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# AQUASUN 2

## Instruction Manual



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## DESCRIPTION

The Aquasun2 is an automatic solar controller with temperature adjustment, manual mode and winter mode features. Mode of operation and the temperature limit settings are retained after a power outage.

## INSTALLATION INSTRUCTIONS

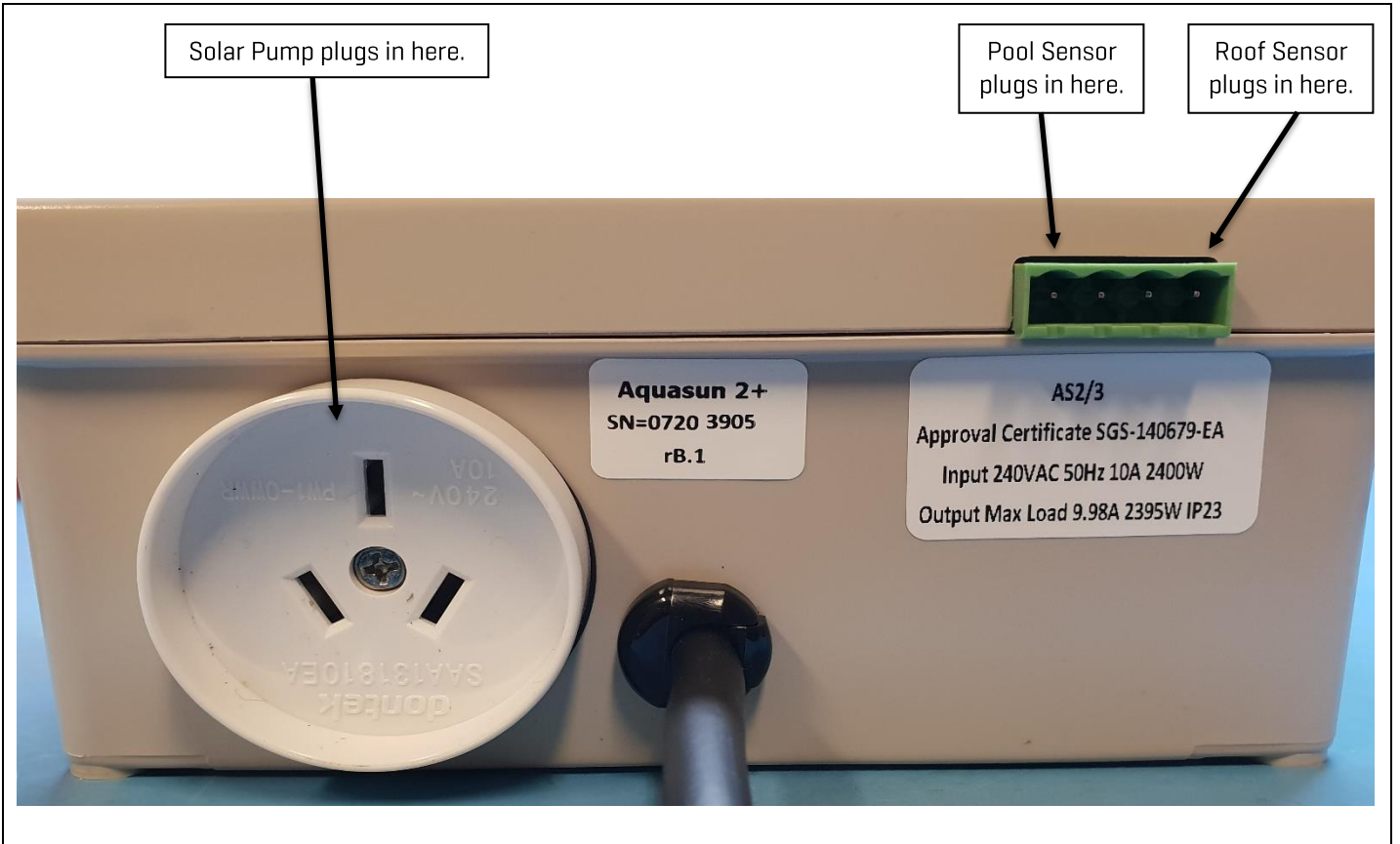
THIS APPLIANCE IS NOT INTENDED FOR USE BY YOUNG CHILDREN OR INFIRM PERSONS WITHOUT SUPERVISION. PLEASE ENSURE THAT YOUNG CHILDREN ARE SUPERVISED TO ENSURE THAT THEY DO NOT PLAY WITH THE APPLIANCE.



