

MTL4220 EARTH LEAKAGE DETECTOR



The MTL4220 scans up to eight floating electrical circuits, hazardous or safe area, and warns if the resistance to earth on any input falls below 10kΩ. It enables other MTL4000 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. Eight LED indicators enable faults to be easily located to any input. A self-test facility enables the unit to be checked automatically or manually to ensure the integrity of the whole system. During test the relay is de-energised and the eight LED indicators are illuminated if the unit is healthy. This has no effect on the monitored circuits.

SPECIFICATION

See also common specification, cable parameters and approvals

Number of inputs

Eight independent inputs

Signal source

MTL4000 Series modules with provision for earth leakage detection

Note: inputs are not isolated from each other

Monitoring signal

5V, 0.1mA, 1Hz, intrinsically safe

Earth fault resistance to de-energise relay (7-8 closed)

<10kΩ, on any input

Earth fault resistance that will not de-energise relay (8-9 closed)

>50kΩ, on all inputs

Response time

<50s for 8 input scan

Series mode rejection

60V dc, 10V rms 50Hz

Relay output characteristics

Single pole changeover
Contact rating: 35V dc, 250mA, 5VA
Contact life expectancy: 10⁵ operations at maximum load
Note: reactive loads must be adequately suppressed

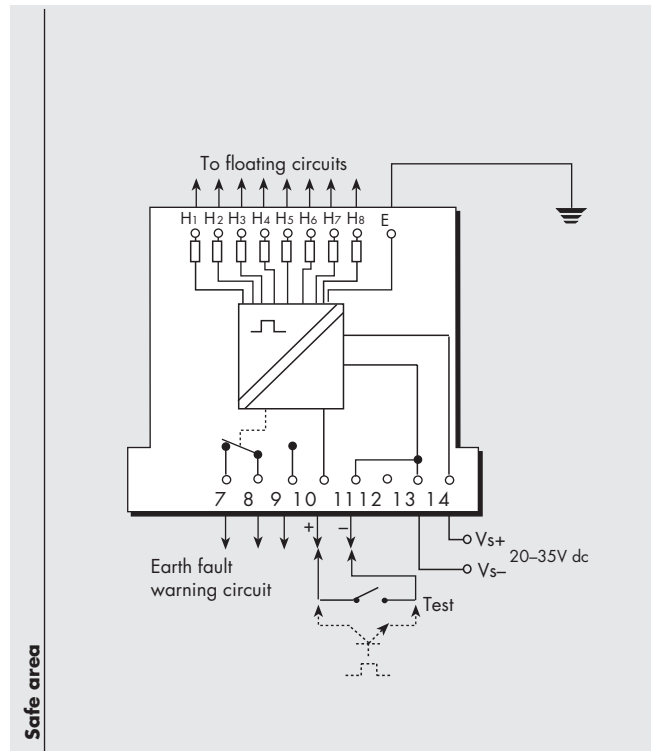
LED indicators

Red: one provided for each of eight inputs, ON when earth fault detected on the corresponding input
Green: one provided for power indication

Test facility

Terminals 10 and 11 are suitable for switch contacts, an open-collector transistor or logic drive:
TEST = input switch closed, transistor on or <1.4V applied across terminals 10 and 11; relay will de-energise within 1s and all red LED indicators light

OPERATE = input switch open, transistor off or >4.5V applied across terminals 10 and 11; relay will return to normal operating mode within 50s



Terminal	Function
H ₁ - H ₈	Connections to MTL4000 Series modules
E	Earth
7	Earth fault signal (normally closed)
8	Earth fault signal (common)
9	Earth fault signal (normally open)
10	Test +ve
11	Test -ve
13	Supply -ve
14	Supply +ve

Power requirement, V_s

35mA max at 20 to 35V
18mA typical at 20 to 35V

Power dissipation within unit

0.9W max. at 24V
1.3W max. at 35V
0.45W typical at 24V

Isolation

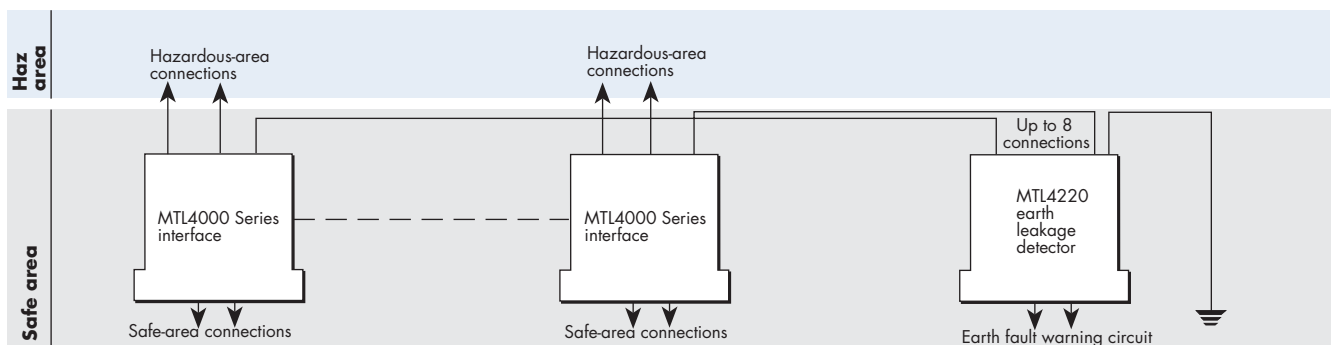
250V ac between safe- and hazardous-area circuits

Safety description

9V, 65kΩ, 0.14mA, U_m=250Vrms or dc

Note: Three 3-way connectors are supplied with this unit as standard.

Please note that in addition to typical switch/proximity detector applications, the MTL4220 can also be used with switched outputs (eg, solenoids, alarms and LEDs), and with most analogue signals. For more information, call your local MTL representative.



Note: some MTL4000 Series modules are multichannel and could require one connection for each channel



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