HVAC | HEATER BATTERY CONTROLLER

PR1-(DIN-F) SERIES

1.5kW, 3kW and 6kW
DIN-Rail Mounted HVAC Controller
Phase Burst Fire Power Controller

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KEY FEATURES:

✓ **Burst Fire Power Control:** Delivers stable and efficient proportional control for resistive loads.

✓ **Over-Temperature Protection:** Automatic trip at 90°C with reset at 85°C to protect the unit and connected equipment.

✓ **Temperature Sensor Loss Detection:** LED fault indication ensures rapid fault diagnosis.

✓ **DIN-Rail Mounting:** Secure TS35 DIN-rail fixing for quick installation and removal.

✓ **Wide Power Range:** Available in 1.5kW, 3kW and 6kW models to suit varied load requirements.

✓ **Control Signal Options:** 0–10V DC (factory set), 0–5V DC and Manual control via 5kΩ potentiometer (not supplied)

✓ **Integrated Fail-Safe Fuse:** Ensures unit protection and compliance with safety standards.

✓ **LED Status Indicator:** Tracks control signal intensity and provides clear fault diagnostics.

✓ **Compact, Naturally Cooled Design:** Optimised for vertical mounting and natural convection cooling.

APPLICATIONS:

The PR1-(DIN-F) Series is designed for precision power control in a wide range of HVAC and industrial heating applications, including:

➢ HVAC heating systems
➢ Industrial and process heaters
➢ Air handling and ventilation systems
➢ Ovens and drying equipment
➢ Hot plates and thermal process equipment
➢ General resistive heating loads

This controller is particularly well suited to installations requiring quiet, efficient power control without the need for remote EMC filtering.

The **PR1-(DIN-F) Series-1 Phase Burst Fire Power Controller** is a robust, DIN-rail mounted power control solution designed for precise and reliable regulation of resistive heating loads in HVAC and industrial applications. Available in **1.5kW, 3kW and 6kW variants**, this controller operates in **burst fire mode**, delivering efficient power modulation while minimising electrical noise and thermal stress on connected loads.

Engineered for professional installations, the PR1-(DIN-F) series incorporates advanced safety features including over-temperature protection, sensor fault detection and fail-safe fusing. Its compact stack design, combined with simple clamp terminals and DIN-rail mounting, makes installation fast, secure and space-efficient.

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 ± 10%	
Frequency		50/60Hz	
Control Input Options		**Signal**: 0 to 10V DC (factory set) OR 0 to 5V **Manual**: Manual control (using 5kΩ Potentiometer – NOT supplied)	
Status Indicator		(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	
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 ø x 32mm) – ceramic quick blow type ferrule fuse	
	3kW	F16A (6mm ø x 32mm) – ceramic quick blow type ferrule fuse	
	6kW	30A (10mm ø x 38mm) – high-speed semiconductor type ferrule fuse	
Max. Ambient Temperature		65°C (maximum operational)	
Dimensions	**1.5kW & 3kW**	112mm (D) x 95mm (W) x 75mm (H) – includes DIN rail clip	
	6kW	112mm (D) x 96mm (W) x 85mm (H) – includes DIN rail clip	
	With Perspex fuse cover	112mm (D) x 96mm (W) x 87mm (H) – includes DIN rail clip and cover (supplied separately)	
Fixing Centres (all)		TS35 DIN rail mounting	
Weight	1.5kW & 3kW	0.3kg	
	6kW	0.7kg	

MODELS

PR1-DIN-F-1.5kW & PR1-DIN-F-3kW	PR1-DIN-F-6kW

To fit the protective cover, drill two holes—one on each side of the heatsink—using a 2.6 mm drill bit.

The cover can be used as a template to mark the required hole positions.

Then use **2 × No.4 × 6 mm self-tapping screws** to locate and securely fasten the cover.

Note: The protective cover is only available for the 6 kW model.

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More Info: https://united-automation.com/general-product-safety-regulation-gpsr/

PR1-(DIN-F) SERIES

1.5kW, 3kW and 6kW | DIN-Rail Mounted HVAC Controller, Phase Burst Fire Power Controller

INSTALLATION & CONNECTIONS

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.
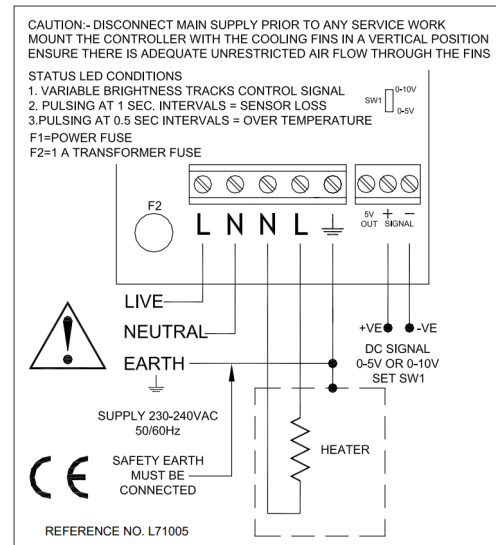
Load considerations

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.

Fastening

The unit is secured by DIN-rail mounting feet for quick installation/removal

Connections

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


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CAUTION:- DISCONNECT MAIN SUPPLY PRIOR TO 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 TRACKS CONTROL SIGNAL
2. PULSING AT 1 SEC. INTERVALS = SENSOR LOSS
3. PULSING AT 0.5 SEC INTERVALS = OVER TEMPERATURE
F1=POWER FUSE
F2=1 A TRANSFORMER FUSE

SW1  0-10V / 0-5V

F2   L N N L    5V OUT  + SIGNAL −

LIVE
NEUTRAL
EARTH                          +VE  −VE
                               DC SIGNAL
SUPPLY 230-240VAC              0-5V OR 0-10V
50/60Hz                        SET SW1

CE

SAFETY EARTH         HEATER
MUST BE
CONNECTED

REFERENCE NO. L71005
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FUNCTIONS

Over temperature protection

When heat sink temperature of above 90ºC 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 85ºC.

Temperature sensor loss

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

Safety Warning

1. This unit is supplied with a fail-safe fuse for unit protection. See SPECIFICATION/INSTALLATION sections for further details.
2. All HAZARDOUS LIVE terminals. Isolate supply before commencing any installation work.
3. Unit must be secured on DIN rail using the DIN-rail fastening and installed in an additional enclosure/cabinet with adequate ventilation.

RECOMMENDATIONS

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 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
X10378	ILR	Inductive loads remedy sheet for use with Phase angle controllers
P01.1	COS	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.

OPTIONAL EXTRAS

Product Code	Product Description
M20090	KA100 heatsink cover (6kW model only)
F80001	Fuse 'boot-type' cover (for 6mm x 32mm fuse)
A403001	Manual (5K) Potentiometer Knob and Leads

PRODUCT CODE AND RELATED PRODUCT CODE

Product Code	Product Description
A407253-HV	PR1- (DIN-F) -1.5kW
A407254-HV	PR1- (DIN-F) - 3kW
A407255-HV	PR1- (DIN-F) - 6kW