X10597

HVAC | HEATER BATTERY CONTROLLER

PR1-E SERIES

9kW, 12kW, 18kW and 24kW
1-Phase Burst Fire Power Controller

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KEY FEATURES:

- ✓ **Burst Fire Technology** – Precision control, reducing electrical noise and RFI.
- ✓ **Alarm Relay** – Voltage-free contacts rated 2A @ 125V AC, with LED indicators.
- ✓ **Over-Temperature Protection** – Trips at 90°C, resets at 85°C with LED fast-pulse warning.
- ✓ **Phase & Sensor Fault Detection** – LED pulse sequences for quick diagnostics.
- ✓ **Remote Supply Option** – External 24V AC/DC supply for alarm relay operation under phase fault conditions.
- ✓ **Simple Installation** – Clamp-type terminals, factory-set for internal power supply.
- ✓ **High Reliability** – Designed for continuous duty with robust heatsink assembly.
- ✓ **Complies with CE Standards** – Marked to EN regulations; normally requires no external EMC filter.

APPLICATIONS:

- ➢ HVAC heater batteries
- ➢ Air handling systems
- ➢ Industrial heating processes
- ➢ Commercial heating cabinets
- ➢ Resistive load control (ovens, dryers, heaters)

The **PR1-E Series – 1-Phase Burst Fire Power Controllers** are engineered for **HVAC heater battery control** and other resistive heating applications. Available in **9kW, 12kW, 18kW, and 24kW models,** they feature advanced burst fire technology that ensures precise power delivery while reducing flicker and electrical interference.

These enclosed controllers come with built-in **over-temperature trip (90°C), sensor fault detection,** and phase loss alarms with clear LED indication. The **voltage-free relay contacts** provide remote alarm signalling, and the units can be configured for either internal supply (factory standard) or external 24V AC/DC remote supply.

Designed for ease of installation, the PR1-E Series offers **clamp-type connections, vertical cooling fins, and robust heatsink design,** with fuse protection matched to each model. With CE compliance and suitability for HVAC and industrial applications, the PR1-E Series ensures **safe, reliable, and efficient heating control.**

TECHNICAL SPECIFICATIONS

Power/Current Ratings	**9kW (37.5A), 12KW (50A), 18kW (75A), 24kW (100A) @ a typical supply of 240V RMS**			
Input Voltage	230V RMS ±10%			
Frequency	50/60Hz			
Control Input Signal	**Signal:** (using SW4): 0-10V DC (set as standard), 0-5V DC OR **Manual:** using 5KΩ potentiometer			
Alarms Relay Circuit Rating	125V AC @ 2A Max.			
Status Indictor	(Tracking Control Signal) LED Indicator changes **intensity**			
Over Temperature	Trip in temperature @ 90°C ±1°C (LED indicator '**flashes**' 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			
Phase Loss Detection	LED indicator '**flashes**' continuous slow pulsing			
Sensor Loss Detection	LED indicator '**flashes**' on/off fast pulsing			
Cable Terminations	Phase Power (unit dependent)	10, 16, 35mm² rising clamp terminal blocks		
	Earth (unit dependent)	10, 16, 35mm² rising clamp terminal blocks		
	Remote Supply Auxiliary Alarm Relay	1.5mm² rising clamp terminal block		
	Control Signal	1.5mm² rising clamp terminal block		
Terminal Torque Settings	2Nm (10mm² – 9 & 12kW)	2.5Nm (16mm² – 18kW)	4Nm (35mm² – 24kW)	
Fusing	50LET (9kW)	80LET (12kW)	100LET (18kW)	125LET (24kW)
Working Temperature	65°C (maximum operational)			
Dimensions (All models)	200 x 155 x 120 (D x W x H) (mm)			
Fixing Centres	4 x 4.5mm clear keyhole slots on fixing centres 140 x 140 (W x D) (mm)			
Weight (All models)	2.8kg			

