Aquasun 3CD

Instruction Manual

DESCRIPTION

The Aquasun 3CD is a premium automatic solar controller with temperature adjustment, manual, winter and tropical mode features. This unit is fitted with current detection on the auxiliary power socket; the solar pump can only operate if the current load on the controllers auxiliary socket is within a certain range (e.g. filter pump is operating and primed).

INSTALLATION INSTRUCTIONS

CONTROLLER

Find a suitable location to mount the control box. The controller should be installed out of direct weather and no closer than 3 meters from the water's edge. Lift up the two mounting tabs and use two appropriate screws to mount the control box to the wall, 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. Do not drill through the box.

SOLAR PUMP

The solar pump plugs into the left side 240Vac socket marked as PUMP. Note that the solar pump can only operate when the auxiliary power socket uses sufficient power to trigger the current detection circuit, this detection trigger point can be adjusted (see Installer Settings).

FILTRATION PUMP

An Ioniser/Chlorinator or equivalent pump timer is to be plugged into the right hand side 240V socket (auxiliary) located under the POOL & ROOF sensor inputs, the filtration pump plugs into the Ioniser/Chlorinator pump socket.

TEMPERATURE SENSORS

The pool temperature sensor must be fitted into the suction line of the *filtration* pump, 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 PVC pipe, this can be carried out using a Dontek PD01 grinding drill or a small pilot hole can be drilled and a 14.0mm drill-bit used spinning in a counter clockwise direction to minimize the chance of shattering pipe. Insert the grommet into the pipe and gently push in the blue/grey sensor barb. The blue sensor plug is to be fitted to the plug socket marked POOL, in some cases there is some benefit to cable tie 30cm of wire from the

pool temperature sensor to the pipe and insulate this section (some ambient differences can travel up the tinned copper wire and affect the sensor reading).

The roof temperature sensor must be fitted into a small piece of solar collector or equivalent and attached to the roof. The best location is within an arm's length of the gutters edge of the house or shed as long as the sensor end is not shaded and is on a roof of similar aspect of the main collector. It **must not** be fitted on top of the solar collector or fitted to high points on the roof like Ridge Capping as false readings will be detected.

The red sensor plug is to be fitted to the right hand socket marked ROOF. Keep in mind that it is of the utmost importance to keep the roof temperature sensor cable as short as possible as this will assist in the longevity of the sensor and controller in the event of electrical storm activity and power surges.

All temperature sensor cables must NOT be run parallel to power cables and should never be cable tied to power cables. All cable run lengths should be less than 50m if possible. Cable ties should be used to fasten the sensor cable to the cold water inlet pipe making sure that the ties are approximately 10mm from PVC fittings. Cable ties should be tightened only firm, over tightening can cause breaks in the outer PVC if not careful. If the cable is to be run under ground a conduit must be used to protect the wire and there is to be no cable joins within, conduit ends **must** be sealed to prevent water ingress.

Any excess cable should be removed and re-fitted ensuring that the wire ends are tinned with solder.

AQUASUN 3CD INSTALLER SETTINGS

PUMP LOAD SETTING

*** IMPORTANT *** The controller will not operate and will display a 'INSTALLER MUST SET PUMP LOAD' message. The correct Load setting is required for this controller to pick up a pump which is failing to prime. After setting the load values test by starting the solar pump in Manual Mode and ensure that the solar pump will switch off if the filtration pump fails to provide water.

Filtration Pump Load Automatic Setting: There are 2 methods for setting the load detection of the filtration pump. *For automatic setting ensure the filtration pump is operating and primed. Then simply hold the UP button then press SELECT*, the unit will then display the pump's load value and automatically sets the threshold levels and returns to automatic operation, if the current draw of the filtration pump drops below this level then the solar pump is forced to switch off.

Advanced Settings: To select the advanced settings, hold the DOWN button then press SELECT.

FILTRATION PUMP LOAD MANUAL SETTINGS

If setting the load value, please ensure your filtration pump is connected to the auxiliary power socket (right hand side) and that the filtration pump is primed and if it's a variable speed pump ensure the filtration pump is operating at the required speed. After releasing the SELECT button the LOAD=xxx value is displayed 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 10% lower than the displayed LOAD value and press SELECT. The next value to adjust is TRIP> this is the overload value, when the filtration pump draws too much power (e.g. a variable speed pump operating too fast) then

the solar pump is stopped. *Default is a RUN=>20 and trip >99.

