

# 9kW, 12kW 18kW and 24kW HVAC RANGE 1-PHASE BURST FIRE POWER CONTROLLER INSTALLATION INSTRUCTIONS

**PR1-E  
SERIES**

X10597

## FUNCTIONS

### **Alarm relay**

The alarm circuit has voltage free relay contacts and are rated up to 2A @ 125V ac (RMS) load.

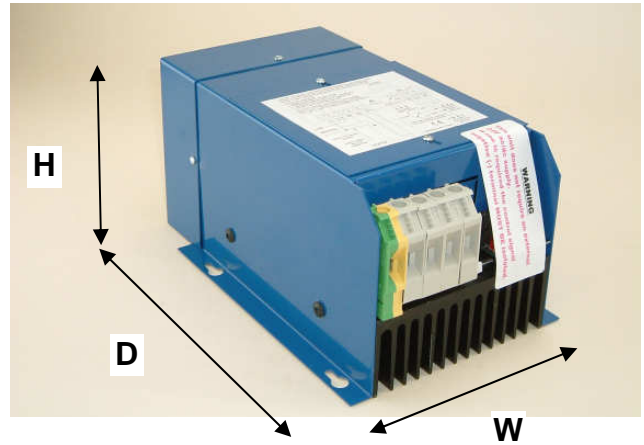
The internal supply to the relay is obtained from the transformer via a 20mm 1A fuse. These are connected to the Live and Neutral supply and therefore the relay and LED can only energise when there is an over-temperature condition or sensor fault, as long as the supply is present.

### **Over temperature protection**

When a heatsink temperature of above 90°C is detected by the sensor, the alarms relay changes state and the LED pulses rapidly. The power to the load will be disconnected and will not return until the temperature drops to 85°C.

### **Temperature sensor loss**

LED status changes to ON/OFF (fast pulsing) if the sensor fails.



### **Fault condition**

The default setting of DIL switch (SW1) is in the ON position, the alarm relay will be energised under a fault condition. Changing SW1 to the off position will energise the alarm relay continuously until a fault condition occurs.

### **Remote supply**

The unit will be factory set for an internal supply. If there is a requirement for the alarm relay and LED to energise when a phase fault condition occurs, then there is provision for an external 24V ac or dc supply.

*NOTE* – If the remote supply is utilised, the main (L1, L2 and L3) supply must come on before this supply is switched on.

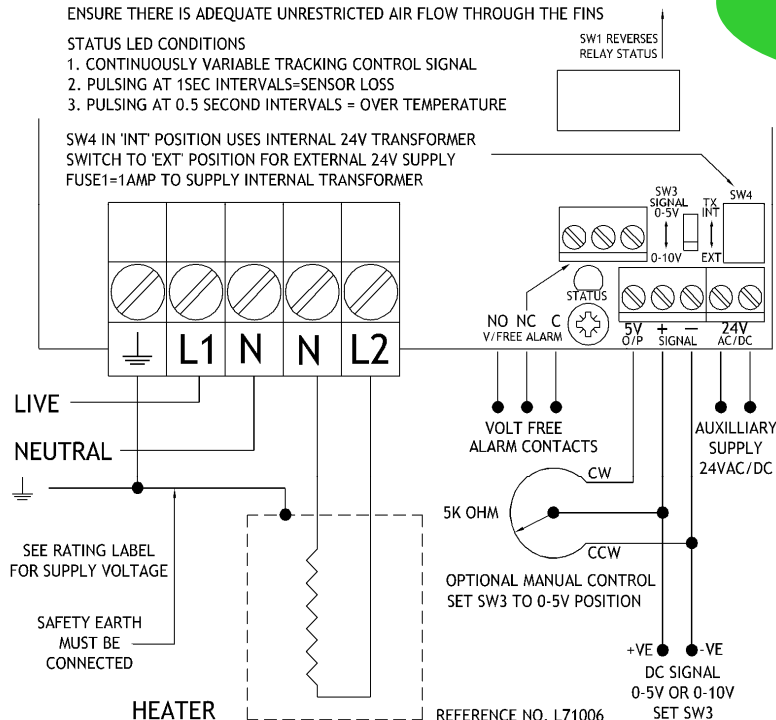
## CONNECTIONS

CAUTION:- DISCONNECT MAIN SUPPLY BEFORE COMMENCING ANY SERVICE WORK  
MOUNT THE CONTROLLER WITH THE COOLING FINS IN A VERTICAL POSITION  
ENSURE THERE IS ADEQUATE UNRESTRICTED AIR FLOW THROUGH THE FINS

