Directions for installation

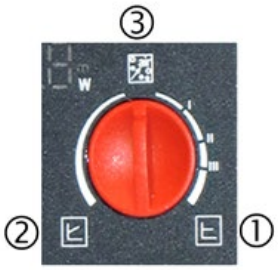
Pump unit with climatic controller for one mixed heating system. The unit, by reading the outside temperature, sets the correct supply temperature of the plant on the basis of the set up climatic curve.

Wilo Yonos PICO 25/1-6 and Yonos PICO 25/1-8 circulating pump with built-in differential control: working with constant Δp or variable Δp.

① *Constant Δp*: for heating circuits with a stable pressure drop (f.i. underfloor heating) or plants (f.i. radiator heating) where the pressure drop of pipes is negligible in comparison with the pressure drop of the thermostatic radiator valves, or where indipendently from open thermostatic radiator valves, same differential pressure is requested.

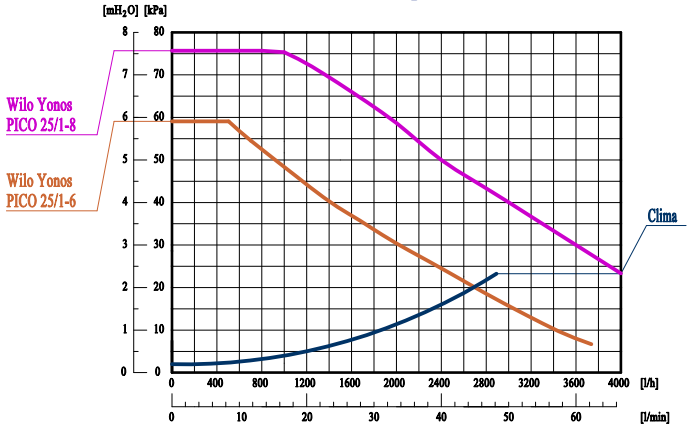
② *Variable Δp*: in order to achieve the max energy saving and noise reduction. It is recommended in plants where the pressure drop of the pipes is higher than the pressure drops of the regulating valves, or more simply, when the requested differential pressure is decreasing when the flow comes down.

③ *Automatic air vent program:* turn the selector to this position at the first starting of the installation. The program, the duration of which is 10 minutes, starts the motor of the circulating pump alternately at low and high speed making the agglomeration of air bubbles towards the de-aeration points of the installation. *Once the program is finished turn the selector to the preselect mode: Δp constant or Δp variable.*

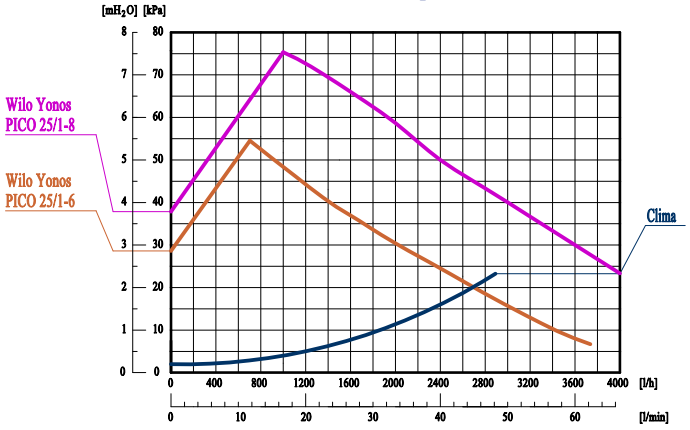


Typical curves of the pump units and of the circulating pump energy consumption from 4 up to 40 W (Wilo Yonos PICO 25/1-6) and 4 up to 75 W (Yonos PICO 25/1-8)

