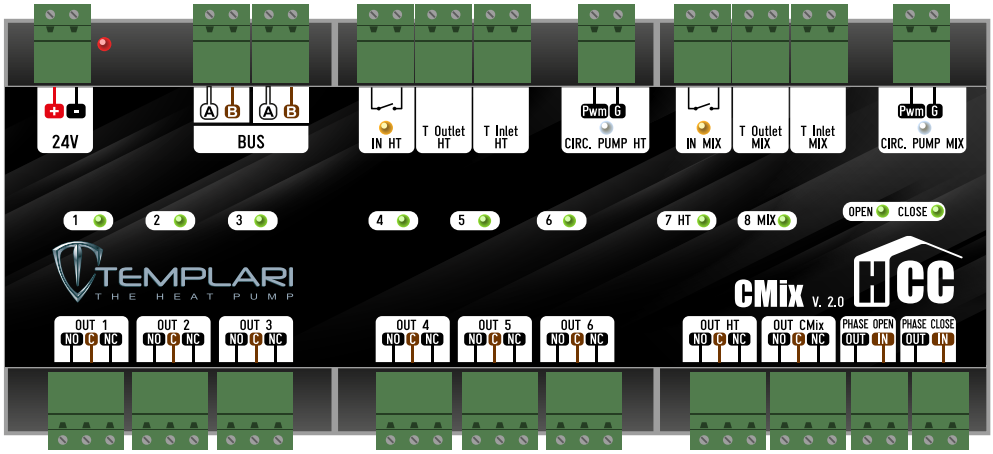
TEMPLARI
THE HEAT PUMP

INSTRUCTION MANUAL

(Translation of the original instructions)



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CMix and CMix Compact

FOR SAFE AND CORRECT USE, FOLLOW THESE INSTRUCTIONS.
KEEP THEM FOR FUTURE REFERENCE.

COM.MAN.010AB-01 - rev. 01 - 05/08/2025 - CMIX-CMIX COMPACT

1 CMIX AND CMIX COMPACT DEVICE INSTALLATION 2
1.1 CMix or CMix Compact module installation 2
1.2 Wiring diagrams 3
2 GENERAL OPERATION, ACTIVATION AND ALTERATION OF THE HEAT PUMP WORKING SETPOINTS FOR CMIX AND CMIX COMPACT DEVICES 6
3 PRIMARY CIRCUIT SETPOINT FORCING 7
4 CMIX AND CMIX COMPACT DEVICE CONFIGURATION 8
4.1 Installing and enabling the CMix and CMix Compact Module 8
4.2 Installing the CMix and CMix Compact module 9
4.3 Enabling the CMix module 9
4.4 CMix settings and operation 10
4.5 CMix operating overview 13
4.6 CMix and CMix Compact Climatic Curve 15
5 CMIX AND CMIX COMPACT SAFETY DEVICES AND RELATIVE ALARMS 16
5.1 Alarms for temperature 16
5.2 Status or electrical fault alarms 17
5.3 Alarm for faulty or undetected MIX flow probe 17
6 OPERATING NOTIFICATIONS 18

1 CMIX AND CMIX COMPACT DEVICE INSTALLATION

1.1 CMIX OR CMIX COMPACT MODULE INSTALLATION

Notes on system preparation

Device power supply	24 VDC 200 mA
BUS cable type	Templari HCC cable (type: Belden 3105A 2x22AWG shielded)
Power supply cable type	2x1 mm2

Please refer to the HCC manual for more information about installation.

BUS DATA NETWORK CONNECTIONS

⚠ WARNING

WE RECOMMEND USING AN HCC CABLE

The connection between the CMix device and the Kita Touch panel must be made via a card
Ensure that the additional BMS communication card is installed in the machine.

The connections must comply with the indications in the figures below.

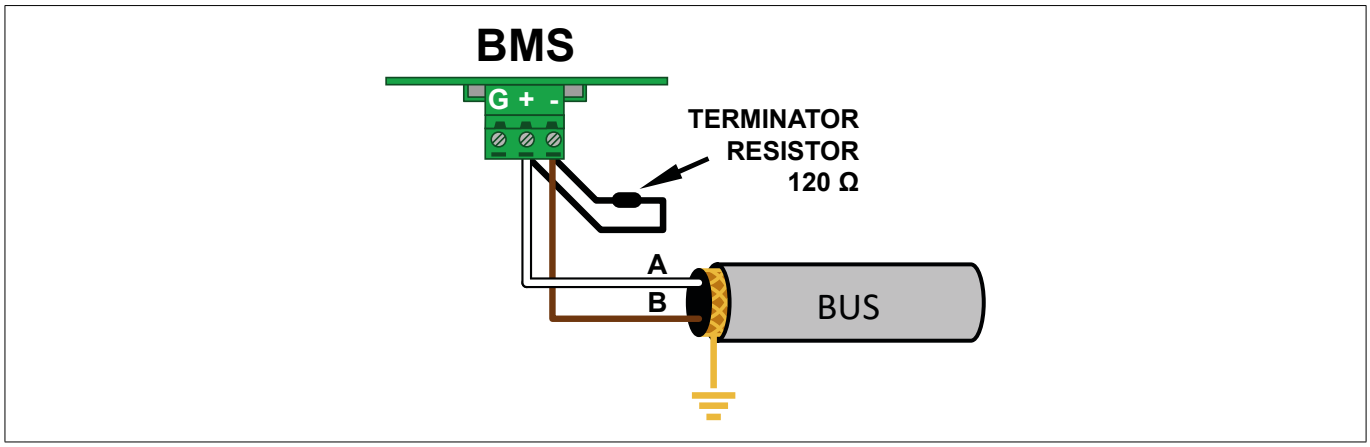

FIG. 1 *(BMS interface and data BUS connection for connection with SG-Probe card or BUS line for K-Touch and HCC peripherals)*

Connect the power supply unit ground terminal to the BUS data network shielding braid.

CMIX AND CMIX COMPACT DEVICE DESCRIPTION

The CMix device allows the simultaneous management of systems with different technologies and operating temperatures, through the management of:

- 1 mixed circuit, setting a specific working set-point;
- 1 direct, unmixed circuit, which works according to the set-point set for the primary heating and/or cooling circuit.

The relevant circuits are activated by closing the IN MIX and IN HT contacts, by means of a “dry contact” device, thermostat or relay, or by combining them with a ROOM or DOME sensor.

These activation modes make it possible to interface a Templari heat pump with a pre-existing temperature control system (dry contact interface), or using ROOM/DOME sensors, to obtain temperature control fully integrated in a single interface, in order to obtain the maximum possible control, optimise the consumption and heat production of the heat pump.

The CMix Compact device, allows the management of a single circuit, which can be mixed or direct, depending on whether or not the relative mixing valve is installed.

As with the CMix module, activation is conditional on the closure of the IN MIX contact, or upon request of a ROOM or DOME sensor combined with it.

