Clima600

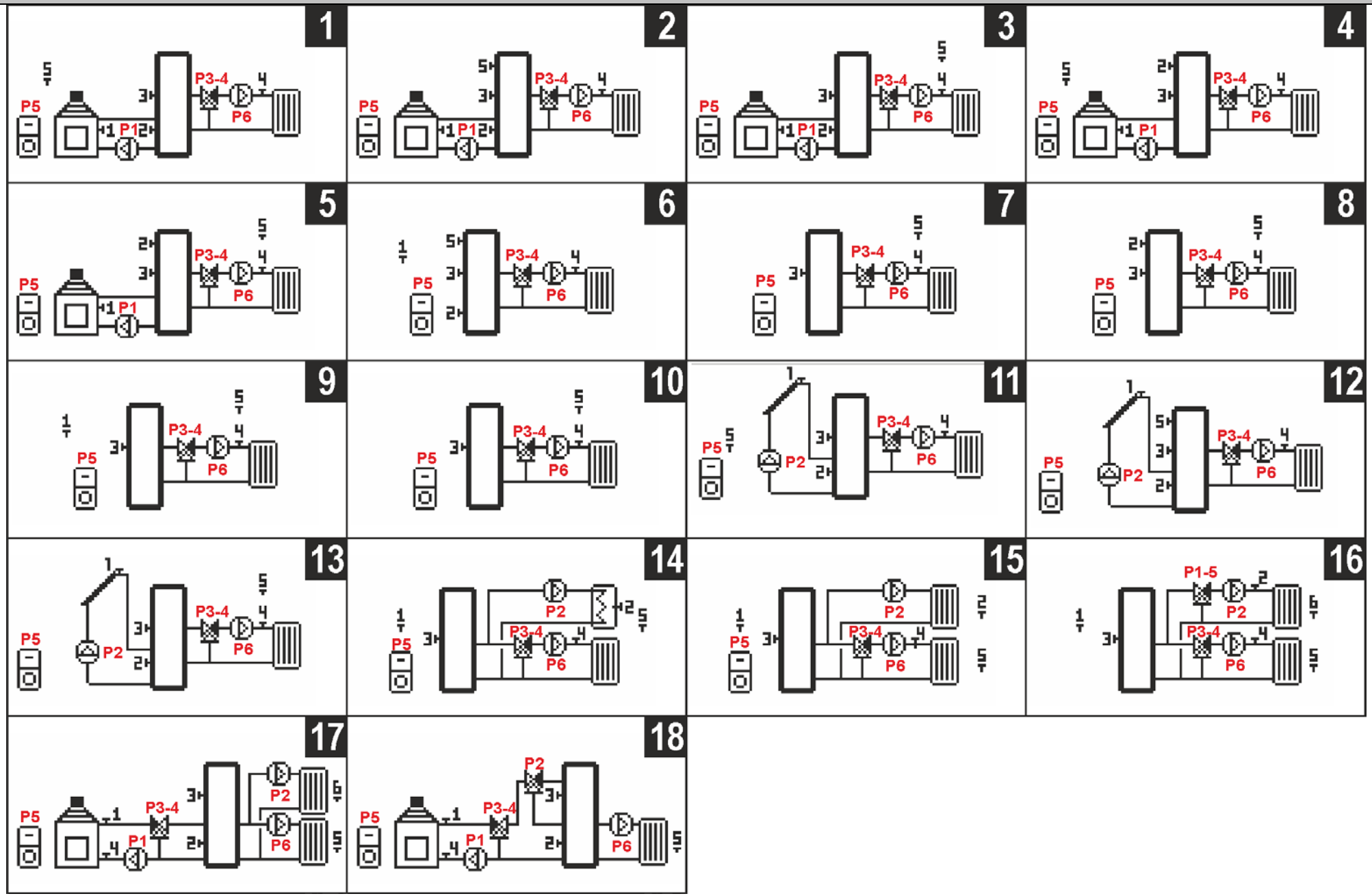
180x132x60mm

200x90x55mm

Weather-dependent

Heating circuit controller / heating controller

Investment schemes



1 Introduction

Clima600is a weather-compensated heating controller for systems with water-conducting fireplaces or wood-burning boilers, buffer storage and mixed heating circuits. Weather-compensated Clima 600 controllers are used to regulate the direct heating circuit, 1 or 2 mixer heating circuits, the heating of buffer storage or domestic water heating using boilers, water-bearing fireplaces, solar panels and other energy sources. In addition, an additional heat generator (eg LT boiler) can be requested via the CLIMA600. Select the appropriate investment scheme from the description below. The individual parameters are set using the menu navigation. When starting up for the first time, the position of the mixer is "CLOSED". This is set automatically after entering the appropriate parameters. In the event of a power failure, the values remain saved.

safety rules

Read the safety instructions carefully to avoid damage and danger to people and property. Before working on the controller, please follow the following instructions:

- Accident prevention regulations and environmental protection regulations.
- Regarding the regulations of national authorities and work accident insurance companies.
- To the recognized safety standards.
- These instructions for use are intended only for technically trained personnel.
- Electrical work may only be carried out by qualified electricians.
- The initial commissioning of the system must be carried out by qualified personnel or by the manufacturer or a technician commissioned by him.

Declaration of Conformity
Applied standards:
EN 60730-1 50081-1
EN 60730-1 A1 50081-2

CE

Ganzheitliche Energiekonzepte GmbH & Co. KG
Development, production and trade
Überaucher Straße 9/1, 78052 Villingen-Schwenningen
Telefon: +49 7705 9769690 **Mobil: +49 1741799951**
Email: info@ganzheitliche-energiekonzepte.de

Composition of the product 1
Clima600
4 screws and dowels 2
fastening screws 1 surface
or flush-mounted box 1
sensor kit

Data technology

Mains voltage:	230Vac 50Hz
Power consumption:	2 VA
Power relay output:	5A 250Vac
Internal fuse:	3.15A
Protection class:	IP40
Measuring range:	- 40÷300°C

Installation conditions and use Ambient temperature during controller operation: 0°C...40°C Ambient temperature during transport/storage: 0°C...60°C

Humidity: 85% @25°C

Mechanical properties

Housing version:	Plastic ABS
Installation options:	Surface or flush mounting
Dimensions:	180mm x 132mm x 60mm
Display:	BackLight 128 x 64 dots

2installation

2.1 Assembly

Before working on the device, switch off the power supply and secure it against being switched on again! Check that there is no voltage! The electrical connection may only be carried out by a specialist taking into account the applicable regulations.

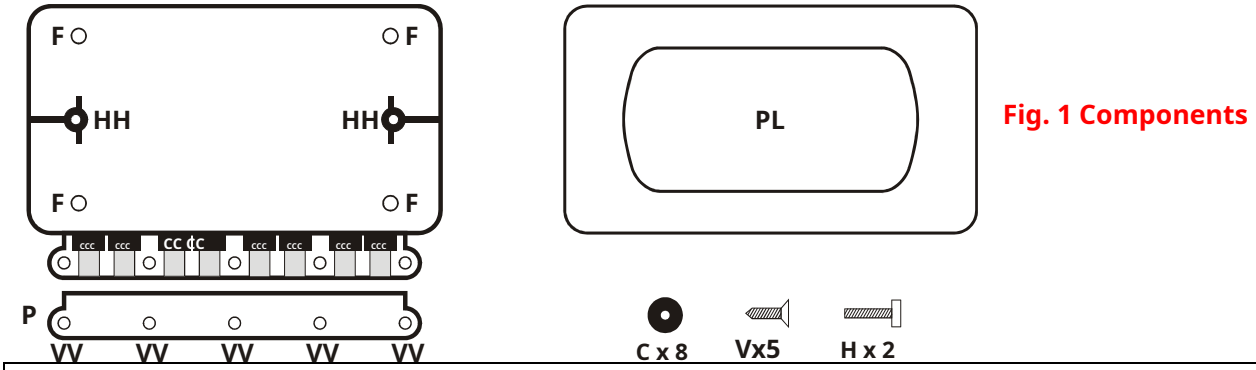


Fig. 1 Components

- Only install the controller in dry rooms and under ambient conditions
- Fix the surface-mounted or flush-mounted box with screws at points F
- Remove the cable cover P

- Strip the cables, insert them into the strain reliefs C and insert them into the recesses CC
- Open the terminals with a suitable screwdriver and make the electrical connection to the controller.
- Insert the upper part of the housing again and close it with the screws H over the fixing points HH
- Fix the cables using the cover P with the screws V in the holes VV
- Attach cover PL

2.2 Electrical connections

Before working on the device, switch off the power supply and secure it against being switched on again! Check that there is no voltage! The electrical connection may only be carried out by a specialist taking into account the applicable regulations. The controller must not be put into operation if there is visible damage to the housing, such as cracks. Cables carrying low voltage, such as temperature sensor cables, must be laid separately from cables carrying mains voltage.

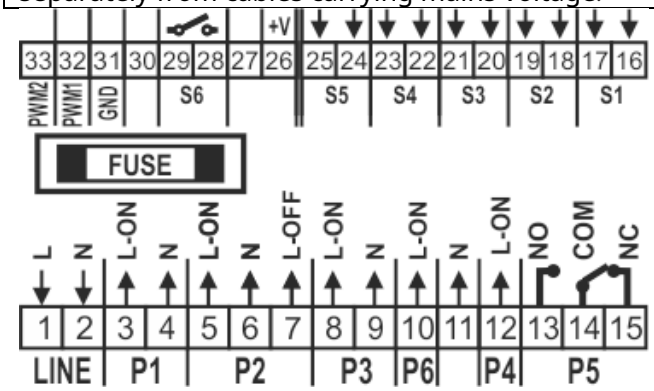


Fig. 2 Electrical Connections

S1 S2 S3 S4	Temperature sensor
S5	Temperature sensor / room thermostat
S6	Room thermostat
P1 P2 P3 P4	**P6** Relay outputs 230 V
P5	Alternating potential-free contact
GND **PWM1** **PWM2**	0-10Vdc, frequency 1kHz, duty cycle 0-100%

3 Installation of temperature sensors

The controller works with a temperature sensor, with a range from -40 °C to 300 °C (+/- 1 °C). If there is a short circuit in the sensor, "Short" appears in the display. If the sensor is interrupted or not connected, "Open" appears in the display. Which measured values are displayed depends on the selected program, the connected sensors and the respective device version. **Ganzheitliche Energiekonzepte GmbH & Co. KG** assumes no responsibility for damage to sensors if they were not used in the range area or were damaged by incorrect cable extensions.

- The temperature sensor cables must be laid separately from mains voltage cables.
- If necessary, the sensor cables can be extended to a maximum of 30m with a cable of at least 1mm². Make sure that no contact resistance occurs!
- Place the sensors exactly in the area to be measured!
- Only use the submersible, pipe-mounted or flat-mounted sensor that is suitable for the respective area of application and has the corresponding permissible temperature range.

