

INSTRUCTION MANUAL

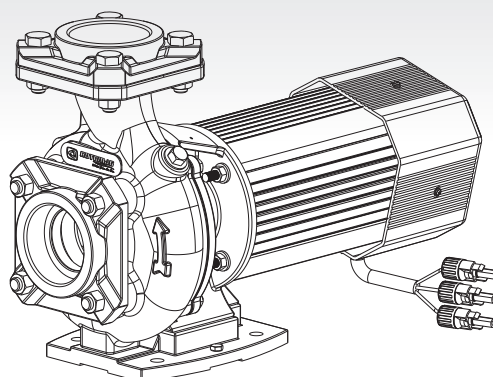
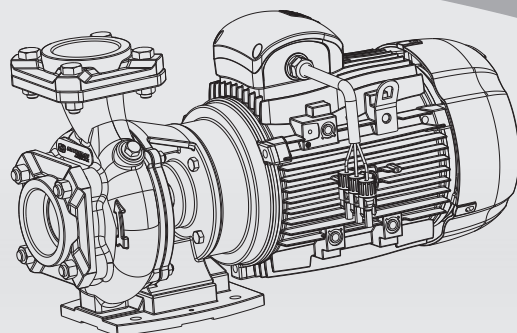
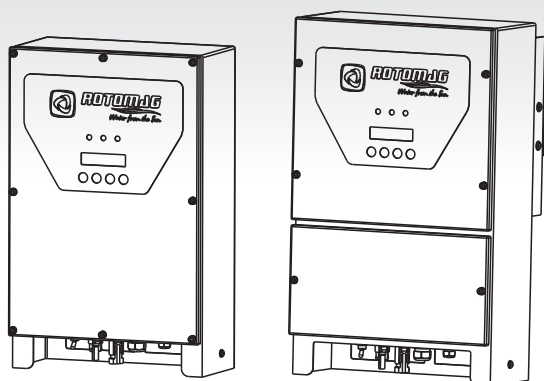


ROTOMIG

Water from the Sun



SOLAR POWERED SURFACE PUMPS



Contents

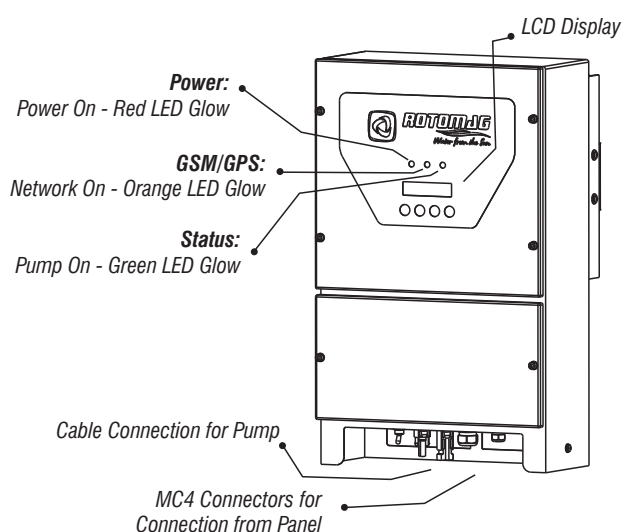
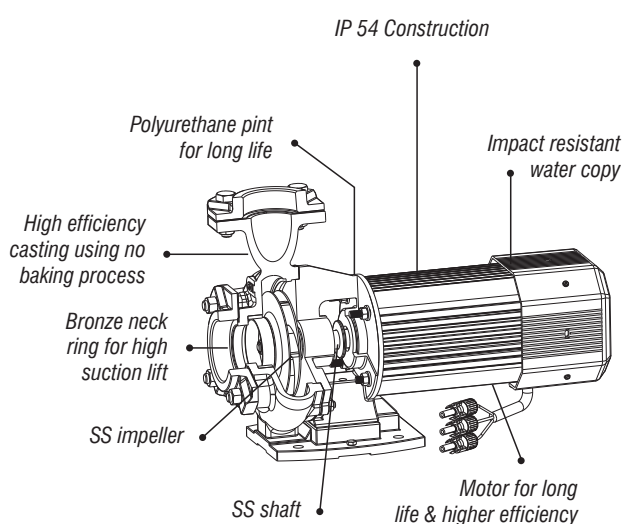
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Safety Instructions

