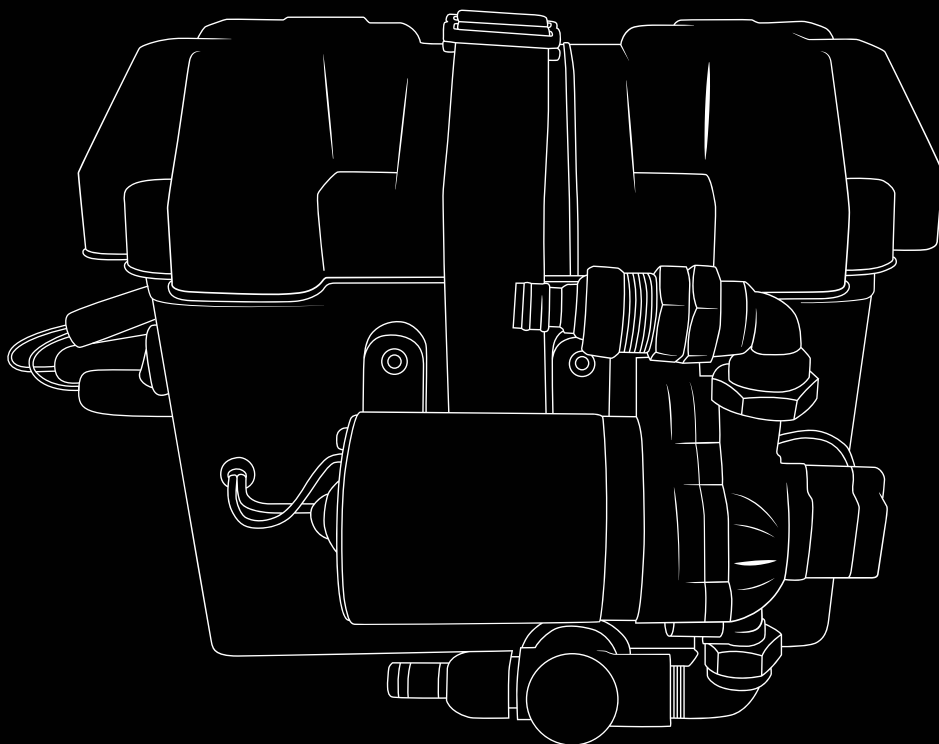


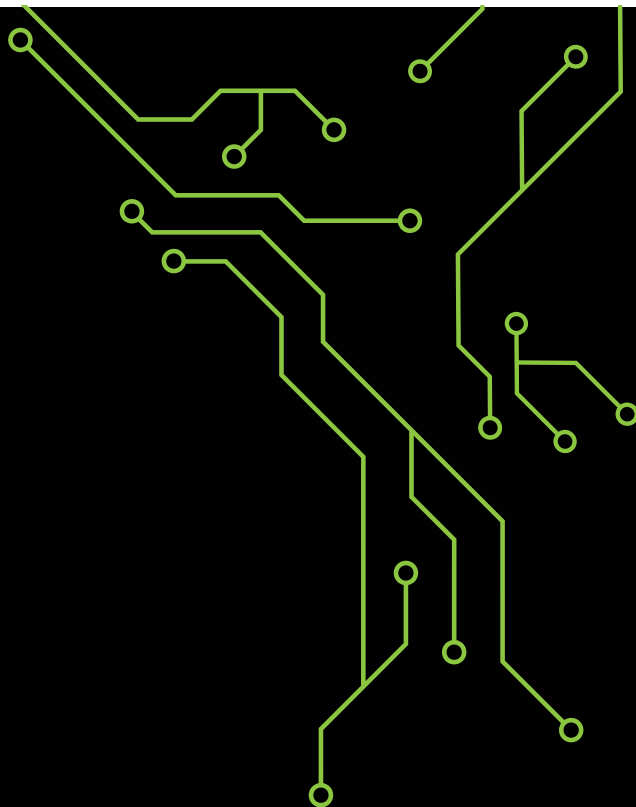
# **SOLAR CHARGED WATER PUMP V2**

*USER MANUAL 2022*



[WWW.ON2ITELECTRONICS.CO.NZ](http://WWW.ON2ITELECTRONICS.CO.NZ)





***FIX IT  
DESIGN IT  
INSTALL IT***

*ELECTRONIC SOLUTIONS*



# ***SOLAR CHARGED WATER PUMP V2***

*USER MANUAL 2022*

# **WARNINGS**

**PLEASE READ AND UNDERSTAND THE INFORMATION IN THIS MANUAL BEFORE INSTALLING THIS UNIT.**

On2it Electronics is very safety conscious when designing and manufacturing consumer products, but it is essential that the product user also exercise care when using this device.



