to use it to check a charge on voltage 230 Vac, follow the instructions.



A3 Output

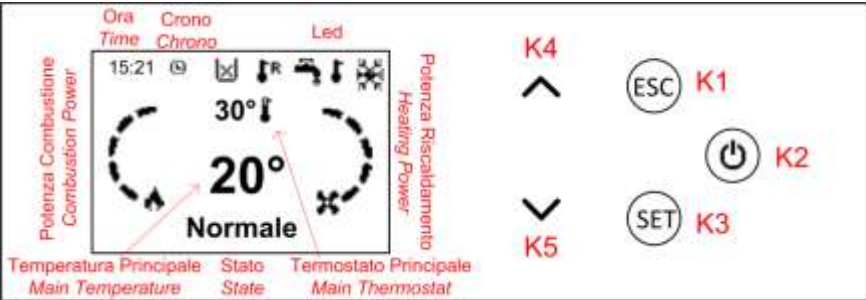


A5 Output

3 CONTROL PANEL

3.1 K PANELS

3.1.1 K100

Home Page			
Time, Chrono activation, combustion power, heating power, operational state error code, main temperature, main thermostat			
Selection Keys			
K1	Exit Menu/Submenu		
K2	Ignition and extinguishing (push for 3 seconds), Reset errors (push for 3 seconds), Enable/disable Chrono		
K3	Access to User Menu 1/submenu, Access to User Menu 2 (push for 3 seconds), Save data		
K4	Access to Visualizations Menu, Increase		
K5	Access to Visualizations Menu, Decrease		
Led			
	Heating target reached		Local air flow
	Direction of the remote air flow		Local-remote air flow direction
24H	24 heating function enabled		Chrono Functioning State

3.1.2 K400

Home Page 1					
Date and time, local room temperature in use, local room thermostat in use, errors report tool		 HOME PAGE 1/2 			
<i>Selection keys</i>					
	System Ignition and unlock with one click		Access to Information Menu		
	Access to User Menu 1		Access to Chrono Function		
	Access to User Menu 2		Access to Errors list (64 errors)		
<i>Main Leds</i>					
The arrow on the top side of the display allows you to access to the special leds quick toolbar. Here you can view the following ones:					
					
	Set combustion power		Chrono function state		 Local-Remote Air Flow

	Local Air Flow Direction (if P69 ≠0, 11, 12)		Remote Air Flow Direction (if P69 ≠0, 11, 12)		Direction (if P69 ≠0, 11, 12) 24 heating function enabled
Home Page 2					
System Operation Leds					
<i>System Operation Leds</i>					
	Auger On		Heating Fan		Output V3 On
	A1 Output On		External Chrono reached		Output A2 On
	Output A3 On		Lack of fuel in the tank		Remote Room Thermostat reached
	Output A4 On		Local Room or Safety Thermostat reached		Remote Room Thermostat 2 reached
	A5 Output On				

3.1.3 K500

Home Page			
Date and time, Chrono state, temperature of the local room in use, Local room thermostat in use, error signalling, combustion power, heating power			
Selection keys			
<i>P1</i>	Exit from menu/submenu Refill Function (push for 3 seconds)	<i>P4</i>	Access to combustion power Menu Increase
<i>P2</i>	Ignition, extinguishing and errors reset (push for 3 seconds) Enable/Disable Chrono	<i>P5</i>	Enable Chrono time slot Access to the Info Menu
<i>P3</i>	Access to User Menu 1/ submenu Access to user 2 menu (push for 3 seconds) Save Data	<i>P6</i>	Enter the Room Thermostat Menu Decrease
<i>P3+P5</i> (push for 3 seconds)		Direct access to the Secondary Information menu inside the Service menu.	
Led			
D ☉ W ☉ WE ☉	Daily Chrono on Weekly Chrono on Weekend Chrono on	↕↗	Local-remote air flow direction
↕	Local air flow	↗	Direction of the remote air flow
↗↖↗	Duct Fans ON	24H	24 heating function enabled
🔥	Heating target reached		Lack of combustion in the tank/Material level in the tank between 0% and 15%
■	Level of the material in the tank within 80% and 100%	■	Level of the material in the tank within 60% and 80%

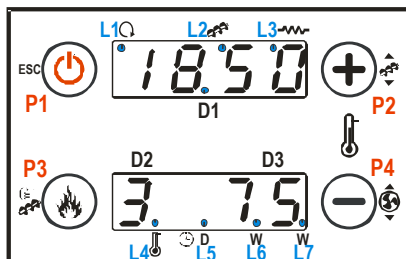
	Level of the material in the tank within 35% and 60%		Level of the material in the tank between 15% and 35%
---	--	---	---

3.1.4 OPERATING STATES VISUALIZATION

State	Display
Modulation for exhaust flue gas temperature	Run Mode M
Modulation for other conditions	Modulation
Other States	The name of the state is displayed

3.2 CP PANELS

3.2.1 CP110/CP115

Home Page			
Values shown in the homepage: <i>D1 Display:</i> time, operational state, errors, menu, submenu, parameters' values <i>D2 Display:</i> power, value code <i>D3Display:</i> main temperature, value code			
Selection Keys			
	Click	Long press	
<i>P1</i>	Views / Menu Exit	Ignition/ Extinguishing / Block Reset	
<i>P2</i>	Thermostat (+) / data increase	Pellet loading correction	
<i>P3</i>	Modify combustion power / Data Backup	Manual pellet loading	
<i>P4</i>	Edit thermostat (-) / Data decrease	Exhaust flue gas Fan Correction	
Led			
<i>L1</i>	 Heating Fan ON	<i>L5</i>	 D Daily Program W Weekly Program W Week End Program
<i>L2</i>	 Auger ON	<i>L6</i>	
<i>L3</i>	 Igniter ON	<i>L7</i>	
<i>L4</i>	 Heating Target reached		

3.2.2 CP120

Home Page					
Values shown in the homepage: <i>D1 Display:</i> time, operational state, errors, menu, submenu, parameters' values <i>D2 Display:</i> power, value code <i>D3Display:</i> main temperature, value code					
Selection Keys					
	Click	Long press			
<i>K1</i>	Exit menu	Ignition/ Extinguishing / Block Reset			
<i>K2</i>	Edit Combustion Power (+)	-			
<i>K3</i>	Thermostat (+) / data increase	Pellet loading correction			
<i>K4</i>	-	Enable Chrono time slot			
<i>K5</i>	Access to User Menu 2 / Data backup	Manual pellet loading			
<i>K6</i>	Combustion power modification (-)	-			
<i>K7</i>	Edit thermostat (-) / Data decrease	Exhaust flue gas Fan Correction			
<i>K8</i>	Visualization	-			
Led					
<i>L1</i>		Heating Fan ON	<i>L8</i>	RUN	Led ON: system ON Led flashing: system in Extinguishing
<i>L2</i>		Auger ON	<i>L9</i>		Lack of fuel Loading Motor ON
<i>L3</i>		Igniter ON	<i>L10</i>		Duct Fan 2 ON

L4		Heating target reached	L11		Duct Fan 2
----	---	------------------------	-----	---	------------

L5		D	Daily Program	L12		Not used
L6		W	Weekly Program	L13		Local Flow Direction
L7		W	Week End Program	L14		Remote Flow Direction

3.2.3 OPERATING STATES VISUALIZATION

State	Code	State	Code	State	Code
Off mode	-	Ignition- Variable Phase	On 4	Standby	Stby
Check Up	ChEc	Stabilization	On 5	Safety	SAF
Ignition- Preheating phase	On 1	Run Mode	-	Extinguishing	OFF
Ignition- Preloading Phase	On 2	Modulation for:		Block	Alt
Ignition-Fixed Phase	On 3	Exhaust flue gas temperature Other conditions	runM Mod	Recovery Ignition	rEc

3.3 ALARMS

With any error the system goes into Block		
Description	Code	
	K	CP
Safety Thermostat Intervention HV1: report even when the stove is OFF	Er01	Er01
Intervention of the Safety Pressure Switch HV2: report with Combustion Fan On	Er02	Er02
Extinguishing for Decreased Temperature of Exhaust flue gas	Er03	Er03
Extinguishing for exhaust flue gas over temperature	Er05	Er05
Pellet Thermostat open	Er06	Er06
Encoder Combustion Fan: no Encoder signal (if P25=1 or 2)	Er07	Er07
Encoder Combustion Fan: speed regulation failed (if P25=1 or 2)	Er08	Er08
Date/Time values not correct due to a prolonged lack of voltage power supply	Er11	Er11
Failed Ignition	Er12	Er12
Lack of voltage supply	Er15	Er15
Communication Error RS485	Er16	Er16
Failed Air Regulation	Er17	Er17
Lack of fuel	Er18	Er18
Cleaning Motor broken	Er25	Er25
Cleaning Motor 2 broken	Er26	Er26
Cleaning Motor 3 broken	Er27	Er27
Cleaning Motor 5 broken	Er29	Er29
Flow meter broken	Er39	Er39
Service Error. It reports the achievement of the planned operation hours in Maintenance 1 (parameter T66). It is necessary to call for service.	Er40/Service	SErU
Min air flow in Check Up (FL20) or in Run mode and Modulation (FL19) not reached	Er41	Er41
Max Air Flow overreached (FL40)	Er42	Er42
Door error or Door 2 error	Er44	Er44
Auger Encoder: no Encoder signal (if P81=1 or 2)	Er47	Er47
Auger Encoder: speed regulation failed (if P81=1 or 2)	Er48	Er48
Selector broken	Er68	Er68

3.4 MESSAGES

Description	Code	
	K	CP
Anomaly in the probes control during Check Up	Probe	Probe
Planned operation hours have been reached in the function 'Maintenance 2' (parameter T67)	Cleaning	CLr
The door is open	Door	Door
Door 2 open	Port 2	Por2
The message appears if the system is turned off during Ignition (after Preloading) by an external device: the system will stop only when it is fully operational	Block - state name	OFF dEL
Lack of communication between the K panel and the control board	Link Error	-
Periodic Cleaning in progress	Cleaning On	PCLr
System in Night Mode	Night Mode	-
Lack of fuel in the tank	Refill	rFiL
Soft Mode function on	Soft Mode	SoFt

Default firmware and LCD keyboard not correctly paired	Keyboard not compatible	-
K keyboard without some translations. You have to upgrade the keyboard firmware if you want the message not to be displayed.	Msg!	-

3.5 INFO

Display		Unit	Description
<i>K</i>	<i>CP</i>		
Exhaust Flue Gas T.	tF	[°C]	Exhaust flue gas temperature
Room T.	tA	[°C]	Local Room Temperature; it is displayed only if A19 =1, there is a Local TriKey or the Radio Room Thermostat is Local
R. Room T.	tr	[°C]	Remote Room Temperature; it is displayed only if P69 >0 and an input has been set as Remote Room Probe, there is a Remote TriKey or the Radio Room Thermostat is Remote
Room T. R2	tr2	[°C]	Remote Room Temperature 2; it is displayed only if P69 >0 and an input has been set as Remote Room Probe 2, here is a Remote TriKey 2 or the Radio Room Thermostat is Remote 2
-	FL	-	Air flow; it is shown if an input is set as Primary air regulation
Safety T.	tSF	[°C]	Safety temperature; it is displayed if an input has been set as Safety probe.
-	UF	[rpm]	Speed of the Exhaust flue gas Fan; it is displayed only if P25 is different from 0
-	Co	[s]	Auger ON time ; it is displayed if P81 is equal to 0
Recipe	rC	[nr]	Combustion recipe selected; it is shown only if P04 is higher than 1
Service	St	[h]	Time left before the system displays the message ' Service' ; it is displayed if T66 is greater than 0.
Cleaning	St2	[h]	Remaining time before the stove cleaning is performed; it is shown if T67 is higher than 0.
Pellet	PL	[%]	Amount of remaining pellet in the tank
-	nGHt	-	Night Mode Function State
-	FC	-	Firmware Code and Revision: FYSr03000001.x.y
-	xyzt 564	-	Product code

4 MENU

4.1 K PANEL S

4.1.1 USER MENU 1

Power	Combustion In this menu is possible to modify the combustion power of the system. It can be set in automatic or manual mode: in the first case the system will choose the combustion power; in the second case the user selects the power. On the left side of the display the combustion modality (<i>A</i>=automatic combustion, <i>M</i>=manual combustion) and the working power of the system are reported Heating In this menu is possible to modify the heating power. It can be set in automatic or manual mode: in the first case the system will choose the combustion power; in the second case the user selects the power. On the left side of the display the heating modality (<i>A</i>=automatic, <i>M</i>=manual) and the corresponding power are reported. If you set the parameter A04=1 or if you don't set any output as Heating Fan the menu is not displayed. Ducting This menu allows to edit the value of the Duct Fan power. It is displayed only by selecting a heating plant with a second heating fan. Ducting 2 This menu allows to edit the Duct Fan 2 power. It is displayed only if a heating plant with a third heating fan has been selected.								
Thermostats	Room Menu to edit the value of the Local Room Thermostat. It is displayed only if A19=1, there is a TriKey Module set as Local or the Radio Room Thermostat has been set as Local. Remote Room Menu to modify the Remote Room Thermostat value. It is displayed only if a heating plant including it has been set and an input is set as Remote Room Probe, a TriKey set as Remote is included or the Radio Room Thermostat is set as Remote. Remote Room 2 Menu to modify the Remote Room Thermostat value 2. It is displayed only if a heating plant including it has been selected and if an input has been set as Remote Room Probe 2, there is a TriKey module set as Remote 2 or if the Radio Room Thermostat is set as Remote 2.								
Selector	This menu allows you to modify the Selector position in order to change the direction of the heating air flow (Local=air flow directed to the room in which the stove is placed, Remote=air flow directed to the remote room). It is displayed only if a plant including a Selector has been selected.								
Chrono	It allows programming and enabling the system ignitions/extinguishing<It is formed by 2 submenus. Mode It allows you to select the mode of your choice, or to disable all the schedules. • Enter in edit mode by clicking P3 • Select the mode (Daily, Weekly or Week-end) • Enable/disable the Chrono mode by clicking P2 • Save the new settings with the key P3 Program The system includes three type of programming: Daily, Weekly, Weekend. After selecting the program of your choice: • Select the time with the keys P6 or P4 (P5 or P4 or K100) • Enter the edit mode (the selected time blinks) with the button P3 • Modify the time with the keys P6 or P4 (P5 or P4 for K100) • Save the new settings with the button P3 • enable (a "V" is displayed) or disable the time slot (a "V" is not displayed) pushing the button P5 Deactivated Daily Weekly Weekend Monday <table> <tr> <td>ON</td> <td>OFF</td> </tr> <tr> <td>09:30</td> <td>11:15 V</td> </tr> <tr> <td>00:00</td> <td>00:00</td> </tr> <tr> <td>00:00</td> <td>00:00</td> </tr> </table>	ON	OFF	09:30	11:15 V	00:00	00:00	00:00	00:00
ON	OFF								
09:30	11:15 V								
00:00	00:00								
00:00	00:00								

	(P2 for K100) <i>Daily</i> Select the day of the week of your choice and set the ignition and extinguishing times. <i>Program across midnight</i> Set the ON time of the previous day to the value of your choice: Ex. 20.30 Set the OFF time of the previous day to 23:59 Set the ON time of the following day at 00:00 Set the OFF time of the following day to the value you prefer: Ex. 6:30 The system will turn on at 20.30 on Tuesday and will turn off at 6.30 on Wednesday <i>Weekly</i> The programs are the same for all the days of the week. <i>Weekend</i> Choose between the time slots Monday-Friday and Saturday-Sunday and set the time for ignition and extinguishing.	Monday Tuesday Wednesday Thursday Mon-Fri Sat-Sun
Night Mode	Menu to set and enable the time slot to start and end the Night Mode. The time slots programming is similar to the one described in the Chrono Menu. For the programming across the midnight, set a time slot end to 23.59 and the following from 00.00 to a value of your choice.	
Refill	This Menu allows you to calculate the used fuel and the amount of remaining pellet in the tank. You have 4 charge levels: 100% (full tank), 75%, 50%, 25%, and 0 (disabled function). For a correct functioning the manufacturer has to set the parameters P111 and P112 .	
Soft Mode	Menu to switch on and off the Soft Mode function. The menu is displayed if at least one of the parameters P61 , P62 , P63 , P64 , P65 , and P66 is set to a value different from zero.	
* Only for K400 control panel		

4.1.2 USER MENU 2

Settings	Time and Date It allows you to set day, month, year and current time
	Language It allows you to modify the language of the keyboard
	Radio control <i>OFF</i> No radio control <i>SYTX4</i> The radio control SYTX4 is being used.  <i>Keys</i> Key Off: system extinguishing Key On: system Ignition Key - s +: decreasing/increasing of the combustion power <i>Code Change</i> For the radio control: - check the manual provided with the device On the Controller: - cut off the voltage power supply to the control board - Connect to the mains power supply again while pressing for 5 seconds any key of the radio control until the emission of the acoustic signal coming from the controller that will confirm the new code has been registered
	2Ways2 The 2Ways2 remote control is used. For further information about the radio control see the specific manual.



The default communication ID code between the control board and the radio control is 1000.

Code Change

If you need to change code:

- highlight a code from the menu Code Change of the radio control
- cut off the voltage power supply to the control board
- connect to the voltage supply again and push the radio control button **SET** within 5 seconds

NOTE: The parameter only manages radio controls working at 433,92MHz.

Night Mode

Menu to set and enable the time slot to start and end the Night Mode.

The time slots programming is similar to the one described in the Chrono Menu. For the programming across the midnight, set a time slot end to 23.59 and the following from 00.00 to a value of your choice.

Recipe

This menu allows you to select the Combustion Recipe; if you set up the parameter **P04=1** you will not be able to see the menu.

