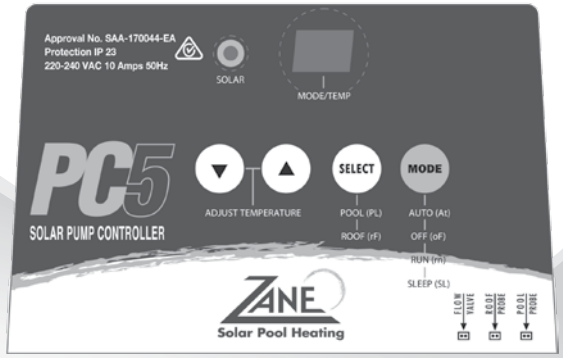
PC5 SOLAR PUMP CONTROLLER

Owners Manual



⚠WARNING This equipment must be installed and serviced by a qualified technician. Improper installation can create electrical hazards which could result in property damage, serious injury or death. Improper installation will void the warranty.

Notice to Installer
This manual contains important information about the installation, operation and safe use of this product. Once the product has been installed **this manual must be given to the owner/ operator of this equipment.**

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IMPORTANT SAFETY INSTRUCTIONS

When using this electrical equipment, basic safety precautions should always be followed, including the following:

READ AND FOLLOW ALL INSTRUCTIONS

! WARNING: Disconnect all AC power during installation.

! WARNING: In order to avoid the possibility of hyperthermia (heat stress) occurring it is recommended that the average temperature of the spa - pool water does not exceed 40˚C.

! WARNING: PC5 is not intended for use by persons (including children) with reduced physical sensory or mental capabilities, or lack of experience and knowledge, unless they have been provided supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure they do not play with the appliance.

- The PC5 is specially designed to control the solar heating of water in swimming pools. The PC5 is designed to allow the solar collectors to heat up water to a temperature not exceeding 40°C (104°F) in swimming pools.
- In certain situations unexpected start up may occur when the appliance is in automatic mode. The installer should assess the risk associated with unexpected start-up of any connected device which, in any circumstance should have no hazardous effect.
- PC5 is not meant to provide safety protection for connected devices. All connected devices should have their own protection for safe operation. PC5 should be deactivated if the pool or spa has been drained. PC5 operates with 240 volts and must be installed in accordance with current Australian Standards especially HD 384.7.702, the Australian Wiring Rules (AS3000) and local statutory authority regulations and outside the pool zone.
- This product must be mounted vertically, with the socket outlets facing down in a sheltered location out of direct sunlight.
- Parts containing live parts, except parts supplied with safety extra-low voltage not exceeding 12V, must be inaccessible to a person in the spa – pool.
- Parts incorporating electrical components, except remote control devices, must be located or fixed so that they cannot fall into the spa – pool.
- The appliance should be supplied through a residual current device (RCD) having a rated residual operating current not exceeding 30mA.
- The user should make sure that assembly and maintenance tasks are carried out by qualified authorized persons and that these persons have first carefully read the Service and Installation Instructions.
- The limit values stated in the Technical Specifications should not be exceeded under any circumstance.
- The solar controller is a complete appliance and should not be modified. If the supply cord is damaged, it shall be replaced by the manufacturer or its service agent or similarly qualified person in order to avoid a hazard.
- The PC5 Solar Controller is approved and conformed to AS3136 Swimming Pool Equipment, as a prescribed article under Australian Registration.
- The PC5 conforms to the Australian Electromagnetic Compatibility Standard marked by the Ctick.

INTRODUCTION

Congratulations on choosing the Zane PC5 Solar Pump Controller for your swimming pool. The PC5 Controller is designed to automatically control your solar heating pool system, and uses the latest microprocessor system for simple operation.

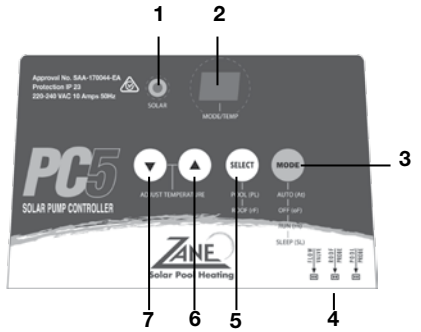
This manual contains information pertaining to the installation, operation and maintenance of your PC5 Solar Pump Controller. Please read the instructions in this manual carefully.

Zane equipment is designed and manufactured to give many years of safe and reliable operation. We hope that you obtain maximum pleasure and benefit from your solar heated pool.

