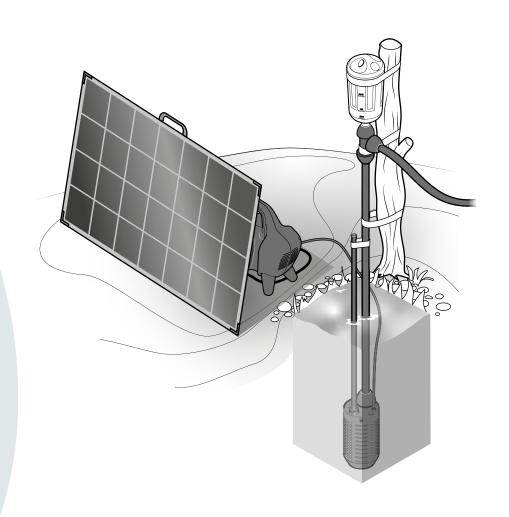


Solar-powered water pump

Mobile Pro MKII



Installation manual

Doc number: 001 English language (original) Revision: PA18

Table of Content

1	How to read this manual	4
2	Safety	5
	2.1 Safety information	5
	2.2 Markings	5
3	Packaging	5
4	System overview	6
	4.1 System components	6
	4.2 Extension components	6
	4.3 Maintenance parts	6
	4.4 PMB Overview	7
	4.5 Pump unit Overview	7
5	Unpack items	7
6	How it should look after setting up	8
7	How to install	9
	7.1 Solar panel and PMB	9
	7.2 PMB and pump unit	.11
	7.3 Piping	.12
8	How to test system	14
	8.1 Test procedure	.14
	8.2 If water does not flow	.15
9	How to complete installation	16
	9.1 How to extend tubes	.16
10	Final check	. 17

11	Product features	. 18
12	Technical specifications (Free flow)	. 19
13	Storage	. 19
14	Transport	. 19

1 How to read this manual

The manual describes a general installation. For the system to work properly it needs to fullfil different requirements.

In order to better understand the requirements the Spowdi figure helps the reader:



Spowdi figure is happy when it is correct.



Spowdi figure is sad when something is NOT correct.

In the illustrations are different types of arrows:



Step by step



Move according to arrow.



Points out area of interest.

2 Safety

2.1 Safety information

Weight



The table below present weight of the three different delivered boxes.

MOBILE PRO MK II	SOLAR PANEL	DRIP KIT
7.0 kg	12.2 kg	45.0 kg

Electrical hazard



Electrical hazard. Solar cell system contains live parts.

Do not short circuit solar panel contacts.

Do not open any components.

If any part is malfunctioning contact your local service center.

2.2 Markings



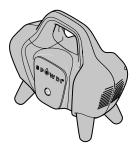
3 Packaging

Discard all packing material according to local law and regulations.



4 System overview

4.1 System components



A - Power

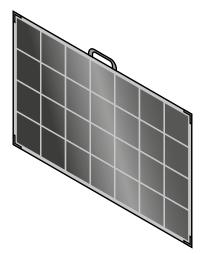
Management Box
(PMB)