Do not use if any internal parts are damaged.



Recycle product packaging as they are manufactured from recyclable materials.



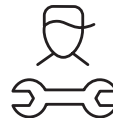
Do not immerse in water or other liquids.



Handle with care as internal parts are fragile.



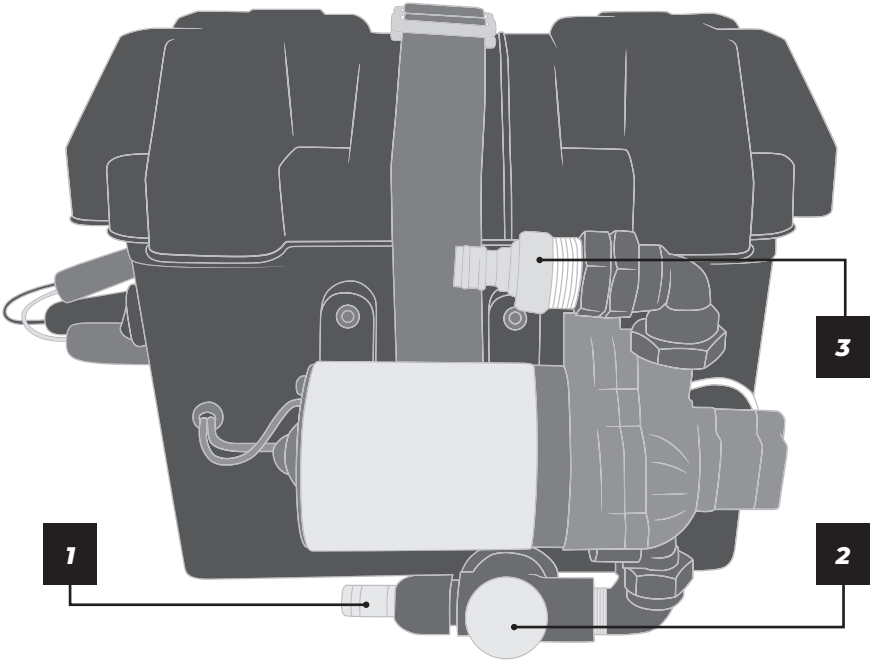
Failure to connect unit correctly could result in damage to the unit or systems connected to it.



We recommend installation is performed by an appropriately trained technician.

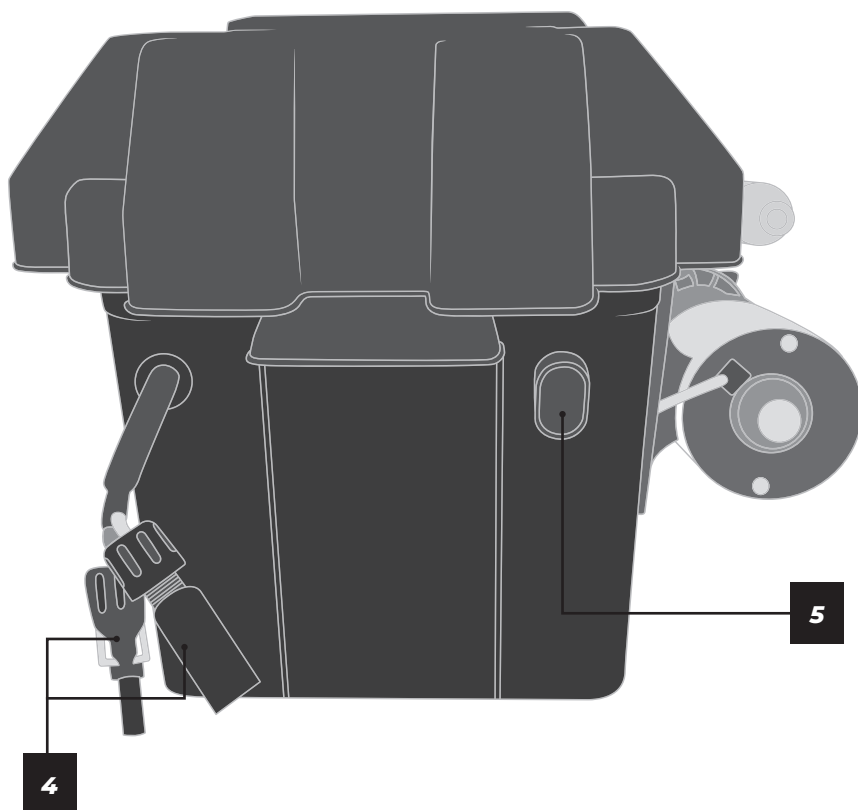
*If you have any concerns regarding the performance or use of your device, please contact [admin@on2itelectronics.co.nz](mailto:admin@on2itelectronics.co.nz) or visit the On2it Electronics website for assistance.*

