

# Solaira SMaRT Occupancy On/Off Control

## SMRTOCC60 and SMRTOCC40

### Installation & User Manual

#### KEEP THESE INSTRUCTIONS FOR FUTURE REFERENCE



#### SAFETY WARNING



ALL INSTALLATIONS/SERVICE MUST ONLY BE PERFORMED BY A LICENSED/CERTIFIED ELECTRICIAN TO LOCAL AND NATIONAL ELECTRICAL CODE (NEC).



WARNING: SHOCK AND FIRE HAZARD:



- Serious injury or death could occur
- Disconnect ALL power sources before removing back panel. Power should only be re-connected after electrical installations are complete and back cover replaced
- Be certain the power source conforms to specifications outlined on heater label.
- Assure to connect green wire from heater to ground connection from electrical supply, not to a live or “hot” conductor
- Engineer/Electrician/Installer to determine suitability of this appliance in intended application and compliance with all local, state/provincial and National electrical Code (NEC) requirements
- Do not use in locations containing hazardous or explosive atmospheres.

#### ELECTRICAL RATING

**SMRTOCC40 208 - 240VAC 50/60HZ, 16.6A MAX CURRENT, 4000W max load**

**SMRTOCC60 208 - 240VAC 50/60HZ, 25A MAX CURRENT, 6000W max load**



**WARNING SERIOUS INJURY OR DEATH COULD OCCUR, DISCONNECT ALL POWER PRIOR TO SERVICE**



Intertek

SPE-1000 CANADA INSPECTED

Due to ongoing product improvements, specifications and dimensions are subject to change without notice and without incurring obligations.

## **Introduction**

The Solaira<sup>o</sup>™ SMRTOCC60 and SMRTOCC40 are part of a family of standalone controllers designed to provide energy saving when used with quartz infrared halogen lamps or other heating and lighting products. These models have a built in PIR (Passive Infrared) sensor allowing the lamps to automatically switch on only when people are present. In addition to the PIR, a temperature sensor monitors the outside temperature and inhibits the lamps when the temperature exceeds a pre-determined set point of between 5°C and 25°C.

The microcontroller-based unit incorporates zero-voltage switching and a soft-start function to eliminate the lamps' initial high inrush current – potentially increasing lamp life by as much as 30%. The lamps are switched on for a user-settable time period of between 5 and 30 minutes. This period is reset each time the PIR detects any further movement. Installation of the unit is simple and once installed is relatively maintenance-free.

### **Product Features**

- Energy saving – only provides heat when people are present.
- Extends lamp Life.
- Temperature Sensor – Lamps inhibited when ambient temperature exceeds set point
- Soft-start/zero-voltage switch-off.
- Low-cost.

## **Installation**

**Important:** Carefully read the following information before installing the unit.

The Solaira SMaRT Occupancy Control utilizes a passive infrared sensor (PIR) detects changes of infrared energy through the Fresnel lens on the front face of the unit. The detection area and range depend significantly on its mounting position.

The SMRTOCC60 and SMRTOCC40 controllers not only detect movement of the human body, but also other heat sources similar to the human body. To prevent false activation, the unit must not be located directly facing or in close proximity to the heater lamps. Avoid locating the unit near to heating flues/exhausts, air conditioning units, moving trees/bushes and reflective surfaces.

**Note:** The SMaRTOCC cannot detect the presence of a human body that is not moving.

To prevent malfunction of the SMaRTOCC, avoid subjecting it to rapidly-changing temperatures, strong shock or vibration or high humidity and temperature.

**Important:** The unit must be orientated with the cable glands facing down.

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## Wiring

### SAFETY FIRST

The Solaira SMARTOCC is a high-power electrical device and **MUST ONLY BE INSTALLED BY A CERTIFIED ELECTRICIAN WITH REFERENCE TO LOCAL, STATE/PROVINCAL AND FEDERAL NEC CODES AND ELECTRICAL REQUIREMENTS.**



**Warning! Isolate the mains supply before commencing any work on this unit. Ensure all earth wires are connected to maintain earth continuity to the lamp fittings.**



**Warning! Disconnect the power supply before commencing any work on the unit. Failure to do so could result in serious injury or fatality.**

### Wiring SMRTOCC60

The unit is fitted with three cable watertight strain reliefs. Only one cable should be fitted per strain relief to prevent degrading the unit's IP rating. To connect 4 lamps, refer to the **Wiring Diagram SMRTOCC60** on the next page for an alternative configuration using two junction boxes.