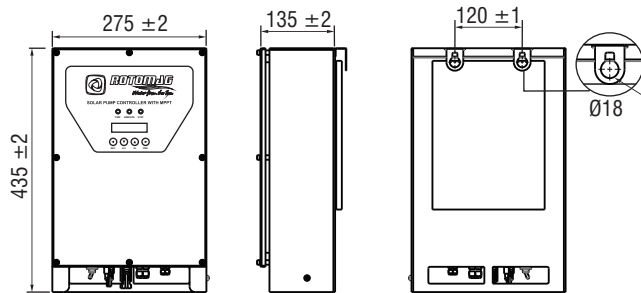
Read these instructions carefully and retain them for future use. When using electrical equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and/or injury to persons including the following:

1. Safety glasses should be always worn.
2. Safety shoes should be always worn.
3. Ensure that there are no live wires.
4. Safety gloves should be always worn.

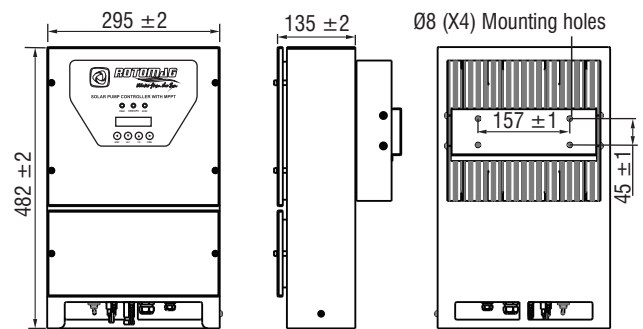
Pump & Controller



Pump Controller Dimension - 1 hp

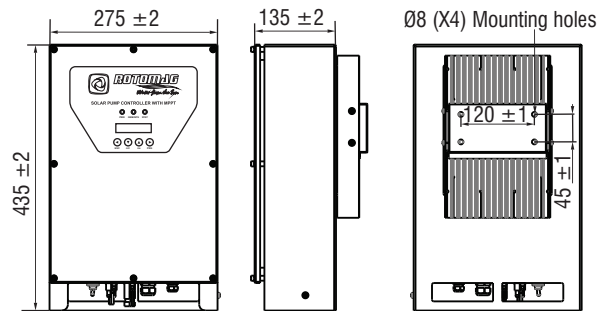


Pump Controller Dimension - 7.5 & 10 hp

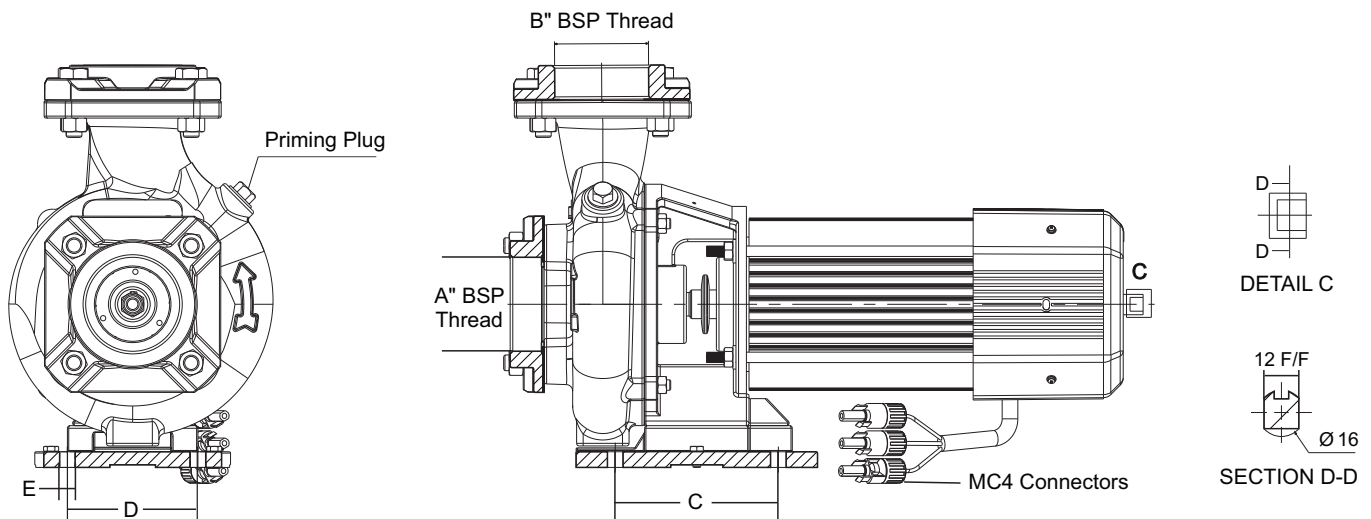


All dimensions are in mm

Pump Controller Dimension - 2, 3 & 5 hp

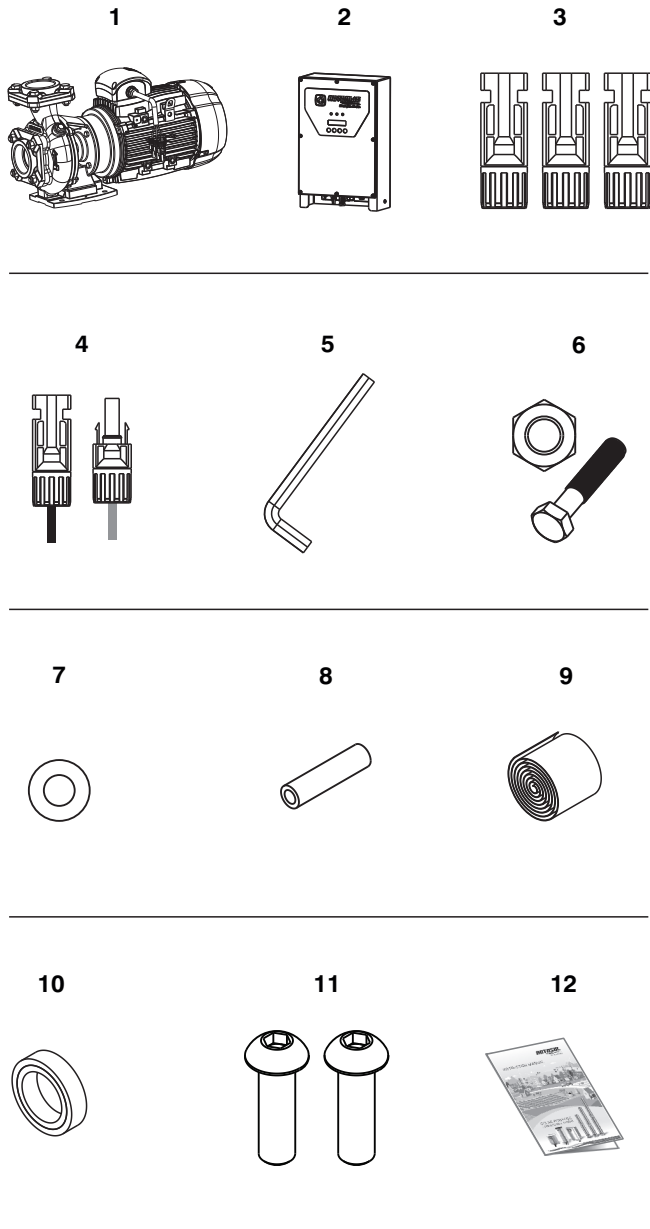


Pump Dimensions



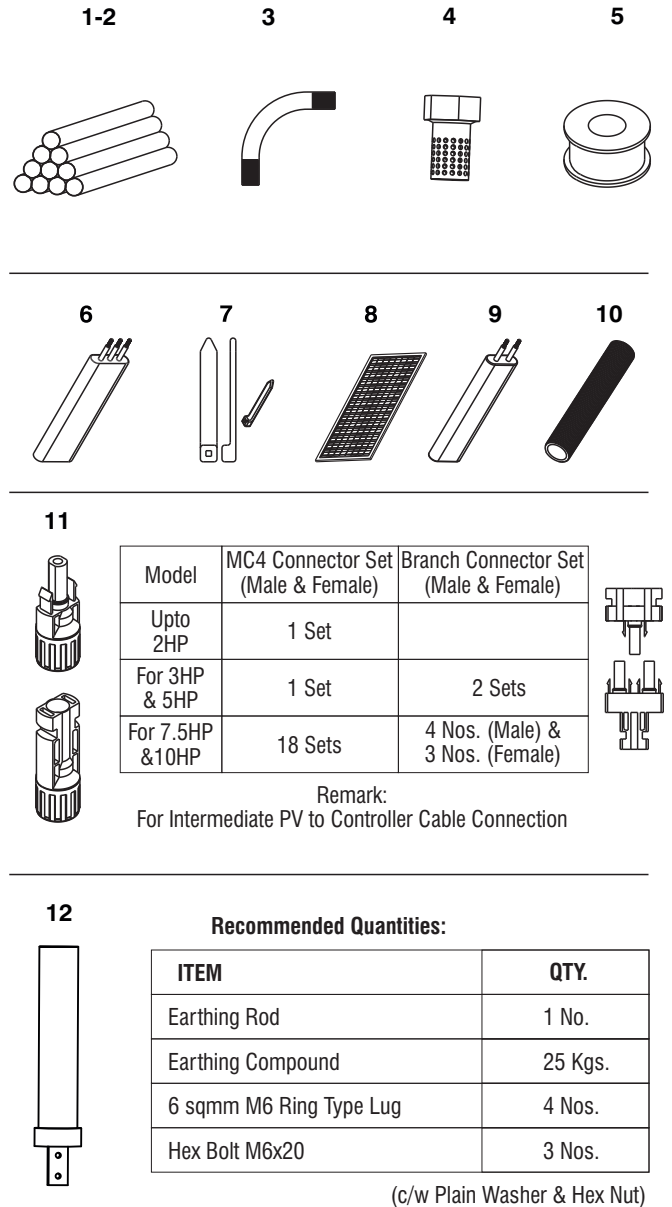
Model	HP & Head	A	B	C	D	E
MBP 30	1HP – DC – 10 Mtr.	2.5"	2.5"	100	160	14
MBP 60	2HP – DC – 10 Mtr.	2.5"	2.5"	100	160	14
MBP 60 AC	2HP – AC – 10 Mtr.	2.5"	2.5"	125	100	12
