

# ECOSAN PDC

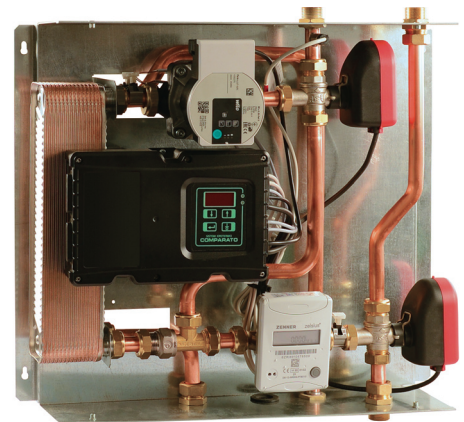
**DHW instant production  
for HEAT PUMPS**



## DESCRIPTION

**ECOSAN PDC** is a hydraulic unit for instantaneous domestic hot water production, designed to work with low primary flow temperatures. **ECOSAN PDC** is suitable for combination with Heat Pump heated puffers thanks to the possibility of keeping the stored technical water at a temperature of 50°C or lower. This feature is possible when using exchangers with special plate geometry that combine compactness and very high thermal efficiency. The electronic regulation of the temperature of the domestic hot water operates by modulating the flow rate of the primary fluid by means of an electronic circulator with PWM control. Using the keypad and display on the unit, it is possible to change the hot water supply temperature and access all parameters and control functions.

- Puffer temperature  $\leq 50^{\circ}\text{C}$
- Nominal power 35 kW or 50 kW
- Electronic regulation with PWM modulation of the pump
- Compact wall mounting
- Remote management with Modbus-RTU protocol



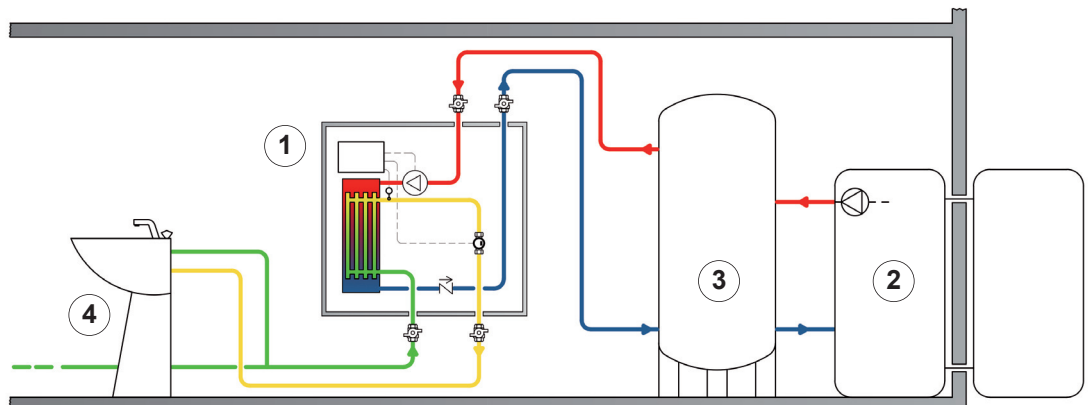
## OPTIONAL FEATURES

- Primary temperature control with mixing valve
- Domestic recirculation line with programmable anti-legionella thermal disinfection
- Primary return diversion for stratification puffer with 3-way motorised valve
- Generator activation (HP) with immersion probe in the puffer
- Energy metering

ECOSAN PDC is equipped with a Modbus-RTU interface for remote device management and connection to modern Building Management Systems (BMS). The Modbus address table can be downloaded from [www.comparato.com](http://www.comparato.com).

## EXAMPLE OF USE

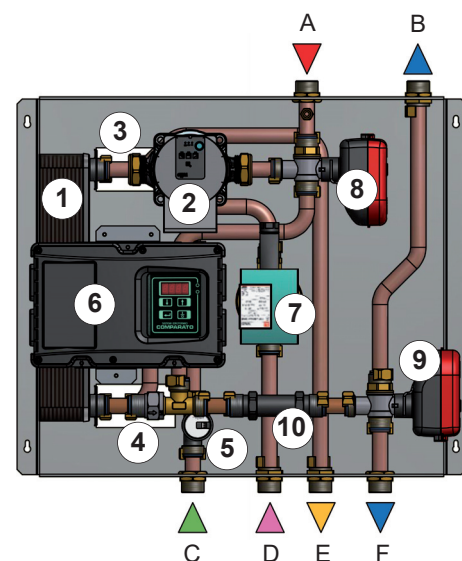
1. ECOSAN PDC
2. HEAT PUMP
3. PUFFER
4. DOMESTIC UNITS



