Heat Command 5

INSTALLATION AND OPERATION MANUAL

DESCRIPTION

The Sunlover Heat Command 5 is a is a premium automatic solar controller with temperature adjustment, manual, cooling and standby mode features. Mode of operation and temperature limit settings are retained after a power outage. The unit is compatible with independent systems using a dedicated solar pump.

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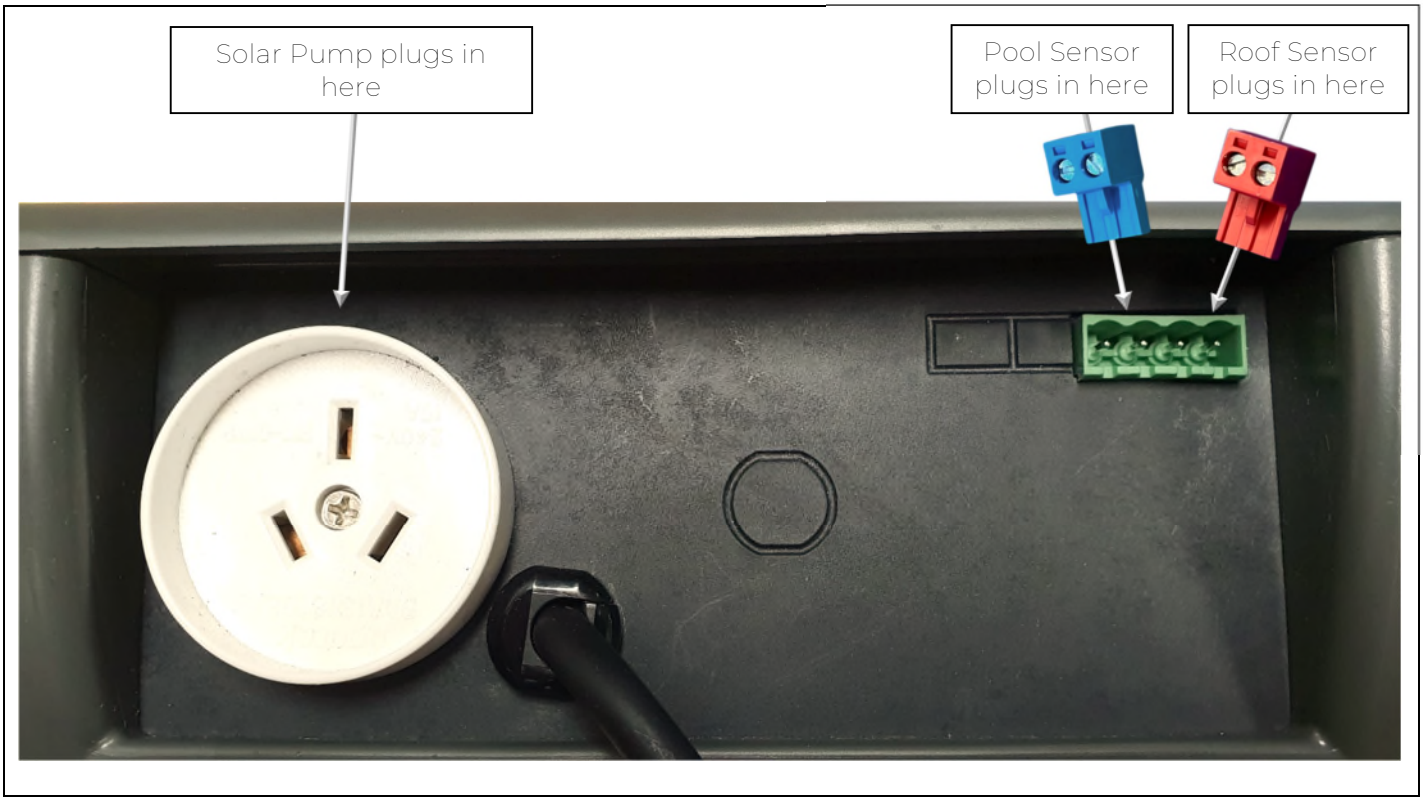
INSTALLATION INSTRUCTIONS