RB 2700-10M	3HP – DC – 10 Mtr.	2.5"	2.5"	125	100	12
RB 2700-20M	3HP – DC – 20 Mtr.	2.5"	2.5"	125	100	12
MBP 90 AC-10M	3HP – AC – 10 Mtr.	2.5"	2.5"	125	100	12
MBP 90 AC-20M	3HP – AC – 20 Mtr.	2.5"	2.5"	125	100	12
RB 5000-10M	5HP – DC – 10 Mtr.	4"	4"	125	100	12
RB 5000-20M	5HP – DC – 20 Mtr.	2.5"	2.5"	125	100	12
RB 5000-30M	5HP – DC – 30 Mtr.	2.5"	2.5"	125	100	12
MBP 120 AC-10M	5HP – AC – 10 Mtr.	4"	4"	125	100	12
MBP 120 AC-20M	5HP – AC – 20 Mtr.	2.5"	2.5"	125	100	12
MBP 120 AC-30M	5HP – AC – 30 Mtr.	2.5"	2.5"	125	100	12
MBP 6750-20M	7.5HP – DC – 20 Mtr.	3"	2.5"	170	140	16
MBP 6750-30M	7.5HP – DC – 30 Mtr.	3"	2.5"	170	140	16
MBP 6750 AC-20M	7.5HP – AC – 20 Mtr.	3"	2.5"	170	140	16
MBP 6750 AC-30M	7.5HP – AC – 30 Mtr.	3"	2.5"	170	140	16
MBP 9000-20M	10HP – DC – 20 Mtr.	3"	2.5"	170	140	16
MBP 9000-30M	10HP – DC – 30 Mtr.	3"	2.5"	170	140	16
MBP 9000 AC-20M	10HP – AC – 20 Mtr.	3"	2.5"	170	140	16
MBP 9000 AC-30M	10HP – AC – 30 Mtr.	3"	2.5"	170	140	16

In The Box



