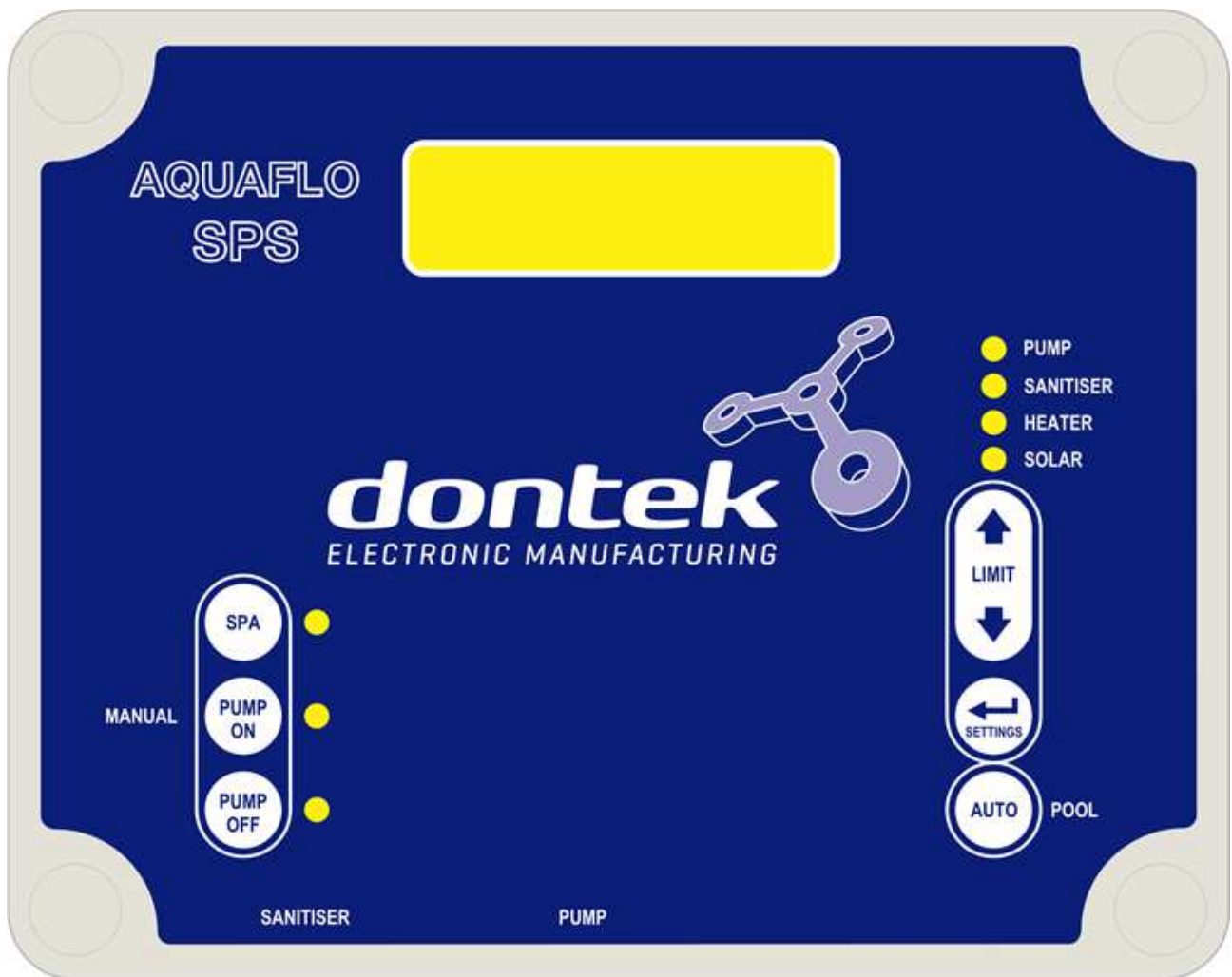

AQUAFLO Pool/Spa Controller with Solar Heating Instruction Manual



DESCRIPTION

The AQUAFLO Pool/Spa Controller manages a variable speed pump, sanitiser, heater, solar valve actuator and a pool/spa valve actuator. Filtration can be controlled by selecting up to two start and end times per day for low and high pump speeds. The sanitiser operates whenever the low speed filter timer is active. High pump speeds prevent solar heating.

INSTALLATION INSTRUCTIONS

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 meters from the water's edge and a minimum 600mm from the ground. 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.

Mount the pump and sanitiser according to the manufacturer's instructions.

PUMP CONNECTION

The cable attached to the AQUAFLO Pool/Spa Controller plugs into the pump to control the speeds, the pump power is to be plugged directly into a general purpose 240V power point outlet.

