Solar Motor Controller

w optional Battery-Grid-GenSet



# Hybridized power for three-phase AC motors and pumps Use solar-only or the most cost effective mix of solar, battery, grid/genset sources

SMC-Series Solar Motor Controllers run any standard three-phase AC motor using standard solar panels (with or without batteries), or a combination of battery, grid or genset sources<sup>\*</sup>.

Model: SMS-SMC00020

The 2.0HP controller includes useful features that eliminate common conditions of heat and stress that cause motors to fail: soft-start with torque management, auto-restart, speed and torque control, temperature management, overload and over-voltage protection.

Advanced and proprietary features, intelligent management of the energy input sources, field selectable settings and remote monitoring produces clean, digital AC power – practically eliminating electrical/electromagnetic noise and harmonics – which dramatically improves motor performance.

Use solar only or multiple power inputs (solar, battery, grid or genset) to power three-phase AC motors. The SMC produces uninterrupted, pure sine wave digital AC power – irrespective of the source.

## Solar powers' problem is not a problem here

As solar input power fluctuates (dawn, dusk, shadowing), the SMS controller recalculates for the compensated run sequence, automatically adjusts the motor at a revised speed and torque (slip management) based on the available light – reducing start/stop cycles and extending motor life. When sunlight falls below the critical minimum the motor shuts down and automatically restarts when light resumes – or can draw power from batteries, the grid or generator.

In low light conditions, when other systems fail to start or simply shut down – an SMC controlled motor keeps running and automatically adjusts for maximum performance at the programmed run sequence.



Conventional Solar Panels \*Accepts multiple panel configurations



Solar Motor Controller Three-Phase High Voltage (208v/230v)



Three-Phase AC Motors/Pumps Cooling Fans/Circulation Fans Condensers/Compressors/Pumps

## Prioritize your least cost energy sources. Control and monitor from anywhere.



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## **Solar Motor Controller**



### **Features**

- Drives ANY Three-Phase AC Motor (Delta mode)
- Use Any Standard PV Solar Panels
- Soft Start Technology (with Torque Management)
- Speed and Torque Control
- Programmable Acceleration/Deceleration Sequence
- Reversible
- Increased Motor Life
- Temperature Management
- Overload and Over Voltage Protection
- Light weight transformer-less design with low parasitic power loss.

**2.0HP/1.5kW** 

Model: SMS-SMC00020-OGC

# These Common 'Add Ons' Are Built-in

- Power Booster, Rectifier, Inverter and VFD controller
- MPPT (Multi Power Point Tracking)
- The Internet of Things (IoT) connectivity
- Digital Signal Processing produces clean AC power, practically eliminates electrical/electromagnetic noise and harmonics to dramatically improve performance and extend motor life.
- High Frequency Booster technology automatically adjusts the motor for maximum performance and runtime as input power fluctuates (dawn, dusk and shadowing).
- Battery Charge Controller (optional module)
- Grid switch or Differential Source Balancing (optional module)

# Solar Motor Controller Modules

Optional features add predictable motor operation even when the sun is not shining:

- > Battery Power Battery Interface (Charge Controller) module. Intelligent charging = longer lasting batteries. Configurable runtime. Supports standard battery systems.
- > Grid/GenSet Switch Switch between power sources (solar and grid or genset) for anytime operation. Prioritize your best energy mix. Avoid higher time-of-use charges from your utility provider.
- > Grid/GenSet Source Balancing Differential Source Balancing enables 100% utilization of solar and dynamically feeds only the deficient power from other sources, maximizing energy savings.
- > Grid/GenSet + Battery Differential Source Balancing with Battery Interface (Charge Controller) enables anytime operation and maximum control of use of utility power.

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# **Specifications**

Operating Voltage (V) 42-60 Operating Frequency(Base Freq) 60Hz Maximum Power (Pmax) 2000W Power Tolerance +/-5%Nominal Output Power 2000W Rated Grid AC Voltage 110/220 Maximum Output Power 2200W

sölar motor sustems

dawn to dusk

Intelligent power

### Input Side (DC)

Min No. Solar Panels (300w) 2 Panel Combinations Series Peak Sun Hours 4 IP Volt Range 42 - 60V Max Usable DC Input Power 2000W Max PV Panel Rating (STC) 2400W Absolute Maximum Voltage (max) 88V Start-Up Voltage (Vstart) 42V

#### **Input Protection Devices**

- Reverse Polarity Protection No
- Anti-Islanding Protection No
- **Over-Voltage Protection Type Yes**

#### Output Side (AC)

Power Required for Motor 2611W Grid Connection Type 1Ø,3W Adjustable Voltage Range Auto Nominal Grid Frequency 50/60Hz Power Factor (PF) 0.9

### Efficiency

Maximum Efficiency 88

**Operating Performance** 

Stand-by Consumption 2-5W

Environmental

Ambient Air Operating Temp Range 15 - 48°c

### **Mechanical Specifications**

Enclosure Rating IP54 **Cooling Natural** Insulation Class B Dimensions H x W x D(mm) 185x250x75 Mounting System Wall Mounting Corrosion Resistant Yes Wiring Box Yes

#### **Connection Specifications**

DC Connection (Panel to Controller) mc4 AC Connection (Controller to Device) powercon Termination Method open frame Grid Wiring Termination Type 10,3W

Safety Safety and EMC Standard Compliant

Specifications subject to improvement without notice



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