⚠	THIS APPLIANCE IS NOT INTENDED FOR USE BY YOUNG CHILDREN OR INFIRM PERSONS WITHOUT SUPERVISION. PLEASE ENSURE THAT YOUNG CHILDREN ARE SUPERVISED TO ENSURE THAT THEY DO NOT PLAY WITH THE APPLIANCE.

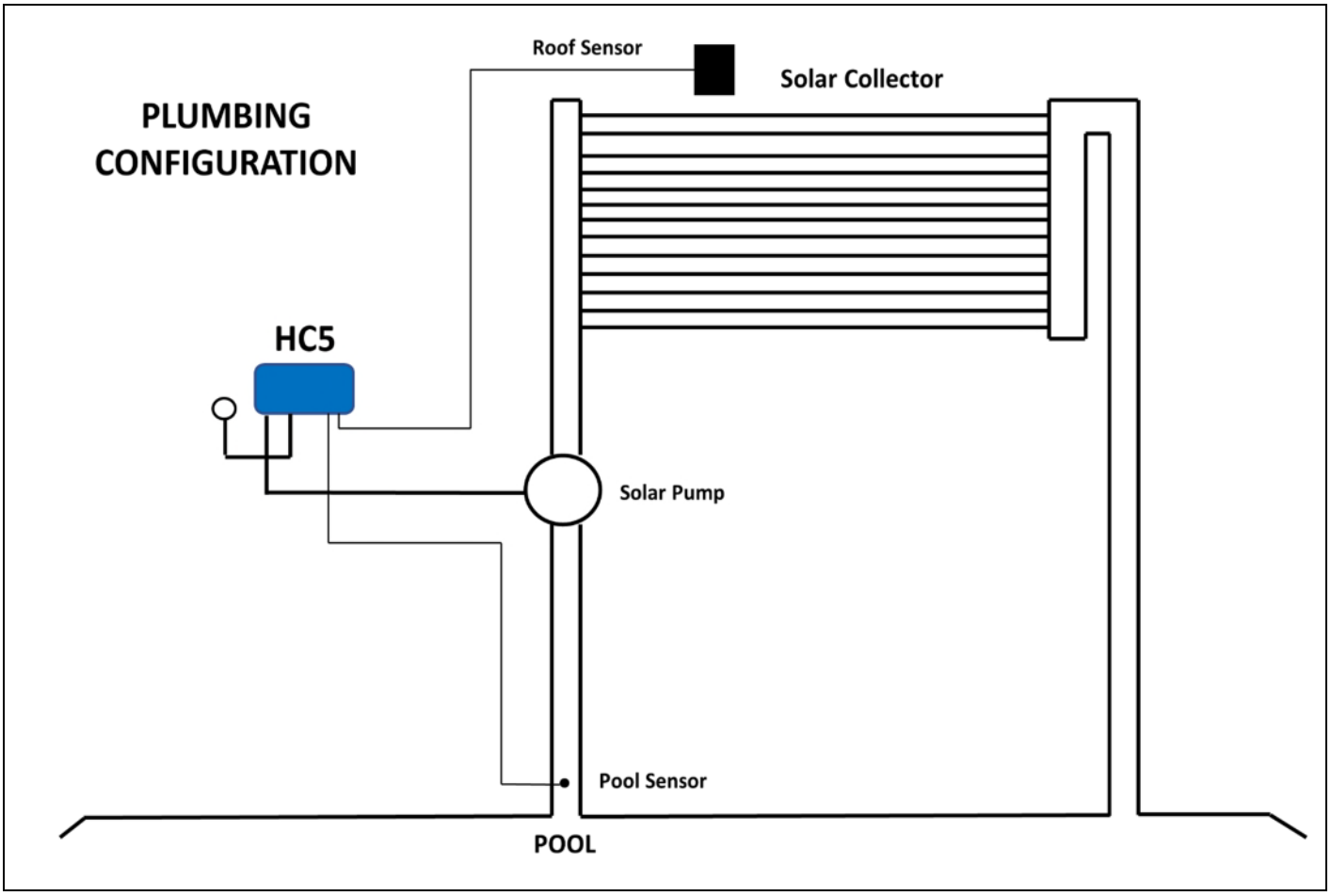
Ideally - as with all pool equipment - the controller should be installed out of direct weather.

