

# AQUAHEAT 5A

## Instruction Manual



## DESCRIPTION

The AQUAHEAT 5 is a pump controller that controls the water flow through Electric Heat Pumps or Gas Heaters when the water temperature is below the desired temperature limit [and is within the required run times].

A pump sampling period setting allows the pump to stop for this time period once the desired temperature limit is achieved. After the elapsed time the pump will then automatically run for 3 minutes to obtain an accurate temperature. Should heating be required then the pump will continue to run, if no heating is required the pump will stop and the last accurate temperature will be displayed until the next sample period.

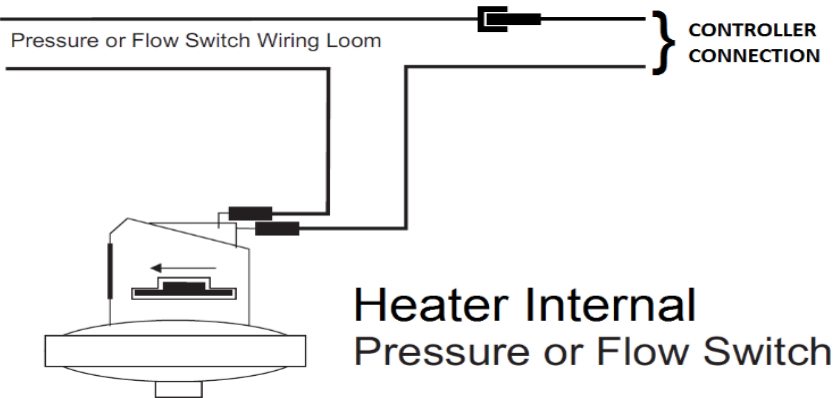
A 1<sup>st</sup> HEAT feature allows the controller to heat the pool until the desired temperature is reached; the controller will then revert to time clock automatic operation.

## INSTALLATION INSTRUCTIONS

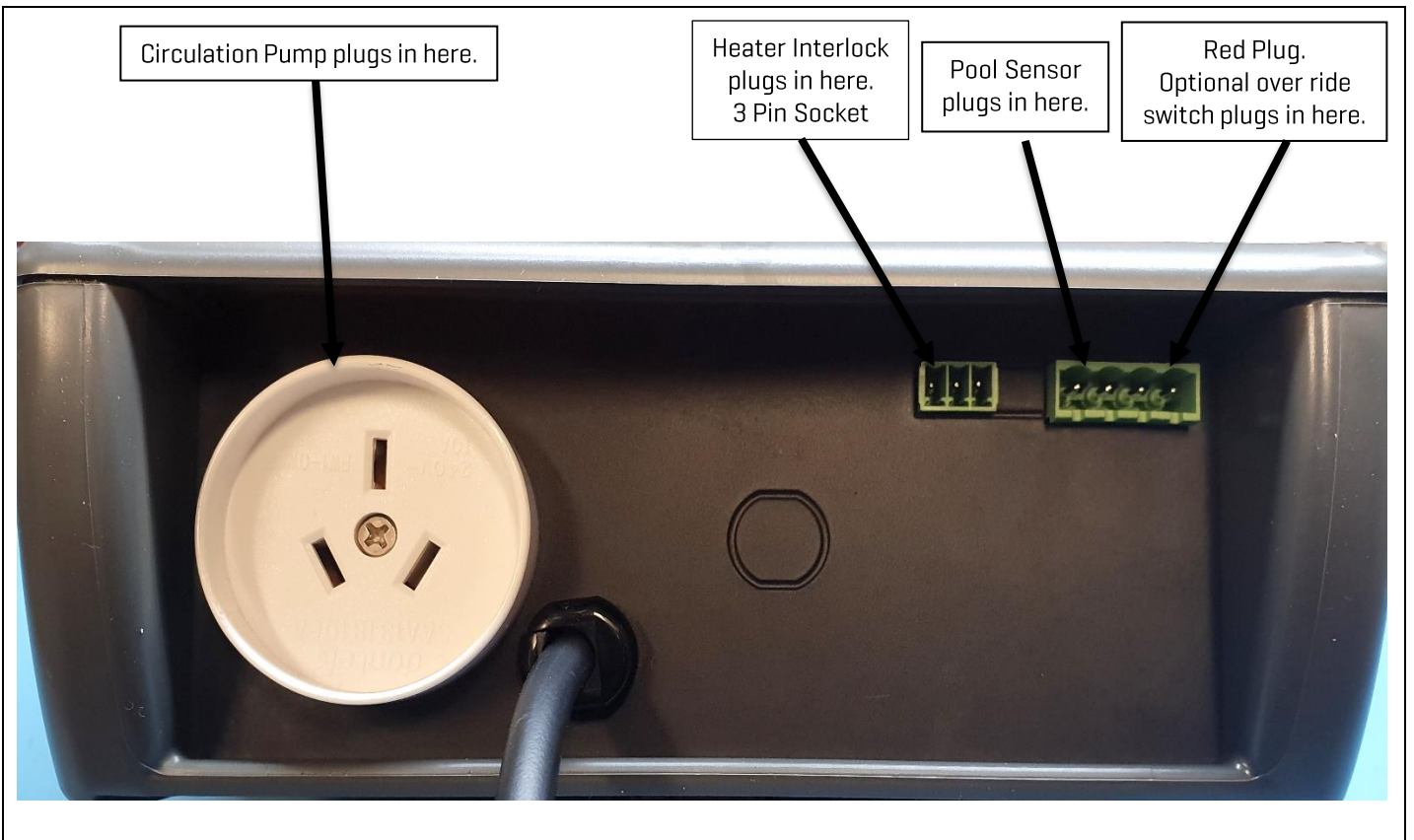
THIS APPLIANCE IS NOT INTENDED FOR USE BY YOUNG CHILDREN OR INFIRM PERSONS WITHOUT SUPERVISION. PLEASE ENSURE THAT YOUNG CHILDREN ARE SUPERVISED TO ENSURE THAT THEY DO NOT PLAY WITH THE APPLIANCE.



