

CONTROLLER MOUNTING:

The controller enclosure must be firmly attached to a nearby solid fixture by either the two mounting lugs or direct attachment through the controller. If mounting through the controller ensure the power cord is disconnected from the mains supply then remove the enclosure front cover by turning the four corner locks so each arrow points to the 'O' marked on the front cover. Insert two mounting screws diagonally through the oval holes in the enclosure, refit front cover and turn the four corner locks to the 'I' position.

The power cable is 1.8m long and should be plugged directly into a general power outlet, not into an extension lead.

CIRCULATING PUMP:

The solar circulating pump plugs into the right hand 240Vac socket marked as SOLAR PUMP. The left hand 240Vac socket marked as AUXILIARY supplies 240Vac at all times. The maximum combined current is 10 AMPS 2400W.

TEMPERATURE SENSORS:

The solar pool sensor must be fitted into the suction line of the solar boost pump, preferably in a position out of direct sunlight. The aux pool sensor must be fitted into the suction line before the pool pump (filtration pump). 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 black sensor barb. The green solar pool sensor plug is to be fitted to the plug socket marked POOL. The aux pool sensor plugs into the socket marked RELAY1 (Black to NO, White stripe to C).

Roof sensor must be fitted into a small piece of rubber collector material away from the main collector but on the same aspect. Keep in mind that it is of the utmost importance to keep the roof 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. Sensor cables *must not be run parallel to power cables* and run lengths should be less than 50m. 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.* The sensor plug is to be fitted to the right hand socket marked ROOF.

FLOW SWITCH:

The flow switch must be fitted after the pool/spa valve into the pool return line, the arrow on the flow switch indicates the direction of water flow. The green plug will go into the FLOW socket on the controller.

HEATER INTERLOCK:

The heater interlock cable connects in-series to the existing internal flow or pressure switch inside the heater, connection varies depending on model, contact heater manufacturer for details, maximum switching capability of the controller is 5 AMP at 32VAC MAX! If the heater exceeds this then the 240V switching option is to be fitted.

The green plug on the heater interlock cable connects to the socket marked RELAY2 (NO/C).

OPTION - IHP:

An optional IHP connects to the DATA socket of the controller; ensure to match the colours to avoid damage. Do not run near 240Vac wiring.

DESCRIPTION:

The Solar is for heating the pool only and will operate as a standalone system. If water flow is detected by the flow switch then the aux pool temperature sensor is used; and if there is no solar gain the aux heater will be enabled if within the selected timeframe of heat demand and only if the pool temperature is below the aux limit setting.

If there is solar gain available then the heater will run in conjunction with the solar but will turn off when the roof temperature exceeds 15°C above the solar temperature limit setting. When the flow switch detects that water flow has stopped going into the pool then the heater is enabled to heat the spa to the higher temperature limit as set at the aux heater.

SOFTWARE SETTINGS:

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* or *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) TEMPERATURES
3) AUX. HEATER
4) MODE
5) SYSTEM SETUP
6) SAVE & EXIT
```

1) MANUAL MODE

```
MANUAL PUMP MODE
UP=ON DOWN=OFF
```

MANUAL MODE allows you to manually set the solar pump to 'on' by pressing the *Up* button or 'off' by pressing the *Down* button. In manual mode the heater is switched off.

Pressing *Enter* will return you to the SETTINGS MENU. You can also keep pressing *Enter* to toggle the pump from 'on' to 'off' and vice versa.

MANUAL MODE will timeout, after 24 hours the unit will return to automatic operation.

2) TEMPERATURE

```
TEMPERATURE
SOL LIMIT XX.X°
```

When you enter the TEMPERATURE menu you may change the desired temperature of the pool for solar heating. Change the desired temperature limit by pressing the *Up or Down* buttons, if no change is required simply push *Enter*. Heating will stop and sample waiting begins once the desired temperature limit is reached.

Note that solar heating can only occur if solar gain is available. (SOLAR GAIN = YES)

If the AUX. HEATER is set to ON then the following will also be displayed;

```
TEMPERATURE
AUX LIMIT XX.X°
```

You may change the desired temperature of the pool for auxiliary heating (in pool mode).

Change the desired temperature limit by pressing the *Up or Down* buttons, if no change is required simply push *Enter*. Heating will stop once the desired temperature limit is reached.

For maximum efficiency it is advisable that the solar limit (SOL LIMIT) be set slightly higher than the auxiliary limit.

**Factory default for AUX LIMIT is 27°C and SOL LIMIT is 30°C.

3) AUX. HEATER

```
AUX. HEATER
ON/OFF
```

When you enter the AUX. HEATER menu 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. This controls when the Aux Heater is allowed to operate. 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.