Temperature Scale

This Menu allows you to select between Celsius and Fahrenheit scale.

Service

Counters

Ignitions	Number of attempted Ignitions
Failed Ignition	Number of failed ignitions
Working hours	Operating hours in Run mode, Modulation Mode and Safety Mode

Errors List **

The menu shows the latest 10 errors; in each line the error code and time/date of the error itself are shown. On K displays, in order to delete the list, enter the Counters Reset menu

Secondary Information **

Information about configurable outputs and inputs are only available if they have been set.

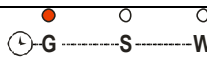
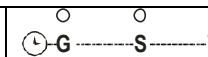
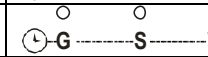
Display	Description
xyzt-564	Product code
Fan	Exhaust Flue Gas Fan Speed (output V1)
Auger	Auger Speed (rpm) if P81=1 , 2 or output state (On/Off) if P81=0
Output V2	Fan's speed if V2 has been set as a fan or output state (On/Off) if V2 has not been set as fan
V3 Output	Output State (On/Off)
A1 Output	Output State (On/Off)
Output A2	Output State (On/Off)
A3 Output	Output State (On/Off)
Output A4	Output State (On/Off)
A5 Output	Output State (On/Off)
Exhaust Flue Gas T.	Exhaust flue gas temperature
Safety T.	Safety Temperature: it is displayed if an input is set up as Safety probe.
Room T.	Local Room Temperature; it is displayed only if A19=1 , there is a Local TriKey or the Radio Room Thermostat is Local
R. Room T.	Remote Room Temperature; it is displayed only if P69>0 and an input has been set as Remote Room Probe, there is a Remote TriKey or the Radio Room Thermostat is Remote
Room T. R2	Remote Room Temperature 2; it is displayed only if P69>0 and an input has been set as Remote Room Probe 2, here is a Remote TriKey 2 or the Radio Room Thermostat is Remote 2
Airflow	Airflow (if an input is set as Primary Air Regulator)
IN2 Input	Input state (only digital): open->0, closed->1
IN3 Input	Input state (only digital): open->0, closed->1
IN6 Input	Input state (only digital): open->0, closed->1
IN7 Input	Input state (only digital): open->0, closed->1
IN8 Input	Input state (only digital): open->0, closed->1
IN9 Input	Input state (only digital): open->0, closed->1
IN10 Input	Input state (only digital): open->0, closed->1
IN11 Input	Input state (only digital): open->0, closed->1

		IN12 Input	Input state (only digital): open->0, closed->1
		IN13 Input	Input state (only digital): open->0, closed->1
		HV1 Input	Input State: open->0, closed->1
		HV2 Input	Input State: open->0, closed->1
		Cleaning Reset Menu to reset the function 'System Maintenance 2'. It is displayed if T67 >0.	
		Auger Calibration It allows to modify the default set values for Auger's speed or On times The values can be set within the range -7÷7. The default value is 0. The menu is displayed only if A64 =1.	
		Fan Calibration It allows you to modify the default set values of the Combustion Fan's speed. The values can be set within the range -7÷7. The default value is 0. The menu is displayed only if A64 =1.	
		Heating Fan Calibration It allows you to modify the default set values of the fan's speed. The values can be set within the range -7÷7. The default value is 0. The menu id displayed only if A68 =1.	
		Standby This Menu allows you to modify the parameter value A01 and to choose the system mode (OFF for Modulation or On for Standby) once reached the Room Thermostat. The menu is displayed only if A47 =1 and A01 >0.	
		Automatic Power This menu allows you to set combustion power in automatic mode only. If you set it, power change menus are no longer displayed.	
		Loading The procedure activates the pellet manual loading and will stop automatically after 300 seconds. The system must be OFF for the function can be activated.	
		Loading Test Use this procedure to set the value of the P112 parameter of the Refill function. The procedure allows you to calculate the amount of pellet used in 10 minutes with the auger value of P05 /2. The system must be into Off to carry out the measurement.	
** only for K100 and K500 keyboards			
Display	K100	Keypad tone Menu to enable or disable the keypad sound.	
		Contrast It allows you to adjust the screen contrast	
	K400	Brightness It allows you to adjust the screen brightness	
		Display Standby Menu to enable the standby of the K400 keyboard screen	
		Rebooting Control Panel It allows you to restart the software of the control panel.	
		Sound It allows you to enable or disable the sound from the control panel	
		Delete error list This Menu allows deleting the errors list. Access is protected by a password (<i>default password: 0000</i>).	
		Wallpaper It allows you to change the control panel wallpapers	
		Control panel information Menu containing info about the control panel firmware	
	K500	Contrast It allows you to adjust the screen contrast	
		Screen Saver Menu to enable and disable the screen saver	
	Common Menu	Minimum Brightness It allows you to adjust the screen brightness when not using the controls	
		Firmware Codes This Menu allows you to see the communication address of the control board, type of control board and firmware version. The board types can be: <i>MSTR</i> Master <i>INP</i> Inputs <i>KEYB</i> Keyboard <i>OUT</i> Outputs <i>CMPS</i> Composite <i>SENS</i> Sensors <i>COM</i> Communication	
		Control Panel address	

	Menu protected by password (<i>default password is 1810</i>), that allows you to set the node RS485 address. Within the bus 485 it is not possible to have more nodes with the same address.
System Menu	Menu to enter into technical menu. The access is protected by a password (<i>default password: 0000</i>).

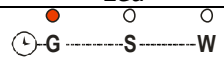
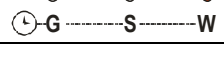
4.2 MENU CP PANEL S

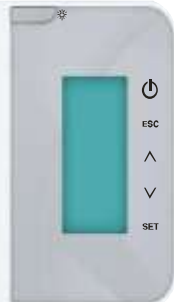
4.2.1 USER MENU 1

Combustion Power	Press with simple click the key P3 o K2/K6 : the display D2 blinks. With subsequent clicks you can change the power (A=automatic combustion). After 5 seconds the new value is stored and the display returns to the standard mode.			
Manual Loading	By long pressing the key P3 or K5 you can enable the Pellet Manual Loading, with the constant Auger activation. The lower display shows <i>LoAd</i> , the upper one shows the elapsed loading time. Press any key to stop loading. The load will be automatically stopped after 300 seconds. It will be enabled only if A48 =0.			
Auger Calibration	You can access by long pressing the key P2 or K3 , press the key P3 or K5 to enter the edit mode. The lower display shows <i>Pell</i> , the upper one the set value. With the keys P2/P4 or K3/K7 you can increase/decrease the value; the default value is 0. After 5 seconds the new value is stored and the display returns to the standard mode. It will be enabled only if A64 =1.			
Fan Calibration	You can access by long pressing the key P4 or K7 , press the key P3 or K5 to enter the edit mode. The lower display shows <i>UEnt</i> , the upper one the set value. With the keys P2/P4 or K3/K7 you can increase/decrease the value; the default value is 0. After 5 seconds the new value is stored and the display returns to the standard mode. It will be enabled only if A64 =1.			
Room Thermostat	Menu to edit the value of the Local Room Thermostat in use; the value is memorized after 5 seconds and the display backs to the normal screening			
Enable Chrono (only CP120 keyboard)	By long pressing K4 you can enable and select the operating mode of the internal Chrono thermostat.			
	Daily Program		Week-End Program	
	Weekly Program		Chrono Disabled	

4.2.2 USER MENU 2

You can enter pushing at the same time P3 and P4 for 3 seconds on the CP110 keyboard, or a single click on K5 for the CP120 keyboard		
Heating Power (Air)	It allows you to change the Heating Fan power. If you set the parameter A04 =1 or if you don't set any output as Heating Fan the menu is not displayed.	
	<i>Heating</i>	<i>Description</i>
	1–Number user powers	Power regulated in Manual from 1 to a number of user powers
	Auto	Power automatically regulated according to the parameter value P06
Ducting Power(CAn)	This menu allows to edit the Duct Fan power. It is displayed only if you select a heating plant with a second heating fan.	
	<i>Heating</i>	<i>Description</i>
	1–Number user powers	Power regulated in Manual from 1 to a number of user powers
	Auto	Power automatically regulated according to the parameter value P07
Duct Power 2 (Can2)	This menu allows to edit the Duct Fan power. It is displayed only if you select a heating plant with a third heating fan.	
	<i>Heating</i>	<i>Description</i>
	1–Number user powers	Power regulated in Manual from 1 to a number of user powers
	Auto	Power automatically regulated according to the parameter value P10
Selector (SEL)	This menu allows you to change the Selector position in order to change the direction of the Heating Air flow. It is displayed only if a plant including a Selector has been selected.	
	<i>Display</i>	<i>Description</i>
	LoC	Direct flow in the stove room
	rEM	Direct flow in the Remote room

	L-r	Direct flow in both rooms (only if P69 =1, 6)
Thermostats (tErM)	Remote Room Thermostat (rEM) Menu to edit the value of the Remote Room Thermostat; it is displayed only if a heating plant including it has been set and an Input is set as Remote Room Probe There is a TriKey Module set as Remote or the Radio Room Thermostat has been set as Remote.	
	Remote Room 2 Thermostat (rEM2) Menu to edit the value of the Remote Room Thermostat 2; it is displayed only if a heating plant including it has been set and an input is set as Remote Room Probe 2, there is a TriKey set as Remote 2 or the Radio Room Thermostat is set as Remote 2.	
Chrono (Cron)	Menu for the system Ignition/Extinguishing time slots programming. It is formed by two submenus:	
	Enable Chrono Menu This menu allows you to enable and select the Chrono thermostat functioning mode. The display shows the message ModE (only for CP110 keyboards).	
	<i>Mode</i>	<i>Led</i>
	Daily: Daily Program	
	Week: Weekly Program	
	WeEnd: Week-End Program	
	Time-slots programming menu The display shows the message ProG It has 3 submenus equal to the 3 allowed programming modes: <u>Daily:</u> It allows setting 3 programs for each single day of the week. <u>Weekly:</u> It allows setting 3 programs per day, the same for all the days of the week. <u>Week-End:</u> It allows setting 3 programs per day, separating the Monday-Friday program from the Saturday-Sunday program.	
	<i>Visualization</i>	<i>Display</i>
	Daily mode: week day	M o
	Weekly Mode: Monday-Sunday	M S
	Week-End mode: Monday-Friday Saturday-Sunday	M F S S
	For the On time, the segment on the bottom of the D2 display is turned on	1 I M o
	For the Off time, the segment on the top of the D2 display is turned on	1 I M o
	Instructions For each program select the ON and OFF time.	
	<i>Description</i>	<i>Display</i>
	1) Scroll down through the keys P2/P4 or K3/K7 until the submenu of your choice and push the key P3 or K5	D a i l y
	2) Press buttons P2/P4 or K3/K7 to select one of the 3 available programs	1 I M o
	3) Press the button P1 or K4 for 3 seconds	0 0 . 0 0
	4) Select Ignition time	1 I M o
	5) Press the key P3 or K5 to enter the edit mode: the selected value (hours or minutes) blinks. Press the key P3 or K5 to move from hours to minutes and vice versa, P2/P4 or K3/K7 to edit the value.	0 1 . 0 0 1 I M o
	6) Press the button P3 or K5 to save the set value	2 1 . 3 0 1 I M o
	7) Select through the button P2 or K3 the OFF time and repeat from point 5 the procedure followed	0 0 . 0 0 1 I M o
	For each programming phase you can modify the minutes, setting them each 15 minutes (for example: 20.00, 20.15, and 20.45). Only if you set the value 23 for the hours you can increase the minutes from a value of 45 up to 59 to obtain an ignition across midnight.	
	Programming Across Midnight Set on a daily time slot, the OFF time on 23:59. Set, on the slot of the following day, the ON time on 00:00.	
	<i>Example</i>	
	<i>Monday Chrono Programming</i>	

	ON	2 2 . 0 0 1 I M o	2 3 . 5 9 1 I M o	OFF
	Tuesday Chrono Programming			
	ON	0 0 . 0 0 1 I T u	0 7 . 0 0 1 I T u	OFF
Combustion Recipe (ricE)	Combustion Recipe Menu; the maximum value is the number of recipes displayed to the user. This value can be set in the Setting menu (parameter P04). If P04=1 the menu is not displayed.			
Clock (oroL)	It allows you to set day and current time. The upper display shows hours and minutes, the lower one, the day of the week.			
	Instructions			Display
	Push the key P3 or K5 to enter the edit mode. The selected value (hours, minutes or days) flashes. Edit the values with the keys P2/P4 or K3/K7. Push the key P3 or K5 to edit other parameters. Push again P3 or K5 to store the set parameter.			0 7 . 3 3 M o
Refill (rFiL)	Menu to start the calculation of the used fuel and show the amount of remaining pellet in the tank. You have 4 charge levels: 100% (full tank), 75%, 50%, 25%, 0 (disabled function) For a correct functioning the manufacturer has to set the parameters P111 and P112.			
Soft Mode (SoFt)	Menu to switch on and off the Soft Mode function. The menu is displayed if at least one of the parameters P61, P62, P63, P64, P65, and P66 is set to a value different from zero.			
Temperature Scale (unit)	Menu for the selection between Celsius (CELS) or Fahrenheit (FAHr) scale.			
Remote Control(TELE)	The menu does not manage the 2Ways+ radio control.			
	OFF No radio control Mono The radio control SYTX4 is being used.			
	Keys Key Off: system extinguishing Key On: system Ignition Key - s +: decreasing/increasing of the combustion power			
	Code Change For the radio control: - check the manual provided with the device On the Controller: - cut off the voltage power supply to the control board - connect to the main voltage supply again while pressing for 5 seconds any key of the radio control until the emission of the acoustic signal coming from the controller that will confirm you the new code has been registered			
				
	bidi The 2Ways2 remote control is used. For further information about the radio control see the specific manual.			
	The default communication ID code between the control board and the radio control is 1000			
	Code Change If you need to change code: - highlight a code from the menu Code Change of the radio control - cut off the voltage power supply to the control board - connect to the voltage supply again and push the radio control button SET within 5 seconds			
				
	NOTE: The parameter only manages radio controls working at 433,92MHz.			
Standby (Stby)	This Menu allows you to modify the parameter value A01 and to choose the system mode (OFF for Modulation or On for Standby) once reached the Room Thermostat. The menu is displayed only if A47=1 and A01>0.			
Heating Fan Calibration (rAir)	It allows you to modify the default set values of the Heating Fan for each operating power. The default value is 0. The menu is displayed only if A68=1.			
Night Mode(nGHt)	This Menu allows to set and enable the time slot to start and end the Night Mode. The programming of the time slots is similar to the one shown in the Chrono Menu. The menu is shown only if at least one motor has been disabled in Night Mode.			

Counters (Count)	Co03 Operating hours in Run mode, Modulation Mode and Safety Mode Co04 Number of attempted ignition Co05 Number of failed ignitions Hundreds of Hours 0002 3757 Hours Minutes
Clean Reset (rCLr)	Menu to reset the 'System 2 Maintenance' function. It is displayed if T67 is greater than 0.
Automatic Power (AuPo)	This menu allows you to set combustion power in automatic mode only. If you set it, power change menus are no longer displayed.
Manual Pellet Load (LoAd)	This Menu allows the pellet manual loading, with the constant Auger activation. The loading is switched on by the key P3 or K5 , the lower display shows Load , the upper one shows the elapsed loading time. Press the key P1 or K1 to stop the loading. The function will automatically stop after 300 seconds.
Loading Test (tFil)	Use this procedure to set the value of the P112 parameter other Refill function. The procedure allows you to calculate the amount of pellet used in 10 minutes with the auger value of P05/2 . The system must be into Off to carry out the measurement.
System Menu (TPAr)	Menu to enter into technical menu. The access is protected by a password (<i>default password: 0000</i>).