B - Pump Unit with Ø8mm, 5m air hose

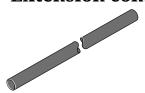


C - Pressure Vessel with Ø25mm T-connector



D - 150W Solar panel

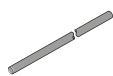
4.2 Extension components



E - Water tube Ø25mm, 1 meter



F - Water extraction tube Ø25mm, 30cm



G - Air tube Ø16mm, 0.8 meter



H - Straight connector Ø25mm

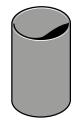


I - Quick connector Ø16mm



J - Quick connector Ø8mm

4.3 Maintenance parts



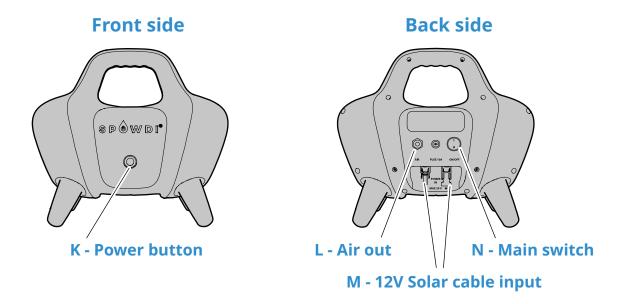
Membrane



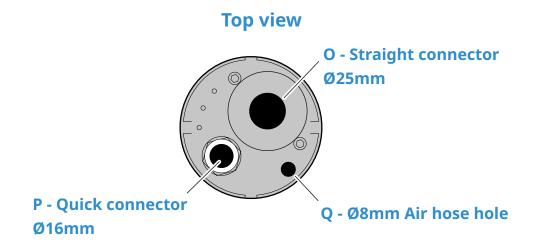
Spowdi tool

Doc number: 001 Revision: PA18

4.4 PMB overview



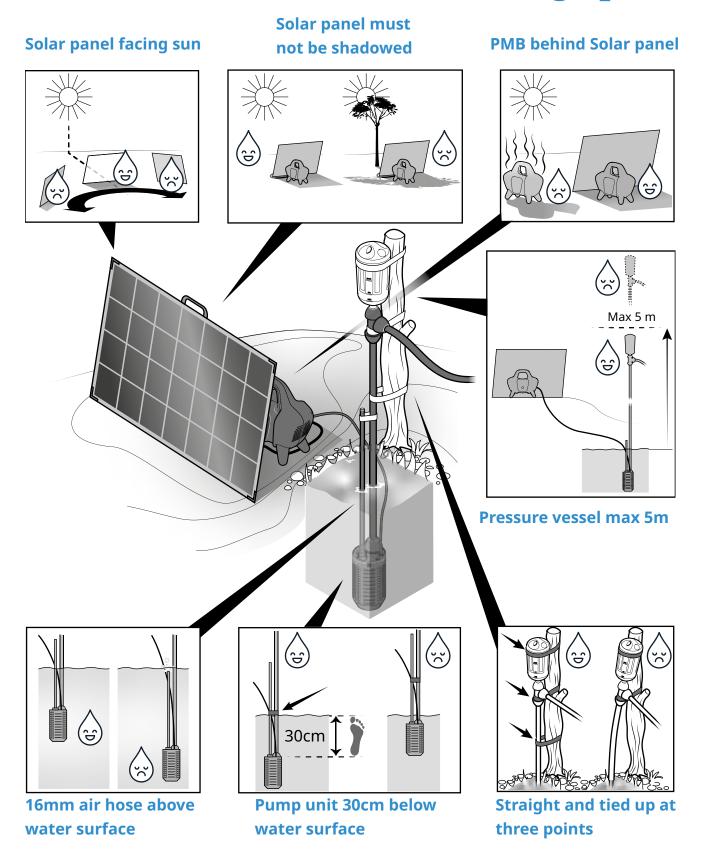
4.5 Pump unit overview



5 Unpack items

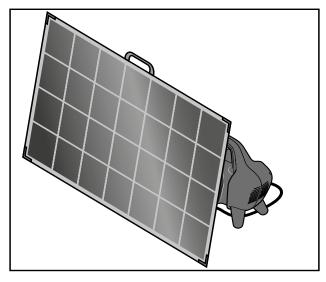
- 1 Open boxes and unpack everything on ground.
- 2 Check that all items are included and if there are any damaged parts. Contact your local service centre.

6 How it should look after setting up



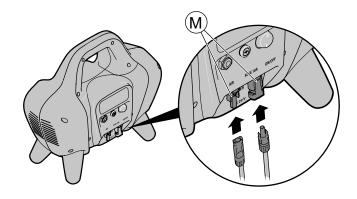
7 How to install

7.1 Solar panel and PMB

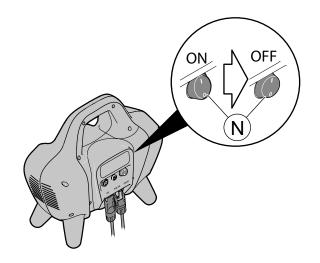


Connection of solar panel and PMB

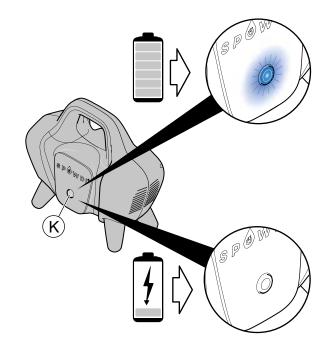
1 Connect positive and negative wires of solar panel to back of PMB (M).



2 Switch on main switch (N) on back of PMB.



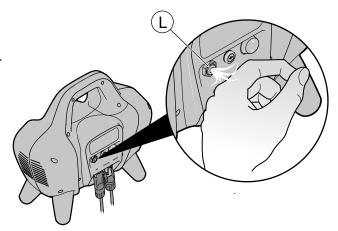
3 If connection is right and there is power from solar panel or battery inside PMB, power button (K) will light up blue.



If power button does not light up, see Troubleshooting, chapter 3.1 in the service manual.