SANITISER CONNECTION

The sanitiser (Ioniser, Chlorinator or Ozoniser etc.) is to be connected to the AQUAFLO Pool/Spa Controller's 240V outlet socket marked as SANITISER.

Set the sanitiser to operate 24 hours per day since the AQUAFLO Pool/Spa Controller will control the number of hours per day the unit will operate. Refer to the sanitiser instructions for dosing requirements.

VALVE CONNECTIONS

The four left hand white 3 pin Terminal Bars are for Automatic Valves (e.g. Versa-Valve or JVA's). The AQUAFLO Pool/Spa Controller can facilitate four automatic valves. (Pool/Spa Suction, Pool/Spa Return, Solar Suction (or high-speed cleaning divert), Solar Collector/Bypass).

HEATER CONTROL:

The heater interlock cable connects to the green socket marked HEAT which switches on a dry-contact relay when the heater is to be turned on. The heater end of the cable connects to the heaters external control input (loop wire) or it can be placed in series to the heater's low-voltage flow or pressure switch circuit. Refer to the instructions of the heater for connecting external control equipment. Set the heaters

temperature limit to maximum (40°C) as the controller will limit the maximum temperature based on pool or spa heating.

The heater interlock is for low-voltage switching only.

POOL SENSOR

The Pool Temperature Sensor will be pre wired to a Green 2 pin Terminal Bar. This plugs into the socket marked POOL. Using a 14.5mm drill bit, Drill a hole in the side of the PVC pipe (not the top of the pipe where water will collect and preferably in a position out of direct sunlight) located between the Pool/Spa suction valve and the pump. Insert the supplied rubber grommet, and then press the temperature sensor into the grommet. 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.

ROOF SENSOR

The roof sensor must be fitted into a small piece of rubber 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 as 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 green 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. If the cable end is to be refitted to the plug sockets then the polarity must be observed as incorrect polarity will show an error as stated in Fault Diagnosis. The sensor cable with the red wire (or white) is the positive and should be fitted to the right hand cable entry when the screws are in a vertical position. Once

cables have been correctly fitted the unit can be turned on.

RECOMMENDED PLUMBING

Pool/Spa Suction Valve, Pool Sensor, Filter, Solar Valve, Solar Return Tee, Heater, Sanitiser, Pool/Spa Return Valve.

IN-HOUSE PANEL (IF APPLICABLE)

The In-House Panel is optional and is ONLY to be installed INDOORS, it is not weather-proof without additional hardware.

The in-house remote panel is not to be plugged in while power is applied, doing so

may damage the in-house remote panel and/or the main unit.

The Data Cable / In-House Remote panel cable is wired into Green 4 pin Terminal Bar. Trim 5 - 10mm of the coloured insulating sheath from each lead and wire according to the label above each of the terminals ensuring that none of the sheath is crimped into the screw connector tighten the screws with a screw driver. Note that wiring is not one to one.

Operation of the in-house panel is the same as the main unit but the system setup menu has been replaced by a set clock menu.

OPERATING INSTRUCTIONS

LCD SCREEN

In automatic mode the LCD screen displays pump timer settings and the time of day [clock]. In manual mode[s] the controller displays the mode that is selected as well as the LED indicator next to the button. The backlight is activated when any of the buttons are pressed and remains lit for 3 minutes before it turns off.

LED INDICATORS

SPA – spa heating selected.

PUMP ON – manual 'on' mode selected.

PUMP OFF – manual 'off' mode selected.

PUMP – pump is operating.

SANITISER – Sanitiser is operating.

HEAT – heater is operating.

SOLAR – solar collectors selected [in use].

SPA BUTTON

Pressing the SPA button begins the process of heating the spa to the spa temperature limit. The pool/spa valve will move to the spa and prime the pump if required. Heating will occur to the displayed set temperature. The temperature limit can be adjusted by pressing the ↑ or ↓ buttons. Spa heating will operate until the timeout period expires [see 'installer setup']. To return to automatic pool operation press the AUTO button or the ↵ button if you want to save changes to the temperature limit. If configured, the BOOST button can be used to operate the boost pump 240V outlet. The SPA button can be pressed repeatedly to bypass heater cool-down or valve

movements, once in spa mode the SPA button can toggle between medium and high speed [unless the unit is configured to use a high output gas heater.]

PUMP ON BUTTON

Pressing the PUMP ON button will run the pump at high speed with the sanitiser switched on, low or medium speeds can be selected by using the ↑ or ↓ buttons. Pressing the ↵ button toggles the operation of the sanitiser. Press MANUAL OFF to switch the pump and sanitiser off. To return to automatic pool operation press the AUTO button. If left unattended then manual pump on mode will time-out after 24 hours and the controller will return to automatic timer operation.

