

PicoCell 1/3 - 2 HP Solar Pump Controller

PRODUCT HIGHLIGHTS

- Run single phase AC motor off of Solar PV without batteries
- Run single/three phase AC motor with same size Solar PV as BLDC motor
- Eliminates need for control box for 3 wire single phase AC motor
- Universal unit – single/three phase, 50 or 60Hz, 120V or 230Vac
- Small size fully enclosed unit with passive design – no moving parts
- Works with or without battery bank
- WiFi, Cellular and LoRa communication modules are optional
- Operating status conditions indicated by multicolor LEDs
- Soft-start feature to increase pump and system life

DESCRIPTION

PicoCell replaces traditional electromagnetic design concepts with high voltage silicon and patented adaptive firmware. This drives a dramatic reduction in size and complexity. One small device now incorporates and integrates the functionality of an inverter, VFD, MPPT controller, phase initiator and voltage boost in a form factor the size of a tissue box.

One universal SKU can power any motor, pump, compressor or other load regardless of whether it is single or three phase AC, 50 or 60Hz, 120 or 230VAC. Designed to handle remote off-grid installations, the all aluminum chassis is IP65 rated for harsh outdoor environments and can operate in high temperatures, humidity and corrosive environments.

PicoCell supports up to 2 digital and 4 analog sensor inputs allowing for a variety of sophisticated installation scenarios. Optional WiFi, Cellular, and LORA communication modules facilitate ease of integration for IoT and data analytics applications.



TECHNICAL SPECIFICATIONS

ELECTRICAL

MPPT operating voltage: **100-380V**
 PV panels open circuit voltage: **400V**
 Minimum operating PV voltage: **100V**
 Maximum PV panel current: **9A**
 Single phase AC motor power: **1.5HP**
 Three phase AC motor power: **2HP**

Over current, overvoltage and over temperature protections
 Optional: WiFi, cellular or LoRa communication module

MECHANICAL

Degree of protection: **NEMA4/IP66**
 Enclosure material: **Aluminum**
 Operating temperature: **-40°C to 50°C**
 Dimensions: **10"x5.5"x4"**
 Solar terminal: **AWG#10-14**
 Motor terminal: **AWG#10-14**
 Sensor terminal: **AWG#14-18**
 Cooling: **Passive/no fan**

SOLAR ARRAY CONFIGURATOR

Nominal Pump Power	Nominal Pump Current			Recommended solar PV module specification		
	1-ph; 120Vac	1-ph; 230Vac	3-ph; 200-240Vac	Recommended PV power	Minimum MPP Voltage	Abosulte Maximum Open Circuit Voltage
HP	Amps	Amps	Amps	Watt	min Vmpp	max Voc
1/2	6.0	3.0	-	750-1000*	115	400
3/4	9.0	4.5	-	1000-1200*	115/165*	400
1	12.0	6.0	4.0	1200-1500*	115/165*	400
1 1/2	-	9.0	6.0	1500-2000	165	400
2	-	-	8.0	2000-2500	165	400

* Half the solar PV panels than using industrial variable frequency drive (VFD)

TYPICAL APPLICATIONS

- Crop irrigation
- Livestock watering
- Pond aeration & fountains
- Aquaculture
- Solar hot water
- Produced & salt water evaporation
- Village & residential drinking water
- Portable solar generators

OPTIONAL ACCESSORIES

- Float switch for well pumps and tank overflow
- Auto transfer switch for generator and power grid assist operation
- Analog sensors adapter board
- Communication module with web services
- Pumps
- Solar PV panels