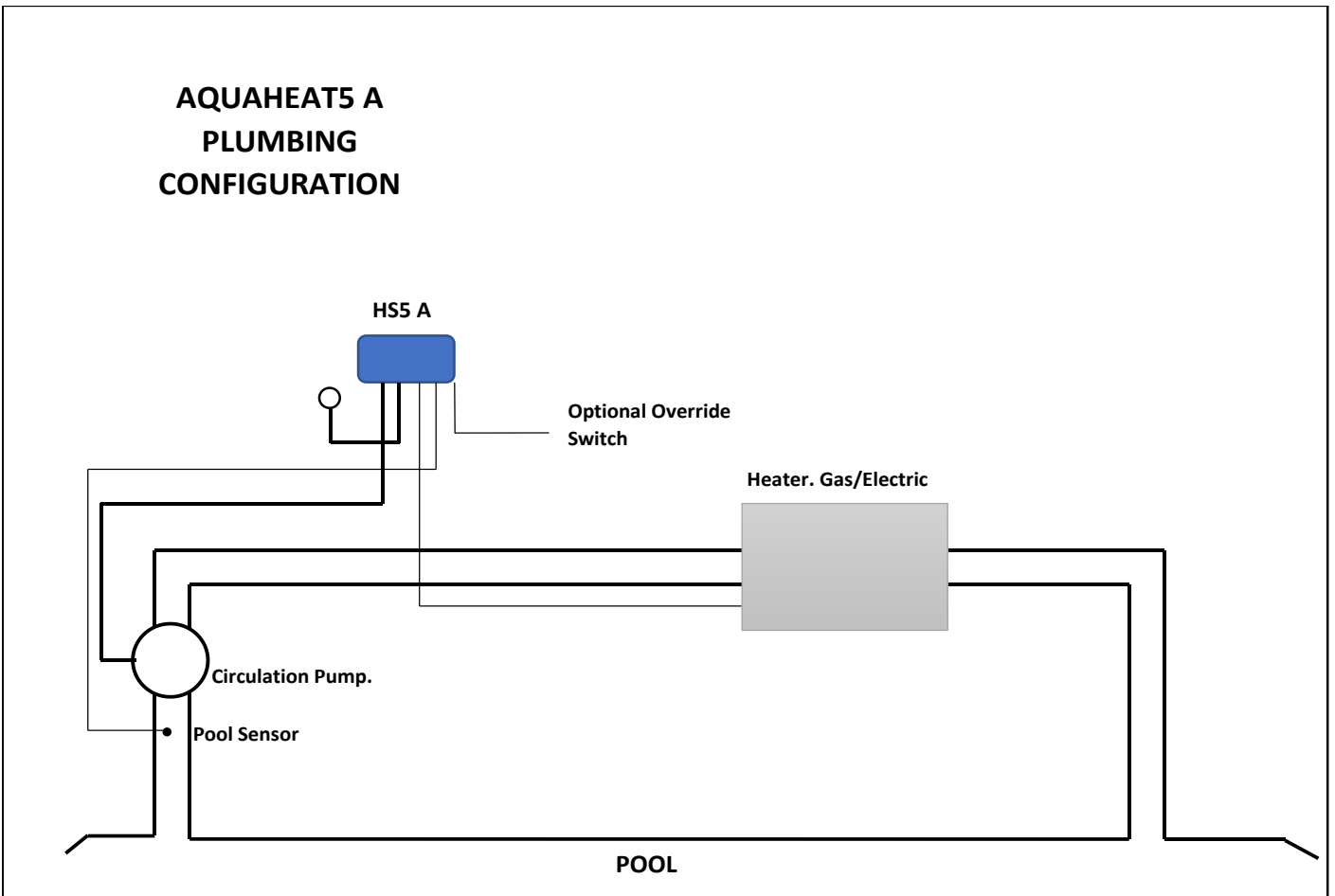
**Ideally, as with all pool equipment, the controller should be installed out of direct weather.**