5 OPERATING STATES

5.1 BLOCK

Parameters	Controls	Combustion Fan	Auger	Igniter
To exit it, push for 3 seconds the button P2 : if there are not Block conditions the system goes into OFF.		OFF	OFF	OFF

5.2 OFF MODE

Parameters	Controls	Combustion Fan	Auger	Igniter
	If Exhaust flue gas temperature > Th01 → It goes into Extinguishing	OFF	OFF	OFF

5.3 CHECK UP

Parameters	Controls	Combustion Fan	Auger	Igniter
T01	If Exhaust flue gas temperature > Th09 → It goes into Run Mode	Max Speed	OFF	OFF

5.4 IGNITION

5.4.1 PREHEATING

Parameters	Controls	Combustion Fan	Auger	Igniter
T02	If Exhaust flue gas temperature > Th09 → It goes into Run Mode	V24	OFF	ON

5.4.2 PRELOADING

Parameters	Controls	Combustion Fan	Auger	Igniter
T03	If Exhaust flue gas Temperature > Th09 → It goes into Run Mode	V01	ON	ON
T29			OFF	

5.4.3 FIXED PHASE

During the whole phase the minimum value of the exhaust flue gas temperature is saved				
Parameters	Controls	Combustion Fan	Auger	Igniter
T04	If Exhaust flue gas Temperature > Th09 → It goes into Run Mode	V01	C01	ON

5.4.4 VARIABLE PHASE

During the whole phase the minimum value of the exhaust flue gas temperature is saved				
Parameters	Controls	Combustion Fan	Auger	Igniter
T05	If Exhaust flue gas Temperature > Th09 → It goes into Run Mode	I Ignition: V01 II Ignition: V10	I Ignition: C01 II Ignition: C10	ON
	If Exhaust flue gas Temperature > Th06 → It goes into Stabilization			
Control upon the expiry of T05 or	If Exhaust flue gas Temperature < Th06 → It goes into Re-Ignition from Variable Phase			

	Exhaust flue gas temperature lower than the stored minimum value+ D41	→ It goes into Extinguishing with error Er12 if the number of attempts has been reached			
--	--	---	--	--	--

5.5 STABILIZATION

Parameters	Controls		Combustion Fan	Auger	Igniter
T06	If Exhaust flue gas temperature> Th09	→ It goes into Run Mode	V02	C02	ON If Exhaust flue gas Temp.<Th02
	If Exhaust flue gas Temperature<Th06	→ Goes into Re-Ignition from Variable Phase			
		→ It goes into Extinguishing with error Er12 if the number of attempts has been reached			
Control upon the Expiry of T06	If Exhaust flue gas Temperature > Th06+D01	→ It goes into Run Mode			
	If Exhaust flue gas temperature < Th06+D01	→ It goes into Re-Ignition from Variable Phase			
		→ It goes into Extinguishing with error Er12 if the number of attempts has been reached			

5.6 RECOVERY IGNITION

Waiting

Parameters	Controls		Combustion Fan	Auger	Igniter
T13	Exhaust flue gas temperature > Th01	→ The Timer T13 starts	V09	OFF	OFF
Control upon the Expiry of T13	Exhaust flue gas temperature > Th01	→ Waiting			

Brazier Cleaning

Parameters	Controls		Combustion Fan	Auger	Igniter
	After the end of the Waiting phase, you can access to this one, which is available only when the output is on 'Cleaning Motor'. It will end when the motor switches OFF.		OFF	OFF	OFF

Final Cleaning

Parameters	Controls		Combustion Fan	Auger	Igniter
T16	Exhaust flue gas temperature < Th01	→ Final Cleaning timer T16 starts	Max Speed	OFF	OFF
Control upon the Expiry of T16	If Exhaust flue gas temperature < Th01	→ It goes into Check Up			

Auger feeding

Parameters	Controls		Combustion Fan	Auger	Igniter
T50	Exhaust flue gas t. < Th01 Thermostat	→ The timer T50 starts	OFF	Always ON	OFF

5.7 RUN MODE

Parameters	Controls		Combustion Fan	Auger	Igniter
T14 Control upon the Expiry of T14	If Exhaust flue gas Temperature< Thermostat Th03 or If Exhaust flue gas temperature< Extinguishing Thermostat for the power in use	→ the timer T14 of Pre-Extinguishing wait starts	User Power	User Power	OFF
	→ It goes into Extinguishing with error Er03				
	If the Safety temperature>Thermostat Th07 and an input set up as Safety probe or If Exhaust Flue Gas t.> Thermostat Th07 and any input set up as Safety probe	→ It goes into Modulation			
A01=1 or 2	P69=0, 11, 12 Room temperature>Room Thermostat P69=1÷10 and air flow direction=Local Local room temperature>Local Room Thermostat P69=1÷10 and air flow direction= Remote * Remote room temperature>Remote Room Thermostat	→ It goes into Modulation			

5.8 MODULATION

Parameters	Controls		Combustion Fan	Auger	Igniter
T14	If Exhaust flue gas Temperature< Thermostat Th03 or If Exhaust flue gas temperature< Extinguishing Thermostat for the power in use	→ The timer T14 of waiting Pre-extinguishing starts	V11	C11	OFF
Control upon the Expiring of T14	→ It goes into Extinguishing with error Er03				
	If the Safety temperature> Thermostat Th08 and an input set up as Safety probe or If Exhaust Flue Gas t.> Thermostat Th08 and any input set up as Safety probe S	→ It goes into Safety			
A01=2	If for the time T43 and P69=0, 11, 12 room temperature> Room Thermostat in use+(D23/D27/D28) P69=1÷10 and air flow direction=Local Local room temperature>Local Room Thermostat+D23 P69=1÷10 and air flow direction= Remote * Remote room temperature>Remote Room Thermostat+D27 P69=1÷10 and air flow direction=Local+Remote* local room temperature>Local Room Thermostat+D23 and	→ It goes into Standby			

	Remote room temperature > Remote Room Thermostat+D27				
--	---	--	--	--	--

5.9 STANDBY

When the conditions that brought the system in standby are no longer met, the timer **T11** starts. Upon its expiry, the system goes into Check Up.
If Exhaust flue gas temperature/safety > Thermostat **Th08** the system goes into Safety.

Waiting

Parameters	Controls		Combustion Fan	Auger	Igniter
T13	Exhaust flue gas temperature > Thermostat Th28	→ The Timer T13 starts	V09	OFF	OFF
Control upon the Expiry of T13	Exhaust flue gas temperature > Thermostat Th28	→ Waiting			

Brazier Cleaning

Parameters	Controls		Combustion Fan	Auger	Igniter
	After the end of the Waiting phase, you can access to this one, which is available only when the output is on 'Cleaning Motor'. It will end when the motor switches OFF.		OFF	OFF	OFF

Final Cleaning

Parameters	Controls		Combustion Fan	Auger	Igniter
T16	Exhaust flue gas temperature < Thermostat Th28	→ The Timer T16 starts	Max Speed	OFF	OFF
Control upon the Expiry of T16	→ It goes into OFF Standby		OFF		

Auger feeding

Parameters	Controls		Combustion Fan	Auger	Igniter
T50	Exhaust flue gas temperature < Thermostat Th28	→ The Timer T50 starts	OFF	Always ON	OFF

5.10 SAFETY

Parameters	Controls		Combustion Fan	Auger	Igniter
T15	If the Safety temperature < Thermostat Th08 and an input set up as Safety probe or If Exhaust Flue Gas t. < Thermostat Th08 and any input set up as Safety probe	→ It returns to its previous state	V09 if previously it was in Standby , continues working at the same power before used if it was in Modulation	OFF	OFF
Control upon the Expiry of T15	→ It goes into Extinguishing with error Er05				

5.11 EXTINGUISHING

Waiting

Parameters	Controls		Combustion Fan	Auger	Igniter
T13	Exhaust flue gas temperature > Thermostat Th01	→ The Timer T13 starts	V09	OFF	OFF
Control upon the Expiry of T13	Exhaust flue gas temperature > Thermostat Th01	→ Waiting			

Brazier Cleaning

Parameters	Controls		Combustion Fan	Auger	Igniter
	After the end of the Waiting phase, you can access to this one, which is available only when the output is on 'Cleaning Motor'. It will end when the motor switches OFF.		OFF	OFF	OFF

Final Cleaning

Parameters	Controls		Combustion Fan	Auger	Igniter
T16	Exhaust flue gas temperature < Thermostat Th01	→ The Timer T16 starts	Max Speed	OFF	OFF
Control upon the expiring of T16	→ it goes into OFF with no errors, otherwise it goes in Block		OFF		

Auger feeding

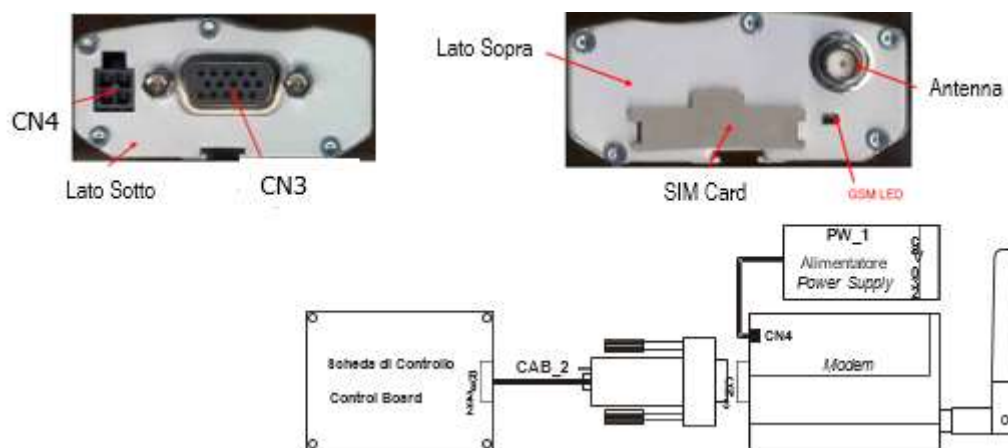
Parameters	Controls		Combustion Fan	Auger	Igniter
T50	exhaust flue gas t. < Th01 Thermostat	→ The Timer T50 starts	OFF	Always ON	OFF

6 FUNCTIONS

6.1 MODEM

The system manages a modem module, provided if required, that allows performing through SMS operations of ignition, extinguishing, request about the operational state and receive information about possible block conditions. The modem must be connected to the RS232 port of the board, through provided cables and connectors and must be supplied with the dedicated power supply adapter. For its proper operation:

- Use a SIM card enabled to GSM data traffic of any mobile provider.
When inserting/disinserting the SIM card, you MUST do it while the Modem is NOT connected to the power supply
- Disable the SIM PIN request



Two LEDs define the modem status:

GSM LED	LED activity	Modem Status
ON	LED ON fixed	The modem is powered, it is ready to function but not yet recognized by the network or the PIN code has entered yet or the aerial is not connected (lack of signal)
	LED blinking (once every 2 seconds)	The Modem is ON and ready for incoming calls
	LED blinking (every second)	The Modem is on and is communicating (Voice, data or Fax)
OFF	LED OFF	The modem is not powered or is in the reset phase

The user can send an SMS to the Modem SIM with one of the key word written in uppercase or not.

Start	This word sends the stove in ignition if it was not already ON. The Modem sends back a message with system status including code errors if any
Stop	This word sends the stove into extinguishing if it was not already OFF. The Modem sends back a message with the system status, including code errors if any
Status	This word asks for the stove status. The Modem sends back a message with the system status including code errors if any
Learn	With this word the system learns to which number it has to send an SMS if in Block. When in Block, the Modem sends immediately a message with the stove status and the error to the learnt number.
Reset	It allows you to unlock the system

The status name in the SMS sent by the modem is:

SMS	System State
Block	Block, Extinguishing with error message
Off	Off, Extinguishing, Extinguishing in Ignition phase
Standby	Standby
On	Other States

6.2 COMBUSTION MANAGEMENT

6.2.1 ROOM PROBE OR THERMOSTAT

Setting the parameter **A19** allows you to choose if you want to use the probe or the Local Room thermostat. The remote room thermostats or probes can be set through the configuration parameters of the configurable inputs. According to the value of the parameter **A01** and to the choice between the use of a probe or a thermostat, you will have:

Room Probe

- **A01=0**
Room Thermostat not reached : the system switches to Ignition
Room Thermostat reached: the system switches to Extinguishing
- **A01=1**

Room Thermostat not reached:: the system switches to Run Mode
Room Thermostat reached: the system switches to Modulation

- **A01=2**

Room Thermostat not reached: the system switches to Run Mode
Room Thermostat reached: the system switches to Standby

Room Thermostat

- **A01=0**

open contact: the system goes into Extinguishing

closed contact: the system goes into Ignition

- **A01=1**

closed contact: the system goes into Run Mode

open contact: the system goes into Modulation

- **A01=2**

closed contact: the system goes into Run Mode

open contact: the system goes into Standby

If **A01=1, 2** if you don't use the input, short-circuit pins.

6.2.2 ROOM THERMOSTAT SELECTION

According to the chosen heating plant (parameter **P69**) the system uses as Room Thermostat the Local Room Thermostat or the Remote Room Thermostat or both.

If you use the 2Ways2 radio control and the radio thermostat has been enabled, you can use the radio control thermostat as the Local Room Thermostat or the Remote Room Thermostat or the Remote Room Thermostat 2.

If the radio control does not communicate with the base or the radio thermostat is disabled, the thermostat taken into consideration is the control board thermostat.

- **P69=0**

The system uses the only room thermostat available, both for combustion and Modulation and Standby to enter.

- **P69=1, 2, 3, 4, 5, 6, 7, 8, 9, 10**

If the flow is directed to the room in which there is the stove then the Local Room Thermostat is used, if it is directed to the remote room then the Remote Room Thermostat is used, if it is directed both to the local and the remote room, the combustion, if automatic, is based on the Local Room Thermostat, the entrance in Modulation is based on the Local Room Thermostat and the entrance in Standby is based both on Remote and Local Room Thermostat

- **P69=11, 12**

Remote thermostats are taken into consideration by the system if the related Duct Fan has been activated by the user. For the combustion the used thermostat is the local one, both room thermostats are used to enter in Modulation and Standby.

6.2.3 2WAYS+ REMOTE CONTROL AND TRIKEY MODULES

The system is designed for the use of Radio Thermostats named TriKey that can be placed in the different areas of the Room, replacing Local Probe, Remote and Remote 2 Probe. When the System detects the presence of one of these thermostats, the Room temperature detected by them, is used by the System, instead of the one read by the Probe connected to the board. It is also possible to modify the Room thermostat of Zone paired to it. For operation and setting of the TriKey modules, please refer to the Specific Manual.

The 2WAYS+ Radio control is an evolution of the 2WAYS2, where the Radio communication has been upgraded and some features have been improved. At the user level, it has the same interface as the old one and for its operation please refer to its Specific manual.

To allow the communication of the TriKey modules and of the radio control 2WAYS+ with base board, the System must include a WiKey keyboard or a PinKey module, managing Radio transmissions at 868,3MHz. For the operation of these two modules, please refer to their Specific manual.

6.2.4 COMBUSTION FAN SPEED

Parameter **P25** set the regulation mode of the Combustion Fan speed.

P25=0 Combustion Fan with no Encoder: the speed is defined by the set voltage (V) value.

P25=1 Combustion Fan with Encoder: the speed is defined by the set number of revolutions [RPM]. In case of signal presence but regulation failed, the system goes into Block with **Er08**. In case of sensor break and relative absence of signal, the system goes in Block with alarm **Er07**.

P25=2 Combustion Fan with Encoder: the speed is defined by the set number of revolutions [RPM]. In case of signal presence but regulation failed, the system goes into Block with **Er08**. In case of sensor break and relative absence of signal, the system goes in Block with alarm **Er07**. Resetting the error, the system automatically switches to **P25=0**.

6.2.5 AUGER SPEED

The parameter **P81** set the Auger regulation mode.

P81=0	Auger without Encoder managed in work-break, with measurement unit expressed in seconds and regulation step of 0, 1.
P81=1	Auger with Encoder managed in RPM. In case of signal presence but failed regulation, the system goes into Block with alarm Er48 . In case of sensor break and relative absence of signal, the system goes into Block with Er47 .
P81=2	Auger with Encoder managed in RPM. In case of signal presence but failed regulation, the system goes into Block with alarm Er48 . In case of sensor break and relative absence of signal, the system goes into Block with Er47 . Resetting the error, the system automatically switches to P81=0 .

6.2.6 COMBUSTION STANDBY

The Standby is a temporary extinguishing flame mode due to the attainment of the target temperature of the medium to be heated. Switching to Standby can be enabled from Settings Menu (parameter **A01**); according to the heating plant selection (parameter **P69**) we will have:

• P69=0			
<i>A01</i>	<i>Control</i>		<i>System State</i>
1, 2	Room temperature>Room Thermostat		Modulation
2	room temperature>Room Thermostat+ D23 for T43 seconds		Standby
• P69=1, 2, 3, 4, 5, 6, 7, 8, 9, 10			
<i>Hot air flow direction</i>	<i>A01</i>	<i>Control</i>	<i>System State</i>
Remote*	1, 2	remote room temperature>Remote Room Thermostat or local room temperature>Thermostat Th53 and A19=1	Modulation
Local	2	locale room temperature >(Local Room Thermostat+ D23) for T43 seconds	Standby
Remote*	2	remote room temperature>(Remote Room Thermostat+ D27) for T43 seconds or local room temperature>Thermostat Th53 and A19=1	Standby
Local+Remote*	2	Both conditions must be verified	Standby
• P69=11, 12			
<i>A01</i>	<i>Control</i>		<i>System State</i>
1, 2	local room temperature>Local Room Thermostat and remote room temperature> Remote Room Thermostat and remote room temperature 2>Remote Room Thermostat 2 (only for P69=11)		Modulation
1, 2	Local room temperature>Safety Room Thermostat and A19=1		Modulation
2	local room temperature>(Local Room Thermostat+ D23) for T43 seconds and remote room temperature>(Remote Room Thermostat+ D27) for T43 seconds and remote room temperature 2>(Remote Room Thermostat 2+ D28) for T43 seconds (only for P69=11)		Standby
2	local room temperature>Safety Room Thermostat and A19=1 and system already in Modulation		Standby

*If available for the chosen heating plant

To exit Standby, set the hysteresis value of the related thermostat.

If room temperature < (Room Thermostat in use-hysteresis-1) -> the system exits Standby.

6.2.7 AUTOMATIC COMBUSTION POWER

Setting the Working Power, the user can define the Automatic [A] or the manual [M] mode; if you choose the Automatic mode, the power will be automatically selected according to the room temperature and to the value of the set Room Thermostat. According to the heating plant selection (parameter **P69**) we will have:

- **P69=1, 2, 3, 4, 5, 6, 7, 8, 9, 10**

The combustion is based on the Local Room Thermostat or on the Remote Room Thermostat depending on the direction of the hot flow air.

Local Flow direction

- room temperature ≤ **Local Room Thermostat-D05** → the system works at maximum Power
- **Local Room Thermostat-D05** < room temperature < **Local Room Thermostat** → combustion power is selected proportionally (the greater is the difference between the room temperature and the value of the Room Thermostat, the higher will be the selected power)
- room temperature ≥ **Local Room Thermostat** → the system works at Power 1 or, if enabled, at Modulation power

Remote Flow Direction

- room temperature ≤ **Remote Room Thermostat-D13** → the system works at maximum Power

- **Remote Room Thermostat**–**D13**<room temperature<**Remote Room Thermostat** → combustion power is selected proportionally (the bigger is the difference between the room temperature and the value of the Room Thermostat, the higher will be the selected power)
- room temperature ≥ **Remote Room Thermostat** → the system goes into Power 1 or, if enabled, into Modulation power
- **P69**=0, 11, 12
The combustion is based on Local Room Thermostat

The parameters **D05** and **D13** must be multiples of the number of functioning powers minus 1.

