



## ADVANTAGES of the reversible air conditioning system: SDCKFR18K048D



### **What is this solar air conditioning system ?**

The SDCKFR18K048D system is a ductless air conditioning system that is designed to run off a battery bank. The battery bank is then supplied power from an array of photovoltaic modules.

This solar air conditioning system is designed for off grid applications. This would include remote installation sites, areas where grid power is unavailable or unreliable, or areas where its expensive to heat or cool. This unit can also be used in applications such as small offices, data centers, or any area that needs a conditioned space.

### **Does this solar air conditioning system provide heating as well as cooling ?**

Yes. The DC18 unit provides 15,000 BTU/hr (4.4 Kw) of cooling, as well as 20,500 BTU/hr (4.4Kw) of heating.

**Is there any difference between this solar air conditioning system and a heat pump ?**

This solar air conditioning system is DC/solar powered heat pump. Nothing has been changed with the unit's heating cycle to differentiate its performance from any other high-SEER heat pump on the market.

**How many square feet can this solar air conditioning system heat or cool ?**

This depends completely on the application. Every area is different, with its own unique heating and cooling loads. This solar air conditioning system provides a specific amount of BTUs for heating and cooling. In order to know how many square feet the unit will heat or cool, you need to know how many BTUs are required to heat or cool the space where the unit will be installed.

On average, this unit can heat and cool a space of between 500 sf and 800 sf. However, this is not an absolute, and will completely depend on the building, location, and specific heating and cooling needs. A 500sf metal building in a warm climate with no insulation will require a lot more cooling capacity than an 800sf well insulated space in a cooler climate.

**What is the warranty on the unit ?**

The unit currently holds a 1-year warranty.

**What certifications does this unit come with ?**

The final units (which will be available in Q1 2011) will hold international Intertek CE certification.

**How many PV panels are needed to power the unit ?**

The amount of PV needed to power the unit will vary depending on application. The amount of battery storage, the cooling load, size of the PV modules being used, and the location of the installation site all play a part in determining the number of PV modules needed.

We recommend sizing the PV array for a minimum of 800-1000Watts. This will provide power to run the unit during the day on a medium duty cycle with a minimal amount of battery storage. The battery bank and the PV array can be increased in size to allow the unit to operate at night or other times when solar is not available.

**How many batteries are needed ?**

The battery bank must be arranged to provide 48V. We recommend using a minimum of four 12V (or eight 6V batteries). The batteries provide a consistent and steady flow of power to the unit as needed throughout the day, and also serve as backup power for when solar is not available, or

not enough to run the unit (such as during cloudy weather). The batteries must be deep-cycle type (like golf cart or forklift batteries).

**Can the unit operate with traditional on-grid (AC) power when solar is not available ?**

This solar air conditioning system is designed for off-grid applications. The unit itself runs off DC power, and photovoltaic modules produce DC power. Therefore, using Solar Panels or other native DC source to run the unit is the most efficient way to operate the unit. However, it is possible to charge the bank of batteries with on-grid (AC) power with additional equipment.

**Is there a larger capacity unit available ?**

Currently the only unit available is the 15,000 BTU/hr (4.4Kw) system. However, more units will be available in other sizes at a later date.

**Where can I purchase this solar air conditioning system ?**

Units are available through our network of Authorized Dealers. Many of these dealers also offer installation services. If you are interested in becoming an Authorized Dealer yourself, please contact us.

**What is the advantage of this solar air conditioning system compared to using a normal air conditioner or heat pump with solar ?**

This solar air conditioning system is designed to run on DC power so there is no power loss caused by using an inverter. There is no inverter inside the unit. Further, This solar air conditioning system is a variable-capacity, variable refrigerant flow system meaning that based on temperature and heat transfer at various point in the system, This solar air conditioning system can dynamically re-size its capacity in real time to meet the demands of the moment. For example, at a time when 18,000 BTU is not needed, the system can adjust its capacity between 5,000 and 15,000 BTU as needed, and when operating at a lower capacity the unit will use correspondingly less power.

**What qualifications are needed to install this solar air conditioning system ?**

They are exactly the same as the qualifications needed to install a conventional air conditioning system.