## COMPONENTS AND FLOWS

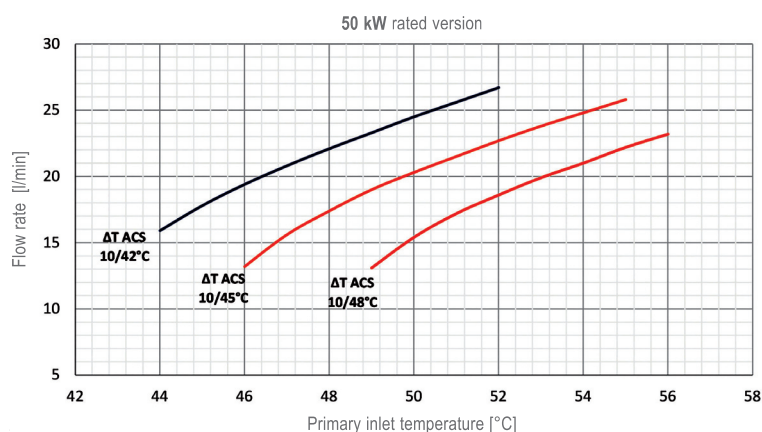
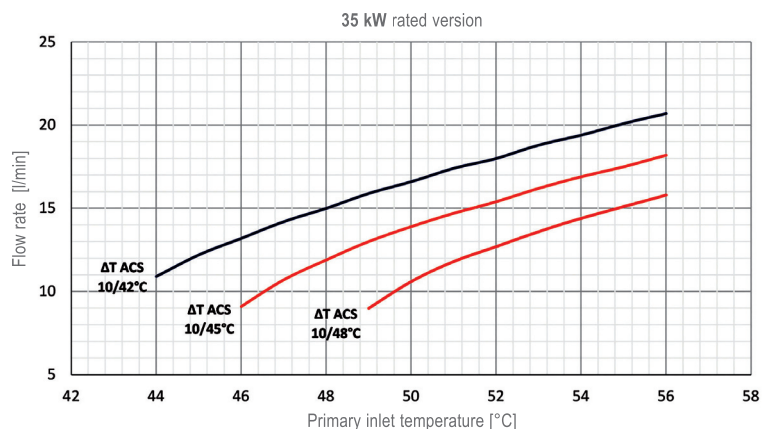
- A : Technical water flow from puffer  
 B : Technical water return to puffer  
 C : Domestic cold water inlet  
 D : Recirculation input - (optional)  
 E : Domestic hot water outlet  
 F : Low temperature technical water return to puffer (optional)

- 1 : Braze welded plate exchanger
- 2 : PWM modulating circulator
- 3 : DHW temperature probe
- 4 : Non-return valve
- 5 : DHW flow meter
- 6 : Electronic control unit with control panel
- 7 : Recirculation pump - (optional)
- 8 : Primary mixer - (optional)
- 9 : Primary return diverter - (optional)
- 10 : Heat meter ready - (optional)







## DOMESTIC HOT WATER PRODUCTION



## VERSIONS AND CODES

<b>ECOPC</b>	<b>35</b>	<b>0</b>	<b>0</b>	<b>0</b>	
<b>SERIES</b>					<b>HEAT METER READY</b>
Ecosan PDC					0 = not present T = replacement stub
<b>RATED POWER</b>					<b>AUXILIARY FUNCTIONS</b>
35 = rated power 35 kW 50 = rated power 50 kW					0 = not present R = DHW recirculation line with circulator and anti-legionella disinfection D = primary return deviation with 3-way valve 3 = activation of the generator with immersion probe for puffer
<b>PRIMARY DELIVERY TEMPERATURE CHECK</b>					
0 = not present 1 = present with 3-way mixing valve					