NO.	ITEM	QTY.
1	Surface Pump	1 No.
2	Controller	1 No.
3	MC4 Female Connector	3 Nos.
4	6 sq. mm Red and Black Cable 0.9m with MC4 Connectors	1 Set
5	4mm Allen Key	1 No.
6	M8 x 25 Hex Bolt with Nut	4 Sets
7	M8 Plain Washer	8 Nos.
8	Inline Connectors	8 Nos.
9	Cushion Rubber Tape	1 No.
10	Insulation Tape	1 No.
11	M6 x 20 Button head screw	2 Nos.
12	Instruction Manual & Warranty Certificate	1 Set

Additional Parts Required for Installation



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Model	MC4 Connector Set (Male & Female)	Branch Connector Set (Male & Female)
Upto 2HP	1 Set	
For 3HP & 5HP	1 Set	2 Sets
For 7.5HP & 10HP	18 Sets	4 Nos. (Male) & 3 Nos. (Female)

Remark:
For Intermediate PV to Controller Cable Connection

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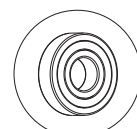
Recommended Quantities:

ITEM	QTY.
Earthing Rod	1 No.
Earthing Compound	25 Kgs.
6 sqmm M6 Ring Type Lug	4 Nos.
Hex Bolt M6x20	3 Nos.

