

MSME

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Solar Pump Controller

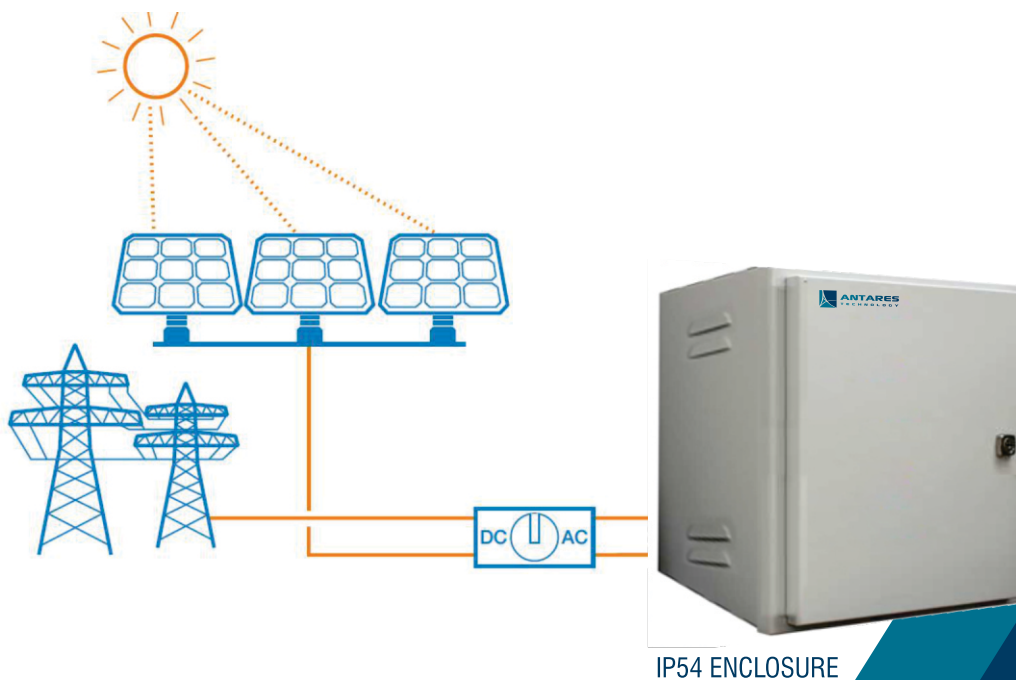
Fully automatic system using variable speed drive compatible with AC, 3-phase, submersible and surface mount pumps, and high efficiency PMSM Pumps. The system is composed of a PV generator, a pump and a solar pump drive. Based on the design philosophy that it is more efficient to store water rather than electricity, there is no energy storing device such as storage battery in the system. The system is prepared to be combined with a elevated water storage, e.g. water tower or an uphill tank installation.



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Solar Pump Controller with MPPT for PMSM and AC Pump/Motor

: Solar pump system introduction :

Solar Pumping system becomes more and more popular, it can be applied to daily (underground water), agriculture irrigation, forestry irrigation, desert control, pasture animal husbandry, water supply for islands, wastewater treatment engineering , and so on. In recent years, with the promotion of the utilization of new energy resources, solar pumping systems are more and more used in municipal engineering, city center squares, parks, tourist sites, resorts and hotels, the landscapes and fountain systems in the residential areas. This system is composed of a solar array, a pump and solar pumping inverter, or GPRS remote control model. Based on the design philosophy that it is better to store water than electricity, there is no energy storing device such as store battery in the system.

The solar array, an aggregation of many solar modules connected n series and parallel. Absorbs sunlight radiation and converts into electrical energy, providing dynamical water for the whole system. The pump inverter controls and adjusts the system operation and converts the DC produced by solar array into AC to drive the pump, and adjust the output frequency in real-time according to the variation of sunlight intensity to realize the maximum power point tracking(MPPT). The pump, drive by 3-phase AC motor, can draw water from the deep wells or rivers and lakes to pour into the storage tank or reservoir, or directly connect to the irrigation system, fountain system, etc. According to the actual system demand and installation conditions, different types of pump such as centrifugal pump, axial flow pump, mixed-flow pump or deepwell pump can be used.

System connection and commissioning.

Compatible with DC power and AC grid input.

Note*: Only allow one power source input at a time.

1. Connect DC power Positive (P) and Negative (N) terminals to input R, T terminals of drive.
2. Connect output U, V, W terminals of drive to 3 phase AC pumps. (Not drive for DC pumps and Single AC pumps).
3. Connect remote controller GPRS module (option) if need remote monitor controlling function.
4. IP54 solar pump drive cabinet customization make is available including(AC/DC switchover, AC and DC breaker..),

How does it work ?