## ACCESSORIES

ACCESSORY	DESCRIPTION	CODE
<b>ENERGY METER</b>		
	Mechanical, DN15, Qp = 1,5 mc/h, battery powered, M-bus interface MID approved	<b>CFCENM34B</b>
	Ultrasonic, DN15, Qp = 1,5 mc/h, battery powered, M-bus interface MID approved	<b>CFCENU34B</b>
<b>SHELL</b>		
	Cover shell in powder-coated sheet metal, white RAL 9010	<b>CPDC</b>

## OPERATION

- Domestic hot water regulation**

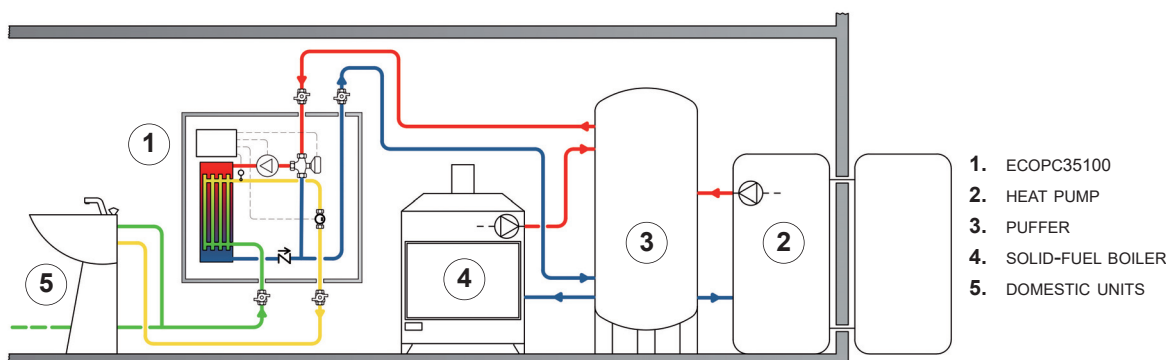
Electronic management with P.I.D. control and pulse-width modulation (PWM) of the primary circulator according to the temperature detected by the DHW probe.

- Heat exchanger function**

This function, when activated, keeps the primary circuit warm to minimize the system's response time to the sanitary hot water demand. A suitable probe measures the temperature on the inlet pipe to the plated heat exchanger.

- Primary flow temperature control - optional**

A ball mixing valve regulates the temperature of the primary inlet of the plated heat exchanger by mixing the flow from the puffer with the return from the exchanger in order to maintain a constant temperature. This function is useful if the puffer is supplied by other heat sources besides the HP, such as a gas boiler, biomass boiler or solar thermal system and, as a result, the temperature in the accumulation can vary significantly depending on the current active energy source. Maintaining the primary inlet temperature to the heat exchanger at a constant value close to the nominal value (50°C) optimises the performance of the control system and safeguards the plated heat exchanger from the risk of limescale build-up on the DHW secondary circuit.



- Domestic recirculation management with programmable anti-legionella thermal disinfection - optional**

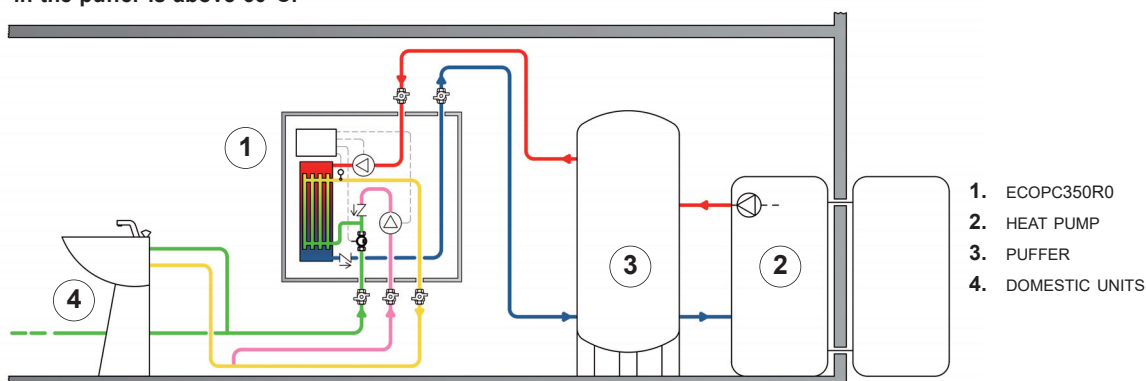
The system manages domestic hot water recirculation by means of an external digital input (e.g. hourly programmer) or by means of time slots that can be programmed daily or weekly. It is possible to activate the thermal disinfection of the domestic hot water distribution network by programming the time of the cycle, if the repetition is daily, or to choose the day of repetition, if the programming is weekly. The disinfection cycle will start at the set time by raising the temperature at the return of the recirculation loop to the maximum and a digital output is activated to signal the start of the cycle. The on-board display shows the water temperature reached on the return ring and the percentage of the cycle reached. Disinfection times are automatically determined according to the characteristics of the system: the duration of the cycle depends on the temperature detected by the probe on the return of the recirculation loop, following the table below.