Constant Δp



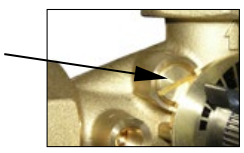
Variable Δp

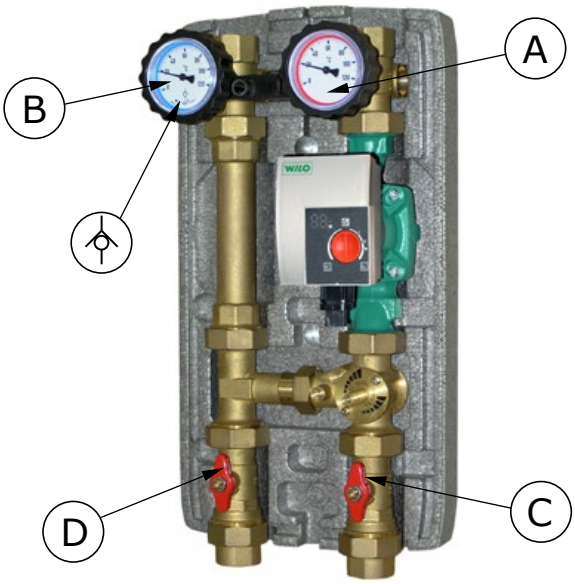


MIXING VALVE WITH SERVOMOTOR

3-way mixing valve with bi-directional servomotor with an operating range of 90°; led of activity in opening and closing mode. Selector for manual working with the indicator handwheel. A special connector allows to replace the servomotor in case of failure or bad working without having to operate on electric wires.
Kvs Value of the mixing valve: 10,0.

The model **M33** is supplied with a built-in by-pass into the body of the mixing valve. The built-in by-pass has an adjustable flow up to 50% of the total flow rate of the valve (especially suitable for underfloor heating installations).
Kvs Value of the mixing valve: 15,0.





20 mbar CHECK VALVE

Always inside the return way ball valve **(B)**, it prevents the natural circulation of the fluid (gravity circulation).

To prevent the natural circulation, the check valve must be in operating mode, that is when the ball valve is completely open.

The nick on the knob, near the temperature indication of 60°C, must be in axis with the return way.

To fill or to empty the installation, the Check Valve must be excluded, by rotating the handle by 45° clockwise, starting from the complete open position (see picture at left).

The nick on the knob, near the temperature indication of 60°C, must do a 45° angle with the return way.

To service the installation, the ball valve must be closed by rotating the handle by 90° clockwise.

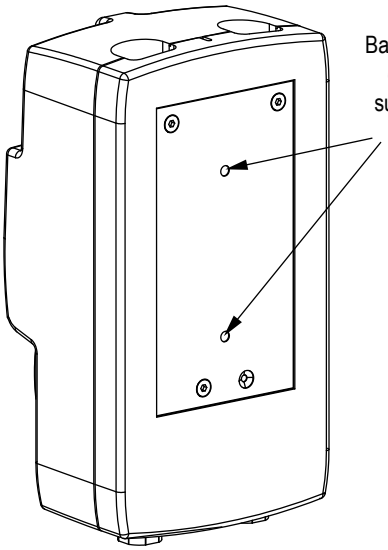
The nick on the knob, near the temperature indication of 60°C, must do a 90° angle with the return way.

SERVICE

To service / replace the circulating pump or the mixing valve, close the ball valves **(A), (B), (C)** and **(D)** by rotating the handles clockwise. Once the service is finished, open the four ball valves and put again the installation under pressure.