An arrays of solar panels generates the power and voltage required for the ANTARES Solar inverter to drive the motor. The solar drive converts the DC voltage input to a 3-phase AC output with variable voltage and frequency. The MPPT algorithm of solar drive extracts maximum power available from the solar panels during the day and operates the motor at variable speed based on the power input to the drive. The frequency range in which the drive operates depends upon the motor speed, hydraulic system and the power available from the solar panel. As the sunshine varies during the day, power input to the drive varies and the Solar drive generates variable V/F ratio thus controlling the speed of the motor, which in turn regulates the pump impeller speed. Water Level Sensor is used only when the water is pumped to overhead tank.

Remote Monitoring System (RMS)

With the help of our new developed GSM Remote Monitoring module user can monitor and control (optional) his system remotely from all over the world just with the help of internet.

Features

- Remotely control ON/OFF the system (optional)
- Remote Monitoring of parameters possible
- Parameters like frequency, flow, total flow, O/P Voltage, o/p current, input Voltage, input current, power can be monitored on the screen of your PC/Laptop & Mobile with help of just installing a application.
- Hourly, Weekly, Monthly and yearly report generation can be possible with the extended software
- SD card post and Bluetooth

Main Features of solar pump system :

Low carbon economy
In-built MPPT with high efficiency
Pump specific protection
Remote monitoring
Best off grid solution
Perfect stable frequency output

APPLICATIONS :

1. Ground water lowering,
2. Irrigation systems
3. Industrial Application
4. Drip irrigation & sprinkler
5. Tank/ cistern filling
6. Wildlife refuge
7. Rural water supply for ranches, cabins, and cottages
8. Fountains.



TECHNICAL DATA SHEET FOR 415VAC Submersible and Monoblock pump

Capacity of solar pump controller	1 HP	2 HP	3 HP	5 HP	7.5HP	10 HP
Input Voltage Range (Solar PV) Note : you ca give 10 % more power as per MNRE guideline (in 7.5 HP we already consider 10% more power)	300/ 320 watt * 4 solar panel	300/320 watt * 6 solar panel	300/320 watt * 10 solar panel	300/320 watt * 16 solar panel	24 solar panel 300/ 320watt (12*12)	30 solar panel 300/320 watt (15*15)
	1200 watt 144 Vmp 176 Voc 8.3 Amp	1800 watt 216 Vmp 264 Voc 8.3 Amp	3000 watt 360 Vmp 450 Voc 8.3 Amp	4800 watt 576 Vmp 704 Voc 8.3 Amp	7392 watt 432 Vmp 528 Voc 16.6 Amp	9000 watt 540 Vmp 660 Voc 16.6 Amp

Output Voltage / output current	3 phase ~ 0-110 Vac 8 amp	3 phase ~ 0-160 8 amp	3 phase 0-230 10 amp	3 phase ~ 0-380 Vac 10 amp	3 phase ~ 0-300Vac 17 amp	3 phase ~ 0-380 Vac 17 amp

Output Frequency	For AC Solar Pump 0-50 hz / For DC Solar Pump 0-110 hz
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Model No.		AT - 7R5G- 3 -F	AT - 11R - 3 -F	AT - 15R - 3 -F	AT - 18R - 3 -F
DC Input	Technical Data	For 10HP 415V _{AC} Pump	For 15 HP 415V _{AC} Pump	For 20HP 415V _{AC} Pump	For 20HP 415V _{AC} Pump
	Input Power	10000Watt	15000Watt	20000Watt	25000Watt
	Max Input DC Volotage	800V _{DC}			
	Recommended MPPT Voltage	300-750V _{DC}			
	MPPT Efficiency	99%			
AC Output	Applicable Motor Output Power	7.5 kW/10 HP	11 kW/15HP	15 kW/ 20HP	18 kW/ 25HP
	Rated Output Voltage	0-415V _{AC} , 3PH			
	Output Frequency	0-50Hz			
	Output Current	17 Amp	25 Amp	32 Amp	37 Amp
Mechanical Data	Dimintions (W x H x D)	Pole Mount	Pole Mount	Pole Mount	Pole Mount
		500 X 510 X 280 (in mm)			

Controller Specification may change without notice due to continus updation in technology

Additional Features of AT Solar pump controller : (TUV, UL & ERDA TESTED - 3 TO 10 HP)

System	Max. Efficiency	97%
	Protection Degree	IP 54 Tested
	Environmental Temperature	-10°C to 50°C
	Cooling Method	Air/ Fan Cooling
	Display	LCD
Protection Test as per MNRE	Dry Run Protection	Available
	Over Voltage, low voltage, phase loss	
	Over Load, short circuit, open circuit	
	Reverse Polarity Protection	