CMIX AND CMIX COMPACT CARD INPUTS/OUTPUTS

- 24 V input: Input for a 24 V power supply;
- BUS input-output: input and output terminals for HCC BUS communication;
- IN CMIX contact: enables operation of the CMix mixed circuit. Circuit the poles of the CMix contact via a “dry contact” (room thermostat or relay);
- IN HT contact: Enables operation of the HT direct circuit. Circuit the poles of the HT contact via a “dry contact” (room thermostat or relay);
- T OUTLET MIX input: MIX circuit flow temperature probe input;
- T INLET MIX input: MIX (mixed) circuit return temperature probe input;
- T OUTLET HT input: HT (direct) circuit flow temperature probe input **(see note 1**);
- T INLET HT input: HT (direct) circuit return temperature probe input **(see note 1**);
- CIRC PUMP MIX output: PWM output for MIX circulation pump, with complementary logic **(see note 2**);
- CIRC PUMP HT output: PWM output for HT circulation pump, with complementary logic **(see notes 1 and 2**);
- PHASE OPEN output: SSR output for controlling the mixing valve opening phase **(see note 3**);
- PHASE CLOSE output: SSR output for controlling the mixing valve closing phase **(see note 3**);
- OUT CMIX relay output: MIX circulation pump power supply output **(see note 4**);
- OUT HT relay output: HT circulation pump power supply output **(see notes 1 and 4**);
- OUT 1-3 relay output: Relay output for controlling MIX auxiliary devices, after configuration **(see notes 1 and 4**);
- OUT 4-6 relay output: Relay output for controlling HT auxiliary devices, after configuration **(see notes 1 and 4**);

NOTES

1) Not present for the CMix Compact module
2) E.g.: PWM 100% => Speed 0%; PWM 40% => Speed 60%
3) Use a 3-way mixing valve with 230 VAC control and recommended operating time between 90 and 120 sec. Do not use valves with an operating time of less than 60 sec.
4) NO-C-NC dry contact relay output for 230 VAC power controls up to 500 W. Output not suitable for purely inductive loads.

1.2 WIRING DIAGRAMS

⚠ WARNING

THE SHIELDING BRAIDS FOR THE BUS CABLE, THE VARIOUS CABLE SECTIONS BETWEEN THE DIFFERENT PERIPHERALS, IF INSTALLED (HCC ROOM SENSOR, HCC FLOOR CARD, T-FAN, ETC.,) WILL BE SERIES CONNECTED.

DO NOT INSERT THE BRAID INTO THE G-POLE OF THE PERIPHERALS.

For all wiring details for connecting the BUS network to the KITA heat pump, refer to chapter I of the HCC manual supplied with the HCC Touch panel.

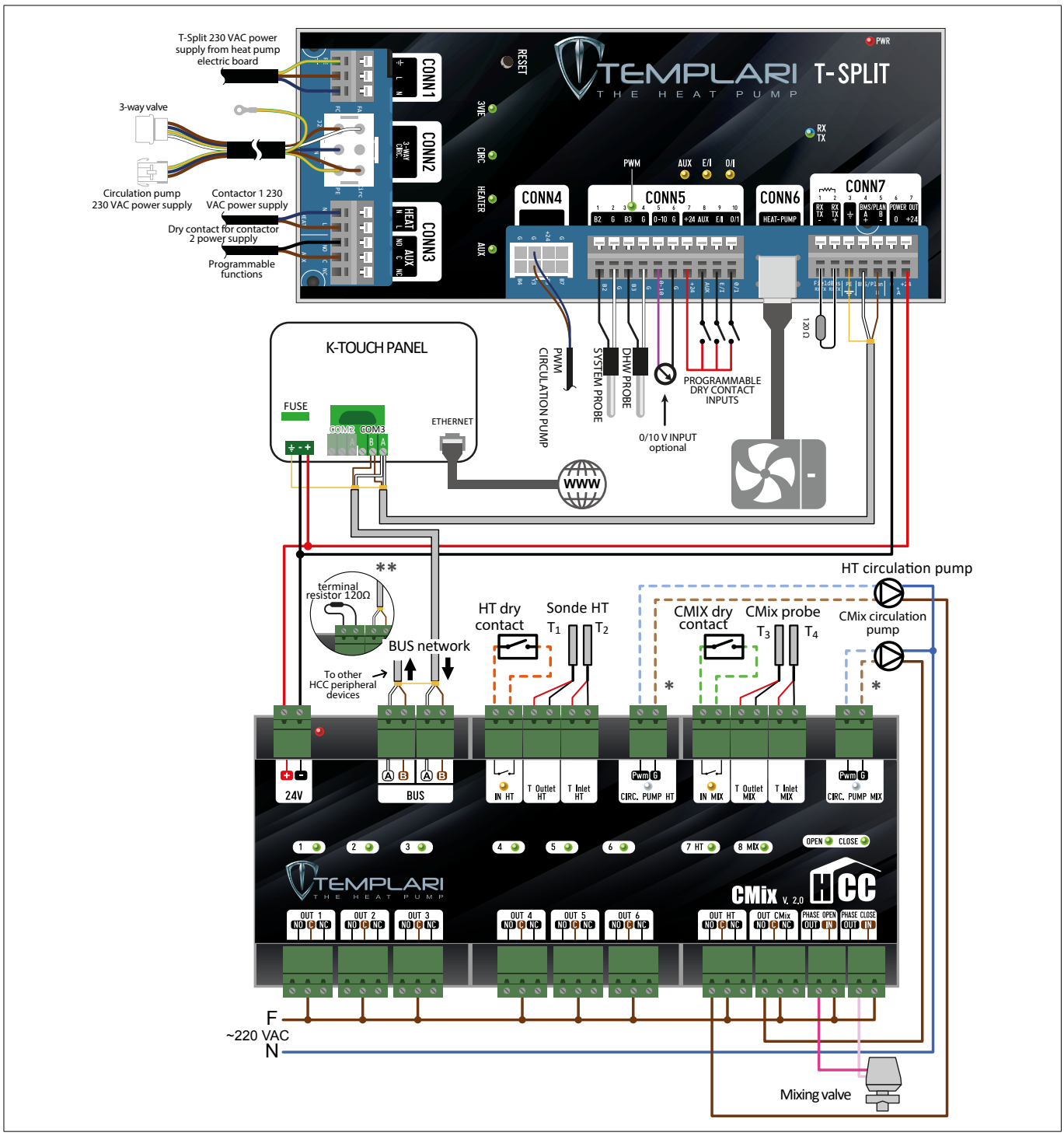

FIG. 2 *(Wiring diagram for CMix module connection)*

Ref.	
*	Optional PWM connections.
**	If the CMIX card is the last device in the network, add a 120Ω terminating resistor
T_1	HT direct circuit flow probe
T_2	HT direct circuit return probe
T_3	MIX mixed circuit flow probe
T_4	MIX mixed circuit return probe