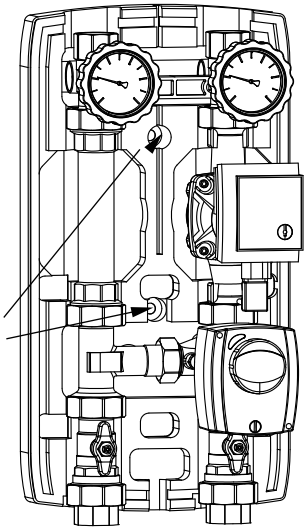
FASTENING THE PUMP UNIT

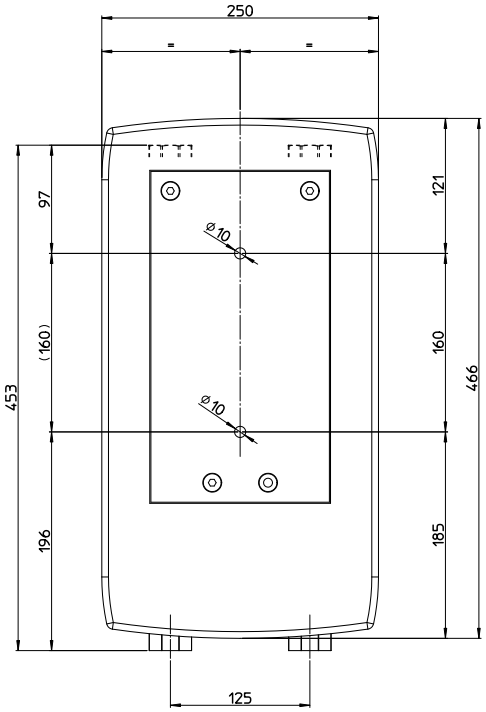
If there is not a manifiold, the pump unit can be fastened to the wall or to the storage tank thanks to a special back plate, as shown.
EPP insulation box, measurements: 250x466x215 mm.



Back fixing holes on the plate suitable for M8 screws.

Special openings into the insulation box allow the fastening without dismantling the unit.





TECHNICAL FEATURES

PN 6, max temperature 110°C.
(max. 40°C ambient temperature and 95°C fluid temperature).
External connections: 1” Female.

FIELD OF UTILIZATION

For power up to 35 kW (with Δt 20 K) and maximum flow of 1500 l/h.
Kvs value: 6,0. Approximate data calculated with a Wilo Yonos PICO 25/1-6 circulating pump (6 m nominal lifting power).
For power up to 20 kW (with Δt 8 K) and maximum flow of 2150 l/h.
Kvs value: 6,0. Approximate data calculated with a Wilo Yonos PICO 25/1-8 circulating pump (8 m nominal lifting power).
For an accurate measuring or higher flows, please refer to the curves of the circulating pumps, (constant Δp or variable Δp) shown in the first page.

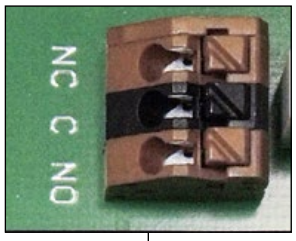
CLIMATIC CONTROLLER “CLIMA L”

The climatic controller is supplied alredy pre-wired to the circulating pump, to the servomotor of the mixing valve and to the contact sensor **S5** (TR/S1,5) of the supply mixed way. The power supply cable, also pre-wired, must be connected to the electric system 230 VAC only after having connected the temperature sensors.
To do these operations use only skilled workers.
Please install the controller following the here below directions:

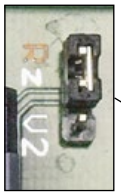
✓ **Connections to the Sensor Box**

All the wirings must be done by means of the terminals inside the “sensor box”, in accordance with the scheme below**.** The sensor box must be fixed to the wall near the pump unit. All sensors Pt1000.

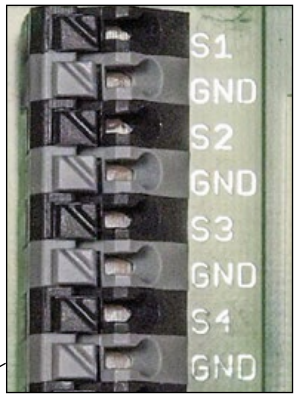
NC or NO relay output (normally closed or normally open):
*The **V2** output 0-10V is turned into a dry contact, (max 6 A) by putting the jumper in the **Rz** position as highlighted in the image “A”.*