(c/w Plain Washer & Hex Nut)

NO.	ITEM	DESCRIPTION	QTY.
1	Suction Pipe	UPVC/ GI Pipe	1 No.
2	Delivery Pipe	UPVC/ GI Pipe	1 No.
3	Long bend radius	PVC/ GI Pipe	1 No.
4	Foot Valve	Material - Brass	1 No.
5	Teflon Tape		2 Rolls
6	3 Core x 4 Sq mm Cable	10 Meter Long than Rated Head	1 No.
7	Cable Tie	UV Treated for Outdoor use 400 mm Long Black Cable Tie	
8	PV Modules		
9	2 Core Cable		
10	Flexible Conduit	UV Treated for Outdoor use	25 Mtr.
11	MC4 Connector & Branch Connector		
12	Earthing Kit		

Recommended Spare Parts.

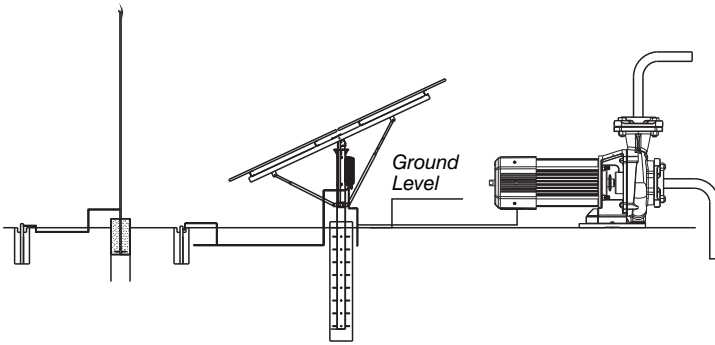


Bearings.

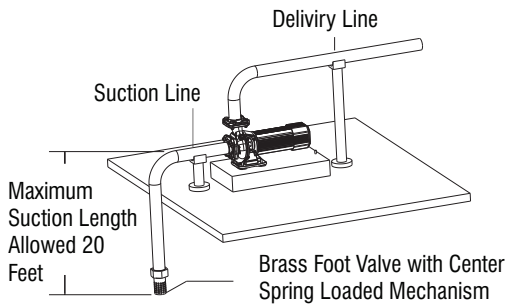


Mechanical Seal

System Layout



Pump Installation

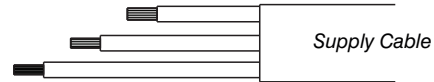


- ⚠ 1. Before installation of the pump, please check that the rotor is rotating freely. It may rotate in step due to the influence of magnets
- 2. Teflon tape to be used on all treaded portions of foot valves, pipes and bends kn suction and delivery lines
- 3. Ensure that there is no air leakage in any of the joints. It is advisable to use to m-seal on the joints for extra protection.

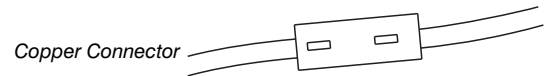
4. Wiring

a. Cable Joining

- i. Remove 150mm sheath from pump and supply cable
- ii. Pump Cable: Cut 150mm red cable, 100mm yellow cable and 50mm blue cable. Remove 5mm insulation from each cable.
- iii. Supply Cable: Cut 50mm red cable, 100mm yellow cable and 150mm blue cable. Remove 5mm insulation from each cable.



- iv. Join each pair with tin plated connector and crimp.
- v. Insulate individual cable
- vi. Wrap all cables with cushion rubber tape. Ensure tape covers 25mm length of both sheath end.

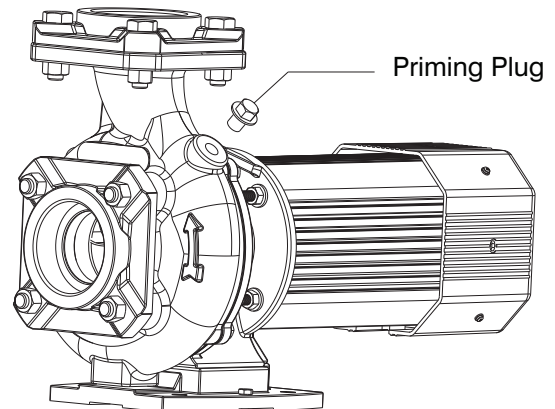


⚠ **DO:** Ensure all cables are connected and insulated properly.

