



Product Overview

The AX-MPR3-6 DIN Rail Power Controller is 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 AX-MPR3-6 use solid-state switching with “zero crossing technology” for minimum RFI and provide accurate switching control. All Power Controllers feature Over Temperature Protection with automatic reset and Alarm Output, LED Indication of Output ON and are designed to mount on TS35 section DIN Rail. No additional heatsinks are needed.

Features

- 0-10Vdc Control Input
- 6kW Model
- PWM Control
- Auto Reset Over Temperature Protection
- 24Vac/dc Powered
- Alarm Output
- LED Indication
- DIN Rail (TS35) Mounting

Product Specifications

Input:	0-10Vdc
Power Supply:	24Vac/dc +/-10%
Alarm Output:	24Vac/dc as power supply - 0V when over temperature alarm is active
Rated Supply:	380 - 440Vac / 50-60Hz
Max Heater Duty:	6kW
Rated Load:	8.7A / phase @40° C
Dissipated Heat:	22W
LED Indication:	ON when output is on.
Terminals:	Rising Clamp for 0.5-2.5mm ² Cable
Ambient Temp. Range:	0 to 55° C . Note: the units are rated at 40°C. If using at higher ambient temperature, de-rate the unit by 10% for every 5°C above 40°C .
Dimensions:	117 x 80 x 72
Weight:	165 gms
Country of Origin:	United Kingdom

Order Codes

AX-MPR-3-6 - 6kW Three Phase Power Controller

Installation and Configuration

The AX-MPR3-6 Power Controller is designed for mounting on a TS35 Section DIN Rail and must be installed with their heatsink cooling fins in a vertical plane. Allow a minimum of 100mm between units mounted in a vertical plane.

Electrical Installation:

Installation must be carried out by a suitably trained electrician, and in accordance with the relevant statutory regulations.

Load Supply and Back-up Protection:

It is recommended that a load disconnect switch and a contactor are installed in the load supply. The supply to the contactor coil should be interrupted by sensors for over temperature in the heater and also upon air flow loss. Fuses or MCB's (miniature circuit breakers) are required to provide back-up protection. High Speed Fuses will protect the solid-state switching devices against short circuit currents.

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 & Signal Rescaling

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 and signal rescaling is possible using JP1, JP2, VR1 and VR2 but is not normally required. **Caution:** Adjustment of these controls can cause an overload condition and subsequent destruction of the AX-MPR3-6 unit. DO NOT ATTEMPT TO ADJUST THESE CONTROLS WITHOUT REFERENCE TO THE FACTORY.

Manual Override:

The AX-MPR3-6 is supplied preset to the Auto position, it is possible to manually override the Input Signal by placing the M/A Jumper 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 Caution above).

Maximum Heating Load

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

AX-MPR-3-6

6kW Three Phase Power Controller



Operation

The AX-MPR3-6 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 controls 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 heatsink surface can exceed 90°C. Dangerous voltages exist on the PCB and particular care should be taken. The AX-MPR3-6 Power Controller must be installed in accordance with the relevant statutory regulations and installation must be carried out by an experienced and fully qualified engineer.

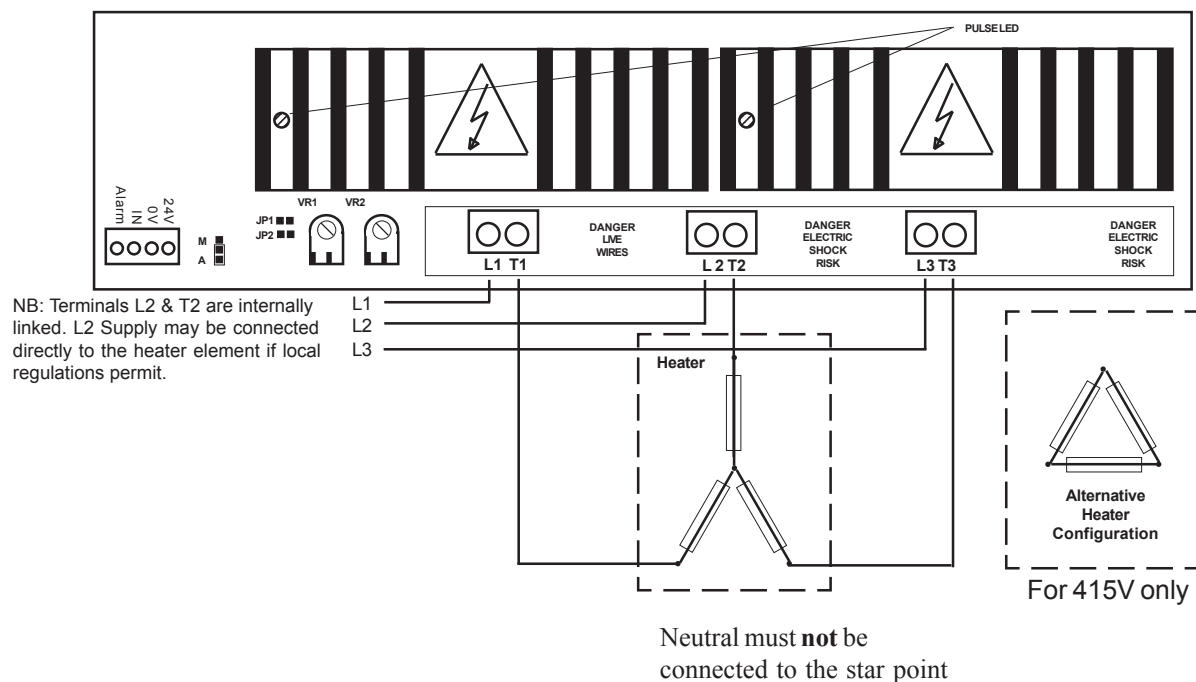
Ventilation:

The AX-MPR3-6 is designed for a maximum ambient temperature of 55°C which should not be exceeded. If necessary, enclosures or control panels should be ventilated with a cooling fan. See note in product specification for de-rating to be applied if ambient temp is over 40°C

Over Temperature Monitoring:

An electronic thermal cutout is fitted to the heatsink to protect against over temperature. The AX-MPR3-6 will switch off the load if the heatsink temperature exceeds 95°C and will reconnect the load once the heatsink temperature has dropped below 85°C. The alarm output will also change from the control supply to 0V. Under normal operating conditions the heatsink temperature will not reach 95°C but this might occur, for example, if the ambient temperature exceeds 40°C.

Connection



Preliminary connection drawing

Every effort has been taken in the production of this data sheet to ensure it's accuracy. Axio can not, however, accept responsibility for any damage, expense, injury, loss or consequential loss resulting from any errors or omissions. Axio has a policy of continuous improvement and reserves the right to change this specification without notice.