4 Test PMB boot up by pressing down power button and feel air pressure at air outlet (L) on back of PMB.

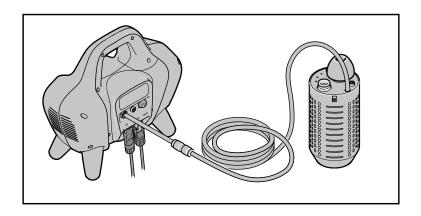


5 Turn off the power button when PMB test is completed.

Note!

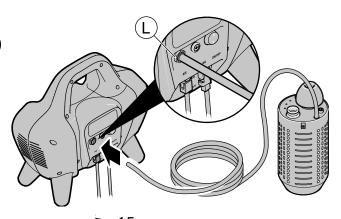
- 1. In order for system to run smoothly, sun radiation has to be more than 750W/ m² and the battery must not be empty. If boot up does not happen, try to let solar panel charge battery for at least one hour under sufficient sun radiation than boot up system again by pressing down power button. Charging will happen if the main switch is turn on while connected to solar panel.
- 2. Always turn off power button after test completed.
- 3. Only proceed forward when test to PMB boot up is successful.

7.2 PMB and pump unit

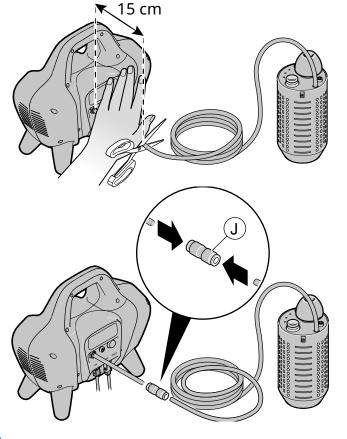


Connection of Ø8mm air hose from pump unit to PMB

1 Connect Ø8mm air hose (Orange colour) from pump unit to air outlet (L) at back of the PMB.



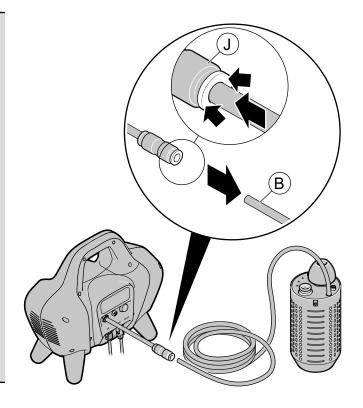
- 2 Cut a 15cm section of Ø8mm air hose from air outlet connection point at back of PMB. This section of 15cm (Ø8mm air hose) is a permanent installation to the PMB.
- 3 Connect the two ends of the Ø8mm air hose with Ø8mm quick connector (J) included in packing box.
- 4 Air hose connection is completed.



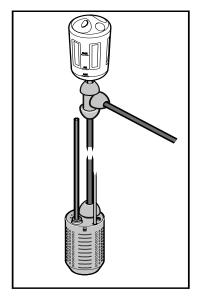
Doc number: 001 Revision: PA18

Note!

- 1. When you want to disconnect PMB from Pump unit, disconnect Ø8mm air hose that belongs to pump unit from quick connector. Bring back home PMB with fixed 15cm section and quick connector attached.
- 2. To disconnect the Ø8mm quick connector press down ring on the connector (J) and press in tube to release tube as there will be some pressure holding the tube. Push and pull tube on pump unit (B).

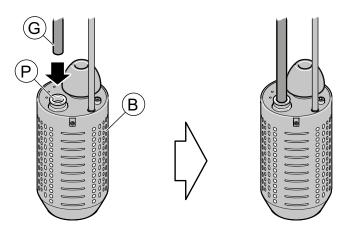


7.3 Piping



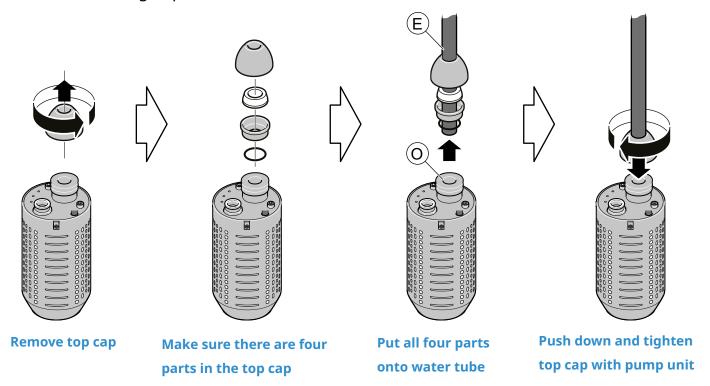
Connection of Ø16mm air hose, Ø25mm water outlet pipe to pump unit and pressure vessel

1 Attach Ø16mm air tube (G) into Ø16mm quick connector (P) on pump unit (B).



Doc number: 001 Revision: PA18

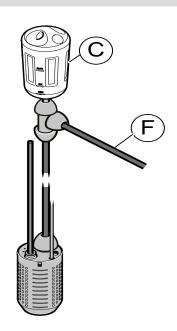
2 Install Ø25mm water tube (E) into Ø25mm straight connector (O) on pump unit according to picture below.



