Doc No : MEC-UM-02
Rev No : 00
Rev Date : 18-09-2020

EMPOWERING FUTURE

MECWIN TECHNOLOGIES INDIA PVT LTD

Installation & Operation Manual for Solar Submersible Motors & Controllers

(Doc.No.:MEC/UM/02 Dated: 18-09-2022)

Sl.NO of Motor : .....

Capacity : .....

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www.mecwinindia.com

Made In India

CONTENTS

Safety Instructions :

Follow safety instructions carefully. Improper use and operation may cause lethal electrical shocks and /or damage to equipment.

When installing and using the electrical equipment, basis safety precautions should always be Followed.

Before Installation :

- **Warning :** Do not install or operate the controller that is damaged or with missing parts as per check list.
  It may result in equipment damage or harm life.
- **Warning :** To reduce the risk of injury, always do not permit children to use this product unless they closely supervised.
- **Warning :** To reduce the risk of electric shock ,replace the damaged cords, cables and wires immediately. Check for any loose if any.
- **Warning :** Check for Valid Sim card installations into RMS and ensure it is having internet.
- **Warning :** Always take help of a qualified electrician/mechanic during installation and starting the system for the first time.
- **Warning :** Ensure all electric joints as well as connections are waterproof and properly insulated.

After Installation :

- Hold the bottom of the controller when installing or moving the controller to prevent the injured or broken controller.
- Installed the controller on non – flammable material like metal. Otherwise ,it may cause a fire.
- When installing the controller, you should avoid direct sunlight/ Water ,can be installed under the PV array.

- When installing the controller please look into the proper clamping / holding so that controller will not be loose /fall down.

Safety Precautions :

- Wait at least 10minutes after the power failure, or make sure that is no residual voltage before carrying out maintenance and inspection, or it may cause serious damage.
- Ensure MCB or power source is OFF before Connecting / RYB of motor to RYB of controller.
- Grounding of electrical equipment is mandatory. Never run the motor when the ground wire is not connected to ground it may lead to accidents.
- If the motors are stored for long time, it should be stored in vertical positions & shaft should be rotated by hand frequently.
- Install pump set properly as per the rated head range.

1. Introduction :

Mecwin solar began working to manufacture and supply solar pumps ,as a division of Mercury Electronic Corporate from 2017. Motors are manufactured from high quality raw materials, having passed through stringent quality control to offer trouble – free performance year after year.

Water resources are source of water that are potentially useful Uses of water include agricultural, industrial, household, recreational and environmental activities. The majority of basic needs of a human requires fresh water .

Submersible motors are mainly used for lifting water from more depths. A solar powered pump is running on electricity generated by photovoltaic panels or grid electricity or diesel run water pumps. Solar pumps are useful where electricity is unavailable and alternative sources (in particular wind) do not provide sufficient energy.

2. Our Products and Quality :

2.1. Motor & Pump

- Energy efficient motor.
- Usage of Low watt in house manufactured stampings.
- Low operating cost (Low Power Consumption)
- Water lubricated motor with easily rewindable stator .

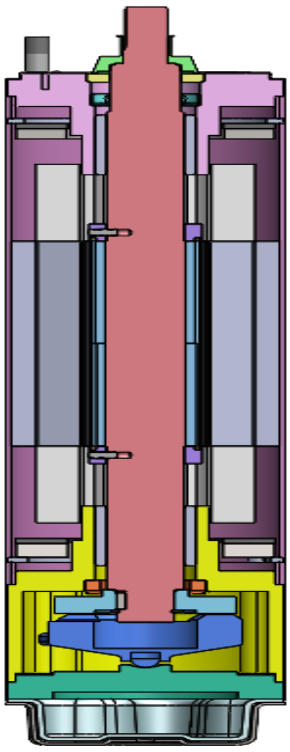
- Energy efficient radial and mixed flow models.
- Rubber diaphragm provided at the bottom of the motor to
- Compensate thermal expansions of water
- Wide voltage operation to suit all seasons.
- Low, Medium, High Voltage operation Motors to suit field condition
- Pump sets with special materials are available on request
- Available in 3",4",5",6",7",8",9",10" sizes

SUBMERSIBLE SOLAR PUMP

CONTROLLER

Fig – 1

DETAILED DRAWING OS SUBMERSIBLE MOTOR



2.2. Controller

- Built in MPPT for maximum output.
- Sensor less Dry running protection and automatic restart.
- Thermal overload shut down to avoid damage to the motor of the controller.
- Tested as per MNRE and BIS requirement.
- Warranted 5 years.
- Remote Monitoring.
- Remote start and stop.
- Short circuit protected.
- IP65 and IP65 Certified enclosures.