Ref. “A”:
***Jumper V2 / Rz** for the selection of the output type*

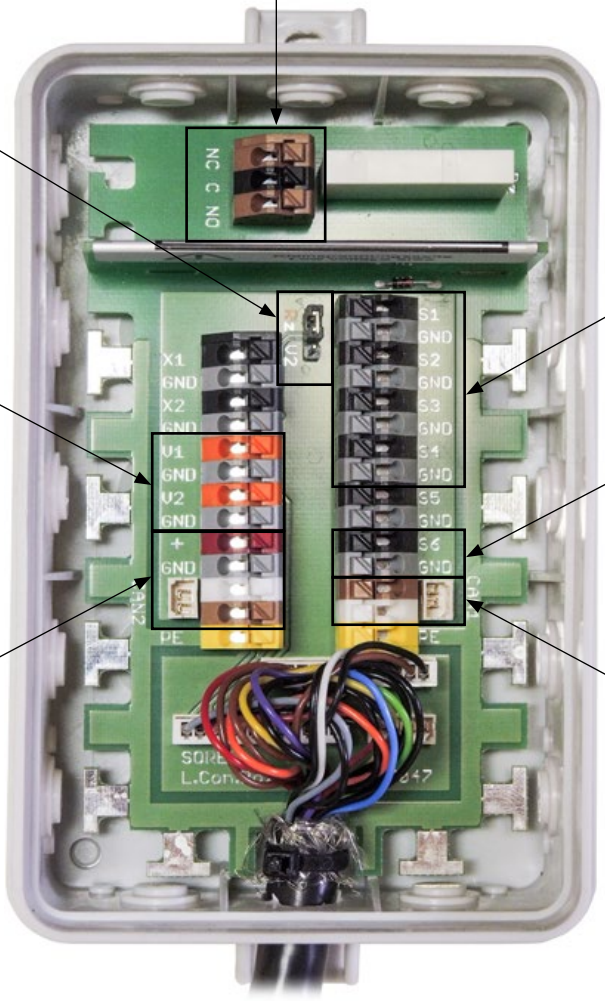


Sensors connection terminals



0-10V outputs terminal

***The Sensor S5 is already prewired** (clamp-on temperature sensor on mixed circuit)*



***CAN connection terminal** for **°Caleon** n.2*
*and +24 VDC power supply for **°Caleon** n.1 and n.2*

+24 VDC
GND
CAN HIGH
CAN LOW

***CAN connection terminals** for **°Caleon** n.1*

CAN LOW
CAN HIGH

S6: *outside temperature sensor TA55.* To be fixed to the wall on the North side of the building. The wiring must be done by the installer by means of cables with a minimum diameter of 0,75 mm² and a maximum length of 30 m. For longer distances, the diameter of the cable must be increased and the resistance of the overall cable-sensor must be checked in accordance with the values shown in *table 1* (by connecting the wirings it is not necessary to respect the “polarity”).

Picture 2: *Connection of the contact sensor to the supply way*

Table 1: *Resistance/temperature for wiring the sensors*

°C	0	10	20	30	40	50	60	70	80	90	100
Ω	1000	1039	1077	1116	1155	1194	1232	1270	1308	1347	1385

✓ **Connect the contact sensor TR/S1,5**

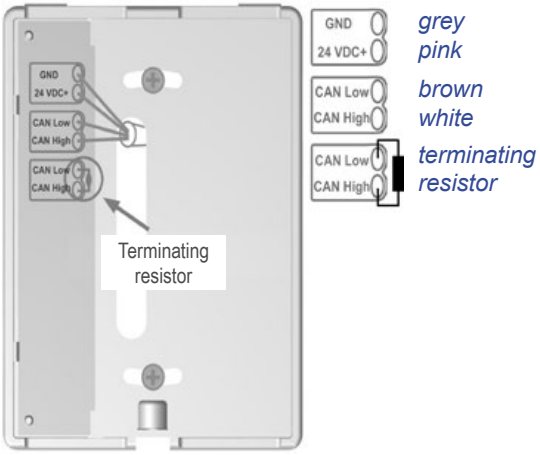
Once the wiring to the sensor box is finished, fix the contact sensor **S5** (TR/S1,5) on the metallic supply pipe after the ball valve with in-handle thermometer (coded red), by means of the clamp supplied as outfit, as shown in the *picture 2*. Moreover we recommend to put a thin layer of heat conductor paste between the sensor and the pipe.