Note!

Take note of the arrangements of the four parts.

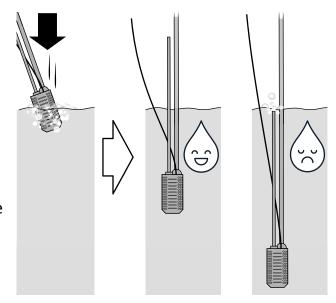
- 3 Follow the above procedure to install pressure vessel (C), with Ø25mm T-connector attached, to top extraction point of Ø25mm water tube.
- 4 Install water extraction tube (F) (including in the packaging) to extraction outlet of T-connector, also in same way.
- 5 Piping installation is completed.



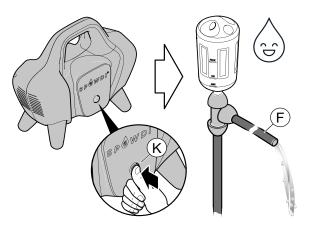
8 How to test system

8.1 Test procedure

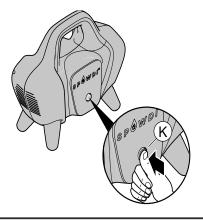
- 1 Put pump unit into the water. Pump unit must be completely submerged in water and 30cm below water surface.
- 2 Make sure Ø16mm air tube is above the water surface.



3 Turn on the main switch then press power button (K) on the front of the PMB and observe the free flowing water from water extraction tube (F).



4 If water is flowing, system test is completed. Turn OFF the power button and then the main switch.

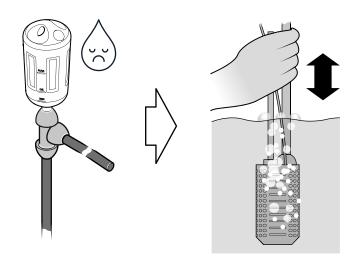


Note!

The factory setting is set for 5 meter head use, if you have more than 5 meter, you might need to adjust air regulator setting for the pump unit to work. Please refer to Service manual.

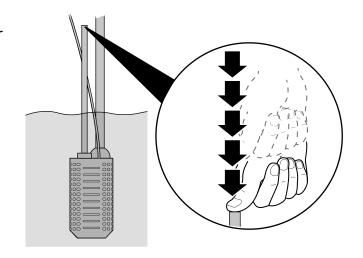
8.2 If water does not flow

1 Grip Ø25mm water tube and shake pump unit up and down a few times.



Only do following steps if still no water is flowing out.

2 Block Ø16mm air tube outlet with your thumb for 2 seconds and repeat a few time until you see it pumping.



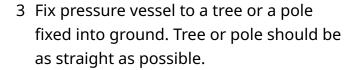
3 If still no water. Check if there are any leakage at all the connection points.

Note!

When system is operating, always check if there are any air/water leakage at ALL connecting points in order for best performance and life of system. You can use your hand to feel if there are any air leakage from the connecting points. For water leakage, you can see water leaking via naked eye.

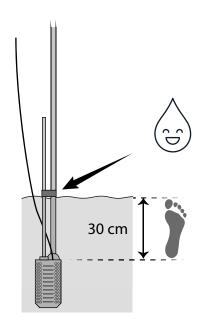
9 How to complete installation

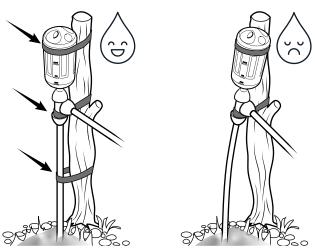
- 1 Fix Ø16mm air tube to Ø25mm water tube by attaching a cable ties or tape.
 Attach it 30cm above top of pump unit.
- 2 Submerge pump unit in water until cable tie/tape is at water level surface.



Make sure pressure vessel is straight and is not dangling down.

Tie at lease 3 section to the pole to ensure good secure of all the tubing and hose. It is also recommended to tie top part of pressure vessel to pole.



