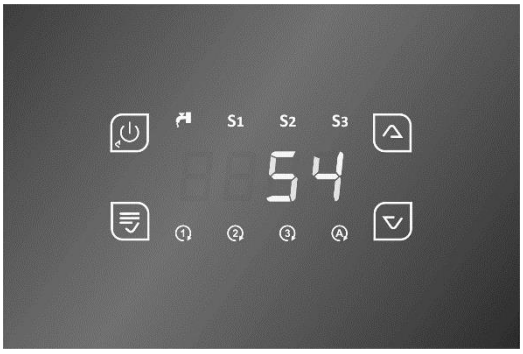
TOUCH Temperature Controller — User Manual

1. MAIN FEATURES

The **TOUCH** Temperature Controller manages Wood Fireplaces and Boilers, for heating and domestic hot water production, with the possibility to integrate it to a Gas Boiler.



Safety Rules

Read carefully the following safety regulations, in order to prevent accidents to people and things.

Before working on the hydraulic plant, please be aware of the following:

- Accident prevention measures
- Environmental protection measures
- National Institute for Work accidents measures
- Recognized prevention measures
- This manual is intended for qualified technical staff only
- Electrical wiring and connection must be performed by qualified technicians only
- The first installation of the hydraulic plant must be performed expert personnel

Declaration of Conformity

Regulations:
EN 60730-1 50081-1
EN 60730-1 A1 50081-2

CE

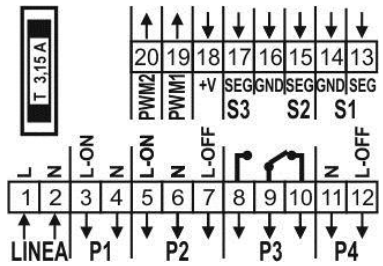
Technical data	**Mechanical Characteristics**	**Installation conditions and Use**
Supply:230 Vac 50 Hz ± 10%	Material: PA	Operating Temperature: 0÷40 °C
Absorption:2,5 VA	Flush mount Installation: 3 Modules/ Wall	Storage Temperature:0 ÷ 60 °C
Outputs Range:5A 250 Vac	Dimensions:Flush mount: 132x68x50 mm	Umidity: 85% @25°C
Internal fuse:3,15 A	Degree of Protection:IP40	

2. INSTALLATION

⚠ ***Make sure that the Main Power Supply is OFF, before installing the device***

- Install the product in a dry environment with proper climatic conditions
- Insert a bipolar main switch compliying to local regulations
- Avoid coupling the probe cables with these of power
- Use for wiring, cables with conductors of appropriate section and in according the rules
- Position the probes to detect correctly the temperature
- Make sure the probe wires are placed away from direct/indirect flame

3. ELECTRICAL CONNECTIONS



All the probe inputs and command outputs are controlled automatically according to the type of hydraulic/plumbing plant selected.
For electrical connections
you must refer to Chapter 7 and the following paragraphs concerning the hydraulic/plumbing schematic drawings.

Fig.2 – Electrical connections

	Code	Connectors	Device	Characteristics
INPUTS	**LINE**	**1 – 2**	Voltage Supply	230 Vac 50 Hz ± 10%
	S1	**13 – 14**	Fireplace Temperature Probe	Operating Range: -50°C ÷ 125 °C NTC 10K Measure: -10 ÷ 110 °C ± 1°C NTC 100K Measure: -10 ÷ 300 °C ± 1°C PT 1000 Measure: -40 ÷ 300 °C ± 1°C Flow switch contact ON/OFF
	S2	**15 – 16**	Sanitary (DHW) Boiler /Buffer Probe Flow Switch	
	S3	**16 – 17**	Ambient Probe/Thermostat Buffer, Collector Panel	
		16 – 17 – 18	Pressure Sensor	Operating Range: 0 ÷3 bar / 0 ÷ 3V
OUTPUTS	**P1**	**3 – 4**	Pump 1	230 Vac 5A
	P2	**5 – 6 – 7**	Diverter Valve / Pump 2	230 Vac 5A
	P3	**8 – 9 – 10**	Boiler Integration Consent	Contact in exchange: COM.(9)-N.O.(8) - N.C.(10)
	P4	**11 - 12**	Service = Thermostat	230 Vac 5A
			Service = Grill	
			Combustion Air Damper	
			Pump 2	
	PWM1	**19 – 16 o 14**	Control PWM1	0-5Vdc, Frequency 1Khz, Duty Cycle 0-100%
	PWM2	**20 – 16 o 14**	Control PWM2	

4. Control Panel: USE AND FUNCTIONS

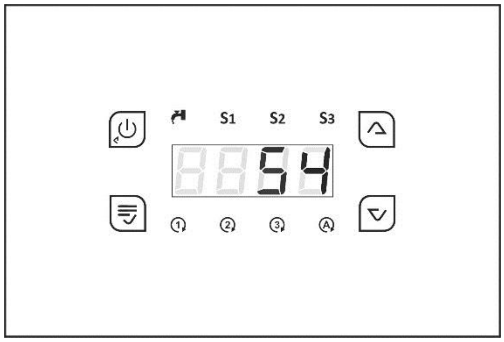
ON/OFF Exit the Menu Grill Service Air Damper Manual Start	**K1**				**K3**	Scroll/Increase Pump1 Test Probes Menu
Enter User Menu SET Shower Key	**K2**				**K4**	Scroll/Decrease Pump2 Test Probes Menu

Fig. 3 Main Screen

54	S1 Probe Temperature	S1	S1 Probe Displayed
1	P1 Output Activated	S2	S2 Probe Displayed
2	P2 Output Activated	S3	S3 Probe Displayed Fashing: Ambient Thermostat open
3	P3 Output Activated		
	ON: Flow Switch Closed Fashing: Shower Function Activated	A	P4 Output Activated

5. FUNCTIONALITIES

5.1 ON/OFF

The controller is turned ON/OFF by applying prolongued pressure to **K1** key

- OFF-mode is displayed by **K1** key being turned-on
- When the controller is turned on, the following messages will appear
  - Product Code **t002**
  - Product Revision **r 0.1**
  - Configuration **CF01**

5.2 PROBE DISPLAY

The display shows the correct temperature sensor value **S1** (**S1** led is lit up).

- To enter the probe menu press either **K4** or **K3**, the temperature of Probe **S2** is displayed (**S2** Led flashes) or **S3** (**S3** Led flashes)
- By pressing **K3** or **K4** it is possible to scroll and check other connected probes
- To exit the Menu press **K1** or wait 10 seconds
- If the probe reading is below the minimum range of the sensor the message **Lo** appears
- If the probe reading is above the maximum range of the sensor the message **Hi** appears

5.3 SAFETY FEATURE

When this function is activated; **P11**=**1**, it starts a heat disposing process to remove excess heat buildup of the fireplace
The management of the safety feature is expalined in the plumbing/hydraulic schematic drawing parapraphs

5.4 ALARM FUNCTION

If the temperature measured by **Sensor S1** exceeds the value of the thermostat alarm **A08**

- An audible and visual signal is activated (the temperature flashes on the Display)
- **SILENCE** Function: The audible signal can be turned off for 5 minutes by pressing any key. If the controller remains in the alarm condition, the audible signal will start again.

5.5 ANTIFREEZE FUNCTION

If the temperature measured by **Probe S1** falls below the value of the Antifreeze Thermostat **A06**

- The output for Pump **P1** is turned on for **t01** time at intervals of **t02** time
- The display will show the writing **ICE**

5.6 PUMP P1 ANTISEIZE FUNCTION

If Pump **P1** remains inactive, also while OFF, for a time greater than Timer **t05**

- The output for Pump **P1** is turned-on for **t04** seconds
- The display will show the writing **bLP**

5.7 STANDBY FUNCTION

If the controller is **OFF**, and in **ALARM**, **ANTIFREEZE** or **ANTISEIZE FUNCTION** of Pump **P1**

- The controller automatically turns itself **ON**
- At the end of **ANTIFREEZE** or **ANTISEIZE of Pump P1** functions, the controller will turn itself **OFF**.
- Al the end of **ALARM** function the controller will remain **ON**

5.8 PUMP P1 FUNCTIONING TEST

When the controller is OFF, prolongued pressure of **K3** key:

- **P1** output is activated for as long as the key is pressed and the display will show **tSt1**

5.9 PUMP P2 FUNCTIONING TEST

When the controller is OFF, prolongued pressure of **K4** key:

- **P2/P4** output is activated for as long as the key is pressed and the display will show **tSt2**

5.10SERVICE OUTPUT

P4 SERVICE output is programable from the Installer MENU by using parameter **P06**:

- **P06 = 0 DISABLED**: the output does not work.
- **P06 = 1 THERMOSTAT**: the output is activated if the temperature of **S1** probe is above Thermostat **A09.**
- **P06 = 2 GRILL**: press **K1** key to turn on/off the output.
- **P06 = 3 AIR DAMPER**: this output is used to manage an Air Damper to adjust for Combustion Air Flow.

