

# 1.5, 3 and 6kW HVAC RANGE 1-PHASE BURST FIRE POWER CONTROLLER INSTALLATION INSTRUCTIONS

**PR1-E  
SERIES**

**X10591**

## **INTRODUCTION**

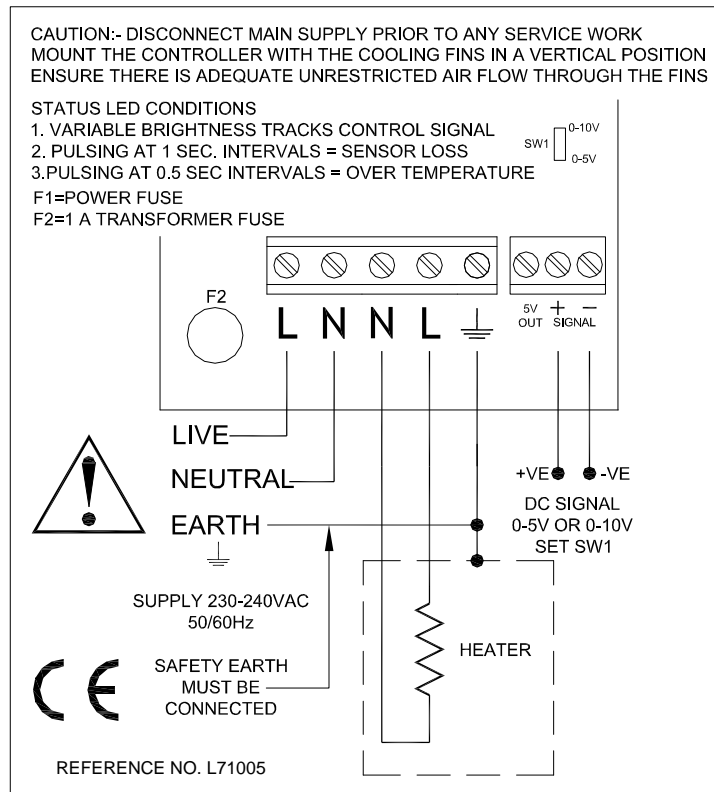
The PR3 range of thyristor stacks provides full seamless control of three phase resistive loads, using two thirds control technique. Signal control is by a DC signal. These burst firing control stacks use fast pulse zero volts switching technology, to minimise flicker and eliminate RFI problems. They also incorporate an automatic resetting temperature trip, integral semiconductor fuses and heatsink. The two models in this build includes the 54kW model, which is forced-air cooled. All have easy access to signal & power terminals for simple installation.

## **APPLICATIONS**

Suitable for 3-wire, 3-phase floating-star or closed-delta configured resistive loads. This includes the Heating, Ventilating and Air Conditioning (HVAC) market for air curtain applications, but also for furnaces, ovens, dryers and hot plates.



## **CONNECTIONS**



**RoHS Compliant**

## **FUNCTIONS**

### **Over temperature protection**

When heat sink temperature of above 90°C is detected by the sensor the LED pulses at 0.5 second on/off intervals. The power to the load will be disconnected and will not return until the temperature drops to 85°C.

### **Temperature sensor loss**

The LED pulses at 1 second on/off intervals if the sensor fails.

*Photograph above:  
Left to right – 1.5kW and 3kW/6kW models*

## **WARNING**

1. This unit is supplied with a fail-safe fuse for unit protection. See SPECIFICATION/INSTALLATION sections for further details.
2. The enclosure has HAZARDOUS LIVE parts and terminal connections – isolate supply before commencing any installation work.
3. Unit must be secured using the appropriate fixing/mounting holes provided.

## INSTALLATION

### **Cooling requirements**

This robust stack assembly has an operational temperature of 65°C when naturally cooled and has a built in 90°C over temperature trip on the heatsink as a safety feature. The unit should be mounted vertically, with heatsink fins top to bottom, and with sufficient surrounding air space to maximise natural convection cooling. If the unit is mounted in an enclosure or cabinet, adequate ventilation and/or forced air-cooling should be fitted.