✓ **Power box**

Power Box with boiler contact NO (Normally Open); Max. 2A.

°Caleon room thermostat (not provided; to be found on the market)

Stylish TFT capacitive touch panel for easy remote control of the heating system. Normal, Turbo, Eco and Off operation modes with specific temperature setpoint. Holiday program. Up to 8 adjustable daily heating time slot.



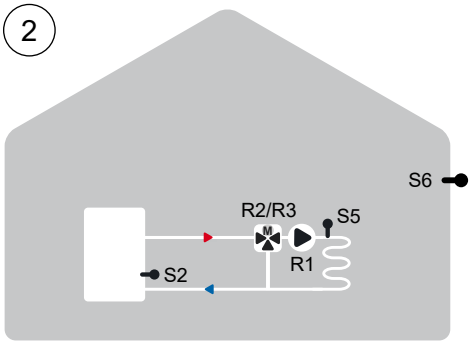
CAUTION!

When connecting the room thermostat °Caleon, you must use a 4 wire shielded twisted pair BUS cable and connect the shield to one side of the protective connector.

HYDRAULIC SCHEME "CLIMA L"

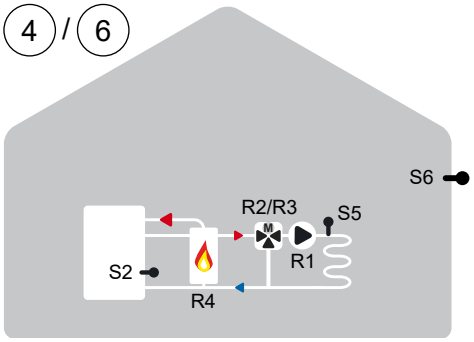
✓ Mixed circuit

2



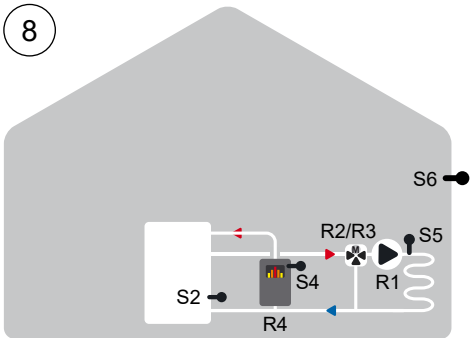
Mixed heating or cooling circuit

4 / 6



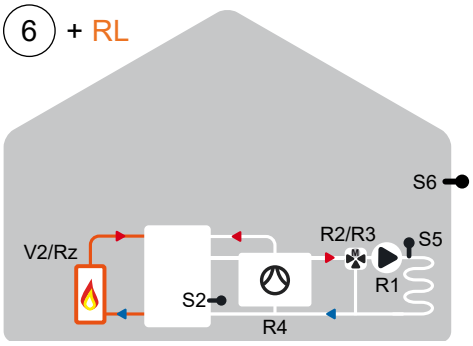
Mixed heating circuit and boiler or heat pump