CONTROLLER MOUNTING	Find a suitable location to mount the control box. The controller should be no closer than 3 metres from the water's edge and a minimum 600mm above ground. The power cable is 1.8m long and should be plugged directly into a general power outlet, **not into an extension lead.** Fix the mounting bracket to a solid structure with the screw and wall plug kit provided. Slide the controller on, locking it into place. Adjust the screws on the back of unit to ensure a snug fit. To remove unit, lift and gently pull away from structure.
PUMP CONNECTION	The Solar pump plugs into the 240V socket labelled PUMP. The maximum load is 9.98 AMPS at 2395W. ***Note that the Heat Command 5 is not suited to retro-boosted heating systems where the solar pump is drawing water from the filtration system. These systems require a different type of controller such as the Heat Command 5CD or 5FS.***
POOL SENSOR	The pool sensor must be fitted into the heating circuit, before the pump and as close to the pool as practical - preferably in a position out of direct sunlight. It is recommended that a 14.5mm hole be drilled in the side of the PVC pipe, not the top of the pipe where water will collect. This can be carried out using a Dontek PD01 grinding drill or a pilot hole drilled, then a 14.0mm drill-bit spinning in a counterclockwise direction to minimise the chance of shattering the pipe. Insert the grommet dry into the pipe. Lubricate the sensor barb with silicone spray and push the sensor into the grommet. Ideally ~30cm of the cable from the sensor should be tied to the shaded side of the pipe to prevent extreme ambient conditions leeching into the sensor via the copper in the cable. The blue sensor plug is to be fitted to the plug socket marked POOL.
ROOF SENSOR	The roof sensor is to be installed on the same roof as the heating collector, preferably no more than 50cm from the roof gutter (for ease of sensor replacement). If required, the roof sensor can be on a different roof to the solar collector as long as the alignment to the sun is similar to the solar collector. The red sensor plug is to be fitted to the plug socket marked ROOF.
SENSOR 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 should be soldered. Heat shrink is to be used over soldered joints to eliminate moisture ingress, and the cable end is to be refitted to the plug sockets. Once all cables have been correctly fitted the unit can then be switched on.