### **Load considerations**

The PR-series of power controllers are designed for resistive type loads, e.g. Heaters. Unusual heating loads such as Molybdenum, Platinum or Tungsten have a typical, 10:1, hot to cold, resistance ratio and therefore, when cold, draw larger currents than normal. This range is fitted with a TRIAC power device.

### **Connections**

This unit has simple clamp type terminal connectors for all auxiliary-wiring requirements.

### **Fastening**

The unit is secured by four fixing holes, two of which have key-hole slots for quick installation/removal

### **Fusing**

It is recommended that the specified type fuses (as supplied) be used as replacements for fail-safe protection. See SRA Data sheet X10255 for further information. Other external supplies should be fused accordingly.

### **CE Marking**

This family carries a "CE" marking. These burst fire controllers do not normally require a remote filter. For more information contact our sales desk. A Declaration of Conformity available on request.

## SPECIFICATIONS

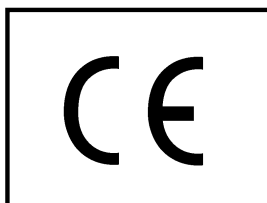
<b>Power/(current ratings):</b>	1.5kW (6.3A), 3.0kW (12.5A), 6.0kW (25A) @ a typical supply of 240V rms		
<b>Input voltage:</b>	230V rms +/- 10%		
<b>Frequency:</b>	50/60Hz		
<b>Control input - Signal:</b>	0 to 10V dc (factory set) <b>OR</b> 0 to 5V <b>(Selected by switch SW1)</b>		
<b>- Manual:</b>	Manual control (using 5kΩ potentiometer – NOT supplied)		
<b>Status indicator:</b>	(Tracking control signal) LED indicator changes <b>intensity</b>		
<b>Over temperature:</b>	Trip in temperature @ 90°C, +/- 1°C (LED indicator ' <b>flashes</b> ' at 0.5sec. on/off intervals) Trip out temperature @ 85°C, +/- 1°C		
<b>Sensor loss detection:</b>	LED indicator ' <b>flashes</b> ' at 1sec. on/off intervals.		
<b>Cable terminations:</b>	Power & earth	6.0kW	4.0mm <sup>2</sup> maximum cable entry
	Power & earth	1.5 & 3.0kW	2.5mm <sup>2</sup> maximum cable entry
	Control signal	all models	2.5mm <sup>2</sup> maximum cable entry
<b>Terminal torque settings:</b>	<b>0.5Nm</b> for all power and earth terminals.		
<b>Fusing 1.5kW</b>	F10A (6mm Ø x 32mm) – ceramic quick blow type ferrule fuse.		
<b>3kW</b>	F16A (6mm Ø x 32mm) – ceramic quick blow type ferrule fuse.		
<b>6kW</b>	30A (10mm Ø x 38mm) - high-speed semiconductor type ferrule fuse.		
<b>Working temperature:</b>	65°C (maximum operational).		
<b>Dimensions (1.5kW):</b>	140mm (L) x 99mm (W) x 45mm (H).		
<b>Dimensions (3 &amp; 6kW):</b>	140mm (L) x 99mm (W) x 80mm (H).		
<b>Fixing centres (all):</b>	4 x 4.5mm clear holes on centres 75mm (W) x 120mm (L) – top two are key-hole slots.		
<b>Weight:</b>	(1.5kW): 0.5kg (3 & 6kW): 1.1kg		

**Note: SAFETY WARNING** – Isolate supply before removing cover; Metal parts, in particular the heatsink, may get very hot when the unit is fully operational; DO NOT COVER enclosure ventilation slots.

## RECOMMENDATIONS

Additional supporting documents addressing installation and safety, are available on request. These include X10255: SRA – Safety Advise; X10213: ITA – Interaction (Causes and remedies for burst-fire and phase-angle control), P01.1 – UAL Conditions of Sale

**NOTE:** It is recommended that installation and maintenance of this equipment should be done with reference to the current edition of the I.E.T. (formally I.E.E.) regulations (BS7671) by suitably qualified/trained personnel. The regulations contain important requirements regarding installation and safety of electrical equipment. Specific installers should refer to local and national regulations.



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