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**Vitronics
Controls**

An ISO 9001- 2008
Certified OEM Company

Bringing Reliable Water Supply with Solar Water Pump Solutions



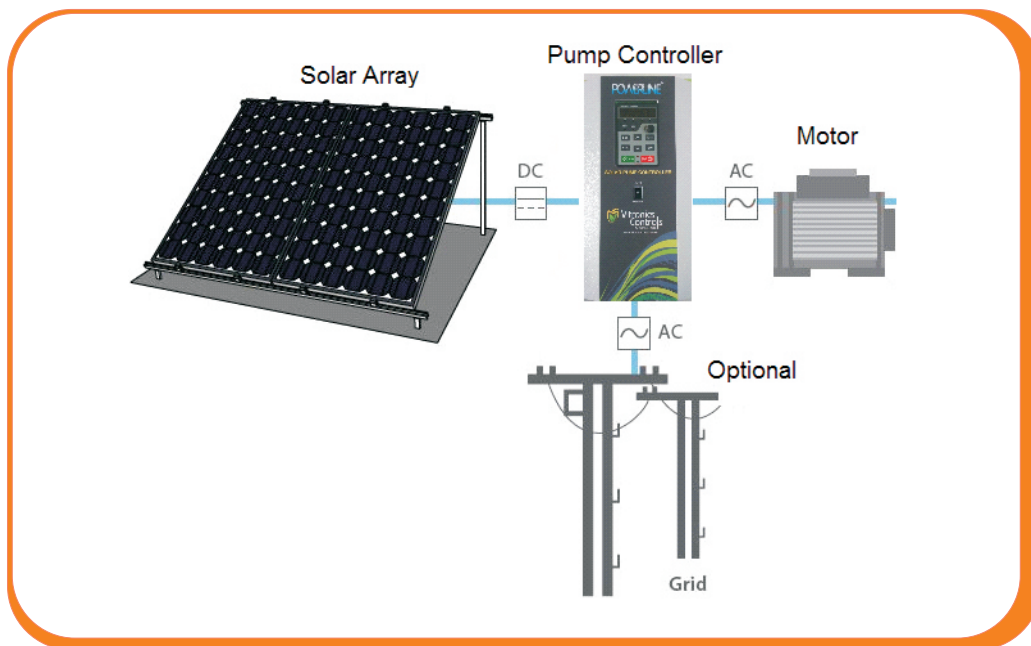
**SOLAR
PUMP SYSTEM**

WHAT IS A SOLAR PUMP

A solar pump is an application of photovoltaic technology which converts solar energy into electricity to run motor and pump. The motor powered by solar energy draws water out of borewell, river, lake or pond

SOLAR WATER PUMP WORKING PROCEDURE

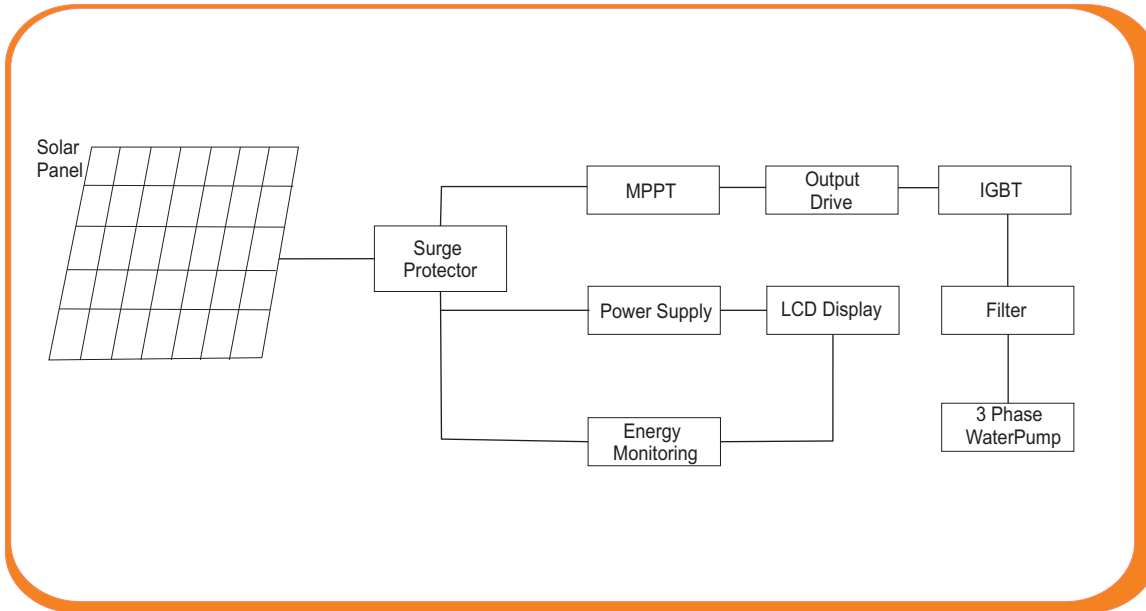
The photo-voltaic cells in solar modules convert sunlight into Direct Current (DC) electrical energy. This energy is fed to the pump via Pump Controller in case of DC pump or via Variable Frequency Drive (VFD) in case of AC pumps (VFD converts DC into Alternative Current (AC)). Pump system is a combination of an impeller and a motor; the impeller propels water movement and the motor drives the pump. The water is propelled out of the borewell/ river/ lake/ pond through the pipe; water can then be fed to the fields for irrigation and other purposes. Water output varies during the day with varying solar irradiance.