Example: Mode=[A], **Room Thermostat**=25°C, **D05**=5 °C, **P03**=5

Room Temperature °C	≤ 20	21	22	23	24	≥ 25
Work Power	Power 5	Power 4	Power 3	Power 2	Power 1	Power 1

6.2.8 DELAY TIME COMBUSTION POWER CHANGES

When the system exits from the state of Ignition to go into Run Mode, the combustion power, starting from Power 1, goes to the target one, increasing its value with the delay time equal to the timer **T18**.

Other manual or automatic power changes are managed with the delay time equal to the timer **T17**.

6.2.9 PELLET LOADING CORRECTION

The user sets the Pellet loading On times/speed with Step – 7÷7. **P15** is the percentage value of the single step and affects all the default Working Powers. Calculated values are within the defined range **P27÷P57**.

Example	P15 =10%	C03 =2,0	C04 =3,0	C05 =4,0	C06 =5,0	C07 =6,0	C11 =1,0
	Step= -1	C03 =1,8	C04 =2,7	C05 =3,6	C06 =4,5	C07 =5,4	C11 =0,9

6.2.10 COMBUSTION FAN CORRECTION

The user sets the Combustion Fan speed with Step –7÷7. **P16** is the percentage value of the single step and affects all the default Working Speeds. Calculated values are within the defined range **P14÷P30**.

Example	P16 =5%	V03 =1000	V04 =1200	V05 =1400	V06 =1600	V07 =1800	V11 =900
	Step= +3	V03 =1150	V04 =1380	V05 =1610	V06 =1840	V07 =2070	V11 =1035

6.2.11 PRIMARY AIR REGULATOR

The Regulator reads the air flow speed in the suction pipe of the stove/boiler.

The reading range is 0÷2000. In case of not connected probe the Speed value is 0.

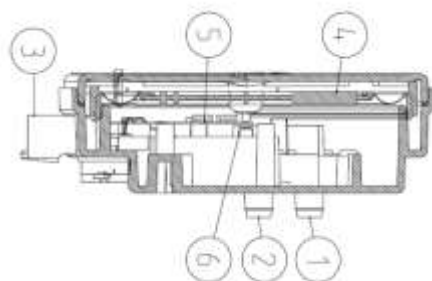
Connections:

Sensor	IN6	IN7
+Vc	pin 42	pin 42
Out	pin 44	pin 46
-GND	pin 45	pin 47

A Differential Pressure Sensor or a Flow meter can be used.

If you use a Differential Pressure Sensor:

- Install it horizontally with the provided fixing flask
- The connections for the pressure reading (see pic. particulars 1 and 2) must be oriented downwards. For the reading, connect to **P2** (see pic. particular); let the connector free **P1**.



Legend

- 1 Pressure Connection P1 (high pressure)
- 2 Pressure Connection P2 (low pressure)
- 3 Electric Connections

Wirings

red cable: +12V
yellow cable: signal
black cable: GND

Functioning:

The aim of regulator, by acting on the Auger and Fan, is to keep the air flow constant for each working power in order to optimize the combustion. The regulator is activated only in Run Mode and Modulation and if **A35**=1 also in Fixed Ignition, Variable Ignition and Stabilization.

For the correct use, proceed as follows:

1. Switch on the system and disable the regulator (**A24**=0). Check the combustion air speed for all the used powers when in Run Mode or Modulation mode.
2. Once you have found these values for each power of the system, set:
 - The set values of the air flow for each power (parameters **FL22÷FL30**).
 - The air flow variation delta in relation to the set value for each power (parameters **FL52÷FL60**).

- The time interval for the combustion regulation (parameter **T19**, considering that the shorter this time is, the fewer readings are made by the system).
 - The waiting time with regulator out of the minimum or maximum range before using another output or signalling the failed regulation (parameter **T20**).
 - Waiting time before starting the first regulation (parameter **T80**)
 - The type of regulation you want to perform (parameter **A24**)
 - Width of the regulation step for each output (**V60** and **C60**)
 - The regulation priority on the selected outputs (function on only if selected a configuration of **A24** with two adjustable outputs). According to the value **A31** we will have:
A31=0->The controller starts to regulate the first output, then goes to the second one if requested, but it always comes back to the first
A31=1->the regulator starts to regulate the first output, then goes to the second ones if requested and stays on the last regulated output.
 - The functioning of the system in case of failed regulation of the outputs. According to the value of **A25** we will have:
A25=0->if regulation fails, the selected outputs will work with the last values calculated by the regulator.
A25=1->if regulation fails, the regulator will be re-initialized and will attempt a new regulation.
A25=2 -> in case of failed regulation, the regulator is deactivated, the selected outputs continue to work with the house parameters and on the display appears **Er17**.
A25=3->in case of failed regulation, the system goes into Block with error **Er17**.
A25=4->in case of failed regulation, the system goes into Recovery Ignition and the regulator is initialized
3. Turn off and restart the system with the regulator enabled. The first intervention of regulation will take place after a waiting time equal to **T80**. The system reads the air flow speed for the time **T19** and checks if it is within the range **FL2X**± (**FL2X*****FL5X**). If this does not occur, the controller changes the set values for Combustion Fan and/or Auger. Regulations affect the outputs in the following way:
- *Air speed detection lower than the defined range*
 Combustion Fan speed is increased from the value **V60** up to the value **P30**
 The on speed/time of the Auger is decreased from the value **C60** up to the value **P27**
 - *Air speed detection higher than the defined range*
 The combustion fan speed is decreased from the value **V60** up to the value **P14**
 The Auger speed/on time is increased by the value **C60** up to the value **P57**

The Regulator operation can be divided in two modes:

- *Regulation of one output (**A24=1** or 3)*
 The regulator modifies the set value of only one output and if it manages to keep it within the set limits (**P14** and **P30** for the Fan, **P27** and **P57** for the Auger) the system works properly. If the value reaches the minimum or maximum value for the regulated output, without falling within the air speed limits, the system waits a time equal to **T20** and then, if **A25=0** the regulator will continue with current data, if **A25=1** it resets and restarts from the beginning, if **A25=2** it goes into error, disable itself and the message **Er17** is displayed, if **A25=3** the system goes into Block with error **Er17**, if **A25=4** the system goes into Recovery Ignition.
 - *Regulations of two outputs (**A24=2** or 4)*
 The regulator modifies the set value of the primary output and if it can keep it within the defined limits, it will not regulate the second output. If the value reaches the minimum or maximum value for the regulated output without falling within the air flow limits, the regulator waits the time **T20** and then switches to the regulation of the second output. If also the regulation of the second output reaches its minimum or maximum value without the air flow is within the limits, after the time **T20**, if **A25=0** it continues with the current data, if **A25=1** it resets and starts again from the beginning, if **A25=2** it disables itself and message **Er17** appears on display, if **A25=3** the system goes into Block with error **Er17**, if **A25=4** the system goes into Recovery Ignition.
4. If the regulator is interrupted by random events which force to change the combustion, such as Periodic Cleaning, then when the system returns to the previous state, the regulator will wait for a period equal to **T80** before the first regulation.
5. If on the keyboard appears the message **Er39** the device is damaged or not correctly connected; the regulation is disabled and the outputs Auger and Fan will work with the factory parameters.
6. If the keypad shows the message **Er42** the maximum set flow has been exceeded (**FL40**): the system goes into Block.
7. If the regulator is enabled to functioning and the time **T01** is not set on 0, if the flow saved at the end of Check Up is less than **FL20** the system goes into Extinguishing and on the display appears the message **Er41**.

Regulation in case of minimum flow:

If the flow decreases in such a way able to compromise the proper operation of the equipment, there is the chance to activate a procedure in order to restore a suitable value of the flow. To activate this procedure, set **FL19** to a value greater than 0.

If the detected flow is lower than **FL19** Flow meter regulation is stopped and, in the system is in Run Mode or Modulation, the Combustion Fan speed becomes equal to **V26**, while the loading, according to the value of **A33**, is stopped or performed at minimum power **P27**.

This phase has a minimum duration of **T80** seconds, after which the system waits the flow to become greater than **FL19+FL49** for a time **T93**. If this occurs, the normal operation is restored, and the regulator uses default parameters for Auger and Fan. If the flow remains under **FL19+FL49**, the system goes into Block with error **Er41**.

During this procedure, Periodic Cleaning is not performed and changing power is allowed but with no effects.

NOTE:

If you change the Auger and Fan settings with the Calibration, the regulator will consider the new obtained values as starting values for the combustion management.

The values of each power obtained from regulation are stored by the system and used as starting values for the following settings.

These values are reset (and the system will start from default parameters) if:

- the combustion or the value of the parameter **A24** are modified
- in case of lack of Voltage Power Supply
- on ignition if **A34**=1
- in the event the following errors occur: **Er02**, **Er03**, **Er12**, **Er13**, **Er18**

6.3 HEATING MANAGEMENT

6.3.1 HEATING FAN

The Heating Fan works as described below:

- It is switched on only if the Exhaust flue gas temperature is higher than the Thermostat **Th05**
- in Modulation and Standby for Room Thermostat, it works at Power 1
- on Extinguishing it works at speed **F07** if **F07** is higher than 0, otherwise it will work at the power it was working before, or at Power 1 depending on the settings
- for safety reasons, if the exhaust flue gas temperature, detected from the Thermo couple or from the safety probe (if set up), is greater, for more than 60 seconds, than the i Thermostats **Th07** or **Th08**, the Fan works at the maximum Power (230 V).

When setting the Heating Power the user can choose between the Automatic mode [A] and the Manual mode [M]; if you choose the Automatic mode the power will be automatically selected according to the parameter value **P06**.

If **P06**=1 the heating power is the same as the combustion power, if **P06**=2 the heating power is automatically selected by the system in use of the exhaust flue gas temperature, by the Thermostat value **Th05** and by the parameter **D04**, if **P06**=3 the heating power is automatically selected by the system in use of room temperature, by Room Thermostat in use and automatically selected by the room temperature of the system in use, by the value of the Room Thermostat in use and by the parameter **D05** or **D13**.

Example: **P06**=2, **Th05**=60°C, **D04**=100 °C, **P03**=5

Exhaust flue gas temperature °C	≤ 60	60 ÷ 84	85 ÷ 109	110 ÷ 134	135 ÷ 159	≥ 160
Heating Power	OFF	Power 1	Power 2	Power 3	Power 4	Power 5

6.3.2 DUCT FAN

The fan switches on only if the exhaust flue gas temperature is greater than the Thermostat **Th10**.

On Extinguishing it works at speed **Fr07** if **Fr07** is higher than 0, otherwise it will work at the power it was working before, or at Power 1 depending on the settings.

Depending on the exhaust flue gas temperature, room temperature and ducting plant, you will have:

Plant	Flow Direction	Remote Room Temperature	Exhaust flue gas temperature/ Safety temperature	Output status
0÷5	-	-	-	OFF
6÷10	Local	-	-	OFF
	Remote	-	> Th07 or Th08	ON: Maximum Power (230 V)
11, 12	Remote	>Remote Room Thermostat	< Th07 and Th08	OFF
	-	-	> Th07 or Th08	ON: Maximum Power (230 V)
11, 12	-	>Remote Room Thermostat	< Th07 and Th08	ON: Power 1

Setting the power the user can choose between the Automatic mode [A] and the Manual mode [M]; if you choose Automatic one, the power will be automatically selected according to the parameter **P07**.

If **P07**=1 the power is the same as the Combustion Power, if **P07**=2 the power is automatically selected by the system according to the exhaust flue gas temperature, the value of the Thermostat **Th10** and the parameter **D24**, if **P07**=3 the power is automatically selected by the system according to the room temperature, the value of the Room Thermostat in use and the parameter **D05** or **D13**, if **P07**=4 it is the same as Heating power.

6.3.3 DUCT FAN 2

Duct Fan 2 only switches on if exhaust flue gas temperature is greater than the Thermostat **Th14**.
In Extinguishing it works at speed **Fd07** if **Fd07** is higher than 0, otherwise it will work at the power it was working before, or at Power 1 depending on the settings.

Depending on the exhaust flue gas temperature, room temperature and ducting plant, you will have:

Plant	Flow Direction	Remote Room Temperature 2	Exhaust flue gas temperature/ Safety temperature	Output status
0÷10 and 12	-	-	-	OFF
11	-	-	> Th07 or Th08	ON: Maximum Power (230 V)
	-	>Remote Room Thermostat 2	< Th07 and Th08	ON: Power 1

Setting the power the user can choose between the Automatic Mode [A] and Manual Mode [M]; if you choose the Automatic one the power will be automatically selected according to the parameter **P10**.

If **P10**=1 the power is the same as the Combustion Power, if **P10**=2 the power is automatically selected by the system according to the exhaust flue gas temperature, the value of the Thermostat **Th14** and of the parameter **D29**, if **P10**=3 the power is automatically selected by the system according to the Remote Room Thermostat 2, the value of the Remote Room Thermostat 2 and of the parameter **D30**, if **P10**=4 it will be the same as Heating power.

If no input has been set as Remote Room Probe 2 and **P10**=3 and automatic heating mode has been selected, ducting power 2 will be the same as combustion power

6.3.4 HEATING PLANT CONFIGURATION

By setting the parameter **P69** you can choose the most suitable configuration of the heating system. **If you erroneously select a not included plant, the system sets plant 0.**

Remember:

VR = Heating Fan

VC1 = Duct Fan

VC2 = Duct Fan 2

TA = Local Room Thermostat

TR1 = Remote Room Thermostat

TR2 = Remote Room Thermostat 2

SEL = Selector

FC1 = Limit switch

FC2 = Limit switch 2

Heating air flow direction according to the limit switch condition:

- Plants with 1 limit switch

Limit switch FC1	Air Flow Direction
open	Local
closed	Remote

- Plants with 2 limit switches

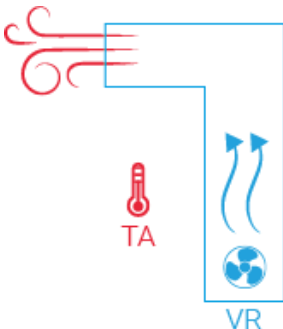
Limit switch FC1	Limit switch FC2	Air Flow Direction
open	open	Local-Remote
open	closed	Local
closed	open	Remote
closed	closed	Error (Er25)

CONFIGURATION 0

Setting **P69**=0 you will have this configuration:

Room Thermostat: Local TA

Heating Fan: VR



The heating management is shown in paragraph 6.3.1.

CONFIGURATION 1

By setting **P69**=1 you will have the following configuration:

Room Thermostat: Local TA and Remote TR1

Heating Fan: VR

Selector: SEL

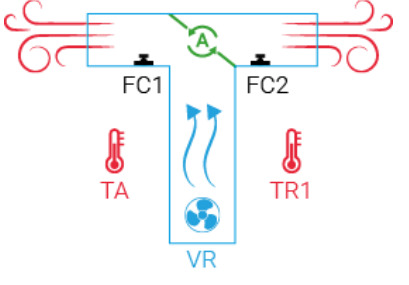
Limit switch: FC1 e FC2

Using the selector you can direct the hot air flow; to modify the settings of the Selector, go to Selector Menu. The 2 limit switches are used to detect possible problems at the Selector: if both are closed the system goes into block with error **Er25**.

For the Heating Fan Management see paragraph 6.3.1.

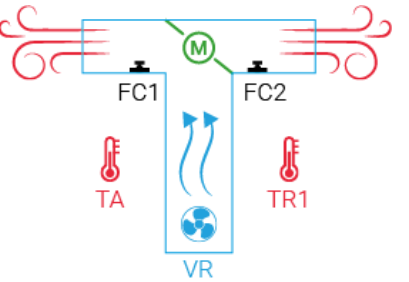
If you direct the flow frontally, the Remote Thermostat will not be considered by the system because it will give priority to local heating. The heating management is similar to the one described in Configuration 0.

- If you direct the flow backwards, you want to prioritize the remote heating; combustion and heating are adjusted on the value of the Remote Thermostat.

