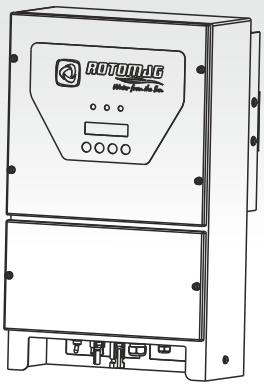
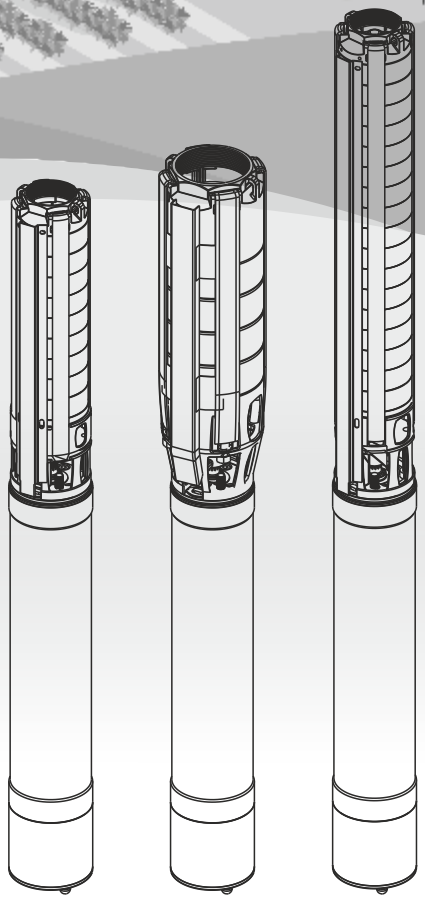
INSTRUCTION MANUAL

ROTOMAG
Water from the Sun

SOLAR POWERED
SUBMERSIBLE PUMPS





Drawing No.: 02780 (Rev.-03 / Date: 15.09.2026) • **Part Code:** UM02780SUB • **Description:** Instruction Manual - Solar Submersible Pump

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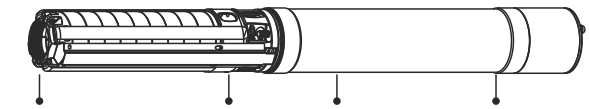
Safety Instructions

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:

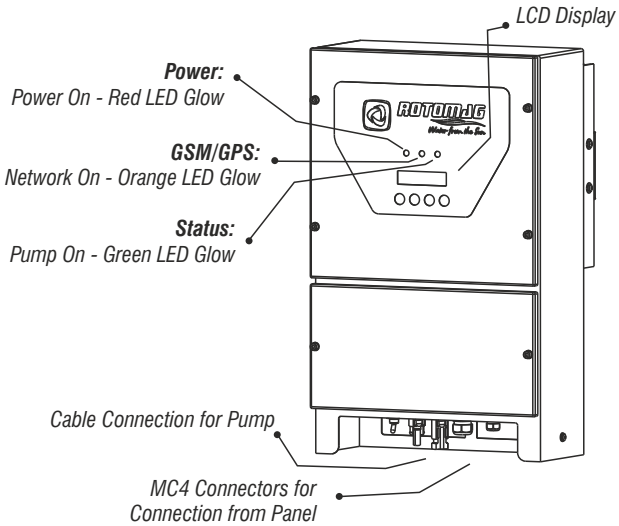
1. Safety glasses should be always worn.
2. Safety shoes should be always worn.
3. Ensure that there are no live wires.
4. Safety gloves should be always worn.

