

# AQUASMART 5AV

## Instruction Manual



## DESCRIPTION

The AQUASMART 5AV is a premium automatic solar controller with temperature adjustment, manual, standby and cooling mode features.

This unit is fitted with optional current detection on the PUMP power socket; so that the solar valve will only operate if the current load on the PUMP socket is within an operating range once it has been set.

See Installer Setup to set the Filtration pump load settings.

## INSTALLATION INSTRUCTIONS

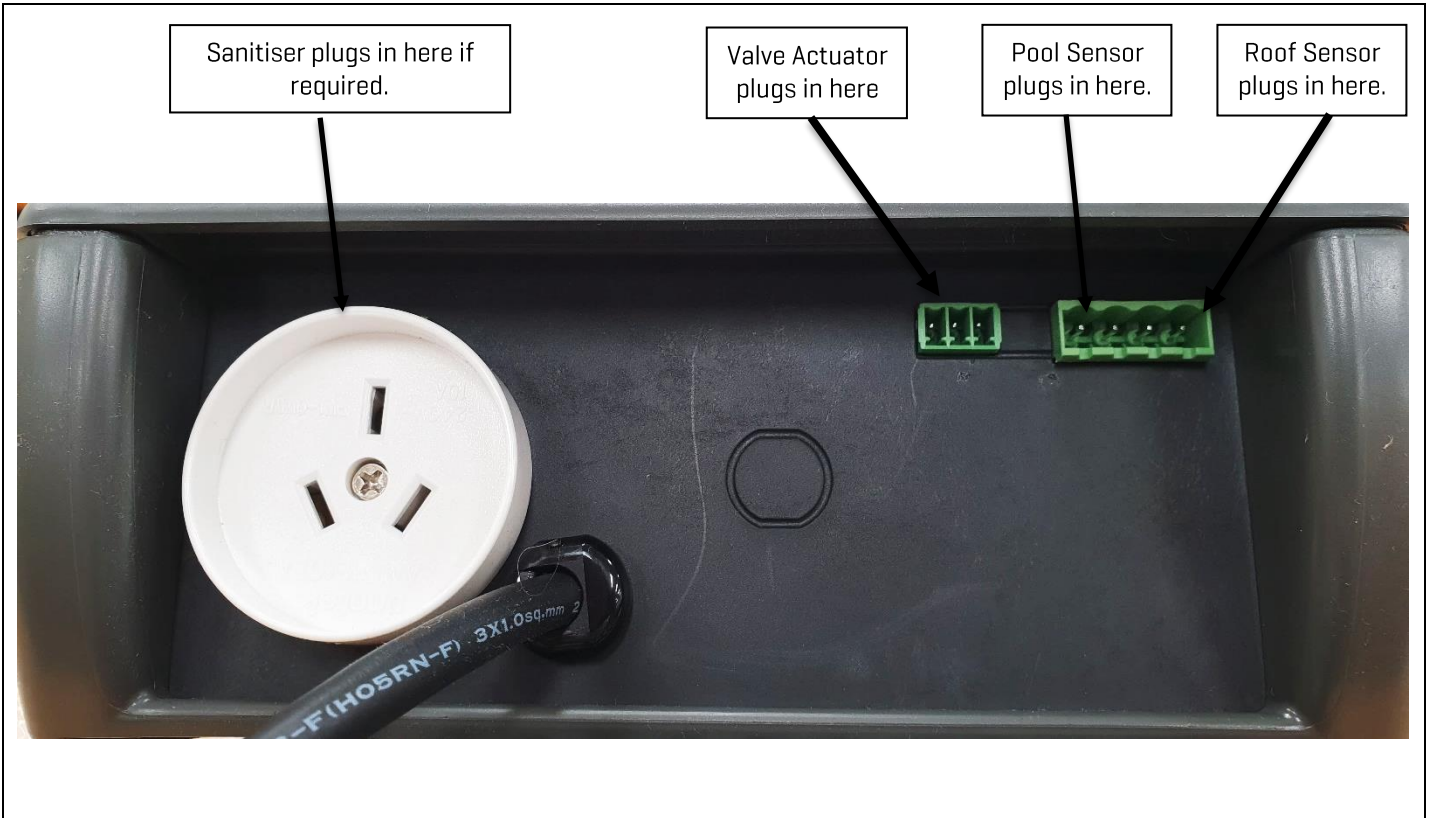
THIS APPLIANCE IS NOT INTENDED FOR USE BY YOUNG CHILDREN OR INFIRM PERSONS WITHOUT SUPERVISION. PLEASE ENSURE, YOUNG CHILDREN ARE SUPERVISED TO ENSURE THAT THEY DO NOT PLAY WITH THE APPLIANCE.



