

# MTL5541 REPEATER POWER SUPPLY

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

The MTL5541 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 smart 2-wire transmitters, the unit allows bi-directional communications signals superimposed on the 4/20mA signal.

## 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: 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 only)

### LED indicator

Green: power indication

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

51mA at 24V

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

0.7W at 24V

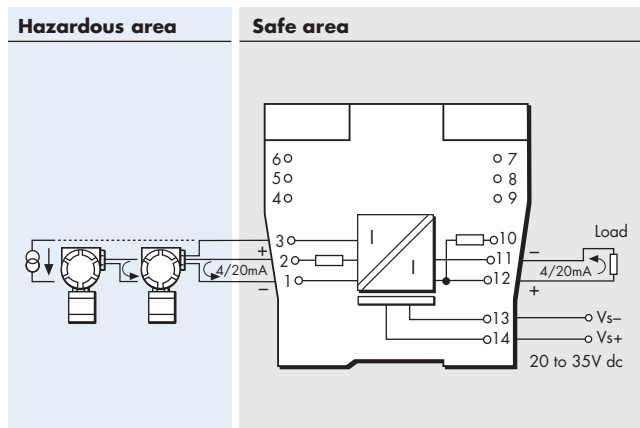
### Safety description

#### Terminals 2 to 1 and 3:

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



Terminal	Function
1	Current input
2	Transmitter supply +ve
3	Common
10	Output +ve via 220Ω for HART apps.
11	Output -ve
12	Output +ve
13	Supply -ve
14	Supply +ve

The given data is only intended as a product description and should not be regarded as a legal warranty of properties or guarantee. In the interest of further technical developments, we reserve the right to make design changes.



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# MTL5500 SERIES COMMON SPECIFICATION

Please go to our website at [www.mtl-inst.com](http://www.mtl-inst.com) for the latest information regarding safety approvals, certificates and entity parameters.

## Connectors

Each MTL5500 unit is supplied with signal connectors, as applicable.

When using crimp ferrules for the hazardous and non-hazardous (safe) signal connectors the metal tube length should be 12mm and the wire trim length 14mm.

## Isolation

250V rms, tested at 2200V rms minimum, between safe-area, hazardous-area and power supply terminals

50V ac or dc between safe-area circuits where applicable.

## Supply voltage

20 – 35V dc

## Location of units

Safe area

## Terminals

Accepts conductors of up to 2.5mm<sup>2</sup> stranded or single-core

## Mounting

MTL5500 series backplanes

## Ambient temperature limits

–20 to +60°C (–6 to +140°F) operating

–40 to +80°C (–40 to +176°F) storage

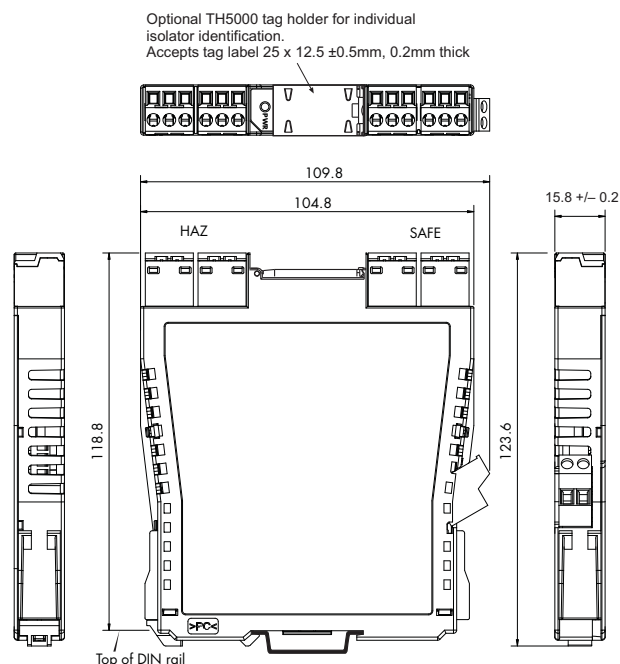
## Humidity

5 to 95% relative humidity

## Weight

110g approximately (except where indicated)

## DIMENSIONS (mm)



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