

Thermatile Electric Radiant Panels

Installation, Operation & Maintenance Manual

IOM 94 Issue 1



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1. General

1.1 Description

The SPC ThermoTile Electric Radiant panels are manufactured from a unique aluminium sandwich panel that is both structurally rigid and an excellent conductor of heat.

Adhered to the upper face of the panel is a silicon heating mat purpose designed to cover the entirety of the panel. This heating mat requires just a single phase 230V supply.

Panels are available in a nominal 600x600 and 1200x600 size, the former is rated at 250W as standard and the latter 500W.

Panels are available for suspended ceiling mounting in which case the overall dimensions are slightly less than the nominal size so that they drop into the grid. Alternatively, free hanging panels have an extruded aluminium hanging frame all around and have dimensions slightly in excess of the nominal.

1.2 Receipt and Preparation

Panels are supplied suitably packed with an additional plastic film applied to the finished lower surface. This film should remain on until such time as the panels are to be fitted and then carefully peeled away prior to mounting. Cleaning of the underside of the panel can be undertaken

using a wet or dry cloth but abrasives and staining cleaning agents must not be used. If the protective film is removed after hanging then special care must be taken to prevent damaging the brackets and anchors

1.3 Storage and Handling

Panels are packed in cardboard cartons bearing the SPC works order number, model reference and site references where appropriate. Installation, operation and maintenance instructions are also supplied along with any special drawings or instructions required for the project. On receipt check that all details are correct to the schedule

and report any damage or missing parts to the carrier and SPC immediately.

It is recommended that the panels remain in the packaging until they are required. When handling panels safety gloves must be worn.

1.4 Dimensional Data

Standard panel dimensions and weights are shown in the table below.

Nominal size	600x600	1200x600
Free-hanging dimensions (mm)	600x605	1200x605
Ceiling grid dimensions (mm)	590x595	1190x595
Approximate weight (kg)	2	4

1.5 Technical Data

See table below for technical and electrical data

Nominal size	600x600	1200x600
Power supply +/-5% (V/Ph/Hz)	230/1/50	230/1/50
Power draw (W)	250	500
Current (A)	1.1	2.2
Panel core	Aluminium honeycomb	Aluminium honeycomb
Panel underside	0.7mm painted aluminium	0.7mm painted aluminium
Panel upper skin	0.5mm primered aluminium	0.5mm primered aluminium
Panel thickness	5.5mm	5.5mm
Heater type	Adhesive silicone mat	Adhesive silicone mat
Insulation type	PIR board	PIR board
Max surface temperature (°C)	100	100