Pump & Controller

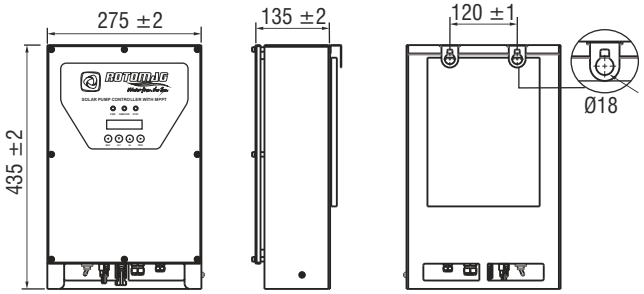
Pump Parts



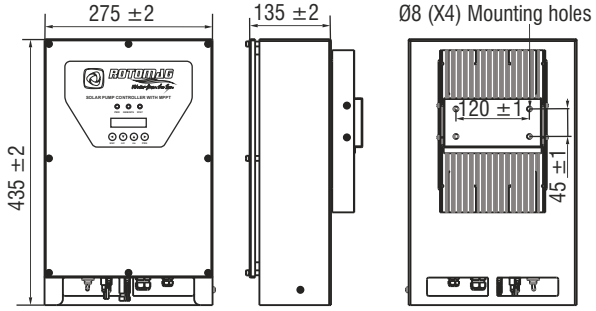
Controller Parts



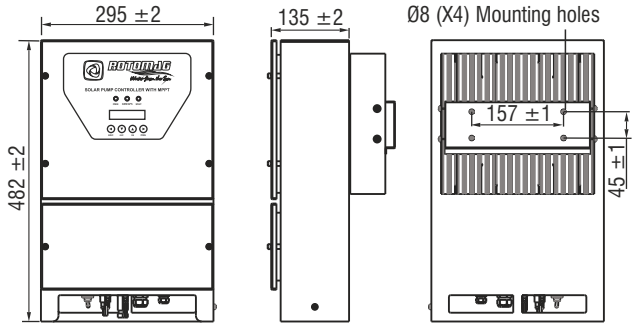
Pump Controller Dimension - 1 hp



Pump Controller Dimension - 2, 3 & 5 hp

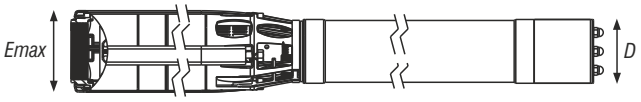


Pump Controller Dimension - 7.5 & 10 hp



All dimensions are in mm

Pump Dimensions



Pumps for Drinking Water

Model	HP	Type	Head (mtr)	D (mm)	Thread (BSP)	Emax (mm)
RDW500	0.5	RW005H010	10	98	1.25"	92
		RW005H020	20			
		RW005H030	30			
RDW750	0.75	RW007H030	30	98	1.25"	92
RDW900	1	RW010H030	30	98	1.25"	92
		RW010H060	60			
		RW010H090	90			
RS1200	1	RW010H060	60	98	1.25"	92
		RW010H090	90			
RS1800D	2	RW020H060	60	98	1.25"	92
		RW020H090	90			
		RW020H120	120			
RS3000D	3	RW030H150	150	98	1.5"	92

DC Pumps for Irrigation

Model	HP	Type	Head (mtr)	D (mm)	Thread (BSP)	Emax (mm)
RS1200	1	RD010H020	20	98	2"	92
		RD010H030	30			
		RD010H050	50		1.5"	
RS1800	2	RD020H020	20	98	2"	92
		RD020H030	30			
		RD020H050	50		1.5"	
		RD020H070	70			
RS3000	3	RD030H020	20	98	2"	126
		RD030H030	30			
		RD030H050	50			92
		RD030H070	70			
		RD030H100	100		1.5"	
RS5000	5	RD050H020	20	98	2.5"	126
		RD050H030	30			
		RD050H050	50		2"	
		RD050H070	70			92
		RD050H100	100			
RS7500	7.5	RD075H020	20	98	3"	126
		RD075H030	30			
		RD075H050	50		2"	
		RD075H070	70			92
		RD075H100	100			
RS10000	10	RD100H020	20	144	3"	126
		RD100H030	30			
		RD100H050	50		2.5"	
		RD100H070	70			92
		RD100H100	100		2"	

