AQUASMART 5RP

Instruction Manual

dontek
CONNECT AND CONTROL

DESCRIPTION

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

Wireless remote roof sensor - Solar Panel (PV)

INSTALLATION INSTRUCTIONS

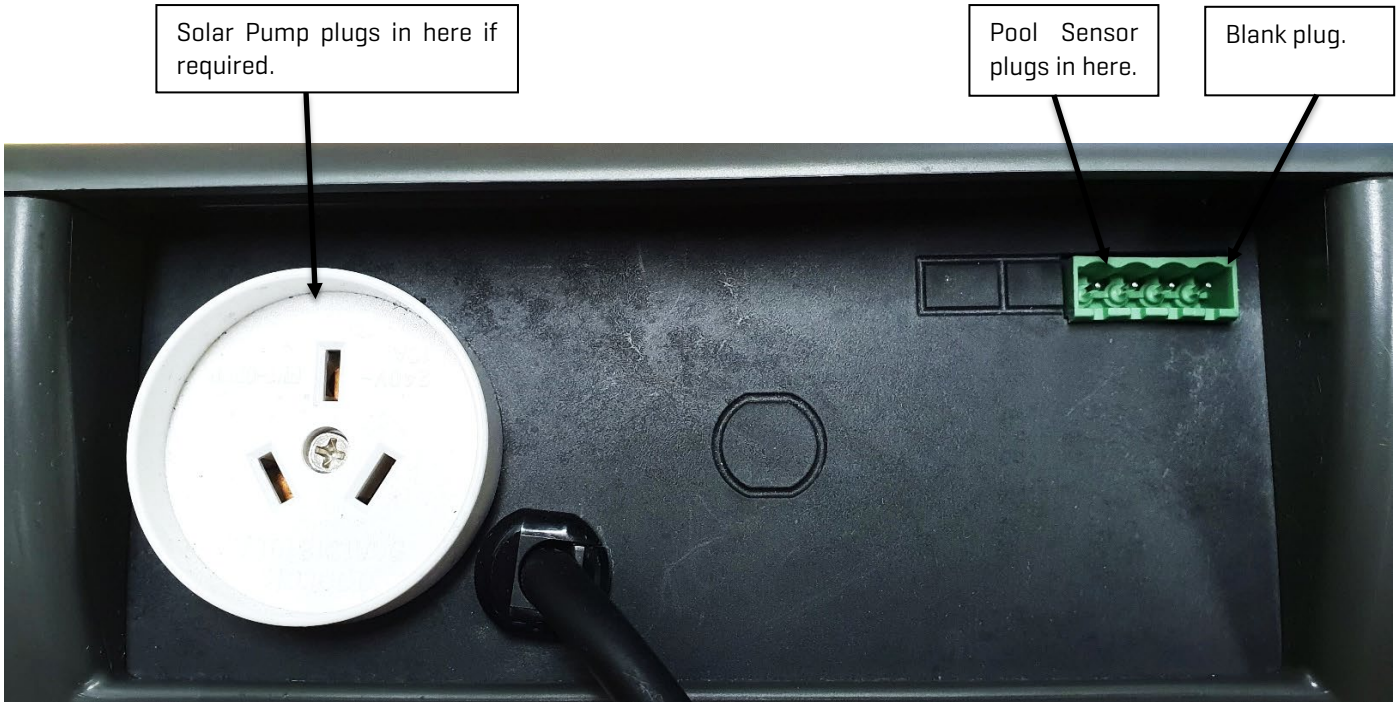
THIS APPLIANCE IS NOT INTENDED FOR USE BY YOUNG CHILDREN OR INFIRM PERSONS WITHOUT SUPERVISION. PLEASE ENSURE THAT YOUNG CHILDREN ARE SUPERVISED TO ENSURE THAT THEY DO NOT PLAY WITH THE APPLIANCE.