The power supply connects to the terminal block marked '**LINE**'. Connect the supply **LIVE** to the '**L**' terminal, **NEUTRAL or LINE 2** to the '**N**' terminal and **GROUND/EARTH** to the '**E**' terminal.

The heaters connect to the terminal block marked '**LOAD**'. Connect the load **LIVE** to the '**L**' terminal, **NEUTRAL or LINE 2** to the '**N**' terminal and Ground/Earth to the '**E**' terminal.

**Important! Ensure all ground wires are connected to maintain ground continuity to the heater/emitter fittings.**

Ensure the 3-way plug is connected to the socket marked '**PIR SENSOR**' (CN4).

Check all wiring and make sure the cable glands are tightened.

### Commissioning SMRTOCC60

Turn the heater/lamp on-time pre-set (VR2) fully anti-clockwise to select 'walk test' mode (see diagram).

Check the OCC/PIR sensitivity pre-set (VR3) is set to approximately the half-way position (default). The temperature set point pre-set (VR1) is ignored in 'walk west' mode – adjust this later.

Replace the lid and switch on the mains supply to the unit. The controller will remain idle for 60 seconds to allow the OCC/PIR sensor to stabilize. After 60 seconds, the detection area should be walk tested to verify the OCC/PIR's coverage. Each time the OCC/PIR detects sufficient movement, the lamps switch on for 5 seconds.

**Note: Each time the heater/lamps switch off, the OCC/PIR is inhibited for 5 seconds to prevent the change in infrared energy given off by the lamps from causing a false activation.**

Once the detection area has been verified, adjust the on-time pre-set to between 1 and 60 minutes. This will automatically disable 'walk test' mode.

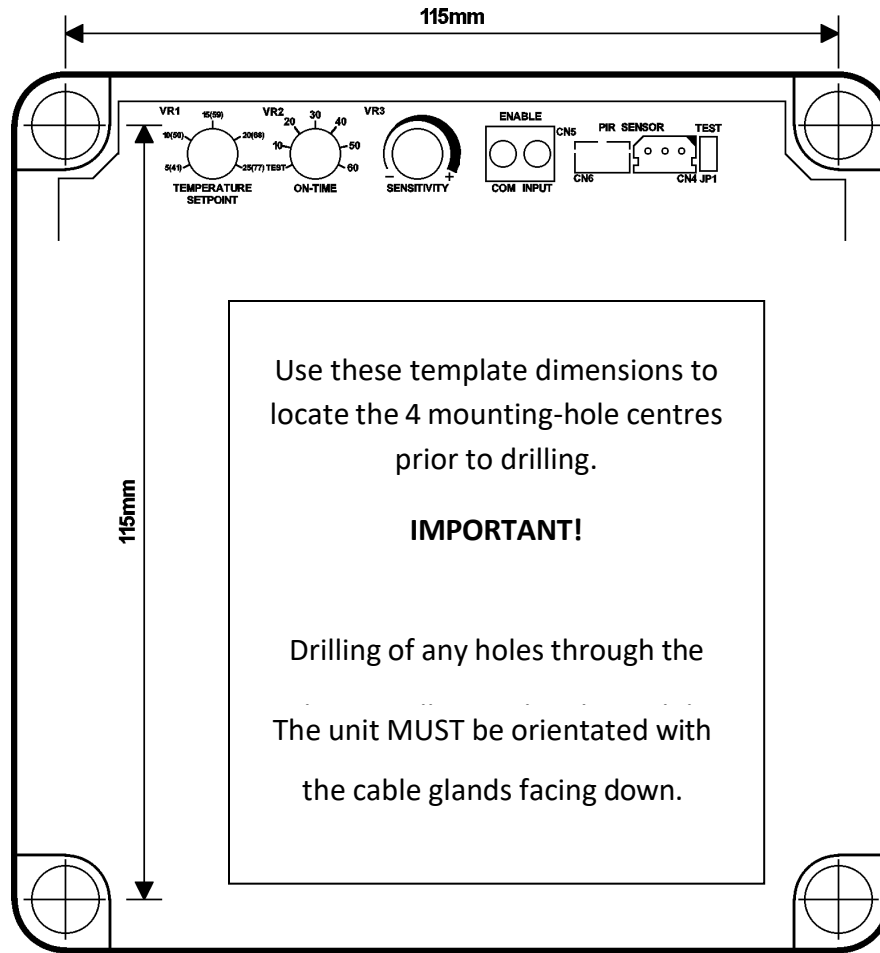
Finally, adjust the temperature set point pre-set (VR1). When the ambient temperature (measured by the sensor) exceeds the set point, the lamps will remain off until the ambient temperature drops below the set point. For example, if the set point is 20°C the lamps will switch on when movement is detected as long as the ambient temperature is less than 20°C.