AC Pumps for Irrigation

Model	HP	Type	Head (mtr)	D (mm)	Thread (BSP)	Emax (mm)
RA1800	2	RA020H020	20	98	2"	92
		RA020H030	30			
		RA020H050	50		1.5"	
		RA020H070	70			
RA3000	3	RA030H020	20	98	2"	126
		RA030H030	30			
		RA030H050	50			92
		RA030H070	70			
		RA030H100	100		1.5"	
RA5000	5	RA050H020	20	144	2.5"	126
		RA050H030	30			
		RA050H050	50		2"	
		RA050H070	70			92
		RA050H100	100			
RA7500	7.5	RA075H020	20	144	3"	126
		RA075H030	30			
		RA075H050	50		2"	
		RA075H070	70			92
		RA075H100	100			
RA10000	10	RA100H020	20	144	3"	126
		RA100H030	30			
		RA100H050	50		2.5"	
		RA100H070	70			92
		RA100H100	100		2"	

In The Box

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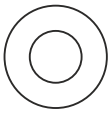

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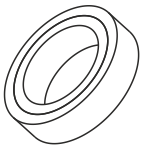

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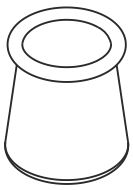

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Additional Parts Required for Installation

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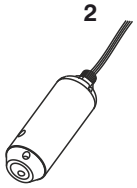

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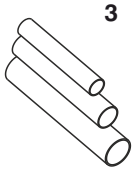

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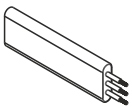

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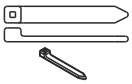

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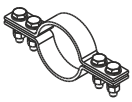

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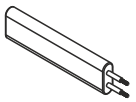

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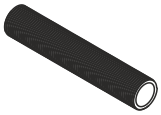

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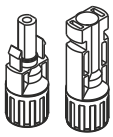
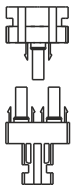


Model	MC4 Connector Set (Male & Female)	Branch Connector Set (Male & Female)
Upto 2HP	1 Set	
For 3HP & 5HP	1 Set	2 Sets
For 7.5HP &10HP	18 Sets	4 Nos. (Male) & 3 Nos. (Female)



Remark: For Intermediate PV to Controller Cable Connection

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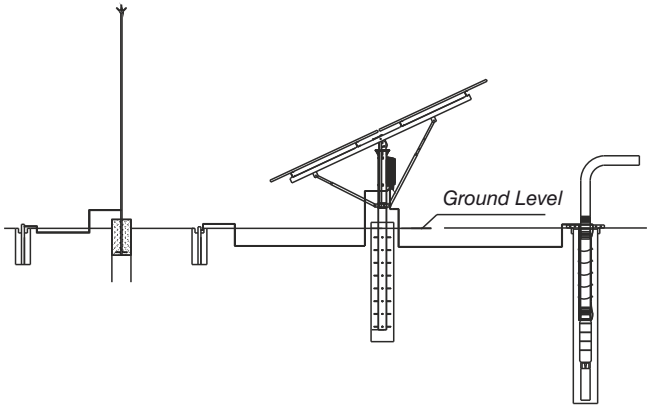
Recommended Quantities:

ITEM	QTY.
Earthing Rod	1 No.
Earthing Compound	25 Kgs.
6 sqmm M6 Ring Type Lug	4 Nos.
Hex Bolt M6x20 (c/w Plain Washer & Hex Nut)	3 Nos.

NO.	ITEM	QTY.
1	Submersible Pump	1 No.
2	Controller	1 No.
3	M8 x 25 Hex Bolt with Nut	4 Sets
4	M8 Plain Washer	4 Nos.
5	Button head Screw M6 x 20	2 Sets
6	Cushion Rubber Tape	1 No.
7	Insulation Tape	1 No.
8	Rubber Cap for Couplings	1 No.