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

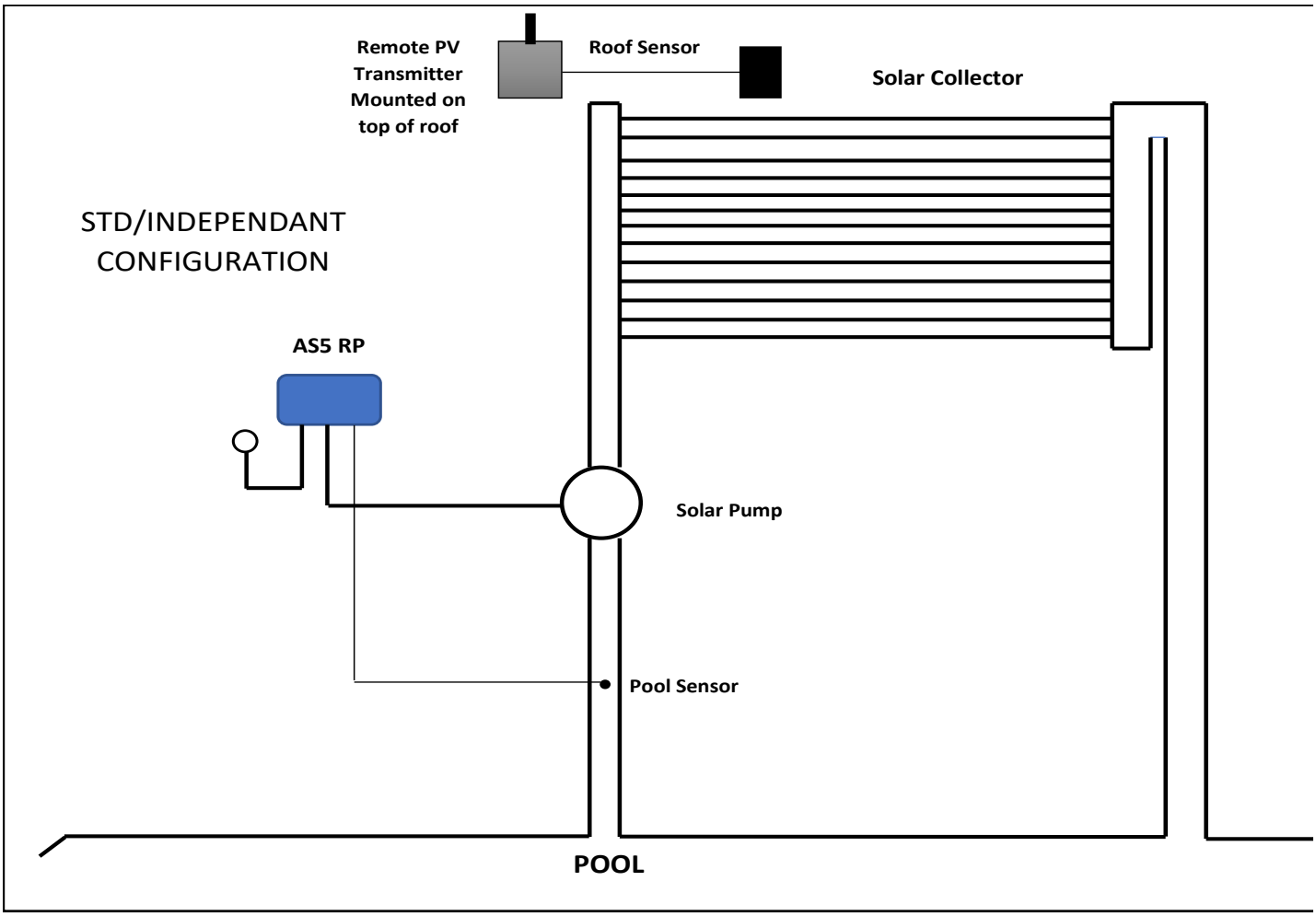
CONTROLLER MOUNTING	Find a suitable location to mount the control box. The controller should be no closer than 3 metres from the water's edge and a minimum 600mm above ground. The power cable is 1.8m long and should be plugged directly into a general power outlet, **not into an extension lead.** Fix 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. To remove unit, lift and gently pull away from structure.
PUMP CONNECTION	The solar collector pump plugs into the 240V socket labelled PUMP. The maximum combined load for both sockets is 9.98 AMPS at 2395W.
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 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.
REMOTE ROOF TEMPERATURE SENSOR	**The best location to mount the Remote Transmitter, is within an arm's length of the gutters edge of the house or shed. 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.** Please ensure that the sensor end is not shaded, and is on a roof of similar aspect of the main collector. The roof temperature sensor must be fitted into a small piece of solar collector or equivalent and attached to the roof. This unit has been designed to eliminate the need to run a temperature sensor cable from the solar controller to the roof; this is replaced by a solar powered transmitter that transmits the roof temperature. The roof temperature sensor cable is connected on the inside of the radio remote temperature transmitter in a screw in socket. Test for site suitability (*radio note) then mount the radio remote temperature transmitter on the gutter ensuring the solar panel (PV) faces north and the antenna points up (Vertical), if the antenna faces down then water may enter the box through the power entry / sensor entry hole and void the warranty.