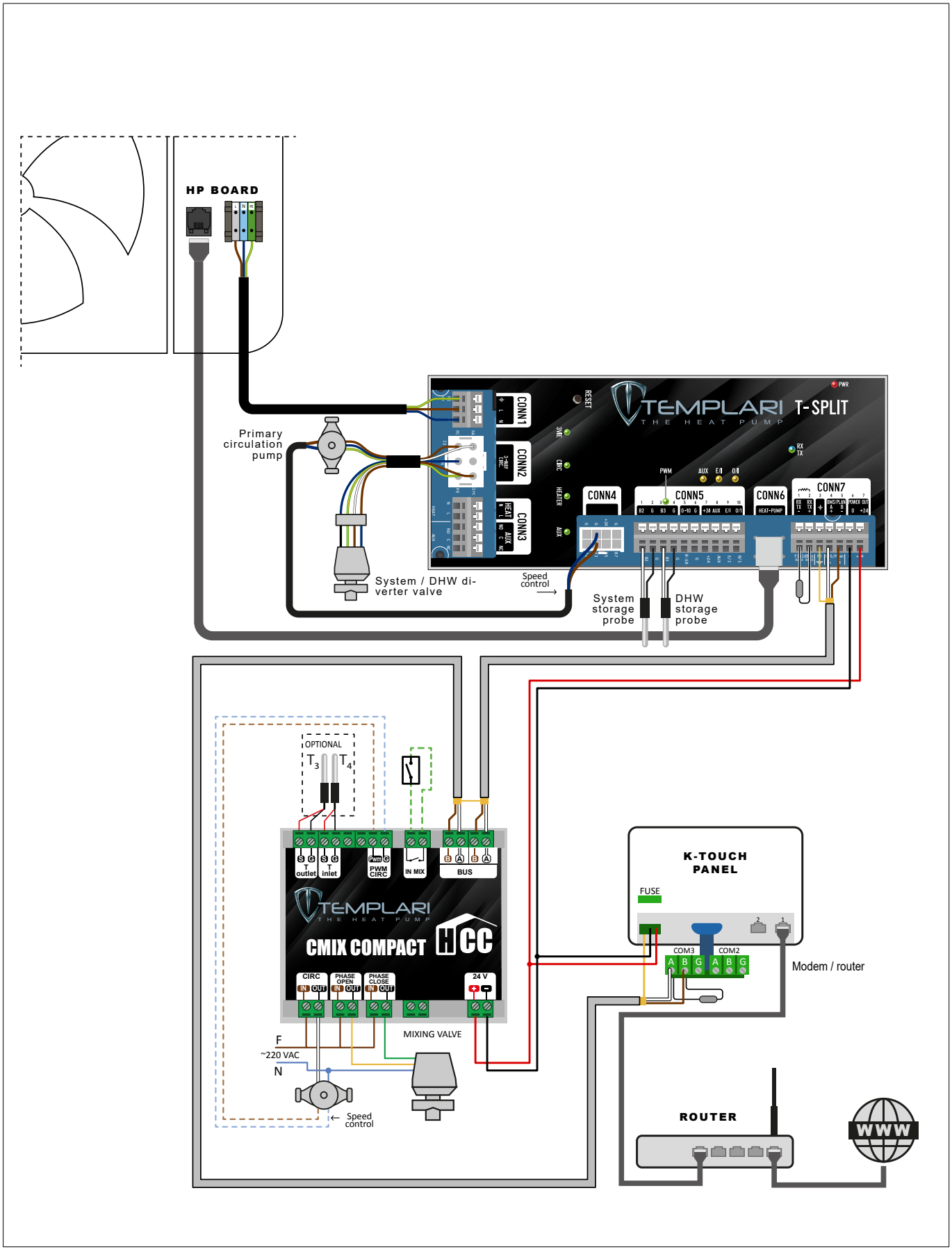

FIG. 3 *(Wiring diagram for CMix Compact module connection)*

2 GENERAL OPERATION, ACTIVATION AND ALTERATION OF THE HEAT PUMP WORKING SETPOINTS FOR CMIX AND CMIX COMPACT DEVICES

HT DIRECT CIRCUIT ACTIVATION [1]

Activation of the HT direct circuit takes place after the closure of the IN HT contact, or upon heat demand by a ROOM or DOME sensor coupled to the direct circuit of this module (chap. 4.4 points 4, 5, 6). If the IN HT input is closed by a dry contact, the corresponding icon turns **green**.
The activation of relay output 7 (HT) takes place depending on the mode selected by the setpoint control button and whether or not the Delayed Start or DHW Pump Stop functions are activated (chap. 4.4 points 15, 16, 17, 18).
Together with OUT 7 (HT), also the auxiliary outputs 4, 5 and 6 can be activated simultaneously, if selected on the CMix Settings screen of the respective CMix device.

Activation of any of the HT circuits, among the CMix modules installed in the HCC temperature control system, results in the setpoint being considered the primary one among the setpoints eligible for the Templari heat pump.

SETPOINT CONTROL DEACTIVATED (DEFAULT) [1]

With setpoint control deactivated, the activation of OUT 7 (HT) and the pump speed control (Circ pump HT), occurs when the IN HT contact is closed, after evaluating the Delayed Start and/or DHW Pump Stop functions, if the latter are activated.

If the Delayed Start function is activated for the HT circuit, the OUT 4, 5, 6 outputs will be activated immediately, while the OUT 7 (HT) outputs and the pump speed control (Circ pump HT) will be activated with a delay equal to the time selected in the drop-down menu (chap. 4.4 point 17).

If the DHW Pump Stop function is activated for the HT circuit, and the heat pump is in DHW mode, OUT 7 (HT) and the pump speed control (Circ pump HT) will be deactivated with a delay equal to the time selected in the drop-down menu (chap. 4.4 point 18).

SETPOINT CONTROL ACTIVATED [1]

With setpoint control activated, the activation of OUT 7 (HT) and the pump speed control (Circ pump HT), occurs when the IN HT contact is closed, evaluating the temperature of the system buffer (B2) or in the case of a NO BUFFER system, the heat pump flow probe (B7).
The Delayed Start and/or DHW Pump Stop functions are also evaluated, if the latter are activated, as described above.

For a detailed description of the function, refer to chapter 4.4 point 15.

1: Operation not available for CMix Compact

MIX MIXED CIRCUIT ACTIVATION

Activation of the MIX mixed circuit takes place after the closure of the IN MIX contact, or upon heat demand by a ROOM or DOME sensor coupled to the direct circuit of this module (chap. 4.4 points 4, 5, 6).
If the IN MIX input is closed by a dry contact, its icon turns **green**.
The activation of OUT 8 (MIX), and the pump speed control (Circ pump MIX),
may or may not be influenced by the activation of the “activation at delta” function. See chap. 4.4 point 13 for a complete description of this function.

