

# **DC Solar Ready**



## **Every HySecurity Smart DCS operator is designed specifically for Solar applications**

Smart DC solar operators are most often used in locations where AC power supply is not economical or is completely unavailable. HySecurity's electromechanical line of slide, swing, barrier and wedge operators are all have DCS models, perfectly suited for Solar applications.

### **HySecurity benefits:**

- HySecurity Smart DC gate operators utilize the latest in MPPT technology. This allows the gate operator to squeeze the most amount of energy out of the solar panels as possible.
- A 50Ah battery option which provides six times the storage capacity of the standard batteries and supports more peripheral connections.
- Long lasting permanently sealed AGM-type batteries which need no maintenance over their life span.
- Storage of User and Installer menu configurations in non-volatile memory (EEPROM). Menu settings are saved if a power loss occurs and reinstated once power is restored.
- Batteries are protected from over-discharge by a low voltage sensing circuit.
- Smart DC Solar operators are *designed* for solar.



### **Design requirements and considerations**

Two standard 8Ah batteries are supplied and nominally support up to 100 cycles per day based on the following:

- Battery storage capacity based on 5 solar hours per day
- 40 watt solar panel system (minimum requirement)
- A gate weight of 750 lbs (340 kg) and gate length of 12 ft (3.7m)
- Connection to two Hy5B and one multi-code radio receiver



# HySecurity Smart DC Solar Operators



## Sizing your solar system is critical to project success

Solar hours are not the same as daylight hours. When using solar panels, one solar hour equals 1000 Watthours (Wh) per square meter of solar panel per day. The number of amps that the peripherals draw coupled with the gate travel occurring throughout the day determines the **solar panel size** needed and throughout the *night* determines the **battery capacity** required.

The following site characteristics must be accurately estimated:

- Gate operator model
- Size and weight of the gate or barrier arm
- The largest number of complete gate cycles per day

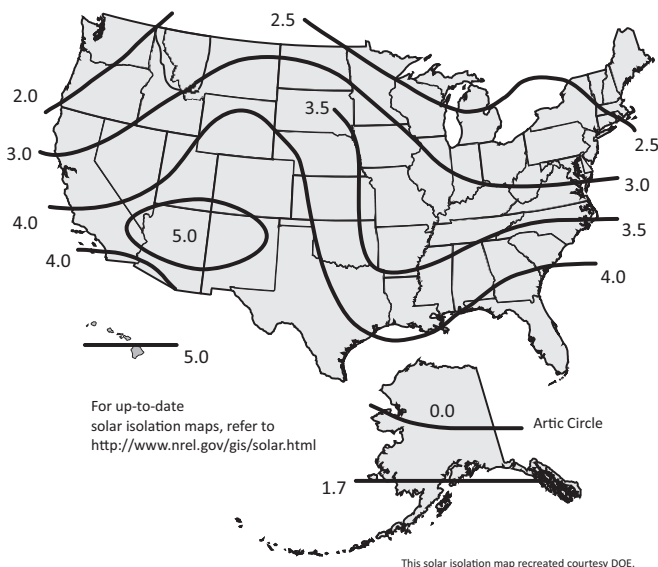
- The number of daily solar hours received on an optimally tilted surface during the darkest months of the year
- Impediments to the sun's rays reaching the solar panels
- Other system supported loads (access controls, vehicle detectors, radio receivers or transmitters, etc.)

Once base calculations are determined, one can increase the number of gate cycles per day by increasing the size and number of solar panels and/or the batteries.

Visit [hysecurity.com](http://hysecurity.com) for solar site calculator, battery sizing, designing for solar tips and more.

## Understanding Gate Activity Based on Solar Zones

Four Week Average, December 7 - January 4



The chart is based on a 20 Watt (24VDC) solar panel system with SwingSmart DCS powering a 12 ft (3.6 m), 750 lb (340 kg) gate with the following peripherals attached:

- One low current multi-code radio receiver
- Two Hy5A vehicle detectors

The number of amps that the peripherals draw coupled with the cycles of operation occurring throughout the night determines the battery capacity required.

The number of amps that the peripherals draw coupled with the cycles of operation during the day, determines the solar panel size needed.

NOTE: HySecurity provides a 50Ah battery option for sites where more peripherals may be attached or inclement weather is an issue. For sites of this nature, consider a 40W system. A 40W system increases the capacity shown in chart.



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