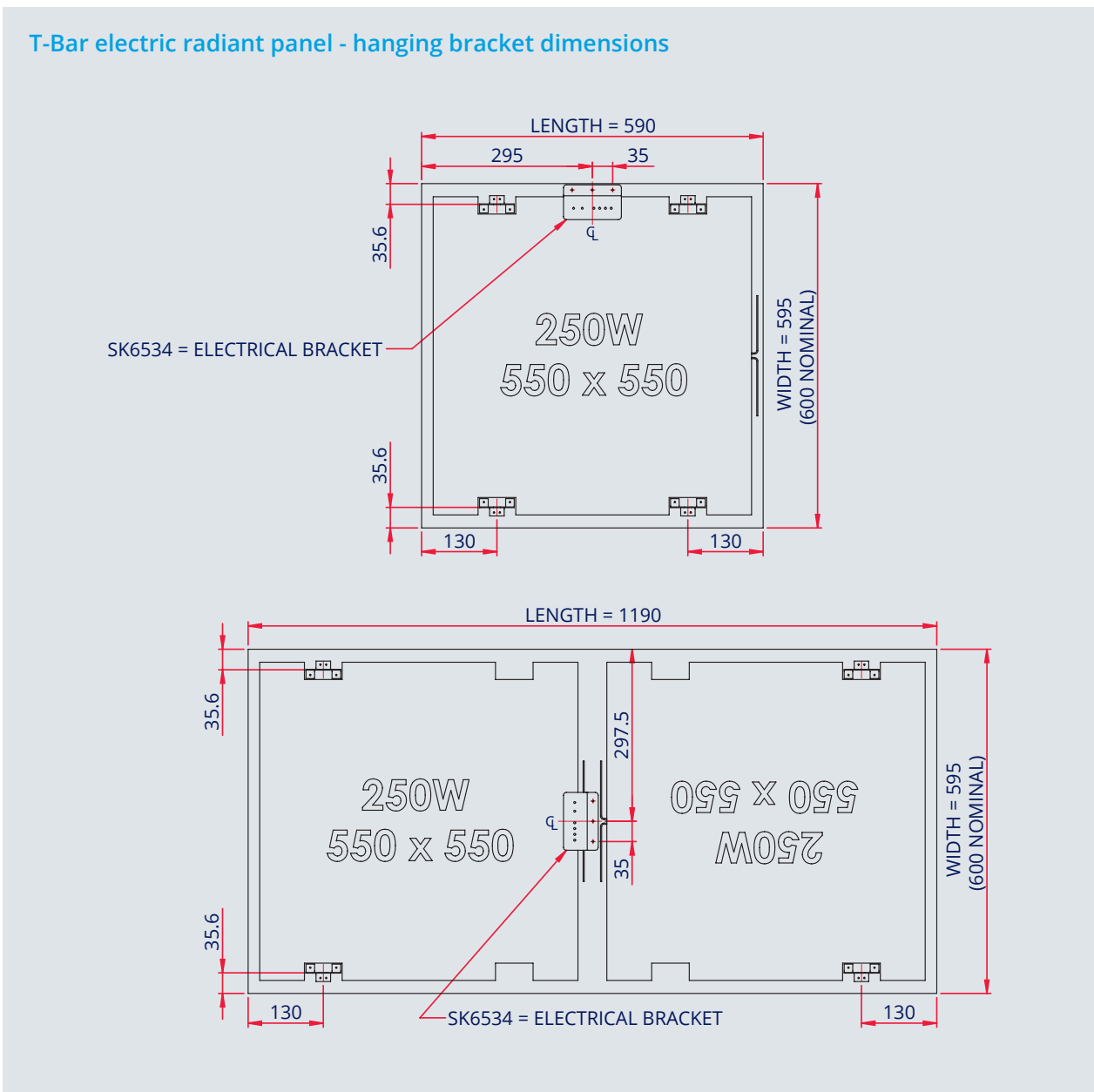
2. Installation

2.1 Ceiling Grid (Suspended ceiling)

Typical ceiling patterns are based on a 600x600mm grid and the panels are sized to drop inside the bars of the grid and rest on the landing plates. While the panels will rest unsupported in the grid they must be fixed to the ceiling for safety reasons. Panels will be supplied, by default, with brackets suitable for wire hanging, if rod hanging is preferred then adaptor brackets need to be ordered, wire suspension kits are recommended.

The wires or rods must hang vertically between the brackets and ceiling as the brackets/rivets are not suitable for significant lateral stresses/loads.

Fixing bracket positions are shown in the sketch below.