PUMP OFF BUTTON

Pressing the PUMP OFF button will stop the pump and sanitiser. The pump and sanitiser will remain stopped until the PUMP ON or AUTO buttons are pressed or if the power to the controller is switched off then on.

↑ AND ↓ BUTTONS

If pool heating is active in automatic pool operation then pressing the ↑ or ↓ buttons will allow adjustment of the pool temperature limit for auxiliary [gas/heat-pump] and a separate limit for pool solar heating. Press ↵ to save the changes and return to automatic pool operation. In SPA mode ↑ or ↓ will adjust the temperature.

AUTO BUTTON

Pressing the AUTO button will run the controller in automatic pool mode, if the AUTO button is pressed while in the settings menu then changed settings will be used but not saved. If there is a power failure the controller will retrieve the previously saved settings. On power up the controller starts automatic pool operation.

◀ BUTTON (CONTROLLER SETTINGS)

The controller always starts in automatic mode of operation. To change controller settings enter the SETTINGS MENU by pressing the ◀ button and the following will be displayed;

SETTINGS MENU:

1) FILTER TIMER

The menu system can be navigated using the ↑ or ↓ buttons, all selectable and changeable values will flash on the LCD screen. Press the ◀ button to accept the currently displayed [flashing] item.

All menu items are shown below;

SETTINGS MENU:

1) FILTER TIMER

2) HIGH SPEED

3) SANITISER

4) POOL HEATING

5) SPA SETTINGS

6) SOLAR MODE

7) SYSTEM SETUP

8) SAVE & EXIT

1) FILTER TIMER

When the FILTER TIMER menu is selected the following is displayed;

No. OF TIMES PER

DAY TO RUN: OFF/1/2

Select the number of times per day you wish the pump to operate at low speed. If OFF is selected you will return to the main menu, otherwise the timer settings are displayed as follows;

One time per day menu:

FILTER TIMER

xx:xx TO xx:xx

Twice per day menu 1:

FILTER TIMER 1

xx:xx TO xx:xx

Twice per day menu 2:

FILTER TIMER 2

xx:xx TO xx:xx

Adjust the start time and end time for the required run time[s], the pump will run at low speed between these times.

Note1: Take care not to overlap cycle 2 times with cycle 1 times as the result will be one cycle per day.

Note2: For 24 hour run time set to run 1 time per day with the start & end times the same [E.g. 12:00-12:00].

**Factory Default is ON, one time per day from 09:00 to 21:00

2) HIGH SPEED

Adjust the start time and end time for the required run time[s] as described for the low speed timer, the pump will run at high speed between these times.

**Factory Default is ON, twice per day from 09:00 to 10:00 and from 20:00 to 21:00.

3) SANITISER

When the SANITISER menu is selected the following is displayed;

SANITISER % FOR

SPA MODE = xx%

This controls how many minutes the sanitiser operates in SPA mode for every 10 minute time period with 100% being always on.

**Factory Default is 30%

4) POOL HEATING

When the POOL HEATING menu is selected the following is displayed;

No. OF TIMES PER

DAY TO RUN: x

Select the number of times per day you wish the heater to operate. If OFF is selected then the heater will never operate, otherwise the following is displayed;

One time per day menu:

AUX HEAT CYCLE

xx:xx TO xx:xx

Twice per day menus:

AUX HEAT CYCLE 1

xx:xx TO xx:xx

AUX HEAT CYCLE 2

xx:xx TO xx:xx

Adjust the start time and end time for the required heating cycle[s], the circulation pump and heater will run between these times for heating purposes.

Note: For 24 hour heating set to run 1 time per day with the start & end times the same [E.g. 12:00 - 12:00].

**Factory default for AUX HEATER is OFF [06:00-22:00, 20:00-22:00, sample @ 1 hour, 3 minute cool-down]

5) SPA TIMER/WATER FEATURE

START @ Hh:mm xM

FOR SPA MODE or FOR W. FEATURE

This will activate the SPA for one-time* automatic heating at the programmed time, once activated the timer resets to OFF*. If the spa is used as a water feature then the water feature timer is activated every day. The spa or water feature will run until the AUTO button is pressed or until the time-out expires [see 'installer setup']. For SPA mode once the timer is set the SPA temperature can be set;

SET TEMPERATURE:

SPA LIMIT 37.0°

Adjust to the desired temperature to return to the menu.