# DEVICE APPEARANCE

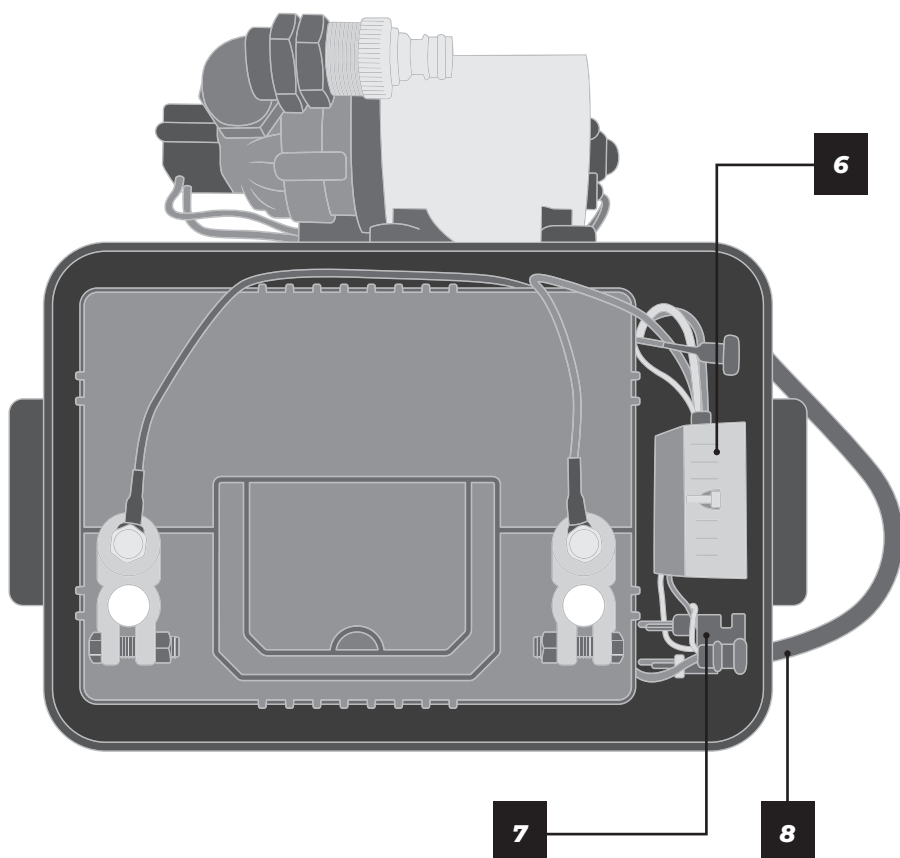


## FRONT

<b>1</b>	Water Intake
<b>2</b>	Filter
<b>3</b>	Water Outlet

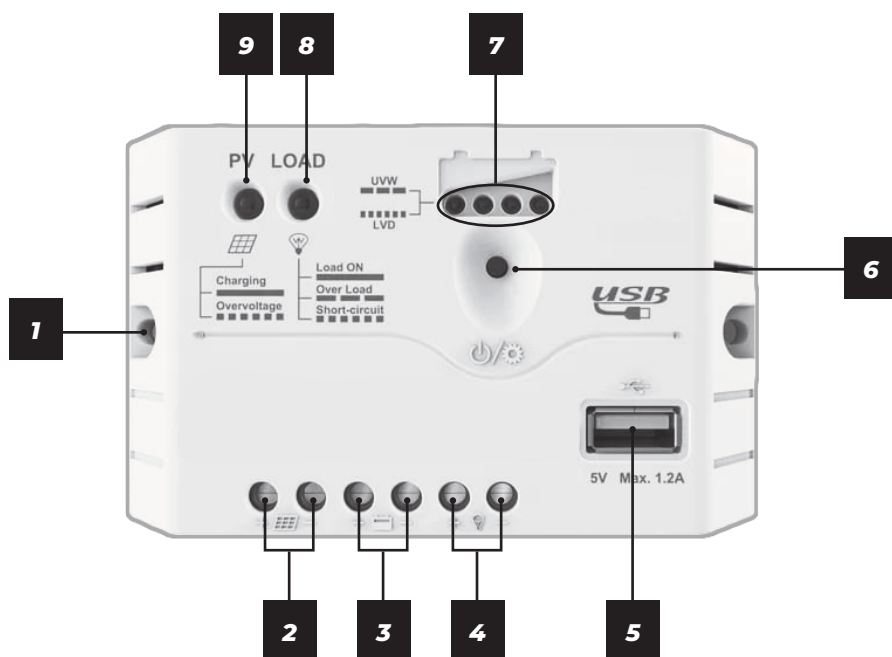
***SIDE***

<b>4</b>	Solar Connection
<b>5</b>	On/Off switch



### **INTERNAL BATTERY**

<b>6</b>	Charge Controller
<b>7</b>	Charger Input
<b>8</b>	Auto reset fuse



## CHARGE CONTROLLER

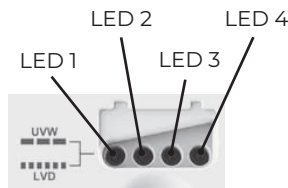
<b>1</b>	Mounting Hole $\Phi 4.5$	<b>6</b>	Button
<b>2</b>	PV Terminals	<b>7</b>	Battery status LED indicator
<b>3</b>	Battery Terminals	<b>8</b>	Load status LED indicator
<b>4</b>	Load Terminals	<b>9</b>	Charging status LED indicator
<b>5</b>	USB Output Port		



# LED INDICATORS

## 1) Charging and load status indicator

Indicator	Colour	Status	Instruction
Charging status LED indicator	Green	On Solid	In Charging
	Green	OFF	No Charging
	Green	Fast Flashing	Battery Over Voltage
Load status LED indicator	Green	On Solid	Load ON
	Green	OFF	Load OFF
	Green	Slowly Flashing	Load over load
	Green	Fast Flashing	Load short circuit



## 2) Battery status indicator

LED 1	LED 2	LED 3	LED 4	Battery Status
Slowly Flashing	×	×	×	Under voltage
Fast Flashing	×	×	×	Over discharge
Battery charging stage (PV indicator is on)				
○	○	×	×	$12.8V < U_{bat} < 13.4V$
○	○	○	×	$13.4V < U_{bat} < 14.1V$
○	○	○	○	$14.1V < U_{bat}$
Battery discharging stage (LOAD indicator is on)				
○	○	○	×	$12.8V < U_{bat} < 13.4V$
○	○	×	×	$12.4V < U_{bat} < 12.8V$
○	×	×	×	$U_{bat} < 12.4V$

### NOTE:

① Voltage value for 12V system at 25°C, please use 2× in 24V system

② "○" LED indicator on; "×" LED indicator off.

# PROTECTION

- **Battery Over Voltage Protection**

When the battery voltage reaches to the set point of Over Voltage Disconnect Voltage(OVD), the controller will stop charging the battery to protect the battery from being over charged to break down.

- **Battery Over Discharge Protection**

When the battery voltage reaches to the set point of Low Voltage Disconnect Voltage(LVD), the controller will stop discharging the battery to protect the battery from being over discharged.

- **Load Overload Protection**

Load will be switched off when 1.25 times rated current overload happens. User has to reduce load appliance, then press the button or repower the controller.

- **Load Short Circuit Protection**

Load will be switched off when load short circuit ( $\geq 3$  times rated current) happens. User has to clear short circuit, the press the button or repower the controller.

- **High Voltage Transients Protection**

The controller is protected against small high voltage transients. In lightning prone areas, additional external suppression is recommended.

# ***LIMITED WARRANTY***

Thank you for your purchase. Upon purchasing this product you have agreed to the following warranty documentation.

