

AEROVOLTAIC

GSE PAC'SYSTEM™

GSE PAC'SYSTEM AMBIENCE UNIT USER MANUAL

Air recovery and redistribution system for home heating and cooling



CARDONNEL Ingénierie
le confort durable du bâtiment

CHUBB®

www.gsepacsystem.com

Congratulations!

You have just installed a new solar heat recovery system for your photovoltaic installation. Not only can you now benefit from the heat generated by your solar panels, you can also cool your home in summer thanks to the **GSE PAC'SYSTEM**'s integrated reversible heat pump.

This manual explains how the **GSE PAC'SYSTEM** works and includes very simple instructions on how to use your ambience unit, so that you can request either hot air in winter or cold air in summer.

Contents

How it works	3
Using your ambience unit	6
Frequently asked questions	7



Reminder: The **GSE PAC'SYSTEM** is working thanks to the aerovoltaic principle, it is retrieving the heat which is accumulated under your PV panels. The «**temperature under panels**» indicated here is often different from the outdoor temperature because produced and optimized by your solar system! The performances of your system in heating mode are thus much superior than a traditional heat pump.

How it works - Winter

HEATING MODE (HEAT PUMP)

THE TEMPERATURE IN YOUR HOME IS 19 °C, AND YOU WOULD LIKE TO ADJUST IT TO 22 °C WITH AN UNDER-PANEL TEMPERATURE OF 0 °C.



When the **GSE PAC'SYSTEM** detects that you have set the ambience unit to **22°C** in **Heating** mode and identifies that the temperature inside your home is only **19°C**, it automatically transfers the available hot air under the panels inside your home via the air vents. To offset the insufficient temperature available underneath your panels, the regulator starts the system's **heat pump**, to ensure that the air being supplied is at a sufficient temperature.

HEATING MODE (NATURAL)

THE TEMPERATURE IN YOUR HOME IS 19 °C, AND YOU WOULD LIKE TO ADJUST IT TO 22 °C WITH AN UNDER-PANEL TEMPERATURE OF 35 °C.

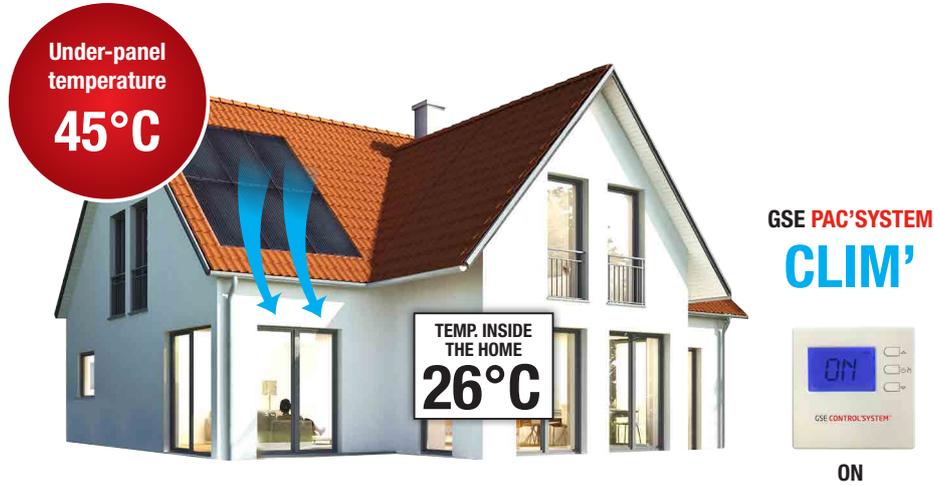


In this case, the temperature underneath your panels is sufficient to heat your home without the **GSE PAC'SYSTEM** requiring to start the heat pump. It simply regulates its fan speed so that your home gently reaches your requested temperature without the "hair-dryer" effect!