	In Modulation and Standby due to the Remote Room Thermostat the system operates in the same way as in Configuration 0. If the parameter A19=1 (a Local Room Probe is used) it is possible to define the Safety Thermostat on the local Room Probe. Once this thermostat has been met, the system goes into Modulation: if it was already in Modulation and A01=2 the system goes into Standby. If you direct the flow to both rooms, the combustion and duct fans are adjusted according to the value of the Local Thermostat. If only the Local Thermostat has been reached, the system goes into Modulation, if only the Remote Thermostat has been reached, the system continues with its normal operation. In Modulation e Standby the system operates in the same way as in Configuration 0.
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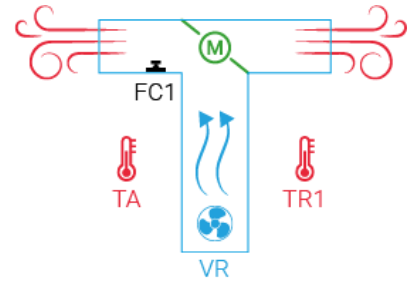
CONFIGURATION 2

By setting **P69**=2 you choose the following configuration

<i>Room Thermostat:</i> Local TA and Remote TR1 <i>Heating Fan:</i> VR <i>Limit switch:</i> FC1 e FC2 	In this plant the selector, which manages the direction of the flow of hot air, is not managed by the control board; the Selector position is determined by the 2 limit switches; if they are both closed the system goes into Block with error Er25. The heating management, in relation to the position of the Selector, is the same as Configuration 1.
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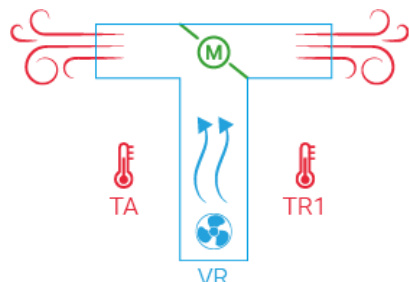
CONFIGURATION 3

Setting **P69**=3 you will have this configuration:

<i>Room Thermostat:</i> Local TA and Remote TR1 <i>Heating Fan:</i> VR <i>Limit switch:</i> FC1 	In this plant the Selector controlling the hot air flow direction is not managed by the control board; its position is defined by the limit switch. For the Heating Fan management see paragraph 6.3.1. - Normally the flow is directed to local (open limit switch) and the functioning of the system is the same as in Configuration 0. - If you direct the flow of air back with the selector (limit switch closed) you want to prioritize the 'remote' heating; the combustion and the heating are adjusted based on the value of the Remote Thermostat. If the parameter A19=1 (a local Room Probe is used) it is possible to define a limit thermostat (Th53) on the local Room Probe. Once this thermostat has been reached, the system goes into Modulation; if it was already in Modulation A01=2 it goes into Standby. In Modulation and Standby for Remote Room Thermostat the system will perform in the same way as in Configuration 0. If you want the air flow to go normally to remote, then switch the connections of the limit switch.
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CONFIGURATION 4

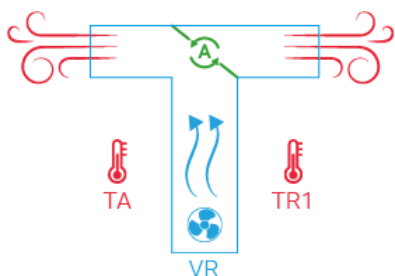
Setting **P69**=4 you will have the following configuration:

<i>Room Thermostat:</i> Local TA and Remote TR1 <i>Heating Fan:</i> VR 	In this plant, the Selector controlling the hot air flow direction is not managed by the control board; its position is by the setting of the Selector Menu. For the Heating Fan management see paragraph 6.3.1. - Normally the air flow is directed to local and the functioning of the system is the same as in Configuration 0. - If you direct the air flow backwards through the Selector, you want to prioritize the 'remote' heating; the combustion and the heating are adjusted on the value of the Remote Thermostat. If A19=1 (a local Room Probe is used) it is possible to define a limit thermostat (Th53) on the local Room Probe. Once reached, the system goes into Modulation; if it was already in Modulation and A01=2 the system goes into Standby. In Modulation and Standby for Remote Room Thermostat the system will perform in the same way as in Configuration 0.
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CONFIGURATION 5

Setting **P69**=5 you will have this configuration:

Room Thermostat: Local TA and Remote TR1
Heating Fan: VR
Selector: SEL



Using the selector you can direct the hot air flow; to modify the Selector settings enter the Selector Menu.

For the Heating Fan management see paragraph 6.3.1.

- Normally the air flow is directed to local and the functioning of the system is the same as in Configuration 0.

- If you direct the air flow backwards through the Selector, you want to prioritize the 'remote' heating; the combustion and the heating are adjusted on the value of the Remote Thermostat.

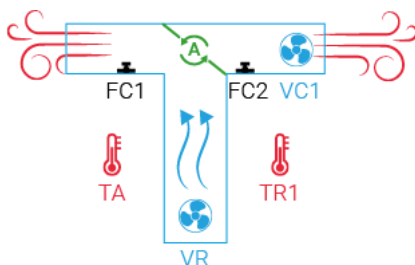
If the parameter **A19**=1 (a local Room Probe is used) it is possible to define a limit thermostat (**Th53**) on the local Room Probe. Once this thermostat has been reached, the system goes into Modulation; if it was already in Modulation **A01**=2 it goes into Standby.

In Modulation and Standby for Remote Room Thermostat the system will perform in the same way as in Configuration 0.

CONFIGURATION 6

Setting **P69**=6 you choose the following configuration:

Room Thermostat: Local TA and Remote TR1
Heating Fan: VR and VC1
Selector: SEL



Using the selector you can direct the hot air flow; to modify the settings of the Selector, go to Selector Menu. The 2 limit switches are used to detect possible problems at the Selector: if both are closed the system goes into block with error **Er25**.

For the Heating Fan management see paragraph 6.3.1, for the management of the second Heating Fan see paragraph 6.3.2.

- If you direct the flow frontally, the Remote Thermostat will not be considered by the system because it will give priority to local heating. The Heating Fan management is similar to the one described in Configuration 0, the Duct Fan is stopped.

- If you direct the air flow backwards, you want to prioritize the 'remote' heating; the combustion and the two duct fans are adjusted on the value of the Remote Thermostat.

In Modulation and Standby for Remote Room Thermostat, the Duct Fan is stopped, the heating fan performs in the same way as in Configuration 0.

If the parameter **A19**=1 (a local Room Probe is used) it is possible to define the Safety Thermostat on the Local Room Probe. Once this thermostat has been reached, the system goes into Modulation: if it was already in Modulation and **A01**=2 the system goes into Standby.

- If you direct the flow to both rooms, the combustion and duct fans are adjusted according to the value of the Local Thermostat. The consent of both the Remote Thermostat and the Local Thermostat is required to go into Standby.

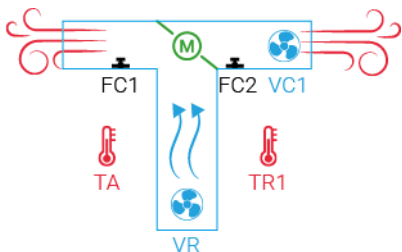
If the value of the Remote Thermostat is reached, the Duct Fan is stopped, if the value of the Local Thermostat is reached the system goes into Modulation.

In Modulation and Standby for Room Thermostat, the Heating fan will perform in the same way as in Configuration 0

CONFIGURATION 7

Setting **P69**=7 you choose the following configuration:

Room Thermostat: Local TA and Remote TR1
Heating Fan: VR and VC1



In this plant the selector which manages the hot air flow direction is not managed by the control board; the position of the Selector is determined by the 2 limit switches; if they are both closed the system goes into Block with error **Er25**.

For the Heating Fan management see paragraph 6.3.1, for the Duct Fan management see paragraph 6.3.2.

- If you direct the flow frontally, the Remote Thermostat will not be considered by the system because it will give priority to local heating. The Heating Fan management is similar to the one described in Configuration 0, the Duct Fan is stopped.

- If you direct the air flow backwards, you want to prioritize the 'remote' heating; the combustion and the two duct fans are adjusted on the value of the Remote Thermostat, the Local Thermostat is not taken into consideration.

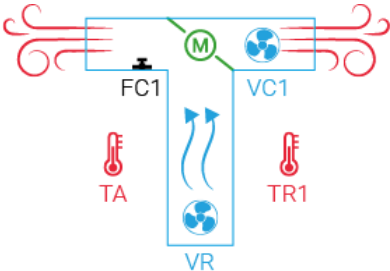
In Modulation and Standby for Remote Room Thermostat, the Duct Fan is stopped, the heating fan performs in the same way as in Configuration 0.

If the parameter **A19**=1 (a local Room Probe is used) it is possible to define the Safety Thermostat on the Local Room Probe. Once this thermostat has been

	reached, the system goes into Modulation: if it was already in Modulation and A01=2 the system goes into Standby. If you direct the flow to both rooms, the combustion and duct fans are adjusted according to the value of the Local Thermostat. The consent of both the Remote Thermostat and the Local Thermostat is required to go into Standby. If the value of the Remote Thermostat is reached, the Duct Fan is stopped, if the value of the Local Thermostat is reached the system goes into Modulation. In Modulation and Standby for Room Thermostat, the Heating fan will perform in the same way as in Configuration 0
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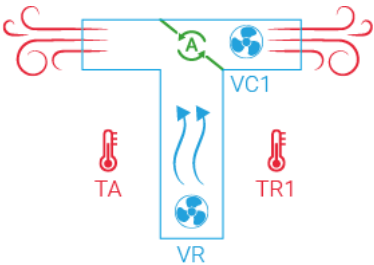
CONFIGURATION 8

Setting **P69**=8 you will have this configuration:

Room Thermostat: Local TA and Remote TR1 Heating Fan: VR and VC1 Limit switch: FC1 	In this plant the Selector controlling the hot air flow direction is not managed by the control board; its position is defined by the limit switch. For the Heating Fan management see paragraph 6.3.1, for the Duct Fan management see paragraph 6.3.2. - Normally the flow is directed in local (open limit switch) and the functioning of the Heating Fan is the same as in Configuration 0, the Duct Fan is still. - If you direct the flow backwards (closed limit switch) you want to prioritize the 'remote' heating; the combustion and the heating are adjusted based on the value of the Remote Thermostat. The Duct Fan switches on, for its management see paragraph 6.3.2. If the parameter A19=1 (a local Room Probe is used) it is possible to define a limit thermostat (Th53) on the local Room Probe. Once this thermostat has been reached, the system goes into Modulation; if it was already in Modulation A01=2 it goes into Standby. In Modulation and Standby for Remote Room Thermostat the Duct Fan is stopped, the Heating Fan will perform in the same way as in Configuration 0. If you want the air flow to go normally to remote, then switch the connections of the limit switch.
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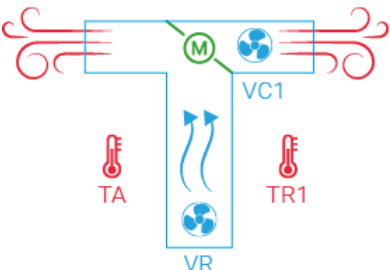
CONFIGURATION 9

Setting **P69**=9 you will have the same configuration:

Room Thermostat: Local TA and Remote TR1 Heating Fan: VR and VC1 Selector: SEL 	Using the selector you can direct the hot air flow; to modify the Selector settings, enter the Selector Menu. For the Heating Fan management see paragraph 6.3.1, for the management of the second Heating Fan see paragraph 6.3.2. - Normally the flow is directed to local and the functioning of the Heating Fan is the same as in Configuration 0, the Duct Fan is still. - If you direct the flow backwards, you want to prioritize the remote heating; combustion and heating are adjusted on the value of the Remote Thermostat. The Duct Fan switches on and for its management see paragraph 6.3.2. If the parameter A19=1 (a Local Room Probe is used) it is possible to define the Safety Thermostat on the local Room Probe. Once this thermostat has been reached, the system goes into Modulation: if it was already in Modulation and A01=2 the system goes into Standby. In Modulation and Standby for Remote Room Thermostat, the Duct Fan is stopped, the heating fan performs in the same way as in Configuration 0.
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CONFIGURATION 10

Setting **P69**=10 you will have this configuration:

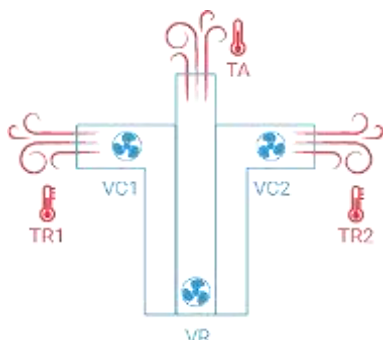
Room Thermostat: Local TA and Remote TR1 Heating Fan: VR and VC1 	In this plant, the Selector controlling the hot air flow direction is not managed by the control board; its position is determined by the setting of the Selector Menu. For the Heating Fan management see paragraph 6.3.1, for the Duct Fan management see paragraph 6.3.2. - Normally the flow is directed to local and the functioning of the Heating Fan is the same as in Configuration 0, the Duct Fan is still. - If you direct the flow backwards you want to prioritize the 'remote' heating; the combustion and the heating are adjusted based on the value of the Remote Thermostat. The Duct Fan switches on, for its management see paragraph 6.3.2. If the parameter A19=1 (a local Room Probe is used) it is possible to define a limit thermostat (Th53) on the local Room Probe. Once this thermostat has been reached, the system goes into Modulation; if it was already in Modulation A01=2 it goes into Standby.
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In Modulation and Standby for Remote Room Thermostat the Duct Fan is stopped, the Heating Fan will perform in the same way as in Configuration 0.

CONFIGURATION 11

Setting **P69**=11 you will have this configuration:

Room Thermostat Local TA, Remote TR1 and Remote 2 TR2
Heating fan VR, VC1 and VC2



For the Heating Fan management see paragraph 6.3.1, for the Duct fan management see paragraph 6.3.2, for the Duct fan 2 management see paragraph 6.3.3.

You can switch on/off the Duct fans VC1 and VC2 from Duct Fan and Duct Fan 2 Menu; the system takes into consideration Remote Room Thermostats only if the related fan has been activated by the user.

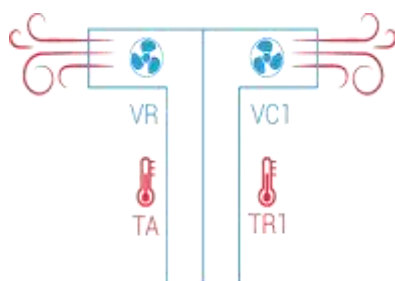
When the set temperature of the room thermostat has been reached, the related fan works at Power 1; in Modulation and Standby for room thermostat, the local fan works at power 1.

If the parameter **A19**=1 (a Local Room Probe is used) it is possible to define the Safety Thermostat on the Local Room Probe. Once this thermostat has been reached, the system goes into Modulation: if it was already in Modulation and **A01**=2 it goes into Standby.

CONFIGURATION 12

Setting **P69**=12 you choose the following configuration:

Room Thermostat: Local TA and Remote TR1
Heating Fan: VR and VC1



For the Heating Fan management see paragraph 6.3.1, for the Duct Fan management see paragraph 6.3.2.

You can switch on/off the Duct fan VC1 from Ducting Fan menu; the system takes into consideration Remote Room Thermostats only if the related fan has been activated by the user.

When the set temperature of the room thermostat has been reached, the related fan works at Power 1; in Modulation and Standby for room thermostat, the local fan works at Power 1.

If the parameter **A19**=1 (a local Room Probe is used) it is possible to define a limit thermostat (**Th53**) on the local Room Probe. Once this thermostat has been reached, the system goes into Modulation; if it was already in Modulation and **A01**=2 it goes into Standby.

6.4 CONFIGURABLE INPUTS

6.4.1 DOOR SENSOR

In case of open door, on the panel appears the message 'Port'. The Auger stops and, if the system is not in Off or in the waiting phase of Standby, the Combustion Fan works at speed **P22**. If the Door remains open for more than **T92** seconds the system goes into Block with error **Er44**. If the contact is not used, short circuit the related pins.

6.4.2 PELLET THERMOSTAT

When the contact is open, there is backdraft:

- the system goes into Block (alarm **Er06**)
- if
 - a configurable output has been set as Auger 2 (product with 2 Augers) the Auger stops and Auger 2 works for the time **T34**
 - a configurable output has been set as Safety Valve (product with one Auger and one Safety Valve) the Auger stops and the Safety Valve closes
 - no configurable output has been set as Auger 2 or Safety Valve (product with one Auger) the Auger works for the time **T34**

If the product only has one auger and the Combustion Fan is off, it will work at speed **V09**.

6.4.3 PELLET LEVEL SENSOR

When the pellet level drops below the pre-set threshold, the system, after reporting the lack of pellet for a time equal to **T24** (the message "**Refill**" is shown), goes into Extinguishing with error **Er18**.

All signals cease when the tank is refilled with pellet and from that moment re-ignition is possible.

When in the system there is a motor for the pellet loading, in case of lack of fuel, also this latter is activated.

By setting the parameter **P09** = 0-1 you can reverse the sensor reading. If you set **P09** = 2-3, besides inverting the reading, in case of lack of material in the tank the system does not go into Extinguishing but continues reporting the lack of pellets.

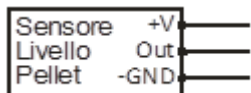
It is possible to connect different pellet level sensor types.

Sensors with an output in continuous voltage

The controller can support only sensor PNP type and the value of the output signal cannot exceed 12V.

Sensors with output up to 5V can be connected to all inputs. Sensors with output higher than 5V (max 12V) can only be connected to inputs IN6 and IN7.

Connections



Connect cables *Out* and *GND* of the sensor to the related pins of the selected input and the cable *+V* to the pin 43 if its voltage is 5V, or to the pin 42 if its voltage is 12V.

Sensors with free contacts output

Connections

See paragraph 2.1 about electrical wirings.

6.4.4 CLEANING MOTOR LIMIT SWITCH SENSOR 3

The contact is used in conjunction with the Cleaning Motor 3.

6.4.5 CLEANING MOTOR 2 LIMIT SWITCH SENSOR 2

The contact is used in conjunction with the Cleaning Motor 2.

6.4.6 CLEANING MOTOR LIMIT SWITCH SENSOR

The contact is used in conjunction with the Cleaning Motor.

6.4.7 SELECTOR LIMIT SWITCH SENSOR

The contact is used in some ducting plants; its closure means that the heating air flow is directed to the remote room. If set but not used, set the contacts free.

6.4.8 PRIMARY AIR REGULATOR SENSOR

For connections and operation see paragraph 6.2.11.

6.4.9 EXTERNAL CHRONO

The contact operates as follows: when it closes, the system goes into Ignition, when it opens the system goes into Extinguishing.

6.4.10 REMOTE ROOM THERMOSTAT

For its functioning see the selected heating plant and the controller's description of the machine condition.

6.4.11 REMOTE ROOM PROBE

For its functioning see the selected heating plant and the controller's description of the machine condition.

6.4.12 SELECTOR LIMIT SWITCH 2 SENSOR

The contact is used in some ducting plants; its closure means that the heating air flow is directed to the local room. If set but not used, set the contacts free.

