

MTL5544 REPEATER POWER SUPPLY

two channel, 4/20mA, smart,
for 2- or 3- wire transmitters

The MTL5544 provides fully-floating dc supplies for energising two conventional 2-wire or 3-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.

SPECIFICATION

See also common specification

Number of channels

Two

Location of transmitter

Zone 0, IIC, T4-6 hazardous area if suitably certified
Div. 1, Group A hazardous location

Safe-area output

Signal range: 4 to 20mA
Under/over-range: 0 to 24mA
Safe-area load resistance: 0 to 360Ω @ 24mA
0 to 450Ω @ 20mA
Safe-area circuit output resistance: > 1MΩ

Safe-area circuit ripple

< 50μA peak-to-peak

Hazardous-area input

Signal range: 0 to 24mA (including over-range)
Transmitter voltage: 16.5V at 20mA

Transfer accuracy at 20°C

Better than 15μA

Temperature drift

< 0.8μA/°C

Response time

Settles to within 10% of final value within 50μs

Communications supported

HART® (terminals 1 & 2 and 4 & 5 only)

LED indicator

Green: power indication

Maximum current consumption (with 20mA signals)

96mA at 24V dc

Power dissipation within unit (with 20mA signals)

1.4W at 24V dc

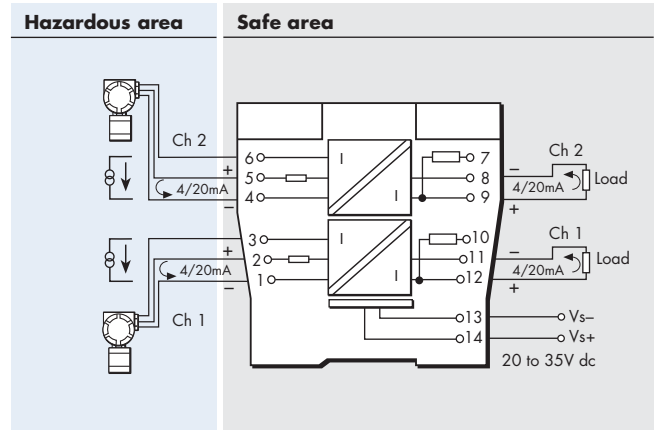
Safety description (each channel)

Terminals 2 to 1 and 3, and 5 to 4 and 6:

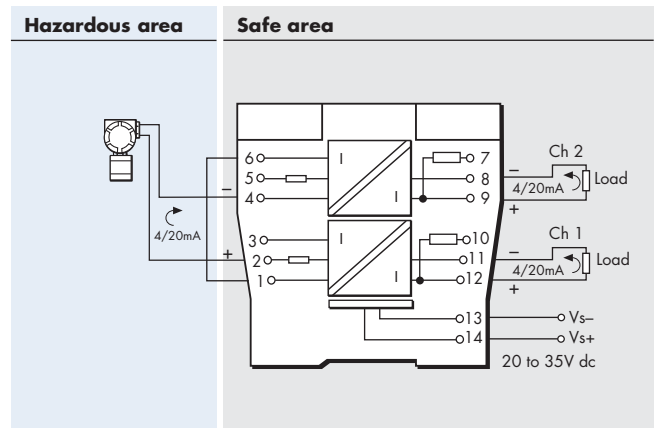
$V_o=28V$ $I_o=93mA$ $P_o=651mW$ $U_m=253V$ rms or dc

Terminals 1 to 3 and 4 to 6:

Simple apparatus $\leq 1.5V$, $\leq 0.1A$ and $\leq 25mW$; can be connected without further certification into any IS loop with an open-circuit voltage <28V



Terminal	Function
1	Ch1 current input
2	Ch1 transmitter supply +ve
3	Ch1 common
4	Ch2 current input
5	Ch2 transmitter supply +ve
6	Ch2 common
7	Ch2 output +ve via 220Ω for HART apps.
8	Ch2 output -ve
9	Ch2 output +ve
10	Ch1 output +ve via 220Ω for HART apps.
11	Ch1 output -ve
12	Ch1 output +ve
13	Supply -ve
14	Supply +ve



The MTL5544 can also be used to drive two safe-area loads from a single 2-wire transmitter (i.e. 1 in, 2 out) by interconnecting the input channels as shown in the diagram here.

Note: In this mode the HART data is transferred via channel 1 output only.

