MTL MTL Series Service Manual

MTL3041

1. Description

The MTL3041 provides a fully-floating dc supply for energising a 2- Load

3. Product Information

The MTL3041 provides a fully-floating dc supply for energising a 2- Load wire, 4/20mA transmitter in a hazardous area, and repeats the current accurately in another floating circuit to drive a load in the safe area. The 17.5V output (at 20mA) is more than sufficient for all normal transmitter loops, and the fact that it floats allows the field cables to be earthed, either intentionally or in error. The isolation of the safe-area circuit from the 24V dc supply allows systems to be wired without difficulty so as to eliminate measurement errors due to voltage drops in shared cables, and solves the problem of feeding control computers connected independently to earth as is sometimes demanded by their makers. The transformer-coupled circuit of the MTL3041 chops the 4/20mA current directly, eliminating the need for any ‘high-stability’ resistors and ensuring extremely high long-term as well as short-term stability. For applications involving ‘smart’ transmitters, use the MTL3046B.

SPECIFICATION

See also 'Common specification'

Number of channels

One, fully floating

Location of transmitter

Zone 0, IIC, T4–6 hazardous area if suitably certified

Div 1, Group A, hazardous location

Voltage available for transmitter and lines

17.5V minimum at 20mA

Note: maximum open-circuit voltage is 28V

Maximum permitted line resistance

[(17.5V minus transmitter voltage requirement) x 50] Ω

Input and output signal range

4 to 20mA (0 to 20mA full range)

Safe-area circuit load resistance

0 to 800Ω

Safe-area circuit output resistance

>1MΩ

Safe-area circuit ripple

<10µA peak-to-peak

Transfer accuracy at 20°C

Better than 20µA

Temperature drift

<1µA/°C

Response time

Settles to within 10% of final value after typically 60ms

Power requirement

100mA typical at 24V with 20mA signal

80mA at 35V to 125mA at 20V with 20mA signal

Power dissipation within unit

2.0W typical at 24V with 20mA signal

2.5W maximum at 35V with 20mA signal

Replaceable fuse

125mA, 5x20mm glass to DIN 41571 sht.2, semi-time-lag (M)

Safety description

28V, 300Ω, 93mA, Um = 250V rms or dc

FM max entity parameters

Voc = 28V, Isc =93mA, Ca = 0.13µF, La = 4.0mH

Weight

160g

www.autronexa.com