MTL2220 EARTH LEAKAGE DETECTOR

The MTL2220 continuously monitors floating electrical circuits in a hazardous area, and warns if their resistance to earth falls below 10kΩ. It enables other MTL2000 and 3000 Series units to be used in the 'no-fail' mode, whereby earth faults on field lines can be detected and rectified without upsetting control or needing emergency action. The measuring circuit of the unit uses a 1Hz oscillator, amplifier and phase-sensitive demodulator to reject electrical interference up to 250V. A self-test facility enables the unit to be checked automatically or manually from time to time to ensure the integrity of the whole system. Testing is carried out by connecting two safe-area terminals together; this triggers an IS opto-coupler to connect a known resistance across the input terminals, de-energising the relay and LED if the unit is healthy, but having no effect on the monitored circuits. The changeover output contacts are duplicated within the unit for reliability.

SPECIFICATION

See also 'Common specification'

Monitoring signal
4V, 0.1mA, 1Hz, intrinsically safe

Earth fault resistance to de-energise relay
<10kΩ, total for terminals 1 to 7

Earth fault resistance that will not de-energise relay
>30kΩ, total for terminals 1 to 7

Response time
<5s

50Hz rejection
250V rms, series mode

Contacts
1-pole changeover, duplicated within unit

Contact rating
250V,5A,500VA (ac), resistive loads, reactive loads must be suppressed
250V,5A,250W (dc), resistive loads, reactive loads must be suppressed

LED indicator
ON when relay energised (no earth fault)

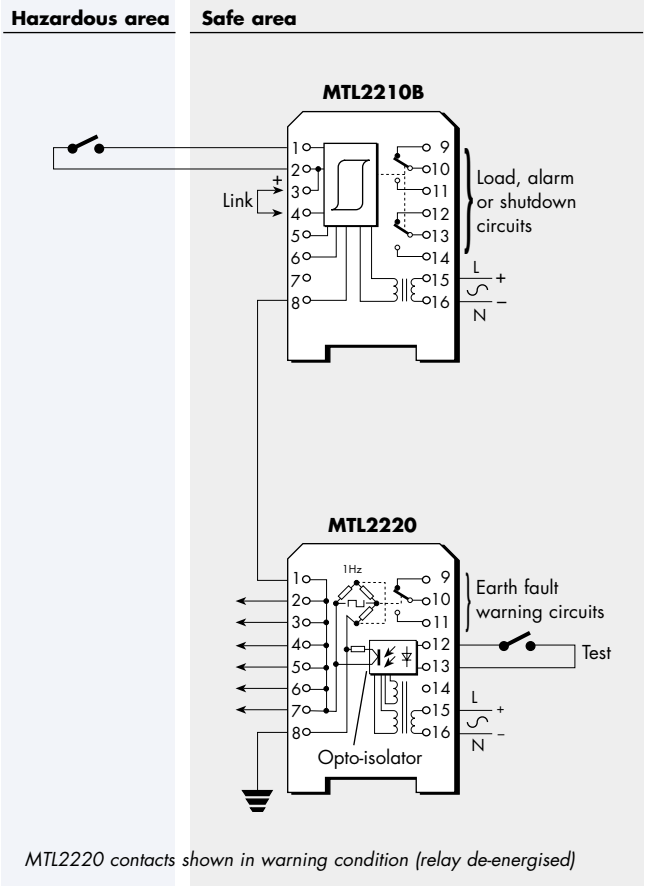
Test facility
Unit is healthy if <2kΩ applied between terminals 12 & 13 de-energises relay and LED within 5s

Consumption
0.9 to 1.4W (ac versions)
60mA (24V dc version)

Ambient temperature limits
–20 to +55°C (all versions, close packed)
–20 to +60°C (all versions, at least 5mm apart)
–40 to +80°C (all versions, storage)

Safety description (each channel)
6.88V, 53kΩ, 0.13mA

FM max entity parameters
V_{oc} = 8.3V, I_{sc} = 21.7mA, C_a = 5.5μF, L_a = 75mH



MTL2220 contacts shown in warning condition (relay de-energised)

Please note, in addition to the application shown above, the MTL2220 can also be used with most analogue signals.

For more information ask for a free copy of Application Note AN9008 or call your local MTL representative

See also MTL2000 approvals, maximum cable parameters, dimensions and ordering information

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