The OCC/PIR sensitivity pre-set can also be adjusted if necessary. Turning the pre-set clockwise increases the sensitivity.

**Note: Increasing the OCC/PIR sensitivity may also increase the likelihood of false activations.**

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SMRTOCC60 Mounting Template

Due to ongoing product improvements, specifications and dimensions are subject to change without notice and without incurring obligations.

## **Wiring SMRTOCC40**

The unit is fitted with two cable glands. Only one cable should be fitted per gland to prevent degrading the unit's IP rating. See 'Wiring Diagram SMRTOCC40' on the next page for an alternative wiring configuration using a junction box.

The power supply connects to the terminal block marked '**LINE**'. Connect the supply **LIVE** to the '**L**' terminal, **NEUTRAL** to the '**N**' terminal and **GROUND/EARTH** to the '**E**' terminal.

The lamps connect to the terminal block marked '**LOAD**'. Connect the load **LIVE** to the '**L**' terminal, **NEUTRAL** to the '**N**' terminal and **GROUND/EARTH** to the '**E**' terminal.

If two lamps are to be fitted they must be wired in parallel.

**Warning! Ensure all ground wires are connected to maintain ground continuity to the heater/emitter fittings.**

Check all wiring and make sure the cable glands are tightened.

## **Commissioning SMRTOCC40**

Turn the set point temperature present (VR1) fully clockwise to select 'walk test' mode. VR1 is located at the top of the printed circuit board as shown.

Replace the lid and switch on the power supply to the unit. The controller will remain idle for 60 seconds to allow the OCC/PIR sensor to stabilize.

After 60 seconds, the detection area can be walk tested to verify the SMRTOCC's coverage. Each time the OCC/PIR detects sufficient movement, the heater/emitters switch on for 5 seconds.

**Note: Each time the emitters switch off, the OCC/PIR is inhibited for 5 seconds to prevent changes in infrared energy, given off by the emitters, from causing a false activation.**

