

SOLAR CONTROLLER

MODEL: SC4D



MADE IN AUSTRALIA

Introduction

The SC4D is a microprocessor based solar controller used to heat your pool/spa from your solar collector. The controller does this by constantly monitoring the temperature on the roof and comparing it with the pool temperature and desired setpoint. When the roof is hotter than the pool the pump is switched on to circulate water through the collector until the pool reaches the desired temperature.

Features

- Sample and Hold pool temperature display
- Simple one touch control buttons
- Pool, setpoint and roof temperature display
- Winter mode
- Manual mode
- Heating or Cooling operation
- Temperature sensor error indication
- 24 hour clock

Modes of Operation

The solar controller has the following three modes of operation: **AUTO**, **MANUAL** and **WINTER**. You can cycle between the different modes using the MODE button.

AUTO Mode

In Auto mode, the pump turns on when the roof temperature is at least 7°C warmer than the pool temperature for one minute. It remains on until the setpoint is reached or the roof temperature drops to less than 2°C above the pool.

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In Auto mode:

- The pump only operates between the active Start and Stop times (default: 9am to 7pm).
- The pump has a minimum on-time of 3 minutes to make sure the pool temperature can be accurately measured.
- The pump has a minimum off-time of 30 minutes to prevent excessive cycling on cloudy days.
- The pump will switch on at least once a day to keep the pool temperature up to date.

MANUAL Mode

The controller can be set for manual operation to operate the pump. In manual mode the pump will run for 30 minutes before reverting to the previous operating mode. You can adjust the time remaining using the UP/DOWN buttons.

WINTER Mode

In Winter mode, the pump will turn on once a day to circulate water through the pipes. The pump will turn on at the Start time (default: 9am) and run for 3 minutes.

Display Options

Press the SELECT button to scroll through the display options.

Display POOL temperature. The POOL light will be on and the display will indicate the last measured pool temperature. The pool temperature is only updated when the pump is running. Use the UP/DOWN buttons to toggle between the pool temperature and the live pool sensor reading.

Pool temperature

*Pool temperature is unknown.
(e.g. pump has not run yet)*

*Live pool sensor display when sensor is
faulty. (flashing "--")*

Display/Set the desired pool temperature. The SET light will be on. Press the UP/DOWN buttons to change the desired pool temperature.

Display ROOF temperature. The ROOF light will be on and the display will indicate the ROOF temperature.

Display TIME. The time can be set by pressing UP/DOWN buttons at same time, for a couple of seconds. The indicator will change colour to yellow. Press UP/DOWN button to change hour, then SELECT button to move to minute and so on.

Tropical (Cooling) Option:

For those living in tropical areas, an option to cool the pool instead of heat has been provided. When enabled, the cooling option changes the auto mode to turn the pump on when the roof is colder than the pool as apposed to its normal heating logic.

To change the controller from heating to cooling:

1. Hold **SELECT** for 5 seconds until "SET" then "COOL" is displayed, press **SELECT** again.
2. Press **UP/DOWN** to toggle between On/Off.
3. Press **SELECT** to store the new value.
4. Press **MODE** to exit

NOTE: With cooling mode activated, the unit will only operate at night (between 8pm to 8am, by default)

Display Indicators / LEDs		
LED	Colour	Description
	Green	The display is showing the pool temperature (or live pool sensor reading). " _ _ °C" indicates the pool temperature is unknown because the pump has not yet been turned on to sample the pool temperature.
	Red	The display is showing the pool temperature (or live pool sensor reading) however the pool sensor is faulty or not plugged in. The live sensor reading will flash "- °C"
	Flashing Red	The display is showing something other than the pool temperature but the pool sensor is faulty or not plugged in.
	Yellow	The display is showing the desired pool temperature set point. The UP/DOWN buttons can be used to change this value.
	Green	Display is showing the live roof (sensor) temperature.
	Red	The roof temperature display option is selected but the roof sensor is faulty or not plugged in. The display will flash "- °C"
	Flashing Red	The display is showing something other than the roof temperature but the roof sensor is faulty or not plugged in.
	Green	The display is showing the current 24 hour time. Hold down UP/DOWN simultaneously to set the time.
	Yellow	The 24 hour time is being set. Use the UP/DOWN buttons to change the hours/minutes and SELECT button to store the new values.
	Green	The pump is current on
	Green	The solar controller is currently operating in heating mode
	Yellow	The solar controller is currently operating in cooling (tropical) mode
	Red	Automatic operation of the pump is currently disabled because the current time is outside the active Start/Stop times. (i.e. the time is not between 9am - 7pm)
	Green	The solar controller is currently in manual mode. By default the display will show the remaining time before the controller reverts to its previous operating mode. UP/DOWN can be used to change the remaining time.
	Green	The solar controller is currently operating in winter mode which will turn the pump on once a day for 3 minutes

Mounting Instructions

The control unit has an ingress protection rating of IP23 and should be mounted on a wall or other vertical surface taking care to protect the unit from rain and direct sunlight. The unit must be mounted outside of Pool Zone 1 (more than 2 metres from the edge of the pool) in accordance with AS/NZS 3100:2022.

Pool Sensor Install Instructions

The blue pool sensor must be installed on the suction side of the solar pump, out of the sun. Drill a 14.0mm hole in a section of pre-heated PVC pipe (very cold PVC can crack), using step drill or smaller diameter drill, followed by sandpaper enlargement. Apply some silicon grease and then insert the grommet into the hole, push in the black hollow sensor barb, then the blue pool sensor blub. Secure wire in place.

Specifications

INPUT:	230/240V 10A 50Hz
MAX TOTAL LOAD:	10A
IP RATING:	IP23

WARNING: DO NOT OPEN CONTROL UNIT. THERE ARE NO SERVICEABLE PARTS IN THE UNIT. PLEASE CONTACT SUPPLIER FOR SUPPORT AND ASSISTANCE, IF REQUIRED.

Guarantee and service

The product supplied with this manual is guaranteed against faulty workmanship for a period of two years from the date of dispatch.

Our obligation assumed under this guarantee is limited to the replacement of parts which, by our examination, are proved to be defective and have not been misused, carelessly handled, defaced or damaged due to incorrect installation. This guarantee is VOID where the unit has been opened, tampered with, or if repairs have been made or attempted by anyone except an authorised representative of the manufacturing company.

Products for attention under guarantee (unless otherwise agreed) must be returned to the manufacturer freight paid and, if accepted for warranty repair, will be returned to the customers address in Australia free of charge.

When returning the product for service or repair, a full description of the fault and the mode of operation used when the product failed must be given. In any event, the manufacturer has no other obligation or liability beyond replacement or repair of this product.

Modifications may be made to any existing or future models of the unit as it may deem necessary without incurring any obligation to incorporate such modifications in units previously sold or to which this guarantee may relate.

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This product is designed and manufactured in Australia.