BENEFITS OF SOLAR PUMP

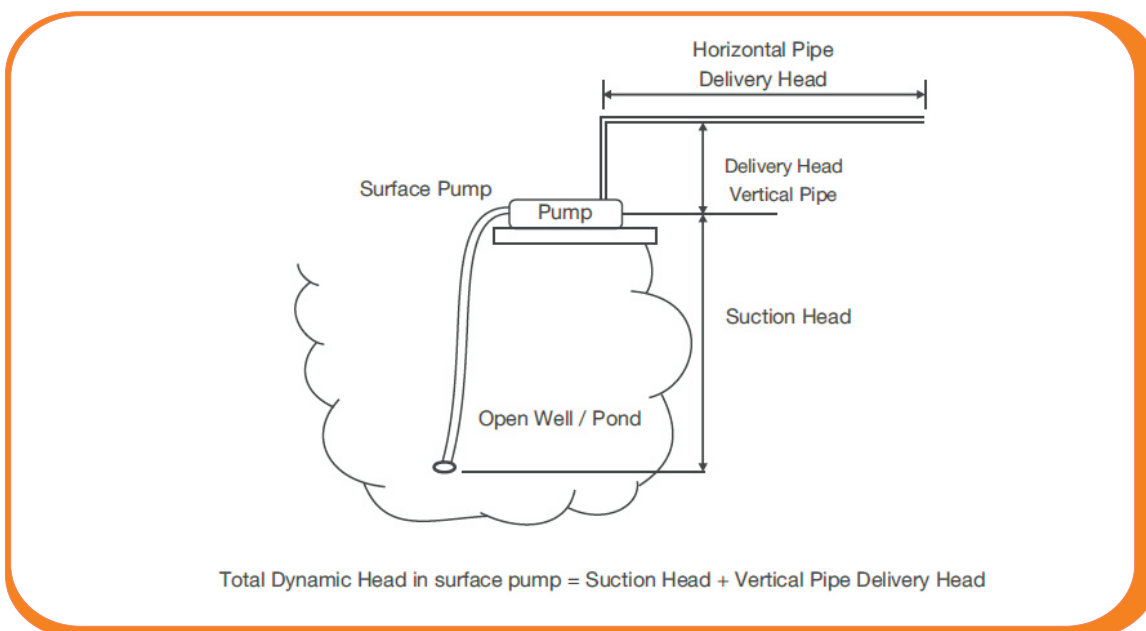
- Water output across all seasons to cultivate multiple crops every year
- One time investment and then zero running cost (free sunlight) for many years to come
- Easy for farmer to cultivate the land during day time rather than night time when grids are erratic
- Drip and sprinkler systems can be connected with solar system to further improve crop yield
- Solar system needs no maintenance except regular cleaning of the modules - no consumables easy to operate
- Non dependency on conventional energy (fuel and electricity)
- Contribution in reduction of carbon emission, contributing to reduction in pollution
- Un-interrupted supply for irrigation during day time.
- Highly reliable and trouble free performance
- High efficiency & Eco friendly
- Accessibility in remote areas

