

DC/AC hybrid solar air conditioner *including solar plant and smart management of energy*



Hybrid operation

FREECOLD hybrid air conditioners operate from two sources of electricity: photovoltaic as a priority and the electricity grid as a backup and when there is no more sun, with an automatic switching of sources without cutting off power supply. In air conditioning mode as well as in heating or dehumidification modes.

The photovoltaic panels and the 230V grid power supply connects directly to the outdoor unit. It incorporates a dual MPPT⁽¹⁾ tracker to make the best use of available solar energy and minimize the use of the electricity grid.

Seasonal refrigeration efficiency (SEER)⁽²⁾, which represents the cooling output of the air conditioner on what it costs on the electricity bill, can reach a factor of 36 W/W or 120 BTU/W according to the European standard EN14825: the electricity bill is reduced, and the planet feels better.

When the sun shines, hybrid air conditioners operate 100% on the photovoltaic source.

Hybrid air conditioners CMS12.H et CMS18.H

A strong design with a 5-year warranty on the compressor and 3 years on other parts;

Powers of 3,500 W (12,000 btu) and 5,000 W (18,000 btu) in air conditioning and heating;

Their advantages: very low noise operation and the absence of batteries;

Energy savings [class A+++], in both summer and winter: in Dakar, where the sun shines 3000h/year, the annual electricity savings amount to 600,000 FCFA (900 euros) and the investment is paid back in 2 and a half years, not counting the comfort of air conditioning during power cuts or the cost of operating a backup diesel generator; in Marseille, where the sun shines for 1000 hours during the heating months and 1000 hours during the summer, the annual savings amount to 480 euros and the return on investment time is 4 years;

Easy installation and time saving with the mounting plate and the installation bracket designed to facilitate the connection of fittings;

Easy access to filters for faster and more efficient maintenance;

Simplicity and ease to control from the compact and intuitive infrared remote control.

The solar plant

6 to 10 photovoltaic modules (EU origin) come with their electric cable for easy and fast commissioning.

The solar plant, with a capacity of 2.6 and 3.3 kWp, for absorbed electrical power of 0.9 and 1.3 kW, powers air conditioner, and delays the use of the electricity grid as long as the sun's energy is enough.

The installation is secured by DC disconnect, surge protector and grounding of the photovoltaic field.

DC/AC solar hybrid air conditioner CMS12-H *including 2,6 kWp solar plant*

- ✓ Power 12,000 btu (3,5 kW) European energy class: A+++
- ✓ Air conditioning EER= 3.8 / SEER= up to 36 Electricity input: 0.92 kW
- ✓ Heating COP = 3.6 Electricity input: 1,05 kW
- ✓ DC power supply: 50V – 380V AC power supply: 230V, 1 phase, 50Hz
- ✓ Refrigerant R410A : charge 1,05 kg (precharge up to 5m)
- ✓ Refrigerant piping length: 3m Connection wiring: 4,3m
- ✓ Compressor Toshiba – GMCC Dual MPPT tracking controller
- ✓ Maximum input consumption: 1650 W Starting current: 2A
- ✓ Maximum operation temperature: 50°C
- ✓ Indoor unit: air flow 560 / 450 / 360 cbm/h
- ✓ Outdoor unit: noise level <50 dB(A)
- ✓ Dimensions WDH / weight: Ind.U: 850 x 185 x 290 mm / 8,2 kg Out.U: 835 x 320 x 540 mm / 35 kg
- ✓ 2,6kWp solar plant made up of 8x 325Wp photovoltaic modules (EU origin), 72 polycrystalline 6" cells, 25-year performance warranty
- ✓ DC security enclosure, DC disconnecter, surge protector and grounding of the photovoltaic field

DC/AC solar hybrid air conditioner CMS18-H *including 3,3 kWp solar plant*

- ✓ Power 18,000 btu (5,0 kW) European energy class: A+++
- ✓ Air conditioning EER= 3.75 / SEER= up to 36 Electricity input: 1,32 kW
- ✓ Heating COP = 3.55 Electricity input: 1,45 kW
- ✓ DC power supply: 50V – 380V AC power supply: 230V, 1 phase, 50Hz
- ✓ Refrigerant R410A : charge 1,05 kg (precharge up to 5m)
- ✓ Refrigerant piping length: 3m Connection wiring: 4,3m
- ✓ Compressor Toshiba – GMCC Dual MPPT tracking controller
- ✓ Maximum input consumption: 2300 W Starting current: 3A
- ✓ Maximum operation temperature: 50°C
- ✓ Indoor unit: air flow 720 / 560 / 460 cbm/h
- ✓ Outdoor unit: noise level <52 dB(A)
- ✓ Dimensions WDH / weight: Ind.U: 957 x 213 x 302 mm / 9,5 kg Out.U: 835 x 320 x 540 mm / 53 kg
- ✓ 3,3kWp solar plant made up of 10x 325Wp photovoltaic modules (EU origin), 72 polycrystalline 6" cells, 25-year performance warranty
- ✓ DC security enclosure, DC disconnecter, surge protector and grounding of the photovoltaic field

Our air conditioners are delivered in complete kits, including preinstalled wiring and precharged refrigerant

(1) MPPT : MPPT controllers (Maximum Power Point Tracking) track the voltage from solar panels to maximize their output power ; The SEER rating (Seasonal Energy Efficiency Ratio) of a unit is the ratio defined in European standard to measure the energy efficiency of a unit during a complete season of air conditioning, including hottest periods as well as more favorable mid-seasons. Higher it is, more the air conditioner is cost-efficient.