

# SINGLE PHASE 12kW and 20kW RANGE TWO PHASE 22kW Half Wave Vibrators

## UV-E SERIES

**X10814**

### INTRODUCTION

The complete enclosed single phase (UV-E) thyristor assembly provides control of inductive/resistive loads of up to 20kW at 480V AC. The controllers also come with frequency tracking allowing the unit to be installed in many applications where the supply is unstable. There are a number of signal control options to meet most industrial requirements. All are housed in a bespoke enclosure and have easy access to internal signal & power terminals for simple installation. With Integral semiconductor fuses and heatsink, the controller offers a solution for many applications requiring single or dual mode control.

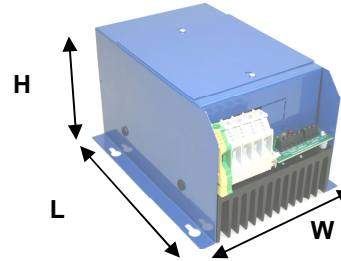
### APPLICATIONS

Suitable for furnaces, ovens, dryers, air curtains, hot plates and many other heating and ventilation applications. Also suitable for inductive loads such as transformers

### SPECIFICATIONS

<b>Power(current ratings):</b>	12kW (52A): 20kW (87A) @ a nominal supply of 230V rms 22kW (55A) @ a nominal supply of 480V rms
<b>Input voltage:</b>	230V rms +/- 10% 480V rms +/- 10% Phase to Phase
<b>Auxiliary Supply</b>	<b>Note:</b> 110V rms option available on request.
<b>Supply frequency:</b>	24VDC- Required
<b>Control input signal:</b>	4 to 400Hz active tracking
<b>Alarm relay rating:</b>	0 to 5V dc up to a maximum of 24V dc or manual – 5kΩ potentiometer (SW1 position 3 off)
<b>LED indicator:</b>	0-20mA/4-20mA (SW1 position 3 on) 125V ac @ 2A
<b>Over temperature:</b>	<b>Power LED (Green)</b> – Illuminates when the on board 5V dc supply is present <b>Status LED (Yellow)</b> – Brightness increases in phase angle mode and pulses on a one second time base with a variable mark space (on-off) ratio determined by the control signal in burst fire mode. <b>Fault LED (Red)</b> – Continuously pulses when heatsink temperature rises to 90 °C and is fully on if the internal high-speed fuse fails Trip in temperature @ 90°C, +/- 1°C (LED indicator flashes continuous fast pulsing) Fixed level of 55°C brings on fan (when fitted) Level of 90°C shuts down power and alarm relay de-energises
<b>Zero settings:</b>	Sets the minimum output level, zeroes the output with signal of up to 2V
<b>Span setting:</b>	Sets the maximum output with input signals of up to 24V dc
<b>Soft start:</b>	0-30 seconds initiated at power up. Also initiated when enable is used
<b>Current limit:</b>	Built in and user resettable (SW1 position 4 and VR1)
<b>Switch options:</b>	Phase-angle, burst-fire, V/I signal and current limit enabled or disabled.
<b>Cable terminations:</b>	Phase power (unit dependent)      10mm <sup>2</sup> (12/22kW); 16mm <sup>2</sup> (20/30kW) - rising clamp terminal blocks Earth (unit dependent)            10mm <sup>2</sup> (12/22kW); 16mm <sup>2</sup> (20/30kW) - 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>	4Nm (for power terminals 10mm <sup>2</sup> & 16mm <sup>2</sup> )
<b>Fusing :</b>	<b>230V:</b> 80ET (12kW), 100ET (20kW) / <b>400V:</b> 80ET (22kW) Semiconductor type, lug fuses
<b>Working temperature:</b>	60°C (maximum operational)
<b>Ingress protection (IP) rating:</b>	IP20 (Protection against solid bodies greater than 12mm; no protection against liquid)
<b>Dimensions:</b>	205mm (L) x 155mm (W) x 120mm (H); <b>with Fan Cowl:</b> 250mm (L) x 155mm (W) x 120mm (H)
<b>Fixing centres:</b>	4 x 5mm ø holes on centres 140mm (W) x 140mm (L)
<b>Product Weight</b>	<b>12kW:</b> (2.8kg): 20kW (3.5kg) <b>with Fan Cowl:</b> add 0.52kg <b>22kW:</b> (2.8kg) (3.5kg)
<b>Note: SAFETY WARNING –</b>	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.

