

PR1-E SERIES

1.5kW, 3kW and 6kW
Phase Burst Fire Power Controller

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KEY FEATURES:

- ✓ **Seamless Control:** Full control of single-phase resistive loads with DC signal control.
- ✓ **Burst Firing Technology:** Utilizes fast pulse zero volts switching to minimize flicker and eliminate RFI problems.
- ✓ **Over Temperature Protection:** Automatic-reset trip for over temperature conditions.
- ✓ **Integral Components:** Includes semiconductor fuses and heatsink, all enclosed for safety and reliability.
- ✓ **Model Variants:** Available in 1.5kW, 3kW, and 6kW models to suit different power requirements.
- ✓ **Ease of Installation.**
- ✓ **Robust Design:** Designed for durability and effective thermal management.

APPLICATIONS:

The PR1 thyristor stacks are ideal for **single-phase 'mains' resistive loads, especially in the Heating, Ventilating, and Air Conditioning (HVAC) sector.**

They are perfect for controlling **battery heaters, hot water tanks, heating cables, and various processing equipment.**

The **PR1 range of thyristor stacks** offers precise control of single-phase resistive loads with seamless integration. Utilizing DC signal control, these stacks employ fast pulse zero volts switching technology to minimize flicker and eliminate RFI issues. The PR1 series features automatic-reset over-temperature protection, integral semiconductor fuses, and a heatsink, all enclosed for durability. Available in three models—1.5kW, 3kW, and 6kW—these units ensure easy access to signal and power terminals for straightforward installation.

TECHNICAL SPECIFICATIONS

Power / Current Ratings		1.5kW (6.3A), 3.0kW (12.5A), 6.0kW (25A) @ a typical supply of 240V rms
Input Voltage		230V RMS $\pm 10\%$
Frequency		50/60Hz
Control Input Options		Signal: 0 to 10V DC (factory set) OR 0 to 5V (Selected by switch SW1) Manual: Manual control (using 5k Ω Potentiometer – NOT supplied)
Status Indicator		(Tracking control signal) LED indicator changes Intensity
Over-temperature		Trip in temperature @ 90°C $\pm 1^\circ\text{C}$ (LED indicator 'flashes' at 0.5sec. on/off intervals) Trip out temperature @ 85°C, $\pm 1^\circ\text{C}$
Sensor Loss Detection		LED indicator 'flashes' at 1 sec. on/off intervals
Cable Terminations		Power & Earth 6kW 4mm ² Maximum cable entry Power & Earth 1.5kW & 3.0kW 2.5mm ² Maximum cable entry Control Signal All models 2.5mm ² Maximum cable entry
Terminal Torque Settings		0.5Nm for all power and earth terminals.
Fusing	1.5kW	F10A (6mm \varnothing x 32mm) – ceramic quick blow type ferrule fuse
	3kW	F16A (6mm \varnothing x 32mm) – ceramic quick blow type ferrule fuse
	6kW	30A (10mm \varnothing x 38mm) – high-speed semiconductor type ferrule fuse
Max. Ambient Temperature		65°C (maximum operational)
Dimensions	1.5kW	140mm (L) x 99mm (W) x 45mm (H)
	3 & 6kW	140mm (L) x 99mm (W) x 80mm (H)
Fixing Centres (all)		4 x 4.5 clear holes on centres 75mm (W) x 120mm (L) – top two are key-hole slots
Weight		1.5kW 0.5Kg, 3 & 6kW 1.1Kg