5.11AIR DAMPER

To make use of the Air Damper function set parameter **P06 = 3**

If the output is ON the Air Damper will be Open, if the output OFF the Air Damper will be closed.

The Air Damper will stay Open as long as the temperature of S1 probe is below **A05** Thermostat. The Air Damper will close when the temperature is above this Thermostat.

- If **P12 = 1** the **Start Manual** function is enabled:

If S1 Temperature is below **A01**, the Air Damper will Close. During the Ignition phase of the Fireplace, by pressing **K1** key the Air Damper will Open manually (the output corresponding Led will flash). When the Temperature falls below **A01**, Thermostat after **t06** time the Air Damper will close automatically.

5.12PROBE TYPE

The controller can manage NTC10K, NTC100K and PT1000 type of probes, which can be configured by using parameters **P01**, **P02**, **P03** and **P17** of the Installer MENU.

- **Fireplace Probe:** **P01 = 0 → NTC10K; P01 = 1 → NTC100K; P01 = 2 → PT1000**
- **DHW Boiler Probe/ Tall Buffer :** **P02 = 0 → NTC10K; P02 = 1 → NTC100K; P02 = 2 → PT1000**
- **Short Buffer Probe:** **P03 = 0 → NTC10K; P03 = 1 → NTC100K; P03 = 2 → PT1000**
- **Ambient Probe:** **P04 = 0 → NTC10K; P04 = 1 → NTC100K; P04 = 2 → PT1000**
- **Collector Probe:** **P17 = 0 → NTC10K; P17 = 1 → NTC100K; P17 = 2 → PT1000**

5.13S3 INPUT CONFIGURATION

Parameter **P05** can be enabled to mange the following:

- **P05 = 0, S3** input = **DISABLED**
- **P05 = 1, S3** input = **PRESSURE SENSOR**
- **P05 = 2, S3** input = **AMBIENT SENSOR**
- **P05 = 3, S3** input = **AMBIENT SENSOR**

5.14PRESSURE SENSOR

If **P05=1** pressure sensor management is enabled on probe **S3**.

If **P07=1** pressure sensor errors are enabled:

- If Water Pressure < **Pr1** dispaly shows **PrLo** + audible signal.
- If Water Pressure > **Pr2** dispaly shows **PrHi** + audible signal.

5.15PROBE SENSOR/AMBIENT THERMOSTAT

Parameter **P05** can be setup to enable the management of the Probe Sensor/Ambient Thermostat

- If the Ambient Temperature **S3**>**b01** or the Ambient Thermostat is **Open** (**S3** Led flashing) and there is **NO** DHW request
- The Air Damper is closed

The hydraulic/plumbing plants with a Buffer tank; if the Ambient Temperature is **S3**>**b01** or the Ambient Thermostat is **Open** the Heating Pump will be turned off (deactivated)

5.16SHOWER

(**P13=1)** if used in specific hydraulic/plumbing plants where it is required, it can be enabled by pressing **K2** key for 3 sec**:**

-
- The display shows **T03** time (minutes) giving (DHW) Domestic Hot Water priority;
- **K3** and **K4** keys increase /decrease the duration
- Wait 5 seconds to save and exit from this setup.
- To exit without saving press **K1** key.

T03 time is signaled by led flashing, giving priority to DHW production based on the type of hydraulic/plumbing plant in use.

This function is over when

- **T03** time has expired.
- By pressing again **K2** key
- If the temperature of **S1** Probe is greater than **A07** Safety Thermostat:

And **T03=0**, the shower function can be disabled by pressing **K2** key.

5.17 SOLAR CIRCUIT

Buffer Tank Loading:

The Solar Pump is activated:

- If the Temperature of (**S3**) >**A33** and **Δ** (**S3-S2**) > **d02**

The Buffer Loading is disabled once the Buffer Comfort Thermostat has been reached on S2 (**A20**).

Collector and Buffer Safety:

If the Temperature of the Manaifold (**S3**) > **A35** (Collector Safety Thermostat) the Solar Pump is turned on again and fills the Buffer Tank until **A23** high temp. Thermostat has been reached.

Collector Protection:

If the Collector Temperature (**S3**) > **A36** (Collector Safety Thermostat) the solar pump is turned off

Antifreeze:

When this function is enabled (**P09=1**) if the temperature detected by **S3** probe (even while the controller is OFF) falls below the Antifreeze Thermostat **A34** the solar pump is turned on for **t04** time at intervals of **t05** time

5.18 WOOD INTEGRATION PRIORITY (Hydraulic/Plumbing plants including Buffer Tank)

This feature gives priority to the integration of the fireplace instead of the Gas boiler.

Se **P10**=1 priority is given to the wood fireplace in managing the integration of the Buffer Tank instead if the Gas Boiler.

5.19 PUMPS MANAGEMENT WITH PWM CONTROL

P18 and **P19** parameters are used to enable and select the operating mode of the PWM1 and PWM2 signals, to manage the pumps provided in the hydraulic/plumbing schemes:

- **PWM1:** **P18 = 0 → Disabled;** **P18 = 1 → Manual;** **P18 = 2 → Automatic**
- **PWM2:** **P19 = 0 → Disabled;** **P19 = 1 → Manual;** **P19 = 2 → Automatic**

PWM Disabled:

The pumps are controlled exclusively via 230V outputs

PWM Manual:

The PWM duty cycle which determines the speed of the pumps is set with the following parameters:

- U06 if PWM1 with Heating profile (Fireplace Pump)
- U16 if PWM2 with Heating profile (Heating Pump)
- U26 if PWM2 with Solar profile (Solar Pump)

Automatic PWM:

In relation to the type of pump, the PWM duty cycle is calculated on the basis of the temperature of the fireplace probe, high Buffer Tank probe or solar collector probe and can vary within the following ranges:

- Between U01 and U02 if PWM1 with Heating profile (*es. 85 ÷ 5 %)*
- Between U11 and U12 if PWM2 with Heating profile (*es. 85÷ 5 %)*
- Between U21 and U22 if PWM2 with Solar profile (*es. 15 ÷ 95 %)*

Fireplace Pump speed change is enabled within the following temperature range:

- Between A01 and A01+A80 in heating management (*ex. if A01=35°C, A80=20°C then range: 35 ÷ 55 °C*)
- Between A01 and A01+A81 in DHW management (*ex. if A01=35°C, A81=15°C then range: 35 ÷ 50 °C*)

Heating Pump Speed change is enabled within the following temperature range:

- Between A04 and A04+A82 (*ex. if A04=45°C, A82=20°C then range: 45 ÷ 65 °C*)

Or if the Buffer Tank is present

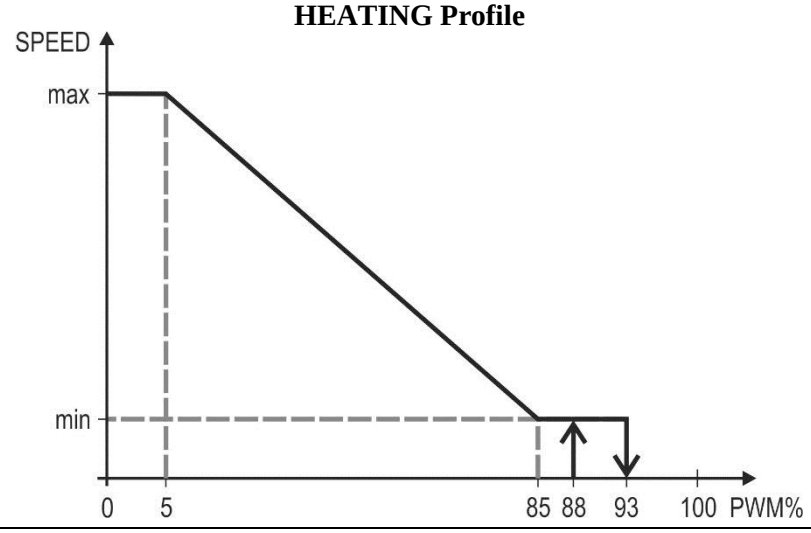
- Between A17 and A17+A82 (*ex. if A17=45°C, A82=20°C then range: 45 ÷ 65 °C*)