*Can be set to everyday, see 'installer setup'

**Factory default for the timer is OFF [37°C]

6) SOLAR MODE

When the solar mode menu is selected the following is displayed;

SET SOLAR MODE
xxxxxx MODE

SUMMER MODE is the normal operation of heating the swimming pool.

TROPICAL MODE is selected if you wish to cool an overheated swimming pool, if the pool temperature is equal to or above the solar limit temperature limit by 1.5°C then tropical mode is activated. The solar pump will run if the roof temperature is colder than the pool until SOL LIMIT is obtained; note that this is most likely to occur at night. Note that tropical mode may be activated by the anti-boil function.

WINTER/AWAY MODE, when selected you will be prompted to select the start month of winter and the start month of summer. Once the winter months have been set an option to disable the 2nd filter cycle is displayed, selecting 'NO' will not allow the filter cycle 2 to run during the selected winter months. Winter/Away Mode assists in the systems off-season maintenance and save energy as solar gain may be available but

swimming temperature cannot be achieved or solar heating is not desired. A 3 minute flush of the solar collector occurs between the solar start time and the end time, providing the roof temperature is equal or greater than the pool, but if that condition does not occur before 1pm [13:00] then a solar system flush will be forced to occur. Selecting winter mode does not turn off auxiliary heating. A start month of 'always' can be selected which permanently sets the unit into winter mode, you can also start winter mode in August and finish in March if required [i.e. for Northern Hemisphere].

SOLAR DISABLED, when selected this disables all solar and ignores missing roof sensor errors, only use this mode if solar is not fitted. ***The factory default for SOLAR MODE is SUMMER MODE*

7) SYSTEM SETUP

When the system setup menu is selected 7 sub-options are available;

SET CLOCK

EXIT

TEMPERATURE LOGS

INSTALLER SETUP

SET PUMP SPEEDS

TEST FUNCTION

FACTORY DEFAULTS

The following sub menus are displayed dependent on your selection;

SET CLOCK - Allows you to adjust calendar date and time of day.

EXIT - Will return you to 7) SYSTEM SETUP with no changes.

TEMPERATURE LOGS - shows min/max temperature and the time they occurred.

INSTALLER SETUP -

The following sub menus are available under installer setup;

USE SOLAR DRAIN? NO/YES

If NO is selected then the valve will close if solar heating is no longer required. If YES is selected the follow menu is presented;

DRAIN IS TO STOP

PUMP FOR xx MINS (03-15 MINUTES)

The controller stops the pump for the selected number of minutes, the valve is left in the solar collector position for the first minute [even] then the valve is turned to bypass the solar collector for the second minute [odd] this repeats for the

selected duration for odd and even numbered minutes elapsed. This allows for the water to drain out of the solar collectors before the pool pump is restarted. If the pool is not at solar limit during the drain process and solar heating becomes available the system will resume heating. The system may delay the drain process if the pool is below limit and if the roof temperature is above the pool temperature.

LOCK TO TIMERS? NO/YES

Selecting YES allows the controller to turn the valve to solar only while the pump timer[s] are within their run-time[s]. Selecting NO allows the controller to override the pump timers to turn the valve for solar heating during the allowed solar times. If NO is selected then the following menu is skipped;

ALLOW SOLAR FROM

xx:xx TO xx:xx

[06:00-12:00 TO 12:00-21:00]

This setting will not allow the solar system to run outside of the times set. [Select 12:00-12:00 to always allow solar.]

Note that any high speed timers will prevent the solar from running [SOLAR LOCKED OUT].

ROOF TEMPERATURE

START DIFF x.x° (4.0°-40.0°)

You can choose to modify the differentials, the start differential is the temperature the roof needs to rise above the pool temperature to start the pump

ROOF TEMPERATURE

STOP DIFF x.x° (1.0°-(START-2°))

The end differential stops the pump when the roof drops below the pool temperature plus the end differential.

ROOF TEMPERATURE

MIN. ROOF (OFF-60.0°)

Minimum roof is the roof temperature required for the solar to start heating.

VALVE FOR = IFC?

This will select the 2nd solar valve to turn during high speed cleaning only so it can be used to direct water to the in-floor cleaner.

FREEZE PROTECT? OFF/ON (0.5°C-6.0°C)

An adjustable anti-freeze feature is provided for freeze protection, when the roof temperature drops to the anti-freeze temperature the pump is run for 3 minutes followed by a 30 minute rest period, this will continue until the roof

temperature rises above the anti-freeze set point.

