

AquaGen 5 CD

Controller

User Manual



Australian Made by **dontek**

The AquaGen 5CD is a premium automatic solar controller for a boosted system (retro), with temperature adjustment, manual, cooling and standby mode features. This unit is fitted with current detection on the AUX power socket, so the solar pump can only operate if the current load on the AUX socket is within an operating range.



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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.

Controller Mounting

Find a suitable location to mount the control box. Ideally, as with all pool equipment, it should be installed out of direct weather and no closer than 3 metres from the water's edge and a minimum 600mm above ground. Fix the mounting bracket to a solid structure and slide the controller on, keeping in mind that the power cable is 1.8m long and should be plugged directly into a general power outlet, not into an extension lead.

Pump Connections

The pool circulating pump plugs into the 240V socket labelled AUX (*see sanitiser).

The solar pump plugs into the 240V socket labelled PUMP.

The maximum combined load for both sockets is 9.98 AMPS at 2395W.

Sanitiser Connection

The sanitiser (Ioniser, Chlorinator or Ozoniser etc.) connects to the 240V socket labelled AUX, then plug the pool circulating pump into the sanitiser. Set the sanitiser to operate for the required filtration and dosing requirements.

Pool Sensor

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 small pilot hole can be drilled with a 14.0mm drill-bit spinning in a counter clockwise direction to minimise 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.

Roof Sensor

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 put 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.

SENSOR NOTES: 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.

LCD Screen

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 & date (clock).

LCD Indicators

There are arrow icons on the LCD screen that point to current mode text on the label.

Operating Instructions

Mode Button

Pressing this button changes to the next mode of operation in the following order; Heating / Manual / Standby.

Once the mode button is no longer being pushed then the selected mode of operation is automatically saved.

Heating mode (Auto) is the normal operating mode for heating the pool.

Manual mode is for testing the pump installation on a cold or cloudy day. Once manual mode is selected the pump will start, as long as the filter pump is running. After manual mode time-outs, unit will return to the previous mode.

Standby mode of operation is for off-season maintenance or if pool heating is not required. This is a better option than turning off the controller as it will flush treated pool water through the solar system as well as prolong pump bearing and mechanical seal life. The pump will run for 3 minutes each day from when the Standby mode was selected or at 10am if the time-clock mode was selected. ****As long as the filter pump is running****



The factory default for Solar Mode is Heating MODE.

Temperature Setting (Up and Down Buttons)

Adjusting the temperature limit will allow the controller to heat the pool until the temperature limit $+1/2^{\circ}\text{C}$ 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 $1/2^{\circ}\text{C}$ below the temperature limit setting. Due to rounding the actual heat may vary by up to $\pm 1/2^{\circ}\text{C}$.

The ability to solar heat the pool will depend on weather conditions.



The factory default for SOL. LIMIT is 30°C

Enter Button

Pressing the  (ENTER) button will turn on the LCD backlight, pressing the  (ENTER) button while the backlight is lit will enter the SETTINGS MENU;


The following will be displayed; 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.

All menu items are shown below;

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

1) EXIT

Press  (ENTER) on this menu to return to automatic operation.


2) CLOCK

When selecting the clock you will have to set the time of day.

3) SYSTEM

System sub-menu;

EXIT
COOLING
LCD TIME
HOURS

SYSTEM SUB-MENU	
EXIT	Press  (ENTER) on this menu to return to automatic operation.
COOLING	For situations where the pool water overheats beyond the set temperature limit due to direct heating from the sun. Note that heating is only allowed during the allowable time and that cooling can occur at any time (most likely at night). Filter pump must be running.
LCD TIME	Adjust the number of seconds the backlight remains on after the time a button was pressed. (Select NONE for always on.)
HOURS	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) Factory default for installer setup is run from 12:00-12:00 (24hrs).

Controller Troubleshooting

No Power To The Display

FAULT	REASONS/SOLUTIONS
NO POWER TO THE DISPLAY	Power point is faulty; test power point with known working appliance. If the power point is operational, check the controller with another power point and if there is still no display, then send the controller for repair.

Pipe/Roof Sensor Faults

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

FAULT	REASONS/SOLUTIONS
SENSOR DISCONNECTED	Sensor cable unplugged from controller, cable damaged, bad cable join.
SENSOR SHORT CIRCUIT	Sensor cable damaged, bad cable join.
ISOLATING SENSOR FAULTS	<p>Swap the sensor locations; simply put the pipe sensor in the roof socket and the roof sensor in the pipe socket.</p> <p>If the fault moves from pipe to roof or vice versa, then you can be certain that there is a sensor fault. If the fault remains the same then the controller will need repair.</p> <p>For sensor disconnected or short circuit faults, check for damage to the cable and repair if required. If no damage can be found, replace the sensor. If the cable runs underground or inspection is not possible, then cut the sensor from near the end of the cable and strip back the wires and join them. If the controller reports a short circuit, then the cable is fine and you may replace the sensor end if re-routing a new cable is not possible.</p> <p>If the controller reports a short circuit while the cable is unplugged, then the controller requires repair.</p>

Pump Faults

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

FAULT	REASONS/SOLUTIONS
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 standby mode or for manual mode operation. If the controller reports that the pump is off, then press select to enable manual mode. The relay inside should click and the pump should operate. If the pump does not operate, then plug the pump into a power point and test operation. If the pump is okay, 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 240V socket marked PUMP at the bottom of the controller. Apply power to the controller and if the pump starts instantaneously before temperatures are displayed, then there may be a fault with the controller. Since the controller shouldn't run when there is a sensor fault, disconnect the roof sensor and wait for approximately 30 seconds. If the pump continues to run, then the controller requires repair.
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.
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 and this will allow charging of the supercapacitor. Next, turn it off for 30 seconds before turning it back on.

Installer Setup

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

SYSTEM SUB-MENU	
RESTORE DEFAULTS	Restore back to factory defaults.
PUMP/FLOW DETECTION	Ensure the filtration pump is operating (and at the required speed for variable speed pumps) via the controller's AUX socket and is primed, then select SET AUTO or SET MAN.
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.
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=>xxx it indicates the minimum load required to allow solar to run, set this value 25% lower than the displayed LOAD value. If OFF is selected the unit will operate as a standalone solar controller and return to automatic operation.
RUN	When the roof temperature rises to pool + RUN then the solar will start.
END	When the roof drops below pool + END then the solar will stop.
PIPE PROTECTION	For use when Heatseeker UniPanels® cannot drain down and will require a wetted roof sensor for this mode.
CAL	Calibrate the pool sensor.

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 will display 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 10 days.
 4. If the controller has stopped pumping and is displaying a higher temperature than expected it may be caused by the filter 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. Maximum combined rated output load for the 240V socket(s) is 9.98 Amps / 2395 Watts.
 6. Degree of protection against moisture: IP33.
 7. FILTER PUMP OFF, CANNOT START - The solar pump can't be started because the filter pump is not operating or not drawing water from the pool or there is a blockage (i.e. filter). The value for
 8. RUN=> may be set too high.
 9. When the auxiliary power socket detects the filtration pump starting it will perform a 3 minute checking sequence that ensures there is suitable temperature & water flow before the solar pump will start. When the filtration pump is stopped the solar pump is also stopped.
 10. Pump load values displayed is relative to how much power is consumed by the pump, note that variable speed pumps tend to display higher than expected values.
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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.

Damage to the unit due to misuse, power surges, and corrosion from pool chemical fumes, lightning strikes 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 _____

Serial Number _____

Date Installed _____



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