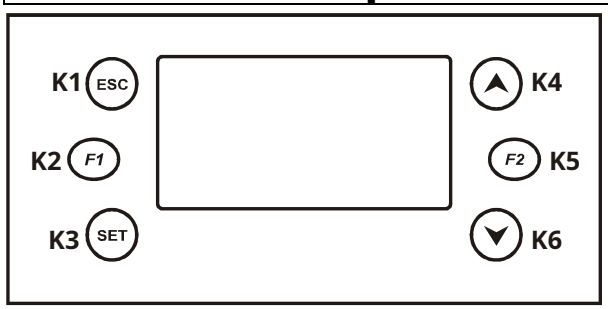
3.1 Temperature sensor / room thermostat

In the provided investment schemes, can be on the slots**18-19**(**S2**) and**24-25**(**S5**) a sensor sensor or a room thermostat with ON/OFF contact can be connected. On the slots**29-31**(**S6**) a room thermostat with ON/OFF contact can be connected.**ENA010**(on S5)**/ENA020**(on S2)**=OFF**the temperature sensor function is activated.

ENA010(on S5)**/ENA020**(on S2)**=ON**The room thermostat function with ON/OFF contact is activated. If the contact is closed, appears on the display**TA=Short**; If the contact is open, appears on the display**TA=Open**.

If no room thermostat is used, the respective slots must be used**18-19**,**24-25**OR**29-31**be bridged.

4 Control panel: usage and functions



Functions of the buttons:

K4/K6= Browse through the menu – increase or decrease in value
K3= Enter in the menu / Save in the menu
K1= Exit the menu
K5= Date-time / temperature sensor display / activate clock program
K2= ON/OFF

Fig. 3 LCD control panel

4.1 Display

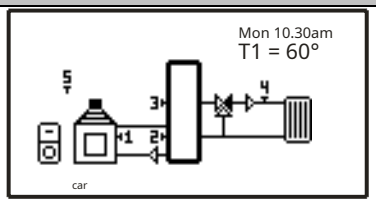
	Pump: ON when flashing	 Operational Mode			Boiler/burner request: ON when flashing
	Mixers: Flow direction				Wood boiler/water tank Stove: ON when flashing
	Night function activeor outside the watch program			!	active messages
	Day function active or during clock program		Solar panels		Heating circuit
	Summer function active		Winter function active	AND	Permanent summer function active

Fig. 4 Main menu

With the button**K5**The temperatures determined by the temperature sensors are displayed.

Use the K4 button to access the "Monitor" menu.

Sys 1=chosen investment scheme Temperature sensor Temperature sensor Sensor short circuit Sensor broken or not connected	**monitors** **Sys 1** T1 = 10 T5 = 13 T2 = 22 THC400=40 T3 = Short T4 = Open	Calculated thermostat

Fig. 5 Menu monitor

With the button**K4**The "Statistics" menu is displayed. Active messages are displayed.

Sys 1=chosen investment scheme Active message code	**Statistics** **Sys 1** Active reporting A02	

Fig. 6 Statistics menu

4.2 Active messages

DESCRIPTION	DISPLAY
Sensor temperature S4 higher than thermostat THS405 or sensor temperature S2 higher than thermostat THS208 (temperature in flow (heating circuit) too high)	**A01**
Sensor temperature of the outside sensor (1/5) lower than thermostat THS103/THS503	**A02**
Sensor temperature S1 (sensor for water-conducting fireplace) higher than thermostat THS104	**A03**
Sensor temperature S1 (sensor for water-conducting fireplace) lower than thermostat THS102	**A04**
Sensor temperature S1 (solar collector sensor) higher than thermostat THS107	**A05**
Sensor temperature S2 (buffer tank sensor) higher than thermostat THS203	**A06**

5menu

The menu system is divided into:

- **Expert Menu**(all parameters of the Clima600 can be changed)
- **Consumer menu**(only selected parameters may be changed by the end user)

5.1 Expert Menu

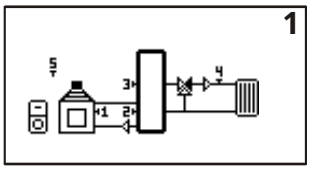
Thermostats			All thermostats and their hysteresis can be changed (system-related)
parameter			Includes all parameters used by the system (system-related)
Features	operation mode		Includes all functions that can be used by the selected system (investment scheme).
	Time window	fashions	
		programming	
	Mixing valve 1		
	Mixing valve 2		
	Return increase mixing valve		

	Outdoor sensor	
	Anti-frost	
	Summer Winter	
	Room thermostat	
	Antiblock pump	
	Integration boiler/burner requirement	
	Wood boiler / water-bearing fireplace	
	Antilegionella	
	Solar	
Test outputs		Menu for testing the relay outputs
Date and Time		Date and time menu
Language		Choice of language
initialization		Re-initialization of the system
Change Password		Menu to change the password
Consumer menu		Consumer menu
Keyboard/control panel menu		Menu for setting the keyboard/display

5.2 Controller setting during initial commissioning

When starting up for the first time, the **CLIMATE600** initialized and configured:

The available investment scheme is displayed



The investment scheme via the button**K4 / K6**

The desired investment scheme via the button K3 confirm

The same function is in the Expert menu under the adjusters**initialization**selectable.

5.3 ON/OFF

You can switch the controller on and off using the K2 button (press and hold). The OFF state is signaled in the display with the word 'OFF'. In this state the inputs are not activated. The relay outputs are blocked.

5.4 Expert menus

Main menu **Expert Menu**	**PASSWORD?** **- - - -**	• With**K3**the first number is selected **0 - - -** • With**K4**and**K6**the value is chosen **1 - - -** • With**K3**confirm the value **1 0 - -** • Repeat until number 4 **1 2 3 4** • PASSWORD with button**K3**confirm • With**K1**the set numbers are deleted

If you do not press any key in the expert menu for a long time, this will lead you System automatically in the end user menu.

5.5 Thermostats menu

All thermostats and hysteresis are displayed in this level.

5.6 Parameters menu

All timers, active counters and values for the selected system scheme are displayed in this level.

5.7 Functions menu

All functions are in this leveldisplayed.

5.7.1 Zone 1 operating mode

The operating modes for the mixer are set at this level.

DESCRIPTION		display
PAR001=4	**AUTOMATIC mode**	car
The thermostat**THC400**The following values are determined fully automatically on sensor S4 (flow temperature): - Outside temperatures above**S5**(outside temperature sensor) - Selected heating curve: **COU001** - Temperature adjustment DAY: **THS403** - Temperature adjustment NIGHT:**THS404** - Temperature adjustment comfort:**THS406** Particularly: - Clock program deactivated: **THC400**=F(COU001 , S5) + THS406**THC400**= - Temperature adjustment DAY: F(COU001 , S5) + THS403 + THS406**THC400**= - Temperature adjustment NIGHT: F(COU001 , S5) + THS404 + THS406 **The controller sets the mixer using the calculated flow temperature THC400** (taking into account the set hysteresis HYS400)		
PAR001=3	**DAY mode**	
The thermostat**THC400**on sensor S4 (flow temperature) is automatically determined using the following values: - Outside temperatures above **S5**(outside sensor) - Selected heating curve: **COU001** - Temperature adjustment DAY: **THS403** - Temperature adjustment comfort:**THS406** Particularly: **THC400**=F(COU001 , S5) + THS403 + THS406. **The controller sets the mixer using the calculated flow temperature THC400** (taking into account the set hysteresis HYS400)		
PAR001=2	**NIGHT mode**	
The thermostat**THC400**on sensor S4 (flow temperature) is automatically determined using the following values: - Outside temperatures above **S5**(outside sensor) - Selected heating curve: **COU001** - Temperature adjustment NIGHT:**THS404** - Temperature adjustment comfort:**THS406** Particularly: **THC400**=F(COU001 , S5) + THS404 + THS406 **The controller sets the mixer using the calculated flow temperature THC400** (taking into account the set hysteresis HYS400)		
PAR001=1	**Thermostat mode**	**Manual thermostat**
THC400 = THS400: The thermostat**THC400**on sensor S4 (flow temperature).**manually**set via the THS400 thermostat. The controller adjusts the mixer so that the thermostat THC400 is reached (taking into account the set hysteresis HYS400).		
PAR001=0	**Mode OFF**	**OFF**
The Heating and Off system		
ENA001=1	**Manual mixer mode**	**Valve Manuals**
The THC400 thermostat is ignored. The setting of parameter PAR001 is ignored. The setting of mixer 1 is done manually by holding down the buttons**K1, K4**and**K6 changed.** Each time you press the K4 / K6 button, the valve closes / opens by one step.		
If the selected system scheme does not provide for the use of the outdoor sensor, the Auto, DAY and NIGHT modes cannot be activated.		

5.7.2 Zone 2 operating mode

The operating modes for the mixer are set at this level.

DESCRIPTION		display
PAR002=4	**Automatic mode**	car
The thermostat**THC207**The following values S2 are determined fully automatically on sensor (flow temperature): - Outside temperatures above**S5**(outside sensor) - Selected heating curve:**COU002** - Temperature adjustment DAY: **THS209** - Temperature adjustment NIGHT:**THS210** - Temperature adjustment comfort:**THS211** Particularly: - Clock program deactivated: **THC207**=F(COU002 , S5) + THS211**THC207**= - Temperature adjustment DAY: F(COU002 , S5) + THS209 + THS211**THC207**= - Temperature adjustment night: F(COU002 , S5) + THS210 + THS211 **The controller adjusts the mixer using the calculated flow temperature until the THC207 thermostat is reached**(taking into account the set hysteresis HYS207)		
PAR002=3	**DAY mode**	
The thermostat**THC207**The following values S2 are determined fully automatically on sensor (flow temperature): - Outside temperatures above**S5**(outside sensor) - Selected heating curve: **COU002** - Temperature adjustment DAY: **THS209** - Temperature adjustment NIGHT:**THS210** Particularly: **THC207**=F(COU002 , S5) + THS209 + THS211. **The controller adjusts the mixer using the calculated flow temperature until the THC207 thermostat is reached**(taking into account the set hysteresis HYS207)		
PAR002=2	**Night mode**	
The thermostat**THC207**The following values S2 are determined fully automatically on sensor (flow temperature): - Outside temperatures above**S5**(outside sensor) - Selected heating curve: **COU002** - Temperature adjustment DAY: **THS209** - Temperature adjustment NIGHT:**THS210** Particularly: **THC207**=F(COU002 , S5) + THS210 + THS211. **The controller adjusts the mixer using the calculated flow temperature until the THC207 thermostat is reached**(taking into account the set hysteresis HYS207)		
PAR002=1	**Thermostat mode**	**Manual thermostat**
THC207 = THS207: The thermostat**THC207**on sensor S2 (flow temperature) is set manually via the thermostat**THS207**set. The controller adjusts the mixer until the thermostat THC207 is reached (taking into account the set hysteresis HYS207).		
PAR002=0	**Mode OFF**	**OFF**
The heating circuit control is switched off		
ENA002=1	**Manual mixer mode**	**Manual mixer**
The thermostat THC207 is ignored. The setting of parameter PAR002 is ignored. The mixer is adjusted manually by holding down the buttons**K1, K4**and**K6 changed.** Each time you press the K4 / K6 button, the valve closes / opens by one step.		
If the selected system scheme does not provide for the use of the outdoor sensor, the Auto, DAY and NIGHT modes cannot be activated.		