6.4.13 REMOTE ROOM THERMOSTAT 2

For its functioning, see the selected heating plant and the controller's description of the machine conditions.

6.4.14 REMOTE ROOM PROBE 2

For its functioning, see the selected heating plant and the controller's description of the machine conditions.

6.4.15 AUGER ENCODER INPUT

Use the input if you are using an Auger with encoder.

Connections:

Sensor	uIN2
+V	pin 43
Out	pin 33
-GND	pin 34

6.4.16 CLEANING MOTOR5 LIMIT SWITCH SENSOR

The contact is used in conjunction with the Cleaning Motor 5.

6.4.17 DOOR 2 SENSOR

The door opening doesn't affect the system behaviour , on the panel is displayed the written 'Port 2'; if it remains open for longer than **T102** seconds, the system goes in Block with error **Er44**.

6.4.18 SAFETY PROBE

Use the Probe if the system requests the use of a probe for the switch to Modulation and Safety mode, and the use of the Thermo couple for all the other functionalities connected to the Exhaust flue gas temperature.

6.5 CONFIGURABLE OUTPUTS

6.5.1 PELLET SAFETY VALVE

The output is on when the Auger is enabled to work (In Check Up, Ignition, Stabilization, Run Mode, Modulation and Safety mode); the Auger will switch on only when the timer **T40** expires

The Pre-heating Ignition phase starts only when the timer **T40** expires.

6.5.2 PELLET LOADING MOTOR

When the Pellet Level Sensor reports the lack of material, the load of the tank output switches on.

According to the parameter **P09** we have the following functions:

- **P09**=0, 1
If during the time **T24** the set pellet level is not reached, the system goes into Extinguishing and the display shows the error message **Er18**. If the tank is manually loaded, it is possible to reset the error and restart the system. If the pellet level is reached, the manual loading will continue for a time equal to **T23**.
- **P09**=3, 4
If the set pellet level is not reached in time **T24** the motor stops and the display shows the message 'Refill '. If the set pellet level is reached, the loading of the material continues for a time equal to **T23**.

If the parameter **P43**=0 once the sensor reports the absence of fuel, the motor switches on, except for Off and Block states.

If on the contrary **P43**=1 the motor switches on only in Check Up. The operation is the following:

- in Run Mode and Modulation the system goes into Recovery Ignition and then performs the loading in Check Up
- in Standby, Safety, Recovery Ignition, Extinguishing, Off and Block the motor remains inactive
- if the system is in Ignition or Stabilization, the Ignition is completed and once it is fully operational the system goes into Recovery Ignition

6.5.3 OUTPUT UNDER THERMOSTAT

The output is managed by the thermostat **Th56**: above this value it is supplied, otherwise it is Off

6.5.4 CLEANING MOTOR 3

In OFF and Block the motor is always OFF for safety reasons. The system does not exit the Check Up mode until the motor is not placed back.

The motor switches on:

- In Extinguishing, Recovery Ignition and Standby, before the Final Cleaning phase. The cleaning is repeated **P106** times. To disable the cleaning in this phase, set **P106**=0.
- In Check Up before the cleaning phase. Fans and Augers are switched off; the cleaning is repeated **P107** times. To disable the cleaning in this phase, set **P107**=0.
- In Run Mode and Modulation, when the working time exceeds the value of the parameter **T31**, the cleaning switches on, while the combustion parameters do not change. The cleaning is repeated **P80** times. To disable the cleaning in this phase, set **P80**=0.

The motor management, in this case, can be done through a limit switch or without it:

- limit switch management

Phase	Description
-------	-------------

Phase 1	The system enables the motor and checks the limit switch state: when it opens, moves to Phase 2. If upon the expiry of the timer T85 the limit switch is still closed, the system goes in block with error Er27 .
Phase 2	The duration of this phase is T30 seconds: in that time, the motor must have ended its forward move or its entire cleaning cycle. At the end the system switches to Phase 3.
Phase 3	The maximum duration of this phase is T100 seconds: during this time the motor is Off and must be placed on its starting position (the limit switch must be closed). At the end the system switches to Phase 4. If upon the expiry of T100 the limit switch is still open, the system goes into Block with error Er27 .
Phase 4	If the number of set cleaning cycles is higher than one, a new cleaning phase starts, otherwise the motor is disabled.

If during the normal operation, the temperature controller detects that the limit switch is open, the motor is switched on to try to close the contact; if it fails, the System goes into Block with error message **Er27**.

- management without limit switch:

Phase	Description
Phase 1	The system switches the motor on for a time equal to T30 seconds: during this time the motor has to end its move forwards or the entire Cleaning Cycle. At the end the system switches to Phase 2.
Phase 2	The duration of this phase is T100 seconds: during this time the motor is Off and must be placed on its starting position. At the end the system switches to Phase 3.
Phase 3	If the number of set cleaning cycles is higher than one, a new cleaning phase starts, otherwise the motor is disabled.

6.5.5 COMBUSTION FAN 2

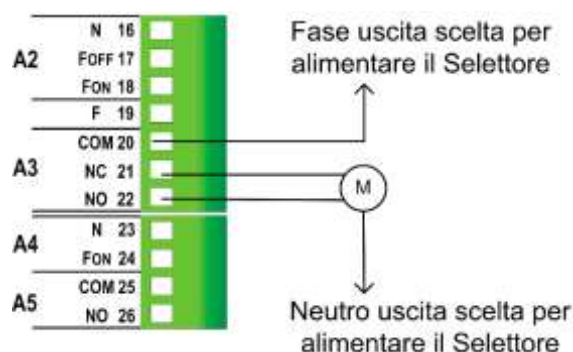
The output is on when the Combustion Fan 1 is On and its power is the same as the first Fan.

6.5.6 SELECTOR

Use this configuration if **P69**=1, 5, 6, 9. The Selector position and the limit switch condition is described in paragraph 6.3.4.

Management of plants 1 and 6

Set **P36**=18 and any configurable output as Selector output; connect as described below.



The Selector will be supplied unless the position set in the Selector Menu is reached. If you modify the direction of the air flow when the Selector is energy-supplied, the Selector will move to reach the new position only after reaching the previous set position.

If in the Selector Menu the position Local-Remote is selected, or it has been previously selected, the Selector will switch on for the time **T70**. If the position set in the Selector Menu is not reached within 300 seconds the system goes into Extinguishing with the error message **Er68**.

Management of plants 5 and 9

For these plants it is possible to set any configurable output as Selector output.

The output is energy-supplied if the correct remote position has been selected from the Selector Menu, otherwise if the local position has been selected, the output is Off

6.5.7 CLEANING MOTOR 2

In OFF and Block the motor is always OFF for safety reasons. The system does not exit the Check Up mode until the motor is not placed back.

The motor switches on:

- For the time **T75**, in Extinguishing, Recover Ignition and Standby, before the Final Cleaning phase. The cleaning is repeated **P104** times. To disable the cleaning in this phase, set **P104**=0.
- In Check Up before the cleaning phase. Fans and Augers are switched off; the cleaning is repeated **P105** times. To disable the cleaning in this phase, set **P105**=0.
- In Run Mode and Modulation mode, when the working time exceeds the value of the parameter **T76**, the cleaning switches on, while the combustion parameters do not change. The cleaning is repeated **P79** times. To disable the cleaning, set **P79**=0.

The motor management, in this case, can be done through a limit switch or without it:	
limit switch management	
Phase	Description
Phase 1	The system enables the motor and checks the limit switch condition: when it opens, the system moves to Phase 2. If upon the expiry of the timer T85 the limit switch is still closed, the systems goes in Block with error Er26 .
Phase 2	The duration of this phase is T75 seconds: in this time the motor must end its move forward or the entire Cleaning Cycle. At the end the system switches to Phase 3.
Phase 3	The maximum duration of this phase is T101 seconds: during this time the motor is Off and must be placed on its starting position (the limit switch must be closed). At the end the system switches to Phase 4. If upon the expiry of T101 the limit switch is still open, the system goes into Block with error Er26 .
Phase 4	If the number of set cleaning cycles is higher than one, a new cleaning phase starts, otherwise the motor is disabled.
If during the normal operation, the temperature controller detects that the limit switch is open, the motor is switched on to try to close the contact; if it fails, the System goes into Block with error message Er26. management without limit switch:	
Phase	Description
Phase 1	The system switches the motor on for a time equal to T75 seconds: during this time the motor has to end its move forwards or the entire Cleaning Cycle. At the end the system switches to Phase 2.
Phase 2	The duration of this phase is T101 seconds: during this time the motor is Off and must be placed on its starting position. At the end the system switches to Phase 3.
Phase 3	If the number of set cleaning cycles is higher than one, a new cleaning phase starts, otherwise the motor is disabled.

6.5.8 AUGER 2 (PAUSE-WORK)

By setting **P81**=0 the output will be on for a time increased of a percentage **P72** compared to the one of Auger 1; the maximum working time consists of the parameter **P57**. If **P81**=1, 2 the output is always ON if the Auger 1 is ON. In Extinguishing and Standby the output switches off only upon the expiry of the timer **T27**.

6.5.9 AUGER 2 (ALWAYS ON)

The output is switched on when Auger 1 is on (in Ignition, Stabilization, Run Mode and Modulation mode) and switches off, compared to Auger 1 switch off, only when the timer **T27** expires.

6.5.10 IGNITER

For its functioning see chapter 5.

6.5.11 CLEANING MOTOR

In OFF and Block the motor is always OFF for safety reasons. The system does not exit the Check Up mode until the motor is not placed back.

The motor switches on:

- For the time **T86**, in Extinguishing, Recovery Ignition and Standby before the Final Cleaning phase. The fan and the auger are switched off; the cleaning is repeated **P50** times. To disable the cleaning in these phases, set **P50**=0.
- In Check Up before the cleaning phase. Fans and Augers are switched off; the cleaning is repeated **P151** times. To disable the cleaning in this phase, set **P151**=0.
- Cyclically, for the time **T141**÷**T147**, when the working time in Run Mode and Modulation exceeds the value of the parameter **T87**. The combustion parameters do not change; the cleaning is repeated **P49** times. To disable the cleaning when the system is fully operational, set **P49**=0.
If the system goes into Safety, the timer **T148** is used.

The motor can be managed with one or two outputs.

Management with an output

The motor management in this case can be carried out with or without limit switch:

- limit switch management

Phase	Description
Phase 1	The system enables the motor and checks the limit switch state: when it opens, moves to Phase 2. If upon the expiry of the timer T85 the limit switch is still closed, the system goes in block with error Er25 .
Phase 2	The maximum duration of this phase is T86 or T141 ÷ T147 seconds: in this time the motor must end its move forward or the entire cleaning cycle. At the end the system switches to Phase 3.
Phase 3	The maximum duration of this phase is T99 seconds: during this time the motor is Off and must be placed on its starting position (the limit switch must be closed). At the end the system switches to Phase 4. If upon the expiry of T99 the limit switch is still open, the system goes into Block with error Er25 .

Phase 4	If the number of performed cleaning cycles is lower than the number of set cycles, the system starts another cleaning cycle starting from the Phase 1, otherwise the Cleaning function is over
If during the normal operation, the temperature controller detects that the limit switch is open, the motor is switched on to try to close the contact; if it fails, the System goes into Block with error message Er25. management without limit switch:	
Phase	Description
Phase 1	The system switches the motor on for a time equal to T86 or T141÷T147 seconds: during this time the motor has to end its move forwards or the entire cleaning cycle. At the end the system switches to Phase 2.
Phase 2	The duration of this phase is T99 seconds: during this time the motor is Off and must be placed on its starting position. At the end the system switches to Phase 3.
Phase 3	If the number of performed cleaning cycles is lower than the number of set cycles, the system starts another cleaning cycle starting from the Phase 1, otherwise the Cleaning function is over
Two-outputs management The output A3 manages the direction, another configurable output manages the motor activation. The motor management, in this case, can be performed only with limit switch.	
Phase	Description
Phase 1	The system switches on the motor in forward mode and checks the limit switch condition: when the limit switch opens, the system switches to Phase 2. If upon the expiry of the timer T85 the limit switch is still closed, the systems goes in Block with error Er25 .
Phase 2	The maximum duration of this phase is T86 or T141÷T147 seconds: during this time the motor is switched on in forward mode. After the fixed time T86 or T141÷T148 , the system switches to Phase 3.
Phase 3	The maximum duration of this Phase is T111 seconds: during this time the motor is switched on in backwards mode, to place it in rest position: if during the maximum time T111 the limit switch contact does not close, the system goes into Block with error Er25 . If the limit switch contact closes, the system switches to phase 4
Phase 4	If the number of performed cleaning cycles is lower than the number of set cycles, the system starts another cleaning cycle starting from the Phase 1, otherwise the Cleaning function is over
If during normal operation the temperature controller detects the switch limit open, the motor is switched on in BACKWARDS mode to try to close the contact; If this fails over time T111, the System goes into Block with error message Er25	

6.5.12 AUGER BLOCK

The output (which must be a free contact output) is used as a contact protection for the Auger. It has to be connected in series to the Auger voltage supply and the contact is always closed when the Auger is enabled to work and it is open when it is not, furthermore it is open in case of encoder alarms (Er47 o Er48) when P81 =1, 2.
--

6.5.13 DUCT FAN

For its functioning see the paragraph 6.3.2.
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6.5.14 DUCT FAN 2

For its functioning see the paragraph 6.3.3.
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6.5.15 CLEANING MOTOR 5

In Off and Block for safety reasons the motor is always stopped. The system does not exit the Check Up until the motor has placed back itself. The motor management is carried out only with a limit switch. The motor is enabled to work only if the system is in Pellet mode and will switch on: - In Extinguishing, Recovery Ignition and Standby before the Final Cleaning phase, the fan and auger are switched off; during the cleaning P88 motor revolutions are carried out, each one in a maximum time of T108 seconds. To disable the cleaning in this phase, set P88=0. - In Check Up before the cleaning phase, fans and augers are switched off; during the cleaning P89 motor revolutions are carried out, each one in a maximum time of T108 seconds. To disable the cleaning in this phase, set P89=0. - Cyclically when the work time in Run Mode and Modulation exceeds the value of the parameter T110. Combustion parameters do not change, P87 motor revolutions are carried out, each one in a maximum time of T108 seconds. To disable the cleaning in these phases set P87=0.	
Phase	Description
Phase 1	The motor performs a rotation in a maximum time of T108 seconds and if the limit switch condition is reached, it switches to Phase 2. If at the end of this time the Limit Switch does not report the occurred rotation, the motor tries to unlock and place back itself for the time T109 changing the rotation direction. If the 'unlock' function is successful, the system restarts the entire cleaning cycle, otherwise it goes into Block with error Er29.

	If on the second attempt the cleaning is not successfully completed, the system goes into Block with error Er29 .
Phase 2	If the number of performed rotations is lower than the set value, the system starts another rotation starting from Phase 1, otherwise the motor is switched off.

If during the normal operation, the temperature controller detects that the limit switch is open, the motor is switched on to try to close the contact; if it fails, the system goes into Block with error message **Er29**.

6.5.16 AUGER SUPPLY IN PWM

The output is needed to supply the Auger if managed in PWM o DAC.

6.6 AUGER UNLOCK FUNCTION

These function is available only for Auger's motors set with Encoder (**P81**=1, 2) and it has the purpose to restart the motor if blocked by some piece of fuel. If the temperature controller detects the Auger's speed to zero, when it should run, it gives to the auger a series of pulses at maximum speed to try to unlock it. If this does not work, the system goes into Extinguishing with error **Er47**. Pulses have a duration of 2 seconds and the pause time between one pulse and the other is equal to the parameter **P118**.

6.7 SYSTEM MAINTENANCE 1 FUNCTION

When the system exceeds the working hours set by the parameter **T66** the need to contact the service is reported and the display shows the message '**Service**'. If **P86**=1, the System goes into Block and the display shows the message '**Er40 Service**'. To unlock the system, or if **P86**=0 to make the message disappear, it is necessary to access to the Service Reset Menu. To disable this function set **T66**=0; to enable it set **T66**>0.

6.8 SYSTEM MAINTENANCE 2 FUNCTION

When the system exceeds the working hours set by the parameter **T67** the need to clean the system is reported. The display shows the message '**Cleaning**' and a periodic acoustic signal is emitted. To stop the acoustic signal, access to the Cleaning Reset Menu. To disable this function set **T67**=0; to enable it set **T67**>0.

6.9 EXTINGUISHING IN IGNITION PHASE

When the system has already passed the Pre-heating Phase of the Ignition and it is turned Off by an external device (such as the internal Chrono, the external Chrono or the modem), it ends Ignition and Stabilization phases and, when fully operational, it goes into Extinguishing. The display shows the message '**Ignition Block**'. In the event of any error, the system goes immediately into Extinguishing with error.

If you press the key **P2** it is possible to get immediately the system in Extinguishing or in Ignition.

6.10 PERIODIC BRAZIER CLEANING

When the stove is up to speed, or if **A61**=1 also in Modulation, the system automatically provides with the periodic cleaning of the brazier and the display shows the message that the cleaning is in progress. According to the value of **A62** we will have:

- **A62**=0
Within intervals of the timer **T07** (minutes) and for the duration of the Timer **T08** (seconds), the values of the Combustion Fan and the values of Auger will vary in the percentage of **P92** and **P93** in relation to the set values. Minimum and maximum reachable values are defined by parameters **P14** and **P30** for the Fan and **P27** and **P57** for the Auger; setting a value to -100% the related output will be disconnected. If **P92** has been set to 101 the Combustion Fan will be set to its maximum value.
- **A62**=1
Periodic cleaning is performed at time intervals that can change with the combustion recipe (timer **T202**) and for a duration that can change both with the combustion recipe and the power (timer **T203**÷**T208**). Combustion Fan and Auger values will change by the percentage **P192** and **P193** compared to the set ones. Also these parameters change with the combustion recipe. Minimum and maximum reachable values are defined by parameters **P14** and **P30** for the Fan and **P27** and **P57** for the Auger; setting a value to -100% the related output will be disconnected. If **P192** has been set to 101 the Combustion Fan will be set to its maximum value
If the system comes from Ignition the cleaning is performed with a further delay of **T201** minutes (if the system directly comes from Check Up the timer **T201** is not taken into consideration).