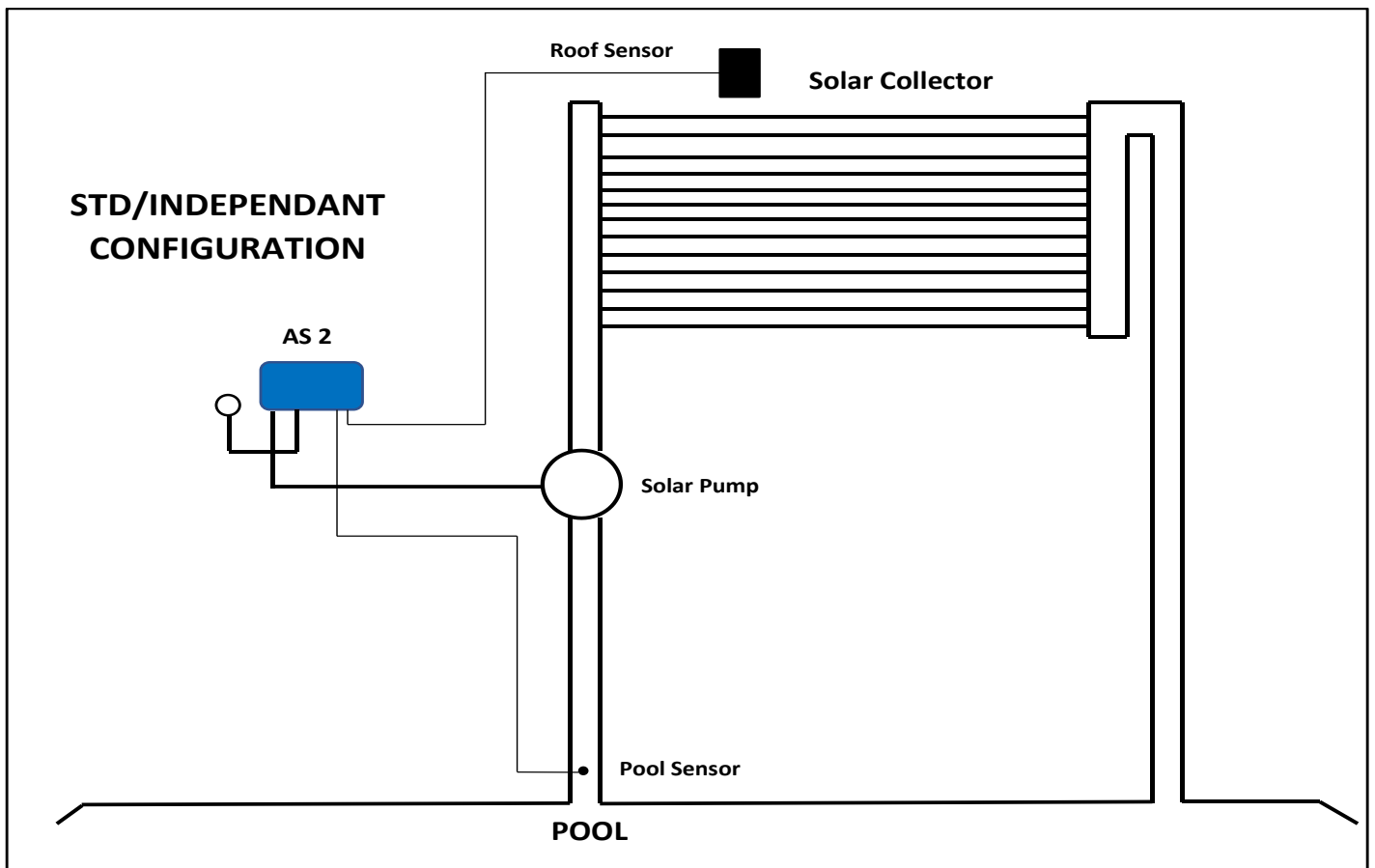
Lift up the two mounting tabs and use two appropriate screws to mount the control box to the wall. To remove unit, undo the screws slightly, push the controller upwards and gently pull away from structure.