FEATURES AND BENEFITS

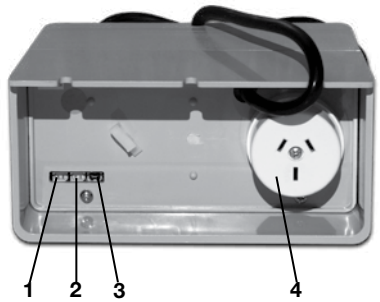
- Fully automatic operation.
- Intelligent pool temperature monitoring prevents unwanted operation, and reduces power consumption.
- Adjustable top out temperature control, with temperature display.
- Displays pool or roof temperature by pressing the “SELECT” button on the keypad.
- International standard weather protection IP23.
- True differential sensing for maximum heating of pool.
- “Winter” (Sleep) mode operation.
- 50 or 60 Hz frequency operation.

CONTROLLER FRONT PANEL



1. Solar Gain LED
2. Display (Mode /Temp)
3. Mode Button
4. Sensor Connection
5. Select Button
6. Temperature Up Button
7. Temperature Down Button

CONTROL CONNECTIONS



1. Pool Probe Connection
2. Roof Probe Connection
3. Flowckeck Valve Connection
4. Solar Pump socket

BASIC OPERATION

Individual temperature probes are used to measure the pool and roof temperatures.

With the controller powered and switched to “AUTO” the solar turns on the solar pump when:

i) The roof temperature is higher than the pool temperature

ii) The top-out temperature is higher than the pool temperature.

The display showing the temperature of the pool probe, (which until water flows in the system may be different from the pool water temperature), has a special inbuilt monitoring and intelligence feature which helps to eliminate this situation.

If using water via the pools filtration system, the separate Solar Booster Pump can be protected from running dry with the use of a Flowcheck Valve (sold separately).
The Zane PC5 controller has a connection point for the Flowcheck valves which prevent the pump from being turned on.

MODES

AUTO

Selection of “AUTO” allows the solar system to operate automatically. It turns the pump on to gather free energy from the sun until it reaches your top-out temperature setting whenever the roof probe temperature is 5 C above the pool water temperature. Once the pool has reached your predetermined temperature the pump is automatically switched off and again will restart when required to heat the pool.

OFF

Select “OFF” to turn the solar system off. Mains power supplying the power module will still be on.

RUN

Selection of the “RUN” mode overrides the automatic solar function to operate solar unless inhibited by a flow switch. It may be used for manually cooling the pool or checking and servicing solar systems. Prolonged operation in “RUN” mode will cool the pool if the roof temperature is 2˚C or more lower than the pool temperature.

SLEEP

When “Sleep” is selected the controller will be in winter mode where it will start up for 4 to 5 minutes every 7 days to flush the system. It can also be selected when you are absent from home on long holidays.

OPERATION GUIDE

SETTING TOP OUT TEMPERATURE

Set Top-out temperature by pressing “UP” or “DOWN” buttons on the control panel. When the required temperature is reached release the button wait 5 seconds and it will blink twice and revert to display of the pool or roof temperature.

Maximum setting is 40˚C

Minimum setting is 15˚C.

SELECTING MODE (AUTO/ OFF/ RUN/ SLEEP)

1. To change mode press the “MODE” button and release.
2. Repeat above till you have the required mode. The mode you are in is shown by the following symbols which are displayed on the screen for 5 seconds before reverting back to the temperature display

AUTO	= At
OFF	= oF
RUN	= r n
SLEEP	= SL

SELECTING DISPLAYED TEMPERATURE(POOL/ROOF)

Press SELECT button to display either roof or pool temperature. One press will show last selected temperature in “rF” or “PL” before reverting to show the selected temperature. It will toggle between roof or pool temperature with each second press.

INSTALLATION

PC5 CONTROLLER

This should be mounted on a vertical surface in a sheltered position where it is protected from direct exposure of sunlight or entry of water from rain, garden hoses, etc., e.g.: on a wall protected by the house eaves.

Secure to vertical surfaces by screws; through the mounting holes so the open side is facing down to prevent water entry.

PROBES AND LEADS

POOL PROBE

The “POOL PROBE” must be installed in the pool filter return before the solar take off so that it can sense the pool water temperature at all times.

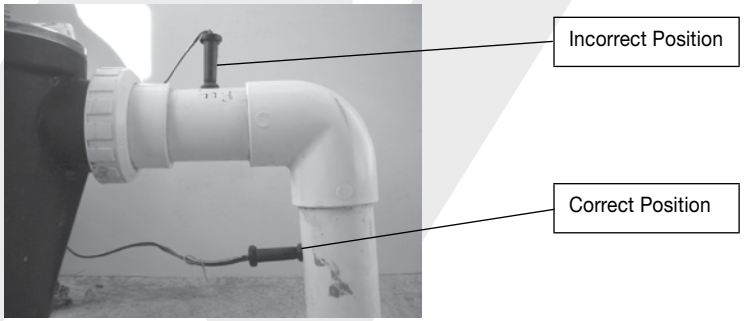
i) Immediately after the solar check valve drill a 9.5mm hole in the side of the line as shown in the image below. A special Zane drill used for PVC pipe is available, if required, from your Zane dealer to give a cleaner correct hole.

