

1140 SOLAR CONTROLS
MODEL # TCS01
SOLAR POOL HEATING CONTROL
Accurate Control & Management

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Overview

Physical



- All relevant temperatures displayed at a glance
- Bright Clear displays for outside use
- Strong durable UV Stabilized construction
- Basic Operator Instructions on the label
- Easy mounting

Function



- HEAT your Heated Swimming Pool in the most efficient manner
- Constant display of Mode, Temperatures and Status
- Direct management of the solar pump operation
- Compatible with shared suction modules, flow and pressure switches

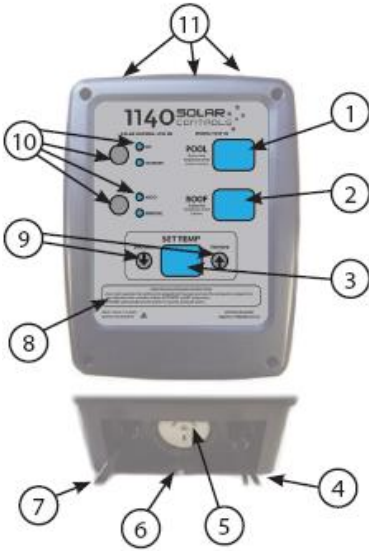
Software



- Sophisticated
- Logical
- Intuitive
- Field tested & proven

In The Box

- Your Solar Kit comes complete with:
- 1 only - Solar Controller (complete with 240Vac power cord)
 - 2 only - Thermistors (fitted to controller, 20mtr roof sensor, 2mtr pool sensor)
 - 1 only - Pool Sensor PVC Coupling
 - 1 only – Roof Sensor Holder / Solar Collector Material



1. Pool Temperature
2. Roof Temperature
3. Pool Set Point Temperature
4. Sensors for Roof and Pool Temperature
5. Solar Pump Power Outlet
6. Position for locating screw
7. Power Input
8. Basic User Instructions
9. Up and Down Pool Temperature Selection Buttons
10. Mode Selection Buttons and Indicators
11. Key Hole Mounts (Hidden)

Figure 1

Getting Started

Installation

Fitting of electrical outlets and wiring requires a licensed electrician to adhere to local and national wiring rules.

To operate your TCS01 you will require one 10Amp, 240Vac GPO.

WARNING: If the supply cord is damaged, it must only be replaced with an approved power lead by 1140 Controls, its service agent or a similarly qualified person, in order to avoid a hazard.

WARNING: Never connect more than one device to the TCS01 Solar Pump Power Outlet.

In addition to your TCS01 Solar Controller your Solar Pool Heating System may also encompass:

- Solar Pump
- Shared Suction Module, flow or pressure switch
- Solar Collector Material
- Associated Plumbing and other System Hardware

General Location

The unit can be installed either in or outdoors. Where practicable we suggest you do not mount your TCS01 in direct sunlight to optimize product life and durability. Sensors and power lead fitted to your TCS01 are the following lengths:

- Pool Sensor: 2 m
- Roof Sensor: 20 m
- Power Cord: 2 m

Positioning

Mount the controller within close proximity of the solar pump: (i.e. usually within 1-2meters) and your GPO outlet (2 meters maximum). Also ensure your controller is located so your Pool and Roof Sensors can be corrected positioned.

Whilst your TCS01 controller is waterproof to IP54, the controller needs to be mounted with all connections facing down to ensure no ingress of water.

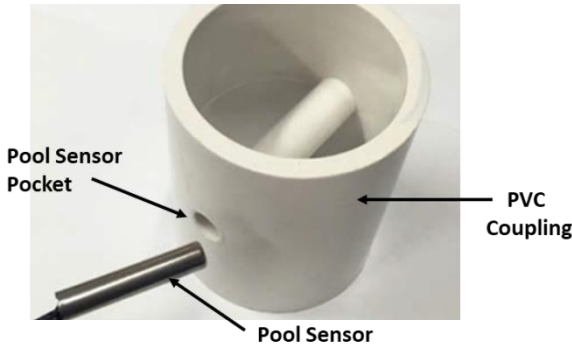
Across the top of the controller three keyhole mounts are provided for fixing to a wall or other vertical structure. There is also provision to mount a locating screw to the bottom of the controller adjacent to the solar pump plug.

Connecting Solar Pump

Plug the power lead from the Solar Pump into the three pin plug located in the base of the controller (Figure 1 ⑤).