NO.	ITEM	DESCRIPTION	QTY.
1	Step Nipple & Hex Nut with Bolt	Material - SS	1 No.
2	Tank Full Sensor		1 No.
3	HOPE Pipe	10 Meter Long than Rated Head	1 No.
4	Reducer	Material - SS	1 No.
5	Teflon Tape		2 Rolls
6	3 Core x 4 Sq mm Flat Cable	10 Meter Long than Rated Head	1 No.
7	Cable Tie	UV Treated for Outdoor use 400 mm Long Black Cable Tie	
8	Bore Clamp		1 No.
9	PV Modules		
10	2 Core Cable		
11	Flexible Conduit	UV Treated for Outdoor use	25 Mtr.
12	MC4 Connector & Branch Connector		
13	Earthing Kit		

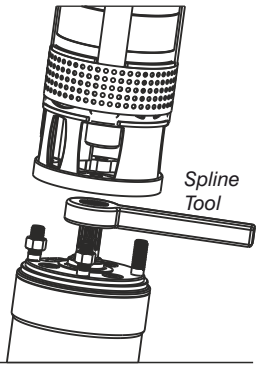
System Layout



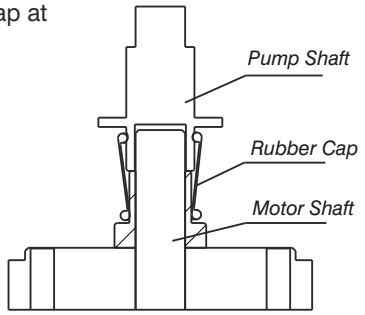
Pump Installation

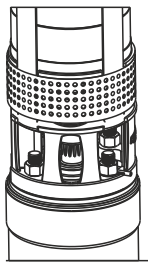
1. Align the spline of the motor and the pump head shaft using the spline tool.

⚠ **DO:** Always use spline tool to align motor and pump head shafts.



2. Fix the Rubber cap at shaft and couple joints.

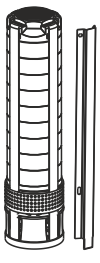




3. Match the pump head washer with the motor stud and make sure that the pump head rests on the motor body.

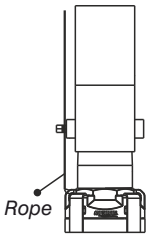
4. Connect the earthing wire to the plug provided.

⚠ **DON'T:** Do not use wire with joints. Earthing wire should be a single continuous wire from the motor to the earthing rod.



5. Pass the motor cable through the cable guard and screw fast the cable guard.

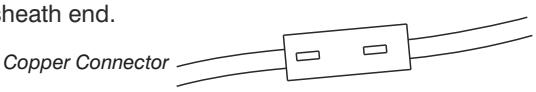
6. Fix the step nipple to the pump head. Use reducer if required.
7. Fix the HDPE pipe into the step nipple and fasten it with the hex bolt and nut.
8. Fix the rope to the top of the pump head.



⚠ **DO:** Ensure that all bolts, nuts and ropes are fastened tightly and secure.

9. 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.

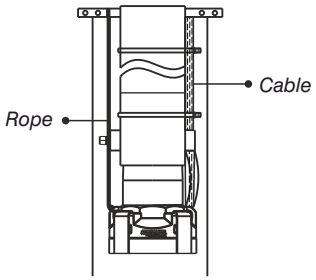
      iv. Join each pair with tin plated connector and crimp.
      v. Insulate individual cable
      vi. Wrap all cables with cushion rubber tape. Ensure tape covers 25mm length of both sheath end.



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

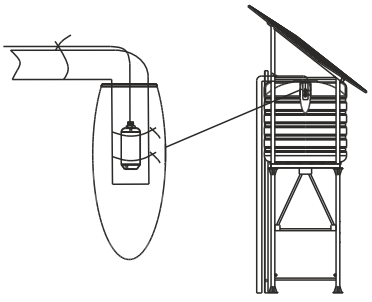
⚠ **DON'T:** Do not leave any cable joint uninsulated.