5. Priming Plug

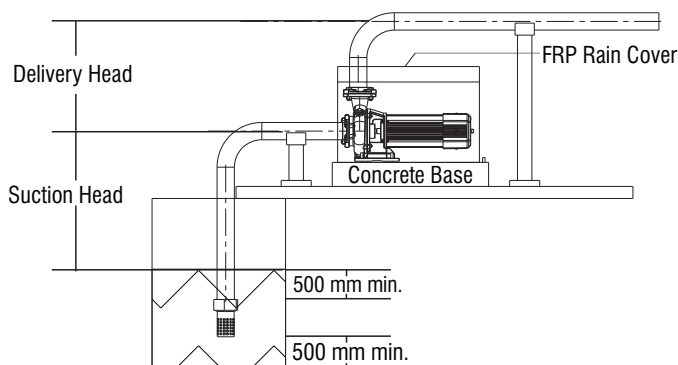
⚠ **DO:** Open the priming plug & fill water before starting the pump

⚠ **DON'T:** Do Not Run Pump Dry !



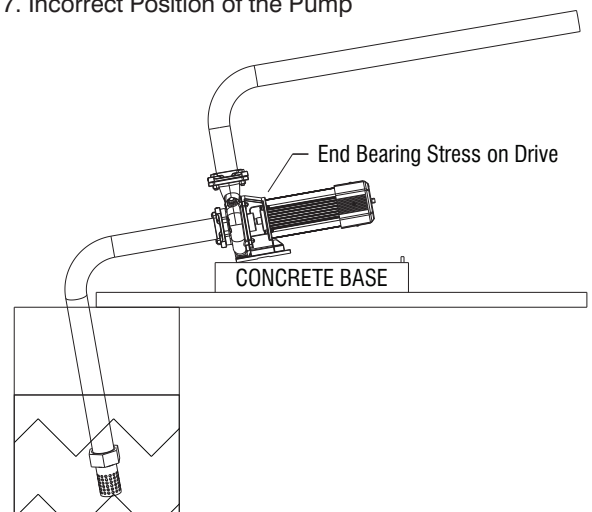
⚠ **DO:**

6. Correct Position of the Pump



⚠ **DON'T:**

7. Incorrect Position of the Pump



Understanding Data on LCD Screen

Sequence of Display	Display & Resolution	Parameter
1	R O T O M A G S O L A R P U M P C O N T R O L L E R	Power on screen #
5	D A T E : D D - M M - Y Y Y Y T I M E : H H : M M : S S	RTCC #
6	I N I T I A L I Z I N G S U C C E S S !	INITIALIZATION SCREEN #
7	U R I D : X X X X X X X B T : X X X	RID Number BLUETOOTH
8	N W K S T : X X X R E M O T E A T : X X	NETWORK STRENGTH RMU ALERT
10	T C P C N T R : X X X X P U M P D I S C O N N E C T	TCP COUNTER PUMP CONTROLLER STATUS
11	H 1 : X X X D : X X X X X H 2 : X X X D : X X X X X	PUMP HEAD SCREEN 1
12	H 3 : X X X D : X X X X X H 4 : X X X D : X X X X X	PUMP HEAD SCREEN 2
13	L A T : X X . X X X X X X L O N G : X X . X X X X X X	GPS LOCATION
14	P U M P C A P : X X X X P V M C A P : X X X X X X	PUMP CAPACITY PV MODULE CAPACITY
15	P M A X K W 1 : X X X X X O P R T F R Q : X X X X X	MAXIMUM POWER OPERATING FREQUENCY
16	P D C V 1 : X X X X X V P D C I 1 : X X X X X A	DC bus voltage DC bus Current
17	P O P V 1 : X X X X X V P O P I 1 : X X X X X A	AC PHASE voltage AC PHASE Current
18	K W : X X X X X X X K W H : X X X X X X X	KW KWH
19	P D K W H 1 : X X X X X X P T O T K W H 1 : X X X X X X	ENERGY GENERATED
20	P O P D W D 1 : X X X X X X X P T O T W D 1 : X X X X X X X	WATER DISCHARGE
21	P D H R 1 : X X X X P T O T H R 1 : X X X X X X	RUN HOURS
22	X X X X X X X X X X X X X P D C V 1 : X X X X X V	ALERT/FAULT CONDITION* DC BUS VOLTAGE
'ALERT' LCD LINE 1 for display sequence - 22		
SR. No.	LCD Line 1 Description	Details
1	S O U R C E E M P T Y	Bore Low – Source empty input activated
2	T A N K F U L L	Tank Full – Tank full input activated
3	R E M O T E O F F	Remote On/Off input activated
4	D R Y R U N	Dry Run – Pump operation in dry run
5	P U M P J A M	Pump Jam – Pump jam condition.
6	L O S E C O N N / O . C K T .	Lose Conn/O. CKT. - Phase connections are not connected.
7	P U M P D I S C O N N E C T	PUMP disconnect, if No PUMP Controller connected with RMU
'FAULT' LCD LINE 1 for display sequence - 22		
SR. No.	LCD Line 1 Description	Details
1	O V E R H E A T	Over Heat – Controller temp. > 89 O C
2	O . C U R R E N T / S . C K T .	O. Current/S. Ckt. - Controller current > 18 Amp DC.
3	O V E R V O L T A G E	Over Voltage – Input panel voltage more than the system
4	E P R O M E R R O R	EPROM ERROR – System parameters are corrupted
'RMU ALERT' LCD LINE 2 for display sequence - 8		
SR. No.	Fault Number	Description
1	03	SIM detection error
2	04	RMU network error, when signal strength > 95
3	14	Network registration error, when sim is not able to latch with Operator
4	15	GPRS registration error, when INTERNET is not available on site.