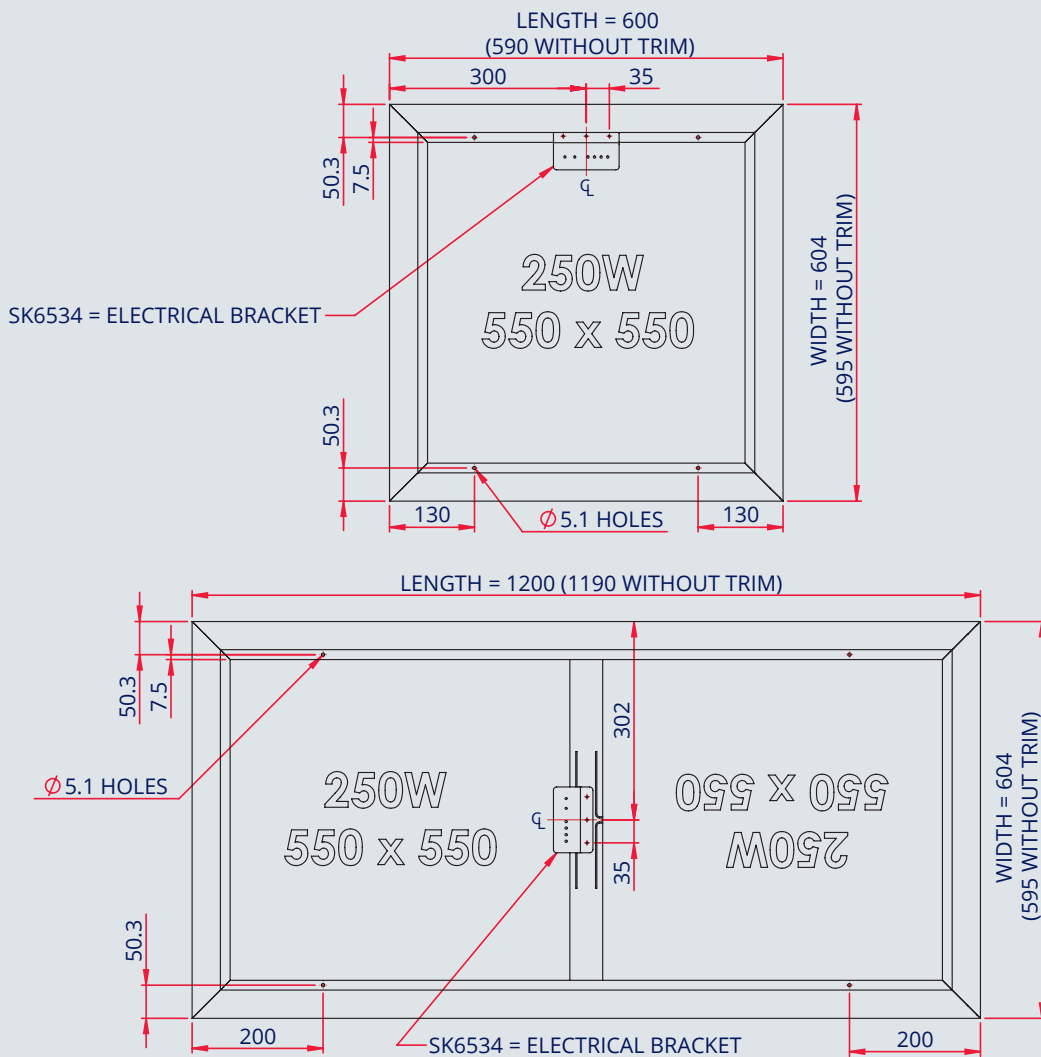


2.2 Free Hanging

Panels must be independently supported from the ceiling/soffit using wire hangers. Anchors of a suitable type to match the ceiling fabric must be fitted in the ceiling directly above where the wires are tied off on the panels. Panels will be supplied with extruded aluminium trim around the perimeter and are suitable for wire hanging from holes

drilled in the trim itself rather than via brackets. The insulation fitted to the back of the panel will readily deform to allow fixing hooks to be used. If rod fasteners rather than wire are to be used then larger diameter holes will need to be drilled in the aluminium extrusion.

Free hanging electric radiant panel - mounting holes dimensions



2.3 Wire/Rod Hanging Requirements

The panels are supplied as standard with the necessary quantity of fixing brackets fastened to the rear of the panel. The standard bracket suits wire hanging but adaptors are available to make the brackets suitable for hanging via threaded rod.

Irrespective of the hanging type, wire or rod, the hangers must be vertical and anchored to the ceiling directly above the bracket. The brackets are

not designed to be suitable for significant lateral forces.

When installing panels they must not be hung from some of the brackets unsupported. All of the brackets must be properly secured before the support is released. This support could be a fitter or fitters or, if available, a scissor lift or other mechanical means.