NOTE. RADIO TRANSMITTER SPECIAL CONSIDERATIONS	Do not permanently fix the radio transmitter until good reception is achievable (See site test). Do not mount the AQUASMART in a position where reception of radio signals may be difficult, avoid mounting near other electrical equipment. The range is 100m with no obstructions and with no interference from other transmitters or sources of electrical noise. Also be aware that equipment installed afterwards may also interfere with radio reception. Transmission may not occur through objects such as steel, aluminium, re-enforced concrete and large bodies of water (e.g. pump room under a pool). Line of sight is the ideal situation but not always possible, the antennas should always remain vertical. Echo cancellation or ghosting may occur, which will prevent the signal being received reliably. If the AQUASMART is to be installed in a metal shed there may be reception issues. The controller may need to be optioned with either a 1M or 3M antenna extension kit (available separately), or moved outside. *<u>Other Notes</u>: Read and understand this manual before installing.* *Both the transmitter and receiver are tested as a set, to 100 metres. Do not mix different transmitters with different receivers.* *Ensure the customer understands the workings of the controller before leaving the site*.
SITE TEST	Place the radio transmitter in the approximate location. Select test mode on the AQUASMART by holding the DOWN button for 3 seconds while you apply power, this activates a mode where only roof temperature transmissions are shown. Once you release the down button the AQUASMART screen indicates RX TEST. Verify that every 5 seconds the LCD displays the temperature (e.g. TEST 32°). Check that this sequence is repeated for about half a minute and ensure no transmission is missed. If a transmission is missed it may be due to an echo or ghosted signal, move the location of the radio transmitter or the location of the AQUASMART and retest. If no transmission is missed mount the transmitter and repeat the test, check that no transmission is missed for 2 minutes. Turn OFF power to the AQUASMART and then permanently mount the radio transmitter. Return to the AQUASMART, restart the RX TEST and ensure it continues to receive the transmission, move the location of the AQUASMART if required. Permanently mount the AQUASMART when satisfied that the AQUASMART is receiving the transmissions consistently. During normal operation the software allows for missed transmissions, but when more than 50 minutes elapse without a transmission then the temperature value will timeout and will be indicated by the "Waiting for roof transmission" message.
REPORTED TRANSMITTER FAULTS	If the following messages are displayed, then action is to be taken to rectify the fault(s). "WAITING FOR ROOF TRANSMISSION" The AQUASMART cannot receive a roof temperature from the radio transmitter or more than 50 minutes have elapsed since the last transmission, check installation as per instructions. "ROOF SENSOR DISCONNECTED" Check that the temperature sensor is firmly connected to the terminals. Cable joints must also be soldered and sealed (preferably with heat shrink). An unbroken but damaged cable can also cause this fault.