Solar Pump speed change is enabled within the following temperature range:

- Between A33 and A33+A82 (*ex. if A33=45°C, A82=20°C then range: 45 ÷ 65 °C*)

The profile of the PWM signal, Heating or Solar, is selected automatically on the basis of the pump that needs to be managed and the following are the profiles of the pumps that can be found on the market:

HEATING Profile

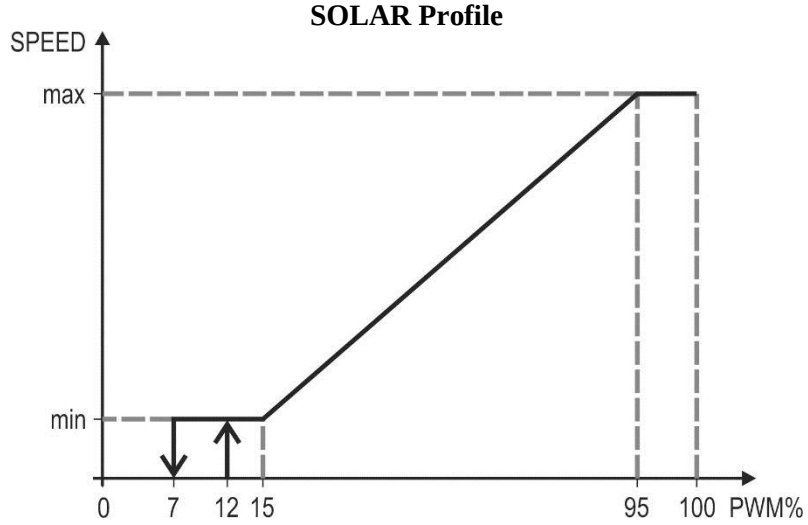


On the basis of this profile it is advisable to set the PWM duty cycle parameters as shown below:

PWM1
Vmin: U01 <= 85%
Vmax: U02 >= 5%

PWM2
Vmin: U11 <= 85%
Vmax: U12 >= 5%

SOLAR Profile



On the basis of this profile it is advisable to set the PWM duty cycle parameters as shown below:

PWM2
Vmin: U01 >= 15%
Vmax: U02 <= 95%

In the following conditions the PWM can be setup with the following parameters:

- **ANTIFREEZE**: U03, U13 e U23
- **SAFETY**: U04, U14 e U24
- **ANTISEIZE**: U05, U15 e U25

6. MENU'

6.1 MAIN MENU

To enter into the main menu simply **click** on **K2** key:

- Keys **K3** and **K4** are used to scroll through various parameters signaled by the corresponding flashing led.
- Press **K2** key to modify (the led remains solid while value flashes).
- Keys **K3** and **K4** are used to change the parameter value.
- Press **K2** to save the new value.
- Press **K1** to exit without saving.
- Press **K1** again to exit the Menu or wait 30 seconds.

Led	Description	Code	Min	Set	Max	U.M.
①	Low Temp. Thermostat for Fireplace Pump	**A01**	20	**35**	90	[°C]
②	Diverting Valve Thermostat on Fireplace probe	**A02**	20	**45**	90	[°C]
	Heating Pump Thermostat on Fireplace probe	**A04**	20	**45**	90	[°C]
	Heating Pump Thermostat on high Buffer Tank probe	**A17**	20	**45**	90	[°C]
	Service Thermostat on Fireplace probe	**A09**	20	**50**	90	[°C]
	Valve Thermostat for DHW priority	**A24**	20	**70**	90	[°C]
③	Thermostat to activate Integration on Fireplace probe	**A03**	20	**45**	90	[°C]
	Thermostat Integration Buffer Tank on High Buffer Tank Probe	**A19**	20	**45**	90	[°C]
Ⓐ	Heating Pump Thermostat on Fireplace probe	**A04**	20	**45**	90	[°C]
	Service Thermostat on Fireplace probe	**A09**	20	**50**	90	[°C]
	Heating Pump Thermostat on High Buffer Tank probe	**A17**	20	**45**	90	[°C]
S2	DHW Boiler Thermostat on S2	**A18**	20	**50**	90	[°C]
	Buffer Comfort Thermostat on High Buffer Tank probe	**A20**	20	**60**	90	[°C]
S3	Ambient Probe Thermostat on S3	**b01**	5	**20**	50	[°C]
S1+S3	Differential Thermostat Fireplace-Boiler DHW/Buffer	**d01**	5	**20**	2	[°C]

6.2 INSTALLER MENU

Only QUALIFIED PERSONEL must access this MENU , because if the set parameters are changed this could make the product completely unsuitable for the application.

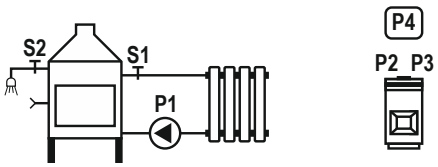
- To enter into the INSTALLER MENU press at the same time **K2** and **K4** keys for 3 seconds.
- To scroll through the parameter codes use **K3** and **K4** keys.
- To view the value of a parameter and to enter modification mode press **K2** key.
- To modify the value press **K3** and **K4** keys.
- To save the new value press **K2** key.
- To exit without saving press **K1** key.
- Press **K1** again to exit the Menu or wait 60 seconds.

Description	Cod.	Min	Set	Max	U.M.
Thermostat to close Air Damper on S1 probe	**A05**	20	**75**	90	[°C]
ANTIFREEZE Thermostat on S1 probe	**A06**	-10	**4**	10	[°C]
SAFETY Thermostat on S1 probe	**A07**	60	**80**	90	[°C]
ALARM Thermostat on S1probe	**A08**	80	**90**	99	[°C]
High Temp. Thermostat on high Buffer Tank probe	**A23**	20	**95**	95	[°C]
Solar Pump Activation Thermostat	**A33**	5	**20**	50	[°C]
ANTIFREEZE Thermostat on Collector Probe	**A34**	-10	**4**	10	[°C]
Collector Safety Thermostat	**A35**	60	**120**	180	[°C]
Collector Protection Thermostat	**A36**	60	**140**	180	[°C]
Temperature Delta for automatic management of PWM1 in Heating	**A80**	1	**20**	50	[°C]
Temperature Delta for automatic management of PWM1 in DHW	**A81**	1	**15**	50	[°C]
Temperature Delta for automatic management of PWM2 in Heating	**A82**	1	**20**	50	[°C]
Buffer-Collector Differentail Thermostat	**d02**	5	**20**	2	[°C]
Pressure Sensor Minimum threshold	**Pr01**	500	**3000**	500	[mbar]
Pressure Sensor Maximum threshold	**Pr02**	2000	**3000**	500	[mbar]
P1 Fireplace Pump Hysteresis Thermostat	**IA01**	0	**2**	20	[°C]
P2 Deviator Valve Hysteresis Thermostat	**IA02**	0	**2**	20	[°C]
Boiler Integration Activation Hysteresis Thermostat	**IA03**	0	**2**	20	[°C]
Hysteresis Thermostat of Heating Pump on S1	**IA04**	0	**2**	20	[°C]
Hysteresis Thermostat to Close Air Damper	**IA05**	0	**2**	20	[°C]
ANTIFREEZE Hysteresis Thermostat	**IA06**	0	**1**	20	[°C]
SAFETY Hysteresis Thermostat	**IA07**	0	**1**	20	[°C]
ALARM Hysteresis Thermostat	**IA08**	0	**1**	20	[°C]
SERVICE output activation Hysteresis Thermostat	**IA09**	0	**2**	20	[°C]
Hysteresis Thermostat of Heating Pump on Buffer probe	**IA17**	0	**2**	20	[°C]
Hysteresis Thermostat of DHW Boiler Thermostat on S2	**IA18**	0	**2**	20	[°C]
Hysteresis Thermostat of Integr. Buffer Tank on High Buffer Tank Probe	**IA19**	0	**2**	20	[°C]
Hysteresis Thermostat of Buffer Comfort on High Buffer Tank probe	**IA20**	0	**2**	20	[°C]
Hysteresis Thermostat of High Temp. on High Buffer Tank probe	**IA23**	0	**2**	20	[°C]
Hysteresis Thermostat of Valve for DHW priority	**IA24**	0	**2**	20	[°C]
Hysteresis Thermostat of Solar Pump Activation	**IA33**	0	**2**	20	[°C]
Hysteresis Thermostat of ANTIFREEZE Thermostat on Collector probe	**IA34**	0	**1**	20	[°C]
Hysteresis Thermostat of Collector Safety	**IA35**	0	**2**	20	[°C]
Hysteresis Thermostat of Collector Protection	**IA36**	0	**2**	20	[°C]
S3 Ambient probe Hysteresis Thermostat	**Ib01**	0	**1**	20	[°C]
Differential Hysteresis Thermostat Fireplace - Buffer	**Id01**	1	**1**	5	[°C]
Differential Hysteresis Thermostat S3-S2	**Id02**	1	**1**	5	[°C]
Differential Hysteresis Thermostat S1-S3	**Id03**	1	**1**	5	[°C]
Hysteresis Pressure Sensor Minimum threshold	**IP01**	0	**50**	400	[mbar]
Hysteresis Pressure Sensor Maximum threshold	**IP02**	0	**50**	400	[mbar]
Time on for ANTIFREEZE pump	**t 01**	1	**5**	300	[s]
Time off for ANTIFREEZE pump	**t 02**	0	**30**	300	[min]
SHOWER function time duration	**t 03**	0	**10**	120	[min]
ANTISEIZE time “on” of Pump	**t 04**	0	**20**	99	[s]
ANTISEIZE time “off” of Pump	**t 05**	1	**168**	255	[h]
Delay time for Air Damper closure	**t 06**	0	**10**	120	[min]
Audible alarm suspension time	**t 07**	1	**5**	60	[min]
Type of Fireplace Probe	**P01**	0	**0**	2	n
Type of DHW Boiler/High Buffer Tank Probe	**P02**	0	**0**	2	n