The activation or non-activation of OUT 8 (MIX), and the pump speed control (Circ pump MIX) can be influenced by the Delayed Start and/or DHW Pump Stop functions, if the latter are active (chap. 4.4 point 15, 16, 17, 18).
Together with OUT 8 (MIX), also the auxiliary relay outputs 1, 2, and 3 can be activated simultaneously, if selected on the CMix Settings screen of the respective CMix device.

If the ***Delayed Start*** function is activated for the MIX circuit, the relay outputs 1, 2 and 3 will be activated immediately, while the OUT 8 (MIX) and the pump speed control (Circ pump MIX) will be activated with a delay equal to the time selected in the drop-down menu (chap. 4.4 point 17).

If the DHW Pump Stop function is activated for the MIX circuit, and the heat pump is in DHW mode, OUT 8 (MIX) and the pump speed control (Circ pump MIX) will be deactivated with a delay equal to the time selected in the drop-down menu (chap. 4.4 point 18).

ASSIGN SETPOINT FOR PRIMARY CIRCUIT DEACTIVATED (DEFAULT)

In this mode, activation of the MIX circuit will not change the setpoint set for the primary circuit, allowing the heat pump to produce water at the temperature set for the primary (heat pump setpoint).

ASSIGN SETPOINT FOR PRIMARY CIRCUIT ACTIVATED

In this mode, activation of the MIX circuit could
change the setpoint set for the primary circuit.
The CMix and CMix Compact peripheral devices, which will have the option Assign setpoint for primary circuit ***activated***, will allow the comparison of their MIX setpoints (chap. 2.4 point 5) active at a given moment, as follows:

- **in heating mode:**
  the highest of the active setpoints will be used.
  If at least one HT circuit is active at the same time, the higher among the MIX setpoints and the setpoint set for the primary will be used (heat pump setpoint)

- in cooling mode:
  the lowest of the active setpoints will be used.
  If at least one HT circuit is active at the same time, the higher among the MIX setpoints and the setpoint set for the primary will be used (heat pump setpoint)

  If the function “Force primary circuit setpoint” (chap. 3) is **enabled**, the setpoint of the primary circuit is also taken into account among the eligible setpoints.

In a standby situation (no MIX or HT circuit involved), the heat pump will keep the technical buffer (B2 probe) at the higher temperature among those set for the MIX circuit, which have the function Assign setpoint to primary circuit active. If the function "Force primary circuit setpoint" (chap. 4.4 point 17) is active, the heat pump will keep the technical buffer (B2 probe) at the temperature set for the primary circuit.

3 PRIMARY CIRCUIT SETPOINT FORCING

To access the function configuration, go to the ”Advanced Settings” screen and enter the designated password to access the “MANUFACTURER” menu.

Symbol	Meaning
	**Primary circuit setpoint forcing.** With the function active, the setpoint set for the primary circuit is considered together with all eligible setpoints.

In standby situation, without any CMix, CMix Compact or Floor request, activation of this button will force the primary circuit to work according to the setpoints set on the "primary circuit setpoint " screen. The setpoint in use will be that of the selected time slot or manual mode, depending on whether time programming is activated or not.

4 CMIX AND CMIX COMPACT DEVICE CONFIGURATION

4.1 INSTALLING AND ENABLING THE CMIX AND CMIX COMPACT MODULE

⚠ WARNING

WORKING WITH A DEVICE INSTALLED AND NOT ENABLED CAN CAUSE MALFUNCTIONS AND DAMAGE THE SYSTEM.

The CMix or CMix Compact module, like all HCC temperature control devices, must be appropriately addressed, configured, and subsequently enabled before it can be operated. Carry out these operations in order to configure the device correctly.

ADDRESS SETTING

⚠ WARNING

ONLY CONNECT ONE DEVICE WITH ADDRESS 222 AT A TIME. THE PRESENCE OF MULTIPLE DEVICES WITH THE SAME ADDRESS, POWERED AND CONNECTED TO THE BUS, CREATES A COMMUNICATION CONFLICT AND CAUSES PROBLEMS FOR THE OPERATION OF THE ENTIRE HCC SYSTEM.

The default BUS address of the CMix device is 222. To use a CMix or CMix Compact device, the address of the peripheral device must be reconfigured to a value between 120 and 127. To change the address stored in this device, access the “SET ADDRESS" screen within the “MANUFACTURER" screen, selecting in order:

Options (gear) > ADVANCED > Password “Manufacturer" > "SET ADDRESS".

If the peripheral device to be programmed is correctly powered and connected to the communication BUS, it will be recognised and ready to be programmed with the new address.

FIG. 4*(.....)*

Enter the desired address in the selected field and press “SET”. If the operation is successful, the device will be programmed with the new address.

4.2 INSTALLING THE CMIX AND CMIX COMPACT MODULE

To access the installation menu for the CMix or CMix Compact module, select the ”Advanced Settings” screen and enter the designated password to access the “MANUFACTURER” menu.
This screen is password-protected and only authorised personnel may access it.
To configure the concerned device, press the button below related to the peripheral device.

Symbol	Meaning
	**CMix BUS address.** Here it is possible to view the address selected for the concerned peripheral device and its programming status. Tapping the button associated with the concerned CMix or CMix Compact module, you will access its settings screen. The button with a green light indicates that the CMix module with that address is installed. When the green light is off, this indicates that the concerned module has not been installed, therefore it cannot function.

For more information about the configuration of the CMix or CMix Compact device, see **chapter 2.4.**

4.3 ENABLING THE CMIX MODULE

To make an installed and configured CMix or CMix Compact module operational, it must be enabled for operation. To enable it, select the ”Advanced Settings” screen and enter the designated password for that function. This screen is password-protected and only authorised personnel may access it.

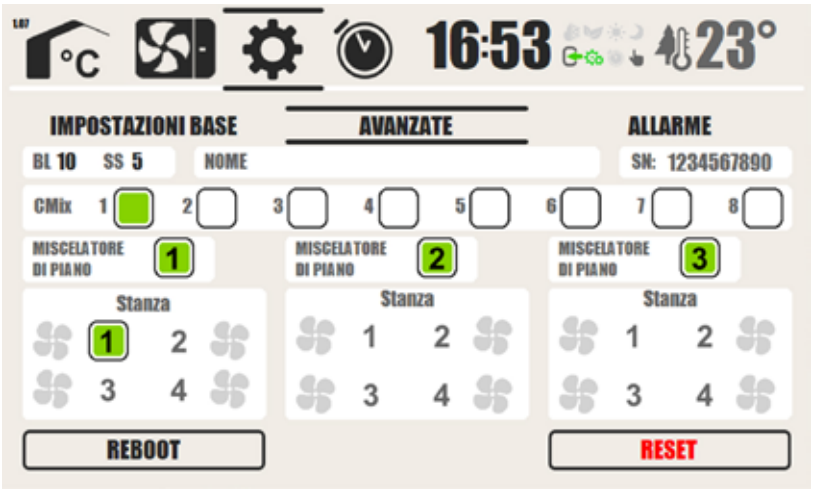

FIG. 5*(.....)*

	Tapping the square associated with the installed module will enable it and make it work normally.