TEMPERATURE	CYCLE TIME
over 70°C	30 minutes
between 65°C and 70°C	1 hour
between 60°C and 65°C	2 hours
between 57,5°C and 60°C	3 hours
between 55°C and 57,5°C	4 hours

Each time the cycle is started, the system stores: • date [day / month / year] of start of the cycle; • cycle time [hours / minutes]; • maximum temperature [°C] detected by the anti-legionella probe; • minimum temperature [°C] detected by the anti-legionella probe; • average temperature [°C] detected by the anti-legionella probe; • state at end of the cycle.

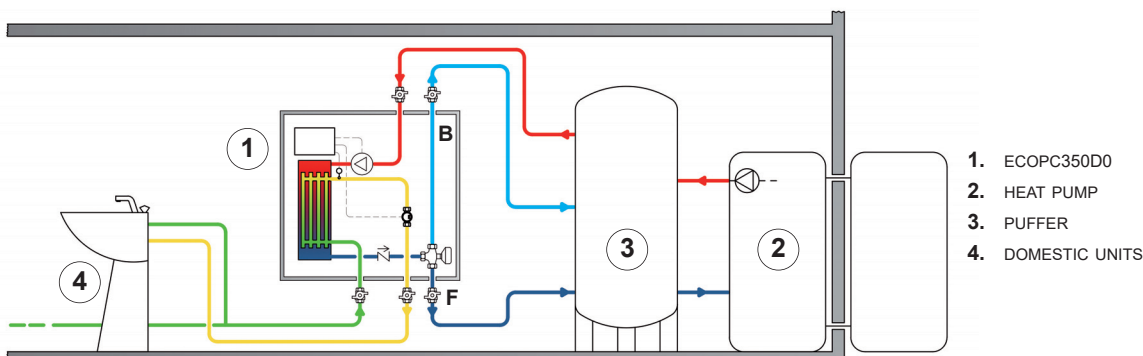
The memory can hold the information for 52 disinfection cycles, after which the data is overwritten starting with the oldest. The data remains in memory even if the card is not powered thanks to the included buffer battery. All stored data can be downloaded from memory via RS485 serial with Modbus-RTU communication protocol.

**WARNING: The thermal anti-legionella disinfection function can only be activated if the temperature of the technical water stored in the puffer is above 60°C.**



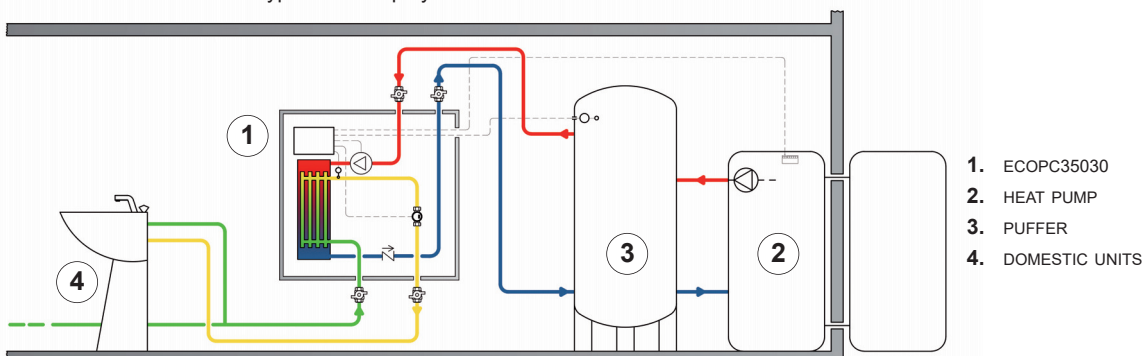
## • Primary return deviation to puffer - optional

A motorised 3-way ball valve diverts the return of the primary heat exchanger to outlet "B" or outlet "F" depending on the temperature detected by the temperature sensor. This function optimizes the stratification inside the puffer, thus improving the efficiency of the plant. The deviation temperature can be set via keyboard and on-board display.