BOIL PROTECT? OFF/ON (60.0-99.0°)

ANTI BOIL RUNS PUMP FOR xx (03-59 MINS)

An adjustable anti-boil feature is provided to prevent overheating of plastics on encapsulated collector panels. When the roof temperature rises above the anti-boil set point the pump is run for an adjustable period followed by the sample wait period, note that a pool temperature of 38°C or higher will prevent anti-boil from starting and that it will force tropical mode of operation this usually indicates a fault, i.e. pump not priming, rectify the fault and re-select summer mode.

SAMPLE TIME:

xx:xx (hh:mm) (0:15-8:45)

If the temperature limit is achieved the controller will turn off the pump and begin a sample wait period before further heating can occur. After the sample time period has expired the pump will run for 3 minutes to sample the water temperature and if after the 3 minute sample heating is required then the pump will continue to run and the heating is switched on.

Note: Sampling is only activated outside of filtration times.

HEATER COOL DOWN

xx MINUTE(S) (OFF TO 20 MINS)

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.

HEATER CONFIG:

STD GAS/HEATPUMP or HIGH OUTPUT GAS

Heater configuration tells the controller which speed to operate the VS pump at, normal pump speed for heating is medium speed, a high output heater requires high speed for heating, note that high output gas will also change how the controller operates in SPA mode since the speed toggle feature is will not be available.

SPA CONFIG:

NORMAL SPA USED / SPA IS W.FEATURE

If SPA is configured to be a water feature then the controller operates as if it were in pool mode and front panel spa button turns a valve that could operate a water feature, the SPA TIMER in the settings menu is renamed to WATER FEATURE and the timer will run daily [if set]. It is

recommended that the water feature is plumbed after the heater so the heater can be properly cooled before the pump shuts down.

SPA TIMER:

ONE TIME ONLY / EVERY DAY

If set to one time only then the spa timer reverts to 'OFF' after the spa mode has been activated, the other option is to have a spa every day until the timer is manually set to 'OFF'.

SPA ALLOW SOLAR?

YES / NO

This allows solar heating in spa mode. [Special considerations are required].

SET TEMPERATURE:

SPA SOLAR xx.x°

Solar temperature limit for when in spa mode, note that this should be set higher than the spa auxiliary limit.

SPA PUMP SPEED:

MEDIUM/HIGH

[This menu is not shown if spa is a water feature or if solar is enabled in SPA mode].

This menu allows you to set the default VS pump speed when spa mode is activated by either the spa timer or the front panel spa button.

SET SPA/FEATURE:

TIMEOUT IN: xxHR

This is the timeout period from when SPA mode [or water feature] is activated, after the timeout period the controller returns to automatic mode [pool operation].

**Factory default for installer setup is; Solar not locket to filter 9am-5pm, start diff at 8°C, end diff at 4°C, Min. Roof at 20°C, Freeze & Boil protect OFF, Sample time 1 hour, heater cool-down 3 minutes, std gas/heatpump used, Normal SPA function, medium VS pump speed on SPA, SPA timeout of 12 hours.

TEST FUNCTION - Turns on the internal relays in sequence then turns all relays off.

FACTORY DEFAULTS - Restores ALL the settings to the factory default state.

SET PUMP SPEEDS - Entering this menu will set the pump to its default speeds and turn off the prime function, then configure the pump for high speed adjustment, adjust by using the ↑ or ↓ buttons and when the pump is at the desired speed press the ⏪ button, the pump will save the speed and the controller configures the pump for medium speed adjustment, adjust the speed as above and repeat for low speed adjustment. Note

that the speeds are stored in the pump and not the controller, the controller only selects the pre-set speeds. When adjusting speeds ensure that the water flow rate is sufficient to meet externally connected equipment requirements. The last item **PUMP UPDATE RATE** allows you to change how often the pump is told to run at the required speed [OFF = communicates with the pump only on changes in speed].

8) SAVE & EXIT

When this menu is selected, press the ⏪ button to save ALL settings, the controller will then return to automatic pool operation. Note: 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 timer operation.

NOTES

1. Should power be interrupted for any reason, the controller will resume normal operation when power is restored, all information will have been kept.
2. The clock will keep time for up-to 14 days without power.

INSTALLER SPEED SETTINGS;

SPEED3 (high) = _____ RPM
 SPEED2 (med) = _____ RPM
 SPEED1 (low) = _____ RPM

Customer please note that pump speed settings have minimum flow requirements for heaters and sanitisers and in the case of some solar collectors also a maximum pressure limitation. Do not alter the speeds the installer has selected.

WARRANTY – AQUAFLO SPS

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, lightning strikes or installation that is not in accordance with the manufacturer's instruction may void the warranty. Valves and actuators are covered by a twelve month warranty at the discretion of their manufacturer.

Warranty does not cover 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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