RE-MPR3-27_36_54

3-Phase Panel Mount 27, 36 & 54kW

RE-MPR3-27

RE-MPR3-54

Features:

- 0-10Vdc control input
- 24Vac/dc powered
- Over temperature protection with auto reset
- Panel mounting

Benefits:

- LED Indication
- Efficient electronic switching
- No additional heat sinks or RFI filters required
- Small foot print

Technical Overview

The RE-MPR3 range of Power Controllers are designed to provide continuously adjustable control of electric heating loads from a BMS Controller or similar. Applications include electric heating coils, heating cables and electric furnaces. The RE-MPR3 Series use solid-state switching with "zero crossing technology" for minimum RFI and to provide accurate switching control.

All Power Controllers in this series feature Over Temperature Protection with automatic reset and Alarm Output, LED Indication of Output ON and are designed for panel mounting.

The RE-MPR3-54 features integral cooling fans which turn on automatically when required. No additional heat sinks or fans are needed.

Specification:

Input signal	0-10Vdc
Power supply	24Vac/dc ±10%
Supply (load)	380-440Vac 50/60Hz
Max. load per phase:	
27kW	37.5A
12kW	52.2A
18kW	78.2A
Dissipated heat	
27kW	85W
36kW	167W
54kW	250W
Terminal connections (rising cage):	
Control	0.5-2.5mm² cable
Power	16mm² cable
Over temperature:	
Trip in temp.	@ 85°C
Trip out temp.	@ 95°C
LED indication	ON when output is on
Alarm output	(as power supply) 0V when over temp alarm is active
Ambient temperature	0-55°C*****
Dimensions (W, H, D)	188 x 130 x 128
Fixing centres	4 holes @ 5mm dia, 85 x 175mm
Conformity	CE Marked
Country of origin	UK

***** Units are rated at 40°C. If using at higher ambient temp, de-rate the units by 10% for every 5°C above 40°C

CE

The products referred to in this data sheet meet the requirements of EU 2014/30/EU and 2014/35/EU

Part Codes:

RE-MPR3-27
27kW, 3-phase 37.5A (per phase), Panel Mount Heating Regulator

RE-MPR3-36
36kW, 3-phase 52.2A (per phase), Panel Mount Heating Regulator

RE-MPR3-54
54kW, 3-phase 78.2A (per phase), Panel Mount Heating Regulator

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SAFETY REQUIRMENTS & ADVICE SHEET

Introduction

The objective of this leaflet is to provide information to ensure that the safety of the person(s) installing or maintaining the equipment is not compromised and its location and method of installation does not endanger others, either during or after installation. Customers should be aware of the Health and Safety at Work Act 1974 (HSW 1974) and the EC "Provision and Use of Work Equipment Regulations 1992" (PUWER). Both are available from the Health and Safety Executive (HSE) publications, within the UK.

Installation

CE Directives

These are European regulations which apply to our industry. They affect the equipment emissions and immunity to Radio Frequency Interference (RFI) and various elements of safety for electrical equipment.

The European Community 'CE' Directives that mainly concern Sontay Ltd are the Low Voltage Directive (LVD) and the Electromagnetic Compliance Directive (EMC).

A Declaration of Conformity may be supplied with the product or supplied on request.

Torque Settings

Good working practises must be adhered to ensuring appropriate electrical and mechanical installation. This would include the mechanical fixing of potentiometer bushes and electrical set screw and/or pillar connections. These Electrical Connections and Mechanical Fastenings must not be over tightened. We would recommend a typical torque setting of 1 to 5Nm. For specific product information, see appropriate product data sheet, where applicable.

Cooling Requirements

The use of an additional heatsink (this could be a conductive panel) suitably attached or mounted with the unit, will help to dissipate heat away from the device(s). An alternative or additional method would be forced air-cooling (using a fan), to assist the natural convection of airflow over an existing heatsink within the unit. The product fins should be mounted in line with the forced and/or natural airflow.

The equipment's environment and its initial ambient temperature also need to be considered, as this could have an adverse effect on the overall operating conditions.