6.11 LACK OF VOLTAGE POWER SUPPLY

If there is lack in the voltage supply, the system will save the most important operational data.

When the supply voltage comes back the system will evaluate the saved data and, if the data recovery is correct, according to the value of the parameter **A53** you will have:

- **Recover status mode 0 (A53=0)**
 - if the power supply lacked for less than **T88** the system returns to its previous state

- if the system was ON and power supply lacked for a time between **T88** and **T89** the system goes into Recovery Ignition
- if the power supply lacked for a time longer than **T89** the system goes into Block with error **Er15**
- **Recover status mode 1 (A53=1)**
 - if the power supply lacked for less than **T88** the system returns to its previous state
 - if the system was ON and the power supply lacked for a time longer than **T88** the system goes into Recovery Ignition

6.12 FAST EXTINGUISHING FUNCTION

This function allows to take the system in OFF mode, skipping the Extinguishing phase; the system errors check is guaranteed. To enable it, follow the procedure below:

1. put the system in Extinguishing without any error
2. cut off the power supply
3. connect to the mains power supply pressing the key On/Off for 3 seconds

6.13 AUTOMATIC EXTINGUISHING FUNCTION

If the parameter **A40** is different from 0 the system after **T84** minutes working in Run Mode and Modulation, goes into Recovery ignition. If **A40=2** the duration of the extinguishing phase of Recovery Ignition is **T118** seconds and the thermostats are not taken into consideration.

6.14 REFILL FUNCTION

This function only gives an estimate of the remaining fuel in the tank.

The developer must set the parameters **P111** and **P112**.

Every time the pellet is charged in the tank, the user must select the reached load level (25%, 50%, 75% o 100%) in the dedicated menu, or, in case of K500 keyboards, press the key **ESC** for 3 seconds to confirm the previously set level. If the level goes below the 20%, the message 'Refill' appears and you have 180 minutes before the function switches off. The function switches off also in case of error **Er03** or **Er18**.

If the parameter **P12=1** and the level goes below the 10%, the system goes into Block with error **Er18**.

To enable the function enter again the Refill menu and to disable it, set the value to 0

If **P111=0** the function is not available and related menus are not displayed.

6.15 SOFT MODE FUNCTION

If the function is activated, the auger and fans speed is equal to power 5 decreased by a settable percentage; heating and duct fans speed is decreased in each operating state, combustion fans and auger speed is decreased only when the system is in Run Mode. The display shows the message 'Soft Mode'.

Output	Decrease percentage
Combustion Fan	P61
Auger	P62
Combustion Fan 2 (if present)	P63
Heating Fan (if present)	P64
Duct Fan (if present)	P65
Duct Fan 2 (if present)	P66

If a parameter has been set to zero, the related output shall not work in Soft Mode.

If **P61** or **P62** are different from zero, the primary air regulator shall be disabled.

6.16 PRESSURE SWITCH CLOSURE FUNCTION

The procedure tries to close the pressure switch and switches on if **P114=1**.

If the pressure switch opens, for the time **T10** each 20 s the combustion fan is switched on for 5 s at speed **P30**; if at the end of **T10** it is still open, the system goes into Block with error **Er02**.

6.17 NIGHT MODE FUNCTION

Night Mode allows you to disable inside the set time slots, the functioning of the following motors: Loading Motor (if **P100=1**), Cleaning Motor (if **P103=1**), Cleaning Motor 2 (if **P102=1**), Cleaning Motor 3 (if **P101=1**), Cleaning Motor 5 (if **P99=1**).

In CP displays, the function is displayed in the System Information menu; in K displays, during the set time slots, the message *Night Mode* appears.

The time slots programming is similar to the one described in the Chrono Menu. For the programming across the midnight, set a time slot end to 23.59 and the following from 00.00 to a value of your choice.

7 SYSTEM MENU PARAMETRIZATION (TPAR)

7.1 AUGER MENU (TP01)

In case of Encoder version (parameter **P81**=1, 2) values are in RPM, in case of no encoder version (**P81**=0) in seconds. The Auger On times can be set with steps of 0.1 seconds, the speed with steps of 10 RPM. Set and/or calculated values are automatically defined within the limits **P05** and **P27**.

Code	Description	Min	Max	U	Def.
C01 *	Ignition Power	0	P05	[s]	
		0/ P27		[RPM]	
C02 *	Stabilization Power	0	P05	[s]	
		0/ P27		[RPM]	
C03 *	Power 1	P27	P05	[s]/[RPM]	
C04 *	Power 2	P27	P05	[s]/[RPM]	
C05 *	Power 3	P27	P05	[s]/[RPM]	
C06 *	Power 4	P27	P05	[s]/[RPM]	
C07 *	Power 5	P27	P05	[s]/[RPM]	
C08 *	Power 6	P27	P05	[s]/[RPM]	
C10 *	Second Ignition Power	0	P05	[s]	
		0/ P27		[RPM]	
C11 *	Modulation Power	P27	P05	[s]/[RPM]	
P05	Auger Period Total Time	4	99	[s]	
	Maximum Auger Speed	200	3000	[RPM]	
P15	Correction Step Value of the Auger values	1	20	[%]	
P18 *	Auger Speed in Pause/Work in PWM and DAC mode	1	100	[%]	
P19	Output management of the Auger in PWM and DAC operation; 0=always supplied; 1=supplied in pause-work	0	1	[nr]	
P27	Auger On Minimum Time	0	99	[s]	
	Auger Minimum Speed	200	3000	[RPM]	
P35	Number of pulses for revolution	1	10	[nr]	
P57 *	Auger On Maximum reachable time	4	99	[s]	
	Maximum Auger Speed capability	0	3000	[RPM]	
P62	Percentage of decrease of the Auger Speed/On time compared to the values of power 5 if the function Soft mode is on	0	100	[%]	
P81	Auger Management: 0=without Encoder, 1=with Encoder, 2=with auto Encoder. - In case of P81=2 the system involves the use of encoder. If the regulation fails, or there is lack of the encoder signal, the system goes into block with error Er47/Er48. If the system goes into Block with error Er47 resetting the alarm, the system will restart in modality P81=0. - In case of P81=0 and Auger in PWM or DAC mode: - the Auger speed is P18 - if P19=0 the Auger output is always supplied, otherwise it is supplied in pause-work	0	2	[nr]	
P93	Percentage variation of Auger speed/On time during the Periodic Cleaning	-100	100	[%]	
P111	Maximum amount of pellet the stove may contain	0	9000	[Kg]	
P112	Amount of pellet used in 10 minutes with the auger at half of its maximum speed (P05). To calculate the value, use the function 'Loading Test'.	1	9999	[g]	
P118	Auger Off time in Unlock function	1	99	[s]	
P193 *	Percentage variation of Auger speed/On time during the Periodic Cleaning	-100	100	[%]	

* it changes with the combustion recipes

7.2 COMBUSTION FAN MENU (TP02)

Combustion fan speed setting for each operating power/phase. In case of Encoder version (parameter **P25**=1, 2) values are expressed in RPM, in case of no encoder version (**P25**=0) in percentage. Set and/or calculated values are automatically defined within the limits **P14** and **P30**.

Code	Description	Min	Max	U	Def.
V01 *	Ignition Speed	P14	P30	[V]/[RPM]	
V02 *	Stabilization Speed	P14	P30	[V]/[RPM]	
V03 *	Power 1 Speed	P14	P30	[V]/[RPM]	
V04 *	Power 2 Speed	P14	P30	[V]/[RPM]	
V05 *	Power 3 Speed	P14	P30	[V]/[RPM]	
V06 *	Power 4 Speed	P14	P30	[V]/[RPM]	
V07 *	Power 5 Speed	P14	P30	[V]/[RPM]	
V08 *	Power 6 Speed	P14	P30	[V]/[RPM]	
V09 *	Extinguishing Speed	P14	P30	[V]/[RPM]	
V10 *	Second Ignition Speed	P14	P30	[V]/[RPM]	
V11 *	Speed in Modulation	P14	P30	[V]/[RPM]	
V24 *	Ignition-Preheating Speed	0/ P14	P30	[V]/[RPM]	
P14	Combustion Fan Minimum Speed	0	230	[V]	
		300	2800	[RPM]	
P16	Value of the Fan speed correction step	1	20	[%]	
P22	Speed with Door open	0/ P14	P30	[V]/[RPM]	
P25	Combustion Fan management: 0=without Encoder, 1=with Encoder, 2=with auto Encoder. In case of P25 =2 the system works with encoder management. In case of failed regulation, or lack of encoder signal, the system goes into Block with error Er07/Er08 . If the system goes into Block with error Er07 by resetting the alarm, the system can restart in modality P25 =0.	0	2	[nr]	
P29	Number of pulses for revolution	1	10	[nr]	
P30	Maximum Speed Combustion Fan	0	230	[V]	
		300	2800	[RPM]	
P61	Decrease percentage of the Combustion Fan speed compared to the values of power 5 if the Soft mode is On	0	100	[%]	
P92	Percentage variation of the Combustion Fan speed during the Periodic Cleaning	-100	101	[%]	
P192 *	Percentage variation of the Combustion Fan speed during the Periodic Cleaning	-100	101	[%]	

* it changes with the combustion recipes

7.3 HEATING FAN MENU (TP03)

Setting of the speed of the Heating Fan for each functioning power.

Code	Description	Probe	Min	Max	U	Def.
F01	Power 1 Speed		0	230	[V]	
F02	Power 2 Speed		0	230	[V]	
F03	Power 3 Speed		0	230	[V]	
F04	Power 4 Speed		0	230	[V]	
F05	Power 5 Speed		0	230	[V]	
F06	Power 6 Speed		0	230	[V]	
F07	Extinguishing Speed		0	230	[V]	
P06	Heating Power Management: 1=same as combustion power; 2=proportional to exhaust flue gas temperature; 3=proportional to local room temperature		1	3	[nr]	
P17	Value of the Fan speed correction step		1	20	[%]	
P64	Decrease percentage of the Heating fan speed compared to the values of power 5 if the Soft mode is On		0	100	[%]	
P95	Minimum settable Heating Power		0	1	[nr]	
A04	Heating mode: 0>manual/automatic; 1=only automatic		0	1	[nr]	
A68	Fan calibration management: 0=disabled; 1=enabled		0	1	[nr]	
A95	Regulation mode of the speed of the Heating Fan: 0=phase partitioning; 1=wave train, suitable for noise reduction of some types of fans.		0	1	[nr]	

Th05	Heating Fan Activation	Exhaust Flue Gas	5	900	[°C]	
D04	Exhaust flue gas temperature variation for automatic regulation of the Heating Fan (P06=2)	Exhaust Flue Gas	1	120	[°C]	
T69	Delay time for the activation at the maximum speed of the Heating Fan if exhaust flue gas temperature/safety temperature/safety temperature is greater than the Thermostat Th07		0	900	[s]	
T96	Delay time changing heating power (used only if the power decreases)		0	900	[s]	

7.4 THERMOSTATS MENU (TP04)

Setting of the system operating thermostats.						
Code	Description	Probe	Min	Max	U	Def.
Th01	Stove Off	Exhaust Flue Gas	10	900	[°C]	
Th02	Igniter Deactivation	Exhaust Flue Gas	10	900	[°C]	
Th03	Pre-Extinguishing for lack of flame	Exhaust Flue Gas	10	900	[°C]	
Th06	Switch from Stabilization to Variable phase	Exhaust Flue Gas	10	900	[°C]	
Th07	Modulation for Exhaust flue gas Over-temperature	Exhaust Flue Gas/ Safety	10	900	[°C]	
Th08	Safety for Exhaust flue gas Over-temperature	Exhaust Flue Gas/ Safety	10	900	[°C]	
Th09	Ignition Bypass	Exhaust Flue Gas	10	900	[°C]	
Th28	Stove Off in Standby	Exhaust Flue Gas	10	900	[°C]	
Th35**	Extinguishing thermostat for Power 1	Exhaust Flue Gas	10	900	[°C]	
Th36**	Extinguishing thermostat for Power 2	Exhaust Flue Gas	10	900	[°C]	
Th37**	Extinguishing thermostat for Power 3	Exhaust Flue Gas	10	900	[°C]	
Th38**	Extinguishing thermostat for Power 4	Exhaust Flue Gas	10	900	[°C]	
Th39**	Extinguishing thermostat for Power 5	Exhaust Flue Gas	10	900	[°C]	
Th40**	Extinguishing thermostat for Power 6	Exhaust Flue Gas	10	900	[°C]	
Th43**	Extinguishing thermostat for Modulation	Exhaust Flue Gas	10	900	[°C]	
Th53	Safety Room Thermostat	Local Room	10	4	[°C]	
Th56	Output under Thermostat activation Thermostat	Exhaust Flue Gas	5	900	[°C]	
Ih32	Room Thermostat 2 hysteresis	Remote Room 2	0	10	[°C]	
Ih33	Room Thermostat Hysteresis	Local Room	0	10	[°C]	
Ih34	Remote Room Thermostat Hysteresis	Remote Room	0	10	[°C]	
D01	Exhaust flue gas temperature increasing Delta in Stabilization	Exhaust Flue Gas	0	100	[°C]	
D05	Room temperature Delta for the automatic regulation of the combustion power [A] and Heating Fan.	Local Room	3	30	[°C]	
D13	Delta of remote room temperature variation for automatic regulation of the combustion	Remote Room	3	30	[°C]	

D23	Delta of increasing room temperature over the Room Thermostat to switch from Modulation to Standby, if A01 =2, when T43 expires.	Local Room	0	50	[°C]	
D27	Delta to add to the Remote Room Thermostat to switch from Modulation to Standby at the end of T43 , if A01 =2. For the system to switch from Modulation to Standby at the end of T43 , set D27 =0.	Remote Room	0	50	[°C]	
D28	Delta to add to the Remote Room Thermostat to switch from Modulation to Standby at the end of T43 , if A01 =2. For the system to switch from Modulation to Standby at the end of T43 , set D28 =0.	Remote Room 2	0	50	[°C]	
D30	Delta of the remote room temperature 2 for the automatic regulation of the Duct Fan 2	Remote Room 2	3	30	[°C]	
D41	Ignition Delta	Exhaust Flue Gas	0	100	[°C]	

** Exhaust flue gas temperature settings for each combustion phase/power. Below this value, after a Pre-extinguishing waiting time **T14**, the stove goes into Extinguishing for lack of flame. The values operate in addition to the control of the thermostat **Th03**.

7.5 TIMERS MENU (TP05)

Setting of the times associated to the different operating phases of the system.

Code	Description	Min	Max	U	Def.
T01	Check-Up duration time in Ignition	0	900	[s]	
T02	Igniter Pre-heating duration time in Ignition	0	900	[s]	
T03	Pre-loading duration time in Ignition	0	900	[s]	
T04	Fixed Ignition duration time in Ignition	0	3600	[s]	
T05	Variable Ignition duration time in Ignition	0	3600	[s]	
T06	Stabilization duration time in Ignition	0	900	[s]	
T07	Interval of Periodic Cleaning repetition	5	600	[min]	
T08	Periodic Cleaning duration time	0	900	[s]	
T09	Delay time for the Safety AT1 intervention	1	900	[s]	
T10	Delay time for the Safety AT2 intervention (pressure switch)	1	900	[s]	
T11	Delay time to exit Standby	0	900	[s]	
T13	Minimum duration time of the Extinguishing Phase	0	900	[s]	
T14	Pre-extinguishing waiting time for lack of flame	0	900	[s]	
T15	Waiting time for Extinguishing in Safety	0	900	[s]	
T16	Final Cleaning duration time	0	900	[s]	
T17	Delay time combustion power change	0	900	[s]	
T18	Delay time combustion power change exiting Ignition	0	900	[s]	
T22	Delay time to enter in Standby	0	900	[s]	
T23	Timer for fuel tank loading	0	3600	[s]	
T24	Duration time of the lack of fuel report, if an output has been set as Pellet Loading Motor or duration of the fuel loading check, if the Pellet Loading Motor is not included	0	3600	[s]	
T27	Delay time for Auger 2deactivation	1	900	[s]	
T29	Pre-loading waiting time in Ignition	0	900	[s]	
T30	Cleaning Motor 3 work in Extinguishing, Recovery Ignition and Standby	0	9600	[s]	
T31*	Cleaning Motor 3 Pause	1	900	[min]	
T34	Auger working time if there is backdraft	0	3600	[s]	
T40	Delay time for the Auger activation if there is a Pellet Safety Valve	0	900	[s]	
T43	Time after which the system switches from Modulation to Standby if A01 =2 and if room temperature>Room Thermostat in use plus D23 or D27 or D28	0	9600	[s]	
T50	Auger feeding time at the end of the Extinguishing	0	900	[s]	
T66	System operating hours before it goes into Service Block	0	9999	[hours]	
T67	System operating hours before the message 'Cleaning' is shown	0	9999	[hours]	
T70	Time Selector Position Changing	1	250	[s]	
T75	Cleaning Motor 2 work in Extinguishing, Recovery Ignition and Standby	0	9600	[s]	
T76*	Cleaning Motor 2 Pause	1	900	[min]	
T84*	Working time before the system goes into automatic Extinguishing	1	9600	[min]	
T85	Maximum time for the opening of the cleaning motors limit switch	1	60	[s]	
T86	Cleaning Motor work in Extinguishing, Recovery Ignition and Standby	0	9600	[s]	
T87*	Cleaning Motor Pause	1	900	[min]	
T88	Maximum time of voltage supply lack for the system to go back into its previous state	10	900	[s]	
T89	Maximum time of voltage supply lack for the system to go back into Recovery Ignition	1	1400	[min]	
T92	Time of door opening before the system goes into Block	1	900	[s]	
T99	Return time/End of the cycle of the Cleaning Motor	0	9600	[s]	
T100	Return time/End of the cycle of the Cleaning Motor 3	0	9600	[s]	
T101	Return time/End of the cycle of the Cleaning Motor 2	0	9600	[s]	
T102	Door 2time opening before the system goes into Block	1	900	[s]	
T108	Maximum duration time of a rotation of the Cleaning Motor 5	0	9600	[s]	
T109	Duration time of the Cleaning Motor 5 unlock	0	9600	[s]	
T110 *	Cleaning Motor5 Pause	0	900	[min]	
T111	Cleaning Motor work to close the limit switch if managed with two outputs	0	9600	[s]	
T118	Duration time of the extinguishing phase in Recovery Ignition, in case of 'Automatic Extinguishing' if A40 =2	1	900	[s]	