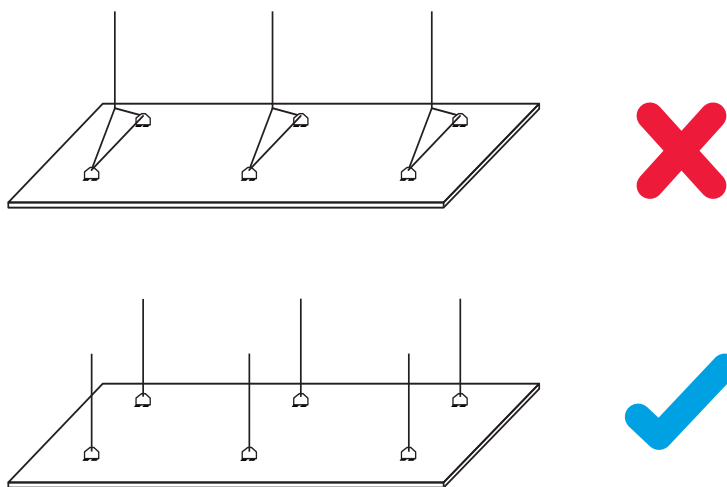


Figure 3. Incorrect and correct hanging method

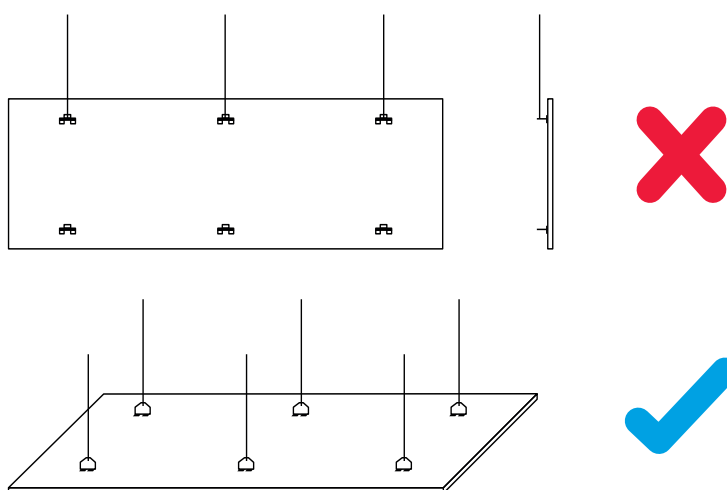
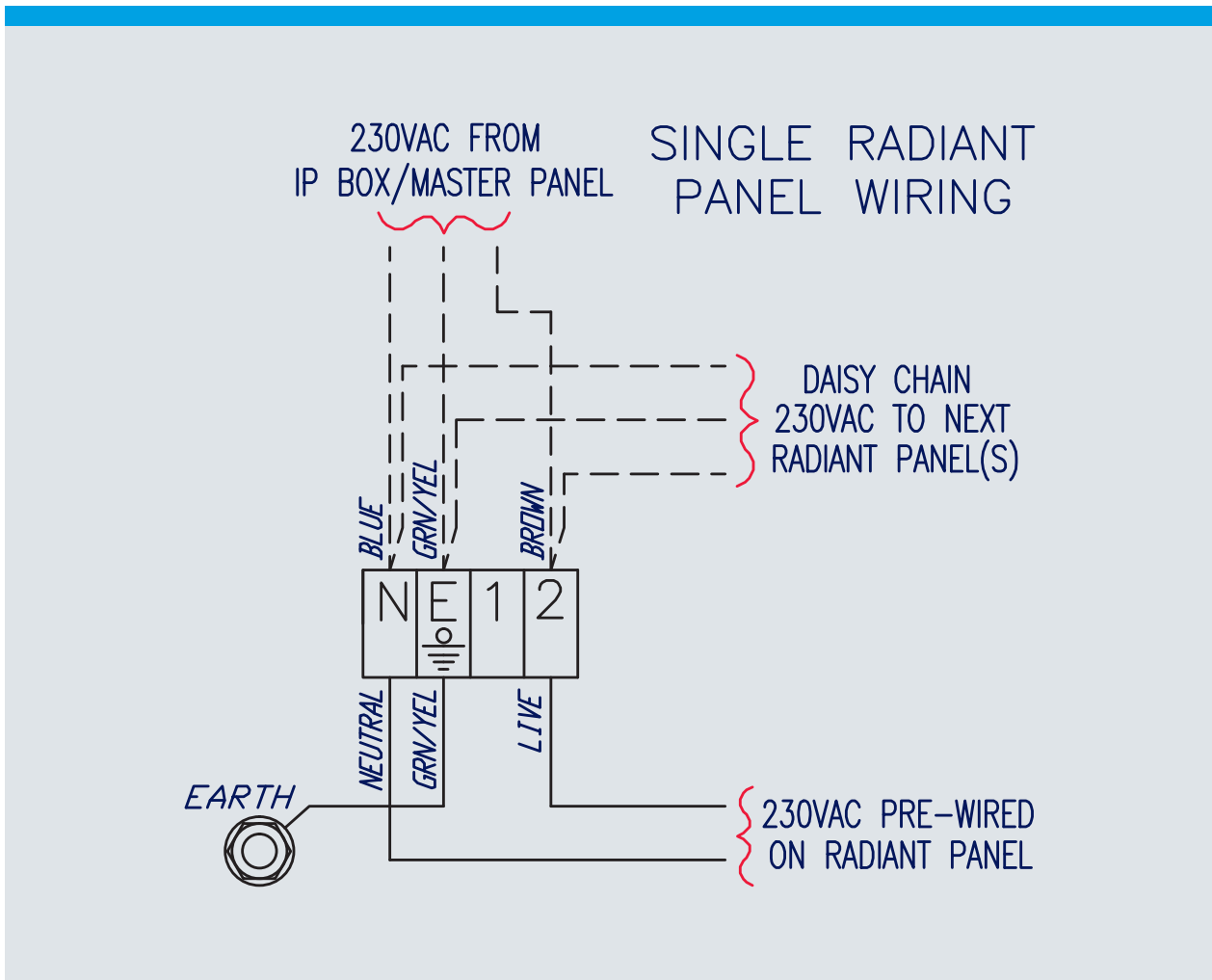


Figure 4. Panels must be supported on all brackets (scissor lift etc useful for large panels)

2.4 Electrical Connections

All wiring must be undertaken in line with current local regulations (latest IET edition) by a competent and qualified installer.

Each panel incorporates an electrical bracket with sealed terminal box. A 230V single phase supply is required for each panel and an earth connection must be included.



