



SOLAR PUMP MPPT CONTROLLER







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A MECWIN Solar MPPT (Maximum Power Point Tracking) controller is a crucial component in a solar photovoltaic system. Its primary function is to optimize the power output from solar panels by continuously adjusting the operating voltage and the current to ensure the panels operate at their maximum power point (MPP).



Overview



-  Mecwin solar pump MPPT drives is a high efficiency controller Designed and Made in India.
-  The drives available in the following modules .
-  1HP,3HP,5HP,7.5HP,10HP Drives for pumps using PMSM.(Permanent Magnet Synchronus Motor) (DC Motor) designed for solar application.
-  1HP,3HP,5HP,7.5HP,10HP Drives also available for pumps using Induction motors (AC Motors) designed for solar application.

Features and Benefits :



- MECWIN Solar Pump MPPT Controller is a high efficiency controller designed & Made in India.
- The controller available from 1HP to 10HP for DC/AC motor designed for solar application.
- The controller have in build MPPT to optimally use solar power for better Pump Performance.
- The controller incorporate smart protect for higher reliability and long operational life.
- Thermal overload shut down to avoid damage to the controller.
- SPD and DC circuit breaker provide in the controller.
- Controller supports RS485 and MODBUS RTU interface.
- RMS ic capable of MQTT or HTTP data uplinks implementations.
- Extensive protection and monitoring of various parameters of operation.
- Tested as per MNRE and ICE requirements .
- IP67 Enclosure.

Advanced Motor Control






- High efficiency with advanced hybrid motor control.
- Synchronous drive control.
- Minimal reactive power consumption resulting in higher efficiency.
- Higher efficiency across the range of motor speed and pump output head.








Better Pump Output Per available Solar Watts.

- Higher efficiency and better MPPT tracking.
- Higher motor RPM possible at a given available power compared to alternative drives.
- The pump starts earlier in the day and delivers longer.
- The drive help to run motor in cloudy condition .

Oversizing array will not affect drive :

-  Possible to over size array is desired .
-  Mecwin drive will safety limit output power as per the Motor's limit .
-  Drive will limit maximum current to the motor as per configured value.

Extensive protection prevent catastrophic failures of the Motor/ Drives.

-  The drives incorporate smart protection for higher reliability and long operation life .
-  Short circuit / Inter- Phase fault of motor.
-  Phase open / PV reverse / PV short
-  Dry run detection and stopping of motor.
-  Pump clogging and high torque current drawn.
-  High temperature auto back off.
-  Tank full sensors connection.

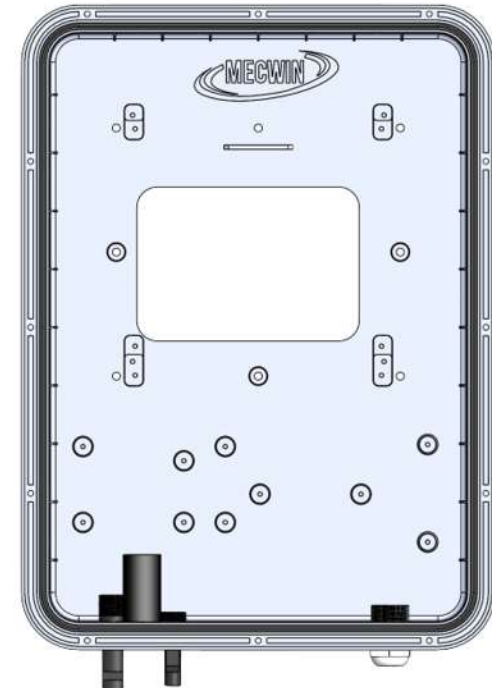
IP67 Enclosure with housing for RMS and other accessories

- IP67 rated Plastic enclosure for drive. And long operation life.
- NO FAN Design : No moving parts - Longer Life .
- Space for DC,MCB,SPD, and RMS in the enclosure.
- No need for additional enclosure to house various accessories.



Integrated Communication

- The drive support Modbus (Over RS485)
- Various Parameters can be monitored remotely.
- Possible to remotely access and control the device.
- Secure, encrypted Firmware can be delivered to the device for Remote over the firmware upgrade.



Specification - Key Parameters :

Sl.No	Capacity		Voltage Range (V)	Input Max.Current (A)	Vmp Voltage Range	Max. DC Input Power (W)	Output Voltage	Output Frequency (Hz)
1	1HP	0.75kw	110 - 150	10	90 - 120	1200	90	50/110
2	2HP	1.50kw	160 - 200	12	120 - 150	2200	120	50/110
3	3HP	2.20kw	230 - 300	13	160 - 190	3300	160	50/110
4	5HP	3.75kw	380 - 450	15	232 - 280	5500	230	50/110
5	7.5HP	5.50kw	500 - 700	15	330 - 380	7800	330	50/110
6	10HP	7.5kw	600 - 800	15	380 - 480	9400	380	50/110

Specification - Key Parameters :

1	Type of Motor	PMSM / Induction
2	MPPT efficiency	> 99.9%
3	Output frequency range	20Hz- 110Hz
4	Drive efficiency	> 98% Typ
5	Temperature	Ambient Max 50 Deg C
6	Indication	[1] LED 7 Segment X 5 Display for Motor and Solar parameters like Power, Voltage, Current, Energy, Frequency, Temperature, Time running [2] LEDs to show Pump status (Pump On, Fault, Tank Full)
7	Communication interface	Isolated Two wire communication interface over MODBUS RS485 for RMS/PLC and 5V/2A Power supply for RMS unit
8	Additional Interfaces	Float Switch input
9	Ports	PV +Ve and -Ve , 3 Phase Output
10	Size	260 X 170 X 150 mm
11	Protection Class	IP67
12	Cooling	Natural Air cooled
13	Solar pump protection functions	Short Circuit / Inter-Phase fault of Motor, Phase Open, PV reverse, PV short, Dry run detection & stopping of motor, Pump clogging & high torque current drawn, High temperature auto back off

Our Channel Partners Across Globe





Manufacturing Site

Mecwin Technologies India Pvt.Ltd.

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