On2It Electronics warrants that this product will

- i. Perform in the manner stated in the operating instructions and other documentation related to the product
- ii. That the product will be free from defects in materials and workmanship under normal use and service

**On2It Electronics warrants this product for the period of 12 months from the date of purchase.**

## **NO OTHER WARRANTIES**

TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, THE COMPANY AND ITS SUPPLIERS DISCLAIM ALL OTHER WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WITH REGARD TO THE PRODUCT AND ANY RELATED WRITTEN MATERIALS. THIS LIMITED WARRANTY GIVES CUSTOMER SPECIFIC LEGAL RIGHTS.

## **NO LIABILITY FOR DAMAGES**

TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, IN NO EVENT SHALL ON2IT ELECTRONICS OR ITS SUPPLIERS BE LIABLE FOR ANY DAMAGES WHATSOEVER (INCLUDING WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR INDIRECT DAMAGES FOR PERSONAL INJURY LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, OR ANY OTHER PECUNIARY LOSS) ARISING OUT OF THE USE OF OR INABILITY TO USE THIS PRODUCT, EVEN IF ON2IT ELECTRONICS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN ANY CASE, ON2IT ELECTRONICS AND ITS SUPPLIERS' ENTIRE LIABILITY UNDER ANY PROVISION OF THIS WARRANTY SHALL BE LIMITED TO THE AMOUNT PAID FOR THE PRODUCT BY THE CUSTOMER.

## **CUSTOMER REMEDIES**

On2It Electronics and its supplier's entire liability and customer's exclusive remedy shall be, at On2It Electronics option, either:

- i. Return of the price paid for the product
- ii. Repair or replacement of the product that does not meet this Limited Warranty and which is returned to On2It Electronics.

This limited warranty is void if failure of the product has resulted from accident, abuse, misapplication, water damage or incorrect installation of the product. Any replacement will be warranted for the remainder of the original warranty or 30 days, whichever is longer.

## **GENERAL RECOMMENDATIONS**

### **Before use:**

Remove cardboard protection pieces, protective film and adhesive labels from accessories.

Check the appliance for any transport damage.

### **During use:**

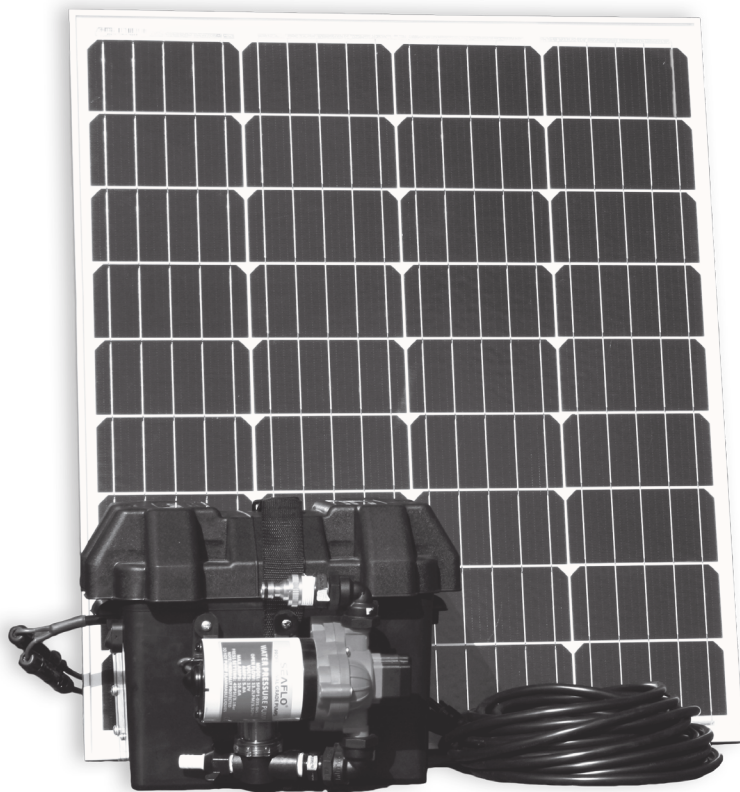
To avoid any damage do not place any weights on the appliance.

Do not expose the appliance to atmospheric agents.

