PEARL SOLAR

OASIS
ONE

Solar Powered Pumps Solutions

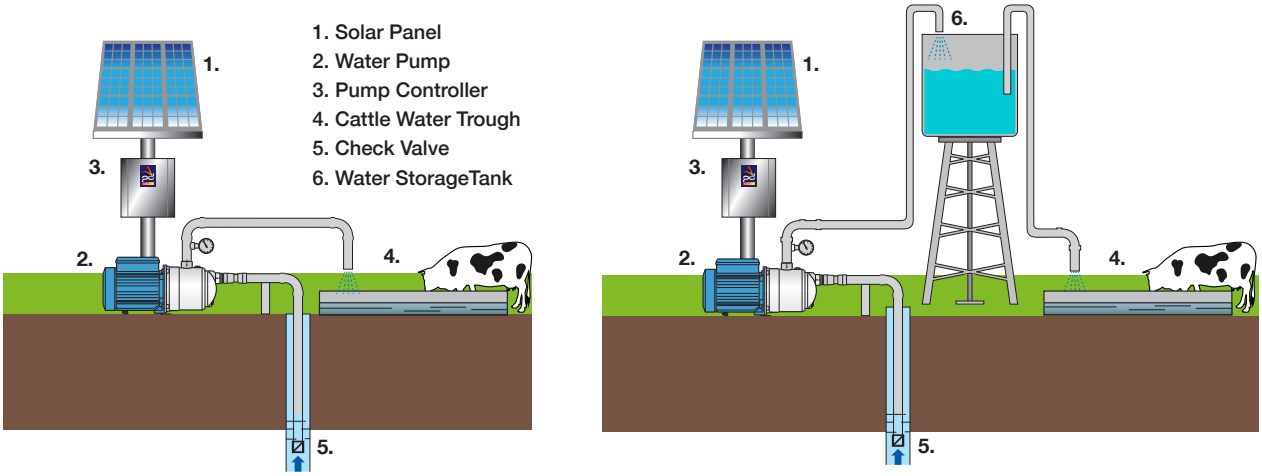
OASIS ONE PACKAGE

Our solar group provides a skilled team with solar expertise combined with water pump specialists, logistics and knowledgeable sales support personnel to assists you in specifying the best system that is suitable for your project.

PD Solar's ultimate goal is to provide various Plug-&-Play Systems that can be easily installed and commissioned. But we also can provide many customization options to meet your specific application requirements.

PD Solar provides full design and engineering support to offer the best and optimal solution that meets your needs.

The complete system solutions includes float switch input with 25 ft cable, terminals and contacts.



1. THE SOLAR PANEL

PD Solar designs your system based on the most cost effective turnkey solar array to power the water pump stations. Depending on the pump size, our design team specifies the optimal solar module with power output to match the pumping and geographical location requirements.

Our solar modules deliver superior power output in a variety of temperature and irradiance conditions, and the self-cleaning anti-reflective coated glass reduces soiling to help maximize power output. Performance is backed by the manufacture's 25-year linear production warranty.

Qualifications & Certificates
UL 1703, CEC

In the application with solar panel, the MPPT (Maximum Power Point Tracking) function by the PD Solar Controller maximizes the solar panels' power for various conditions of radiation and temperature. When radiation grows, pump increases the rotation speed as well as the water flow.
When radiation decreases (presence of clouds or different hours of the day), pumps reduces the speed and thus the water flow but still provide water until the radiation falls below the minimum value to ensure the operation.

2. THE PUMP

PEARL MXA

Extra safety against running dry with the suction port above pump axis.

Robust single-piece barrel casing.

Compact single-piece lantern bracket and base.

Low noise with the water-filled shroud around the stages.

Operating Conditions

- Liquid temperature: 32 °F to 95 °F.
- Ambient temperature up to 104 °F.
- Maximum permissible pressure in the pump casing: 116 psi.
- Continuous duty.

Construction

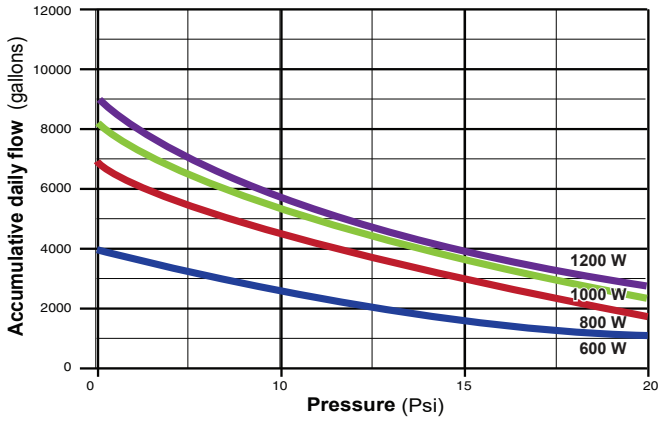
- Horizontal multi-stage, self-priming, close coupled pump.
- Single-piece barrel casing in chrome-nickel stainless steel, with front suction port above pumps axis and radial delivery at top.
- Stages in Noryl.
- Connections: threaded ports NPT.

Motor

- 2-pole induction motor, 60 Hz (n ≈ 3450 rpm).
- Three-phase 230/460 V.
- Insulation class F.
- Protection IP 54.

Performance Curves

MXA20 05



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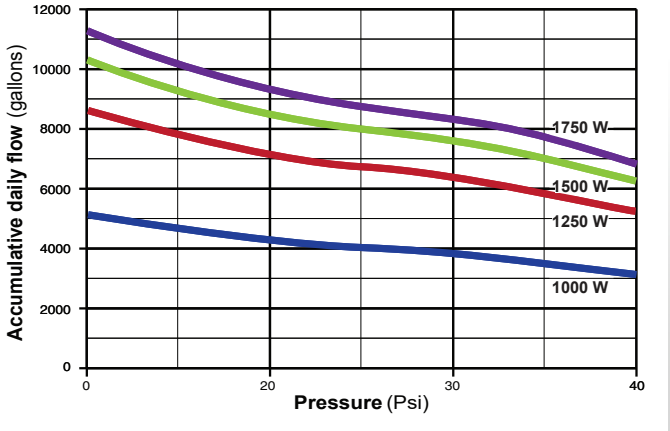

Acummulated daily flow vs. pressure for Florida at different solar PV capacity.

OASIS ONE

3. THE PUMP CONTROLLER

SUN-DRIVE I - Off Grid Solar Pump Controller

- Run single phase AC motor off of Solar PV without batteries.
- Run single/three phase AC motor with same size Solar PV as Brushless DC motors.
- 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.

SUN-DRIVE I 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.

SUN-DRIVE I 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.

ELECTRICAL	
MPPT operating voltage	100-380V
PV panels open circuit voltage	400V
Minimum operating PV voltage	100V
Maximum PV panel current	9A
Over current, overvoltage and over temperature protections	
Optional: WiFi, cellular or LoRa communication module	

Environmental:
Compliance with IEC 60068
IEC 60068-2-2 Cold; IEC 60068-2-2 Dry Heat; IEC 60068-2-14 ΔT
IEC 60068-2-30 – Damp Heat

MECHANICAL	
Degree of protection	NEMA4/IP66
Enclosure material	Polycarbonate
Operating temperature	-40°C to 50°C
Dimensions	13.85”x12.07”x5.94”
Solar terminal	AWG#10-14
Motor terminal	AWG#10-14
Sensor terminal	AWG#14-18
Cooling	Passive / No fan

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