SOLAR WATER PUMP CONTROLLER BLOCK DIAGRAM

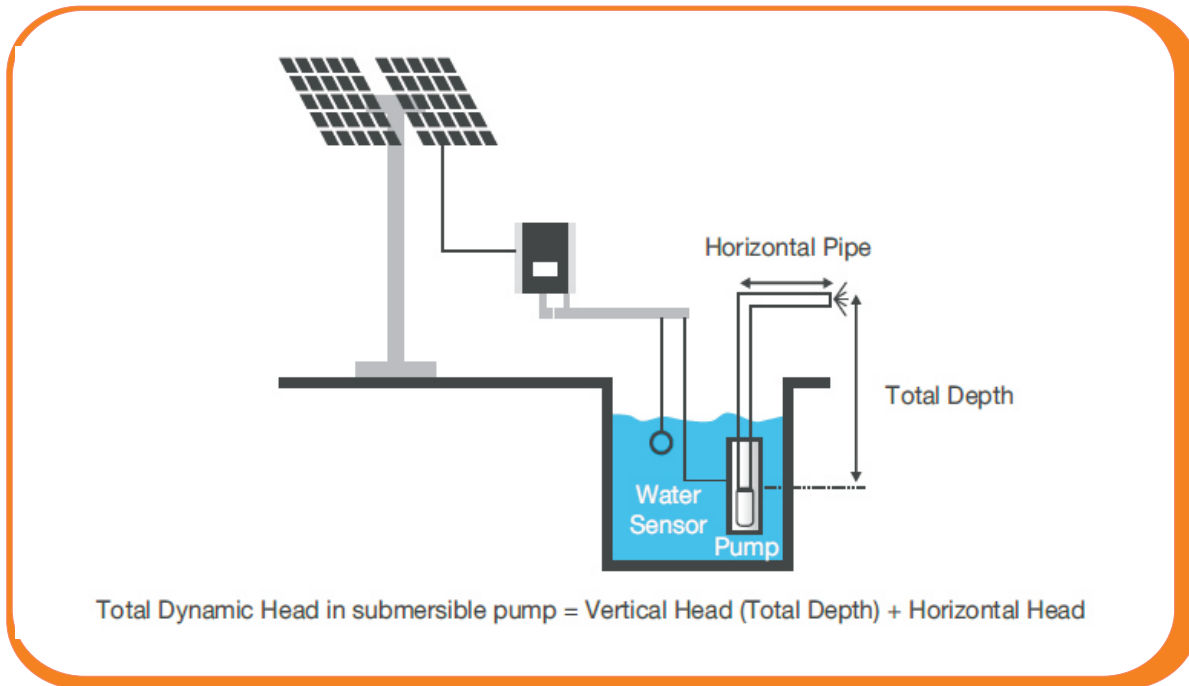


Solar water pump controller is designed to run water pump motors with PV modules input without grid connection. This controller has an option to run with both solar module and grid connected supply. Rural INDIA, the agricultural heartland of the country, is plagued by a severe electricity deficit. On the other hand the country receives enough sunlight in a year to meet all its energy needs. To meet electricity shortage and solar energy utilisation, we designed an innovative solar motor pump controller to fit all motor pump manufacturers.

SURFACE PUMP SCHEMATIC



SUBMERSIBLE PUMP SCHEMATIC



Technical Specifications

Pump Controller	Operating Voltage DC Vtg	Modules Required Panel	Module Combination	VOC of each Module
1 HP 3 Ph 110V	150-300	1000-1200 Watt	300WX4No.	42-45V
2 HP 3 Ph 160V	200-350	2400 Watt	300WX8No. String of 12 Panel	42-44V
3 HP 3 Ph 220/260V	300-400	3000 Watt	300WX10No. 1 String of 10 Panel	42-44V
5 HP 3 Ph 415V	500-700	5200 Watt	320WX15/16No. 1 String of 16 Panel	42-44V
7.5 HP 3 Ph 415V	500-700	7500 Watt	250WX30/32No. 2 String of 15/16 Panel	42-44V
10 HP 3 Ph 415V	500-750	10400 Watt	320WX32No. 2 String of 16 Panel	42-44V
15 HP 3 Ph 415V	500-750	15600 Watt	320WX48No. 3 String of 16 Panel	42-44V
20 HP 3 Ph 415V	500-750	20800 Watt	320WX64No. 4String of 16 Panel	42-44V
25 HP 3 Ph 415V	500-750	25600 Watt	320WX80No. 5 String of 16 Panel	42-44V

Technical Specifications - 220 V Three Phase

Input specification	
Maximum Input DC Voltage	400VDC
Recommended Voc Range	320~370VDC
Recommended MPPT Voltage Range	250~350VDC
Starting Voltage Range	120~400VDC
Grid or backup generator input	
Input Voltage Single phase	220V(-15%~30%)
Output specification	
Rated output voltage	3PH 220V
Output frequency	0~600.00Hz(Default 0~50.00Hz)
Protection	
Built-in Protection	Lighting Protection, over-current, overvoltage, output phase-lose, under-load, under-voltage, short circuit, overheating, water pump run dry etc
General Parameters	
Application Site.	No direct sunshine, no dust, corrosive gas ,combustible gas ,oil mist steam ,dripping or salinity etc.
Altitude	0~2000 m Derated use above 1000m,per 100m, the rated output current decrease 1%.
Env.Temperature	-10°C~40°C (Environment Temperature be 40°C~50°C, please keep derated use.)
Humidity	5~95%,non-condensation
Vibration	less than 5.9 m/s 2 (0.6g)
Storage Temperature	-20°C~+70°C
Efficiency	Rated Power Run 93%
Installation	Wall or rail mounting
Cooling	Forced Air Cooling
Protection Grade	Ip20

Technical Specifications - 415 V Three Phase

Input specification	
Maximum Input DC Voltage	800VDC
Recommended Voc Range	500~700VDC
Recommended MPPT Voltage Range	450~600VDC
Starting Voltage Range	250~400VDC
Grid or backup generator input	
Input Voltage Single phase	Three Phase 380V(-15%~30%)
Output specification	
Rated output voltage	3PH 380V
Output frequency	0~600.00Hz(Default 0~50.00Hz)
Protection	
Built-in Protection	Lighting Protection, over-current, overvoltage, output phase-lose, under-load, under-voltage, short circuit, overheating, water pump run dry etc
General Parameters	
Application Site.	No direct sunshine, no dust, corrosive gas ,combustible gas ,oil mist steam ,dripping or salinity etc.
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