10. Fix the cable to the HDPE pipe with cable ties up to the setting position of the pump.
11. Attach the bore clamp and tie fast the rope to the bore clamp.



⚠ **DO:** Ensure that bore clamp is tightly secured and rope is tied fast to the bore clamp.

Tank Full Sensor Installation (Optional)



1. Lower the sensor into the resovoir/tank and fix it to the delivery pipe with cable ties.

⚠ **DON'T:** Do not keep the tank full sensor loose.

The pump installation is now complete. Switch on the MCB and then switch on the controller.

Understanding Data on LCD Screen

Sequence of Display	Display & Resolution	Parameter
1	ROTOMAG SOLAR PUMP CONTROLLER	Power on screen #
5	DATE: DD-MM-YYYY TIME: HH:MM:SS	RTCC #
6	INITIALIZATION SCREEN # SUCCESS!	
7	URID:XXXXXXXXXX BT:XXX	RID Number BLUETOOH
8	NWK ST:XXX REMOTE_AT:XX	NETWORK STRENGTH RMU ALERT
10	TCP CNTR:XXXX PUMP DISCONNECT	TCP COUNTER PUMP CONTROLLER STATUS
11	H1:XXX D:XXXX X H2:XXX D:XXXX X	PUMP HEAD SCREEN 1
12	H3:XXX D:XXXX X H4:XXX D:XXXX X	PUMP HEAD SCREEN 2
13	LAT:XX.XXXXXX LONG:XX.XXXXXX	GPS LOCATION
14	PUMP CAPACITY:XXXX PV MODULE CAPACITY:XXXX	PUMP CAPACITY PV MODULE CAPACITY
15	PMAX KW:XXXX OPRT FRQ:XXXX	MAXIMUM POWER OPERATING FREQUENCY
16	PDCV1:XXXXXV PDCI1:XXXXA	DC bus voltage DC bus Current
17	POPV1:XXXXXV POPI1:XXXXA	AC PHASE voltage AC PHASE Current
18	KW:XXXXXXXXX KWH:XXXXXXXX	KW KWH
19	PDKWH1:XXXXXX PTOTKWH1:XXXXXX	ENERGY GENERATED
20	POPDWD1:XXXXXXXX PTOTWD1:XXXXXXXX	WATER DISCHARGE
21	PDHR1:XXXX PTOTHR1:XXXXXX	RUN HOURS
22	XXXXXXXXXXXXXXXX PDCV1:XXXXXV	ALERT/FAULT CONDITION* DC BUS VOLTAGE

'ALERT' LCD LINE 1 for display sequence - 22

SR. No.	LCD Line 1 Description	Details
1	SOURCE EMPTY	Bore Low – Source empty input activated
2	TANK FULL	Tank Full – Tank full input activated
3	REMOTE OFF	Remote On/Off input activated
4	DRY RUN	Dry Run – Pump operation in dry run
5	PUMP JAM	Pump Jam – Pump jam condition.
6	LOSE CONN/O. CKT.	Lose Conn/O. CKT. - Phase connections are not connected.
7	PUMP DISCONNECT	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	OVER HEAT	Over Heat – Controller temp. > 89 O C
2	O. CURRENT/S. CKT.	O. Current/S. Ckt. - Controller current > 18 Amp DC.
3	OVER VOLTAGE	Over Voltage – Input panel voltage more than the system
4	EPROM ERROR	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. Rotomag 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 EJ500, RDW500, RDW900, RS1200, RS1800, RS3000 & RS5000 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 manufacturered by Rotomag Enertec 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 Iinstallations and operating instruction and accepted codes of good engineering practice.
   (b) The claims for goods under warranty arises solely from faulty design, material or workmenship.
   (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 Enertec 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)

ROTOMAG
Water from the Sun

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