Pool Sensor

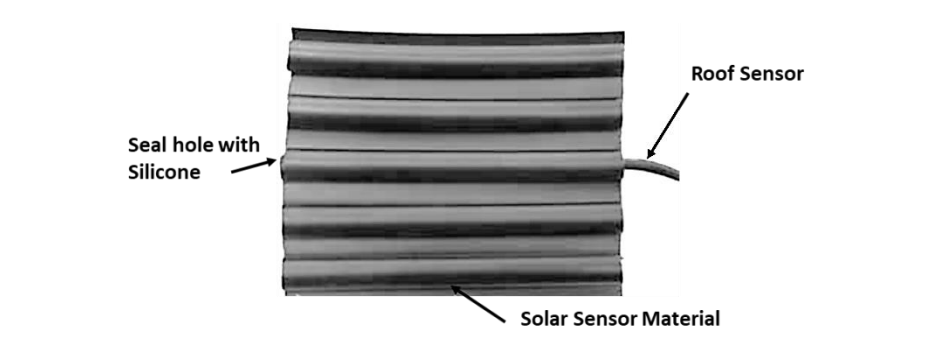
The Pool Sensor (Figure 1 ④) is the shorter of the two sensors (2m). This sensor is to be installed into the sensor pocket/PVC coupling supplied. Ideally the pocket/coupling should be positioned on the discharge side of the solar pump and prior to the non-return valve.



The pool sensor is inserted into the pool sensor pocket, which is filled with a white thermal paste to prevent thermal interference. The sensor is held in place by a cable tie or similar.

Roof Sensor

The Roof Sensor (Figure 1 ④), the longer of the two sensors (20m), should be inserted into a piece of solar collector material (tubing) supplied and glued to the same roof surface as the solar system. Ensure the tubing is glued horizontal to the roof surface so the tube does not fill with rainwater.



Connecting to power

Plug the 3 pin power lead (Figure 1 ⑦) from the controller into a 240 Volt general purpose outlet (240v, 10a GPO). The GPO should provide constant power, i.e. not restricted by a time clock.

Start Up

Initial Displays

When you turn your unit on it will automatically initiate it’s Start Up Sequence. Your controller will run through a pre-determined sequence to ensure the correct operation of your system.

General Operation

The TCS01 continually displays the current controller status. All you need to do is:

- 1. Select the mode of operation you require. (Figure 1 ⑩)
- 2. Set your desired Pool Set Point Temperature. (Figure 1 ③) via the Up and Down Buttons (Figure 1 ⑨)

Should the TCS01 be unplugged or lose power, it will automatically revert to the last selected mode once power has been reinstated (upon completion of the start sequence).

Should a system fault occur initially refer to the Trouble Shooting Section of this Manual however should you require further assistance please contact your installer, retailer or the manufacturer.

Pool Set Point Temperature (Figure 1 ③)

The desired swim temperature can be altered using the Up and Down Selection Buttons (Figure 1 ⑨) at any time. The TCS01 Controller has a default Pool Set Temperature of 30°C.

Behind the screens

Functionality

Temperature Hold

Once the Set Temperature (Figure 1 ③) has been achieved the Pool Temperature Display (①) is locked and will continue to display the last achieved temperature until the pump is reactivated due to heating efficiencies, test cycling or manual mode being selected.

Calculated Contingencies

To avoid false temperature readings and to accommodate other calculated variables the Pool and Roof temperatures are overlooked during the first 3 minutes of solar pump activation.

Temperatures are also overlooked when in Manual or Standby Modes.

High Temperature Lockout: If start-up is initiated when the Roof Temperature (Figure 1 ②) has already exceeded 68°C the system will not switch on. This prevents damage caused by rapid expansion and contraction under pressure of the solar heating panel.

Tropical Mode Available upon request: This function allows the solar heating system to effectively operate in reverse, therefore you can cool your pool in tropical locations. This and other supporting adjustments should only be made by a suitably qualified Solar Heating Specialist.

Functions (Modes)

Auto Mode

Heating Mode – Typically activated during the swimming season

The Solar Pump will be switched ON when:

- 1. The Roof is 30°C or warmer **AND** 7° C above the Pool Temperature.

The Solar Pump will be switched OFF when any of the following conditions are met:

- 1. The Set Temperature has been achieved.
- 2. The Roof cools below 20°C
- 3. The Roof cools within 2°C of the Pool Temperature
- 4. The solar pump has been active for more than 12 hours

Manual Mode

Manual Mode – Typically activated to prime the solar pump

The Solar Pump will switch ON and be active for 10 minutes when:

- 1. Manual mode is selected.

Manual Mode will revert to Auto mode after 10 minutes.

