



The C1002 unit is equipped with a unique “Winter mode” facility which allows the user to exercise the system daily throughout the colder months. By using this facility you will extend the life of your solar heating by preventing pump seizure and drying of chemical build up in the collector.

**To select winter mode**, press the “winter” button. The display will show “W” and the unit will turn on the pump for six minutes. This sequence repeats every 24 hours. To resume normal operation, press the “winter” button again and the unit will begin automatic (summer) operation.

**TEST MODE.** Pressing the “+”, “-”, “check time” and “override off” buttons together will initiate a short test routine that will exercise the display, LEDs and controlled outputs.

**OVERRIDE MODES.** Before selecting these modes, remember that the unit is designed to work automatically. Overriding the automatic operation can result in overheating or even cooling if the solar system continues to run when the sun is not shining.

**To select “pump override on”**, press the “+” and “-” buttons together. The display will alternate between “On1 “ and the current pool temperature. The “override on” LED will be flashing, and the pump will operate for 1 hour before resuming automatic mode. To select 4 hour override on duration, press and hold the “+” and “-” buttons together for five seconds. The display will show “On4”. To cancel override on operation, press the “+” and “-” buttons together again.

**To select “pump override off”**, press the “+” and “display” buttons together. The display will alternate between “OFF “ and the current pool temperature. The “override on” LED will be flashing, and the pump will turn off and stay off for 1 hour before resuming automatic mode or until these buttons are operated again.

**To select “Unit off”**, press the “+” and “display” buttons together and hold for five seconds until the display shows “OFF”. The unit is effectively off, although the “display” feature can still be used to check time and temperatures. To resume normal operations, press the “override off” button.

#### **ERROR INDICATIONS**

NOTE: In extremes of temperature, the sensor fault displays may show although the unit is not faulty. Remember the pool temperature is sensed from the up pipe which can be much colder or hotter than the pool if the system has been off for some time. The water from the roof in the down pipe can be very hot for a few minutes after the pump is started.

Up pipe and down pipe temperature sensor errors may show in override modes, but will not stop operation.

If the unit displays “EEE”, then it has a memory fault, and may not operate correctly. The unit requires servicing.

# Up Down Solar Controller

## Model C1002 (For system 23331-02)

V2

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## C1002 UP DOWN SOLAR CONTROLLER

The C1002 unit is designed to give you year round automatic control of pool systems employing a pump and a simple one pipe up, one pipe down solar collector.

The unit contains a battery backed up real time clock, thus time and critical operation data is correct after a power failure.

The unit will periodically turn the pump on and after allowing the system to prime determine if the water coming down from the solar collector can heat the pool. There is a black out period from a variable stop time between 2pm and 6pm to a fixed start time of 8am when no automatic pump operation can occur.

By following these simple installation and operating instructions you will enjoy trouble free operation for many years.

**THIS UNIT IS COVERED BY A LIMITED WARRANTY. Please refer to web site for warranty details.**

**CAUTION:**  
**DO NOT OPEN THE CASE OF C1002 UNIT. IT IS NOT USER SERVICEABLE. IF THE POWER CORD IS DAMAGED, IT MUST BE REPLACED BY THE MANUFACTURER OR AN AUTHORISED AGENT. OPENING THE CASE WILL VOID YOUR WARRANTY.**

## INSTALLATION

The C1002 unit is weather resistant, however it should be mounted in a sheltered position where it is not exposed to direct weather, splashing or spray from the pool or filtration equipment. **Electrical building regulations specify that the C1002 unit must not be mounted within 3 meters of the pool.**

Fix the unit to a wall or post, within 1.5 meters of a 240 volt outlet and within 2 meters of the pump. Mounting points are provided on the back. Two sets of temperature sensor cables are supplied. One with black/white wiring for the pipe up to the solar collector, and one with grey/blue for the pipe down from the solar collector. This C1002 unit must be installed in the upright position. (Cables and mains sockets downwards).