2.3. Quality

- The raw material used are inspected before manufacturing to ensure the quality of product.
- Each process are monitored for process quality parameters.
- Traceability of product from incoming to Outgoing.
- Motors are inspected / tested as per MNRE standards and recorded.

3. Applications :

- Domestic
- Construction
- Agriculture
- Drip & sprinkler irrigation
- Irrigation
- Rural water supply schemes
- Industrial water supply

4. Tools for Installations :

- Wire stripper
- Spanner set
- Screwdriver set and Tester
- Waterproof Tape
- Teflon tape
- Electrical Insulation Tape
- Pipe wrenches
- Pipe vices or clamps
- Tripod with chain hoist or other device to support the unit while lowering the motor into the borewell

5. Installation :

During the transportation, to avoid transit damage, the motor & pump are kept separately. They should be fitted at the site as below.

"Never lift the motor holding cable, these leads to permanent damage of motor ".

- Unpack the motor and pump carefully so that the motor and pump is not damaged by nails or other tools.
- Check and note the serial numbers of the Motor & controller in installation report provided at end of manual.
- Remove dummy cap from the motor & check the damage in flat cable.
- Stand the motor vertically on the surface area so that cable is side up.
- Clean the spline part of motor which will mount into the pump also clean the section housing of pump so that there should be sand or dust.
- Motor must be filled with water through one of the water screws (Fig – 02) slowly so that the inside air escaped by other hole & only "clean" water is filled inside motor as shown in (Fig -03).Place the motor in vertical positions so that motor is filled completely with water .

  Note : Water used inside motor should be free from **Sand,Moisture or Acid /** Any foreign particles.

- Couple the motor to the pump ,Ensure the play in pump as shown in (Fig – 04) with the help of a screwdriver at coupling for 1.00mm to 1.5mm vertical axial play. If gets lifted, then the coupling done is correct & proceed for further process.
- With the help of 4 studs & washes on Motor side couple pump & tighten the screws.

- After coupling the pump & motor place it horizontally on the surface to avoid falling of and damages.
- Rotate the shaft assembly with the help of coupling.

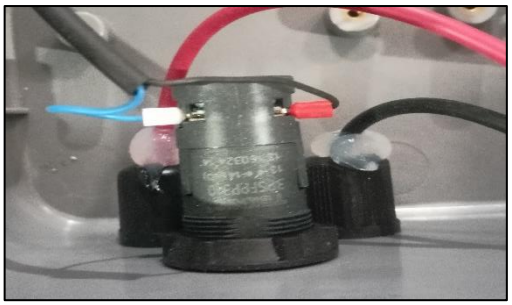
6. Check Points :

- **Coupling –** Motor and pump is coupled properly with Nut & washer.
- **Dry – Run –** Ensure water is completed filled inside the motor , - NEVER DRY RUN .
- **Connection :** Ensure connection Red, Yellow & Blue (RYB) wire of motor to RYB terminal of controller and insulate it.
- **Earthing :** Ensure proper earthing is done.
- **Cable Connection :** Ensure proper cable is running in the right direction. If motor is not running in correct direction, rotation can be changed by interchanging the connections.

7. Operations :

For customer operating the system is user friendly & check points to be followed.

- Motor can be operated with ON/OFF switch provided in controller.
- Check water discharge and verify for requirements and satisfactory.
- To check desired output, use a flowmeter or use a standard size tank & note the time until for filling.
- If system is not working ,report the issue to phone number provided in warranty card /website below details to be provided during complaints.
    - Motor & controller Serial Number / RMS ID ,IMEI and SIM Number.
    - Fault Code / Error on Display.