BASE DIAGRAM



PLUMBING CONFIGURATION



OPERATING INSTRUCTIONS

LCD SCREEN	The LCD screen displays the pool and roof temperatures, solar temperature limit, pump on status, on/off/locked-out status and the time of day & date (clock).
LCD INDICATORS	There are arrow icons on the LCD screen that indicate what actions the controller should currently be doing. These arrows point to text on the label.
MODE BUTTON	Pressing this button changes to the next mode of operation. Once the mode button is no longer being pressed then the selected mode of operation is automatically saved. • ***Heating mode (Auto)*** is the normal operating mode for heating the pool. • ***Standby mode*** of operation is for off-season/holiday maintenance or if pool heating is not required. This is a better option than turning the controller off, as it will flush treated pool water through the solar system, and prolong solar pump bearing and mechanical seal life. Pump will run for 3 minutes per day, before 1pm. • ***Manual model*** is for testing the solar pump installation on a cold or cloudy day. Once manual mode is selected the pump will start and can be toggled on or off using the ENTER button. After manual mode times-out, the unit returns to the previous mode. ***The factory default mode is Heating mode.***
↑ AND ↓ BUTTONS (TEMPERATURE SETTING)	Adjusting the temperature limit will allow the controller to heat the pool until the temperature limit is met or exceeded by 0.5°C. Heating will then remain off for 60 minutes, after which the pump will run for 3 minutes to sample the water temperature again. Heating will recommence if the pool temperature drops 0.5°C below the temperature limit setting. Otherwise, sampling will occur again in another 60 minutes. Due to rounding the actual heating hysteresis is ±0.5°C. *****TEMP RANGE: OFF, 20° – 40°*** *The ability to solar heat the pool will depend on weather conditions and other factors.* ***The factory default for SOL. LIMIT is 30°C.***
ENTER BUTTON	Pressing the ENTER button will turn on the LCD backlight. Pressing the ENTER button while the backlight is lit will enter the SETTINGS MENU. The menu system can be navigated using the ↑ or ↓ buttons. All selectable and changeable values will flash on the LCD screen. Press the ENTER button to accept the currently displayed (flashing) item. **All menu items are shown below:**
1) EXIT	Will save changes and return to automatic operation.
2) CLOCK	Selecting clock, will allow you to set the time of day. Set hours then minutes.
3) SYSTEM	***EXIT*** - Press ENTER on this menu to return to automatic operation. ***COOLING -*** is for situations where the pool water overheats *beyond* the set temperature limit due to direct heating from the sun. *****Note -*** *for the cooling function to work properly, it is best if the solar run hours have been left at the factory default (See Hours below). This will allow the controller to take the best advantage of the evening and early morning hours to cool the pool.* ***LCD TIME*** – Adjust the number of seconds the backlight remains on after the time a button was pressed. (Select NONE for always on.) ***HOURS*** –. is for hours of solar operation (*24hr Clock)* First selecting the start time in hour intervals *(6:00 – 12:00)* Then the end time *(12:00 – 21:00).* **The f*actory default for solar Run Hours is to run from 12:00-12:00 (24hrs).***

INSTALLER SETUP

⚠ THE INSTALLER MENU IS INTENDED FOR USE BY QUALIFIED POOL PROFESSIONALS ONLY. INCORRECT ADJUSTMENTS TO THESE SETTINGS MAY RESULT IN EQUIPMENT MALFUNCTION OR DAMAGE.	
ACCESSING INSTALLER MENU	To access the installer menu, press enter to access the settings menu and scroll down until "3) SYSTEM" is flashing. Now, press the MODE button which will take you to the installer menu.
FACTORY DEFAULT? NO/YES	Restore back to factory defaults.
ROOF TEMPERATURE	***RUN -*** The solar pump will start when the roof temperature is at least X°C higher than the current pool temperature. ***END -*** The solar pump will stop when the roof temperature drops to X°C or less above the current pool temperature. ****The factory default settings for roof temperature are:*** • *RUN at +8°C (roof is 8°C warmer than the pool)* • *END at +4°C (roof is 4°C warmer than the pool)*
FREEZE PROTECT? NO/YES (RANGE 1.0°C-6.0°C)	Anti-freeze function, when switched to ON, will start the pump when the roof temperature drops to the selected temperature. It will operate for 3 minutes every 30 minutes until the roof temperature rises above the selected temperature. ***The default setting is YES to support warranty requirements for some solar collectors.***
BOIL PROTECT? NO/YES (Range 55°C - 99°C) (Range 3 - 59mins)	Anti-boil function. If you select YES, the pump will start when the roof temperature rises to the selected temperature. It will operate for the selected number of minutes, where the controller will then take a roof temperature reading and either start the solar pump again (if roof temp is still above selected temperature) or stop running the pump if the temperature has dropped below the selected temperature. ***Default is NO. If you select Boil Protect to be YES, the controller will display 99°C for 3mins. Adjust to required temperature and time.***
PIPE PROTECTION? NO/YES Range 50°C - 95°C	For use when solar collectors are flooded, flat and may require a wetted roof sensor for this mode. The controller will allow the pool to heat to the selected pool temperature, where it will then force the controller to stop any further solar heating of the system by not allowing the solar pump to run once the roof temperature reads above the selected Pipe Protection setting. The solar pump will be allowed to run once the roof temp drops below the selected Pipe Protection temperature. ***Default is NO. If you select Pipe Protect to be YES, the controller will display 80°C. Adjust to required temperature.*** *Note – Pipe Protection will not be offered if Boil Protection has been turned ON.*
CALIBRATE POOL SENSOR BY:	X.X (RANGE -5.0 TO +5.0°C) This is for the plus series sensor only (TS02P) and allows calibration of the sensor.