## • Generator activation - optional

This function activates the generator by closing a clean voltage-free contact when the puffer temperature falls below the set point. The system detects the temperature by means of a special immersion probe to be installed in the storage tank. The activation temperature can be set via the on-board keypad and display.



## TECHNICAL FEATURES

### PRIMARY CIRCUIT • 35 kW VERSION

Type of fluid	water VDI 2035
Rated temperature	50°C
Maximum temperature	90°C with primary temperature control option
Maximum pressure	6 bar
Nominal flow rate	1,0 m³/h
Maximum flow rate	1,2 m³/h
Minimum flow rate (1)	adjustable

### PRIMARY CIRCUIT • 50 kW VERSION

Type of fluid	water VDI 2035
Rated temperature	50°C
Maximum temperature	90°C with primary temperature control option
Maximum pressure	6 bar
Nominal flow rate	1,5 m³/h
Maximum flow rate	1,7 m³/h
Minimum flow rate (1)	adjustable

### INSULATION

Exchanger	expanded polyethylene
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### POWER SUPPLY • 35 kW VERSION

Voltage	230V ± 10%
Frequency	50 Hz
Max power consumption	70W

### POWER SUPPLY • 50 kW VERSION

Voltage	230V ± 10%
Frequency	50 Hz
Max power consumption	110W

### DOMESTIC HOT WATER LINE

Type of fluid	water VDI 2035
Maximum temperature	80°C
Maximum pressure	6 bar
Activation / deactivation flow rate	2,5 - 1,5 l/min
Maximum flow rate	31 l/min

### PIPELINES

Material	copper
Size	Ø18 mm

### HYDRAULIC CONNECTIONS

Material	brass
Size	G3/4" M ISO 228/1

### HYDRAULIC SUPPORT

Size	galvanized sheet metal 10/10
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### ELECTRONIC REGULATOR

Type	P.I.D.
Modulation	PWM
Accuracy	± 1°C
Adjustment range	30°C ÷ 65°C
Temperature sensors type	NTC 10kΩ