2.5 Mounting Height

Minimum recommended mounting height for electric panels is 2.3m to allow space between head height and panels. Greater height above the finished floor level is beneficial as electric radiant panel surface temperature exceed those of hot water panels. **Note, surface temperature of panels can reach 100°C and they must not be touched when functioning.**

3. Operation

Electric radiant panels are best controlled in zones such that all the panels in a zone are either on or off to suit the thermostat. As the panels emit the majority of their heat as radiant emission they are best controlled via the use of a black bulb sensor/ thermostat rather than a standard air thermostat. The black bulb sensor is triggered by resultant

temperature rather than just air temperature and is a means of controlling comfort in a more representative manner when the heating is largely radiant. Panels may be supplied c/w SPC Control Kit(s). These kits incorporate a wall mounted thermostat, remote black bulb sensor and relay box; see description below.

3.1 Fault Finding

Fault	Remedy
Panel not hot	Check thermostat is calling for heat
	Check power at terminals

4. Maintenance

The downward facing surface of the panels can be cleaned using a dry cloth or dilute cleaning agent but liquid must not be used on the insulated upward facing surface. Ensure that the panel is turned off and has been allowed sufficient time to cool prior to cleaning.

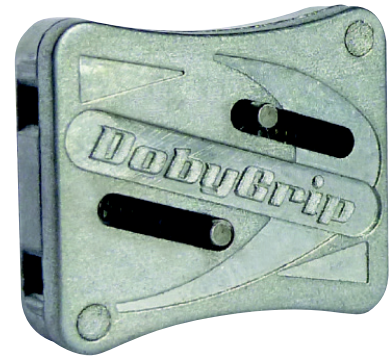
5. Appendix

5.1 Appendix 1 – SPC Suspension Kit

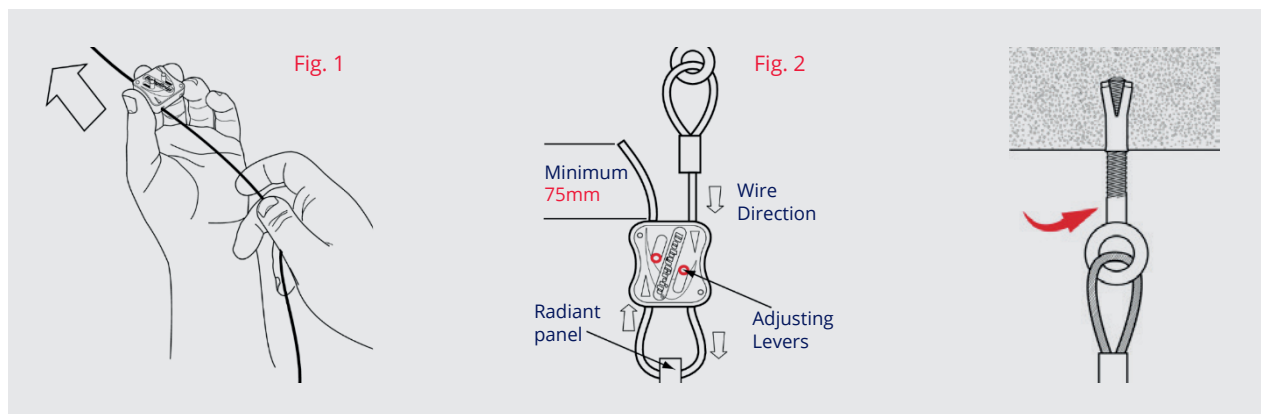
Designed for HVAC applications for quick and easy installations.

Features / benefits

- Simple height adjustment, no specialist tools required
- Complete with DobyGrip size 1, M6 Eyebolt with 3m of 1mm wire rope attached and Drop-in Anchor



Installation and adjustment



- Fully tested patented mechanism for trouble free adjustment and safety
- Delivered in kits of 10 pieces

Submittal information

Material:

DobyGrip – Zinc cast alloy (Zamac)
M6 Eyebolt – Cast steel
Wire – 7x7 Galvanised steel
Drop-in Anchor – Zinc plated steel lipped

Load Rating:

10Kg SWL @ 5:1 safety factor

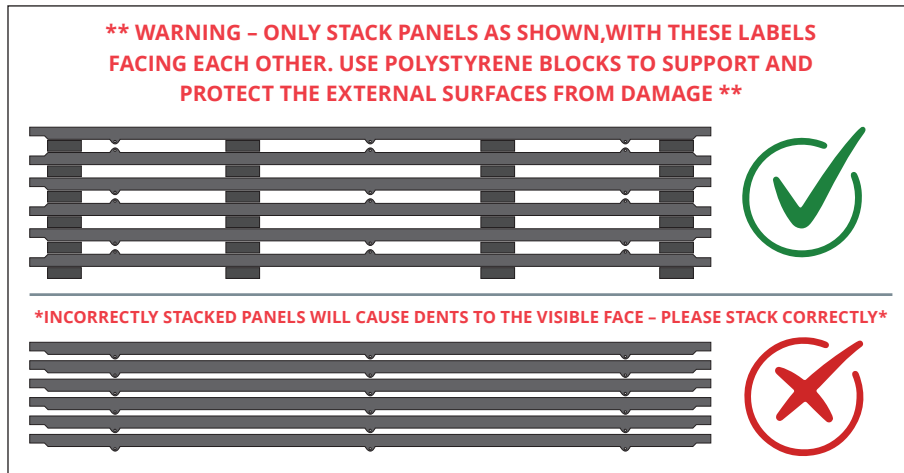
SPC Stock Code:

70-0021

5.2 Appendix 2 – Site Handling

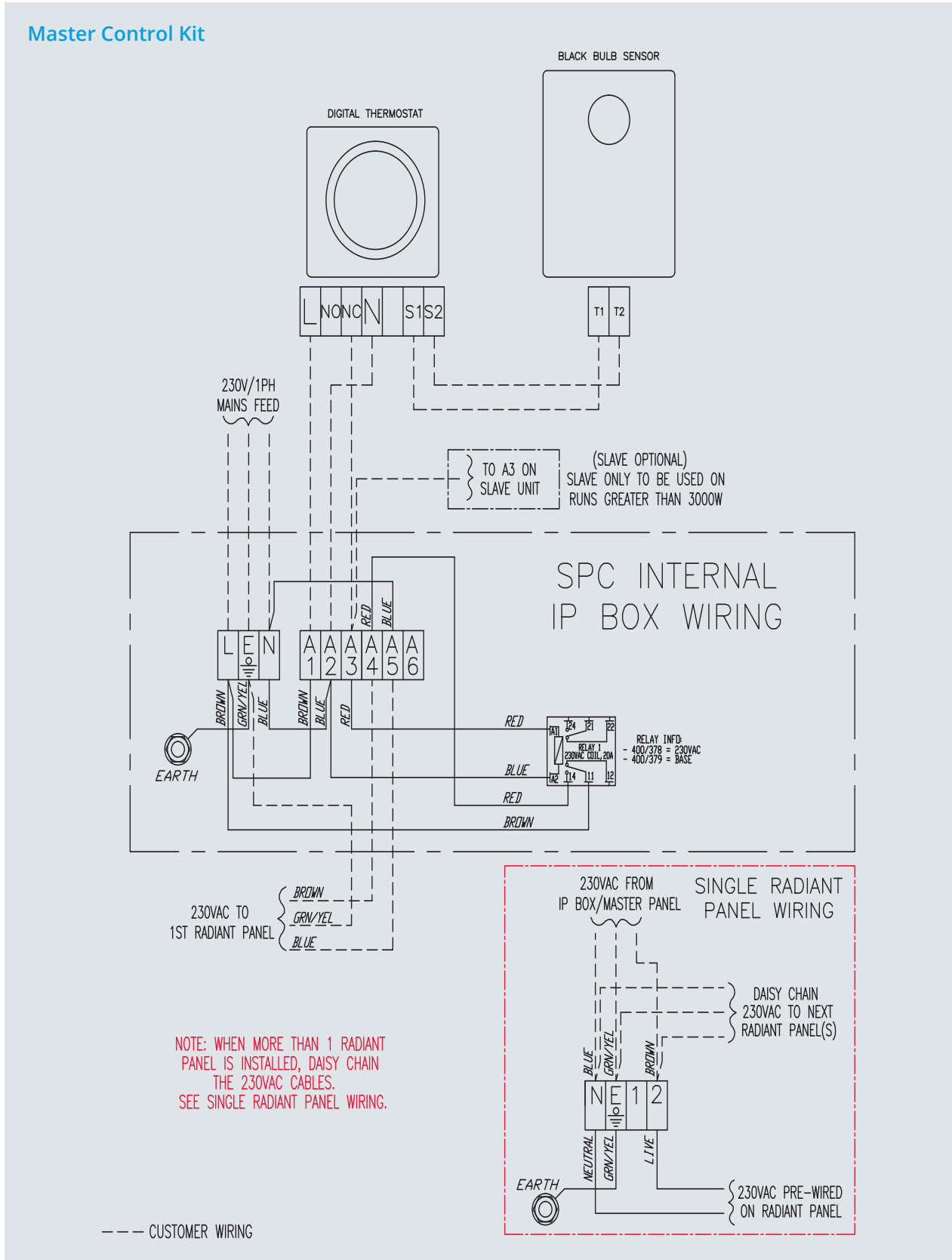
The radiant panels are likely to have been supplied with steel hanging brackets. When packed these brackets are prevented from causing any damage but once unpacked can cause damage to the underside of other panels if incorrectly handled.

