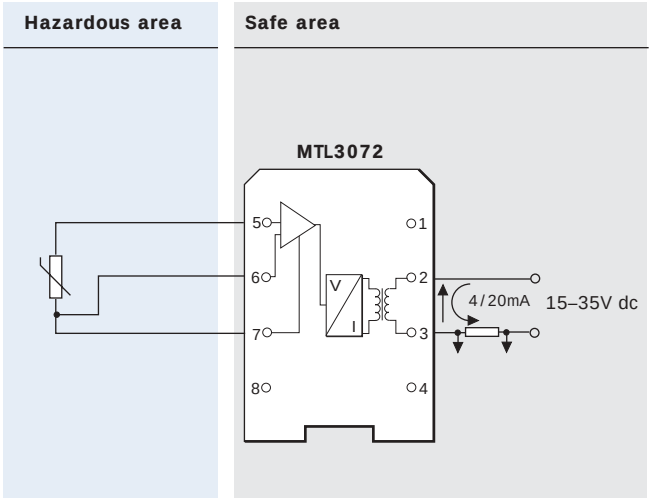
MTL3072 TEMPERATURE CONVERTER

3-wire RTD input

The MTL3072 accepts a signal from a 3-wire resistance temperature detector (RTD) in the hazardous area, and converts it to a 4/20mA loop current in the safe area proportional to resistance (but not temperature). Calibration is carried out by the user via controls located in the top and the side of the unit. Input zero and span are selected by switches (coarse adjustment) and potentiometers (fine adjustment).



SPECIFICATION

See also 'Common specification'

Number of channels
One, fully floating

Signal source
3-wire platinum RTD to BS1904/DIN 43760 (100Ω at 0°C)
–terminals 5, 6 & 7

Location of signal source
Zone 0, IIC, T4 hazardous area if suitably certified
Div 1, Group A, hazardous location

Span (fully adjustable by switches and potentiometers)
25 to 800°C

Zero (fully adjustable by switches and potentiometers)
–200 to +400°C

Common-mode ac rejection
<0.1% error for 250V rms, 50Hz

Series-mode ac rejection
<0.1% error for 50Hz rms input equal to 2mV or (span in Ω/30)mV, whichever is the greater

Loop supply voltage
15 to 35V dc

Output range
4 to 20mA

Maximum load resistance
50(Vs –15) Ω

Response time
Settles to within 10% of final value after typically 250ms

Calibration accuracy at 20°C
(including non-linearity, hysteresis and repeatability)
Within 0.1% of span

Temperature drift (maximum)
Zero: the greater of the following:–
±0.01% of span/°C or 10mΩ/°C
Span: ±0.005% of input span/°C
Suppression/elevation (E): ±0.01% of E/°C

RTD excitation current
400µA

Line resistance
100Ω maximum in each line

Power dissipation within unit
0.46W maximum at 35V with 20mA signal

Replaceable fuse
50mA, 5 x 20mm glass to DIN 41571 sheet 2, semi-time-lag (M)

Safety description
13.6V, 142Ω, 95.3mA, C_{eq} = 56.5nF, L_{eq} = 2.2mH,
U_m = 250V rms or dc

FM max entity parameters
V_{oc} = 13.6V, I_{sc} = 95.3mA, C_a = 1.15µF, L_a = 1.8mH

Weight
170g

OTHER APPLICATIONS

The MTL3072 can monitor a low-value potentiometer, up to 375Ω, in a hazardous area to give a 4/20mA output in the safe area .

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