5.7.3 Electronic return increase operating mode

Menu for setting the return temperature.

DESCRIPTION		display
PAR003=1	**Thermostat mode**	**Manual thermostat**
The controller adjusts the return increase mixer until the thermostat**THS409**is achieved on sensor S4 (taking into account the hysteresis HYS409).		
PAR003=0	**Mode OFF**	**OFF**
The mixer for increasing the return flow is off.		
ENA003=1	**Manual mixer mode**	**Manual mixer**
The thermostat THC409 is ignored and the setting of the parameter PAR003 is ignored. The mixer is adjusted manually by pressing the buttons for a long time**K1, K4**and**K6 carried out.** Each time you press the K4 / K6 button, the valve closes / opens by one step.		

5.7.4 Time window / menu clock program

You can use this menu to program several time windows (only if the system provides an outside sensor). In "Disabled" mode, the thermostats THC400 (or THC207), the day correction factor (THS403 or THS209) and the night correction factor (THS404 or THS211) are not taken into account in the calculation if one of the three modes is activated:

- Within the active. time window, the system takes the day correction factor into account (THS403 or THS209)
- Active outside. The system takes time windows into account. Night correction factor (THS404 or THS211)

5.7.4.1. Time window: mode

Allows you to choose one of the 4 modes

Time window
modality
program

modality
Disabled
Täequaled
Wöchenlich
Weekend

- With**K3**change the setting (the cursor flashes)
- With**K4**and**K6**select the value
- With**K3**confirm the value
- With**K1**leave the level

5.7.4.2. Programming the clock program

Time window
modality
program
parameter

program
Day
Week
weekend

- With**K3**change the setting (cursor flashes)
- With**K4**and**K6**select the value
- With**K3**confirm the value
- With**K1**leave the level

- **Clock program m TAG:**For each individual WeekThere will be 3 time slots on the day ter displayed.

program
Day
Week
weekend

Monday
Tuesday
Wednesday
Thursday
Friday

Monday	
Hon	**OFF**
09:30	11.15am**v**
00:00	00:00
00:00	00:00

- **Clock program m whereThat:**For the whole W 3 time windows are also displayed.

program
Day
Week
weekend

Mon-Sun	
Hon	**OFF**
08:30	1:15 pm **v**
00:00	00:00
00:00	00:00

- **Weekend clock program:**From Mon.-Fri. and Saturday-Sun. 3 time windows are displayed each time.

program
Day
Week
weekend

Mon-Fri
Sam Son

Mon-Fri	
Hon	**OFF**
06:30	08:00 **v**
12:00 pm	2:00 pm **v**
6:00 pm	10:00 pm**v**

PROGRAMMING THE CLOCK PROGRAM	Keys
After selecting the desired program:	
Select the scheduled time	**K4**OR**K6**
Set the time (selected time flashes)	**K3**
Change time	**K4**OR**K6**
Save time	**K3**
Activate time window (a “V” is displayed) or deactivate time window (no “V” is displayed)	**K5**
Finish	**K1**

PROGRAMMING TIME BANDS AT MIDNIGHT

The time for the time window of a weekday**OFF**Hon**11.59pm**place

The time for the time slot of the next weekday**Hon**Hon**00:00**place

All three program types remain saved independently of each other: if, for example, For example, if the TAG setting is changed, the others remain unchanged.

5.7.5 Heating circuit mixer menu 1

The mixer regulates the flow temperature (measured at S4) via the fixed value**THS400**or above the calculated value **THC400**. When the controller is switched on, the mixer goes to the “full closed” position so that it can adapt to the circumstances (unless the operating status is set to “mixer manual”). The heating circuit pump is always active, except when:

- Temperature in the room thermostat has been reached: mixer completely closed, pump off
- thermostat**THS405**is fulfilled: mixer completely closed, pump off, error message active
- thermostat**THD341**is fulfilled: mixer completely closed, pump off
- thermostat**THS301**is fulfilled: mixer completely closed, pump off

About the parameter**TIM002**The time that the mixer needs from the “fully open” position to the “fully closed” position is set. About the parameter**TIM003**The time that the mixer needs from the “fully closed” position to the “fully open” position is set. Above the parameters**TIM008**and**TIM009**The running times of the steps for closing or opening the mixer are set. Example: If the flow temperature needs to be increased, the controller causes the mixer to open for an entered time (**TIM009**) and then checks at a specified time (**TIM004**) whether the step was sufficient to increase the flow temperature. This procedure continues until the flow temperature is reached. The same applies if the flow temperature needs to be reduced. About the parameter**ENA018** Domestic hot water priority can be activated. If the parameter**ENA018 = 1**is activated, the domestic hot water priority is active, the heating circuit pump is deactivated and the mixer closes completely.

DESCRIPTION	queues
Minimum thermostat for activating the heating circuit pump	**THS301**
Hysteresis for thermostat THS301	**HYS301**
Thermostat on sensor S4 (flow sensor manual mixer)	**THS400**
Hysteresis for thermostat THS400	**HYS400**
Temperature adjustment**DAY**	**THS403**
Temperature adjustment**NIGHT**	**THS404**
Safety thermostat on sensor S4 (flow) switches off the pump and closes the mixer	**THS405**
Hysteresis for thermostat THS405	**HYS405**
Parameter T Comfort on sensor S4	**THS406**
Maximum flow temperature on sensor S4	**THS407**
Hysteresis for thermostat THS407	**HYS407**
Minimum flow temperature on sensor S4	**THS408**
Hysteresis for thermostat THS408	**HYS408**
Minimum differential between sensors S3 and S4 so that the mixer opens	**THD341**
Hysteresis for thermostat THD341	**HYD341**
The running time of the mixer from “fully open” to “fully closed” (sec.) see the mixer nameplate	**TIM002**
The running time of the mixer from “fully closed” to “fully open” (sec.) see the mixer nameplate	**TIM003**
Checking time/waiting time for the temperature change on sensor S4 (sec.)	**TIM004**
Running time of the individual STEP (sec.) when closing the mixer (recommendation value=3)	**TIM008**
Running time of the individual STEP (sec.) when opening the mixer (recommendation value=3)	**TIM009**

5.7.6 Blender 2

The mixer regulates the flow temperature (measured at S4) via the fixed value**THS207**or above the calculated value **THC207**. When the controller is switched on, the mixer goes to the "full closed" position so that it can adapt to the circumstances (unless the operating status is set to "mixer manual"). The heating circuit pump is always active, except when:

- Temperature in the room thermostat has been reached: mixer completely closed, pump off
- thermostat**THS208**is fulfilled: mixer completely closed, pump off, error message active
- thermostat**THD321**is fulfilled: mixer completely closed, pump off
- thermostat**THS307**is fulfilled: mixer completely closed, pump off

About the parameter**TIM013**The time that the mixer needs from the "fully open" position to the "fully closed" position is set. About the parameter**TIM014**The time that the mixer needs from the "fully closed" position to the "fully open" position is set. Above the parameters**TIM016**and**TIM017**The running times of the steps for closing or opening the mixer are set. Example: If the flow temperature needs to be increased, the controller causes the mixer to open for a specified time**TIM017**and then checks at a specified time**TIM015**whether the step was sufficient to increase the flow temperature. This procedure continues until the flow temperature is reached. The same applies if the flow temperature needs to be reduced.

DESCRIPTION	queues
Thermostat on sensor S2 flow temperature (manual mixer)	**THS207**
Hysteresis for thermostat THS207	**HYS207**
Safety thermostat on sensor S2 flow temperature (pump 2 off, mixer 2 closed)	**THS208**
Hysteresis for thermostat THS208	**HYS208**
Temperature adjustment**DAY**	**THS209**
Temperature adjustment**NIGHT**	**THS210**
Parameter T Comfort on sensor S2	**THS211**
Maximum thermostat on sensor S2 flow temperature	**THS212**
Hysteresis for thermostat THS212	**HYS212**
Minimum thermostat on sensor S2 (flow temperature)	**THS213**
Hysteresis for thermostat THS213	**HYS213**
Minimum thermostat to start zone 2 heat pump	**THS307**
Hysteresis for thermostat THS307	**HYS307**
Minimum differential between sensors S3 and S2 to open the valve for zone 2	**THD321**
Hysteresis for thermostat THD321	**HYD321**
Duration of the mixer running from "fully open" to "fully closed" (sec.) Zone 2	**TIM013**
Duration of the mixer running from "fully closed" to "fully open" (sec.) Zone 2	**TIM014**
Checking time/waiting time for the temperature change on sensor S2 (sec.)	**TIM015**
Running time of the individual STEP (sec.) when closing the mixer (recommendation value=3)	**TIM016**
Running time of the individual STEP (sec.) when opening the mixer (recommendation value=3)	**TIM017**

5.7.7 Mixer for return increase

The mixing valve takes on the function of increasing the return flow for biomass boilers in systems 17 and 18. When the control is switched on, the mixing valve is completely closed. The valve then opens gradually and the control process starts on sensor S4:

- THS409 exceeded: The mixing valve opens and diverts more volume flow to the buffer.

Set the parameter**TIM018**according to the time it takes for the mixing valve to move from the fully open position to the fully closed position. Set the TIM019 parameter according to the time it takes for the mixing valve to move from fully closed to fully open position. The parameters TIM020 and TIM021 are respectively the times that refer to the individual closing and opening steps of the valve; In particular, if the flow temperature needs to increase, the control unit opens the valve for a time equal to TIM022 and waits for a time TIM0020 to check whether the opening step was sufficient to increase the temperature. At the end of the TIM020 time, if the flow temperature is still lower than the calculated temperature, the control unit provides another opening step and so on. The parameter**ENA018** activates the domestic hot water priority over the heating circuit. If **ENA018 = 1**and there is a demand for domestic hot water, the pump is OFF and the mixer closes.

