



**ELECTRICAL SAFETY**

The controller must be mounted in a protective enclosure. If this enclosure is made of conductive material it must be earthed. The printed circuit board must be mounted on spacers of minimum height 3/8" or 9mm. It should not be possible to get fingers onto the non-component side of the board.

The controller and its connections should not be accessible when power is applied to it.

The power circuits connected to the controller should be suitably fused. A supply current fuse of 1A is adequate. Output relay circuits are rated at 2A continuous 230V ac. Input currents max 5 mA at 230V.

The controller is suitable for single phase 230V max operation. On no account should 3 phase connections be made to the unit.

**EMC REQUIREMENTS**

**General**

To be sure that the JTL products comply with the EMC requirements, the installation instructions supplied with the product must be adhered to.

**Earth connection**

Earth connections must be copper or aluminium to earth. Steel plates, trunking, armouring forming part of the earth system are not acceptable.

**CABLE INSTALLATION REQUIREMENTS**

When installing LC controllers into equipment it is essential that the following requirements are observed:

**Cable Segregation**

Connections are divided into two groups:

- (i) Power
- (ii) Signal

It is essential that the cable connections to these groups be segregated.

## Signal Cables

Low voltage signals should be run in multicore cable to minimise EMC problems and to avoid any confusion with power cables during installation or subsequently.

Signal cables should have a minimum insulation voltage of 250 V ac.

Signal cables must have a minimum cross section of 0.2 mm and be flexible with a minimum of 7 strands.

Telephone cable is not permitted under any circumstances.

JTL manufacture cables for all DIN connectors in various lengths to the above standards.

No signal cable should be run in trunking with power cables.

## Power and Cables

Flexible cables connected to JTL screw connectors should be bootlace ferruled with the correct ferrule using an appropriate crimp tool.

All ac outputs are suppressed internally on the controller. This is done by the use of a resistor/capacitor network connected from the LOAD to the neutral. It is ESSENTIAL that the outputs are wired correctly and all output terminals are marked:

LN	for	line
NO	for	load (normally open)
NC	for	load (normally closed)

As suppressors are internally connected to neutral it is ESSENTIAL that LINE (L) NEUTRAL (N) polarity is observed on all power connections.

If this polarity is not observed data corruption or processor mis-operation may occur.

## High Voltage Testing

No JTL controllers should be connected in circuit during high voltage "flash" testing.

## Cable Installation Within Equipment

Within the equipment separation must occur with a minimum of 150 mm between parallel runs of power and signal cables. These must not be run in common trunking.

## External Cables to Site Wiring

A minimum spacing of 350 mm must be maintained between parallel runs of power and signal cables. These must not be run in common trunking.

Where separation of 350 mm is not possible the signal cable should be screened and run in conduit or separate section steel trunking.

## STATUTORY WIRING REGULATIONS

Installation should comply with the current statutory wiring regulations.

## ADDITIONAL INFORMATION

Further information on installation requirements and cabling is available in the JTL Installation Practice Manual available on request.