4.4 CMIX SETTINGS AND OPERATION

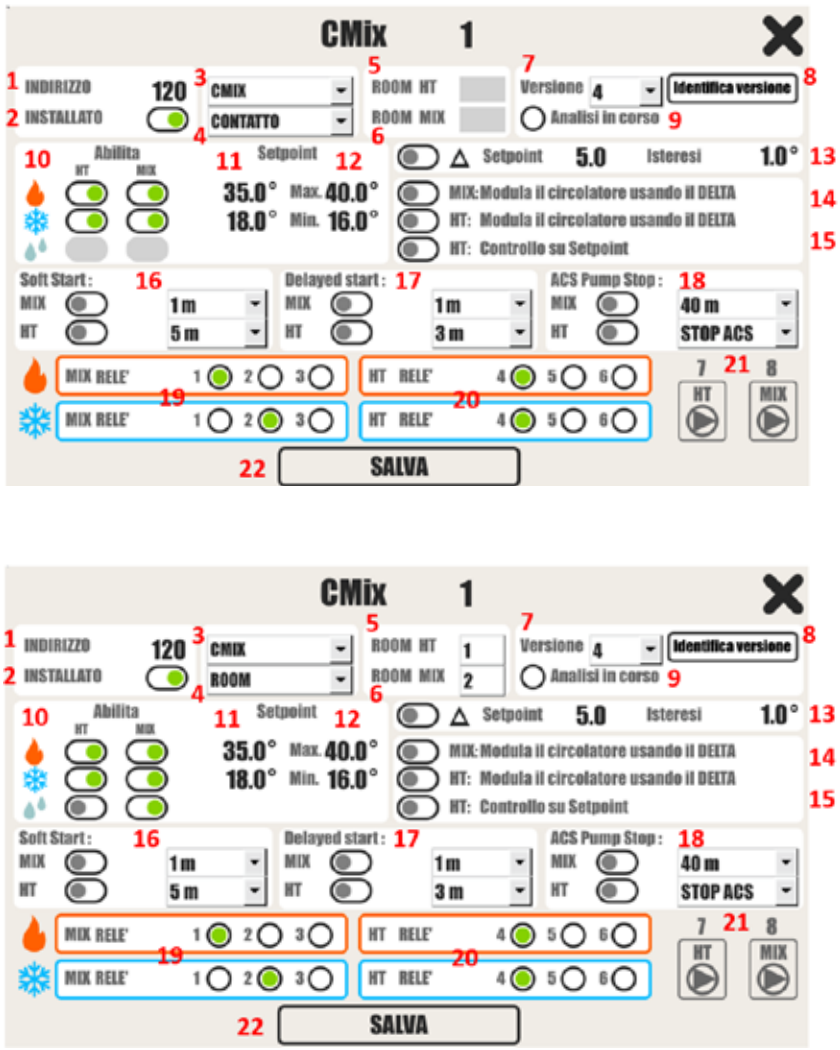

FIG. 6*(.....)*

1) BUS address of the CMix peripheral device. The factory address of the device is 222. To use the peripheral device, the original address must be reprogrammed by entering the proposed address within a range of 120 to 127. It is recommended to enter the default address designated for the peripheral device in question. E.g. CMix 2, default address 121. To change the factory address of the CMix, please refer to chapter 4.1 INSTALLING AND ENABLING THE CMIX AND CMIX COMPACT MODULE.

2) Selector “installed”. Activate the button to allow the HCC system to communicate with the peripheral device.

3) Selector to identify the type of peripheral device installed in relation to the managed hydraulic circuit. The following can be selected:
- CMix: to obtain the operation and graphics of the complete module, HT + Mix (direct + mixed)
- CMix MIX: to obtain the operation and graphics of the module in Mix configuration (only mixed circuit)
- CMix HT: to obtain the operation and graphics of the module in HT configuration (direct circuit only)

4) Heat demand activation input selector. The following can be selected:
- CONTACT: to use the MIX IN and HT IN input contacts to have the heat demand acquired by the peripheral device

in question. The MIX IN and HT IN inputs must be connected to a non-electrified dry contact (room thermostat, head limit switch, etc.). Connecting the MIX IN and HT IN digital inputs to an electrified contact can cause irreversible electrical damage to the peripheral device.

- ROOM/DOME: to acquire the heat demand from a ROOM or DOME sensor. When the latter is making a request, according to the setpoint entered, the heat demand will be transmitted to the coupled CMix peripheral device.
- One sensor can be combined with the MIX circuit and one with the HT circuit. See points 5 and 6.
- ROOM+CONTACT: combines the functionality of the points above, activating the device in question, for CONTACT and/or ROOM. The first activation received by the module will activate the corresponding circuit.

5) Allows selecting the ROOM or DOME sensor, from which to acquire the heat demand for the HT (direct) circuit. Only active if the ROOM or ROOM+CONTACT options are selected in point 4.

6) Allows selecting the ROOM or DOME sensor, from which to acquire the heat demand for the MIX (mixed) circuit. Only active if the ROOM or ROOM+CONTACT options are selected in point 4.

7) FW version of the CMix peripheral device in question, is filled in automatically by touching the button at point 8, “Identify version”. If the peripheral device is correctly connected and addressed, the FW version will be acquired. Otherwise, “NA” will be displayed in the “Version” box. In this case, check the electrical power and BUS connections of the peripheral device.

8) “Identify version” button. By pressing this button, a communication test is carried out with the device in question, identified with the address shown in point 3. During communication with the peripheral device, the “Analysis in progress” notification indicator, described at point 9, is activated.

9) “Analysis in progress” notification indicator, active during interrogation of the peripheral device in question.

10) Seasonal consent, for enabling the HT and MIX circuits, for heating (flame) and cooling (snowflake) modes. For the cooling mode, it is possible to modulate the working setpoint in cooling mode, using the dew point calculated by the coupled ROOM or DOME sensor, and selected in points 4 and 6. The safety threshold for the minimum temperature is respected also with this last setting active.

11) Temperature setpoints for the MIX circuit, in heating and cooling mode, applied to the MIX flow probe of the peripheral device in question. The peripheral device modulates the position of the mixing valve in order to keep the flow temperature of the mixed circuit within the entered setpoint value +/- 1 °C.

12) Safety thresholds for the relative modes.
MAX: maximum operating temperature threshold in heating mode, above which safety mode takes over.
MIN: minimum operating temperature threshold in cooling mode, below which safety mode takes over.
The safety condition causes the output dedicated to the supply of the secondary pump for the MIX circuit (OUT 8) to turn off, and the mixing valve to close completely. In this situation, the icon is displayed on the CMix overview screen (see chap. 5.5, fig. ALL1).