DESCRIPTION	queues
Minimum thermostat for increasing the return flow on sensor S4	**THS409**
Hysteresis for thermostat THS409	**HYS409**
Duration of the mixer running from “fully open” to “fully closed” (sec.)	**TIM018**
Running time of the mixer from “fully closed” to “fully open” (sec.)	**TIM019**
Checking time/waiting time for the temperature change on sensor S4 (sec.)	**TIM020**
Running time of the individual STEP (sec.) when closing the mixer	**TIM021**
Running time of the individual STEP (sec.) when opening the mixer	**TIM022**

5.7.8 Outdoor sensor

DESCRIPTION	queues
Selection of the climate curve mixer 1	**COU001**
Selection of the climate curve mixer 2	**COU002**

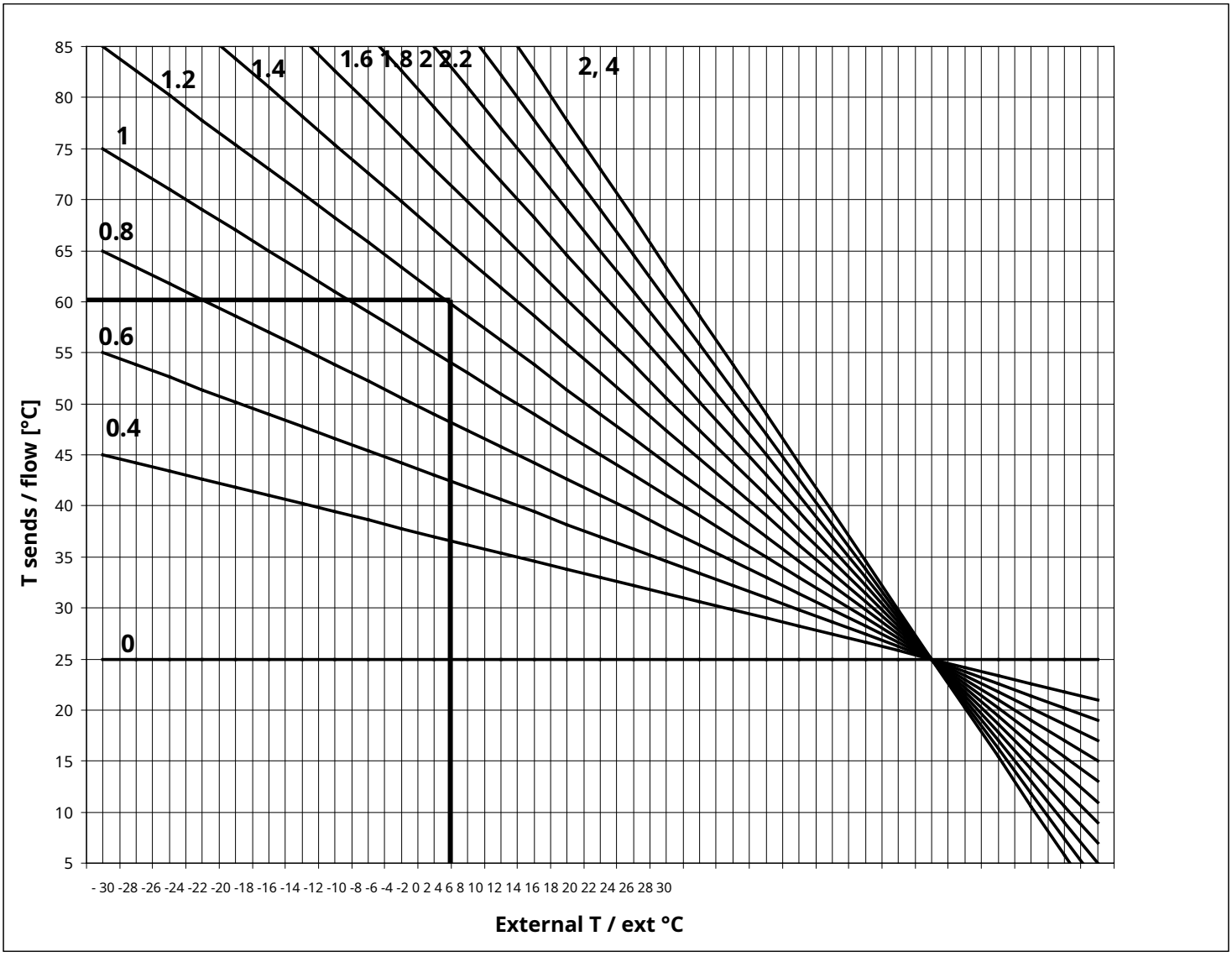


Fig. 7 Climatic curves

The choice of climate curve must take into account the desired flow temperature and the minimum outside temperature recorded at the system installation site. Eg At outside temperature =**-9°C**and flow temperatures **60°C** (THS400) is the curve to be set**1.2**.

In the automatic mode (ENA004 = 1) for the THC400 thermostat calculation, the THS403 (DAY temperature adjustment), THS404 (NIGHT temperature adjustment) and the THS406 value (Comfort temperature adjustment) are influenced. Example: Choice of curve COU001 = 1.2, THS403 = + 3 ° C and THS404 = -5 ° C and THS406 = 0 ° C ; If the outdoor sensor measures -9°C, then THS400 = 63°C during the day and THS400 = 55°C during the night. The THS406 thermostat (and the HYS406 hysteresis) limit the maximum flow temperature. The pump is active. Switches off when reaching the THS405 thermostat. At the same time the valve is completely closed.

5.7.9 Frost protection

The system offers frost protection functions for**P1**and**P6 pumps**
ENA000=1: The pump**P1**(or**P2**for the solar pump) becomes active (pause/work mode) when the temperature of sensor S1 < THS102
ENA011=1: The pump**P6**(and**P2**in system diagrams with 2 mixing valves) becomes active (pause / work mode) when the temperature of sensor S5 < THS503 or S1 < THS103
TIM000is the working time of the pump;**TIM001**is the pause time of the pump.

DESCRIPTION	queues
Thermostat on sensor S1 for the "frost protection" function of the wood boiler/solar collector	**THS102**
Hysteresis for thermostat THS102	**HYS102**
Thermostat on sensor S1 for the "frost protection" function on the heating circuit mixer	**THS103**
Hysteresis for thermostat THS103	**HYS103**
Thermostat on sensor S5 for the "frost protection" function on the heating circuit mixer	**THS503**
Hysteresis for thermostat THS503	**HYS503**
Working time (seconds) of the pump during the antifreeze function	**TIM000**
Pause time (minutes) of the pump during the frost protection function	**TIM001**
Activation of the "frost protection" function of the wood boiler / solar collector	**ENA000**
Activation of the "frost protection" function of the heating circuit with outside sensor	**ENA011**

5.7.10 Summer Winter

DESCRIPTION	queues
Thermostat on sensor S1 for automatic calculation of the summer/winter function	**THS101**
Thermostat on sensor S5 for automatic calculation of the summer/winter function	**THS500**
Waiting time (minutes) for the 'SUMMER' validity check for S5>THS500 or S1>THS101	**TIM007**
Waiting time (minutes) for the 'WINTER' validity check for S5<THS500 or S1<THS101	**TIM010**
Activation of the automatic summer/winter function (where an outside sensor is present)	**ENA009**
Forces the status "Summer" (only domestic hot water active)	**ENA016**

5.7.11 Room thermostat

Sensor/thermostat S5: Heating circuit with electric. mixer
ENA010=ON: Connect the room thermostat contacts to the terminals**24-25.**At**open**The heating circuit pump is stopped.**If you are not using a thermostat, bridge terminals 24-25. ENA010=OFF:**Connect the room sensor PT1000 to terminals 24-25: The operation of the heating circuit pump is determined by the thermostat THS502 on the sensor S5.**Sensor / thermostat S2: Direct heating circuit on radiators ENA020=ON**: Connect the room thermostat contact to terminals 18-19. If the contact is open, the heating circuit pump is stopped. If you are not using a room thermostat, short circuit terminals 18-19.**ENA020=OFF:**Connect the room sensor PT1000 to terminals 18-19: The operation of the heating circuit pump is determined by the thermostat THS206 on sensor S2.**Thermostat S6: Heating circuit mixer 2/direct heating circuit Zone 2:**

Connect the room thermostat contacts to terminals 29-31. If the contact is open, theHeating circuit pump stopped. If you are not using a room thermostat, close the terminals**29-31**short.

DESCRIPTION	queues
Room thermostat on sensor S5	**THS502**
Hysteresis for thermostat THS502	**HYS502**
Hon: Sensor S5= contact room thermostat open / closed **OFF**: Sensor S5= room sensor PT1000	**ENA010**
Room thermostat on sensor S2	**THS206**
Hysteresis for thermostat THS206	**HYS206**
Hon: Sensor S2= contact room thermostat open / closed **OFF**: Sensor S2= room sensor PT1000	**ENA020**

5.7.12 Antiblock pump

DESCRIPTION	queues
Anti-blocking waiting time (in days)	**TIM005**
Pump working time (in minutes)	**TIM006**
Activate output P1 for the pump anti-blocking function	**P1**

Activate output P2 for the pump anti-blocking function	**P2**
Activate output P3 for the pump anti-blocking function	**P3**
Activate output P4 for the pump anti-blocking function	**P4**
Activate output P5 for the pump anti-blocking function	**P5**
Activate output P6 for the pump anti-blocking function	**P6**

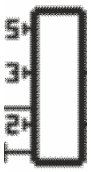
5.7.13 Integration of additional boiler/burner requirement

- **Management HOT WATER REQUIREMENT**

This function is only implemented in systems that use the "top" sensor (S2 or S5). In the case that the upper sensor is sensor S5:

If**ENA015**=0 (or in summer or when**ENA016**=1):

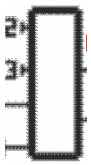
- Integration ON if S5 <**THS501**
- Integration OFF if S5 >**THS501**



If**ENA015**=1 (in winter or when**ENA016**=0):

- Integration ON if S5 <**THS501**
- Integration OFF if S2 >**THS201**

In the case that the upper sensor is sensor S2, the parameter**ENA015**cannot be activated:



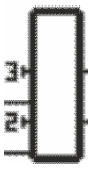
- Integration ON if S2 <**THS200**
- Integration OFF if S2 >**THS200**

DESCRIPTION	queues
Thermostat on sensor S5 under which the integration is activated (Start)	**THS501**
Hysteresis for parameter THS501	**HYS501**
Thermostat on sensor S2 under which the integration is activated	**THS200**
Hysteresis for the THS200 parameter	**HYS200**
Thermostat on sensor S2 to block integration in winter (Stop)	**THS201**
Hysteresis for parameter THS201	**HYS201**
Activation (in winter) of integration through sensor S2 (double sensor S5 and S2)	**ENA015**
Activation of the domestic hot water priority over the heating circuit	**ENA018**

- **Management INTEGRATION heating circuit**

This function is only active in winter and when the heating circuit mixing valve or the return increase mixing valve is not in OFF mode.

If sensors S3 and S2 are present, it is possible to set the parameter**ENA015**set as follows: If**ENA015**=0:

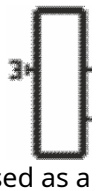


- Integration ON if S3 <**THS300 + THC400**
- Integration OFF if S3 >**THS300 + THC400**

If**ENA015**=1 (in winter or**ENA016**=0):

- Integration ON if S3 <**THS300 + THC400**
- Integration OFF if S2 >**THS201**

If only sensor S3 is present, the parameter**ENA015**cannot be activated:



- Integration ON if S3 <**THS300 + THC400**
- Integration OFF if S3 >**THS300 + THC400**

The parameter**THC400**is zero when the mixing valve is in OFF or MANUAL MODE or when the valve is used as a return booster.

DESCRIPTION	queues
Thermostat on sensor S3 under which the integration is activated or the temperature rises compared to the flow	**THS300**
Hysteresis for the THS300 parameter	**HYS300**
Thermostat on sensor S2 to stop the integration in winter (Stop)	**THS201**
Hysteresis for parameter THS201	**HYS201**
Activation (in winter) of integration using sensor S2 (double sensor S3 and S2)	**ENA015**

5.7.14 Wood boiler / water-bearing fireplace

DESCRIPTION	queues
Differential thermostat (S1-S3) for activating the boiler loading pump	**THD130**
Hysteresis for thermostat THD130	**HYD130**
Minimum thermostat on S1 for activation of the boiler loading pump	**THS100**
Hysteresis for thermostat THS100	**HYS100**
Activation of the priority of the wood boiler over the integration/burner request	**ENA017**

5.7.15 Antilegionella

The anti-legionella function makes it possible to combat legionella through thermal shock. If the temperature at S2 / S5 remains below the thermostat THS202 / THS504 for a time equal to TIM012, the legionella protection function is activated (integration output). If the ENA018 parameter is activated, the heating pump is switched off and the mixing valve is closed.