```
HEAT DEMAND TIME          HEAT DEMAND TIME
START TIME X:XX          END TIME X:XX
```

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

Note 1: when SOLAR GAIN =HIGH is shown then the heater will stop as priority is given to low cost solar heating.

Note 2: High solar gain is defined as 15°C above the SOL LIMIT setting.

**Factory default for HEAT DEMAND is ON (06:00 to 22:00)

4) 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 solar temperature limit is achieved; 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, also note that the start Month must be of lower value than the end Month.), this assists in the systems off-season maintenance and save energy as solar gain may be available but swimming temperature cannot be achieved. Every day 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.

**Factory default for MODE is SUMMER

5) SYSTEM SETUP

Four options are available under system setup;
 SET SYSTEM CLOCK / FACTORY SETTINGS / SOLAR PARAMETERS / EXIT.

EXIT - will return you to 5) SYSTEM SETUP with no changes.
 SET SYSTEM CLOCK - allows you to adjust calendar and time of day.
 FACTORY SETTINGS - restores all the settings to the factory default state.
 SOLAR PARAMETERS - for setting the solar start and end times.

Solar parameters;
 SOLAR START TIME SOLAR END TIME
 HOUR (24H) XX HOUR (24H) XX

The start time is the time of day 'hour' that the solar pump is allowed to start. The solar end time is the time of day 'hour' at which the pump will stop.

**Default time the solar pump is allowed to operate is from 08:00 to 19:00.
 Adjust values by pressing the *Up/Down* buttons, to accept the setting press the *Enter* button.

6) 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/MANUAL button

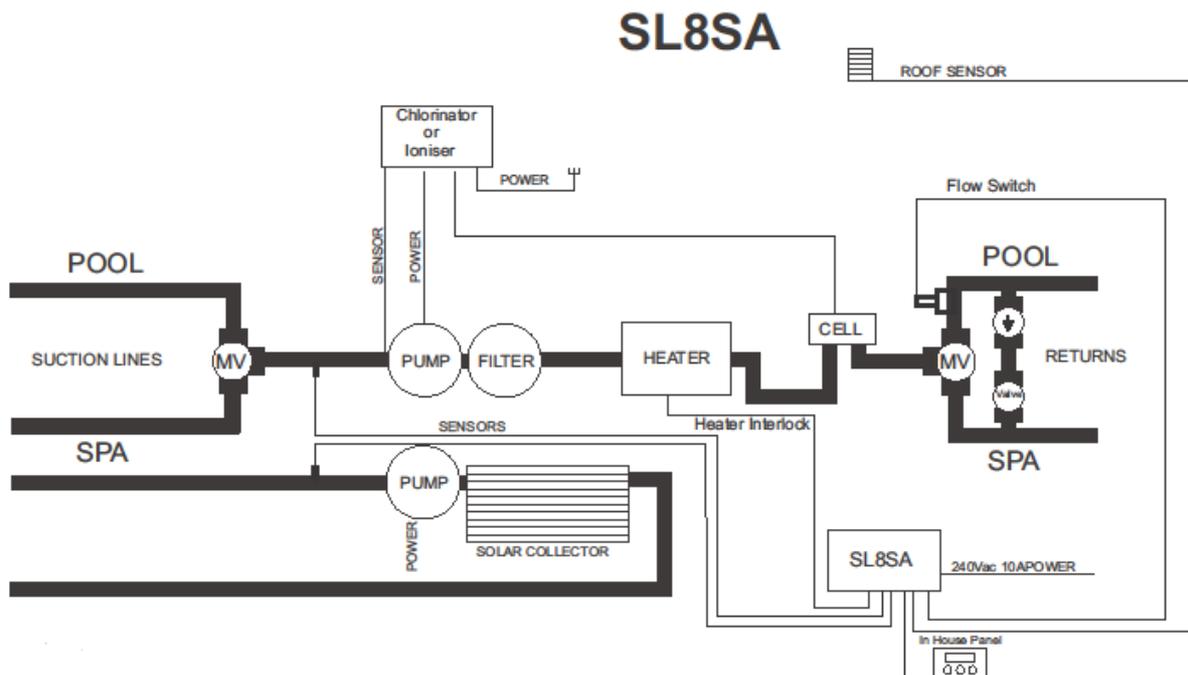
FOR MANUAL MODE
 PRESS ENTER NOW

Pressing the *Enter* button once will display the above message for ~3 seconds, simply wait and the unit will return to normal operation. (this can also be used to bypass the 3 minute minimum run time).

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. The heater interlock switching is used the maximum load is 5A at 32Vac max.



WARRANTY

This 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 cover travel costs to or from installation site. Unit must be returned to manufacturer for repairs.

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 SUNLOVER HEATING

VIC 03 9887 2131

NSW 02 9838 0000

QLD 07 5597 7360

62 Parkhurst Drive,
Knoxfield 3153
Victoria Australia

Factory 6
7-9 Activity Crescent,
Molendinar 4214
Queensland Australia

Unit 2
20-22 Foundry Road,
Seven Hills 2147
NSW Australia

www.sunloverheating.com.au