DESCRIPTION:

The V7 RRT is a swimming pool controller that heats a swimming pool by the use of solar panels or an auxiliary heater (if fitted).

The auxiliary heater (gas or heat pump) has a temperature limit setting (aux limit), the pool will be heated to this limit by the auxiliary heater.
The auxiliary heater run time is controlled by heat demand settings, which can be set to on/off and set to run between start and end times, note that if the start & end time are set to the same values the auxiliary heater will run for 24 hours to achieve temperature limit.
If solar gain is available the solar system will heat the pool to the solar limit (sol limit), if large solar gain is detected the auxiliary heater will be switched off to save energy. Solar has a time lockout that prevents heating outside of the time set (default 09:00 – 18:00). If the system is fitted with an Auto Divert Valve it will turn when there is solar gain and switch on the booster pump if fitted.

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 roof temperature transmitter that only transmits when the sun is out, and a receiver that calculates the roof and pool temperature turning on the solar booster pump when required. The temperature sensors used with this unit are digital thermostats and require no calibration.

SETTINGS MENU
To enter the SETTINGS MENU push either the up or down buttons and the following will be displayed;

SETTINGS MENU
1) MANUAL MODE

Use *Up/Down* buttons to scroll to the option you wish to change. Press the *Enter* button to select the currently displayed menu item.

All menu items are shown below;

SETTINGS MENU
1) MANUAL MODE
2) FILTER TIMER
3) TEMPERATURE
4) HEAT DEMAND
5) MODE
6) CLOCK
7) SAVE & EXIT

1) MANUAL MODE

MANUAL PUMP MODE
UP=ON DOWN=OFF

MANUAL MODE allows you to manually set the aux pump to 'on' by pressing the *Up* button or 'off' by pressing the *Down* button.
Pressing *Enter* will return you to the SETTINGS MENU. You can also keep pressing *Enter* to toggle the filter pump from 'on' to 'off' and vice versa.
MANUAL MODE will time out, after 24 hours the V7 will return to normal operation.

2) FILTER TIMER

FILTER TIMER
(ON or OFF/V7STD)

FILTER TIMER can be set to ON or OFF/V7STD, this controls the power out of the left hand socket, if OFF/V7STD is selected the left hand socket will be permanently powered and the right hand socket will control the solar pump, when the FILTER TIMER is set to ON the left hand power socket runs a filter pump on a timer with the following settings;

SINGLE CYCLE
DUAL CYCLE

Single cycle sub menu

SINGLE CYCLE	SINGLE CYCLE
START TIME X:XX	END TIME X:XX

Dual cycle sub menus

FIRST CYCLE	FIRST CYCLE	SECOND CYCLE	SECOND CYCLE
START TIME X:XX	END TIME X:XX	START TIME X:XX	END TIME X:XX

When you enter the FILTER SETUP menu you will need to select SINGLE CYCLE or DUAL CYCLE, the selected option will be flashing, you can use the *Up/Down* buttons to change to the selected option, once you select the required cycle by pressing *Select* you will be prompted to set the cycle START TIME and END TIME, modify these by pressing the *Up/Down* buttons, press *Select* to accept the setting.
SINGLE CYCLE will run the filter pump once per day. DUAL CYCLE will run the filter pump twice per day. When DUAL CYCLE is selected, the 2nd cycle start and end times will be preset not to conflict with the 1st cycle time, you are also prevented from setting the cycle 2 times to conflict with the 1st cycle, this means you cannot view previously set times for cycle 2.

Factory Default is ON, DUAL CYCLE from 09:00 to 13:00 and 16:00 to 20:00

NOTE: Note that the maximum combined rated current is 10 Amps (2400W at 240VAC.)

3) TEMPERATURE

TEMPERATURE
SOL LIMIT XX.X°

When you enter the TEMPERATURE menu you may change the solar heater temperature limit setting (SOL LIMIT) by pressing the *Up/Down* buttons, if no change is required simply push *Enter.*
Factory default is for SOL LIMIT is 30°C.

TEMPERATURE
AUX LIMIT XX.X°

AUX LIMIT sets the temperature the auxiliary heater will heat the swimming pool to you can use *Up/Down* to change the selected temperature, press *Enter* to accept. (default is 25°C)

NOTE 1: AUX LIMIT setting will only be shown if heat demand is turned on.

NOTE 2: For maximum efficiency it is advisable that the solar limit (SOL LIMIT) be set higher than the auxiliary limit (AUX LIMIT)

4) HEAT DEMAND (only set ON if auxiliary heating fitted)

HEAT DEMAND
ON/OFF

When you enter the HEAT DEMAND you will need to select ON or OFF, the selected option will be flashing, you can use *Up/Down* to change the selected option, *Enter* to accept.