DESCRIPTION	queues
Thermostat on sensor S5 which must be exceeded to destroy legionella	**THS504**
Hysteresis for thermostat THS504	**HYS504**
Thermostat on S2 which must be exceeded to avoid legionella formation	**THS202**
Hysteresis for thermostat THS202	**HYS202**
Temperature maintenance timer (on S2/S5) above the THS202/THS504 thermostat	**TIM0011**
Timer for the observation time (hours) of the temperature (on S2/S5) of the boiler below the THS202/THS504 thermostat to activate the "Antilegionella" function	**TIM012**
Activation of the "Antilegionella" function	**ENA019**

5.7.16 Pump management with PWM control

Through the parameters**PAR004 and PAR005**, it is possible to control the operating mode of the PWM1 and PWM2 signals (only in intended systems):

- PWM1:**PAR004**= 0→disabled;**PAR004**= 1→manual; (pump P6)
- PWM2:**PAR005**= 0→disabled;**PAR005**= 1→manual;**PAR005**=2→Automatic (pump P2, except in system 14)

PWM disabled:

The pumps are controlled exclusively via the 230V output

Manual PWM:

The PWM signal (duty cycle), which determines the speed of the pumps, is determined by the following parameters:

- **PWM100**if PWM1 with heating profile (Heating) (heating circuit pump)
- **PWM200**if PWM2 with heating profile (Heating) (heating circuit pump)
- **PWM201**if PWM2 with solar profile (solar circuit pump)

PWM automatic (only for pumps for systems with solar circuit):

Depending on the pump type, the PWM signal is calculated based on the solar collector temperature and can vary within these ranges:

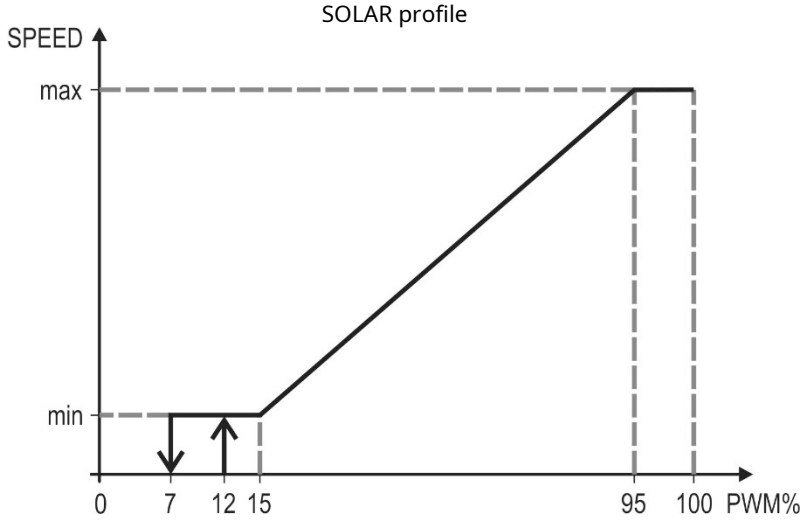
betweenPWM202**and**PWM203**if PWM2 with solar profile** (***Eg 15 ÷ 95%)***

The change in the speed of the solar pump is activated in this temperature range:

- between**THS109**and**THS109**+**THS110** (*Eg if THS109=45°C, THS110=20°C then range: 45 ÷ 65°C*)

The PWM signal profile is automatically selected based on the pump to be managed and the following profiles of pumps on the market:

SOLAR profile



Based on this profile, it is advisable to set the parameters of the PWM signal (duty cycle) as follows:

PWM2
Vmin: PWM202 >= 15%
Vmax: PWM203 <= 95%

When the PWM signal controls a solar pump, it can work in antifreeze, security and anti-block function. To do this, the following parameters must be set:

- **ANTI-FREEZE FUNCTION**: PWM204
- **SAFETY FUNCTION**: PWM205
- **ANTI-BLOCK FUNCTION**: PWM206

DESCRIPTION	queues
Management PWM1	**PAR004**
Management PWM2	**PAR005**
Percentage Duty Cycle PWM1 in manual mode HEATING profile	**PWM100**
Percentage Duty Cycle PWM2 in manual mode HEATING profile	**PWM200**

5.7.17 Solar

DESCRIPTION	queues
Differential thermostat (S1-S2) for activating the solar pump for boiler loading	**THD120**
Hysteresis for thermostat THD120	**HYD120**
Minimum thermostat on S1 for activation of the solar pump	**THS100**
Hysteresis for thermostat THS100	**HYS100**
Temperatures below which the frost protection function of the solar system is activated	**THS102**
Hysteresis for thermostat THS102	**HYS102**
Thermostat on S1 above which the solar charging pump charges the buffer up to the max. thermostat	**THS105**
Hysteresis for thermostat THS105	**HYS105**
Thermostat on S1 through which the solar charging pump is blocked	**THS107**
Hysteresis for thermostat THS107	**HYS107**
Maximum thermostat on S2 for the boiler/buffer during solar loading	**THS203**
Hysteresis to thermostat THS203	**HYS203**
Thermostat on S2 via which the buffer cooling is activated by the solar circuit	**THS204**
Hysteresis for thermostat THS204	**HYS204**
Operating thermostat on S3 of the boiler	**THS302**
Hysteresis for thermostat THS300	**HYS302**
Maximum thermostat on S3 for the boiler with solar loading	**THS303**
Hysteresis for thermostat THS303	**HYS303**
Operating thermostat on S5 of the boiler for solar loading	**THS505**
Hysteresis for thermostat THS505	**HYS505**
Maximum thermostat on S5 for the boiler with solar loading	**THS506**
Hysteresis for thermostat THS506	**HYS506**
Working time (seconds) of the pumps in the frost protection function	**TIM000**
Pause time (minutes) of the pumps in the frost protection function	**TIM001**
Activation of the frost protection function of the solar charging pump	**ENA000**
Thermostat for activating the PWM signal 2 of the collector pump	**THS109**
Hysteresis to the thermostat to activate the PWM signal 2 of the collector pump	**HYS109**

Temperature delta for the automatic function of the PWM2 signal	**THS110**
Percentage duty cycle PWM2 in manual mode SOLAR profile	**PWM201**
Percentage duty cycle PWM2 at minimum speed SOLAR profile	**PWM202**
Percentage duty cycle PWM2 at maximum speed SOLAR profile	**PWM203**
Percentage duty cycle PWM2 in the frost protection function SOLAR profile	**PWM204**
Percentage duty cycle PWM2 in the SOLAR profile safety function	**PWM205**
Percentage duty cycle PWM2 in the anti-block function SOLAR profile	**PWM206**

5.8 Test outputs (relays)

This function allows you to check the relay outputs. Select an output and set this parameter to ON (=1). When you exit the menu, the output is automatically switched off.

5.9 Date and time

Here you can set the current time and date.

5.10 Language

Here you can select the language you want.

5.11 Initialization

Menu that allows you to reboot the system and select/configure another system

The “Frost protection” and “Room thermostat” functions are deactivated by default. The set operating mode is**OFF**

5.12 Change password

This function allows you to change the password for the specialist menu

5.13 User Menu

This function allows you to switch to the user menu

5.14 Keyboard menu

With this function you can adjust the LCD display.

5.14.1 Contrast

Adjust contrast

+

15

-

- Adjust with**K4/K6**
- Confirm with**K3**
- **K1**Exit menu

5.14.2 Minimum light

Set minimum light

+

15

-

- Adjust with**K4/K6**
- Confirm with**K3**
- **K1**Exit menu

6 thermostats and parameters

queues	Description	range			U
		Min	**set**	Max	
THD120	Differential thermostat (S1-S2) – activation of solar charging	1	**6**	30	°C
HYD120	Hysteresis for thermostat THD120	1	**2**	5	°C
THD121	Differential thermostat (S1-S2) – activation of the stratification function	2	**4**	12	°C
HYD121	Hysteresis for thermostat THD121	1	**2**	5	°C
THD130	Differential thermostat (S1-S3) – activation of the wood boiler loading pump	2	**2**	12	°C
HYD130	Hysteresis for thermostat THD130	1	**2**	5	°C
THD320	Differential thermostat (S3-S2) – activation of the loading of the domestic hot water.	1	**5**	30	°C
HYD320	Hysteresis for thermostat THD320	1	**1**	10	°C
THD321	Differential thermostat (S3-S2) – Zone 2 mixer valve opening	1	**4**	60	°C