Once the Advanced settings have been adjusted all the above settings will be saved and the unit will restart. Re-adjust the temperature limit if required.

ADJUSTABLE DIFFERENTIAL

Special note: Adjusting these values to any setting other than the defaults may adversely affect the performance of this controller. To adjust the differentials hold the UP button while applying power to the unit. The first item prompted is to set the solar gain start temperature [RUN° x] this setting allows the pump to start if the roof temperature exceeds the pool temperature by this value, adjust with the UP/DOWN button, press SELECT to accept. Next you will be prompted to set the differential hysteresis [END° x] which turns the pump off when roof temperature is less than the pipe temperature plus this value, adjust with the UP/DOWN button, press SELECT to accept. Default values are 8° for RUN and 4° for END, these are the optimal values for maximum efficiency, some coastal locations may benefit from a reduced run value of 6°C for RUN and 4°C for END.

FACTORY TEST

To run the factory test, hold the SELECT button when first applying power, the unit will perform a series of self-diagnostic functions with the pump running.

If there are any faults they will be reported on the display before the unit restarts into normal operation.

Note: that this will force all settings to a factory default state. Re-enable time-clock if required also set the Pump Load value, temperature limit and operating mode to their required settings.

AQUASUN 3CD INSTALLATION INSTRUCTIONS

TEMPERATURE LIMIT

To adjust the pool limit simply press the UP button to increase or the DOWN button to decrease the desired temperature. The controller will automatically choose to run the pump based on solar gain (i.e. sun shining & roof is hot), once the pools desired temperature is exceeded by ½°C the pump is stopped until the pool temperature drops ½°C below the temperature limit setting.

MODE OF OPERATION

Pressing the SELECT button once will display the current mode of operation, pressing it again or holding it will select the next available mode of operation.

The available modes are SUMMER, MANUAL, WINTER, TROPICAL and SETTINGS.

Summer mode 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 if it has been off, or stop if it has been on (running). After 30 minutes manual mode will time-out and return to the previous operating mode. Note that Manual ON requires an operating filtration pump in the auxiliary power socket.

Winter mode of operation is for off-season maintenance or if pool heating is not required *(AWAY MODE)*. 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 once a day 3 minutes after the filtration pump has started.

Tropical mode of operation is for situations where the pool water overheats due to direct heating from the sun. When the roof is 4°C

cooler than the pool temperature, the pump is started (this will most likely occur at night and therefore requires the filtration to run at night) and will attempt to cool the pool to 1°C above the temperature limit. Normal heating will occur the next day if the pool drops below the set temperature limit by 1°C.

Settings mode is for setting the unit into time-clock operation.

When you select this option you will be asked if you wish to use the clock feature (CLK? ON/OFF). If you select OFF then the controller will not work as a time-clock model and will allow the solar pump to run whenever there is solar heating available and if the filtration pump is operating. If you select ON you will be prompted to set the time of day, the controller will work in time-clock mode and the solar pump is prevented from starting outside of the set hours (Unless tropical mode is selected). Set the time of day in 24 hour format, note there is an AM/PM indication to avoid incorrect settings. Seconds are automatically set to zero.

Once the time is set select the START hour from 6am till noon, default is 9am which means the solar pump cannot start before 9am.

Now select the END hour from 15 (3pm) till 21 (9pm), default is 19 (7pm) which means the solar pump will stop at 7pm.

NOTES

1. If a sensor fault is detected the controller will display which sensor failed (POOL and/or ROOF) and the type of failure.

2. After a power outage all configurable items are retained & the clock (if used) will keep time for up to 14 days.

3. The sensor cable with the red trace is the positive and is fitted to the right hand side of the plug when looking at the plug screws, incorrect polarity will be displayed as a short circuit or reversed fault.

4. A filtration pump that uses too much current can bring up an OVERLOAD condition. Disconnect power & check the condition of the filtration pump, this will prevent the solar pump from running.

5. 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 RUN=> may be set too high.

6. 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.

7. 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.

8. Maximum rated output load for the 240V socket is 9.98 Amps / 2395 Watts.

9. Degree of protection against moisture: IP23

NOTES

WARRANTY – AQUASUN 3 CD

This range of product is covered by a limited 3 year warranty against component failure or faulty workmanship from the date of installation. A faulty unit 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, 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

For service assistance phone 1300 130 693

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