### STATUS LED CONDITIONS

1. CONTINUOUSLY VARIABLE TRACKING CONTROL SIGNAL
2. PULSING AT 1SEC INTERVALS-SENSOR LOSS
3. PULSING AT 0.5 SECOND INTERVALS = OVER TEMPERATURE

SW4 IN 'INT' POSITION USES INTERNAL 24V TRANSFORMER  
SWITCH TO 'EXT' POSITION FOR EXTERNAL 24V SUPPLY  
FUSE1=1AMP TO SUPPLY INTERNAL TRANSFORMER



**RoHS Compliant  
Directive  
2002/95/EC**

## 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.

### **Connections**

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

**NOTE:** It is factory set for an internal power supply. For alternative volts 'free alarm' supply details see *Functions* section. Please contact our Technical support for further details.

### **Fusing**

It is recommended that fast acting semiconductor type fuses (as supplied) be used for 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>	9kW (37.5A), 12kW (50A); 18kW (75A); 24kW (100A) @ a typical supply of 240V RMS	
<b>Input voltage:</b>	230V RMS +/- 10%	
<b>Frequency:</b>	50/60Hz	
<b>Control input signal:</b>	<b>Signal:</b> (using SW4): 0 to 10V dc (set as standard) / 0 to 5V OR <b>Manual:</b> using 5K Potentiometer	
<b>Alarms relay circuit rating:</b>	125V ac @ 2A Max.	
<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> ' continuous fast pulsing) Trip out temperature @ 85°C, +/- 1°C SW1 = Off - Relay is continuously energised (normally closed); trips in fault condition. SW1 = ON - Relay is de-energised (normally open); closes in fault condition.	
<b>Phase loss detection:</b>	LED indicator ' <b>flashes</b> ' continuous slow pulsing.	
<b>Sensor loss detection:</b>	LED indicator ' <b>flashes</b> ' on/off fast pulsing.	
<b>Cable terminations:</b>	Phase power (unit dependent)	10, 16, 35mm <sup>2</sup> rising clamp terminal blocks
	Earth (unit dependent)	10, 16, 35mm <sup>2</sup> rising clamp terminal blocks
	Remote supply Auxiliary alarm (relay)	1.5mm <sup>2</sup> rising clamp terminal block
	Control signal	1.5mm <sup>2</sup> rising clamp terminal block
<b>Terminal torque settings:</b>	(Power terminals) - 2Nm (10mm <sup>2</sup> - 9 & 12kW); 2.5Nm (16mm <sup>2</sup> - 18kW); 4Nm (35mm <sup>2</sup> - 24kW)	
<b>Fusing (9 to 24KW):</b>	50LET, 80LET, 100LET, 125LET respectively – Semiconductor-type, lug fuses.	
<b>Working temperature:</b>	65°C (maximum operational)	
<b>Dimensions (all models):</b>	200mm (D) x 155mm (W) x 120mm (H)	
<b>Fixing centres:</b>	4 x 4.5mm-clear keyhole slots on fixing centres 140mm (W) x 140mm (D)	
<b>Weight:</b>	(9kW model): 1.1kg (12, 18, 24kW Models): 2.8kg	

**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.

It is essential that a load break switch and a contact breaker is installed in the load supply. The supply to the contactor coil should be interrupted by an over-temperature thermostat located in the heater battery and also upon detection of airflow loss.

## RECOMMENDATIONS

Additional supporting documents, which may be appropriate for your application, are available on request.

**NOTE:-** It is recommended that installation and maintenance of this equipment should be carried out by suitably qualified/trained personnel with reference to the current edition of the I.E.E. wiring regulations (BS7671) The regulations contain important requirements regarding the safety of electrical equipment. For International Standards refer to I.E.C/ Directive IEC 60950.



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