HYD321	Hysteresis for thermostat THD321	1	**1**	10	°C
THD341	Differential thermostat (S3-S4) – Zone 1 mixer valve opening	1	**4**	60	°C
HYD341	Hysteresis for thermostat THD341	1	**1**	10	°C
THS100	Minimum thermostat on S1 – activation of the boiler charging pump or solar	20	**40**	80	°C
HYS100	Hysteresis for thermostat THS100	1	**2**	10	°C
THS101	Thermostat on S1 – Calculation of the summer/winter function	0	**15**	35	°C
THS102	Thermostat on S1 – frost protection function of the wood boiler/solar pump	- 20	**5**	10	°C
HYS102	Hysteresis for thermostat THS102	1	**2**	5	°C
THS103	Thermostat on S1 – frost protection function of the heating circuit mixer	- 20	**5**	10	°C
HYS103	Hysteresis for thermostat THS103	0	**1**	5	°C
THS104	Thermostat on S1 - beyond that the wood heating pump is forcibly activated	0	**90**	95	°C
HYS104	Hysteresis for thermostat THS104	0	**2**	20	°C
THS105	Thermostat on S1 – the solar pump charges again up to the maximum thermostat	20	**95**	120	°C
HYS105	Hysteresis for thermostat THS105	0	**2**	25	°C
THS107	Thermostat on S1 - beyond this the solar pump is stopped	80	**120**	200	°C
HYS107	Hysteresis for thermostat THS107	0	**2**	25	°C
THS109	Thermostat for activating the PWM signal 2 of the collector pump	1	**20**	50	°C
HYS109	Hysteresis for thermostat THS109	0	**2**	20	°C
THS110	Delta temperature for the automatic function PWM2 signal heating function	1	**20**	50	°C
THS200	Thermostat on S2 – activation of boiler/burner integration request.	15	**40**	80	°C
HYS200	Hysteresis for thermostat THS200	0	**1**	20	°C
THS201	Thermostat to block integration in winter	0	**40**	80	°C
HYS201	Hysteresis for thermostat THS201	0	**2**	20	°C
THS202	Thermostat on S2 which must be reached in order to destroy the legionella.	15	**60**	80	°C
HYS202	Hysteresis for thermostat THS202	0	**2**	20	°C
THS203	Maximum thermostat on S2 for the boiler with solar loading	20	**80**	100	°C
HYS203	Hysteresis to thermostat THS203	0	**2**	25	°C
THS204	Thermostat on S2 through which the boiler cooling is activated by the solar circuit.	20	**85**	100	°C
HYS204	Hysteresis for thermostat THS204	0	**2**	25	°C
THS205	Maximum thermostat on S2 for loading the domestic hot water boiler	20	**60**	100	°C
HYS205	Hysteresis for thermostat THS205	0	**2**	25	°C
THS206	Room thermostat on S2 for the direct heating circuit (without mixer)	0	**15**	40	°C
HYS206	Hysteresis for thermostat THS206	0	**1**	15	°C
THS207	Thermostat on S2 for the flow temperature of heating circuit mixer zone 2	15	**40**	80	°C
HYS207	Hysteresis for the THS207 and THC207 thermostats	0	**2**	10	°C
THS208	Safety thermostat on S2 of the flow on the heating circuit	20	**50**	90	°C
HYS208	Hysteresis for thermostat THS208	0	**2**	10	°C
THS209	Correction factor of the climatic curve gates in the TAG modality	- 10	**0**	50	°C
THS210	Correction factor of the climatic curve gates in the NIGHT mode	- 30	**0**	10	°C
THS211	T-Comfort parameters on S2	- 5	**0**	5	°C
THS212	Maximum thermostat on S2 of the flow to the heating circuit	20	**43**	90	°C
HYS212	Hysteresis for thermostat THS212	0	**2**	10	°C
THS213	Minimum thermostat on S2 of the flow to the heating circuit	10	**30**	90	°C
HYS213	Hysteresis for thermostat THS213	0	**2**	10	°C
THS300	Tharmostat on S3 below the integration is activated or increasing the temperature compared to the flow temperature of the mixer	0	**6**	80	°C
HYS300	Hysteresis for thermostat THS300	0	**2**	20	°C
THS301	Minimum thermostat for starting the pump for the heating circuit pump	0	**30**	80	°C
HYS301	Hysteresis for thermostat THS301	0	**2**	20	°C
THS302	Operating thermostat on S3 of the boiler	20	**50**	85	°C
HYS302	Hysteresis for thermostat THS300	0	**2**	25	°C
THS303	Maximum thermostat on S3 for the boiler with solar loading	70	**88**	100	°C
HYS303	Hysteresis for thermostat THS303	0	**2**	25	°C
THS304	Minimum thermostat. on S3 to start the pump of the direct heating circuit	20	**45**	100	°C

HYS304	Hysteresis for thermostat THS304	0	**2**	25	°C
THS306	Maximum thermostat on S3 for discharging the buffer	70	**88**	100	°C
HYS306	Hysteresis for thermostat THS306	0	**2**	25	°C
THS307	Minimum thermostat for starting the heating circuit pump zone 2	0	**30**	80	°C
HYS307	Hysteresis for thermostat THS307	0	**2**	20	°C
THS400	Throstat on S4 to the flow of the mixed heating circuit	15	**40**	80	°C
HYS400	Hysteresis for the THS400 and THC400 thermostats	0	**2**	10	°C
THS403	Correction factor of the climatic curve gates in the TAG modality	- 10	**0**	50	°C
THS404	Correction factor of the climatic curve gates in the NIGHT mode	- 30	**0**	10	°C
THS405	Safety thermostat on S4 of the flow temperature to the heating circuit	20	**50**	90	°C
HYS405	Hysteresis for thermostat THS405	0	**2**	10	°C
THS406	T-Comfort parameters on S4	- 5	**0**	5	°C
THS407	Maximum thermostat at S4 of the flow temperature to the heating circuit	20	**43**	90	°C
HYS407	Hysteresis for thermostat THS407	0	**2**	10	°C
THS408	Minimum thermostat at S4 of the flow temperature to the heating circuit	10	**30**	90	°C
HYS408	Hysteresis for thermostat THS408	0	**2**	10	°C
THS409	Minimum thermostat on S4 of the return temperature to the wood boiler	10	**60**	90	°C
HYS409	Hysteresis for thermostat THS409	0	**2**	10	°C
THS500	Thermostat on S5 to calculate the summer function	0	**15**	35	°C
THS501	Thermostat on S5 to activate the integration function	15	**40**	80	°C
HYS501	Hysteresis for thermostat THS501	0	**1**	20	°C
THS502	Room thermostat on S5	0	**15**	40	°C
HYS502	Hysteresis for thermostat THS502	1	**1**	15	°C
THS503	Thermostat on S5 for the anti-frost function on the heating circuit flow group	- 20	**5**	10	°C
HYS503	Hysteresis for thermostat THS503	1	**2**	5	°C
THS504	Thermostat on S5 to destroy legionella	15	**60**	80	°C
HYS504	Hysteresis for thermostat THS504	0	**2**	20	°C
THS505	Operating thermostat on S5 of the boiler for solar loading	20	**55**	85	°C
HYS505	Hysteresis for thermostat THS505	0	**2**	25	°C
THS506	Maximum thermostat on S5 for the boiler during solar loading	20	**90**	100	°C
HYS506	Hysteresis for thermostat THS506	0	**2**	25	°C
TIM000	Working time of the pump during the anti-frost function	1	**20**	600	s
TIM001	Pause time of the pump for the anti-freeze function	0	**30**	600	min
TIM002	Total closing time of the heating circuit mixer	1	**5**	300	s
TIM003	Total opening time of the heating circuit mixer	1	**5**	300	s
TIM004	Observation time of the temperature change on sensor S4	0	**1**	300	s
TIM005	Waiting time for the pump anti-block function	1	**7**	30	Days
TIM006	Pump time during pump anti-blocking function	1	**1**	30	min
TIM007	Waiting time for confirmation 'Summer' for S5>THS500 or S1>THS101	0	**1**	1440	min
TIM008	Duration of the individual steps for closing the valve	1	**1**	60	s
TIM009	Duration of the individual steps for opening the valve	1	**1**	60	s
TIM010	Waiting time for confirmation 'Winter' for S5<THS500 or S1<THS101	0	**1**	1440	min
TIM011	Duration of boiler temperature stability above the THS504 thermostat during the anti-Legionella function	1	**5**	100	min
TIM012	Observation time of the boiler temperature below the THS504 thermostat to activate the anti-Legionella function	1	**72**	480	hours
TIM013	Total closing time of the flow mixer zone 2	1	5	300	s
TIM014	Total opening time of the flow mixer zone 2	1	5	300	s
TIM015	Observation time of the temperature change on sensor S2	0	1	300	s
TIM016	Duration of the individual steps for closing the Zone 2 valve	1	1	60	s
TIM017	Duration of the individual steps for opening the Zone 2 valve	1	1	60	s
TIM018	Total closing time of the mixer for the return increase	1	5	300	s
TIM019	Total opening time of the mixer for the return increase	1	5	300	s
TIM020	Observation time of the temperature change on sensor S4	0	1	300	s
TIM021	Duration of the individual steps for closing the return valve	1	1	60	s

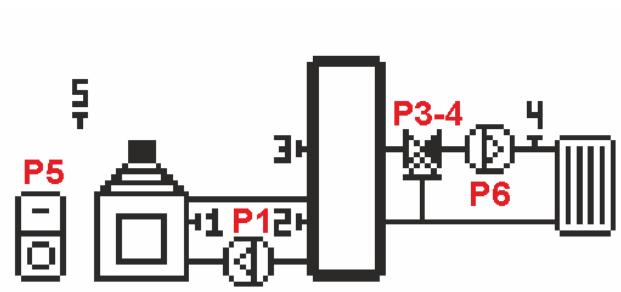
TIM022	Duration of the individual steps for opening the return valve	1	1	60	s
COU001	Selection of the climate curve zone 1	0	**0**	2.4	
COU002	Selection of the climate curve zone 2	0	**0**	2.4	
PAR004	Management PWM1	0	**0**	1	
PAR005	Management PWM2	0	**0**	2	
PWM100	Percentage Duty Cycle PWM1 in manual mode HEATING profile	0	**50**	100	**%**
PWM200	Percentage Duty Cycle PWM2 in manual mode HEATING profile	0	**50**	100	**%**
PWM201	Percentage Duty Cycle PWM2 in manual mode SOLAR profile	0	**50**	100	**%**
PWM202	Percentage duty cycle PWM2 at minimum speed SOLAR profile	0	**15**	100	**%**
PWM203	Percentage duty cycle PWM2 at maximum speed SOLAR profile	0	**95**	100	**%**
PWM204	Percentage duty cycle PWM2 for frost protection SOLAR profile	0	**100**	100	**%**
PWM205	Percentage duty cycle PWM2 for the SOLAR profile safety function	0	**100**	100	**%**
PWM206	Percentage duty cycle PWM2 for the anti-block function SOLAR profile	0	**100**	100	**%**
PAR001	Mode Mixing valve operating mode 1	0	**0**	4	
PAR003	Mode Mixing valve operating mode 2	0	**0**	4	
PAR003	Operating mode mixing valve return increase	0	**0**	4	
ENA000	Activation of the frost protection function for solid fuel boilers/solar	0	**0**	1	
ENA001	Activation of manual mixer zone 1 mode	0	**0**	1	
ENA002	Activation of manual mixer zone 2 mode	0	**0**	1	
ENA003	Activation of manual mixer mode for return increase	0	**0**	1	
ENA009	Activation of the summer / winter function	0	**0**	1	
ENA010	Sensor selection S5: 0=room sensor; 1=Room thermostat	0	**1**	1	
ENA011	Activation of the frost protection function for the heating circuit mixer	0	**0**	1	
ENA015	Activation of the integration/burner request using the “bottom” sensor	0	**0**	1	
ENA016	Enforcing the summer function	0	**0**	1	
ENA017	Activation of priority for the wood boiler	0	**0**	1	
ENA018	Activation of the domestic hot water priority over the heating circuit	0	**0**	1	
ENA019	Activation of the anti-Legionella function	0	**0**	1	
ENA020	Sensor selection S2: 0=room sensor; 1=Room thermostat	0	**1**	1	
P1	Activation of output P1 to control the anti-block pump function	0	**0**	1	
P2	Activation of output P2 to control the anti-block pump function	0	**0**	1	
P3	Activation of output P3 to control the anti-block pump function	0	**0**	1	
P4	Activation of output P4 to control the anti-block pump function	0	**0**	1	
P5	Activation of output P5 to control the anti-block pump function	0	**0**	1	
P6	Activation of output P6 to control the anti-block pump function	0	**0**	1	

7 List of possible systems

1

Heating circuit mixer, buffer integration in the middle,
Wood boiler, outside sensor, PWM1