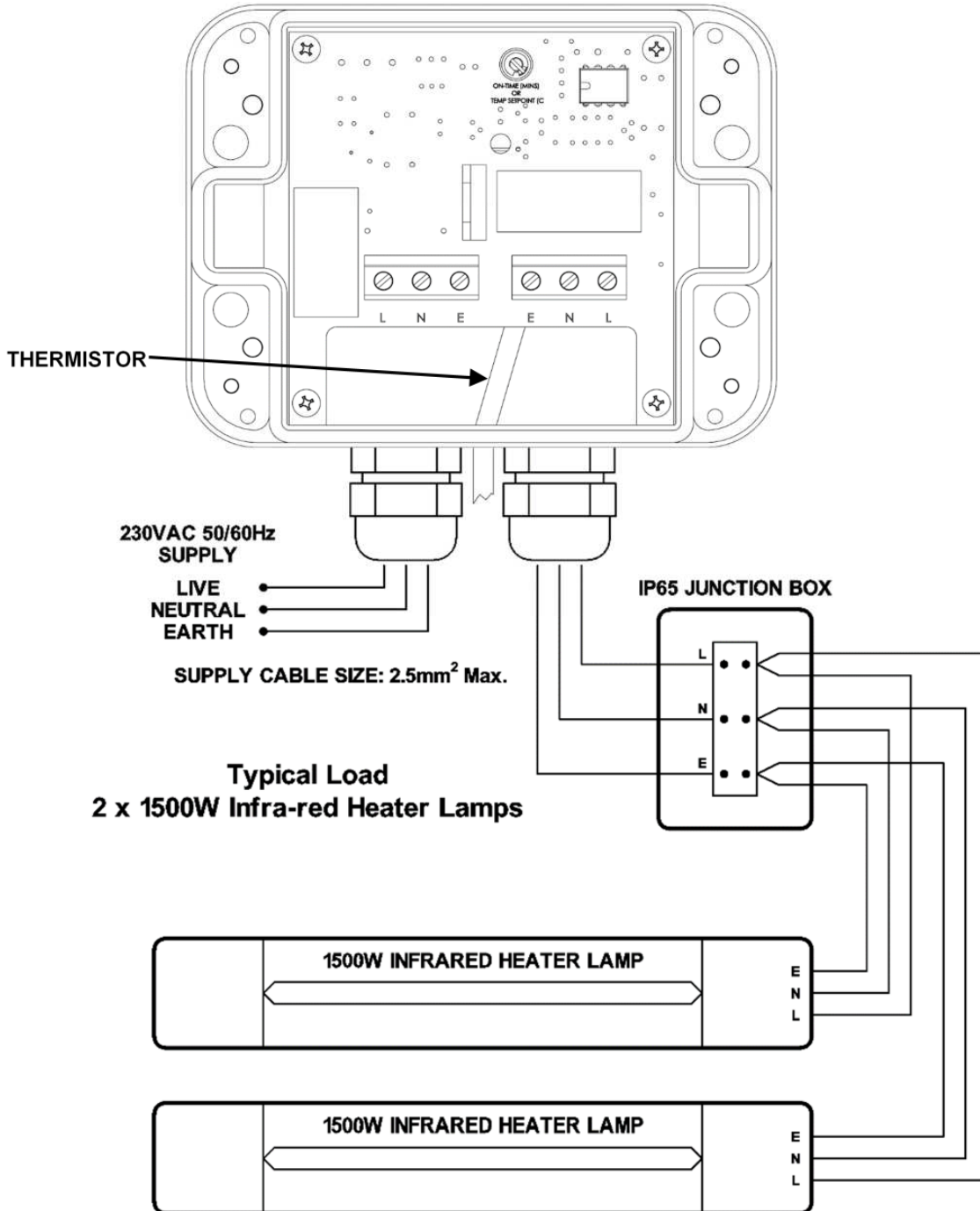
Once the detection area has been verified, adjust the set point temperature as required. This will automatically disable 'walk test' mode. The emitters on-time is fixed at 5 minutes.

**IMPORTANT! When wall mounting, the unit must be orientated with the cable glands facing down.**

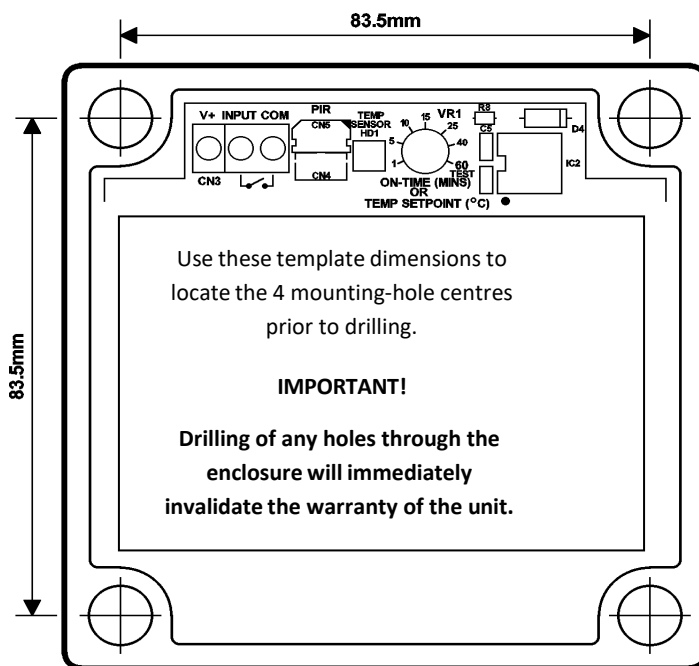
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**Illustrative Wiring Diagram SMRTOCC40\***