13) Applied delta and relative hysteresis, between the mixed circuit setpoint (point 11) and the temperature measured at the primary circuit, to determine activation of the Mix pump (OUT 8).
Depending on the type of primary circuit selected, control is carried out between the B2 probe (BUFFER mode), or the B7 probe (NO BUFFER mode), and the flow probe of the mixed circuit (T outlet MIX).
Activation of the option conditions the activation of the Mix pump (OUT 8) according to the relationships described in the following table, where TPrim is B2 in the BUFFER configuration or B7 in the NO BUFFER configuration.

Mod	Relationship	OUT 8
	TPrim – hysteresis ≤ Set Mix – Δ ≤ TPrim + hysteresis TPrim – hysteresis < Set Mix – Δ TPrim + hysteresis > Set Mix – Δ	Unchanged OFF, ON->OFF ON, OFF->ON
	TPrim – hysteresis ≤ Set Mix + Δ ≤ TPrim + hysteresis TPrim – hysteresis < Set Mix + Δ Tprim + hysteresis > Set Mix + Δ	Unchanged ON, OFF->ON OFF, ON->OFF

14) Circulation pump modulation using flow-return delta. Requires the presence of both T OUTLET MIX and T INLET MIX probes for modulation of the circulation pump coupled to the MIX circuit, and T OUTLET HT and T INLET HT probes for modulation of the circulation pump coupled with the HT circuit. Failure to install the return probes, T INLET MIX and/or HT, disables the operation of the relative circuit.
With the function active, the peripheral device modulates the speed of the MIX and HT circulation pumps to maintain the delta between flow and return set by the user. The function can be activated independently for the two MIX and HT circuits, and uses the flow and return probes of the relative circuits to modulate the speed of the coupled circulation pump.
The speed of the pump coupled to the mixed circuit is managed by the CIRC PUMP MIX output, by varying its PWM signal. The speed of the pump coupled to the direct circuit is managed by the CIRC PUMP HIT output, by varying its PWM signal.

15) HT setpoint control. When the function is active and after the request on the HT circuit (contact or ROOM) occurs, the system activates and deactivates the output dedicated to the HT circulation pump (OUT 7) of the CMix peripheral device, based on the temperature measured at the primary circuit and the setpoint defined for the primary (heat pump setpoint), which can be found in paragraph XXXX.
If the function is deactivated, there is no control over the temperature of the HT circuit, and the output dedicated to the HT circulation pump (OUT 7) is activated a few moments after receiving the HT request.

The primary circuit temperature (TPrim) is, respectively, that measured by the B2 probe for the BUFFER configuration, and that measured by the B7 probe for the NO BUFFER configuration.
The behaviour of the function is described by the following table.

Mod	Relationship	OUT 7
	HP set – 10 °C ≤ TPrim ≤ HP set – 5 °C TPrim < HP set - 10 °C TPrim > HP set - 5 °C	Unchanged OFF, ON->OFF ON, OFF->ON
	HP set + 5 °C ≤ TPrim ≤ HP set + 10 °C TPrim < HP set + 5 °C TPrim > HP set + 10 °C	Unchanged ON, OFF->ON OFF, ON->OFF

16) Soft Start. With the function enabled, the controls for the speed of the circulation pumps (CIRC PUMP HT and CIRC PUMP MIX) are gradually increased to the designated speed. The time to reach this speed can be selected from the relative drop-down menu. The function is independent for the mixed (MIX) and direct (HT) circuit. The activation of the function is notified in the overview for the peripheral device under examination, with the icon shown in (see chap. 6, fig. All3).

17) Delayed Start. With the function enabled, the outputs dedicated to the HT circulation pump (OUT 7) and the MIX circulation pump (OUT 8) and the relative pump speed commands (CIRC PUMP HT and CIRC PUMP MIX) are activated with a delay equal to the value selected from the relative drop-down menu. The function is independent for the mixed (MIX) and direct (HT) circuit. The activation of the function is notified in the overview for the peripheral

device under examination, with the icon shown in (see chap. 6, fig. All3).

18) DWH Pump Stop. With the function enabled, the outputs dedicated to the HT circulation pump (OUT 7) and the MIX circulation pump (OUT 8) and the relative pump speed commands (CIRC PUMP HT and CIRC PUMP MIX) are stopped if the heat pump is producing domestic hot water. The pause time can be selected from the relative drop-down menu. The function is independent for the mixed (MIX) and direct (HT) circuit. The activation of the function is notified in the overview for the peripheral device under consideration, with the icon shown in (see chap. 6, fig. ALL4).

19) Configurable outputs, assignable to the mixed circuit (MIX) in Heating and Cooling mode. Outputs 1 to 3 (OUT 1-3) are not subject to the Soft Start, Delayed Start, DWH Pump Stop functions described above. Outputs 1, 2 and 3 are configurable and can only be associated to the mixed circuit (MIX) and are enabled as soon as the module receives the request to the MIX circuit (IN MIX CONTACT or ROOM).

20) Configurable outputs, assignable to the direct circuit (HT) in Heating and Cooling mode. Outputs 1 to 6 (OUT 1-6) are not subject to the Soft Start, Delayed Start, DWH Pump Stop functions described above. Outputs 4, 5 and 6 are configurable and associated only to the direct circuit (HT) and are enabled as soon as the module receives the request to the HT circuit (IN HT CONTACT or ROOM).

21) Outputs 7 and 8, assigned respectively to the consent for circulation pump management for the direct (HT) and mixed (MIX) circuit
Output 7 (OUT 7) is always and only associated with the direct circuit (HT), output 8 (OUT 8) is always and only associated with the mixed circuit (MIX) and are both subject to the Soft Start, Delayed Start, DHW Pump Stop functions, when the relative requests are active.

22) Saves the on-screen settings and exits the screen.

4.5 CMIX OPERATING OVERVIEW

To view the operating overview for the CMix or CMix Compact devices, tap the button in the tab bar marked CMIX. This will display the summary screen of the 8 CMix that can be installed in the HCC system, each of which is represented by a grey rectangle.
If the rectangle is light grey then the device is not installed and not even enabled, whereas if it is dark grey then it is installed and enabled, and the water flow and return temperatures for the MIX circuit for that CMix device will be visible. Tapping the rectangle for the installed CMix displays its summary screen.