The Manual Mode can be activated at any time.

Standby Mode

Standby Mode – Typically activated during the off season (winter)

The Solar Pump will switch ON and be active for 10 minutes when:

- 1. Standby mode is selected. and subsequently
- 2. When 24 Hours has lapsed since pump last active

Trouble Shooting

Whilst we expect your Solar Controller will give you years of trouble-free operation the following gives some further explanations which some users may find handy, especially for faults initiated by incorrect operation of the peripheral components of your pool system.

Solar will not switch on:

- 1. Confirm there is power to the unit by checking GPO, power boards, switches, fuse box and circuit breakers.
- 2. Ensure power leads are secure.
- 3. Alter the SET temperature as it may have been achieved.
- 4. Check the pump operation by plugging the pump directly into a GPO and bypassing the Solar Controller (TCS01).
- 5. If your system has been installed as a **SHARED SUCTION SYSTEM**, the solar will be deactivated whenever the filtration is active...resolve by altering filtration times to non-daylight hours.

Solar will not switch off:

- 1. Check plugs and leads. The pump may be plugged directly into a GPO or piggyback lead providing constant power and bypassing the solar control (TCS01).

High Pool Temperature displayed but pool is cool:

- 1. Check the pump to ensure that it is full of water and there is adequate flow.
- 2. If the temperature reads extremely high, it is most likely that the POOL Sensor or cable has been damaged in some way.

Solar is coming on at night:

- 1. This is usually caused by a Power Black/Brown out. Turn on Standby Mode at a convenient time to re-initiate 24-hour cycle time (i.e. during day light hours).

ERRORS:

For items requiring external intervention contact your installer, retailer, or the manufacturer at support@1140ptyltd.com.au

About Us

Who we are?

1140 Controls have been involved in the Solar Pool Heating industry for more than 30 years during which we have gained a superior knowledge and experience in design, manufacture and installation of practical, tried and test products. Our extensive network of councils, builders, asset management and various organisations continues to grow and is testament to the unparalleled service, quality and standards provided.

What we do

We manufacturer Solar Pool heating products. Being specialist in the field for more than 30 years is no easy feat and creates a sense of pride in the product and services on offer.

WARRANTY:

Subject to the warranty conditions below, this solar controller (hereinafter called “the product”) is warranted by 1140 Controls (hereinafter called “the company”) to be free from defects in material or workmanship for a period of **24 months** from the date of original purchase.

Under the terms of this warranty, the repair or replacement of the controller or any part shall be at the discretion of the company. The warranty is limited to the product itself.

This warranty does not extend to include damage to sensors or sensor cables unless through manufacturing faults. The sensors are warranted to be free from defects in material or workmanship for a period of **12months** from the date of original purchase.

In order to obtain warranty service, the owner must present the sales docket to confirm date of purchase. This product is sold by the dealer or agent as principal and the dealer has no authority from the company to give any additional warranty on the company’s behalf except as herein contained or herein referred to.

Warranty Conditions

This warranty only applies to the original purchaser (named on the paid Tax Invoice) and provided that the product has been used in accordance with the manufacturer’s recommendations under normal use and reasonable care (in the opinion of the company) and such warranty does not cover damage, malfunction or failure resulting from misuse, incorrect installation, neglect, abuse, or used for a purpose for which it was not designed or suited.

Non warranty conditions/issues include: lightning strikes, power surges and/or spikes, animal/pest damage, flooding, condensation, use of non-genuine sensors and/or wire, installation errors or any other conditions beyond the manufacturers control.

Any repairs, alterations or modifications that have been attempted by anyone other than the company will void the warranty. This warranty will not apply if the product is damaged by accident or if repairs arise from normal wear and tear.

The company accepts no additional liability pursuant to this warranty for the costs of travelling to site, transportation, freight or postage of the product and/or any labour aspect of removing/re-installing the product; such costs are not included in this warranty.

The product remains the property of the company or its authorised distributor until such time as the invoice is paid in full. **Should payment not be made within the terms of the invoice, all related warranties will be deemed null and void and the company or its distributor retains ownership of the product until the invoice is paid in full.**

Certain legislation, including the trade practices Act, 1974 (as amended) and other state and territorial laws give rights to the buyer and impose liability on the seller in certain circumstances. Nothing herein shall have the effect of excluding, restricting or modifying any condition, warranty, right or liability imposed, to the extent only that such exclusion, restriction or modification would render any term herein void

If the supply cord is damaged it must be replaced with approved power lead. Please email 1140 Controls for replacement.



Email: support@1140ptyltd.com.au