Type of Low Buffer Tank Probe	**P03**	0	**0**	2	n
Type of Ambient Probe	**P04**	0	**0**	2	n
S3 Input Configuration	**P05**	0	**0**	1	n
SERVICE Output Configuration	**P06**	0	**0**	3	n
Enable Alarm Pressure Sensor	**P07**	0	**0**	1	n
Enable ANTIFREEZE on Fireplace Probe	**P08**	0	**1**	1	n
Enable ANTIFREEZE on Collector Probe	**P09**	0	**0**	1	n
Enable Boiler Integration Priority	**P10**	0	**0**	1	n
Enable Fireplace SAFETY Function	**P11**	0	**1**	1	n
Enable "Start" Function of Air Damper	**P12**	0	**0**	1	n
Enable SHOWER Function	**P13**	0	**0**	1	n
Enable ANTISEIZE of Pump1	**P14**	0	**1**	1	n
Abilitazione ANTISEIZE of Pump2	**P15**	0	**0**	1	n
Type of Collector Probe	**P17**	1	**1**	2	n
PWM1 Management	**P18**	0	**0**	2	n
PWM2 Management	**P19**	0	**0**	2	n
Percentage of PWM1 Duty Cycle at Minimum Speed HEATING profile	**U01**	0	**85**	100	%
Percentage of PWM1 Duty Cycle at Maximum Speed HEATING profile	**U02**	0	**5**	100	%
Percentage of PWM1 Duty Cycle in Antifreeze HEATING profile	**U03**	0	**0**	100	%
Percentage of PWM1 Duty Cycle in Safety HEATING profile	**U04**	0	**0**	100	%
Percentage of PWM1 Duty Cycle in Antiseize HEATING profile	**U05**	0	**0**	100	%
Percentage of PWM1 Duty Cycle in Manual Mode HEATING profile	**U06**	0	**50**	100	%
Percentage of PWM2 Duty Cycle at Minimum Speed HEATING profile	**U11**	0	**85**	100	%
Percentage of PWM2 Duty Cycle at Maximum Speed HEATING profile	**U12**	0	**5**	100	%
Percentage of PWM2 Duty Cycle in Antifreeze HEATING profile	**U13**	0	**0**	100	%
Percentage of PWM2 Duty Cycle in Safety HEATING profile	**U14**	0	**0**	100	%
Percentage of PWM2 Duty Cycle in Antiseize HEATING profile	**U15**	0	**0**	100	%
Percentage of PWM2 Duty Cycle in Modalità Manual HEATING profile	**U16**	0	**0**	100	%
Percentage of PWM2 Duty Cycle at Minimum Speed SOLAR profile	**U21**	0	**15**	100	%
Percentage of PWM2 Duty Cycle at Maximum Speed SOLAR profile	**U22**	0	**95**	100	%
Percentage of PWM2 Duty Cycle in Antifreeze SOLAR profile	**U23**	0	**100**	100	%
Percentage of PWM2 Duty Cycle in Safety SOLAR profile	**U24**	0	**100**	100	%
Percentage of PWM2 Duty Cycle in Antiseize SOLAR profile	**U25**	0	**100**	100	%
Percentage of PWM2 Duty Cycle in Manual Mode SOLAR profile	**U26**	0	**50**	100	%
Hydraulic Plant Configuration	**ConF**	1	**1**	16	n

7. PLUMBING/HYDRAULIC PLANTS

7.1 Hydraulic Plant 1 (ConF = 1)



Name	Symbol	Pins
Fireplace Pump	**P1**	**3 – 4**
	PWM1	**19 – 16 o 14**
Boiler 2 Integration	**P2**	**5 – 6 – 7**
Boiler Integration	**P3**	**8 – 9 – 10**
Service / Air Damper*	**P4**	**11 – 12**
Fireplace Probe	**S1**	**13 – 14**
Flow Switch	**S2**	**15 – 16**
Probe/ Ambient Thermostat Pressure Sensor	**S3**	**16 – 17 – 18**

7.1.1 Parameters

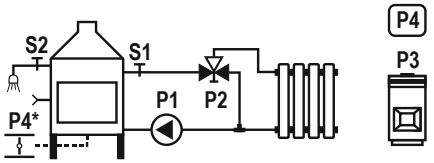
Cod.	Led	Description	U.	Min.	Def.	Max
A01	(1)	Fireplace Pump minimum temp. Thermostat	°C	20	**35**	90
A03	(3)	Boiler Integration Thermostat	°C	20	**45**	90
A09	(A)	Service Thermostat	°C	20	**50**	90
b01	**S3**	Ambient Probe Thermostat	°C	5	**20**	50

7.1.2 Operating Principle

S1	Checks			Management	State	Output	
S1< 5° [*A06*]				Antifreeze	**ON**	**P1**	
5° <S1< 35° *A06 <S1< A01*				Fireplace OFF	**OFF**		
35° <S1< 80° *A01 <T1< A07*	S2= Open	**And**	Shower OFF	Heating	**ON**		
	S2= Closed	**Or**	Shower ON	Sanitary (DHW)	**OFF**		
S1>80° [*A07*]				Safety	**ON**		
S1> 45° [*A03*]				Integration 9 - 10 OPEN	**OFF**	**P2**	**P3**
S1> 75° [*A05*]	See Par. 5.11			Air Damper	**OFF**	**P4**	
S1> 45° [*A09*]	See Par. 5.10			Service	**ON**		

* Se P06=3

7.2 Hydraulic Plant 2 (ConF = 2)



Name	Symbol	Pins
Fireplace Pump	**P1**	**3 – 4**
	PWM1	**19 - 16 o 14**
Valve	**P2**	**5 – 6 – 7**
Boiler Integration	**P3**	**8 – 9 – 10**
Service / Air Damper*	**P4**	**11 – 12**
Fireplace Probe	**S1**	**13 – 14**
Flow Switch	**S2**	**15 – 16**
Probe/Ambient Thermostat Pressure Sensor	**S3**	**16 – 17 – 18**

7.2.1 Parameters

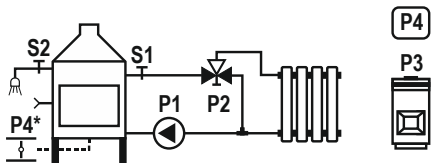
Cod.	Led	Description	U.	Min.	Def.	Max
A01	(1)	Fireplace Pump minimum temp. Thermostat	°C	20	**35**	90
A02	(2)	Thermostat Valve Deviatrice	°C	20	**45**	90
A03	(3)	Boiler Integration Thermostat	°C	20	**45**	90
A09	(A)	Service Thermostat	°C	20	**50**	90
b01	**S3**	Ambient Probe Thermostat	°C	5	**20**	50