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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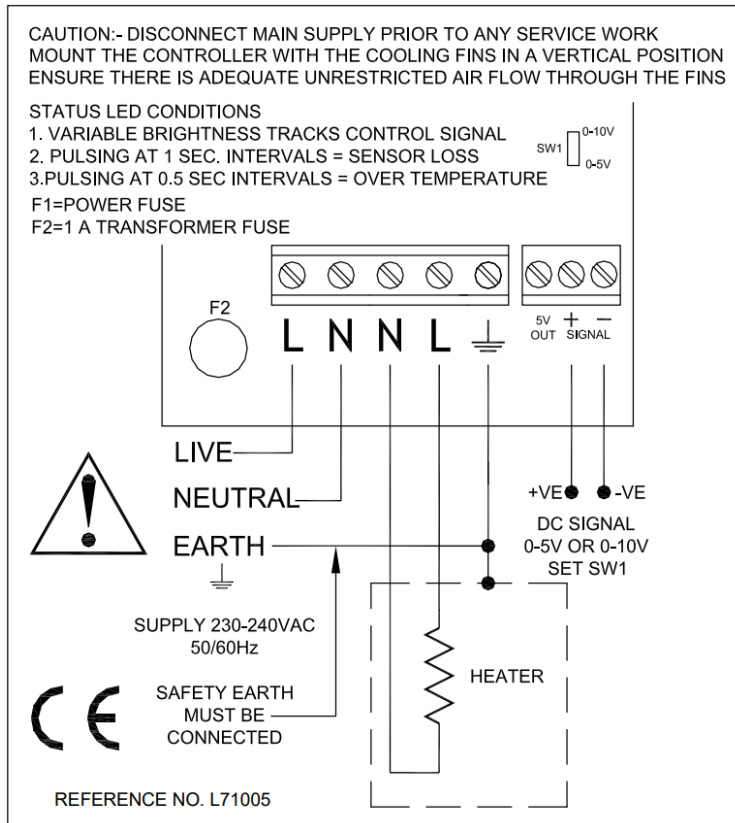
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1.5kW, 3kW and 6kW

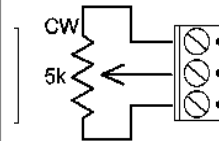
Phase Burst Fire Power Controller

INSTALLATION

DIMENSIONS & CONNECTIONS



3, 4 & 5
Manual Pot.



FUNCTIONS

Over-Temperature Protection:

When the heat sink temperature exceeds 90°C, the sensor triggers an LED indicator to pulse at 0.5-second on/off intervals. Power to the load will be disconnected and will only be restored once the temperature drops below 85°C.

Temperature Sensor Loss:

If the temperature sensor fails, the LED indicator will pulse at 1-second on/off intervals to signal the failure.

WARNING:

1. This unit comes equipped with a fail-safe fuse for protection. Refer to the SPECIFICATION/INSTALLATION sections for detailed information.
2. The enclosure contains HAZARDOUS LIVE parts and terminal connections. Ensure the power supply is isolated before beginning any installation work.
3. Secure the unit using the designated fixing/mounting holes provided.

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INSTALLATION

Cooling Requirements

The robust stack assembly operates at a temperature of up to 65°C with natural cooling and includes a built-in 90°C over-temperature trip on the heatsink for safety. Mount the unit vertically with the heatsink fins oriented top to bottom, ensuring sufficient surrounding air space to maximize natural convection cooling. If the unit is installed in an enclosure or cabinet, provide adequate ventilation or forced air-cooling.

Load Considerations

The PR-series power controllers are designed for resistive type loads, such as heaters. Unusual heating loads, like Molybdenum, Platinum, or Tungsten, have a typical 10:1 hot to cold resistance ratio, meaning they draw larger currents when cold. This range is equipped with a TRIAC power device to handle such conditions.

Connections

The unit features simple clamp-type terminal connectors for all auxiliary wiring requirements, making installation straightforward.

Fastening

Secure the unit using the four fixing holes provided. Two of these holes have key-hole slots for quick installation and removal.

SAFETY NOTE

SAFETY WARNING: Always isolate the power supply before removing the cover. Metal parts, especially the heatsink, can become extremely hot during operation.

- **DO NOT COVER** the enclosure ventilation slots to ensure proper cooling.
- It is crucial to install a load break switch and a contact breaker in the load supply.
- An over-temperature thermostat located in the heater battery should interrupt the supply to the contactor coil if excessive heat is detected or if there is a loss of airflow.

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RECOMMENDATIONS

FUSING

It is recommended that semiconductor, fast-acting type fuses or circuit breakers (Semiconductor-MCB) be used for unit protection. On initial operation some loads may need an increased Factor of Safety (F of S) for unit and/or device protection. See the SRA datasheet for further information.

CE Marking

This product family carries a "CE" marking. These burst firing type controllers do not require a filter. For information see recommendation section and contact our sales desk. See the Declaration of Conformity.

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

It is recommended that installation and maintenance of this equipment should be done with reference to the current edition of the I.E.T. regulations (BS7671) by suitably qualified/trained personnel. The regulations contain important requirements regarding the safety of electrical equipment. For International standards refer STANDARDS on D of C.

PRODUCT CODE AND RELATED PRODUCT CODE

Product Code	Product Description
A407549-HV	PR1-E-1.5kW - Single Phase – Enclosed
A407550-HV	PR1-E-3kW - Single Phase – Enclosed
A407552-HV	PR1-E-6kW - Single Phase – Enclosed



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