ii) Insert the special plug into the hole and rotate home.

iii) Insert the probe holder by pushing into the plug fully up to the head. This is a tight fit to ensure sealing. Lubricate with soap if necessary but do not use mineral oil or grease.

iv) Strap lead firmly to pipe to prevent any strain on the probe holder or lead entry.

v) The probe should not be installed on top of any pipe work coming from the pump as it is exposed to sunlight and accidental physical damage. It should be installed on an inside elbow of the pipe work (as shown below). This will eliminate heating of the probe by sunlight – giving inaccurate readings, and also minimise the risk of damaging the probe by pool users.



ROOF PROBE

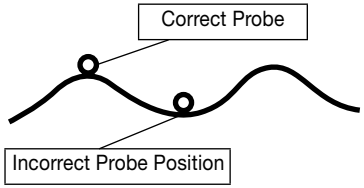
i) If the probe lead is to be concealed, e.g. underground, make sure it is run through a conduit to ensure easy removal if service is required.

ii) To take cable to the roof it should be tied off neatly with electrician's cable ties to one of the solar pipes.

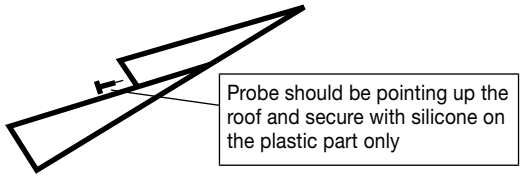
iii) The roof probe is supplied housed in a probe holder. This holder should be fixed to the roof in a small pad of adhesive the same angle as the absorbers. This is to ensure that the probe will measure the actual roof temperature and that the reading will be unaffected by the cooler pool water when the solar system turns on. The probe must always be located so that it is in the sun at the same time as the absorber array; otherwise incorrect readings will be made. This can happen when parts of the absorber are in the shade, and the probe is still receiving full sunlight.

iv) The probe should be located at least 600mm from the top of the roof to eliminate any wind chill factor, 1m from the sides of the roof, and at least 500mm from the absorber array to read a constant accurate roof temperature.

v) The probe should be orientated such that it lies on the crest of the roof tiles and not in the troughs. This eliminates water being trapped in the silicon glue that holds the probe in place, and giving erroneous readings. The roof probe should also be positioned so that it points up the roof tiles (as shown below).



Probe orientation on curved tiles (front view)



Probe orientation (side view)

OPTIONAL FLOWCHECK CONNECTION

(Note: Flowcheck Valve is not part of the PC5 Controller)

When a Flowcheck Valve is required to be used (ie where a "Solar Booster" pump is used in conjunction with the filtration pump) it is necessary to use a Flowcheck valve to prevent the Solar Booster pump from running whilst the filtration pump is switched off. This is to prevent the pump running dry and damaging the seals

The two wires from the Flowcheck valve are connected to the terminals marked "Flow Valve" on the underside of the PC5.

SPECIFICATIONS

Approval No.	SAA-170044-EA
Power Supply	220 – 240 volt 50/ 60Hz
IP Rating	23
Power lead length	1.5 metres
Probe length	Factory fitted pool 3 metre and 25 metres
Display	2 digits display window.
Indicator	Solar ON LED
Pump outlet	3 pin standard 10 amp. maximum total
Dimensions	176 x 135 x 85 mm
Top-out adjustment	External control range 15 to 40 ˚C
Top-out setting	1.5 ˚C about elected temperature
Installation	In a sheltered position out of direct sunlight on vertical surface
Operation ON	+5 ˚C nominal differential
Operation OFF	+1 ˚C nominal differential
Winter mode	Operation once every 6 to 7 day for 4 – 5 minutes. SL is displayed.

WARRANTY AND SERVICE

The controller is warranted for 24 months(2 years) except for the probes and probe leads which are for 12 months(1 year)from date of installation against faulty materials and workmanship.

Should damage occur arising from water, insect or other foreign entry, overheating from sunlight or other means, unauthorised tampering or repairs, fusion caused by storm and tempest, violent power fluctuations or overloading due to pump malfunctions. A repair service is provided, but such repairs are not covered under the unit warranty. Service should be carried out by an authorised Zane Dealer.

DISCLAIMER

This information is accurate to the best of our knowledge at the time of printing. Waterco reserve the right to alter the product in any manner at any time in the future without prior warning. Any recommendations or suggestions are made without warranty and without prejudice, since the use of our products is beyond our control.