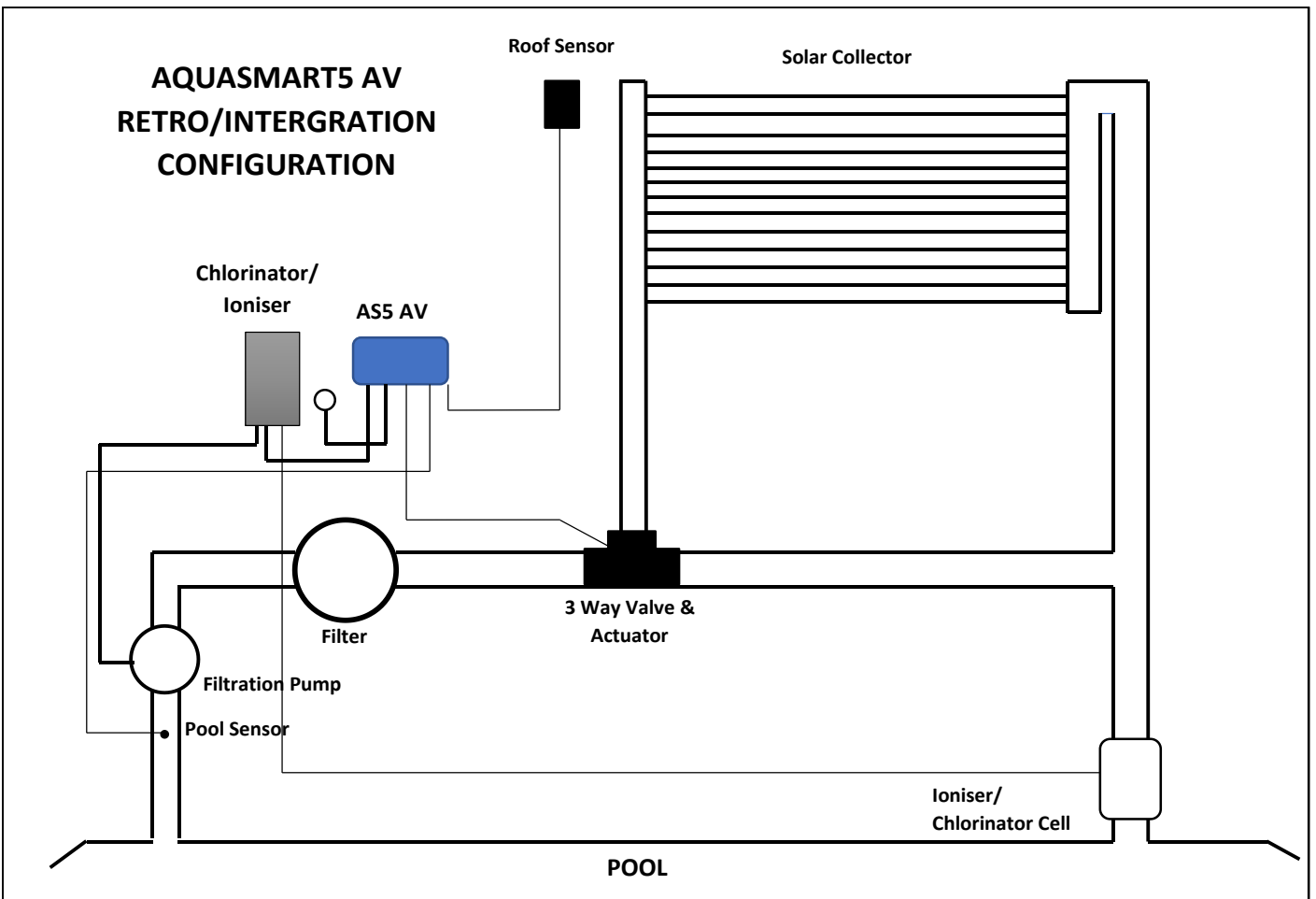
*Ideally, as with all pool equipment, the controller should be installed out of direct weather.*

