

## 1 Introduction

This PR3 range of thyristor stack provides full seamless control of three phase resistive loads, using two thirds control technique. Signal control is by a dc signal or manual control via a 5kΩ potentiometer. This burst firing control stacks use fast pulse zero volts switching technology, to minimise flicker and eliminate RFI problems, it also incorporates an auto-reset temperature trip, integral semiconductor fuses and heatsink. This model, which is naturally air cooled and has easy access to signal & power terminals for simple installation.

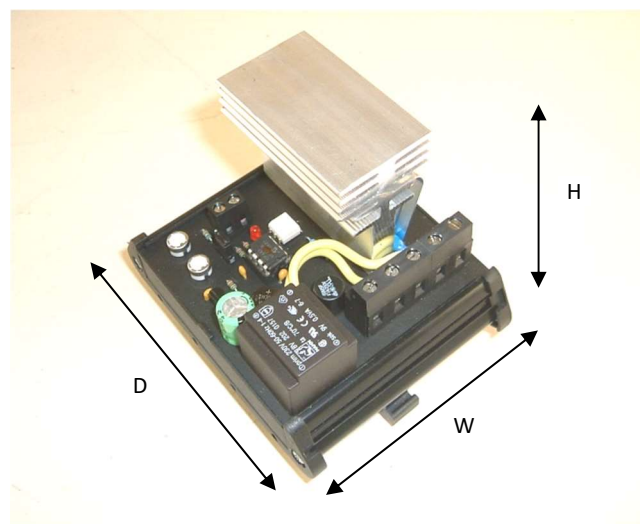
## 2 Applications

Suitable for electric heater batteries, ceiling or radiant heating, hot water tanks, heating cable, furnaces, ovens and plastic processing equipment.