<p><b>CONTROLLER MOUNTING</b></p>	<p>Find a suitable location to mount the control box.  <u>Ideally, as with all pool equipment, it should be installed out of direct weather.</u>            The controller should be no closer than 3 metres from the water's edge and a minimum 600mm above ground. The power cable is 1.8m long and should be plugged directly into a general power outlet, not into an extension lead.</p>
<p><b>PUMP CONNECTION</b></p>	<p>The Solar pump plugs into the 240V socket labelled PUMP.            AUX socket provides a constant 240V power for other applications            The maximum load is 9.98 AMPS at 2395W.</p>
<p><b>POOL SENSOR</b></p>	<p>The pool sensor must be fitted into the heating circuit, as close to the pool as practical, preferably in a position out of direct sunlight. It is recommended that a 14.5mm hole be drilled in the side of the PVC pipe, not the top of the pipe where water will collect.            This can be carried out using a Dontek PD01 grinding drill or a pilot hole drilled, then a 14.0mm drill-bit spinning in a counter clockwise direction to minimize the chance of shattering pipe. Insert the grommet into the pipe and gently push in the sensor barb. Ideally ~30cm of the cable from the sensor should be tied to the shaded side of the pipe to prevent extreme ambient conditions leeching into the sensor via the copper in the cable.  <b>The blue sensor plug is to be fitted to the plug socket marked POOL.</b></p>
<p><b>ROOF SENSOR</b></p>	<p>The roof sensor must be fitted into a small piece of collector material away from the main collector but on the same aspect, preferably no more than 50cm from the roof gutter [for ease of sensor replacement]. If required, the roof sensor can be on a different roof as the solar collector as long as the alignment to the sun is similar to the solar collector.            For encapsulated collector panels, use the manufacturer's instructions for roof sensor placement.  <b>The red sensor plug is to be fitted to the plug socket marked ROOF.</b></p>
<p><b>SENSOR NOTES</b></p>	<p>All excess cable must be removed. Coils of cable are not permitted under any circumstances and must not be tied to 240V wiring. If the cable is to be extended with non-genuine cable, a size of 14/020 should be used. Any cable joins should be soldered. Heat shrink is to be used over soldered joints to eliminate moisture ingress, and the cable end is to be refitted to the plug sockets. Once cables have been correctly fitted the unit can be then turned on.</p>

## BASE DIAGRAM



## PLUMBING CONFIGURATION



## OPERATING INSTRUCTIONS

<p><b>LCD SCREEN</b></p>	<p>The LCD screen displays the pool and roof temperatures, solar temperature limit, the pump on/off/locked-out status and the current mode of operation.</p>
<p><b>↑ AND ↓ BUTTONS (TEMPERATURE SETTING)</b></p>	<p>Use the ↑ or ↓ buttons to adjust the temperature limit, which will allow the controller to heat the pool until the temperature limit +<math>\frac{1}{2}</math>°C is achieved.</p> <p><b>***TEMP RANGE: OFF, 20° – 40° ***</b></p> <p>If the temperature limit is set below the current pipe temperature then the pump is automatically started for 3 minutes to test the pool water temperature.</p> <p>The controller will automatically choose to run the pump based on solar gain [i.e. the sun is shining &amp; roof is hot]. Once the desired temperature is achieved the pump is stopped and a four hour wait commences to ensure no energy is wasted by unnecessarily starting the pump.</p> <p>If, after 4 hours, the roof is hot enough then the pump may start to provide a 2<sup>nd</sup> heating cycle. If the roof is not hot enough, then the “waiting for roof to warm” message will appear. If the pool achieves temperature limit during the 2<sup>nd</sup> heat cycle then it will start an economy/sleep mode, which will prevent the pump from starting for the rest of the day.</p> <p><b>Note:</b> - <i>The controller has some factory defaults settings in regards to its solar heating functions. These default settings cannot be changed.</i></p> <ul style="list-style-type: none"> <li>• <i>The controller will wait for the roof to read a temperature of 8°C or more above the pool temperature before it will start the pump to heat the pool.</i></li> <li>• <i>Once the pump has started, it will continue to run until either the pool reaches the set LIMIT or until the roof temperature reads &lt;4°C above the pool temperature.</i></li> </ul> <p><b>Note:</b> - <i>The ability to solar heat the pool will depend on weather conditions and other factors.</i></p> <p><b>** The factory default for SOL. LIMIT is 30°C.</b></p>