<b>CONTROLLER MOUNTING</b>	<p>Find a suitable location to mount the control box.</p> <p>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, <b>not into an extension lead.</b></p> <p>Fix the mounting bracket to a solid structure with the screw and wall plug kit provided. Slide the controller on, locking it into place. Adjust the screws on the back of unit to ensure a snug fit.</p> <p>To remove unit, lift and gently pull away from structure.</p>
<b>PUMP CONNECTION</b>	<p>The 240V socket labelled PUMP is used for pump on detection or constant AUX power. The sanitiser (Ioniser, Chlorinator or Ozoniser etc.) connects to the 240V socket labelled PUMP, then plug the pool circulating/filter pump into the sanitiser.</p> <p>Set the times in the sanitiser to operate for the required filtration and dosing requirements. The maximum output load for the socket is 9.98 AMPS at 2395W.</p>
<b>VALVE CONNECTION</b>	<p>A valve can be used for selecting or bypassing the solar collector instead of using a solar pump.</p> <p>Connect the valve to the green socket marked VALVE. If wiring your own supplied valve then wire as follows (Red, Black then White) red and white are for direction control and black is the common.</p> <p>Ensure the switch on the valve actuator is in the ON position. Refer the valve instructions for mounting requirements, cam adjustments etc.</p>
<b>POOL SENSOR</b>	<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 PDO1 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. The blue sensor plug is to be fitted to the plug socket marked POOL.</p>
<b>ROOF SENSOR</b>	<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 to 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. The red sensor plug is to be fitted to the plug socket marked ROOF.</p>
<b>SENSOR NOTES</b>	<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 PLATE