8



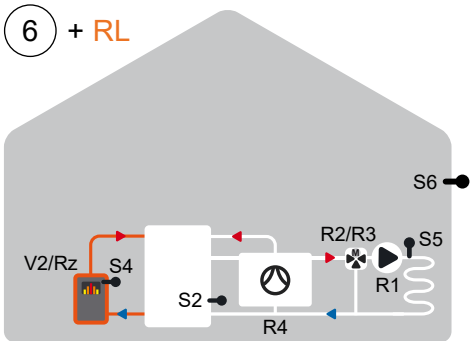
Mixed heating circuit and biomass

6 + RL



Mixed heating circuit and heat pump with contribution boiler

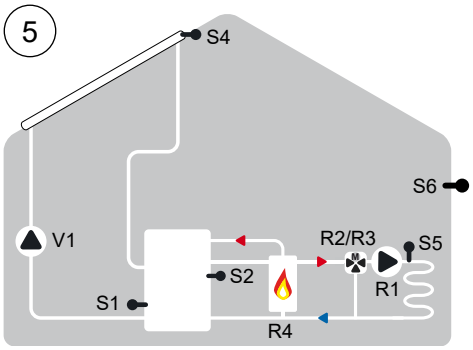
6 + RL



Mixed heating circuit heat pump with with contribution biomass

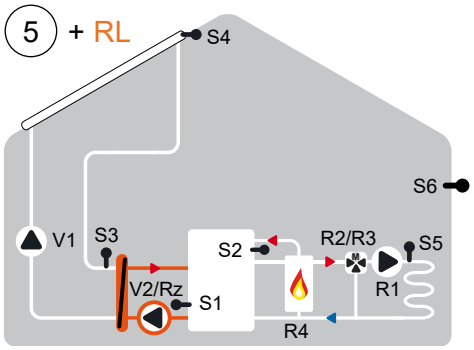
✓ Mixed and solar circuits

5



Mixed heating circuit, solar, and boiler or heat pump

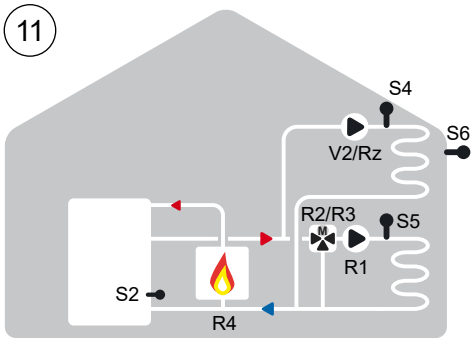
5 + RL



Mixed heating circuit, solar with heat exchanger, boiler or heat pump

✓ Mixed and direct circuits

11



Mixed and direct heating circuit, boiler or heat pump

Flow direction
Mixing valve
Diverting valve
Heating circuit
Sensor
Circulating pump

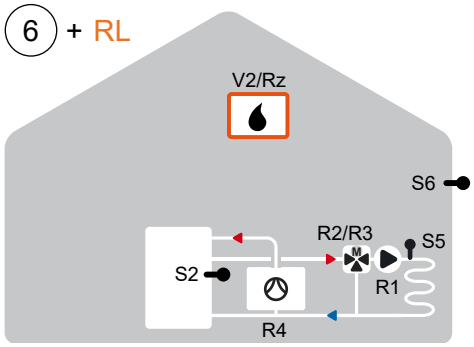
Heat source
Biomass
Heat pump
Heat exchanger

Dehumidifier
Chiller
Summer switching
°Caleon Clima

Storage tank
DHT storage tank

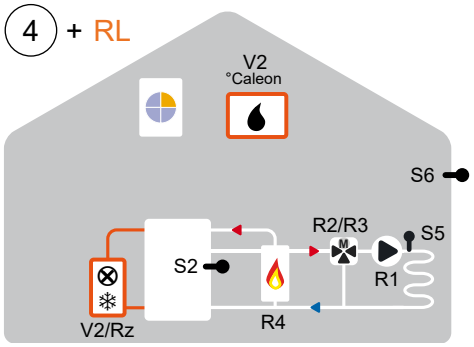
✓ Mixed circuit with cooling functions

6 + RL



Mixed heating circuit, heat pump with cooling function; dehumidifier

4 + RL



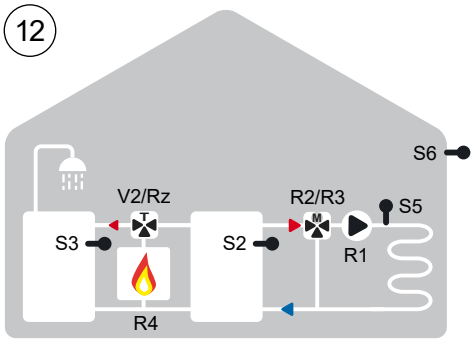
Mixed heating circuit, boiler and chiller; °Caleon Clima and dehumidifier