Picture shows: UV-E-20kW, 87A, 400V



### Features

- Phase-angle control for Vibrators
- Frequency tracking 4-400Hz
- Integrated high speed fuse
- Adjustable ramp control 1 to 30 seconds.



### FUNCTIONS

#### **Alarm relay**

The alarm circuit has voltage free relay contacts, rated up to 2A @ 125V ac (RMS) load and is energised on power up. De-energises if the heatsink temperature rises to 90°C or if the internal high-speed fuse fails.

#### **Over temperature protection**

When the heat sink temperature rises above 55°C (detected by the heat sink sensor) the cooling fan is switched on, if fitted. Should the heat sink temperature reach 90°C, the power to the load will be disabled and will not return until the temperature drops to 85°C. During this period the alarm relay is de-energised and fault LED flashes continuously.

#### **Control Options**

Phase-angle (SW1 position 1 ON)

**INSTALLATION**

**Cooling requirements**

This robust stack assembly has an operational temperature of 60°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**

It is always best to detail the type of load when ordering. For industrial reliability, based on long experience, the DMPR range has considerable current overload capacity on the power devices used. The rated currents are maximum continuous rms values for use within the temperature guidelines as shown in the table below.

**Connections**

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

**Fusing**

It is recommended that fast acting semiconductor type fuses (as supplied) be used for protection. See SRA datasheet X10255 for further information.

**CE Marking**

This family carries a "CE" marking, In burst fire mode the controllers do not normally require a remote filter. For more information contact our sales desk. A Declaration of Conformity available on request.

**RECOMMENDATIONS**

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

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, Earth requirements and fusing recommendations.
X10322	APC	AC Power Control – Three phase application circuits
X10617		Wiring connection details are attached to the inside of the lid.
P01.1	COS	UAL Conditions of Sale

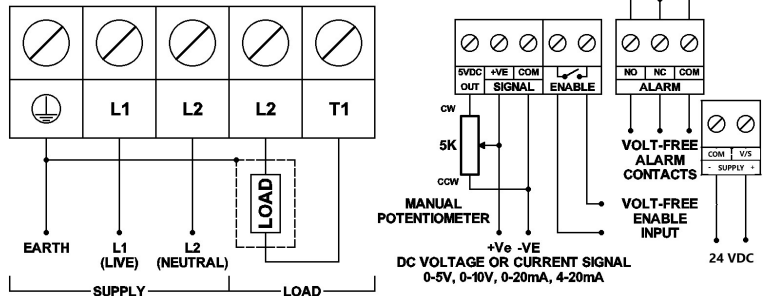
**NOTE:** It is recommended that installation and maintenance of this equipment should be done with reference to the current edition of the I.E.T. (formally I.E.E.) regulations (BS7671) by suitably qualified/trained personnel. The regulations contain important requirements regarding installation and safety of electrical equipment. Specific installers should refer to local and national regulations.

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**ORDERING**

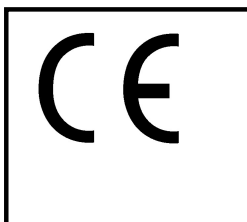
Product Reference	Ratings V/P/I (RMS)
UV-E-12kW-230V	230V, 12kW, 52A
UV-E-20kW-230V	230V, 20kW, 87A
UV-E-22kW-400V	480V, 22kW, 55A

**CONNECTIONS** Example shown with Heater Bank



**OPTIONAL EXTRAS**

**Manual control option:** A403011 - 5K, 1W potentiometer with 0.5m leads.



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