If OFF is selected you will return to the menu, If ON is selected you will be prompted for START and END time, modify values by using the *Up/Down* buttons, use *Enter* to accept the values. Factory default is 'heat demand off'

HEAT DEMAND TIME
START TIME X:XX

HEAT DEMAND TIME
END TIME X:XX

NOTE: if a 24 hour continuous run time is required then set the start time and end time to the same value. (e.g. Start 12:00, End 12:00)

IF LIMIT ACTIVE
SAMPLE AT XXXX

Sets the sampling period once the pool has reached the auxiliary temperature limit, options are 15 min, 30 min, 1 hour, 2 hours. Once the pool reaches the aux temperature limit and the filter pump is turned off it will not be turned on until the sample period expires, the filter pump will then run for a minimum period of 3 mins so that water can flow past the pool temperature sensor and obtain an accurate reading. Should heating be required the filter pump will remain on to heat the pool.

Factory default for HEAT DEMAND is OFF (06:00 to 22:00, sample @ 1 hour)

5) MODE

MODE
SUMMER MODE/WINTER MODE/TROPICAL MODE

You can use *Up/Down* to change the selected option, *Enter* to accept.
SUMMER MODE is the normal operation of heating the swimming pool.
TROPICAL MODE is selected if you wish to cool the swimming pool, 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.
WINTER MODE, when selected you will be prompted to select the start month and end month of winter (inclusive), this assists in the systems off-season maintenance and save energy as solar gain may be available but swimming temperature cannot be achieved. If heat demand is set to OFF a 3 minute flush of the solar matting occurs between 10:00 and 16:00 providing the roof temperature is equal or greater than the pool, but if that condition does not occur a solar system flush will be forced to occur at 16:00.
If heat demand is ON the system operates similar to normal mode but solar pump activity is monitored and will force a 3 minute flush if solar has not been active for seven days, note the unit may flush if winter mode is selected on the day of install.

6) CLOCK

TO CHANGE CLOCK
SET MINS XX

TO CHANGE CLOCK
SET HOURS XX

TO CHANGE CLOCK
SET DATE XX

TO CHANGE CLOCK
SET MONTH XX

When you enter the CLOCK menu you will be prompted to change the MINS settings, adjust minutes by pressing the *Up/Down* buttons, to accept the setting press the *Enter* button.
You will then be prompted to change the HOURS, adjust by pressing the *Up/Down* buttons, to accept the setting press the *Enter* button.
You will then be prompted to change the DATE, adjust by pressing the *Up/Down* buttons, to accept the setting press the *Enter* button.
You will then be prompted to change the MONTH, adjust by pressing the *Up/Down* buttons, to accept the setting press the *Enter* button.

7) SAVE & EXIT

When this menu is selected, push *Enter* to save ALL settings, the unit will return to normal operation automatically.
Note: If any of the menu items are left unattended for 3-4 mins the menu will time out and automatically save all settings and return to operation.

The *Enter* button.

FOR MANUAL MODE
PRESS ENTER NOW

Pressing the *Enter* button once will display the above message for ~3 seconds, simply wait and the unit will return to normal operation.

If you *Enter* is pressed for a second time within a 3 second period, the display will indicate you have entered Manual mode, operation is the same as manual mode in the menu with the only difference being the timeout value is 4 Hours.

NOTES.

1. If a sensor fault is detected the V7 will display which sensor and what the fault is.
2. Should power be interrupted for any reason, the V7 will resume normal operation when power is restored, all information will have been kept.
3. Temperature sensors used with this unit are Digital and are accurate to 0.5 Deg. C, no calibration is required.
4. The sensor cable with the thin trace is the positive and is usually fitted to the right hand side of the green plug, incorrect polarity will be displayed.
5. If Auxiliary heater interlock switching is used the maximum load is 5A at 32VAC max.
6. Solar start and end times may be changed by holding the up button while power is applied.

Return to Manufacturer for repair.

<u>Installation Notes</u>

As the unit operates in a UHF radio band, reflections and moving objects can cause a transmission to be corrupted with a subsequent indication "MISSED RECEPTION" on the display. Up to 10 transmissions can be missed before pump action will occur and the solar pump will turn off. If this occurs, and if the solar conditions are still favorable, the solar pump will not turn on again and resume normal operation unless it has received a valid transmission.
The remote roof transceiver obtains its operating power from a solar panel, it will not operate if there is no sun or if there is significant cloud cover. Obviously solar heating would not occur in such conditions.

Due to the possibility of reception ghosting and electrical interference the Transmitter may be required to be moved to an alternative position, this may be as little as two meters and keep in mind that the roof sensor cable may be extended 20 meters if required. The main controller should be mounted away from other electrical appliances as far as possible to reduce the chance of interference. If the unit is to be installed in a metal shed there may be reception issues and the controller may need to be optioned with a remote antenna or moved outside.

A Power substitute cable is supplied for installation testing on cloudy days – Simply clip a 9Volt Transistor Battery onto the Battery Snap supplied and substitute the left hand green plug marked PV. Remember to refit original plug when testing is over.