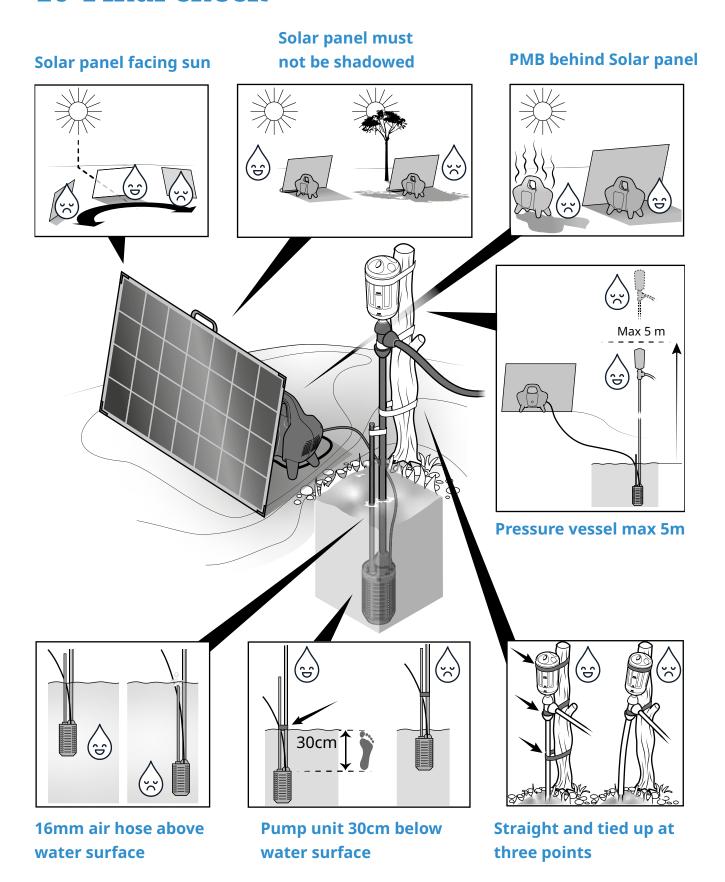


9.1 How to extend tubes

Depending on the type of installation, you may need optional tubes and connectors. Please only use the same quality of tubes for your extension or buy from your local dealer.

To extend Ø16mm tube use 16mm straight connector (I) and to extend Ø25mm tube use 25mm straight connector (H), both included in the packaging box. See chapter 7.3 'Piping' (Pg.no 12, in this manual).

10 Final check



11 Product features

CHARACTERISTICS	COMMENTS
Start and stop automatically?	Yes, when it is connected to the solar panel.
Can go dry?	Yes, without any negative impact on the system.
Pump dirty water?	Yes, dirty water, i.e. with gravel and mud, will not be a problem.
Easy to maintain?	Yes, it can be maintained easily if scheduled maintenance is followed
Mobile?	Yes, it can be easily carried by one person (total weight: 15 kg).
Backup battery?	Yes, a backup battery for 20 min operation is inbuilt.
Pump head over 15 m?	Not recommended.
Connect to grid?	Yes, by using the Spowdi adapter.
Connect to an external battery?	Yes, any 10 – 20 V external source can be used with the Spowdi adapter.
Compatible with drip irrigation?	Yes, drip irrigation is recommended.
Compatible with sprinklers?	Yes, it is compatible with most types of micro sprinklers.

12 Technical specifications (Free flow)

PV ARRAY	MOTOR CAPACITY	HEAD	WATER OUTPUT (L/MIN)	WATER OUTPUT (L/DAY)
150 Wp	0,1 hp	10 meters (1)	10 (2)	6 300 (3)
150 Wp	0,1 hp	5 meters	25 (2)	15 900 (3)
150 Wp	0,1 hp	1 meter	35 (2)	21 000 (3)

- (1) Head more then 5m not recommended when used for drip irrigation.
- (2) Solar panel, tubes, hoses, fittings and instructions recommended by Spowdi.
- (3) Sun radiation is more than 750 Watt per square meter.

13 Storage

Fullfill this requirements for safe storage:

- Do not store more than one month without charged battery.
- Do not store at temperature higher than 45 degress celsius.
- Store equipment dry.

14 Transport

While transporting the system please follow the following instructions:

- Disconnect all the cables from solar panel and PMB.
- Unplug the pipe connections.
- Place all the components inside the packaging box.
- · Handle with care.

Spowdi AB

Registration number: 559098-2954 Augustendalsvägen 7 (11 fl), 131 52 Nacka Strand, Sweden www.spowdi.com | info@spowdi.com