Fusing

We recommend that semiconductor, fast acting to BS88 IEC 269, type fuses or circuit breakers (Semiconductor - MCB) should be used for unit and/or device protection. The appropriate maximum load current should be known to elect the required SCR fuse or Z curve MCB, but must not exceed the equipment rating. The $I^2 t$ ($A^2 s$) rating of the selected fuse must be less than that of the equipment so as to protect the equipment's discrete device. Further appropriate fusing may be required for protection of the unit supply using standard fuse links and holders. Failure to address these requirements and the use of incorrectly selected fuses may cause the equipment to fail.

Earthing

The protective conductor terminal of the equipment must be utilised at all times and bonded to a 'good' Earth (ground). The earth bonding (strapping) leads of any combined equipment should be as short as possible and be substantial, i.e. at least rated higher than the equipment's load. For further information, refer to BS7671. Following these simple guidelines will ensure optimum use of any appropriate filter circuits which may be required.

Insulation (over-voltage category) and Protection from electric shock Classification of Equipment

All equipment, unless otherwise stated, is rated to CLASS II Insulation (Over-voltage category) and CLASS I (Protection category).

Maintenance

Before any servicing is carried out, reference should be made to appropriate installation instructions, drawings and labelling which may come with the equipment. Personnel should switch off the unit supply before accessing or removing any safety cover and be aware of hazardous live parts.

Operation:

The controller is designed to control electric heating loads in linear proportion to the incoming 0-10Vdc control signal. Control is by solid-state semiconductor devices which control the load using pulse width modulation (PWM) techniques. These devices feature 'zero crossing point switching' of the AC load which minimises RFI.

Caution
In normal operation the heat sink surface can exceed 90°C. Dangerous voltages exist inside the unit and particular care should be taken. No attempt should be made to open the unit. The controller must be installed in accordance with the relevant statutory regulations and installation must be carried out by an experienced and fully qualified engineer.

Ventilation
The unit is designed to operate in a maximum ambient temperature of 55°C, which should not be exceeded.
Where ambient temperatures exceed 40°C enclosures or control panels should be ventilated with a cooling fan. Refer to Product Specification for de-rating to be applied above 40°C.

O**ver Temperature Monitoring**
An electronic thermal cut-out is fitted to the heat sink to protect against over temperature. The unit will switch off the load if the heat sink temperature exceeds 95°C and will reconnect the load once the heat sink temperature has dropped below 85°C. Under normal operating conditions the heat sink temperature will not reach 95°C but this might occur, for example, if the ambient temperature exceeds 40°C.

Installation & Configuration:

The power controller is designed for mounting on a vertical panel. It is important that free air movement around the heat sink is not restricted. Allow sufficient air space between adjacent units to allow optimum performance of the heat sink. Installation must be carried out by a suitably trained electrician, and in accordance with the relevant statutory regulations.

The unit is designed to operate in a maximum ambient temperature of 55°C, which should not be exceeded.
Where ambient temperatures exceed 40°C enclosures or control panels should be ventilated with a cooling fan. Refer to Product Specification for de-rating to be applied above 40°C.

Load Supply and Back-up Protection
The unit must be protected by external fuses. The fuses should be rated at or below the maximum rating of the module and must be of the quick acting semiconductor type. Load cables must be sized such that they are rated in excess of the fuse ratings.

Control Supply
The control circuitry is fully isolated from the load supply and needs its own 24V (ac or dc) supply. The control supply common is linked to the 0-10V Input Signal common. All low voltage signal and supply cables should be kept separate from high voltage or mains cables, separate trays or conduit should be used. Screened cable should be used for connections to BMS Controllers, where possible the cable screen should be connected to a functional earth (not mains safety earth); normally the screen should be earthed at one end only to avoid earth loops.

Cycle Time
The Cycle Time is preset. An 0-10Vdc Input Signal of 5V equates to the load being at 50% ON and likewise with an input of 2.5V the load will be 25% ON. A 10V input will equal 100% i.e.full ON. Adjustment of the Cycle Time is possible using Test Point J2, and R1 but is not normally required. Caution: Incorrect adjustment of these controls can cause an overload condition and subsequent destruction of the unit. DO NOT ATTEMPT TO ADJUST THESE CONTROLS.