INSTALLER SETUP *(continued)*

NOTES:	1. If any of the menu items are left unattended for 3 minutes the menu will time out and automatically save all settings and return to automatic operation. 2. If a sensor fault is detected, the controller displays which sensor and the fault. 3. Should power be interrupted for any reason, the controller will resume operation when power is restored. All information will have been kept for up to 10 days. 4. If the controller has stopped the pump and is displaying a higher pool temperature than expected, it may be caused by a pump which is failing to prime. Check the pump and if necessary, prime the pump as per the pump manufacturers' instructions. Then reset the controller by turning it off/on. 5. The MAX combined rated output load for the 240V socket(s) is 9.98 Amps / 2395W. 6. Degree of protection against moisture: IP33. 7. Store all pool chemicals safely, at least 3 metres away from all pool equipment.

TROUBLESHOOTING

ISSUE	POSSIBLE CAUSE
There is no power to the display	Controller power lead is unplugged, or the power point is faulty. Ensure that the controller is plugged in. Test power point with a known working appliance. If the power point is operational, check the controller in another power point and if there is still no display, then send controller for repair.
Water pump will not switch ON	Ensure that there are no faults displayed on the controller as these will stop the pump from running. Check to make sure that the pump is plugged into the PUMP (left side) socket. Unplug the water pump and test the appliance in a known working power point. If pump still won't start, then the issue is within the pump itself.
Water pump will not switch OFF	Turn off power to the controller and ensure that the pump stops. If the pump continues to operate, the pump is likely plugged into a power point. Connect it back to the PUMP (left) socket at the bottom of the controller. If the pump is plugged into the controller and won't stop, check to see what is displayed on the controller screen as the controller may be running for heating purposes. If the pump is still running and the controller states that nothing should be running, send controller for repair.
The pool is not heating	Check the controller LCD screen to see if any sensor faults are present - fix as required *(see fault table)*. Ensure that controller is in Heating mode and not Standby. If the controller has stopped pumping and is displaying a higher pool temperature than expected, it may be caused by a pump which is failing to prime. Check the pump and if necessary, prime the pump as per the pump manufacturers' instructions, then reset the controller by switching it off/on. Take actual measurements of the current roof and pool temperatures and compare to those shown on the display. An incorrect reading may indicate a faulty sensor, or the sensor may need repositioning (for example: a roof sensor which is in a shaded location). If the sensor readings are correct, contact Sunlover for further assistance. There may be an equipment fault, or the current conditions may not be suited to heating the pool.