Connection diagram is for illustrative purpose only. Installation must be carried out by certified electrician to local, state/provincial and National Electric Code (NEC) requirements. Inforesight Consumer Products Inc. assumes no responsibility for the heaters or controller electrical plan or installation.



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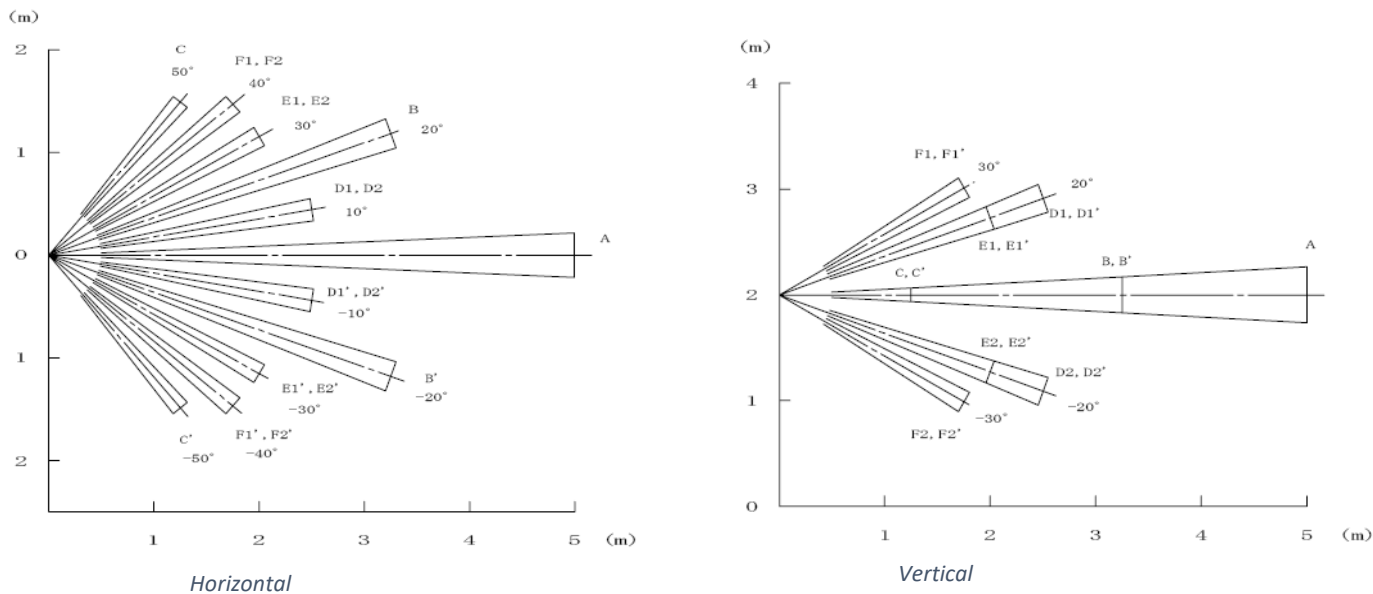
SMRTOCC40 Mounting Template

**Positioning**

The SMRTOCC60/40 can be wall or ceiling-mounted. For wall-mounting, the unit should be positioned 1 to 3 meters high. The diagram below shows the PIR’s detection area.

The unit should be fixed securely using the four mounting holes accessible from the front of the unit. Remove the lid to access the mounting holes. To ease installation, a mounting template is provided on the previous pages to locate the 4 mounting hole centers.

**SMRTOCC Detection Area**



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## Troubleshooting

**Warning! Disconnect the power supply before commencing any work on the unit. Failure to do so could result in serious injury or fatality.**

**Problem:** Heater lamps do not switch on.

**Solution:**

- Check the power supply to the unit is switched on. The ambient temperature may be higher than the set point temperature. Either increase the set point temperature (VR1) or, to test the lamps, put the unit into ‘walk test’ mode.
- Check the LINE and LOAD wiring connections to the unit and lamps. Fit an emitter that you know is in working order.