7.2.2 Operating Principle

S1	Checks			Management	State	Output
S1< 5° [*A06*]				Antifreeze	**ON**	**P1**
5° <S1< 35° *A06 <S1< A01*				Fireplace OFF	**OFF**	
35° <S1< 80° *A01 <S1< A07*	S2 = Open	**And**	Shower OFF	Recirculation Heating	**ON**	
	S2 = Closed	**Or**	Shower ON	Sanitary (DHW)	**OFF**	
S1>80° [*A07*]				Safety	**ON**	
S1> 45° [*A02*]				Heating	**ON**	**P2**
S1> 45° [*A03*]				Integration 9 - 10 OPEN	**OFF**	**P3**
S1> 75° [*A05*]	See Par. 5.11			Air Damper	**OFF**	**P4**
S1> 45° [*A09*]	See Par. 5.10			Service	**ON**	

* Se P06=3

7.3 Hydraulic Plant 3 (ConF = 3)



Name	Symbol	Pins
Fireplace Pump	**P1**	**3 – 4**
	PWM1	**19 - 16 o 14**
Diverter Valve	**P2**	**5 – 6 – 7**
Boiler Integration	**P3**	**8 – 9 – 10**
Service / Air Damper*	**P4**	**11 – 12**
Fireplace Probe	**S1**	**13 – 14**
Flow Switch	**S2**	**15 – 16**
Probe/Ambient Thermostat Pressure Sensor	**S3**	**16 – 17 – 18**

7.3.1 Parameters

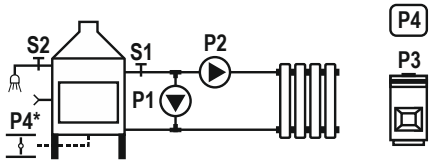
Cod.	Led	Description	U.	Min.	Def.	Max
A01	①	Fireplace Pump minimum temp. Thermostat	°C	20	**35**	90
A02	②	Thermostat Diverter Valve	°C	20	**45**	90
A03	③	Boiler Integration Thermostat	°C	20	**45**	90
A09	Ⓐ	Service Thermostat	°C	20	**50**	90
b01	**S3**	Ambient Probe Thermostat	°C	5	**20**	50

7.3.2 Operating Principle

S1	Checks			Management	P1	P2
S1< 5° [*A06*]				Antifreeze	**ON**	**OFF**
5° <S1< 35° *A06 <S1< A01*				Fireplace OFF	**OFF**	**OFF**
30° <S1< 45° *A01 <S1< A07*				Recirculation	**ON**	**OFF**
45° <S1< 80° *A02 <S1< A07*	S2 = Open	**And**	Shower OFF	Heating	**ON**	**ON**
	S2 = Closed	**Or**	Shower ON	Sanitary (DHW)	**ON**	**OFF**
S1>80° [*A07*]				Safety	**ON**	**ON**
S1> 45° [*A02*]				Heating	**ON**	**P2**
S1> 45° [*A03*]				Integration 9 - 10 OPEN	**OFF**	**P3**
S1> 75° [*A05*]	See Par. 5.11			Air Damper	**OFF**	**P4**
S1> 45° [*A09*]	See Par. 5.10			Service	**ON**	

* Se P06=3

7.4 Hydraulic Plant 4 (ConF = 4)



Name	Symbol	Pins
Fireplace Pump	**P1**	**3 – 4**
	PWM1	**19 - 16 o 14**
Heating Pump	**P2**	**5 – 6 – 7**
	PWM2	**20 - 16 o 14**
Boiler Integration	**P3**	**8 – 9 – 10**
Service / Air Damper*	**P4**	**11 – 12**
Fireplace Probe	**S1**	**13 – 14**
Flow Switch	**S2**	**15 – 16**
Probe/Ambient Thermostat Pressure Sensor	**S3**	**16 – 17 – 18**

7.4.1 Parameters

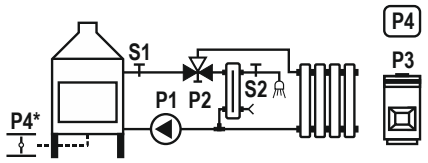
Cod.	Led	Description	U.	Min.	Def.	Max
A01	①	Fireplace Pump minimum temp. Thermostat	°C	20	**35**	90
A04	②	Heating Pump Thermostat	°C	20	**45**	90
A03	③	Boiler Integration Thermostat	°C	20	**45**	90
A09	Ⓐ	Service Thermostat	°C	20	**50**	90
b01	**S3**	Ambient Probe Thermostat	°C	5	**20**	50

7.4.2 Operating Principle

S1	Checks			Management	P1	P2
S1< 5° [*A06*]				Antifreeze	**ON**	**OFF**
5° <S1< 35° *A06 <S1< A01*				Fireplace OFF	**OFF**	**OFF**
30° <S1< 45° *A01 <S1< A07*				Recirculation	**ON**	**OFF**
45° <S1< 80° *A02 <S1< A07*	S2 = Open	**And**	Shower OFF	Heating	**OFF**	**ON**
	S2 = Closed	**Or**	Shower ON	Sanitary (DHW)	**ON**	**OFF**
S1>80° [*A07*]				Safety	**ON**	**ON**
S1> 45° [*A02*]				Heating	**ON**	**P2**
S1> 45° [*A03*]				Integration 9 - 10 OPEN	**OFF**	**P3**
S1> 75° [*A05*]	See Par. 5.11			Air Damper	**OFF**	**P4**
S1> 45° [*A09*]	See Par. 5.10			Service	**ON**	

* Se P06=3

7.5 Hydraulic Plant 5 (ConF = 5)



Name	Symbol	Pins
Fireplace Pump	**P1**	**3 – 4**
	PWM1	**19 - 16 o 14**
Diverter Valve	**P2**	**5 – 6 – 7**
Boiler Integration	**P3**	**8 – 9 – 10**
Service / Air Damper*	**P4**	**11 – 12**
Fireplace Probe	**S1**	**13 – 14**
Flow Switch	**S2**	**15 – 16**
Probe/Ambient Thermostat Pressure Sensor	**S3**	**16 – 17 – 18**

7.5.1 Parameters

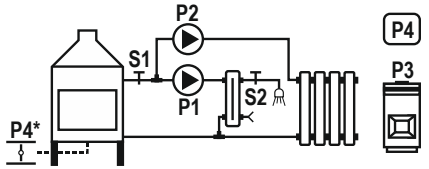
Cod.	Led	Description	U.	Min.	Def.	Max
A01	(1)	Fireplace Pump minimum temp. Thermostat	°C	20	**35**	90
A02	(2)	Thermostat Diverter Valve	°C	20	**45**	90
A03	(3)	Boiler Integration Thermostat	°C	20	**45**	90
A09	(A)	Service Thermostat	°C	20	**50**	90
b01	**S3**	Ambient Probe Thermostat	°C	5	**20**	50

7.5.2 Operating Principle

S1	Checks			Management	P1	P2
S1< 5° [*A06*]				Antifreeze	**ON**	**OFF**
5° <S1< 35° *A06 <S1< A01*				Fireplace OFF	**OFF**	**OFF**
30° <S1< 45° *A01 <S1< A07*				Recirculation	**ON**	**OFF**
45° <S1< 80° *A02 <S1< A07*	S2 = Open	**And**	Shower OFF	Heating	**ON**	**ON**
	S2 = Closed	**Or**	Shower ON	Sanitary (DHW)	**ON**	**OFF**
S1> 80° [*A07*]				Safety	**ON**	**ON**
S1> 45° [*A02*]				Heating	**ON**	**P2**
S1> 45° [*A03*]				Integration 9 - 10 OPEN	**OFF**	**P3**
S1> 75° [*A05*]	See Par. 5.11			Air Damper	**OFF**	**P4**
S1> 45° [*A09*]	See Par. 5.10			Service	**ON**	

* If P06=3

7.6 Hydraulic Plant 6 (ConF = 6)



Name	Symbol	Pins
Fireplace Pump	**P1**	**3 – 4**
	PWM1	**19 - 16 o 14**
Heating Pump	**P2**	**5 – 6 – 7**
	PWM2	**20 - 16 o 14**
Boiler Integration	**P3**	**8 – 9 – 10**
Service / Air Damper*	**P4**	**11 – 12**
Fireplace Probe	**S1**	**13 – 14**
Flow Switch	**S2**	**15 – 16**
Probe/Ambient Thermostat Pressure Sensor	**S3**	**16 – 17 – 18**