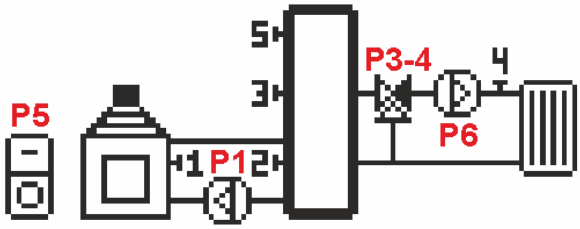
P5	**13**NO. **15**NC	**14** Com	integration Burner requirement
P6	**10 - 11**		Heating circuit pump
P3-4	**9** Com	**8th**	Opening the valve
		12	Closing the valve
P1	**3-4**		Wood boiler loading pump
PWM1	**32**		PWM1 pump P6
S1	**4pm - 5pm**		Sensor wood boiler
S2	**6pm - 7pm**		Sensor buffer below
S3	**8pm - 9pm**		Sensor buffer at top
S4	**22 - 23**		Heating circuit flow sensor
S5	**24-25**		Outdoor sensor



2

Heating circuit mixer, integration buffer middle/top,
Wood boiler, PWM1

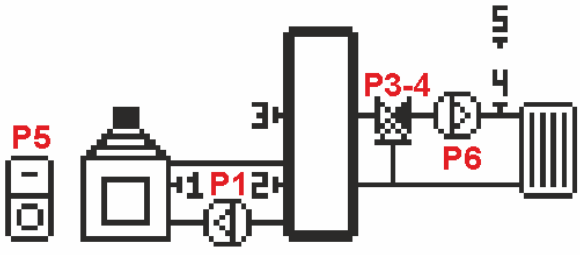
P5	**13**NO. **15**NC	**14** Com	integration Burner requirement
P6	**10 - 11**		Heating circuit pump
P3-4	**9** Com	**8th**	Opening the valve
		12	Closing the valve
P1	**3-4**		Wood boiler loading pump
PWM1	**32**		PWM1 pump P6
S1	**4pm - 5pm**		Sensor wood boiler
S2	**6pm - 7pm**		Sensor buffer bottom
S3	**8pm - 9pm**		Sensor buffer center
S4	**22 - 23**		Heating circuit flow sensor
S5	**24-25**		Sensor buffer at top



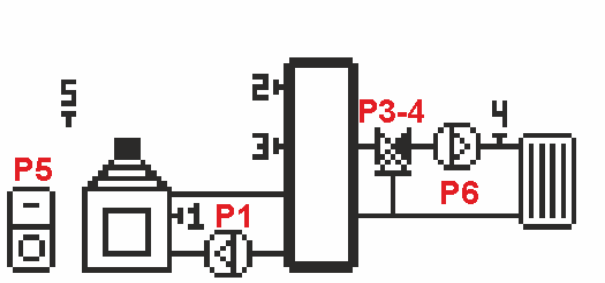
3

Heating circuit mixer, integration buffer middle,
wood boiler, thermostat/room sensor, PWM1

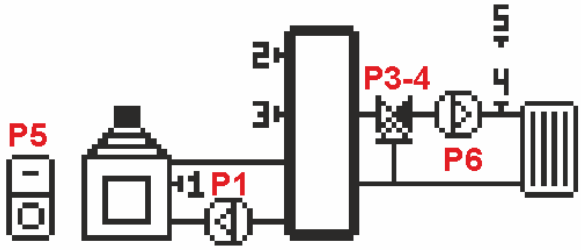
P5	**13**NO. **15**NC	**14** Com	integration Burner requirement
P6	**10 - 11**		Heating circuit pump
P3-4	**9** Com	**8th**	Opening the valve
		12	Closing the valve
P1	**3-4**		Wood boiler loading pump
PWM1	**32**		PWM1 pump P6
S1	**4pm - 5pm**		Sensor wood boiler
S2	**6pm - 7pm**		Sensor buffer bottom
S3	**8pm - 9pm**		Sensor buffer center
S4	**22 - 23**		Heating circuit flow sensor
S5	**24-25**		Thermostat/room sensor



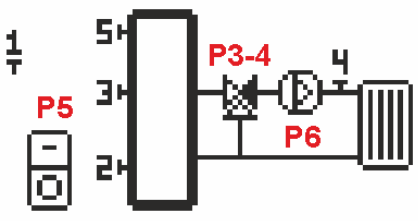
Heating circuit mixer, integration buffer middle/top, Wood boiler, outside sensor, PWM1			**4**
P5	**13**NO. **15**NC	**14** Com	integration Burner requirement
P6	**10 - 11**		Heating circuit pump
P3-4	**9** Com	**8th**	Opening the valve
		12	Closing the valve
P1	**3-4**		Wood boiler loading pump
PWM1	**32**		PWM1 pump P6
S1	**4pm - 5pm**		Sensor wood boiler
S2	**6pm - 7pm**		Sensor buffer bottom
S3	**8pm - 9pm**		Sensor buffer center
S4	**22 - 23**		Heating circuit flow sensor
S5	**24-25**		Outdoor sensor



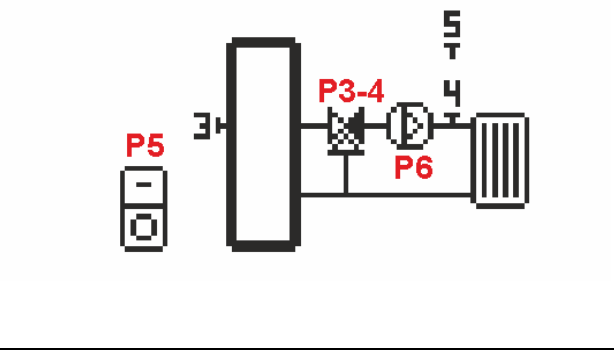
Heating circuit mixer, integration buffer middle/top, Wood boiler, thermostat/room sensor, PWM1			**5**
P5	**13**NO. **15**NC	**14** Com	integration Burner requirement
P6	**10 - 11**		Heating circuit pump
P3-4	**9** Com	**8th**	Opening the valve
		12	Closing the valve
P1	**3-4**		Wood boiler loading pump
PWM1	**32**		PWM1 pump P6
S1	**4pm - 5pm**		Sensor wood boiler
S2	**6pm - 7pm**		Sensor buffer top
S3	**8pm - 9pm**		Sensor buffer center
S4	**22 - 23**		Heating circuit flow sensor
S5	**24-25**		Thermostat/room sensor



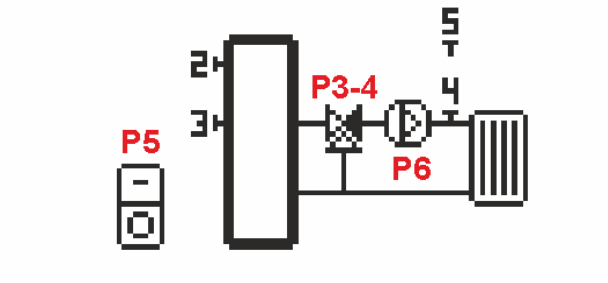
Heating circuit mixer, integration buffer middle/top, Outdoor sensor, PWM1			**6**
P5	**13**NO. **15**NC	**14** Com	integration Burner requirement
P6	**10 - 11**		Heating circuit pump
P3-4	**9** Com	**8th**	Opening the valve
		12	Closing the valve
PWM1	**32**		PWM1 pump P6
S1	**4pm - 5pm**		Outdoor sensor
S2	**6pm - 7pm**		Sensor buffer bottom
S3	**8pm - 9pm**		Sensor buffer center
S4	**22 - 23**		Heating circuit flow sensor
S5	**24-25**		Sensor buffer top



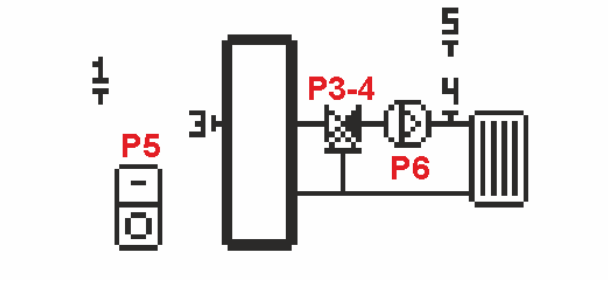
Heating circuit mixer, integration buffer middle/top, Outdoor sensor, thermostat/room sensor, PWM1			**7**
P5	**13**NO. **15**NC	**14** Com	integration Burner requirement
P6	**10 - 11**		Heating circuit pump
P3-4	**9** Com	**8th**	Opening the valve
		12	Closing the valve
PWM1	**32**		PWM1 pump P6
S1	**4pm - 5pm**		Outdoor sensor
S2	**6pm - 7pm**		Sensor buffer top
S3	**8pm - 9pm**		Sensor buffer center
S4	**22 - 23**		Heating circuit flow sensor
S5	**24-25**		Thermostat/room sensor



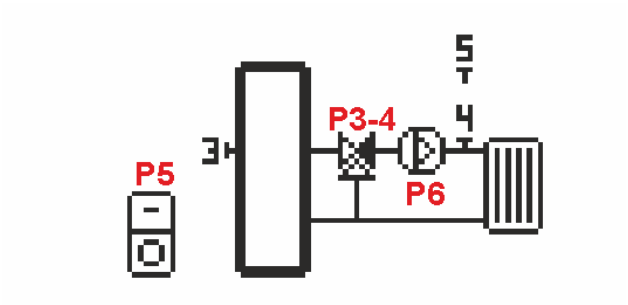
Heating circuit mixer, integration buffer middle/top, Thermostat/room sensor, PWM1			**8th**
P5	**13**NO. **15**NC	**14** Com	integration Burner requirement
P6	**10 - 11**		Heating circuit pump
P3-4	**9** Com	**8th**	Opening the valve
		12	Closing the valve
PWM1	**32**		PWM1 pump P6
S2	**6pm - 7pm**		Sensor buffer top
S3	**8pm - 9pm**		Sensor buffer center
S4	**22 - 23**		Heating circuit flow sensor
S5	**24-25**		Thermostat/room sensor



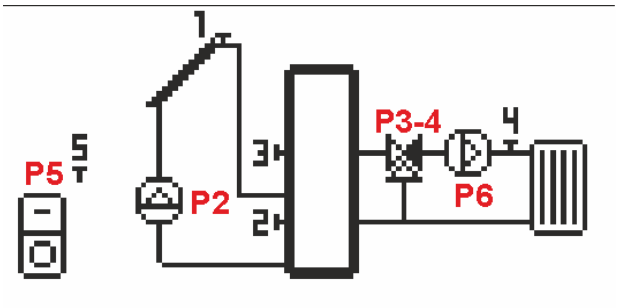
Heating circuit mixer, integrated buffer center, outside sensor, thermostat/room sensor, PWM1			**9**
P5	**13**NO. **15**NC	**14** Com	integration Burner requirement
P6	**10 - 11**		Heating circuit pump
P3-4	**9** Com	**8th**	Opening the valve
		12	Closing the valve
PWM1	**32**		PWM1 pump P6
S1	**4pm - 5pm**		Outdoor sensor
S3	**8pm - 9pm**		Sensor buffer center
S4	**22 - 23**		Heating circuit flow sensor
S5	**24-25**		Thermostat/room sensor



