

# MTL4081 MILLIVOLT/ THERMOCOUPLE ISOLATOR

for low-level signals



The MTL4081 takes a low-level dc signal from a voltage source in a hazardous area, isolates it, and passes it to a receiving instrument located in the safe area. The module is intended for use with strain-gauge bridges or thermocouples utilising external cold-junction compensation. A switch located on top of the module enables or disables the safety drive in the event of thermocouple burnout or cable breakage; a second switch permits the selection of upscale or downscale operation as appropriate.

## SPECIFICATION

See also common specification, cable parameters and approvals

### Number of channels

One

### Signal source

Any dc millivolt source

### Location of millivolt source

Zone 0, IIC, T4–T6 hazardous area if suitably certified  
Div. 1, Group A, hazardous location

### Input and output signal range

0 to  $\pm 50$  mV, overrange to  $\pm 55$  mV

### Output resistance

60  $\Omega$  nominal

### Transfer accuracy

Linearity and repeatability  $< 0.05\%$  of reading or  $\pm 5 \mu\text{V}$ , whichever is the greater

### Temperature drift

$< 2 \mu\text{V}/^\circ\text{C}$ , maximum

### Response time

Settles to within 10% of final value within 150  $\mu\text{s}$

### Frequency response

DC to 4 kHz nominal

### Safety drive on THC burnout

Two switches on top of the module enable or disable the safety drive and select upscale or downscale operation

### LED indicator

Green: one provided for power indication

### Power requirement, $V_s$

26 mA max, 20 V dc to 35 V dc

### Power dissipation within unit

0.6 W typical at 24 V

0.9 W at 35 V

### Isolation

250 V ac between safe- and hazardous-area circuits

### Safety description

#### Terminals 5 and 6

$U_{\text{max out}}$  1.0 V

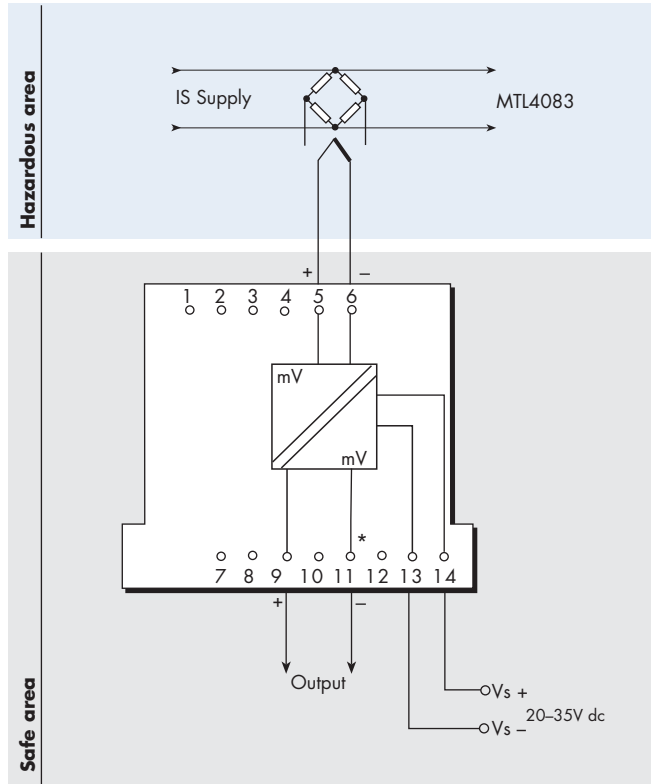
$I_{\text{max out}}$  47.8 mA

$P_{\text{max out}}$  0.012 W

Non-energy-storing apparatus  $\leq 1.2$  V,  $\leq 0.1$  A,  $\leq 20 \mu\text{J}$  and  $\leq 25$  mW.

Can be connected without further certification into any IS loop with open-circuit voltage not more than 28 V.

\* Note: output negative (terminal 11) is clamped to supply negative (terminal 13) through two series diodes



Terminal	Function
5	THC/EMF input +ve
6	THC/EMF input -ve
9	Output +ve
11	Output -ve
13	Supply -ve
14	Supply +ve



EUROPE (EMEA)  
AMERICAS  
ASIA PACIFIC  
E-mail: enquiry@mtl-inst.com

Tel: +44 (0)1582 723633  
Tel: +1 603 926 0090  
Tel: +65 487 7887

Fax: +44 (0)1582 422283  
Fax: +1 603 926 1899  
Fax: +65 487 7997

Web site: www.mtl-inst.com