<p style="text-align: center;"><b>CONTROLLER MODES</b></p>	<ul style="list-style-type: none"> <li>• <b>Manual Mode</b> - Holding the UP button to go above 40°C will toggle the pump from Off to On or vice versa, Manual mode will time out after 30 minutes of being selected, with a default temperature limit of 30°C.</li> <li>• <b>Winter Mode</b> - Holding the DOWN button to go below 20°C will set the unit into WINTER mode, on selection of winter mode the pump will run for 3 minutes and will repeat this every day at the same time unless the power fails. Should there be an interruption to power then an exception takes place to prevent the pump starting at night. The sensors are tested to check that the roof sensor is 5°C or more above the pipe sensor, if this temperature condition is not met the display will show “waiting for roof to warm”. Once the pump starts the controller will wait 24 hours to perform another unconditional flush of the system. To get the controller back into SUMMER mode, simply use the UP button to set the desired pool temperature.</li> <li>• <b>Summer Mode</b> - Summer mode is the default mode of operation. If tropical mode has been selected, you can change back to summer mode by pressing both buttons. When SUMMER is displayed, released the buttons and use the up or down buttons to set the desired temperature. The controller will automatically heat the pool to this temperature when solar conditions are favourable.</li> <li>• <b>Tropical Mode</b> - To activate tropical mode, press and hold both up &amp; down buttons. When “TROPICAL” is displayed, release the buttons and use the up or down buttons to set the desired temperature. In tropical mode the controller will attempt to heat the pool. If the pool exceeds the temperature limit while heating, the controller turns off the pump and waits for the roof to cool so the controller can cool the pool down by dissipating the heat on the cold roof [most likely to occur at night].</li> </ul>
<p style="text-align: center;"><i>CALIBRATE POOL SENSOR BY:</i></p>	<p>X.X [RANGE -5.0 TO +5.0°C] This is for the + series sensor only [TS02P].</p> <p>This function is there to alter the temperature that the pool sensor is reading, either higher or lower.</p> <p>For instance; if the pool sensor cable is in constant sunlight and is reading higher than it should potentially due to thermal heat soaking [this will lead to the pool not heating properly], the pool sensor can be calibrated to read up to 5°C lower.</p> <p>To access this function, you will need to turn the controller off at the power point. Hold down the UP button and turn the power to the controller back on while still holding the button down until you see the controller has started. Once you see that the controller has started, release the UP button and the controller will be displaying</p> <p>Cal 0.0°C</p> <p>Use the UP or DOWN buttons to alter the value to where you would like. Once you have the appropriate value displayed, leave the controller buttons for a few seconds, then press either the UP or Down button to save the setting.</p> <p><b>Note:</b> <i>The factory default is 0°C.</i></p>

**NOTES:**

1. If any of the menu items are left unattended for 3 minutes, the menu will time out and automatically save all settings and return to automatic operation.
2. If a sensor fault is detected, the controller displays which sensor and what the fault is.
3. Should power be interrupted for any reason, the controller will resume normal operation when power is restored. All information will have been kept for up to 10 days.
4. If the controller has stopped the pump and is displaying a higher temperature than expected it may be caused by a pump which is failing to prime. Check the pump and if necessary, prime the pump as per the pump manufacturers' instructions. Then reset the controller by turning it off/on.
5. MAX combined rated output load for the 240V socket[s] is 9.98 Amps / 2395 Watts.
6. Degree of protection against moisture: IP23.
7. Store pool chemicals safely, at least 3 metres away from all pool equipment.