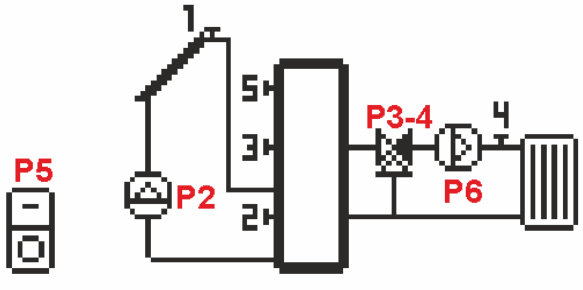
Heating circuit mixer, buffer integration in the middle, Thermostat/room sensor, PWM1			**10**
P5	**13**NO. **15**NC	**14** Com	integration Burner requirement
P6	**10 - 11**		Heating circuit pump
P3-4	**9** Com	**8th**	Opening the valve
		12	Closing the valve
PWM1	**32**		PWM1 pump P6
S3	**8pm - 9pm**		Sensor buffer center
S4	**22 - 23**		Heating circuit flow sensor
S5	**24-25**		Thermostat/room sensor



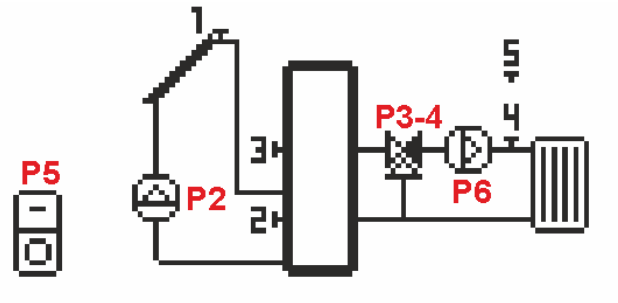
Heating circuit mixer, buffer integration in the middle, Solar system, outside sensor, PWM1, PWM2			**11**
P5	**13**NO. **15**NC	**14** Com	integration Burner requirement
P6	**10 - 11**		Heating circuit pump
P3-4	**9** Com	**8th**	Opening the valve
		12	Closing the valve
P2	**5-6**		Solar pump
PWM1	**32**		PWM1 pump P6
PWM2	**33**		PWM2 pump P2
S1	**4pm - 5pm**		Solar collector sensor
S2	**6pm - 7pm**		Sensor buffer bottom
S3	**8pm - 9pm**		Sensor buffer top
S4	**22 - 23**		Heating circuit flow sensor
S5	**24-25**		Outdoor sensor



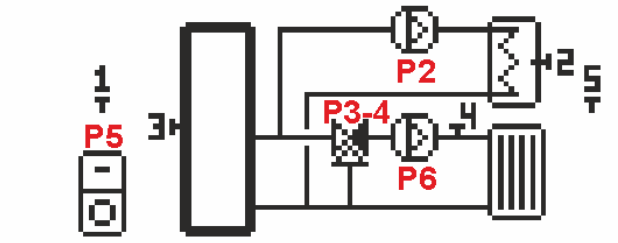
Heating circuit mixer, middle/top integration, Solar system, PWM1, PWM2			**12**
P5	**13**NO. **15**NC	**14** Com	integration Burner requirement
P6	**10 - 11**		Heating circuit pump
P3-4	**9** Com	**8th**	Opening the valve
		12	Closing the valve
P2	**5-6**		Solar pump
PWM1	**32**		PWM1 pump P6
PWM2	**33**		PWM2 pump P2
S1	**4pm - 5pm**		Solar collector sensor
S2	**6pm - 7pm**		Sensor buffer bottom
S3	**8pm - 9pm**		Sensor buffer center
S4	**22 - 23**		Heating circuit flow sensor
S5	**24-25**		Sensor buffer top



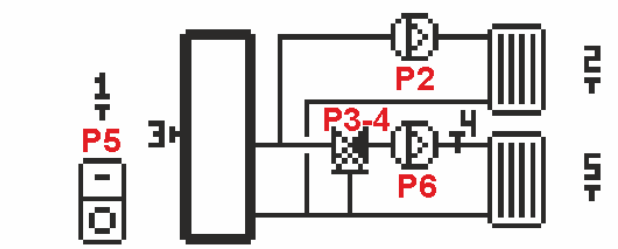
Heating circuit mixer, integrated buffer center, solar system, thermostat/room sensor PWM1, PWM2			**13**
P5	**13**NO. **15**NC	**14** Com	integration Burner requirement
P6	**11 - 12**		Heating circuit pump
P3-4	**9** Com	**8th**	Opening the valve
		12	Closing the valve
P2	**5-6**		Solar pump
PWM1	**32**		PWM1 pump P6
PWM2	**33**		PWM2 pump P2
S1	**4pm - 5pm**		Solar collector sensor
S2	**6pm - 7pm**		Sensor buffer bottom
S3	**8pm - 9pm**		Sensor buffer top
S4	**22 - 23**		Heating circuit flow sensor
S5	**24-25**		Thermostat/room sensor



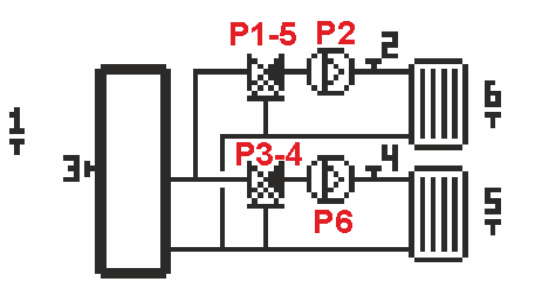
Heating circuit mixer, loading hot water boiler, Integration buffer middle, outside sensor, Thermostat/outside sensor, PWM1			**14**
P5	**13**NO. **15**NC	**14** Com	International Burner requirement
P6	**10 - 11**		Heating circuit pump
P3-4	**9** Com	**8th**	Opening the valve
		12	Closing the valve
P2	**5-6**		Domestic hot water pump.
PWM1	**32**		PWM1 pump P6
S1	**4pm - 5pm**		Outdoor sensor
S2	**6pm - 7pm**		Domestic hot water boiler sensor.
S3	**8pm - 9pm**		Sensor buffer center
S4	**22 - 23**		Heating circuit flow sensor
S5	**24-25**		Thermostat/room sensor



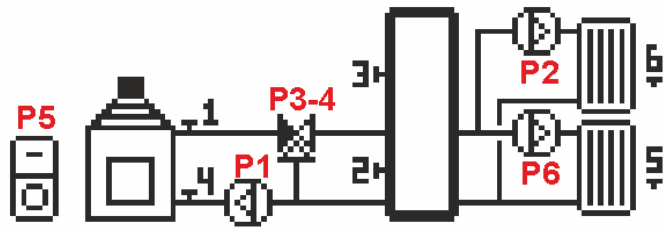
Heating circuit mixer, direct (unmixed) heating circuit, middle buffer integration, outside sensor Thermostat/room sensor, PWM1, PWM2			**15**
P5	**13**NO. **15**NC	**14** Com	integration Burner requirement
P6	**10 - 11**		Heating circuit pump mixer
P3-4	**9** Com	**8th**	Opening the valve
		12	Closing the valve
P2	**5-6**		Heating circuit pump directly
PWM1	**32**		PWM1 pump P6
PWM2	**33**		PWM2 pump P2
S1	**4pm - 5pm**		Outdoor sensor
S2	**6pm - 7pm**		Thermostat/room sensor direct heating circuit
S3	**8pm - 9pm**		Sensor buffer center
S4	**22 - 23**		Heating circuit flow sensor
S5	**24-25**		Thermostat/room sensor mixed heating circuit



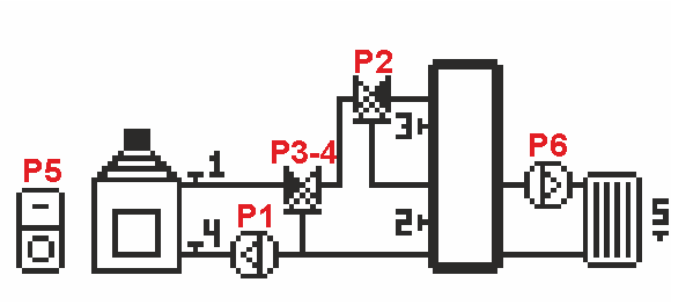
Mixed heating circuit zone 1, mixed heating circuit zone 2, integration buffer middle, outside sensor, thermostat/ room sensor, PWM1, PWM2			**16**
P6	**10 - 11**		Heating circuit pump According to heating circuit zone 1
P2	**5-6**		Heating circuit pump According to heating circuit zone 2
P1-5	**4**	**14**	***bridges***
	3 Com	**13**	Opening the valve
		15	Closing the valve
P3-4	**9** Com	**8th**	Opening the valve
		12	Closing the valve
PWM1	**32**		PWM1 pump P6
PWM2	**33**		PWM2 pump P2
S1	**4pm - 5pm**		Outdoor sensor
S2	**6pm - 7pm**		flow sensor Heating circuit zone 2
S3	**8pm - 9pm**		Sensor buffer center
S4	**22 - 23**		flow sensor Heating circuit zone 1
S5	**24-25**		Thermostat/room sensor Mixer group zone 1
S6	**28 - 29**		**Room thermostat mixer group**Zone2



Mixer return increase, wood boiler, direct Heating circuit, middle buffer integration, thermostat/room sensor, PWM1, PWM2			**17**
P5	**13**NO. **15**NC	**14** Com	integration Burner requirement
P6	**10 - 11**		Heating circuit pump zone 1
P3-4	**9** Com	**8th**	Opening the valve
		12	Closing the valve
P2	**5-6**		Heating circuit pump zone 2
P1	**3-4**		Loading pump wood boiler
PWM1	**32**		PWM1 pump P6
PWM2	**33**		PWM2 pump P2
S1	**4pm - 5pm**		Sensor wood boiler
S2	**6pm - 7pm**		Sensor buffer bottom
S3	**8pm - 9pm**		Sensor buffer top
S4	**22 - 23**		Sensor return Wood boiler
S5	**24-25**		Thermostat/room sensor Direct heating circuit 1
S6	**28 - 29**		Room thermostat Direct heating circuit 2



Mixer return increase, changeover valve, Wood boiler, direct heating circuit, Integration buffer middle, thermostat/room sensor, PWM1			**18**	
P5	**13**NO. **15**NC	**14** Com	Integrationn Burner requirement	
P3-4	**9** Com	**8th** **12**	Opening the ventthe S Closing the valve	
P6	**10 - 11**		Heating circuit pump	
P2	**5 - 6 - 7**		changeover valve	
P1	**3-4**		Loading pump wood boiler	
PWM1	**32**		PWM1 pump P6	
S1	**4pm - 5pm**		Sensor wood boiler	
S2	**6pm - 7pm**		Sensor buffer bottom	
S3	**8pm - 9pm**		Sensor buffer top	
S4	**22 - 23**		Sensor return Wood boiler	
S5	**24-25**		Thermostat/room sensor Direct heating circuit	



System used: _____

Commissioning on: _____

Commissioned by: _____

Installation Notes: _____

Ganzheitliche Energiekonzepte GmbH & Co. KG
Überaucher Straße 9/1
D-78052 Villingen-Schwenningen

Telefon: +49 7705 9769690
Mobil: +49 1741799951

www.ganz24.de
info@ganzheitliche-energiekonzepte.de