One time only during power up, rest of the values Continuously scrolling after every 3 sec.

*RMU will display Alert/Fault condition till the Fault is not resolved or Controller is not restarted. It will stay on this screen only.

General Maintenance

1. Controller is an electronic device with no moving or wearing parts inside. It requires no maintenance. Always ensure that controller is sealed from moisture, insects etc. Check that mounting and conduit is tight.
2. Motor is sealed and oil lubricated and requires no maintenance. It is permanently sealed and has no bushes or other frequently wearing parts.
3. The pump impellers and bowls are lubricated by water and require no maintenance. Some pump elements may wear after some years, due to abrasive solid in the water. If sand and accumulates in the pipe as a result of normal pumping, it is best to take periodic measurement of the pump's performance. If the flow rate is less than normal, a worn pump end can be replaced in the field, after the pump is pulled from the water source.
4. Always ensure that the borewell has clean water. Dirt, sand and sedimentation will have an abrasive effect on the pump impeller and bowls and will cause them to wear out prematurely.
5. Solar array fixing bolts may become loose in high winds. Check tightness and lock washers should be used to keep them tight.
6. Cut away extra vegetation grown to allow maximum sun exposure. Small shading of sun can cause pump to stop or affect its flow.
7. Clean solar array for dirt, mineral deposits, bird droppings, or other debris stuck on the solar array surface. Clean with detergent/soapy water or glass cleaner.
8. Adjust tilting of the solar array. In case of manual tracking to obtain maximum output of the pump.

Storage

Whenever the pump is stored in OFF-season or not used for more than 2-3 months, it may seize/jam due to deposition of salt/minerals between the pump elements. This does not damage the pump permanently, but it may be required to separate the pump from motor and then manually rotate the pump. It is recommended that the pump must be operated for 10 minutes every 2-3 month to avoid such seizure/jamming due to salt deposition. The pump, when not in use, must be stored in cool & dry place.

End-of-Life Disposal Statement & Instructions

1. We, as manufacturers of Solar Pump set systems try to use materials of reusable and recyclable types as far as possible so that environmental burden on planet Earth is controlled.
2. Rotosol encourages its consumers to properly dispose/recycle unwanted batteries and end-of-life products in accordance to National, state, and local regulations.
3. Our systems consist of stainless steel parts, normal windings, cured epoxy, PCB and some other metallic parts of Aluminium.
4. At "end-of-life" these products could be either given to state certified recycling agencies or sent to us for proper disposal. At our place we organize to reuse whatever could be by repairing or follow current governmental guidelines and dispose them off accordingly.