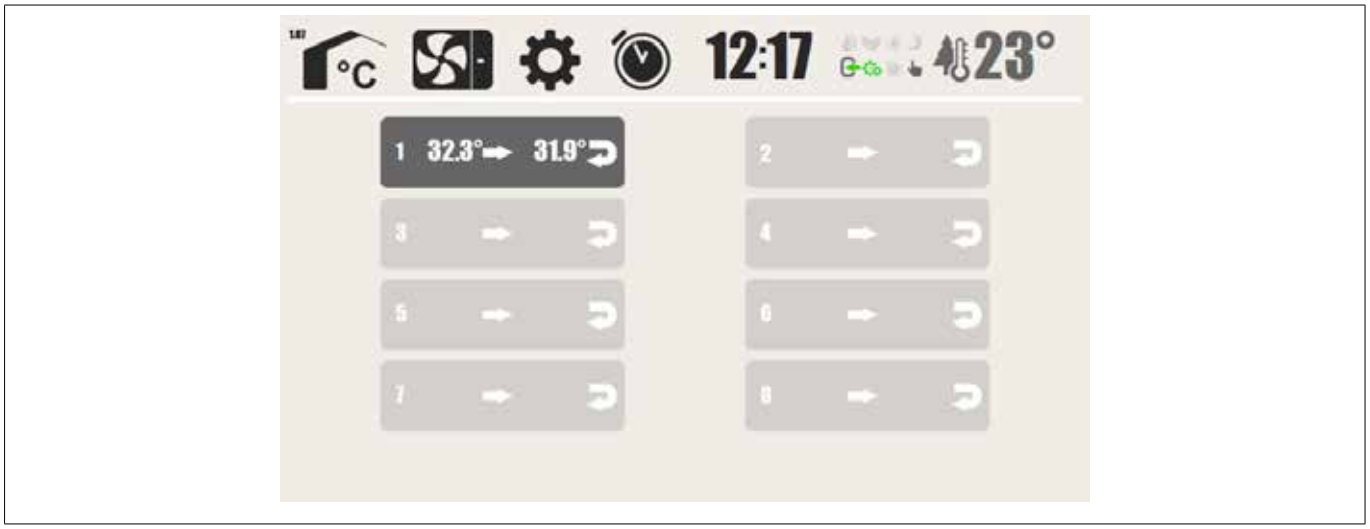

FIG. 7*(.....)*

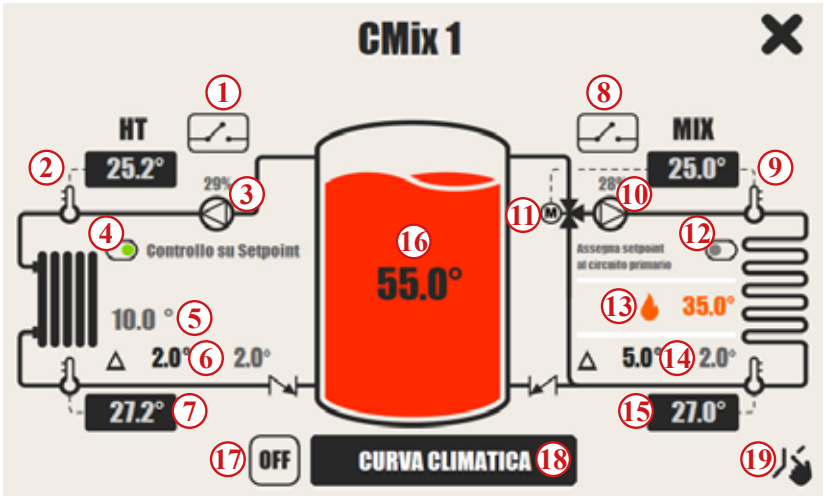

FIG. 8*(.....)*

1) Direct circuit contact (HT). If the IN HT contact is closed then the icon is lit.

2) Flow temperature of the direct circuit (HT), measured by the probe connected to the T outlet HT input

3) Direct circuit circulation pump (HT). If the circulation pump is active, the icon is lit.

4) Enables the HT circuit to work according to the heat pump setpoint. See chapter 4.4, point 15 for operation.

5) Primary circuit setpoint, visible with the “setpoint control” function enabled.

6) Flow-return delta setpoint, for HT circuit. Only visible if the function is enabled. See chap. 4.4, point 14.

7) Flow temperature of the direct circuit (HT), measured by the probe connected to the T Inlet HT input

8) Mixed circuit contact (MIX). If the IN MIX contact is closed then the icon is lit

9) Flow temperature of the mixed circuit (MIX), measured by the probe connected to the T outlet MIX input

10) Mixed circuit circulation pump (MIX). If the circulation pump is active, the icon is lit.

11) Mixed circuit mixer (MIX).

12) Assign setpoint to the heat pump. If the function is enabled, the system will send the heat pump the setpoint to be used to satisfy all current heat demands, by setting: in heating mode, the highest of all available, in cooling mode, the lowest of all available.

13) Currently used mixed circuit setpoint (MIX).

14) Setpoint of the mixed circuit flow/return delta (MIX). Only visible if the function is enabled, see chap. 4.4, point 14.

15) Flow temperature of the mixed circuit (MIX), measured by the probe connected to the T Inlet MIX input

16) Buffer temperature (B2). The colour of the buffer is determined by the type of work. In heating mode it is red, in cooling mode it is blue.

17) Enables the use of the climatic curve for the displayed CMIX card. Activation of the climatic curve can alter the setpoint shown in point 13.

18) Button to access the climatic curve configuration. See chap. 4.6 “CMIX and CMIX Compact Climatic Curve”.

19) Enables manual use of the input contacts. When enabled, the IN MIX and IN HT contacts can be opened and closed by tapping their icons (points 1 and 8)

4.6 CMIX AND CMIX COMPACT CLIMATIC CURVE

On the screen below, the climatic curve and its operating parameters can be activated and configured.
A climatic curve is provided for both heating and cooling.