8. Maintenance & Troubleshooting :

Preventive maintenance schedule is the periodical check and precautions by which possibilities of failures and breakdown are reduced.

Troubleshooting :

S.No	Problem	Possible Cause	Solution
1	Dry Run	• Water level is decreasing or not available Pump is not fully submerged water	• Ensure availability for water
2	No Discharge	• Improper selection - operating head higher than range of the pump. • Pump is not fully submerged inside water , Damage / Improper Coupling	• Avoid dry running of motor • Contact Agent
3	Over Current	• Improper alignment of motor and pump, Duty point of the motor is not matching, • Alignmnt of the pump motor is not correct, • Low voltage ,Defective cables,Loose connection	• Properly couple the Pump & Motor , • Check all connections and output voltage from the controller
4	Less Discharge	• Opearational system head is more than rated pump head, • Water level in borewell not adequate, • Lower speed of motor due to low voltage or low frequency, • Direction of rotation is not correct, Worn - Out of impeller	• Check all connections and output voltage from the controller • Extract the pump set from borewell and check the pump components.
5	Tank Over Flow	• Tank full sensor is nor corrected / Not properly connected then motor will not stop the operation even tank is full	• Float sensor - Motor stops operating when tank is filled

9. Do's & Don'ts

Installation :

Sl.No	Do's	Don'ts
1	• Do read all installation procedure provided in user manual before installation	• Don't permit children to use this product unless they closely supervised

2	• Do contact manufacturer / distributors for clarification or queries	• Don’t install the pump in damp / uneven locations
3	• Don’t keep user manual , warranty information and receipts for future use.	• Don’t Operate system head more than rated pump head
4	• Do follow the safety instruction available in user manual	
5	• Ensure all electric joints as well as connections are waterproof and properly insulated	

General :

Sl.No	Do's	Don'ts
1	Do inspect pump power source connections	Don’t carry or lift the pump by its power cord
2	Do ensure priming as insulated before starting the motor . Fill the water completely into motor from water screw as shown above	Don’t ever cut, splice or damage the power cord
3	Do check damages in cable	Don’t dry run the motor
4	Do always disconnect power source from pump before handling	Don’t Modify /Change the size of suction & delivery flanges
5	Do check the direction of motor	Don’t pour chemicals into the pump system such as acids, floor wax, paints, or any degreasing chemicals
6	Do connect RYB of pump to RYB of power cable	Don’t run when abnormal sound / vibration is observed

MECWIN® EMPOWERING FUTURE	MECWIN TECHNOLOGIES INDIA PVT.LTD			Format No : QA-F-03/R0	
				Date	
	FINAL INSPECTION REPORT			Orginated By	Checked
Product Name :		Work Order No :		Darshan	Shridhar
Sl.No	Characteristics	Instruments used	Status	Remarks	
1	Sand guard with tight fitting	V			
2	Cable gland with tight fitting	V			
3	Water screws with tight fitting	V			
4	Studs, washer, Nut (4nos Each)	V			
5	Pump coupling spline	Gauge			
6	Lablesat appropriate area a) Rotation b) Please clean water c)Tested ok	V			
7	Check for cable damage	V			
8	Motor engraving with serial Number	V			
9	Free from dent, damages, & scratches	V			
10	Packing without damages	V			
11	Motor dummy cap available	V			
12	Float sensor avaialable	V			
13	Water proof tape available	V			
Disposition			Accept / Reject		
Acceptence Criteria		Ok	☑	Not Ok	☒
Perfomance & Testing Records - Disposition			Accept / Reject		
Date					
Inspected By					
Deviation Authorized By					
V= Visual			DVC = Digital Caliper		
Remarks :					
Prepared By : Darshan			Approved By : Shridhar M.V		

Perfomance & Testing Records					
Drive Model		Input Given			
		Current (Amps)		Voltage (V)	
Dynamic Head (Mtrs)		Shut off Head (Mtrs)		LPM	
Spec	Actual	Spec	Actual	Spec	Actual
Performance & Testing Records - Disposition				Accepted / Rejected	
Tested By					

OUR CHANNEL PARTNERS

----- ACROSS GLOBE -----

MECWIN®

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