7.6.1 Parameters

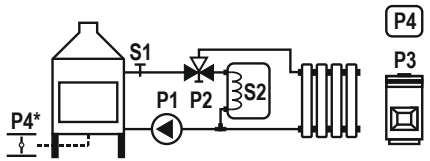
Cod.	Led	Description	U.	Min.	Def.	Max
A01	(1)	Fireplace Pump minimum temp. Thermostat	°C	20	**35**	90
A04	(2)	Heating Pump Thermostat	°C	20	**45**	90
A03	(3)	Boiler Integration Thermostat	°C	20	**45**	90
A09	(A)	Service Thermostat	°C	20	**50**	90
b01	**S3**	Ambient Probe Thermostat	°C	5	**20**	50

7.6.2 Operating Principle

S1	Checks			Management	P1	P2
S1< 5° [*A06*]				Antifreeze	**ON**	**OFF**
5° <S1< 35° *A06 <S1< A01*				Fireplace OFF	**OFF**	**OFF**
30° <S1< 45° *A01 <S1< A07*				Recirculation	**ON**	**OFF**
45° <S1< 80° *A02 <S1< A07*	S2 = Open	**And**	Shower OFF	Heating	**OFF**	**ON**
	S2 = Closed	**Or**	Shower ON	Sanitary (DHW)	**ON**	**OFF**
S1> 80° [*A07*]				Safety	**ON**	**ON**
S1> 45° [*A02*]				Heating	**ON**	**P2**
S1> 45° [*A03*]				Integration 9 - 10 OPEN	**OFF**	**P3**
S1> 75° [*A05*]	See Par. 5.11			Air Damper	**OFF**	**P4**
S1> 45° [*A09*]	See Par. 5.10			Service	**ON**	

* If P06=3

7.7 Hydraulic Plant 7 (ConF = 7)



Name	Symbol	Pins
Fireplace Pump	**P1**	**3 – 4**
	PWM1	**19 - 16 o 14**
Diverter Valve	**P2**	**5 – 6 – 7**
Boiler Integration	**P3**	**8 – 9 – 10**
Service / Air Damper*	**P4**	**11 – 12**
Fireplace Probe	**S1**	**13 – 14**
DHW Boiler Probe	**S2**	**15 – 16**
Probe/Ambient Thermostat Pressure Sensor	**S3**	**16 – 17 – 18**

7.7.1 Parameters

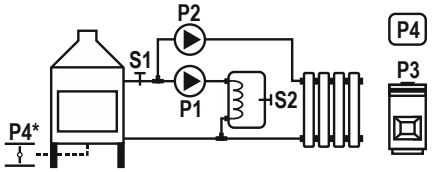
Cod.	Led	Description	U.	Min.	Def.	Max
A01	①	Fireplace Pump minimum temp. Thermostat	°C	20	**35**	90
A02	②	Thermostat Diverter Valve	°C	20	**45**	90
A03	③	Boiler Integration Thermostat	°C	20	**45**	90
A09	Ⓐ	Service Thermostat	°C	20	**50**	90
A18	**S2**	Sanitary (DHW) Boiler Thermostat	°C	20	**50**	90
b01	**S3**	Ambient Probe Thermostat	°C	5	**20**	50
d01	**S1+S2**	Differential Thermostat Δ (S1-S2)	°C	2	**5**	20

7.7.2 Operating Principle

S1	S2	Δ (S1-S2)	Management	P1	P2
S1< 5°C [*A06*]			Antifreeze	**ON**	**OFF**
5° <S1< 30° *A06 <S1< A01*			Fireplace OFF	**OFF**	**OFF**
30° <S1< 45° *A01 <S1< A02*	T2< 50° [*A18*]	Δ< 5° [*d01*]		**OFF**	**OFF**
		Δ> 5° [*d01*]	Sanitary (DHW)	**ON**	**OFF**
	T2> 50° [*A18*]			**OFF**	**OFF**
45° <S1< 80° *A02 <S1< A07*	T2< 50° [*A18*]	Δ< 5° [*d01*]	Sanitary (DHW) Priority	**OFF**	**OFF**
		Δ> 5° [*d01*]		**ON**	**OFF**
	T2> 50° [*A18*]		Heating	**ON**	**ON**
S1> 80° [*A07*]			Safety	**ON**	**ON**
S1> 45° [*A03*]			Integration 9 - 10 OPEN	**OFF**	**P3**
S1> 75° [*A05*]	See Par. 5.11		Air Damper	**OFF**	**P4**
S1> 45° [*A09*]	See Par. 5.10		Service	**ON**	

* If P06=3

7.8 Hydraulic Plant 8 (ConF = 8)



Name	Symbol	Pins
Fireplace Pump	**P1**	**3 – 4**
	PWM1	**19 - 16 o 14**
Heating Pump	**P2**	**5 – 6 – 7**
	PWM2	**20 - 16 o 14**
Boiler Integration	**P3**	**8 – 9 – 10**
Service / Air Damper*	**P4**	**11 – 12**
Fireplace Probe	**S1**	**13 – 14**
DHW Boiler Probe	**S2**	**15 – 16**
Probe/Ambient Thermostat Pressure Sensor	**S3**	**16 – 17 – 18**

7.8.1 Parameters

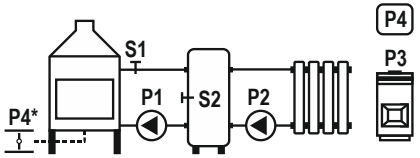
Cod.	Led	Description	U.	Min.	Def.	Max
A01	①	Fireplace Pump minimum temp. Thermostat	°C	20	**35**	90
A04	②	Heating Pump Thermostat	°C	20	**45**	90
A03	③	Boiler Integration Thermostat	°C	20	**45**	90
A09	Ⓐ	Service Thermostat	°C	20	**50**	90
A18	**S2**	Sanitary Boiler Thermostat	°C	20	**50**	90
b01	**S3**	Ambient Probe Thermostat	°C	5	**20**	50
d01	**S1+S2**	Differential Thermostat Δ (S1-S2)	°C	2	**5**	20

7.8.2 Operating Principle

S1	S2	Δ (S1-S2)	Management	P1	P2
S1< 5°C [*A06*]			Antifreeze	**ON**	**OFF**
5° <S1< 30° *A06 <S1< A01*			Fireplace OFF	**OFF**	**OFF**
30° <S1< 45° *A01 <S1< A02*	T2< 50° [*A18*]	Δ< 5° [*d01*]		**OFF**	**OFF**
		Δ> 5° [*d01*]	Sanitary (DHW)	**ON**	**OFF**
	T2> 50° [*A18*]			**OFF**	**OFF**
45° <S1< 80° *A02 <S1< A07*	T2< 50° [*A18*]	Δ< 5° [*d01*]	Sanitary (DHW) Priority	**OFF**	**OFF**
		Δ> 5° [*d01*]		**ON**	**OFF**
	T2> 50° [*A18*]		Heating	**OFF**	**ON**
S1> 80° [*A07*]			Safety	**ON**	**ON**
S1> 45° [*A03*]			Integration 9 - 10 OPEN	**OFF**	**P3**
S1> 75° [*A05*]	See Par. 5.11		Air Damper	**OFF**	**P4**
S1> 45° [*A09*]	See Par. 5.10		Service	**ON**	

* If P06=3

7.9 Hydraulic Plant 9 (ConF = 9)



Name	Symbol	Pins
Fireplace Pump	**P1**	**3 – 4**
	PWM1	**19 - 16 o 14**
Heating Pump	**P2**	**5 – 6 – 7**
	PWM2	**20 - 16 o 14**
Boiler Integration	**P3**	**8 – 9 – 10**
Service / Air Damper*	**P4**	**11 – 12**
Fireplace Probe	**S1**	**13 – 14**
Buffer Probe	**S2**	**15 – 16**
Probe/Ambient Thermostat Pressure Sensor	**S3**	**16 – 17 – 18**

7.9.1 Parameters

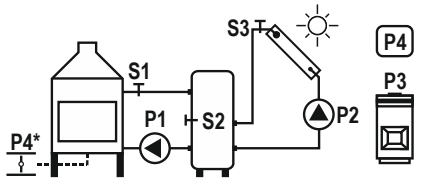
Cod.	Led	Description	U.	Min.	Def.	Max
A01	①	Fireplace Pump minimum temp. Thermostat	°C	20	**35**	90
A17	②	Heating Pump Thermostat on Buffer Probe	°C	20	**45**	90
A19	③	Thermostat Integration Buffer on Buffer Probe	°C	20	**45**	90
A09	Ⓐ	Service Thermostat	°C	20	**50**	90
b01	**S3**	Ambient Probe Thermostat	°C	5	**20**	50
d01	**S1+S2**	Differential Thermostat Δ (S1-S2)	°C	2	**5**	20