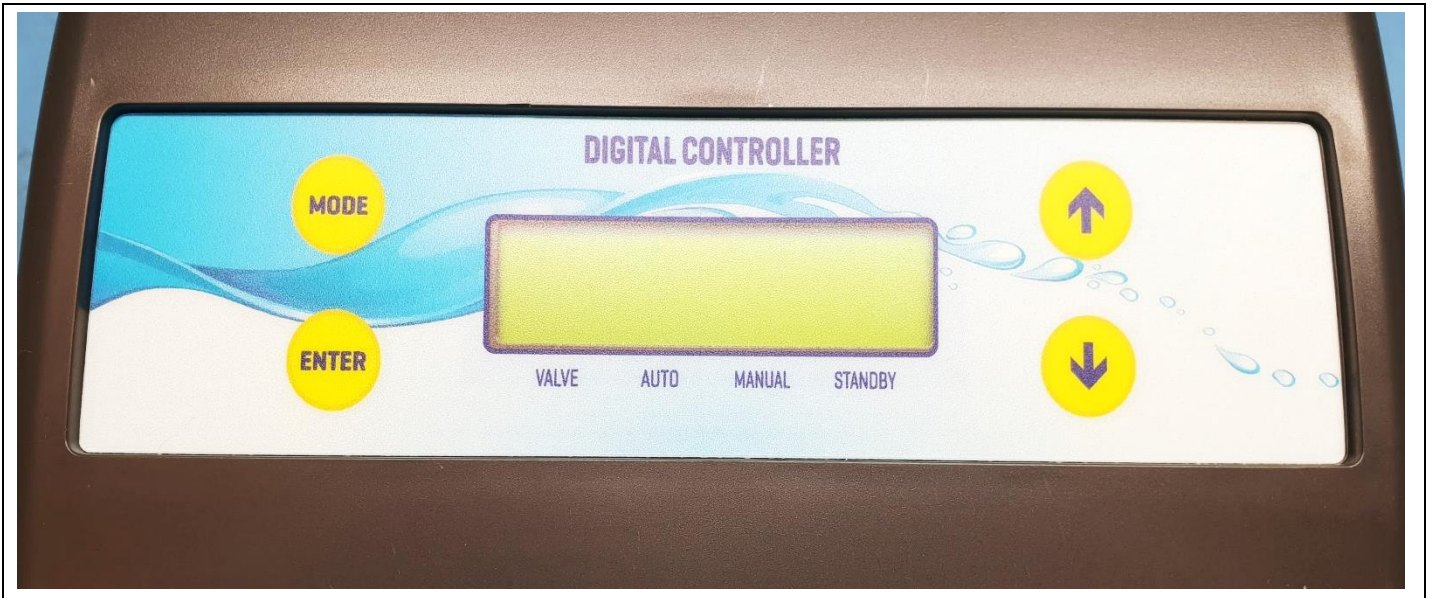


## PLUMBING CONFIGURATION



## OPERATING INSTRUCTIONS

<p><b>LCD SCREEN</b></p>	<p>The LCD screen displays the pool and roof temperatures, solar temperature limit, pump on status, on/off/locked-out status and the time of day &amp; date [clock].</p>
<p><b>LCD INDICATORS</b></p>	<p>There are arrow icons on the LCD screen that indicate what actions the controller should currently be doing. These arrows point to text on the label.</p>
<p><b>MODE BUTTON</b></p>	<p>Pressing this button changes to the next mode of operation. Once the mode button is no longer being pressed then the selected mode of operation is automatically saved.</p> <ul style="list-style-type: none"> <li>• <b>Heating mode [Auto]</b> is the normal operating mode for heating the pool.</li> <li>• <b>Manual Mode</b> is for switching the filter pump on or off. This mode can be used for a 3min [Backwash], for running the filter pump for up to 24hrs, or for ensuring that the filter pump doesn't turn on for system maintenance. Once Manual is selected the filter pump will start.</li> </ul> <p><b>**The ENTER button will toggle the pump on or off during this mode**.</b> After Manual Mode times-out, the unit will return to the previous mode, or you can press the Mode button to return to the normal operating Mode.</p> <ul style="list-style-type: none"> <li>• <b>Standby mode</b> of operation is for off-season/holiday maintenance or if pool heating is not required. This is a better option than turning the controller off, as it will flush treated pool water through the solar system, and prolong solar pump bearing and mechanical seal life.</li> </ul> <p><b>Note</b> – When Current Detection is turned ON, the solar pump will run for 3 minutes a day after completing the 3 minute pump priming function at the start of Filtration. If Current Detection is turned OFF, the solar pump will run for 3 minutes at 10am.</p> <p><b>Note</b> – If the controller is put into Standby mode at a time outside of the set filtration time, the controller will perform the 3 minute standby flush at the start of the next filtration cycle, after completing the 3 minute pump priming function or at 10am.</p> <p><b>**The factory default MODE is HEATING MODE</b></p>
<p><b>↑ AND ↓ BUTTONS (TEMPERATURE SETTING)</b></p>	<p>Adjusting the temperature limit 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>Heating will then remain off until the sample wait period expires, if no sample wait period is active the heating will remain off until the pool temperature drops <math>\frac{1}{2}</math>°C below the temperature limit setting. Due to rounding the actual heating hysteresis is <math>\pm\frac{1}{2}</math>°C. <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><b>ENTER BUTTON</b></p>	<p>Pressing the ENTER button will turn on the LCD backlight. Pressing the ENTER button while the backlight is lit will enter the SETTINGS MENU.</p> <p>The following will be displayed:</p> <p>1) EXIT, the menu system can be navigated using the ↑ or ↓ buttons. All selectable and changeable values will flash on the LCD screen. Press the ENTER button to accept the currently displayed [flashing] item.</p>



All menu items are shown below:

- 1) EXIT
- 2) CLOCK
- 3) SYSTEM

<b>1) EXIT</b>	Will save changes and return to automatic operation.
<b>2) CLOCK</b>	Selecting clock, will allow you to set the time of day. Set hours then minutes..
<b>3) SYSTEM</b>	<p><i>EXIT</i> - Press ENTER on this menu to return to automatic operation.</p> <p><i>COOLING</i> - is for situations where the pool water overheats <i>beyond</i> the set temperature limit due to direct heating from the sun.</p> <p><b>**NOTE for the cooling function to work properly, it is best if the solar run hours have been left at the factory default [See Hours below]. This will allow the controller to take the best advantage of the evening and early morning hours to cool the pool.</b></p> <p><i>LCD TIME</i> - Adjust the number of seconds the backlight remains on after the time a button was pressed. [Select NONE for always on.]</p> <p><i>HOURS</i> -. is for hours of solar operation [24hr Clock] First selecting the start time in hour intervals [6:00 - 12:00] Then the end time [12:00 - 21:00]</p> <p><b>**Factory default for installer setup is run from 12:00-12:00 [24hrs].</b></p>

