

# SUNLOVER HEATING WARRANTY – SL6 DELUXE

This range of product is covered by a limited 2 year warranty against component failure or faulty workmanship from the date of installation.

Temperature sensors are covered by a limited 12 month warranty.

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.

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.

Return to supplier for repair

**Customer Record.** (To be retained by the customer)

Dealer/Installer Name.....

Model Number.....

Serial Number.....

Date Installed.....

.....

For service assistance phone SUNLOVER HEATING

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## MODEL SL6 DELUXE Digital Solar Controller

### **OPERATING INSTRUCTIONS**

**Summer Mode (AUTO)** is normal operating mode used during the Pool Swimming Season. You may set the desired pool limit by pressing the UP or Down Buttons. The display shows the pool temperature then flashes the limit setting and light, the pump light and pump will be on when solar gain is available.

**Manual Mode (PUMP/MAN)** is used to prime, clean or test the pump. To select manual mode press the SELECT button until the PUMP/MAN light is illuminated. The pump will then start, or stop if it has been running. To return to normal run simply press the SELECT button till the AUTO light is illuminated. The SL6 will automatically return to AUTO run after 30 minutes.

**Roof Mode** displays the roof sensor temperature, a hot roof indicates that solar gain (heating) is available, if left unattended in this mode the SL6 will automatically return to AUTO run after 3 minutes.

**Winter Mode** should be selected when the pool is not being used for extended periods. The pump will be turned on for 3 minutes every day at the same time Winter Mode was selected. This will assist in the systems off-season maintenance and save energy. To enter this mode press the SELECT button till the WINTER light is illuminated. If the power is interrupted during winter mode the SL6 will continue to count time accurately.

**Tropical Mode** is used to assist in cooling over heated pools. If the limit has been exceeded, which is indicated by the limit light on, and the roof temperature drops below the limit temperature (usually some time late at night) the pump will turn on and pump pool water to the roof to cool it down. The pump will turn off when the pool water is cooled to the limit setting. To set this function press the SELECT button till the TROP light is illuminated. To switch back to Summer Mode press the SELECT button till the AUTO light is illuminated.

**Clock** This model is fitted with a settable 24 hour clock, if the clock needs to be adjusted then hold the up and down temperature buttons together until the display goes blank, then release the buttons.

While the minutes light (M) is flashing rapidly, use the up or down buttons to set the minutes then press the select button. The (H) light will now be flashing rapidly so using the up or down buttons set the hours then press select. The SL6 will now resume in summer mode (auto).

NOTE: it is a 24 hour clock so 3 pm is 15 (add 12 after midday).

Setting the clock correctly ensures the booster pump will run only when maximum heating is available, that is from 0800h (8 am) till 1800h (6 pm). It also ensures that the booster pump will not run at night to sample the pool water. Night time is indicated by a flashing AUTO light.

### **OPERATION**

The SL6 will turn the pump on when the roof temperature is higher than the pool (pipe) temperature by 8°C and off at 4°C. When the pool temperature reaches the limit setting the limit light will turn on and the auto light will flash, it will remain in this state for 4 hours. After 4 hours, and if solar heating is available the pump is turned on for ~3 minutes to sample the pipe so an accurate pool temperature can be recorded, if after 3 minutes the pool requires heating the pump will continue to run to heat the pool. If solar heating is not available after the 4 hour wait a brief blink of the roof light is indicated. If the pump is turned off due to the pool being at the set temperature limit, or if no heating is available on the roof during day time operation, then the last accurate recorded pool temperature will be displayed for 6 hours from when the pump was last running. When the ~3 minute sample is active the pump/man light will flash until this test is over

## **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 waters 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.

### **Pool Sensor**

For stand alone systems with separate suction and return the pool sensor must be fitted into the suction line of the solar boost pump, preferably in a position out of direct sunlight. For retro-fit systems the pool sensor must be fitted in the suction line of the main filter pump or between the outlet of the filter and before the take off Tee fitting for the solar boost 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 sensor plug is to be fitted to the centre plug socket.

### **Roof Sensor**

Roof sensors must be fitted into a small piece of solar collector or equivalent and attached to the roof. The best location is within arms 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.

Keep in mind that it is of the utmost importance to keep the roof sensor 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.

### **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 must be soldered and this includes where the cable enters the terminal block at the case base.** 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 thin white trace 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.

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### **Fault Diagnosis**

In the event of a cable or sensor failure, the display will indicate the type of failure as follows;

#### ROOF SENSOR.

A display of 99 indicates a broken or disconnected sensor cable or open circuit sensor.

A display of 88 indicates wrong polarity connection or short-circuited cable or sensor.

A display of 89 indicates a high sensor reading out of normal operating range.

A display of 00/03 indicates an over extended or coiled sensor cable.

#### POOL SENSOR

A display of 77 indicates a broken or disconnected sensor cable.

A display of 66 indicates wrong polarity or short-circuited sensor cable.

A display of 67 indicates a sensor reading out of normal operating range.

### **Return to supplier for repair**