<p><b>CONTROLLER MOUNTING</b></p>	<p>Find a suitable location to mount the control box.</p> <p>The controller should be no closer than 3m from the water's edge and a minimum 600mm above ground. The power cable is 1.8m long and should be plugged 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>
<p><b>PUMP CONNECTION</b></p>	<p>The Circulation pump plugs into the 240V socket labelled OUTPUT.</p> <p>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.</p> <p>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 bit spinning in a counter clockwise direction to minimize the chance of shattering pipe. Insert the grommet into the pipe, gently push in the sensor barb.</p> <p>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>
<p><b>HEATER CONNECTION</b></p>	<p>Set the heaters temperature limit to maximum [40°C]. The heaters internal control will be interrupted to turn off heating. The heater interlock cable connects to the green socket marked INT which switches on [closes] the voltage free NO/C relay contacts when the heater is to be turned on. The heater end of the interlock cable connects in series with the heater's pressure/flow or fireman's switch. Contact the heater manufacturer for the best location to connect to.</p> <p><b>The heater interlock is for extra low-voltage [MAX 24V at 1Amp] switching only.</b></p> <p><i>Note: If the heater's Flow, Pressure or External switching circuit is 240Vac, an external relay kit [can be purchased separately], <b>is to be installed by a licensed electrician.</b></i></p> <p>For Internal connection to pool heater [check with heater manufacturer].</p> <p>Illustration of a typical installation to the heaters pressure or flow switch.</p> 

## BASE DIAGRAM



## PLUMBING CONFIGURATION



## OPERATING INSTRUCTIONS

<b>LCD SCREEN</b>	The LCD screen displays the pool temperature, set pool limit, current mode of operation, pump on status, on/off/locked-out status and time of day & date [clock].
<b>LCD INDICATORS</b>	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.
<b>MODE BUTTON</b>	<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>1<sup>ST</sup> Heat Mode</b> will ignore the run timer [RUNHRS] to run the pool &amp; heater until the desired temperature limit is achieved. Once the temperature limit is reached, the controller will revert back to heating mode to only run the heating during the set run times [RUNHRS].</li> <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 heating system, prolonging circulation pump bearing and mechanical seal life. Pump will run for 3 minutes a day at 12pm.</li> <li>• <b>Cooling Mode</b> is used with heat pumps that have a cooling function, and performs cooling during the runtime.</li> </ul> <p><b>**The factory default MODE is HEATING MODE</b></p> <p><b>Note:</b> A voltage free switch can be wired into the right-hand [Red] plug, which will force heating outside of the set Heating Run times. The Override switch will need to be turned off for the controller to return to normal operation. Otherwise the controller will continue heating the system.</p> <p><b>**Override switch and cable are Not included with the controller and need to be purchased and installed separately.</b></p>
<b>↑ AND ↓ BUTTONS (TEMPERATURE SETTING)</b>	<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.</p> <p><b>Note:</b> The ability to heat the pool will depend on weather conditions and other factors such as size and heating capacity of the heater.</p> <p><b>** The factory default for LIMIT is 30°C..</b></p>
<b>ENTER BUTTON</b>	<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) RUN HOURS
- 4) SYSTEM