7.9.2 Operating Principle

S1	S2	Δ (S1-S2)	Management	P1	
S1< 5° [*A06*]			Antifreeze	**ON**	
5° <S1< 30° *A06 <S1< A01*			Fireplace OFF	**OFF**	
30° <S1< 80° *A01 <S1< A07*		Δ< 5° [*d01*]		**OFF**	
		Δ> 5° [*d01*]	Buffer Loading	**ON**	
S1> 80° [*A07*]			Safety	**ON**	
	S2> 45° [*A17*]		Heating	**ON**	**P2**
Se *P05=2* e S3 = Open o *P05=3* e S3 > 20 [*b01*]				**OFF**	
	S2 > 45° [*A19*]		Integration 9 - 10 OPEN	**OFF**	**P3**
S1> 75° [*A05*]	See Par. 5.11		Air Damper	**OFF**	**P4**
S1> 45° [*A09*]	See Par. 5.10		Service	**ON**	

* If P06=3

7.10 Hydraulic Plant 10 (ConF = 10)



Name	Symbol	Pins
Fireplace Pump	**P1**	**3 – 4**
	PWM1	**19 - 16 o 14**
Solar Pump	**P2**	**5 – 6 – 7**
	PWM2	**20 - 16 o 14**
Boiler Integration	**P3**	**8 – 9 – 10**
Service / Air Damper*	**P4**	**11 – 12**
Fireplace Probe	**S1**	**13 – 14**
Buffer Probe	**S2**	**15 – 16**
Collector Probe	**S3**	**16 – 17 – 18**

7.10.1 Parameters

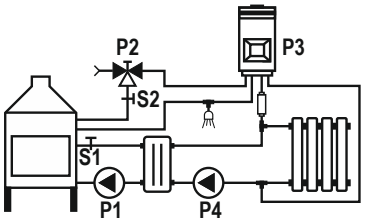
Cod.	Led	Description	U.	Min.	Def.	Max
A01	①	Fireplace Pump minimum temp. Thermostat	°C	20	**35**	90
A19	③	Thermostat Integration Buffer on Buffer Probe	°C	20	**45**	90
A09	Ⓐ	Service Thermostat	°C	20	**50**	90
A20	**S2**	Thermostat of Comfort Buffer on High Buffer Probe	°C	20	**60**	90
d01	**S1+S2**	Differential Thermostat Δ (S1-S2)	°C	2	**5**	20

7.10.1 Operating Principle

S1	S2	Δ (S1-S2)	Management	P1	
S1< 5° [*A06*]			Antifreeze	**ON**	
5° <S1< 30° *A06 <S1< A01*			Fireplace OFF	**OFF**	
30° <T1< 80° *A01 <T1< A07*		Δ< 5° [*d01*]		**OFF**	
		Δ> 5° [*d01*]	Buffer Loading	**ON**	
T1> 80° [*A07*]			Safety	**ON**	
See Par. 5.17			Buffer Loading con circuito solare	**ON**	**P2**
	S2 > 45° [*A19*]		Integration 9 - 10 OPEN	**OFF**	**P3**
S1> 75° [*A05*]	See Par. 5.11		Air Damper	**OFF**	**P4**
S1> 45° [*A09*]	See Par. 5.10		Service	**ON**	

* If P06=3

7.11 Hydraulic Plant 11 (ConF = 11)



Name	Symbol	Pins
Fireplace Pump	**P1**	**3 – 4**
	PWM1	**19 - 16 o 14**
Diverter Valve	**P2**	**5 – 6 – 7**
Boiler Integration	**P3**	**8 – 9 – 10**
Heating Pump	**P4**	**11 – 12**
	PWM2	**20 - 16 o 14**
Fireplace Probe	**S1**	**13 – 14**
Flow Switch	**S2**	**15 – 16**
Probe/Ambient Thermostat Pressure Sensor	**S3**	**16 – 17 – 18**

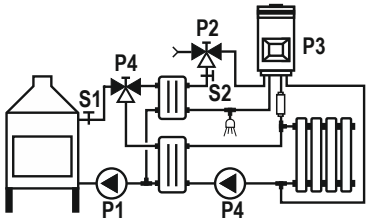
7.11.1 Parameters

Cod.	Led	Description	U.	Min.	Def.	Max
A01	①	Fireplace Pump minimum temp. Thermostat	°C	20	**35**	90
A02	②	Thermostat Diverter Valve	°C	20	**45**	90
A03	③	Boiler Integration Thermostat	°C	20	**45**	90
A04	Ⓐ	Heating Pump Thermostat	°C	20	**45**	90
b01	**S3**	Ambient Probe Thermostat	°C	5	**20**	50

7.11.2 Operating Principle

S1	Checks			Management	P1	P4
S1< 5° [*A06*]				Antifreeze	**ON**	**OFF**
5° <S1< 35° *A06 <S1< A01*				Fireplace OFF	**OFF**	**OFF**
30° <S1< 45° *A01 <S1< A07*				Recirculation	**ON**	**OFF**
45° <S1< 80° *A02 <S1< A07*	S2 = Open	**And**	Shower OFF	Heating	**ON**	**ON**
	S2 = Closed	**Or**	Shower ON	Sanitary (DHW)	**OFF**	**OFF**
S1> 80° [*A07*]				Safety	**ON**	**ON**
S1> 45° [*A02*]				Sanitary (DHW)	**ON**	**P2**
S1> 45° [*A03*]				Integration 9 - 10 OPEN	**OFF**	**P3**

7.12 Hydraulic Plant 12 (ConF = 12)



Name	Symbol	Pins
Fireplace Pump	**P1**	**3 – 4**
	PWM1	**19 - 16 o 14**
Diverter Valve	**P2**	**5 – 6 – 7**
Boiler Integration	**P3**	**8 – 9 – 10**
Heating Pump	**P4**	**11 – 12**
	PWM2	**20 - 16 o 14**
Fireplace Probe	**S1**	**13 – 14**
Flow Switch	**S2**	**15 – 16**
Probe/Ambient Thermostat Pressure Sensor	**S3**	**16 – 17 – 18**

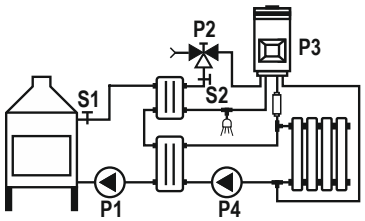
7.12.1 Parameters

Cod.	Led	Description	U.	Min.	Def.	Max
A01	①	Fireplace Pump minimum temp. Thermostat	°C	20	**35**	90
A02	②	Thermostat Diverter Valve	°C	20	**45**	90
A03	③	Boiler Integration Thermostat	°C	20	**45**	90
A04	Ⓐ	Heating Pump Thermostat	°C	20	**45**	90
b01	**S3**	Ambient Probe Thermostat	°C	5	**20**	50

7.12.2 Operating Principle

S1	Checks			Management	P1	P4
S1< 5° [*A06*]				Antifreeze	**ON**	**OFF**
5° <S1< 35° *A06 <S1< A01*				Fireplace OFF	**OFF**	**OFF**
30° <S1< 45° *A01 <S1< A07*				Recirculation	**ON**	**OFF**
45° <S1< 80° *A02 <S1< A07*	S2 = Open	**And**	Shower OFF	Heating	**ON**	**ON**
	S2 = Closed	**Or**	Shower ON	Sanitary (DHW)	**ON**	**OFF**
S1> 80° [*A07*]				Safety	**ON**	**ON**
S1> 45° [*A02*]				Sanitary (DHW)	**ON**	**P2**
S1> 45° [*A03*]				Integration 9 - 10 OPEN	**OFF**	**P3**

7.13 Hydraulic Plant 13 (ConF = 13)



Name	Symbol	Pins
Fireplace Pump	**P1**	**3 – 4**
	PWM1	**19 - 16 o 14**
Diverter Valve	**P2**	**5 – 6 – 7**
Boiler Integration	**P3**	**8 – 9 – 10**
Heating Pump	**P4**	**11 – 12**
	PWM2	**20 - 16 o 14**
Fireplace Probe	**S1**	**13 – 14**
Flow Switch	**S2**	**15 – 16**
Probe/Ambient Thermostat Pressure Sensor	**S3**	**16 – 17 – 18**