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## WARRANTY

- This range of product is covered by a limited 2 year warranty against component failure or faulty workmanship from the date of installation.
- Faulty units should be returned in the first instance to the dealer from which the unit was purchased. [Return to Base]
- Damage to the unit due to misuse, power surges, corrosion from pool chemical fumes, lightning strikes and or installation that is not in accordance with the manufacturer's instruction may void the warranty.
- Warranty does not include on-site labour or travel costs to or from installation site.

### IMPORTANT:

**If the supply cord is damaged, It must be replaced by the manufacturer or Its service agent In order to avoid a hazard.**

### CUSTOMER RECORD (To be retained by the customer)

DEALER/INSTALLER NAME

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SERIAL NUMBER

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DATE INSTALLED

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For service assistance visit [www.dontek.com.au](http://www.dontek.com.au)

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## TROUBLE SHOOTING

### NO POWER TO THE DISPLAY:

Power point is faulty. Test power point with a known working appliance. If the power point is operational, check the controller in another power point. If there is still no display then send the controller for repair.

**RTC-FAIL** – This can occur if the unit has been turned off for a prolonged period of time. Leave the unit on for ~30 seconds, then turn it off for ~30 seconds before turning it back on.

### PIPE/ROOF SENSOR FAULTS:

The following are error messages caused by pool or roof sensor faults;

#### SENSOR DISCONNECTED OR OPEN CIRCUIT

Sensor cable unplugged from controller, cable damaged, bad cable join or sensor is damaged.

#### SENSOR SHORT CIRCUIT OR REVERSED

Sensor cable or cable join polarity is incorrect, or sensor is damaged. The positive side of the sensor cable (grey coloured wire) should be wired to the righthand side of the plug, with the screws facing towards you and the sensor cable entry at the bottom of the plug. If the cable has been joined ensure no polarity reversal occurs.

#### SENSOR READ ERROR (INTERFERENCE)

Electrical/magnetic interference from other equipment is causing errors when trying to read temperature values.

**Ensure sensor wires are located away from mains wiring, never cable tie sensors to mains cables.**

#### SENSOR WRITE ERROR (CABLE DAMAGED)

Damaged or kinked cable. The sensor at the end of the cable can't get the power required to perform a temperature reading. Replace cable and or sensor.

### ISOLATING SENSOR FAULTS:

**Swap the sensor locations. Put the pipe sensor in the roof socket and the roof sensor in the pipe socket.**

If the fault moves from pipe to roof or vice versa then it is likely that there is a sensor fault.

If the fault remains the same then the controller may need to be repaired.

### PUMP FAULTS:

Ensure the controller has working sensors; otherwise the pump will not operate.

#### PUMP WILL NOT START:

The pump will only ever run for the purpose of automatic heating if the pool is below the temperature limit and solar conditions can provide heating.

The pump may also run for a flush in winter-mode or for manual mode operation. If the pump does not operate then plug the pump into a power point and test operation, if the pump is OK then the controller requires repair.

#### PUMP WILL NOT STOP:

Turn off power to the controller and ensure the pump stops. If the pump continues to operate then unplug it from the power point and connect it to the 240Vac socket marked PUMP at the bottom of the controller.

#### POOL NOT HEATING:

If the controller has stopped pumping and is displaying a higher temperature than expected it may be caused by a pump which is failing to prime. Check the pump and if necessary, prime the pump as per the pump manufacturers' instructions then reset the controller by turning it off/on.

If the controller is in WINTER mode, then no heating will occur.

Check the controller LCD screen to see if any sensor faults are present and fix as required.

### FACTORY RESET:

Hold down the DOWN button when power is off, hold down after powering up, releasing after 5 seconds.

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