

# MTL4541/S – MTL5541/S

## REPEATER POWER SUPPLY

4/20mA, HART®, 2- or 3-wire transmitters

The MTLx541 provides a fully-floating dc supply for energising a conventional 2- or 3-wire 4/20mA transmitter, which is located in a hazardous area, and repeats the current in another floating circuit to drive a safe-area load. For HART 2-wire transmitters, the unit allows bi-directional communications signals superimposed on the 4/20mA loop current. Alternatively, the MTLx541S acts as a current sink for a safe-area connection rather than driving a current into the load. Separately powered current sources, such as 4-wire transmitters, can be connected but will not support HART communication.

### SPECIFICATION

See also common specification

#### Number of channels

One

#### 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 (MTLx541)  
@ 24mA: 0 to 360Ω  
@ 20mA: 0 to 450Ω  
Safe-area load (MTLx541S)  
Current sink: 600Ω max.  
Maximum voltage source: 24V dc  
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

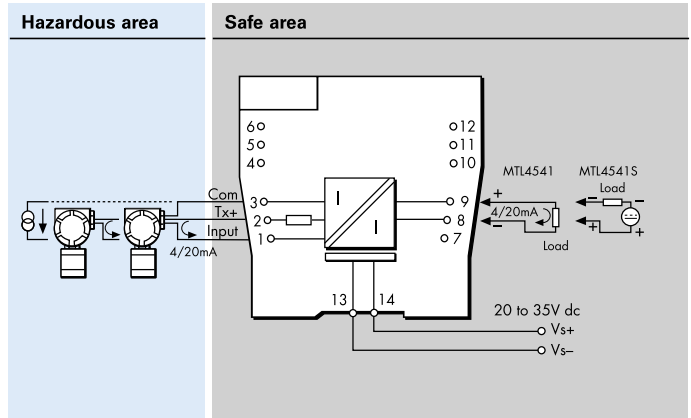
Settles to within 10% of final value within 50μs

#### Communications supported

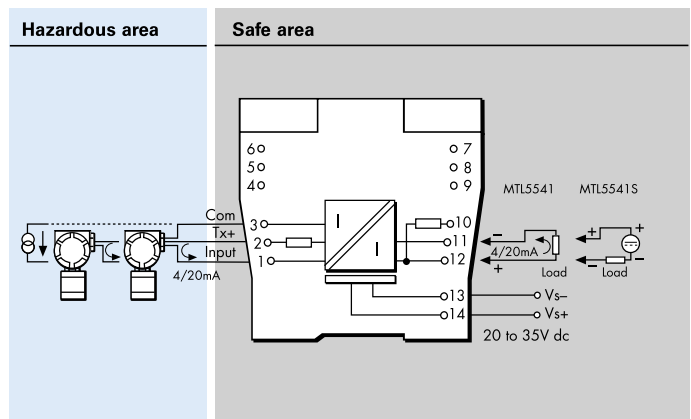
HART (terminals 1 & 2 only)



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#### LED indicator

Green: power indication

#### Maximum current consumption (with 20mA signal)

51mA at 24V

#### Power dissipation within unit (with 20mA signal)

MTLx541 0.7W @ 24V dc  
MTLx541S 1.0W @ 24V dc

#### Safety description

Terminals 2 to 1 and 3:

$U_o=28V$   $I_o=93mA$   $P_o=0.65W$   $U_m=253V$  rms or dc

Terminals 1 to 3:

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



#### SIL capable

These models have been assessed for use in IEC 61508 functional safety applications. SIL3 capable for a single device (HFT=0)  
See data on MTL web site and refer to the safety manual.



Powering Business Worldwide

Eaton Electric Limited,  
Great Marlings, Butterfield, Luton  
Beds, LU2 8DL, UK.  
Tel: + 44 (0)1582 723633 Fax: + 44 (0)1582 422283  
E-mail: mtlenquiry@eaton.com  
www.eaton.com

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EUROPE (EMEA):  
+44 (0)1582 723633 mtlenquiry@eaton.com  
THE AMERICAS:  
+1 800 835 7075 mtl-us-info@eaton.com  
ASIA-PACIFIC:  
+65 6 645 9888 sales.mtl@eaton.com

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In the interest of further technical developments, we reserve the right to make design changes.