How it works - Summer

COOLING MODE BY DAY

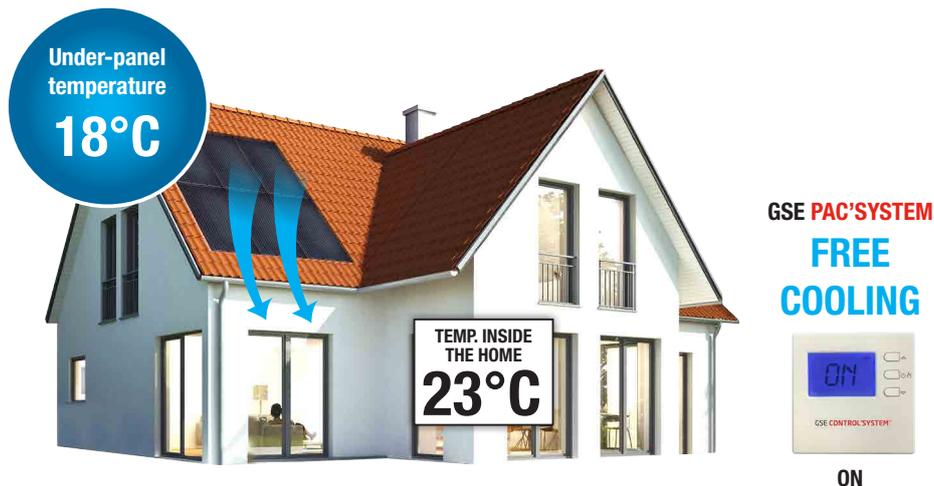
THE TEMPERATURE IN YOUR HOME IS **26 °C**, AND YOU WOULD LIKE TO COOL IT TO **22 °C**
THE TEMPERATURE UNDERNEATH YOUR PANELS IS **45 °C**.



When the **GSE PAC'SYSTEM** detects that you have set the ambience unit to **Cooling mode**, the system starts the heat pump in Cold mode to supply your home with fresh air and to reduce your ambient temperature.

FREECOOLING MODE BY NIGHT

THE TEMPERATURE IN YOUR HOME IS **23 °C**, AND YOU WOULD LIKE TO COOL IT TO **21 °C**
OVERNIGHT DURING THE SUMMER. THE TEMPERATURE UNDERNEATH YOUR PANELS IS **18 °C**.

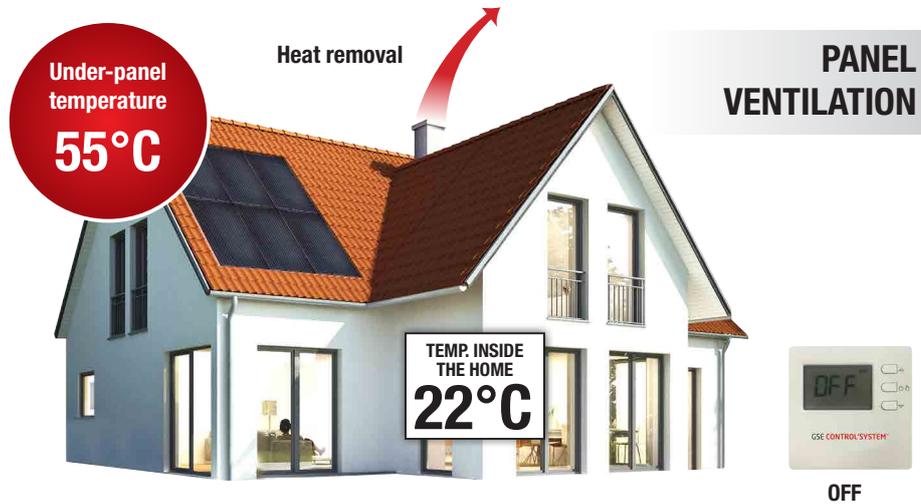


Overnight during the summer, the temperature underneath your panels is generally around **3 or 4°C** lower than the temperature inside your home. As soon as it reaches **18°C**, the **GSE PAC'SYSTEM** recovers this fresh under-panel air and transfers it inside your home via your supply vents.

