MTL4044 REPEATER POWER SUPPLY

two channel, 4/20mA, smart, for 2-wire transmitters

C E

The MTL4044 provides fully floating dc supplies for energising two conventional 2-wire 4/20mA or 'smart' transmitters located in a hazardous area, and repeats the current in other circuits to drive two safe-area loads. For smart transmitters, the unit allows bi-directional transmission of digital communication signals superimposed on the 4/20mA signal so that the transmitter can be interrogated either from the operator station or by a hand-held communicator (HHC).

SPECIFICATION

See also common specification, cable parameters and approvals

Number of channels
Two

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
15V minimum at 20mA
Note: maximum open-circuit voltage is 28V

Input and output signal range
2.0mA to 22mA

Digital signal bandwidth
Hazardous-to-safe: dc to 10kHz
Safe-to-hazardous: 2Hz to 10kHz

Safe-area circuit load resistance
Conventional transmitters: 0 to 300Ω
Smart transmitters: 250Ω ±10%

Safe-area circuit output resistance
>1MΩ

Safe-area circuit ripple
<50µA peak-to-peak up to 80kHz

Transfer accuracy at 20°C
Better than 20µA

Temperature drift
<1µA/°C

Response time
Settles within 200µA of final value within 20ms

LED indicator
Green: one provided for power indication

Power requirement, Vs
(with both channels carrying 20mA signal)
90mA at 24V dc
105mA at 20V dc
65mA at 35V dc

Power dissipation within unit
(with both channels carrying 20mA signal)
1.2W at 24V dc
1.3W at 35V dc

Isolation
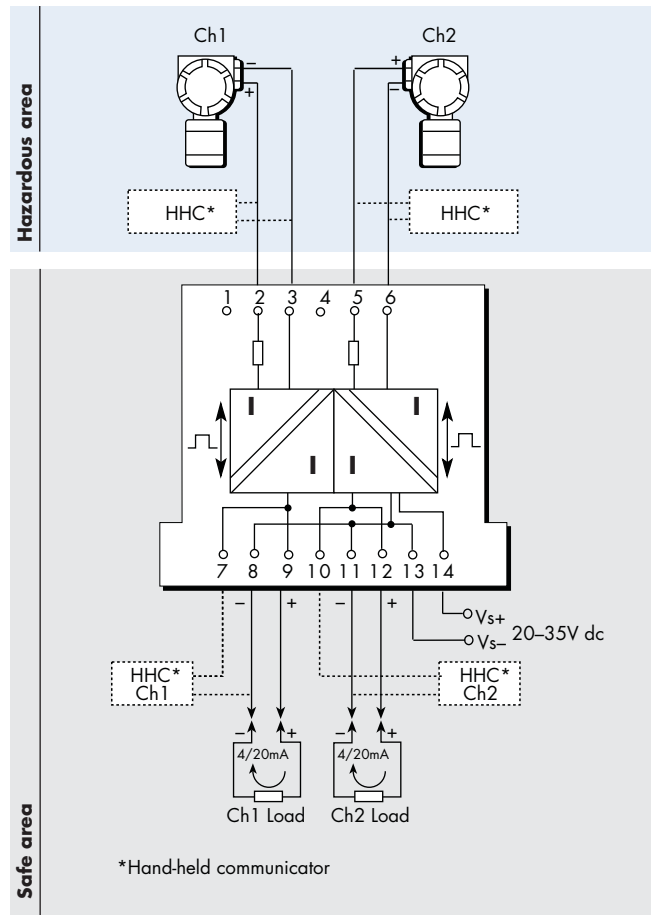250V ac between safe- and hazardous-area circuits

Safety description
Terminals 2 to 3 and 5 to 6
28V, 300Ω, 93mA

FM entity parameters
V_{oc} = 28V dc, I_{sc} = 93mA, C_a = 0.13µF, L_a = 4.2mH

Terminal	Function
2	Ch1 tx supply +ve
3	Ch1 tx supply –ve
5	Ch2 tx supply +ve
6	Ch2 tx supply –ve
7	Ch1 optional HHC connection +ve
8	Ch1 output –ve/HHC –ve
9	Ch1 output +ve
10	Ch2 optional HHC connection +ve
11	Ch2 output –ve/HHC –ve
12	Ch2 output +ve
13	Supply –ve
	(internally connected to terminals 8 and 11)
14	Supply +ve