**Problem:** Heater lamps do not switch off.

**Solution:**

- Check the on-time pre-set (VR2) is set correctly and ensure no movement occurs within the detection area. Allow the on-time to expire.
- The OCC/PIR may be receiving false activations. Either mask the PIR lens on the front of the unit or carefully unplug the 3-way OCC/PIR lead from the PCB inside the unit (CN4) to disable the OCC/PIR. Allow the on-time to expire. If the lamps now switch off, the PIR is receiving false activations.

## Technical Specification

### SMRTOCC60

|                                       |                                    |
|---------------------------------------|------------------------------------|
| Supply Voltage                        | 230VAC +/- 10% 50/60 Hz            |
| Switching Capacity                    | 6000W Max.                         |
| Detection Range                       | 5 meters                           |
| Detection Angle                       | 100°                               |
| Temperature Set Point                 | 5°C to 25°C                        |
| Lamp On-Time                          | 1 to 60 Minutes                    |
| Current Consumption (control circuit) | 20mA                               |
| Terminals                             | 6.0mm <sup>2</sup> Rising Clamp    |
| Operating Temperature                 | -20°C to 40°C                      |
| Protection Rating                     | IP65                               |
| Gland Diameter                        | Max Cable Entry 2.5mm <sup>2</sup> |
| Enclosure Dimensions (WxLxH)          | 130x130x75 (m)                     |

### SMRTOCC40

|                                       |                                    |
|---------------------------------------|------------------------------------|
| Supply Voltage                        | 230VAC +/- 10% @ 50/60Hz           |
| Switching Capacity                    | 4000W Max.                         |
| Detection Range                       | 5 meters                           |
| Detection Angle                       | 100°                               |
| Temperature Set Point                 | 1 to 60°C                          |
| Lamp On-Time                          | 5 Minutes (fixed)                  |
| Current Consumption (control circuit) | 50mA                               |
| Terminals                             | 2.5mm <sup>2</sup> Rising Clamp    |
| Operating Temperature                 | -20 to 40°C                        |
| Protection Rating                     | IP65                               |
| Gland Diameter                        | Max Cable Entry 2.5mm <sup>2</sup> |
| Enclosure Dimensions (WxLxH)          | 100 x 112 x 55 (mm)                |

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## **LIMITATION OF LIABILITY**

It is understood and agreed that seller's liability whether in contract, in tort, under any warranty, in negligence or otherwise shall not exceed the return of the amount of the purchase price paid by purchaser and under no circumstances shall seller be liable for special, indirect, or consequential damages. The price stated for the equipment is a consideration in limiting seller's liability. No action, regardless of form, arising out of the transactions may be brought by purchaser more than one year after the cause of action has accrued.

## **WARRANTY**

1. SOLAIRA CONTROL products are guaranteed to be free from mechanical and electrical defects for a period of one year from date of shipment under normal use and service provided installation is made in accordance with manufacturers' recommendations.
2. Parts deemed defective shall be repaired or replaced at manufacturers option and at manufacturers expense but shall not include foreign or federal excise taxes, state or municipal sale or use taxes, all such taxes not limited to the foregoing being responsibility of the purchaser.
3. No charge for travel and/or mileage will be allowed to purchaser.
4. SOLAIRA reserves the right to make changes in design or make any improvements on any products. The right is always reserved to modify our equipment because of new technology, underwriter's requirements and/or government regulations.
5. The following are not covered under warranty:
  - a. INSTALLATION OF CONTROL BY NON-CERTIFIED ELECTRICIAN.
  - b. Failure from neglect, abuse, careless handling and mis-application of unit.
  - c. Failure to observe guidelines for installation or improper voltage hook-up.
  - d. Failure caused by improper installation and not following local, state/provincial and federal electrical guidelines
  - e. Unless specifically allowed by SOLAIRA CONTROLS, no other charges may be included under warranty.

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