### USAGE

Installation	indoor
Room temperature	5°C ÷ 55°C
Relative humidity	25% ÷ 85%

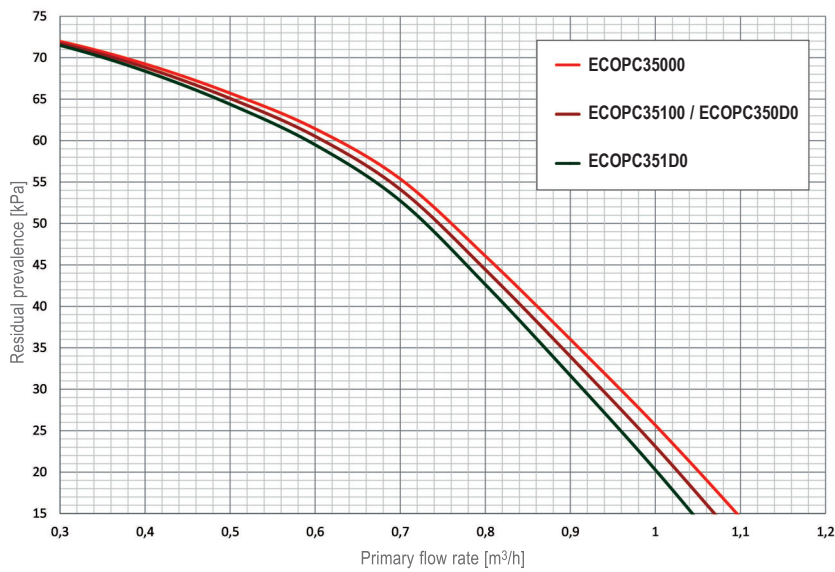
### WEIGHT

Maximum dry weight	21 Kg
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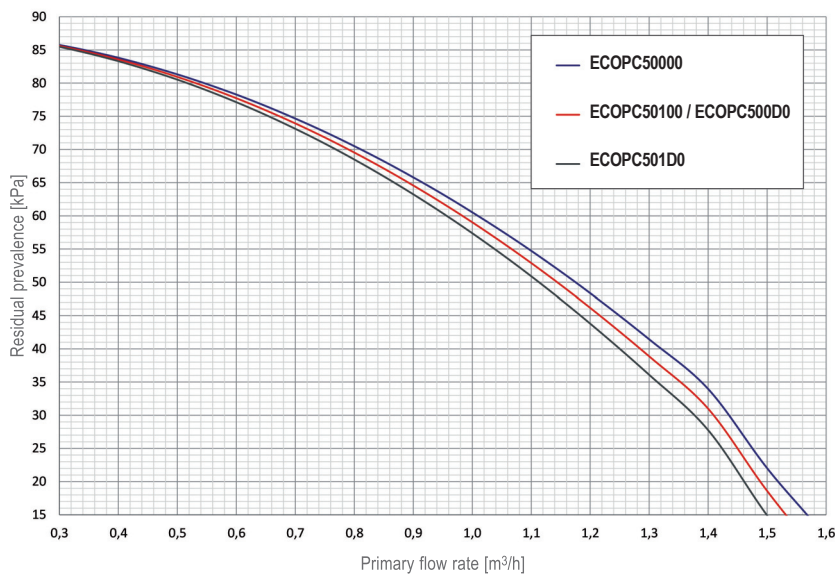
1 Using the keypad and display on the machine, the minimum flow rate value on the primary circuit can be adjusted during DHW production. The system acts on the minimum percentage of the PWM modulating signal to the circulator.



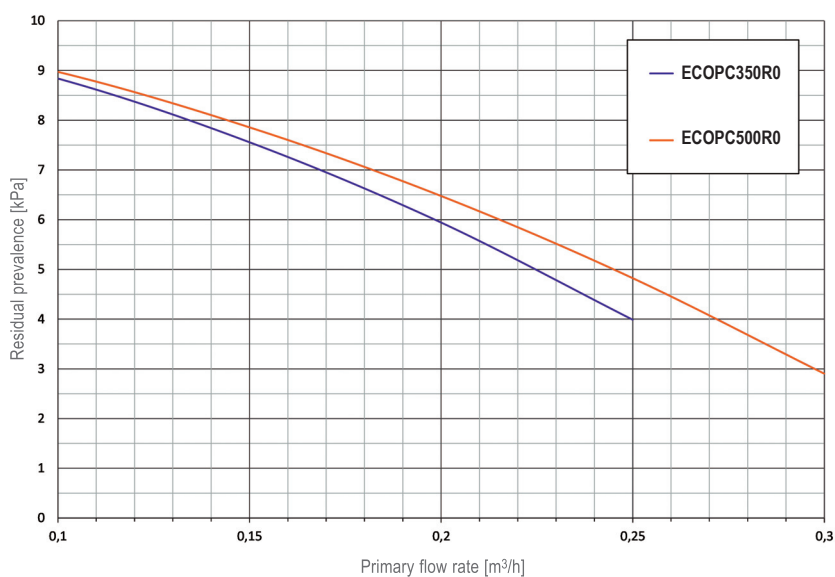
• **Primary circuit residual prevalence - 35 kW version**