If unpackaged panels are stacked they must be stacked as shown in the packaging label below rather than with the brackets resting on the painted underside of the panel; damage as shown on the photograph below can occur otherwise.

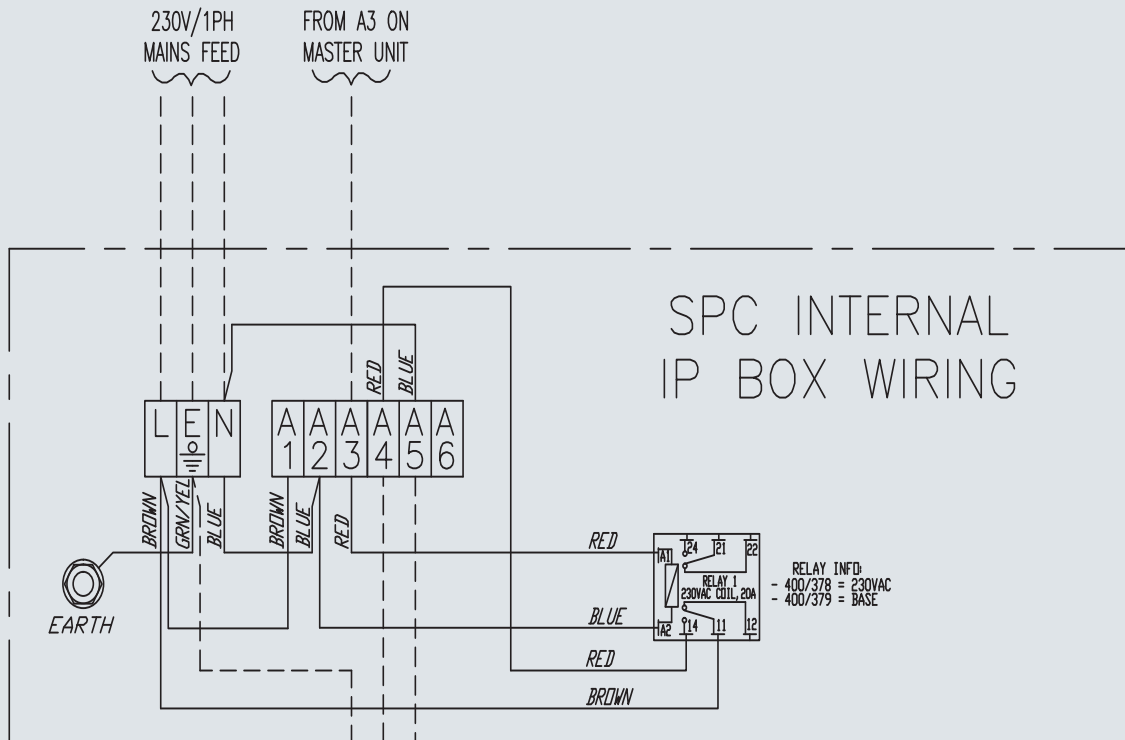


5.3 Appendix 3 – SPC Thermostat Control Kit

The control kit consists of a wall mounted thermostat, black bulb temperature sensor and relay box. Wiring is as shown below.