How it works - Panel ventilation

DISCHARGE MODE

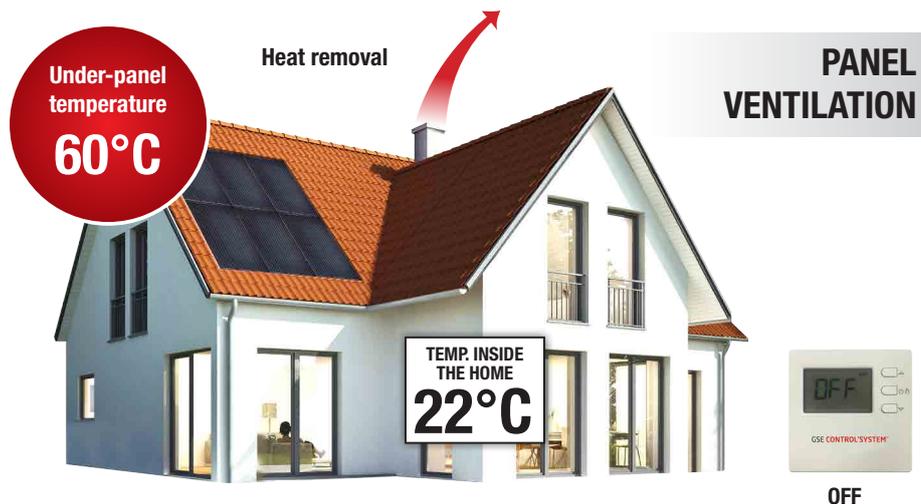
THE TEMPERATURE IN YOUR HOME IS **22 °C**, AND YOU WISH TO STOP THE AIR SUPPLY.
THE TEMPERATURE UNDERNEATH YOUR PANELS IS **30 °C**.



The regulator of the **GSE PAC'SYSTEM** detects that you have requested that no more hot air be supplied via your ambience unit and that the temperature underneath your panels is rather high. At this point, it automatically transfers the hot air available under the panels towards a chimney cap through an intelligent, integrated bypass system. The key advantage of this discharge process is that it ventilates your panels in order to reduce their temperature, thus improving both their performance (up to **10%** more energy efficiency) and their long-term durability.

SAFETY MODE

TEMPERATURE BELOW PANELS **>45°C** AND **REFRESHMENT REQUEST**



If the system is not connected to your **CMV** or to an air source from the bathroom, toilet or kitchen, the heat pump will stop until the temperature below panels goes down.
The panels will continue to be ventilated until the right temperature is reached. Above **57°C** temperature below panels, the system will not blow hot or cold air but will continue to ventilate it.

Using the ambience unit

HEATING MODE / COOLING MODE

Your ambience unit will allow you to request that the **GSE PAC'SYSTEM** supply hot air (in winter) or cold air (in summer) inside your home.

This ambience unit offers two adjustable modes: **Heating mode** and **Cooling mode**. To switch from one to the other, press and hold the **middle button for 10 seconds**:



When you switch to **Heating mode**, a flame appears in the bottom right-hand corner of the screen



When you switch to **Cooling mode**, a snowflake appears in the bottom right-hand corner of the screen

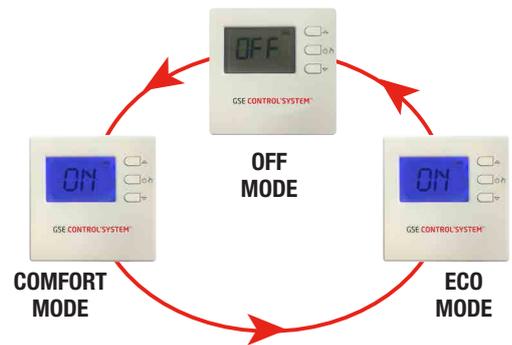
ECO MODE / COMFORT MODE / OFF MODE

Your ambience unit can be set to three modes simply by pressing the middle button 

“OFF” mode

“COMFORT” mode 

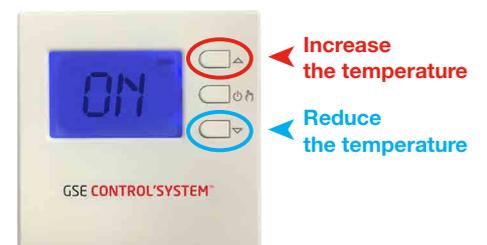
“ECO” mode 



NOTE: If you wish, “Eco” mode and “Comfort” mode allow you to configure two different set temperatures (otherwise, the two modes can be set to the same temperature).