**Avoid cutting the sensor leads (excess can be neatly coiled). If the cable is cut, it must be reconnected with the POSITIVE (stripe) to the POSITIVE, and the NEGATIVE (no stripe) to the NEGATIVE. Do not place any wire joins underground.**

## Power connection.

Power is supplied through a standard 240 volt lead. A piggyback socket is provided on the lead if you need to run the filter pump or it's timer, and the C1002 unit from the one power outlet. Power for the unit's pump comes from the left hand side socket on the bottom of the unit.

**Maximum pump rating - 1.5HP**

**NOTE: ONLY THE PUMP IS TO BE CONNECTED TO THE CONTROLLER OUTLET. MORE THAN THIS OR EQUIPMENT OTHER THAN A PUMP MAY DAMAGE THE ELECTRONICS OR THE ITEM CONNECTED TO THE CONTROLLER OUTLET AND WILL VOID YOUR WARRANTY.**

## OPERATION

After initial power on (or after a power failure is restored), the clock in the unit will be wrong. The units "clock error" LED will be flashing. Correct the time by use of the "-" and "+" switches. "-" will change the hours, "+" will change the minutes. After the time is corrected the "clock error" LED will stop flashing. Time can be corrected later by first pressing the "W" and "DISPLAY" buttons together (display shows "Set" then displays the hour (ie H.08), then use the "-" and "+" switches as above.

**AUTOMATIC (summer) MODE.** Whenever the unit is first powered up, there will be a delay of 2 minutes before the pump is activated. The unit will then run the pump for 6 minutes (during these times the decimal point after L or P will be flashing), then make a decision on if the pool can be heated based on the sensor's temperatures. When the pool has reached your preset "comfort" temperature, it turns everything off and waits 4 hours before starting the process again. If the pool cannot be heated, it waits one hour before trying again.

## Comfort Temperature Adjustment

Adjustment of the comfort level is achieved by pressing either the "+" or "-" buttons. The first operation will simply display the present comfort temperature (iw C25). Any further operation of the buttons will increase or decrease the setting. The setting will automatically change if either button is pressed and held down.

This temperature will be stored permanently in memory, even with power off.

## Differential Temperature Adjustment

Adjustment of the differential temperature is achieved by pressing the "-" and "W" buttons together (displays "diF") then pressing either the "+" or "-" buttons. The current temperature is displayed then it can be adjusted. The larger the differential, the hotter the water in the downpipe needs to be above the pool temperature to be allowed to heat the pool. This temperature will be stored permanently in memory, even with power off.

## Finish Time Adjustment

Adjustment of the Finish time (last time of day that unit can operate) is achieved by pressing the "-" and "DISPLAY" buttons together (displays "Fin") then pressing either the "+" or "-" buttons. The finish time (in 24 hour format) is displayed then it can be adjusted. This time will be stored permanently in memory, even with power off.

**DISPLAY MODE.** To read up and down pipe temperatures, the clock hour and minute times and the comfort temperature settings, press the "display" button. The display will cycle through the settings showing an "U" for up pipe, a "d" for down pipe or "H." and "M." for the time settings and "C" for comfort.

## DISPLAY MEANING.

### P28

Up Pipe (Pool) temp when pump is on.  
Pool is 28°C

### L28

Last pool temp when pump is off.  
Up Pipe (Pool) was 28  
When pump was turned off.

### C30

Shows  
Comfort setting 30°C

### U19

Shows  
Up pipe temp 19°C

### EuP

Flashing.  
Faulty up pipe sensor, or temp outside  
3° - 50° range

### Edn

Flashing.  
Faulty down pipe sensor, or temp outside  
3° - 98° range

### Nop

Between finish time & 8am  
No Pump  
operation is allowed

### d22

Shows down pipe temp 22°C

**NOTE:** When pump is off, controller shows the L temperature as the up pipe sensor is no longer reading a valid temperature.