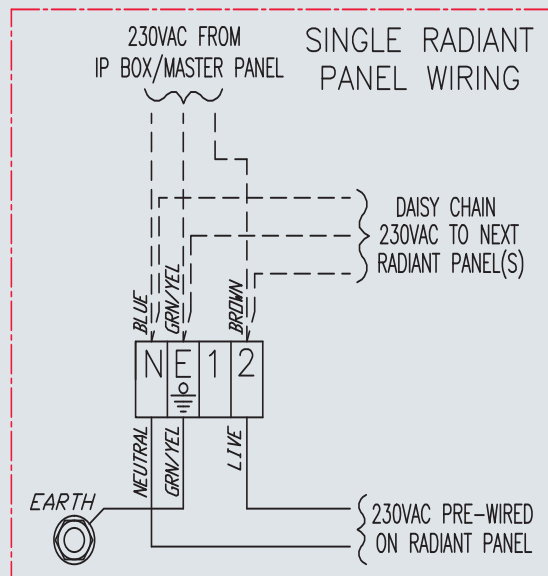


Slave Control Kit

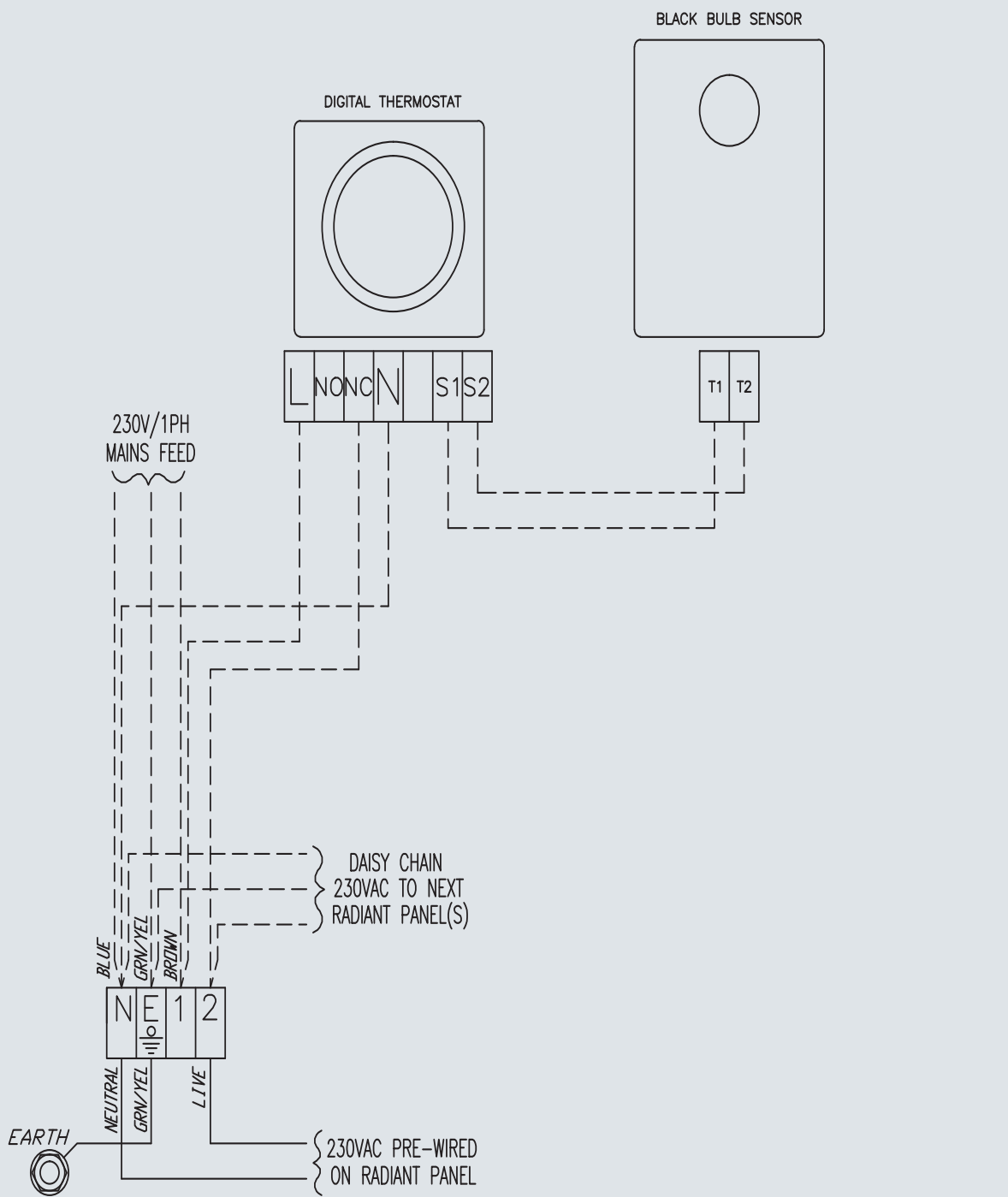


NOTE: WHEN MORE THAN 1 RADIANT PANEL IS INSTALLED, DAISY CHAIN THE 230VAC CABLES. SEE SINGLE RADIANT PANEL WIRING.

--- CUSTOMER WIRING



Standalone Panel Control Kit



NOTE: WIRING FOR MAXIMUM OF 2-OFF 600 x 600 PANELS & 1-OFF 600 x 1200 PANEL ONLY. FOR MORE PANELS IN RUNS, SEE WIRING W5038.

The thermostat can be mounted in any position and is often fitted in a cupboard or in inaccessible positions if it is to be tamper-proof. The black bulb sensor is wired back to the thermostat and needs to be fitted on the wall in a representative position. Ideal positioning would be 1.5m from the ground in a position where it is not affected by direct sunlight, other heat gains or open windows and doors. Two wires connect the sensor to the thermostat and 0.5mm² cables are of sufficient size.

The wires connecting the thermostat to the relay box should be made in a minimum of 1.5mm² cable. Each 600 x 600 panel draws 1.1A and each 600 x 1220 panel draws 2.2A.

Panels should be arranged such that there is a relay box for each zone and the combination of the sensor/thermostat and relay will control up to 12-off 600 x 600 panels in a zone or 6-off 600 x 1200 panels.



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