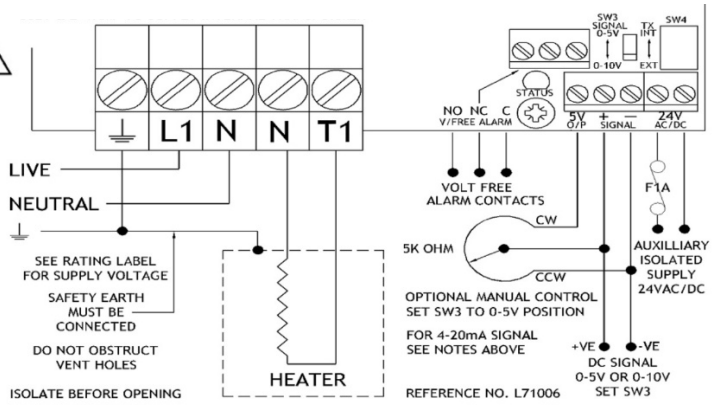
INSTALLATION & CONNECTIONS

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. VARIABLE BRIGHTNESS, TRACKING CONTROL SIGNAL
2. CONTINUOUS SLOW PULSING = OVER TEMPERATURE
3. CONTINUOUS FAST PULSING 1.5 SEC = PHASE LOSS
4. ON/OFF FAST PULSING INTERNAL SENSOR LOSS

SW4 IN 'INT' POSITION USES INTERNAL 24V TRANSFORMER
SWITCH TO 'EXT' POSITION FOR EXTERNAL 24V SUPPLY
FUSE1 & 2=1AMP TO SUPPLY INTERNAL TRANSFORMER

RELAY STATUS
SW1 ON STANDARD, SW1 OFF = REVERSE
SW2 ON = FAST BURST, SW2 OFF = SLOW
SW I, V CURRENT OR VOLTAGE SIGNAL.
I ON = 4-20mA FIT 270R ACROSS SIG +/- AND SET SW3 TO 0-5V
VON 0-5V OR 0-10V SIGNAL.



YOU MUST READ THIS BEFORE INSTALLATION

ELECTRICAL SAFETY
WARNING: RISK OF ELECTRIC SHOCK
Always consult the Installation & Maintenance Instructions before connecting this product to the power supply.
WARNING: Disconnect Power Before Servicing
Ensure the electrical supply is safely disconnected before connecting to any supply, load, or control terminals.

INSTALLATION REQUIREMENTS
WARNING: Installation by Qualified Personnel Only
This product must only be installed or fitted by a competent, qualified installer familiar with the relevant electrical standards and installation practices.

USER RESTRICTIONS
WARNING: Not for Use by Vulnerable Individuals
This product is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they are supervised or instructed by a person responsible for their safety.

USAGE ENVIRONMENT
WARNING: Industrial Use Only
This is an industrial-grade product and is not intended for household use.

HOT SURFACE WARNING
WARNING: Hot Surfaces
On certain models, surfaces marked with this symbol become hot during use. Avoid direct contact and follow all thermal safety precautions.

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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.

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 supply must come on before it is switched on.

RECOMMENDATIONS

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.

DOCUMENTS

Other documents available on request, which may be appropriate for your application:

Code	Identity	Description
X10213	ITA	Interaction: Uses for phase angle and for burst fire control
X10255	SRA	Safety Requirements: Addressing the Low Voltage Directive (LVD) including, Thermal Data/Cooling, Live Parts Warning, Earthing Requirements and Fusing Recommendations
P01.1	COS	UAL Conditions of Sale

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.

PRODUCT CODE AND RELATED PRODUCT CODE

Product Code	Product Description
A412222-HV	PR1-E-9kW HVAC Single Phase, Heater Battery Controller - Enclosed
A412232-HV	PR1-E-12kW HVAC Single Phase, Heater Battery Controller - Enclosed
A412252-HV	PR1-E-24kW HVAC Single Phase, Heater Battery Controller - Enclosed

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