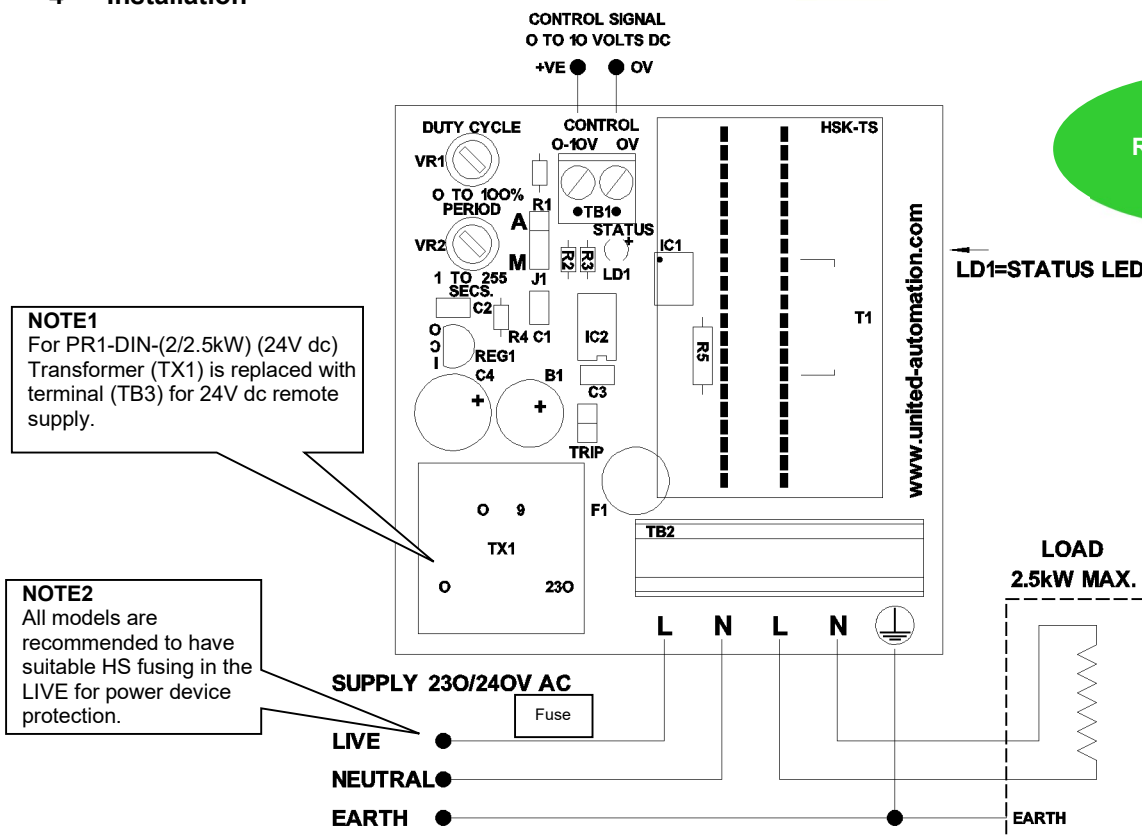
## 3 Features

- Two models - standard or remote 24V dc input
- Integrated heat sink for maximum power capability.
- 0-10V dc control input.
- Simple DIN-rail or panel mounting.
- LED power level indication.
- Over temperature protection with auto shutdown and reset.

Picture shows PR1-DIN-2.5kW standard



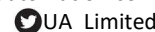
## 4 Installation



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## 5 Functions

### 5.1 Cycle Time and Signal Rescaling

The cycle time is preset. A 0 to 10V dc input signal of 5V equates to the load being at 50% ON and likewise with a load of 2.5V the load will be 25% ON. A 10V input signal will therefore equal 100% i.e. fully ON.

**CAUTION:** Adjustment of the cycle time and signal rescaling is possible using VR1 and VR2 but is not normally required. Incorrect settings of these controls can cause an overload condition, failure and permanent damage.

**DO NOT ATTEMPT TO ADJUST THESE CONTROLS WITHOUT REFERENCE TO THE SUPPLIER/MANUFACTURER.**

### 5.2 Manual Override

The PR1 controller is supplied preset to the auto 'A' position. It is possible to manually override the input signal by placing the J1 jumper plug in the 'M' position. With the jumper in the 'M' position the load will be 100% ON. The output load can be adjusted downwards using the signal rescaling facility (see above section).

### 5.3 Over Temperature Protection

An electronic thermal cut-out is fitted to the heatsink to protect against over temperature. The PR1 regulator will switch off the load if the heatsink temperature exceeds 90°C and will reconnect to the load once the heatsink temperature has dropped below 85°C. Under normal operating conditions the heatsink temperature will not reach 90°C but this might occur, for example when the ambient temperature exceeds 35°C.

## 6 Technical Specifications

<b>Power/(current ratings):</b>	Max. 2.5kW (10.9A) @ a typical supply of 230V rms
<b>Input supply voltage:</b>	230V ac rms +/- 10%
<b>Remote 24V dc input supply: (24V dc model only)</b>	24V dc +/- 10% (2-way terminal block replaces transformer TX1)
<b>Frequency:</b>	50/60Hz
<b>Ambient temperature:</b>	35°C (maximum)
<b>Control signal:</b>	0 to 10V dc
<b>Working temperature:</b>	65°C maximum.
<b>Cable terminations:</b>	Mains Supply: 2.5mm <sup>2</sup> terminal
	Control Signal: 1.5mm <sup>2</sup> terminal
	24V dc Supply: 1.5mm <sup>2</sup> terminal
<b>Fusing:</b> (Fitted - for PCB protection) (Recommended – for device protection)	PCB mount TR5-F1A, 250V ac ( <i>NOT fitted in 24V dc model</i> ) SCR 250Vrms fast acting HS fuse (16LCT) OR breaker MCB(Z-type)-16A
<b>Thermal cut out:</b>	90°C (off); 85°C (on) +/- 1°C
<b>Overall dimensions:</b>	83mm (H) x 75mm (W) x 94mm (D)
<b>Terminal torque settings:</b>	0.8Nm (power terminals only)
<b>Fixing (DIN):</b>	TS35 DIN-rail mounting

**Note:** SAFETY WARNING – Dangerous 'HAZARDOUS LIVE' parts exist on this board. Metal parts, in particular the HEATSINK, MAY GET VERY HOT when the unit is fully operational.

## 7 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.

## 8 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.

## 9 Recommendations & Safety Requirements

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

Code	Identity	Description
X10229	RFI	Filtering Recommendations: Addressing the EMC Directive
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 done with reference to the current edition of the I.E.T. (formerly 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.

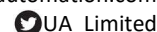
## 10 Order Code

Product Description	Rating
PR1-DIN-2.5kW	standard 230V model
PR1-DIN-(2 or 2.5kW)-(24V dc supply)	24V dc remote signal supply input model

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