*Figures and illustrations in this User Manual are provided for reference only and may differ from actual product appearance. Product design and specifications may be changed without notice.*

# FEATURES

- ▶ Pump is self priming
- ▶ Pump can be run dry
- ▶ Automatic pressure switch control
- ▶ Solar charge system to keep battery charged
- ▶ Self contained pump and battery unit for portability



# ***SPECIFICATIONS***

## ***POWER SUPPLY***

Fuse	10A Self Resetting
Battery	12V Sealed Lead Acid battery (Automotive)
Solar	12V 100W with 10A Charge Controller

## ***PUMP SPECIFICATIONS***

Open Flow	13.2LPM/3.5GPM
Pressure Cut-out	45psi/3.1bar
Current Draw	5A - MAX 10A
Voltage	12V

## ***HOSE SPECIFICATIONS***

Intake	15mm
Outlet	20mm or Gardina style quick connect
Filter	50 MESH strainer - Washable

# ***TROUBLESHOOTING***

## ***PULSATING FLOW – PUMP CYCLES ON AND OFF***

- ▶ Check for kinks in the lines
- ▶ Plumbing lines or fittings maybe too small
- ▶ Clean filters
- ▶ Check fittings are tight – there may be an air leak

## ***FAILURE TO PRIME BUT MOTOR OPERATES – NO PUMP DISCHARGE***

- ▶ Restricted intake or outlet line
- ▶ Air leak in intake line
- ▶ Start up current is too low to start the motor – charge battery
- ▶ Debris clogging pump valves
- ▶ Punctured pump diaphragm
- ▶ Crack in pump housing

## ***MOTOR FAILS TO TURN ON***

- ▶ Flat battery – Charge battery
- ▶ Loose wiring – Tighten as needed
- ▶ Circuit breaker has tripped – cycle power switch
- ▶ Failed pressure switch
- ▶ Charge controller shutdown - press button on controller

## ***PUMP FAILS TO STOP AFTER ALL VALVES ARE CLOSED***

- ▶ Output line leaking
- ▶ Clogged valves in pump
- ▶ Failed pressure switch
- ▶ Punctured diaphragm

**LOW FLOW AND PRESSURE**

- ▶ Blocked or dirty intake filter - Clean
- ▶ Air leak in pump intake – Check fittings are sealed and tight
- ▶ Debris inside pump or pipe work
- ▶ Punctured diaphragm

**NOISY**

- ▶ Check mounting feet are not compressed too much but are tight
- ▶ Check for loose screws on the pump
- ▶ If pump is plumbed with rigid piping to the intake and/or outlet this will transmit noise easily



# TROUBLESHOOTING

## CHARGE CONTROLLER

Faults	Possible reasons	Troubleshooting
LED Charging indicator off during daytime	Solar panel disconnected or battery disconnected	Confirm that solar panel and battery wire connections are correct and tight.
No LED indicator	battery voltage maybe less than 8V	Measure battery voltage with the multi-meter.
Charging status LED indicator fast flashing	Battery Over Voltage	Check if battery voltage is higher than 16V, and disconnect the Solar Panel. Charge battery if lower than 8V.
LED 1 flashing fast	Battery over discharged	When the battery voltage is restored to or above 12.6V normal operation will continue.
Load status LED indicator flashing slowly	Load over load*	Press the button or repower the controller.
Load status LED indicator flashing fast	Load short circuit	⊙ Pump motor needs testing, contact On2it Electronics. ⊙ Press the button or repower the controller.

\* When load current reaches 1.25 times, 1.5 times and 2 times more than nominal value, the controller will automatically turn off loads for 60s, 5s, and 1s respectively.

## SETUP

- ▶ Intake and output hose must be a minimum of 10mm (3/8") reinforced hose.
- ▶ Turn the pump off when not used for extended periods of time or the inlet supply is empty.
- ▶ Flexible water hose is recommended to avoid pump noise and vibration.

## CONTACTS

Need help with your product or want a customised solution? We welcome feedback or any suggestions to improve our product. Contact our team on the details below or visit our website for more information.

📍 PO Box 288  
Kerikeri 0245  
Northland, New Zealand

☎ 027 254 3914

✉ [admin@on2itelectronics.co.nz](mailto:admin@on2itelectronics.co.nz)

🌐 [www.on2itelectronics.co.nz](http://www.on2itelectronics.co.nz)

Find us on Facebook @on2itelectronics 

***This product is proudly designed and manufactured in  
New Zealand by On2it Electronics Ltd.***

