

MLC Operating Instructions

Description

The LTH plug-in level controller has been designed to provide efficient and reliable level control of electrically conducting liquids.

The bezel, knob and rear mouldings are in engineering grade self extinguishing ABS and then coated in 3m NEXTEL, a tough easy to clean product with a smart matt blue finish. The sleeve is moulded in light grey tinted self-extinguishing polycarbonate. The controllers operate on the principle of electrolytic conductivity by the conduction of a low level current through the liquid via electrodes set at the desired level. When the liquid makes or breaks contact with the electrodes the relay contacts in the controller open or close as required. A high intensity red LED lamp shows the state of the relay. The unit provides high/low alarm for one level or control between two levels of liquids and their foams in the tanks sumps, boreholes or process vessels. The relay can be selected to de-energise (fail safe) at 'high' or 'low' level and prevent uncontrolled filling or emptying under fault conditions.

Sensitivity can be adjusted enabling one type of controller to be used with a variety of liquids having a wide range of conductivity e.g. acids, alkalis, milk emulsions etc. This adjustment also ensures decisive operation at the precise level required without intermittent operation due to 'creep' across the electrode insulators.

The MLC can be supplied for 110/120v or 210/240v 60/60Hz operation which must be specified when ordering.

Specification

Liquid Resistance:	Up to 30,000 ohms
Supply Volts:	110-120v or 210-240v 50/60HZ. Must be specified when ordering
Control Contacts:	Single pole change-over rated 5A 240v AC.
Relay Lamp	Red high intensity LED showing the state of the relay
Ambient Temperature	0-60°C
Socket:	Standard 11 pin base (must be ordered separately)
Weight:	250gms
Case Dimensions:	100m x 48mm x 48mm

Typical operating values for the MLC Level Controller

The following figures are typical values required to de-energise the relay in the HIGH mode of operation or energise the relay in the LOW mode. The hysteresis of the unit is of the order of 1 or 2%.

These figures were obtained from a small sample of units and could therefore be expected to vary by up to + or - 10%.

Resistance Values

Scale Setting	Max	Mid	Min
High Mode	48K9	24K8	450R
Low Mode	45K7	21K7	210R
High Mode	20us	40us	220us
Low Mode	22us	41 us	476us

NOTE: - The above values were obtained using a conductivity cell with a cell constant of K=1.0

When using a conductivity cell K= 0.1 the resistance operation figures will be 10 times higher and conversely the conductivity figures 10 times lower.

Installation

The installation consists of simply fitting the electrode holders to the liquid container and adjusting the length of the electrodes as required. The connecting cables are then run back to the panel containing the controller, together with the power supply and control circuit cables.

1. Connect the individual wires to the appropriate terminals on the mounting socket.
2. Check all wiring and connections most carefully before proceeding
3. Switch on the AC supply
4. Allow the liquid level to drop below the electrodes.
5. Make a temporary connection between the high level electrode terminal and earth and note that the relay operates.
6. Remove temporary connection
7. Raise and lower the liquid level to the tip of the high level electrode while reducing the sensitivity-the lowest sensitivity which gives decisive relay operation is the correct setting. (It will be necessary to disconnect the low level electrode, if fitted, whilst this operation is carried out).

Routine Maintenance

Routine maintenance is restricted to cleaning of the electrodes and holders, particularly the top of the electrodes around the insulator, and checking the operation of the relay as per operations 5-7 under installation. If decisive relay operation is not obtained check all wiring and connections for security and cleanliness.

Fault Finding and Repair

If the controller ceases to function the trouble may be easily traced to either the electrode circuit, or the controller, by disconnecting the electrodes from the mounting socket, and the carrying out check no. 5. in the installation procedure. If the relay fails to operate, check the AC supply voltage.

If the relay operates, the fault must be in the electrode circuit. The electrodes and holders should be thoroughly cleaned and the connections and wiring checked for security, cleanliness and faults.

Guarantee and Service

Products manufactured by LTH Electronics Limited are guaranteed against faulty workmanship and material for a period of 3 years from the date of despatch. All electrodes and cells made by LTH Electronics Limited are thoroughly tested to the published specification before despatch. As LTH Electronics have no control over the conditions under which their electrodes are used, no further guarantee is given, although any complaints concerning their operation will be carefully investigated.

This guarantee is rendered null and void if the apparatus has been tampered with, misused, or altered in any way except in accordance with written instructions issued by LTH Electronics Limited.

Goods for attention under guarantee (unless otherwise agreed) must be returned to the factory, carriage paid and if accepted for free repair, will be returned to customers addresses in the United Kingdom free of charge. Arrangements can also be made for repair on site, in which case a charge may be made for the Engineer's time and expenses.

If service other than under guarantee is required, please contact LTH Electronics Limited direct.

Note: Overseas users should contact their LTH agent. Special arrangements will be made in individual cases for goods returned from overseas.



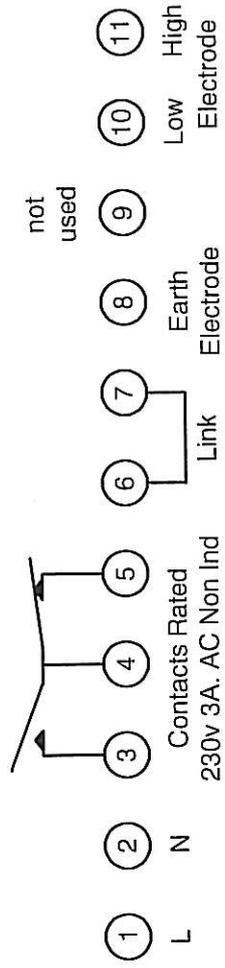
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RELAY DE-ENERGISED HIGH LEVEL
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