## INSTALLER SETUP;

TO ACCESS MENU PRESS ENTER AND SCROLL DOWN TO SYSTEM AND PRESS THE MODE BUTTON **WARNING PROFESSIONAL ONLY SETTINGS!!**

<p>FACTORY DEFAULT? NO/YES</p>	<p>Restore back to factory defaults.</p>
<p>PUMP/FLOW DETECTION</p>	<p>Ensure that the filtration pump is plugged into the Sanitiser and the Sanitiser is plugged into the PUMP power outlet of the controller if you want the valve actuator to be restricted to the systems filtration times.</p> <p>The controller will ask you if you would like the current detection to be ON or OFF. Use the ↑ or ↓ buttons to select the required option and press the Enter button.</p> <p>If OFF is selected the unit will operate as a standalone solar controller and the PUMP socket will be <b>powered constantly</b>.</p> <p><i>Note: The valve actuator may open in this instance [due to there being solar gain] even if no water is flowing through the system [ie out of filtration time].</i></p> <p>If ON is selected then the filtration pump will start.</p> <p><u>Ensure the filtration pump is operating [and at the required speed for variable speed pumps] via the controller's PUMP socket and is primed, then use the ↑ or ↓ buttons to select either SET AUTO or SET MAN and press the Enter button.</u></p> <p>If you select SET AUTO - the unit will display the pump's load value for 5 seconds then automatically sets the threshold levels and returns to automatic operation. If the current draw of the filtration pump drops below the selected threshold levels then the solar pump is forced to switch off.</p> <p>If you select SET MAN. - the unit will display the pump's load value for 5 seconds, take note of this value. When the LCD screen displays RUN=&gt;xxx it indicates the minimum load required to allow solar to run, set this value 15% lower than the displayed LOAD value.</p> <p><i>Note – SET MAN is usually the best option when setting the pump load settings for a variable speed pump as the load value can fluctuate more.</i></p>
<p>ROOF TEMPERATURE</p>	<p><b>RUN</b> - When the <b>roof</b> temperature rises to the <b>pool</b> temperature+ RUN, then the solar pump will start.</p> <p><b>END</b> - When the <b>roof</b> drops below the <b>pool</b> temperature+ END then the solar pump will stop.</p>
<p>PIPE PROTECTION? NO/YES Range 50°C - 95°C</p>	<p>For use when solar collectors are flooded, flat and may require a wetted roof sensor for this mode.</p> <p>The controller will allow the pool to heat to the selected pool temperature, where it will then force the controller to stop any further solar heating of the system by not allowing the solar pump to run once the roof temperature reads above the selected Pipe Protection setting.</p> <p>The solar pump will be allowed to run once the roof temp drops below the selected Pipe Protection temperature.</p> <p><b>Default is NO. If you select Pipe Protect to be YES, the controller will display 80°C. Adjust to required temperature.</b></p>
<p>CALIBRATE POOL SENSOR BY:</p>	<p>X.X [RANGE -5.0 TO +5.0°C]</p> <p>This is for the + series sensor only [TS02P].</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 9.9 Amps / 2370 Watts.
6. Degree of protection against moisture: IP33.
7. Store pool chemicals safely, at least 3 metres away from all pool equipment.

**WARRANTY**

- This range of product is covered by a limited 3 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.
- Valves and actuators are covered by a 12 month warranty at the discretion of their manufacturer.

**If the power cord is damaged, do not use the controller. Return the unit to the supplier for repair.**

**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 and 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 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.

### 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 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.

### FILTRATION PUMP WILL NOT START:

Ensure that the filtration pump is plugged into the Chlorinator properly and the Chlorinator is plugged into the Aquasmart5 AV PUMP power socket properly and has power. Check filtration times set in the chlorinator. If it still won't start plug the filtration pump straight into a power point and turn on.

### FACTORY RESET:

Hold down ENTER when power is off, hold down after powering up, releasing after 5 seconds.

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