CONFIGURING THE SET TEMPERATURE

Your installation engineer will install your ambience unit in the room of your choice. This is the device that informs the **GSE PAC'SYSTEM** whether to supply air into your home or not. To adjust it, simply press the Δ and ∇ , buttons to set the desired temperature.



Frequently asked questions

NOTE: Once the temperature has been configured on your ambience unit, your GSE PAC'SYSTEM is set and requires no further intervention on your part. The system will automatically regulate the temperature in your home based on the heat available under the panels.

FREQUENTLY ASKED QUESTIONS ABOUT THE GSE PAC'SYSTEM:

Question: Does the GSE PAC'SYSTEM work like an air conditioner?

Answer: In summer, yes. The GSE PAC'SYSTEM's reversible heat pump absorbs the heat in the air supplied into your home in order to lower its temperature and supply you with fresh air. Overnight in summer, the system can also recover fresh air that is naturally available underneath your panels. This is referred to as "free cooling".

Question: How do you switch off the GSE PAC'SYSTEM?

Answer: It can be switched off using the on-line web server or by disconnecting the circuit breaker located in the fuse box. If you would simply like the unit to stop supplying fresh air into your home, switch your ambience unit to "Off" mode by pressing the middle button.

Question: When do you need to change the air filters in the GSE PAC'SYSTEM?

Answer: More or less once a year, or when the web server tells you to do so. Your installation engineer can provide you with an associated maintenance contract. This is also an opportunity for the engineer to check that your installation is working properly.

Question: There is nothing displayed on the ambience unit screen. What should I do?

Answer: The thermostat batteries may be flat. If this is not the case, please call our telephone hotline.

Question: Why is the GSE PAC'SYSTEM not supplying any air into my home?

Answer: Check that your ambience unit is indeed requesting hot or cold air by referring to the explanations provided in this user manual.

Question: What is the system's heat pump for?

Answer: The GSE PAC'SYSTEM's integrated heat pump enables you to supply extra heat into your home in winter if the temperature underneath your panels is not high enough; this also extends the system's year-round use time. In summer, this reversible heat pump will allow you to supply fresh air into your home to cool it.

Question: Why is my GSE PAC'SYSTEM, working when my ambience unit is not requesting hot / cold air?

Answer: When you do not request an air supply into your home, but the temperature underneath your photovoltaic panels is above 25°C, the GSE PAC'SYSTEM switches to "Discharge" mode: it draws in the air underneath your panels to discharge it outside via a roof cap and to ventilate your panels to enhance their performance and extend their service life.

Question: Is it true that cooling the photovoltaic panels allows them to work better?

Answer: The panels must be well-ventilated for them to work properly in the long term. But this also allows you to enhance their instantaneous energy performance, because the lower a panel's temperature, the more electricity it produces.



Warning! The GSE PAC'SYSTEM is a complement to your current heating system. It will not meet your heating needs with outdoor temperature below -1°.

If you have not found the answer to your question, the special **GSE PAC'SYSTEM HOTLINE (+33 (0) 1 70 32 08 00)** is available **Monday to Thursday from 9.30 a.m. to 1.00 p.m. and from 2.00 p.m. to 6.00 p.m., and on Friday from 9.30 a.m. to 3.00 p.m.**

GSE Intégration

155-159 rue du Dr Bauer - 93400 SAINT-OUEN

+33 (0)1 70 32 08 00

Email : contact@gseintegration.com

www.gsepacsystem.com