• **Primary circuit residual prevalence - 50 kW version**

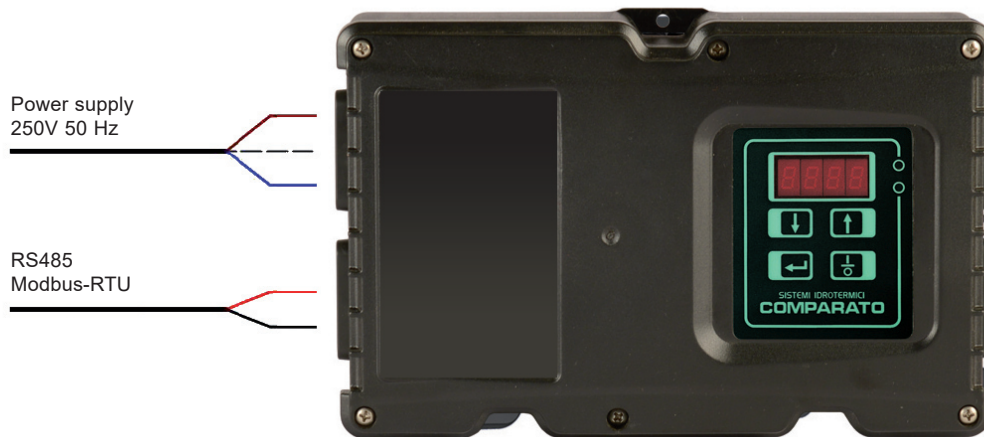


• **Residual prevalence of domestic hot water recirculation**

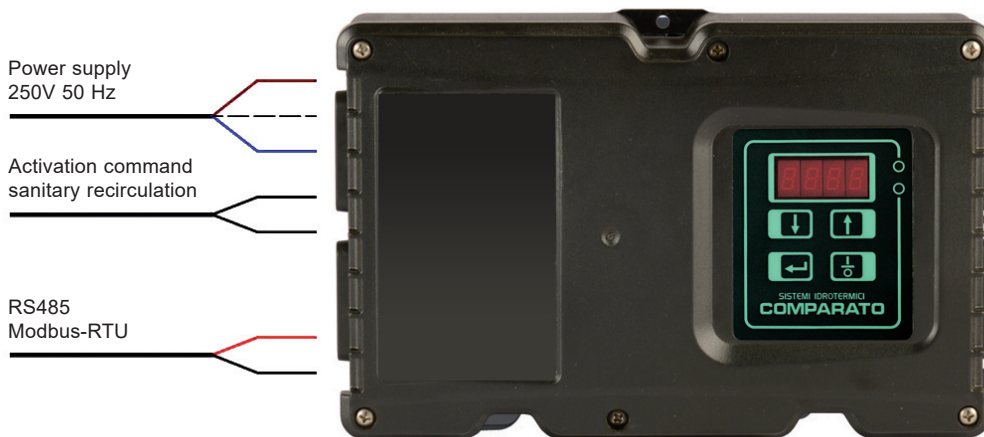


## ELECTRICAL CONNECTIONS

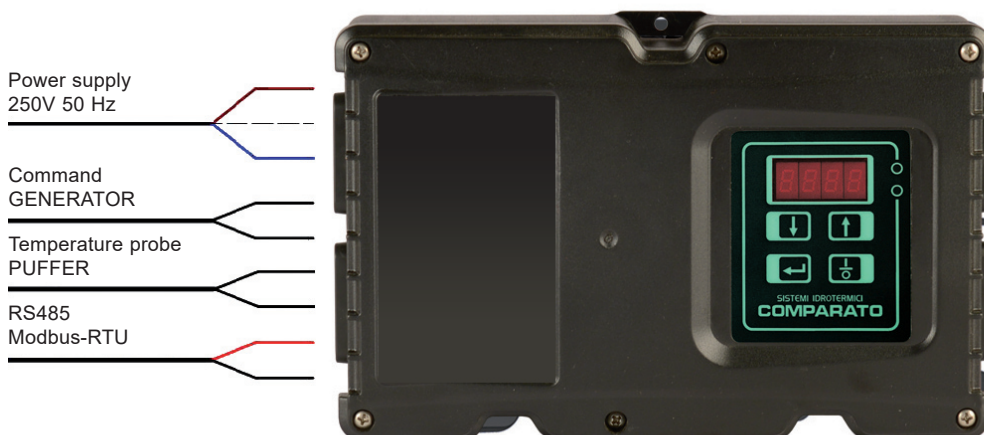
- **BASIC** version



- Version with **DOMESTIC RECIRCULATION**



- Version with **GENERATOR ACTIVATION**



## INSTALLATION WARNING

It is advisable to use flexible hydraulic connection in order to compensate for any thermal expansion and possible misalignment between the system connections.

## CERTIFICATIONS

### EC Machinery Directive

2006/42/EC.