Installation & Configuration (continued):

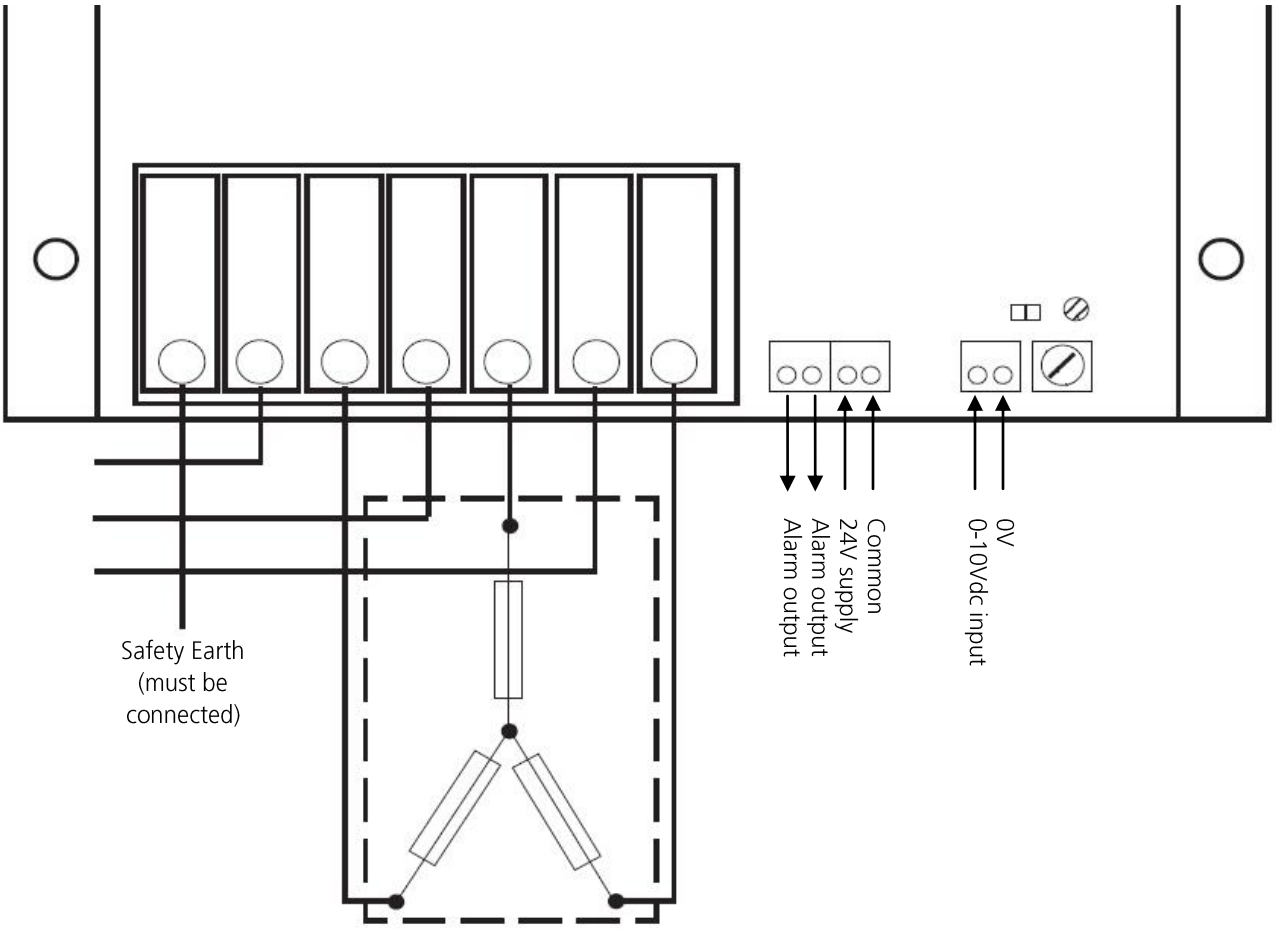
Maximum Heating Load & Earthing

The power rating of the units are given as a guide. The maximum current (which is dependant on the actual supply voltage and actual load) as shown in the above table must not be exceeded.

The protective conductor terminal must always be bonded to a good Earth. This earth bond lead should be rated higher than the maximum load. Refer to BS7671.

Scale Time L-in L-out N-in N-out

Connections:



Start point must **not** be connected to Neutral

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