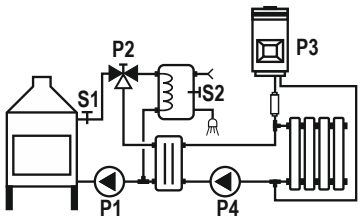
7.13.1 Parameters

Cod.	Led	Description	U.	Min.	Def.	Max
A01	①	Fireplace Pump minimum temp. Thermostat	°C	20	**35**	90
A02	②	Thermostat Diverter Valve	°C	20	**45**	90
A03	③	Boiler Integration Thermostat	°C	20	**45**	90
A04	Ⓐ	Heating Pump Thermostat	°C	20	**45**	90
b01	**S3**	Ambient Probe Thermostat	°C	5	**20**	50

7.13.2 Operating Principle

S1	Checks			Management	P1	P4
S1< 5° [*A06*]				Antifreeze	**ON**	**OFF**
5° <S1< 35° *A06 <S1< A01*				Fireplace OFF	**OFF**	**OFF**
30° <S1< 45° *A01 <S1< A07*				Recirculation	**ON**	**OFF**
45° <S1< 80° *A02 <S1< A07*	S2 = Open	**And**	Shower OFF	Heating	**ON**	**ON**
	S2 = Closed	**Or**	Shower ON	Sanitary (DHW)	**ON**	**OFF**
S1> 80° [*A07*]				Safety	**ON**	**ON**
S1> 45° [*A02*]				Sanitary (DHW)	**ON**	**P2**
S1> 45° [*A03*]				Integration 9 - 10 OPEN	**OFF**	**P3**

7.14 Hydraulic Plant 14 (ConF = 14)



Name	Symbol	Pins
Fireplace Pump	**P1**	**3 – 4**
	PWM1	**19 - 16 o 14**
Diverter Valve	**P2**	**5 – 6 – 7**
Boiler Integration	**P3**	**8 – 9 – 10**
Heating Pump	**P4**	**11 – 12**
	PWM2	**20 - 16 o 14**
Fireplace Probe	**S1**	**13 – 14**
DHW Boiler Probe	**S2**	**15 – 16**
Probe/Ambient Thermostat Pressure Sensor	**S3**	**16 – 17 – 18**

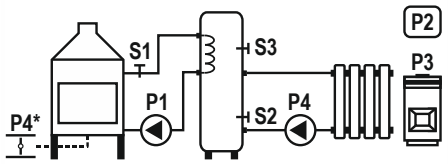
7.14.1 Parameters

Cod.	Led	Description	U.	Min.	Def.	Max
A01	①	Fireplace Pump minimum temp. Thermostat	°C	20	**35**	90
A03	③	Boiler Integration Thermostat	°C	20	**45**	90
A04	Ⓐ	Heating Pump Thermostat	°C	20	**45**	90
A18	**S2**	Sanitary (DHW) Boiler Thermostat	°C	20	**50**	90
b01	**S3**	Ambient Probe Thermostat	°C	5	**20**	50
d01	**S1+S2**	Differential Thermostat Δ (S1-S2)	°C	2	**5**	20

7.14.2 Operating Principle

S1	S2	Δ (S1-S2)	Management	P1	P4	P2
S1< 5° [A06]			Antifreeze	**ON**	**OFF**	**OFF**
5° <S1< 30° *A06 <S1< THS100*			Fireplace OFF	**OFF**	**OFF**	**OFF**
30° <S1< 45° *A01<S1<A04*	S2< 50° [*A18*]	Δ< 5° [*d01*]		**OFF**	**OFF**	**OFF**
		Δ> 5° [*d01*]	Sanitary (DHW)	**ON**	**OFF**	**OFF**
	S2> 50° [*A18*]		Recirculation	**ON**	**OFF**	**ON**
45° <S1< 80° *A04 <S1< A07*	S2< 50° [*A18*]	Δ< 5° [*d01*]	Sanitary (DHW) Priority	**OFF**	**OFF**	**OFF**
		Δ> 5° [*d01*]		**ON**	**OFF**	**OFF**
	S2> 50° [*A18*]		Heating	**ON**	**ON**	**ON**
S1> 80° [*A07*]			Safety	**ON**	**ON**	**ON**
S1> 45° [*A03*]			Integration 9 - 10 OPEN	**OFF**	**P3**	

7.15 Hydraulic Plant 15 (ConF = 15)



Name	Symbol	Pins
Fireplace Pump	**P1**	**3 - 4**
	PWM1	**19 - 16 o 14**
Service	**P2**	**5 – 6 – 7**
Boiler Integration	**P3**	**8 – 9 – 10**
Heating Pump	**P4**	**11 - 12**
	PWM2	**20 - 16 o 14**
Fireplace Probe	**S1**	**13 – 14**
Low Buffer Probe	**S2**	**15 – 16**
High Buffer Probe	**S3**	**16 - 17**

7.15.1 Parameters

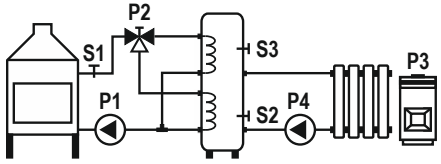
Cod.	Led	Description	U.	Min.	Def.	Max
A01	①	Minimum temp. Pump Thermostat	°C	20	**40**	90
A09	②	Service Thermostat	°C	20	**50**	90
A19	③	Thermostat Integration on High Buffer Tank	°C	20	**45**	90
A17	Ⓐ	Heating Pump Thermostat on High Buffer Tank	°C	20	**45**	90
d01	**S1+S3**	Differential Thermostat Δ (S1-S3)	°C	2	**5**	20

7.15.2 Operating Principle

S1	S3	Δ (S1-S3)	Management	P1	
S1< 5° [*A06*]			Antifreeze	**ON**	
5° <S1< 40° *A06 <S1< A01*			Fireplace OFF	**OFF**	
S1> 40° *S1> A01*		Δ< 5° [*d01*]		**OFF**	
		Δ> 5° [*d01*]	Buffer Loading	**ON**	
S1> 75° [*A05*]	See Par. 5.11		Air Damper	**OFF**	**P2**
S1> 45° [*A09*]	See Par. 5.10		Service	**ON**	
	S3> 45° [*A19*]		Integration (9 - 10 Open)	**OFF**	**P3**
	S3> 45° [*A17*]		Heating	**ON**	**P4**

* If P06=3

7.16 Hydraulic Plant 16 (ConF = 16)



Name	Symbol	Pins
Fireplace Pump	**P1**	**3 - 4**
	PWM1	**19 - 16 o 14**
Valve	**P2**	**5 – 6 – 7**
Boiler Integration	**P3**	**8 – 9 – 10**
Heating Pump	**P4**	**11 - 12**
	PWM2	**20 - 16 o 14**
Fireplace Probe	**S1**	**13 – 14**
Low Buffer Probe	**S2**	**15 – 16**
High Buffer Probe	**S3**	**16 - 17**

7.16.1 Parameters

Cod.	Led	Description	U.	Min.	Def.	Max
A01	①	Minimum temp. Pump Thermostat	°C	20	**40**	90
A24	②	Thermostat Valve for Sanitary (DHW) Priority	°C	20	**70**	90
A19	③	Thermostat Integration on High Buffer Tank	°C	20	**45**	90
A17	Ⓐ	Heating Pump Thermostat on High Buffer Tank	°C	20	**45**	90
d01	**S1+S3**	Differential Thermostat Δ (S1-S3 e S1-S2)	°C	2	**5**	20

7.16.2 Operating Principle

S1	S3	Δ (S1-S3)	Δ (S1-S2)	Management	P1	
S1< 5° [*A06*]				Antifreeze	**ON**	
5° <S1< 40° *A06 <S1< A01*				Fireplace OFF	**OFF**	
S1> 40° *S1> A01*	S3< 70° *S3< A24*	Δ< 5° [*d01*]			**OFF**	
		Δ> 5° [*d01*]		High Buffer Loading	**ON**	
S1> 40° *S1> A01*	S3> 70° *S3> A24*		Δ< 5° [*d01*]		**OFF**	
			Δ> 5° [*d01*]	Low Buffer Loading	**ON**	
	S3> 70° *S3> A24*			Low Buffer Loading	**ON**	**P2**
	S3> 45° [*A19*]			Integration (9 - 10 Open)	**OFF**	**P3**
	S3> 45° [*A17*]			Heating	**ON**	**P4**

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