T141	Cleaning Motor Work in Run Mode for Power 1	0	9600	[s]	
T142	Cleaning Motor Work in Run Mode for Power 2	0	9600	[s]	
T143	Cleaning Motor Work in Run Mode for Power 3	0	9600	[s]	
T144	Cleaning Motor Work in Run Mode for Power 4	0	9600	[s]	
T145	Cleaning Motor Work in Run Mode for Power 5	0	9600	[s]	
T146	Cleaning Motor Work in Run Mode for Power 6	0	9600	[s]	
T147	Cleaning Motor Work in Modulation	0	9600	[s]	
T148	Cleaning Motor Work in Safety	0	9600	[s]	
T201 *	Delay time to start Periodic Cleaning if performed for the first time since the entry in Run Mode (if A62 =1)	0	900	[min]	
T202 *	Periodic cleaning cycle (if A62 =1)	0	900	[min]	
T203 *	Periodic cleaning duration for power 1 (if A62 =1)	0	900	[s]	
T204 *	Periodic cleaning duration for power 2 (if A62 =1)	0	900	[s]	
T205 *	Periodic cleaning duration for power 3 (if A62 =1)	0	900	[s]	
T206 *	Periodic cleaning duration for power 4 (if A62 =1)	0	900	[s]	
T207 *	Periodic cleaning duration for power 5 (if A62 =1)	0	900	[s]	
T208 *	Periodic cleaning duration for power 6 (if A62 =1)	0	900	[s]	
T211 *	Periodic cleaning duration for Modulation power (if A62 =1)	0	900	[s]	

* it changes with the combustion recipes

7.6 SETTING MENU (TP08)

Settings of the general functions of the system.

Code	Description	Min	Max	U	Def.
A01	Management of the achievement of the Room Thermostat in use: 0=the system goes into Extinguishing, 1=the system goes into Modulation, 2=the system goes into Modulation and then, if D23 or D27 have been reached and elapsed T43 it goes into Standby	0	2	[nr]	
A10	Ignition command from the Extinguishing: 0= the system goes into Recovery Ignition; 1= it goes into Check Up	0	1	[nr]	
A19	Management of the Local Room Probe or Thermostat: 0=thermostat, 1=probe	0	1	[nr]	
A26	Management to exit from Standby: 0=immediate, 1=only upon the expiry of the timer T13 and if the exhaust flue gas temperature< Th28	0	1	[nr]	
A28	Management Auger Brake: 0= not enabled; 1=enabled	0	1	[nr]	
A40	Management of the 'Automatic Extinguishing' function	0	2	[nr]	
A47	Standby Menu in User Menu 1	0	1	[nr]	
A48	Management of the key P3 or K5 of the control panel for Manual Pellet loading: 0=enabled; 1=disabled	0	1	[nr]	
A53	Management lack of net supply voltage: 0=system in Block with Er15 if there was no supply voltage for more than T89 minutes; 1=system in Recovery Ignition if there was no voltage supply for more than T89 minutes	0	1	[nr]	
A61	Periodical Cleaning Management: 0=enabled only if in Run Mode, 1=also enabled in Modulation	0	1	[nr]	
A62	Enable Periodic Cleaning management with parameters per recipe	0	1	[nr]	
A64	Fan and Auger calibration management: 0=disabled; 1=enabled	0	1	[nr]	
P02	Maximum number of attempted Ignition	1	5	[nr]	
P03	Number of Working Combustion Powers	1	6	[nr]	
P04	Number of recipes shown to the user	1	4	[nr]	
P08	Combustion recipe in use (if P04 is different from 1 the maximum settable value is P04)	1	4	[nr]	
P09	Pellet Level Sensor Configuration: 0= N.C. sensor input sends into Block; 1= N.O. sensor input sends into Block; 2= N.C. sensor input only Alarm; 3= N.O. sensor input only Alarm	0	3	[nr]	
P12	Refill feature with error in case of threshold lower than the 10%: 0=error disabled, 1=error enabled	0	1	[nr]	
P21	Mains Voltage management: 0=230V; 1=120V. If P21=1 set the value of the fans parameters up to 120V.	0	1	[nr]	
P36	Output A3 Configuration	0	44	[nr]	
P43	Pellet loading motor operating in Check Up only	0	1	[nr]	
P44	Output V2 Configuration	0	44	[nr]	
P46	Output A5 Configuration	0	44	[nr]	

P47	A2 Output Configuration	0	44	[nr]	
P48	Output V3 Configuration	0	44	[nr]	
P49	Cleaning Motor cleaning cycles when up to speed.	0	100	[nr]	
P50	Cleaning Motor cycles in brazier Extinguishing	0	100	[nr]	
P51	A4 Output Configuration	0	44	[nr]	
P52	A1 Output Configuration	0	44	[nr]	
P69	Heating Plant Configuration	0	12	[nr]	
P70	IN9 Input configuration	0	30	[nr]	
P71	IN8 Input configuration	0	30	[nr]	
P72	Increase percentage of the Auger 2 working time set in pause work, compared to the Auger	0	500	[%]	
P73	IN10 Input Configuration	0	30	[nr]	
P74	IN11 Input Configuration	0	30	[nr]	
P75	IN3 Input Configuration	0	30	[nr]	
P77	IN2 Input configuration	0	30	[nr]	
P78	IN6 Input Configuration	0	30	[nr]	
P79	Number of the cleaning cycles of the Cleaning Motor 2 when up to speed	0	100	[nr]	
P80	Number of the cleaning cycles of the Cleaning Motor 3 when up to speed	0	100	[nr]	
P82	IN7 Input Configuration	0	30	[nr]	
P83	IN12 Input Configuration	0	30	[nr]	
P84	IN13 Input Configuration	0	30	[nr]	
P86	'System Maintenance 1' function management: 0=the system does not go into Block when exceeding T66 , 1=the system goes into Block when exceeding T66	0	1	[nr]	
P87	Number of the cleaning cycles of the Cleaning Motor 5 when up to speed	0	100	[nr]	
P88	Cleaning Motor5 cleaning cycles in brazier extinguishing phase	0	100	[nr]	
P89	Cleaning Motor 5 cleaning cycles in Check Up	0	100	[nr]	
P99	Cleaning Motor 5 Management in Night Mode: 0=normal operation; 1=Off	0	1	[nr]	
P100	Loading Motor Management in Night mode: 0=normal operation; 1=Off	0	1	[nr]	
P101	Cleaning Motor 3 management in Night Mode: 0=normal operation; 1=Off	0	1	[nr]	
P102	Cleaning Motor 2Management in Night mode: 0=normal operation 1=Off	0	1	[nr]	
P103	Cleaning Motor Management in Night mode: 0=normal operation; 1=Off	0	1	[nr]	
P104	Cleaning Motor 2 cleaning cycles in the brazier extinguishing phase	0	100	[nr]	
P105	Cleaning Motor 2 cleaning cycles in Check Up	0	100	[nr]	
P106	Cleaning Motor 3 cleaning cycles in the brazier extinguishing phase	0	100	[nr]	
P107	Cleaning Motor 3 cleaning cycles in Check Up	0	100	[nr]	
P114	Enable Pressure switch closure Function.	0	1	[nr]	
P115	Combustion Fan at speed V09 in Block with errors Er01 , Er02 , Er03 , Er06 and Er44 until the system is unlocked.	0	1	[nr]	
P140	Output PW1 management: 0=PWM; 1=DAC	0	1	[nr]	
P141	Output PW2 management: 0=PWM; 1=DAC	0	1	[nr]	
P142	Output PW1 configuration	0	4	[nr]	
P143	Output PW2 configuration	0	4	[nr]	
P151	Cleaning Motor cleaning cycles in Check Up	0	100	[nr]	
TS01	Calibration factor for Exhaust Flue Gas Probe	-20	20	[%]	

7.7 COUNTERS MENU (TP1 1)

Counter Reset	rES	Reset of all the counters: turn to zero all counters
Service Reset	rSUC	This menu allows you to reset the function 'Maintenance 1 System'

Using the parameter '*Counter Reset Menu visualization*' in the menu Settings of the software, you can enable the Counters Reset Menu visualization (parameter set to 0), or disable it (parameter set to 1).

7.8 OUTPUTS TEST MENU (TP12)

Allows to test the functioning of each output with the connected charges: it is available only in Off.					
Code	Description	Min	Max	U	Def.

LCD and K	CP					
Combustion Fan	V1	Combustion Fan Test	0	230	[V]	
			300	2800	[RPM]	
Output V2	V2	Output V2 Test	Off	On	-	
			0	230	[V]	
V3 Output	V3	V3 Output Test	Off	On	-	
			0	230	[V]	
Auger	C	Auger Motor Test	Off	On	-	
			200	3000	[RPM]	
A1 Output	A1	A1 Output Test	Off	On	-	
			0	230	[V]	
Output A2	A2	A2 Output Test	Off	On	-	
A3 Output	A3	A3 Output Test	Off	On	-	
Output A4	A4	A4 Output Test	Off	On	-	
A5 Output	A5	A5 Output Test	Off	On	-	
PW1 Output	PU1	PW1 Output Test	0	100	[%]	
PW2 Output	PU2	PW2 Output Test	0	100	[%]	

During the Fans test the display shows the set value [V]/[RPM] and the number of revolutions [RPM] detected by the encoder (if included): this make it possible to create a conversion chart [RPM]/[V] to switch from Fan with encoder to Fan without it in case of encoder breakage.

During the Auger test, the display shows the set value [RPM] and the number of revolutions [RPM] detected by the encoder. If the Auger has no encoder, the test is performed only in ON/OFF

7.9 DUCT FAN MENU (TP14)

Setting of the speeds of the Duct Fan for each operating power/phase.

Code	Description	Probe	Min	Max	U	Def.
Fr01	Power 1 Speed		0	230	[V]	
Fr02	Power 2 Speed		0	230	[V]	
Fr03	Power 3 Speed		0	230	[V]	
Fr04	Power 4 Speed		0	230	[V]	
Fr05	Power 5 Speed		0	230	[V]	
Fr06	Power 6 Speed		0	230	[V]	
Fr07	Extinguishing Speed		0	230	[V]	
P07	Ducting power management: 1=same as combustion power; 2=proportional to exhaust flue gas temperature; 3=proportional to remote room temperature; 4=same as Heating Power		1	4	[nr]	
P65	Decrease percentage of the Fan speed compared to the values of power 5 if the Soft mode is On		0	100	[%]	
Th10	Duct Fan activation thermostat	Exhaust Flue Gas	10	900	[°C]	
D24	Delta of exhaust flue gas temperature variation for Duct Fan automatic regulation (P07 =2)	Exhaust Flue Gas	1	120	[°C]	

7.10 DUCT FAN MENU 2 (TP15)

Setting of the speeds of the Duct Fan2 for each operating power/phase.

Code	Description	Probe	Min	Max	U	Def.
Fd01	Power 1 Speed		0	230	[V]	
Fd02	Power 2 Speed		0	230	[V]	
Fd03	Power 3 Speed		0	230	[V]	
Fd04	Power 4 Speed		0	230	[V]	
Fd05	Power 5 Speed		0	230	[V]	
Fd06	Power 6 Speed		0	230	[V]	
Fd07	Extinguishing Speed		0	230	[V]	
P10	Duct Fan 2 management: 1=same as combustion power; 2=proportional to exhaust flue gas temperature; 3=proportional to remote room temperature; 4=same as Heating Power		1	4	[nr]	
P66	Decrease percentage of the Fan speed compared to the values of power 5 if the Soft mode is On		0	100	[%]	

Th14	Duct Fan 2 activation thermostat	Exhaust Flue Gas	10	900	[°C]	
D29	Delta of exhaust flue gas temperature variation for Duct Fan automatic regulation (P10 =2)	Exhaust Flue Gas	1	120	[°C]	

7.1.1 PRIMARY AIR REGULATOR MENU (TP16)

Menu for the setting of the values of the combustion air flow regulator.

Settings

Code	Description	Min	Max	U	Def.
A24	Regulator management: 0=disabled, 1=Combustion Fan regulation, 2=Combustion Fan+Auger regulation, 3=Auger regulation, 4=Auger +Combustion Fan regulation	0	4	[nr]	
A25	Regulation error management: 0=the system does nothing; 1=the system resets the regulator and starts a new regulation; 2=the system disables the regulator ; 3=the system goes into Block with error Er17 ; 4=the system goes into Recovery Ignition and resets the regulator	0	4	[nr]	
A31	Failed regulation management: 0=the Controller always switches back on the first output; 1=the regulator remains on the last regulated output	0	1	[nr]	
A33	Auger management in Run Mode and Modulation if the air flow is lower than FL19 : 0=Auger stopped, 1=Auger at P27	0	1	[nr]	
A34	Loading, when switching on, of the Auger and Fan default values	0	1	[nr]	
A35	Regulator activated in Fixed Ignition, Variable Ignition and Stabilization	0	1	[nr]	
T19	Stabilization time of the regulation on the first output	5	900	[s]	
T20	Stabilization time of the regulation on the second output	10	900	[s]	
T80	Waiting time for the first regulation	0	900	[s]	
T93	Waiting time for the flow to exceed the threshold FL19+FL49	0	900	[s]	
V26	Combustion fan speed in Run Mode and Modulation if primary air flow < FL19	0	230	[V]	
		300	2800	[RPM]	
VA26	Combustion fan 2 speed in Run Mode and Modulation if primary air flow < FL19	0	230	[V]	
V60	Fan Regulation Step	2	100	[V]	
		10	500	[RPM]	
C60	Auger Regulation Step	0,1	20	[s]	
		10	500	[RPM]	

Flow Set

Code	Description	Min	Max	U	Def.
FL19*	Minimum Air for Run Mode and Modulation	0	2000		
FL20*	Minimum Air for Check Up	0	2000		
FL22*	Air Flow Set for Power 1	0	2000		
FL23*	Air Flow Set for Power 2	0	2000		
FL24*	Air Flow Set for Power 3	0	2000		
FL25*	Air Flow Set for Power 4	0	2000		
FL26*	Air Flow Set for Power 5	0	2000		
FL27*	Air Flow Set for Power 6	0	2000		
FL30*	Air Flow Set for Modulation	0	2000		
FL31*	Air Flow Set in Variable and Fixed Ignition	0	2000		
FL32*	Air Flow Set in Stabilization	0	2000		
FL33*	Air Flow Set in second Ignition	0	2000		
FL40*	Maximum Flow	0	2000		

Delta

Code	Description	Min	Max	U	Def.
FL49	Air Flow Delta to add to FL19	0	2000		
FL52	Air Flow Variation Delta for Power 1	0	100	[%]	
FL53	Air Flow Variation Delta for Power 2	0	100	[%]	
FL54	Air Flow Variation Delta for Power 3	0	100	[%]	
FL55	Air Flow Variation Delta for Power 4	0	100	[%]	
FL56	Air Flow Variation Delta for Power 5	0	100	[%]	
FL57	Air Flow Variation Delta for Power 6	0	100	[%]	

FL60	Delta of the Air Flow variation for Modulation	0	100	[%]	
FL61	Delta of the Air Flow variation in Fixed and Variable Ignition	0	100	[%]	
FL62	Air Flow Variation Delta in Stabilization	0	100	[%]	
FL63	Air Flow Variation Delta in second Ignition	0	100	[%]	

7.12 COMBUSTION FAN 2 MENU (TP25)

Menu for the setting of the values of the second Exhaust flue gas Fan					
Code	Description	Min	Max	U	Def.
VA01 *	Ignition Speed	0	230	[V]	
VA02 *	Stabilization Speed	0	230	[V]	
VA03 *	Power 1 Speed	0	230	[V]	
VA04 *	Power 2 Speed	0	230	[V]	
VA05 *	Power 3 Speed	0	230	[V]	
VA06 *	Power 4 Speed	0	230	[V]	
VA07 *	Power 5 Speed	0	230	[V]	
VA08 *	Power 6 Speed	0	230	[V]	
VA09 *	Extinguishing Speed	0	230	[V]	
VA10 *	Second Ignition Speed	0	230	[V]	
VA11 *	Speed in Modulation	0	230	[V]	
VA22	Speed with Door open	0	230	[V]	
VA24 *	Ignition-Preheating Speed	0	230	[V]	
P63	Decrease percentage of the Combustion Fan 2 speed compared with the values of power 5 if the Soft mode is On	0	100	[%]	
* it changes with the combustion recipes					

7.13 MENU TO RESTORE THE DEFAULT PARAMETERS (TP26)

Menu that allows to restore the default value of the parameters used by the system. To use it, from software, parameter ' <i>Restore default values management</i> ' must be set to 1.					
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