BASE DIAGRAM



PLUMBING CONFIGURATION



OPERATING INSTRUCTIONS

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 indicate what actions the controller should currently be doing. These arrows point to text on the label.
MODE BUTTON	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. • ***Heating Mode (Auto)*** is the normal operating mode for heating the pool. • ***Manual Mode*** 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. ***The ENTER button will toggle the pump on or off during this mode**.* 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. • ***Standby mode*** 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. Pump will run for 3 minutes a day before 1pm. *****The factory default MODE is HEATING MODE***
↑ AND ↓ BUTTONS (TEMPERATURE SETTING)	Adjusting the temperature limit will allow the controller to heat the pool until the temperature limit +½°C is achieved. ******TEMP RANGE: OFF, 20° – 40° ****** 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. *The ability to solar heat the pool will depend on weather conditions and other factors.* ***** 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	Will save changes and return to automatic operation.
2) CLOCK	Selecting clock, will allow you to set the time of day. Set hours then minutes.
3) SYSTEM	*EXIT* - Press ENTER on this menu to return to automatic operation. *LCD TIME* – Adjust the number of seconds the backlight remains on after the time a button was pressed. [Select NONE for always on.] *HOURS –*. 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)* ***** Factory default for installer setup is run from 12:00-12:00 (24hrs).***

INSTALLER SETUP;

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

FACTORY DEFAULT? NO/YES	Restore back to factory defaults.
ROOF TEMPERATURE	***RUN -*** When the roof temp rises to the pool temp+ RUN, the solar pump will start. ***END -*** When the roof drops below the pool temperature+ END, the solar pump will stop.
BOIL PROTECT? NO/YES *(Range 55°C - 99°C)* *(Range 3 - 59mins)*	Anti-boil function. If you select NO, the next option will be offered. If you select YES, the pump will start when the roof temperature rises to the selected temperature. It will operate for the selected number of minutes, where the controller will then take a roof temperature reading and either start the solar pump again (if roof temp is still above selected temperature) or stop running the pump if the temperature has dropped below the selected temperature. ***Default is NO. If you select Boil Protect to be YES, the controller will display 99°C for 3mins. Adjust to required temperature and time.***
PIPE PROTECTION? NO/YES *Range 50°C - 95°C*	For use when solar collectors are flooded, flat and may require a wetted roof sensor for this mode. 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. The solar pump will be allowed to run once the roof temp drops below the selected Pipe Protection temperature. ***Default is NO. If you select Pipe Protect to be YES, the controller will display 80°C. Adjust to required temperature.*** *Note – Pipe Protection will not be offered if Boil Protection has been turned ON.*
CALIBRATE POOL SENSOR BY:	X.X [RANGE -5.0 TO +5.0°C] This is for the + series sensor only [TS02P].
USE WIRED ROOF SENSOR? NO/YES	Allows the use of a wired roof sensor cable temporarily, if the PV Unit has been damaged.

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: IP33. 7. Store pool chemicals safely, at least 3 metres away from all pool equipment. 8. If the master controller is installed in a bunker or a shed, an antennae extension kit (available for purchase separately in 1M or 3M lengths) can be installed on the master controller to ensure that it receives reliable transmissions.

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

SERIAL NUMBER

DATE INSTALLED

For service assistance visit *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 FAULTS:

Ensure the controller has working sensors, including a roof temperature/transmission; otherwise the pump will not operate.

SOLAR 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.

Check and make sure that the master controller is receiving a transmission from the remote transmitter. Check for a roof sensor fault. If needs be, remount the transmitter to ensure the master controller receives transmissions or install an antennae extension kit (available for purchase separately) to the master controller.

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.

FACTORY RESET:

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

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