TROUBLESHOOTING *(continued)*

ISSUE	POSSIBLE CAUSE
The controller is displaying a fault message	In the event of a detected fault condition, the controller will display one or more messages which will scroll across the screen. Observe the message and note down the exact text which is being displayed as you may have more than one fault being detected. For sensor faults, these refer to the two temperature sensors: PIPE SENSOR: This is the pool temperature sensor which is pushed into a rubber grommet inside one of the water pipes, usually on the inlet side of the solar pump. It has a blue connector which plugs into the controller socket marked 'POOL'. ROOF SENSOR: This is the roof temperature sensor which is located on the roof, usually in close proximity to the solar heating collector. This measures the physical temperature of the roof surface to indicate whether there is heat gain available. The sensor cable runs back to the controller location and in some installations will travel underground via a conduit tube which was installed when the pool was constructed. It has a red connector which plugs into the controller socket marked 'POOL'.
PIPE SENSOR DISCONNECTED OR OPEN CIRCUIT	Sensor cable unplugged from controller, cable damaged or sensor is faulty. Unplug the roof and pool sensor and plug them into the opposite sockets for testing. If the fault description changes to 'ROOF', this confirms the issue is with the blue pool sensor. Replace the sensor as required and retest.
PIPE SENSOR SHORT CIRCUIT OR REVERSED	Sensor cable is damaged or sensor is faulty. Unplug the roof and pool sensor and plug them into the opposite sockets for testing. If the fault description changes to 'ROOF', this confirms the issue is with the blue pool sensor. Replace the sensor as required and retest.
ROOF SENSOR DISCONNECTED OR OPEN CIRCUIT	Sensor cable unplugged from controller, cable damaged, bad cable join, or sensor is faulty. Unplug the roof and pool sensor and plug them into the opposite sockets for testing. If the fault description changes to 'PIPE', this confirms the issue is with the sensor or cable. Repair or replace the sensor or cable as required and retest.
ROOF SENSOR SHORT CIRCUIT OR REVERSED	Sensor cable or cable join polarity is incorrect, or sensor is damaged. The positive side of the cable (grey coloured wire) should be wired to the righthand side of the plug, with the screws facing towards you and the sensor cable entry at the bottom of the plug. If the cable has been joined, ensure no polarity reversal occurs. Unplug the roof and pool sensor and plug them into the opposite sockets for testing. If the fault description changes to 'PIPE', this confirms the issue is with the sensor or cable. Repair or replace the sensor or cable as required and retest.
RTC-FAIL	This can occur if the unit has been turned off for a prolonged period of time. Switch off the power point and leave the unit powered down for 30 seconds, then turn it on for 30 seconds before turning it back off again. Wait 30 seconds and restart the controller. If the fault continues to appear, send controller for repair.

Tip: For sensor faults, start by checking the red and blue sensor connectors which plug into the base of the controller. If one of these connector plugs is damaged or corroded, generic replacement plugs can be purchased from some electronics stores. If a connector is missing, check the pool equipment area for any cables which may have fallen out and reconnect them as required.

FACTORY RESET

To perform a factory reset, switch off the controller. Hold down the ENTER button and switch power on. Continue holding button for 5 seconds after powering up.

WARRANTY

AUSTRALIAN CONSUMER LAW

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

This range of product is covered by a limited three-year back to base warranty against component failure or faulty workmanship from the date of installation. Temperature sensors are covered by a 12-month warranty at the discretion of their manufacturer.

Defective equipment must be returned to the manufacturer or dealer as soon as the purchaser becomes aware of the defect and all transport must be prepaid.

Damage to the unit due to misuse, power surges, corrosion from pool chemical fumes, lightning strikes, insect infestation and or installation that is not in accordance with the manufacturer's instruction may void the warranty.

The warranty does not include on-site labour or travel costs to or from the installation site.

Valves and actuators are covered by their own separate warranties – refer to the relevant manufacturer.

⚠ IF THE POWER CORD IS DAMAGED, IMMEDIATELY SWITCH OFF AND DISCONNECT THE CONTROLLER. RETURN THE UNIT TO THE MANUFACTURER FOR ASSESSMENT AND REPAIR.

For all technical assistance and warranty enquiries, please contact your local distributor or contact Sunlover Heating directly:

SUNLOVER HEATING

Phone: 1800 815 913

Website: sunloverheating.com.au

Email: sales@sunloverheating.com.au

More troubleshooting resources are available online at Sunlover Heating

Troubleshooting

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