<b>1) EXIT</b>	Will save changes and return to automatic operation.
<b>2) CLOCK</b>	When selecting the clock, you will have to set the time of day. Set hours then minutes.
<b>3) RUN HOURS</b>	<p>When selecting this menu, you are prompted to set the number of automatic heating cycles per day to run, CYCLES OFF, 1 or 2.</p> <p>If OFF is selected [no automatic heating] then the following menus are skipped.</p> <p>If 1 or 2 heating cycles per day is selected, you will be prompted to set the start &amp; end time[s].</p> <p>The heater [with pump] will only be allowed to run between these hours. Set the start time [S1 hh:mm] and end time [E1 hh:mm] in half hour steps [30 mins], repeat if a 2nd cycle is selected.</p> <p><b>Note 1:</b> Take care not to overlap heater cycle 2 times with the heater cycle 1 times as the result will be one cycle per day.</p> <p><b>Note 2:</b> For 24hr heating, set the heating to run 1 time per day with the start &amp; end times the same (E.g. 12:00 – 12:00).</p>

<p><b>4) SYSTEM</b></p>	<p><b>EXIT</b> - Press ENTER on this menu to return to automatic operation.</p> <p><b>SAMPLE TIME</b> - xx:xx [hh:mm]  The pump stops the system heating for the selected time period once the temperature limit is achieved  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 ½°C below the temperature limit setting. Due to rounding the actual heating hysteresis is ±½°C.  <b>Note:</b> - <i>The pump may continue to run once limit has been achieved for either heater cool down or if the sanitiser is asking for the pump to be running for filtration.</i></p> <p><b>INSTALL</b> -</p> <ul style="list-style-type: none"> <li>• <b>CALIBRATE POOL SENSOR</b> - X.X [RANGE -5.0 TO +5.0°C]  This is for the + series sensor only [TS02P].</li> <li>• <b>HEATER COOL DOWN</b> - OFF MINUTE[S]  [RANGE = OFF-20 MINUTES]</li> </ul> <p>Once the heater achieves temperature or if the heating time period ends then the heater is switched off. The cool down timer ensures that the circulation pump continues to operate to cool the heater before the pump switches off.  <b>**Note:</b> <i>Only needs to be set, if a Gas Heater is being used to heat the system. Not required to be set if the heater is an Electric Heat Pump.</i></p> <p><b>LCD TIME</b> - Adjust the number of seconds the backlight remains on after the time a button was pressed. [Select NONE for always on.]</p> <p><b>DEFAULT</b> - Restore the controller back to factory defaults.</p>
<p><b>NOTES:</b></p>	<ol style="list-style-type: none"> <li>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.</li> <li>2. If a sensor fault is detected, the controller displays which sensor and the fault.</li> <li>3. Should power be interrupted for any reason, the controller will resume normal operation when power is restored. All settings are kept for up to 10 days.</li> <li>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.</li> <li>5. MAX combined rated output load for the 240V socket[s] is 9.98 Amps / 2395 Watts.</li> <li>6. Degree of protection against moisture: IP33.</li> <li>7. Store pool chemicals safely, at least 3 metres away from all pool equipment.</li> <li>8. Smaller bodies of water running a higher temperature limit [i.e. spa] the sample time should be set shorter than larger bodies of water that run lower temperature limits [i.e. pool]. If the pump runs for 3 minutes and stops frequently, then increase the sample time as the body of water is not losing much heat.</li> <li>9. On power-up there is a counter next to the revision number that displays the number of interrupted heater cool-down cycles. This number cannot be reset.</li> <li>10. A voltage free switch can be wired into the right-hand [Red] plug, which will force heating outside of the set Heating Run times. The Override switch will need to be turned off for the controller to return to normal operation. Otherwise the controller will continue heating the system.</li> </ol>

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## 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.

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)

**Dontek Electronics Pty Ltd**  
PO Box 239, Bayswater VIC 3153 Australia  
Phone: +613 9762 8800 Email: [sales@dontek.com.au](mailto:sales@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 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.

### 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.

The pump may also run for manual mode, 1<sup>st</sup> Heat, or Override operations. If the pump does not operate, 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:

Check the controller LCD screen to see if a pool sensor fault is present and fix as required.

Check the controller settings to ensure that the set temperature and the heating runtime settings are correct.

Check and ensure that the Heater Interlock cable is connected to the plug properly and that the plug is pushed in.

Check and make sure that the heater has power connected.

Check and ensure that the Heater Interlock cable is connected to the appropriate position inside the heater, according to the heater manufacturer's instructions.

Check to make sure that the Sample period is set correctly, ie; not set for a long period.

If the controller is in Standby Mode, the controller won't heat the pool using the heater. If heating is wanted or required, switch the controller back into Heating Mode or 1<sup>st</sup> Heat Mode to constantly heat the pool. The other option is to use the Override switch option to heat your pool if it will be a once only occasion.

### FACTORY RESET:

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

## Dontek Electronics Pty Ltd

PO Box 239, Bayswater VIC 3153 Australia

Phone: +613 9762 8800 Email: sales@dontek.com.au