ATTENTION!

The above indicated pictures must be used only as an indication of the different hydraulic systems, therefore they do not claim to be complete.

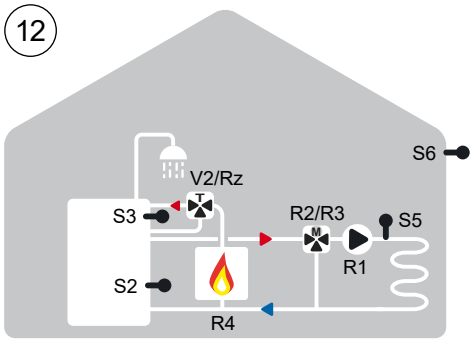
✓ DHW production

12



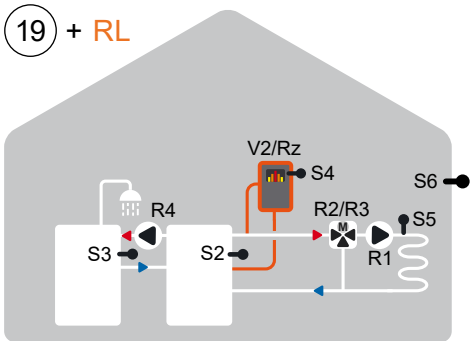
Mixed heating circuit, boiler, diverting valve and storage tank

12



Mixed heating circuit, boiler, diverting valve and combined storage

19 + RL



Mixed heating circuit, biomass, heat transfer and storage tank

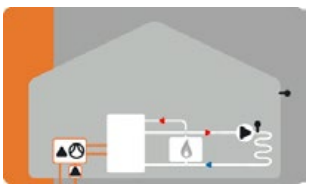
Additional functions to expand preset schemes

The preset hydraulic schemes can be increased in a flexible and easy way, by means of free contacts. If the controller has several free outputs in comparison with the necessary schemes, the remaining free relays can be used to activate different additional functions. The user is guided step by step through the setting of the corresponding parameters. Complementary functions (e.g. additional heating and anti-legionella) can be managed with the same relay. The sensors can also be used for several functions at the same time. In this way, the user can configure his personalized system quickly and easily.

Some examples of the functions that can be managed by free relays:

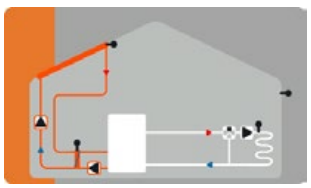
- Differential temp.
- Booster pump
- Cooling
- Solar
- Pressure monitor
- Heat transfer
- Thermostat
- Solid fuel boiler
- Solar bypass
- Burner
- Boiler pump
- 2nd Circuit
- Return temp. increase
- Error message
- Parallel working
- Exchanger
- Recycling
- Always on
- Heat pump
- Dehumidifier

Scheme 1 +



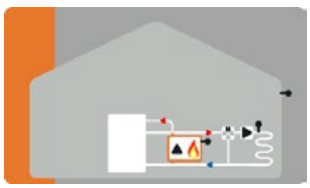
Combined storage with direct heating circuit with additional functions glycol pump and compressor

Scheme 2 +



Combined storage with mixed heating circuit with additional functions solar and heat exchangers

Scheme 8 +



Combined storage or buffer storage with mixed heating circuit with additional function burner and boiler pump.