Declaration of Conformity

We, ROTOMAG ENERTEC LIMITED. declare under our sole responsibility that the products MBP-30,MBP-60,RB 900,RB 1800, RB 2700, RB 5000, MBP 6750, MBP 9000, MBP 60AC, MBP 90AC, MBP 120AC, MBP 6750AC & MBP 9000AC to which the declaration relates, are in conformity with the Council Directives on the approximation of the laws of the EC Member States related to:

Machinery (MD2006/42/EC)

Electromagnetic compatibility (EMC 201 4/30/EU)

Electrical equipment designed for use with certain voltage limits (LVD 201 4/35/EU)

Product Registration and Warranty Activation

1. 2 RID labels have been provided.
2. Stick one RID label to the front of the controller.
3. Stick the second RID label underneath the PV panel.
4. To activate warranty, email the following information to **pump.eye@rotosol.solar**
 - a. RID no. (Starting with 'X')
 - b. Controller no. (Starting with 'SC')
 - c. Pump no. (Starting with 'SP')
 - d. Motor no. (Starting with 'SM')
 - e. Project name
 - f. Buyer name
 - g. Name & Contact no. of beneficiary (Farmer/End user)
 - h. Name of the pump installing agency
 - i. Installation address
 - i. State
 - ii. District
 - iii. Taluka / Tehsil
 - iv. Village
 - v. Latitude & Longitude

Alternatively, the end user can download and install PUMP EYE mobile application from the Google Play Store and self register by filling all the required information.

Warranty Policy

1. The Rotomag Solar Pumping System manufactured by Rotomag Enerotec Limited. are covered by warranty for a period of 12 (Twelve) calender months from date of installation or 15 (Fifteen) calender months from the date of supply, whichever occurs earlier. Or as stated in our sales invoice, against defective workmanship and inherent manufacturing defects.
2. Rotomag will make good by repair, or at their discretion, the replacement of faulty parts under warranty, providing always that:
 - (a) The equipment was correctly installed and properly used in accordance with Rotomag linstallations and operating instruction and accepted codes of good engineering practice.
 - (b) The claims for goods under warranty arises solely from faulty design, material or workmanship.
 - (c) The repair is carried out in the Rotomag factory or service center or by an authorised agent or distributor appointed by Rotomag.
 - (d) All freight costs to and from the factory or service center are to be paid by the purchaser.
3. In the case of equipment or components which are not of Rotomag manufacture, but supplied by them, the warranty is limited to that extended by the suppliers or manufacturers of such equipment.
4. Rotomag's warranty does not cover any of the following:
 - (a) Claims for third party liability of damage caused by failure of any of the company's products.
 - (b) Damage caused by abnormal operating conditions, war, theft, fire, violence, storm cataclysm or any other force
 - (c) Damage caused by sand or abrasive materials, corrosion due to salt water or electrolytic action.
 - (d) Damage to the pump controller or inverter due to wrong connection.
 - (e) Damage to the motor if the motor is found to have been disassembled before being returned to Rotomag. Or if in case of surface pump there is ingress of water in the motor
 - (f) Damage caused by running the pump dry.
 - (g) Clogging of pumps with sand and requiring routine cleaning.
 - (h) Physical damages, broken parts, damaged cables.
 - (i) Non operational SIM cards.
5. The decision of Rotomag in relation to any claims or disputes over warranty is final.
6. Appropriate call logging systems with toll free numbers as well as adequate stock of spares shall be maintained by us at our service centers.
7. The warranty is in lieu of all other warranties and condions expressed or implied, written or oral, statutory or otherwise, which are hereby negated and excluded.
8. The express warranty does not exclude any conditions or warranty implied by the Trade Practices Act or Separate State laws and in addition to any other right, that the original purchasers or any subsequent purchaser may have at law.

In case of claim please contact your Authorised Rotomag dealer or contact Rotomag Enerotec Limited

Warranty Certificate

We hereby offer warranty for the AC / DC Solar submersible pump, motor with controller of serial number as mentioned below against defective workmanship and inherent manufacturing defects for a period that has been agreed in the contract with you or your supplier of the pumping system. During this warranty period we undertake to repair and replace relevant spares (except consumables like bearings, oil seals, mechanical seals & carbon brushes) free of cost, provided any defective pumps is returned to our works or to our authorised service center. However the warranty will be null and void if the system is dismantled by any unauthorized technician without our written consent. Warranty is not applicable in physical damages, improper usage of system and water ingress in controllers.

Below are the product serial Nos:

Model :	RID No. :
.....	

Below serial nos. to be filled up by Installer:

Pump Sr. No. :	Motor Sr. No. :
.....	
Controller Sr. No. :	Installation Date:
.....	

(Authorised Signatory)



ROTMAG ENERTEC LIMITED

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