### EC Low Voltage Directive

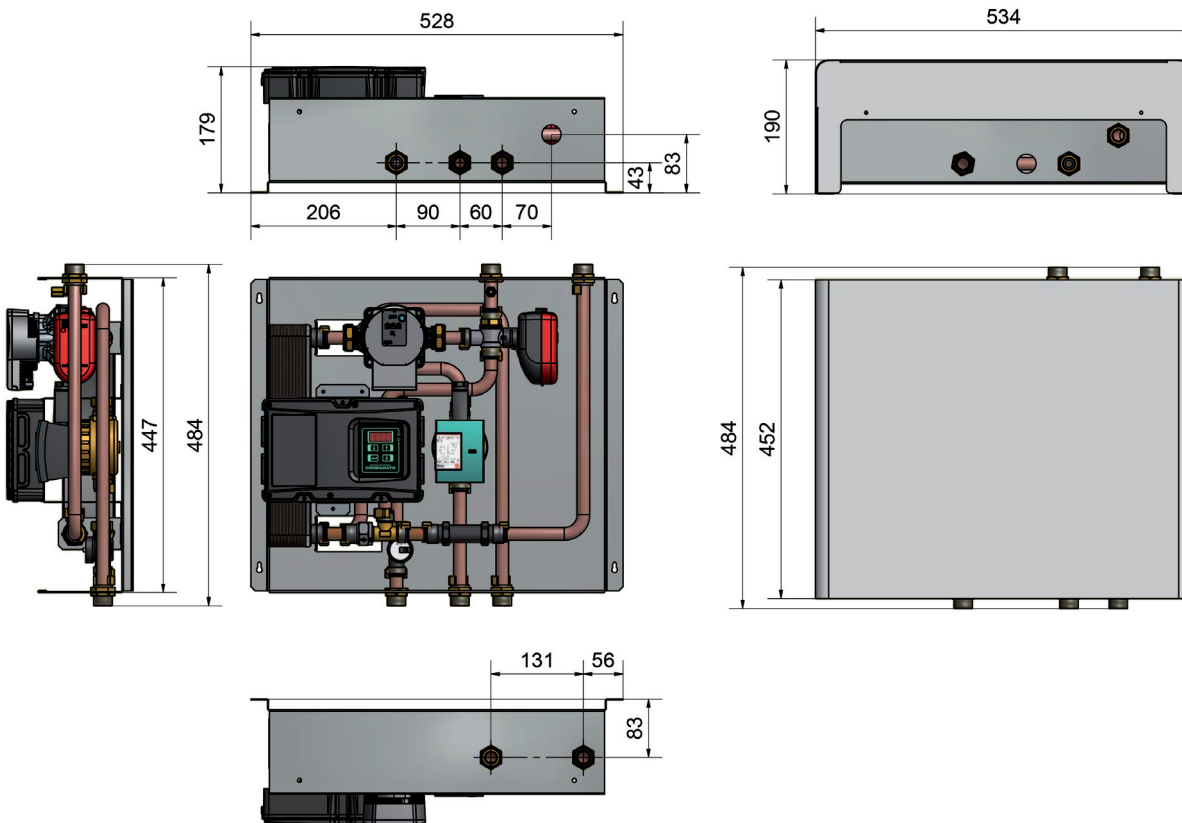
2006/95/EC of 12 december 2006.

### EC Electromagnetic Compatibility Directive

04/108CEE: 2004, 92/31/CEE: 1992 93/68/CEE:

1993 93/97/CEE: 1993.

## OVERALL SIZE





# comparato.com

## EXAMPLE OF SPECIFICATIONS

**ECOSAN PDC HYDRAULIC UNIT** for the instantaneous production of domestic hot water for systems with heat pump, nominal power 50 kW, wall-mounted installation, complete with • Braze-welded plate exchanger • PWM primary circulator • DHW temperature probe • heat exchanger temperature probe • DHW flowmeter • Check valve • Electrical box with electromechanical management board • Modbus-RTU interface for remote management. Copper piping Ø18 mm, maximum working pressure 6 bar, maximum temperature 90°C, hydraulic connections G3/4" M, power supply 230V 50Hz, maximum power consumption 110W, dimensions 528x484x179 mm.

Brand: **COMPARATO**

Code: **ECOSPC50000**

**COVER SHELL**, white powder-coated RAL9010.

Brand: **COMPARATO**

Code: **CPDC**

## UPDATED DATA SHEETS AVAILABLE AT [www.comparato.com](http://www.comparato.com)

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