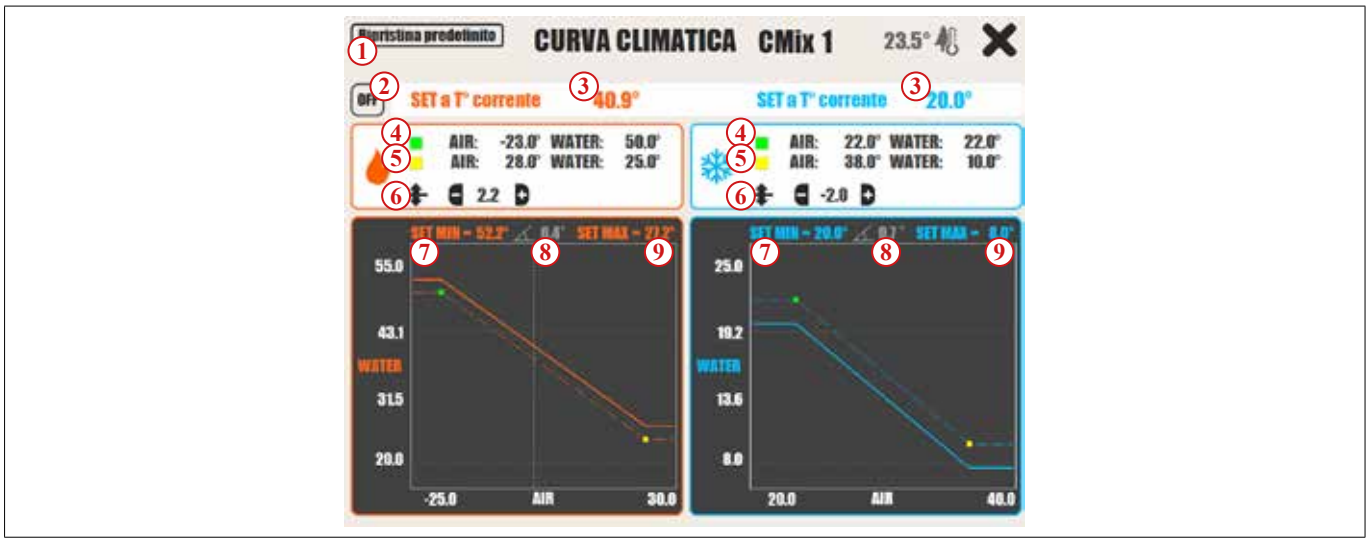

FIG. 9*(.....)*

The climatic curve graph displays the desired water temperature vertically and the average outdoor temperature of the last 24 hours horizontally. Depending on the current average outdoor temperature of the last 24 hours, represented by the vertical line, the setpoint to be applied to the Mix circuit is determined. If the function “Assign setpoint to the heat pump”, chapter 4.5, point 12, Fig 8, is also activated, the setpoint calculated by the climatic curve will be evaluated together with the other active setpoints, determining the working setpoint of the heat pump.

The coordinates of points A (point 4) and B (point 5) generate the reference climatic curve, which is represented with dashed lines in figure 9. And they determine the slope (point 8).
The offset (point 6) allows the curve to be further adjusted, enabling a vertical shift of the reference climatic curve.
The half-line resulting from this translation, represented with thicker lines in figure 9, is used to determine the setpoint to be applied to the current MIX circuit.

1) Restore default. By tapping this button, the default values of the climatic curve configuration parameters are restored.

2) Activation. By tapping the icon, the climatic curve is activated or deactivated. Once activated, the final setpoint will change according to the curve, which will calculate the water setpoint based on the average outdoor temperature over the last 24 hours.

3) Water setpoint. Returns the calculated setpoint to the current average outdoor temperature. Differentiated for heating and cooling.

4) Graph coordinates of point A of the climatic curve.

5) Graph coordinates of point B of the climatic curve.

6) Offset of the climatic curve.

7) Maximum water temperature. Returns the maximum setpoint value for water, calculated according to the climatic curve, to the minimum outdoor temperature.

8) Slope. Returns the value of the inclination of the set line.

9) Minimum water temperature. Returns the minimum setpoint value for water, calculated according to the climatic curve, to the maximum outdoor temperature.

5 CMIX AND CMIX COMPACT SAFETY DEVICES AND RELATIVE ALARMS

5.1 ALARMS FOR TEMPERATURE

Activation of the MIX request results in the application of the setpoint and associated safety thresholds set in chap. 4.4, points 11 and 12 to the respective mixed circuit.

When the safety thresholds are reached by the mixed circuit flow probe (T outlet MIX), this causes the deactivation of OUT 8 (Circ pump MIX) and the total closure of the relative mixing valve, generating the alarms of **MIX overtemperature and MIX undertemperature**. These alarms are accompanied by the signalling icon shown in (see fig. ALL1).

MIX OVERTEMPERATURE ALARM

Text displayed on the CMix overview screen: flow overtemperature MIX > MAX SET

Alarm that can occur in heating mode, when the temperature measured by the T outlet MIX probe is higher than the safety threshold set for heating mode
Check the correct operation of the mixing valve, and its electrical connection, so that it respects the required direction of rotation

MIX UNDERTEMPERATURE ALARM

Text displayed on the CMix overview screen: flow undertemperature MIX < MIN SET

Alarm that can occur in cooling mode, when the temperature measured by the T outlet MIX probe is lower than the safety threshold set for cooling mode.
Check the correct operation of the mixing valve, and its electrical connection, so that it respects the required direction of rotation.

	Icon identifying the overtemperature and undertemperature alarm.

FIG. ALL1

5.2 STATUS OR ELECTRICAL FAULT ALARMS

Status alarms can also occur, indicated by the icon in fig ALL2.

COMMUNICATION FAILURE WITH THE PERIPHERAL DEVICE UNDER EXAMINATION

Text displayed on the CMix overview screen: OFFLINE

This alarm can occur in cooling and heating mode, and indicates a communication problem with the device under examination.

Check the correct connection of the peripheral device to the BUS line.

5.3 ALARM FOR FAULTY OR UNDETECTED MIX FLOW PROBE

Text displayed on the CMix overview screen: MIX flow probe faulty or not present

This alarm can occur in cooling and heating mode, and indicates a connection problem or electrical fault in the flow probe of the MIX circuit (T OUTLET MIX).

Check the correct connection of the probe to the peripheral device, and its resistive value with a tester.

ALARM FOR FAULTY OR UNDETECTED MIX RETURN PROBE

Text displayed on the CMix overview screen: MIX return probe faulty or not present.

This alarm can occur in cooling and heating mode, and indicates a connection problem or electrical fault in the return probe of the MIX circuit (T INLET MIX).

This alarm inhibits the function “MIX: Circulation pump modulation using flow-return delta”, see chap. 4.4, point 14.

Check the correct connection of the probe to the peripheral device, and its resistive value with a tester.

ALARM FOR FAULTY OR UNDETECTED MIX FLOW AND RETURN PROBES

Text displayed in the CMix overview screen: MIX flow and return probes faulty or not present

This alarm can occur in cooling and heating mode, and indicates a connection problem or electrical fault in the flow and return probes of the MIX circuit (T INLET MIX and T OUTLET MIX).

This alarm inhibits the function “MIX: Circulation pump modulation using flow-return delta”, see chap. 4.4, point 14.

Check the correct connection of the probe to the peripheral device, and its resistive value with a tester.

	Icon identifying status or electrical fault alarms of the peripheral device under examination

FIG. ALL2

6 OPERATING NOTIFICATIONS

SOFT START AND DELAYED START OPERATING NOTIFICATIONS

If the **Soft Start and/or Delayed Start** functions are active for the HT and/or MIX circuits, the icon in Fig. ALL3 is displayed, **during the period in which these functions are active on the outputs** OUT 7 and OUT 8 and on the corresponding speed control signals CIRC PUMP HT and CIRC PUMP MIX.

	Icon identifying the current operation of the functions **Soft Start and/or Delayed Start**

FIG. ALL3

DHW PUMP STOP OPERATING NOTIFICATIONS

If the **DHW Pump Stop** function is active for the HT and/or MIX circuits, the icon in Fig. ALL4 is displayed **during the period in which this function is active on the outputs** OUT 7 and/or OUT 8 and on the corresponding speed control signals CIRC PUMP HT and/or CIRC PUMP MIX.

	Icon identifying the current operation of the function **DHW Pump Stop**

FIG. ALL4

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