MTL4541A/AS – MTL5541A/AS CURRENT REPEATER

4/20mA passive i/p for HART® transmitters

The MTLx541A provides an input for separately powered 4/20mA transmitters and also allows bi–directional transmission of HART communication signals superimposed on the 4/20mA loop current. Alternatively, the MTLx541AS acts as a current sink for a safe-area connection rather than driving a current into the load.

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

Hazardous area input
Signal range: 4 to 20mA
Under/over-range: 1.0 to 21.5mA

Input impedance for HART signals
at terminals 1, 2: > 230Ω

Maximum input volt drop
at terminals 1, 2: < 6.6V
i.e. a transmitter load of 330Ω at 20mA

Safe-area output
Signal range: 4 to 20mA
Under/over-range: 1.0 to 21.5mA
Safe-area load resistance (MTLx541A)
Conventional transmitters: 0 to 360Ω
Smart transmitters: 250Ω ±10%
Safe-area load (MTLx541AS)
Current sink: 600Ω max.
Maximum voltage source: 24V DC
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 after 20ms

Communications supported
HART

LED indicator
Green: power indication

Power requirement (with 20mA signal)
50mA at 20V
45mA at 24V
35mA at 35V

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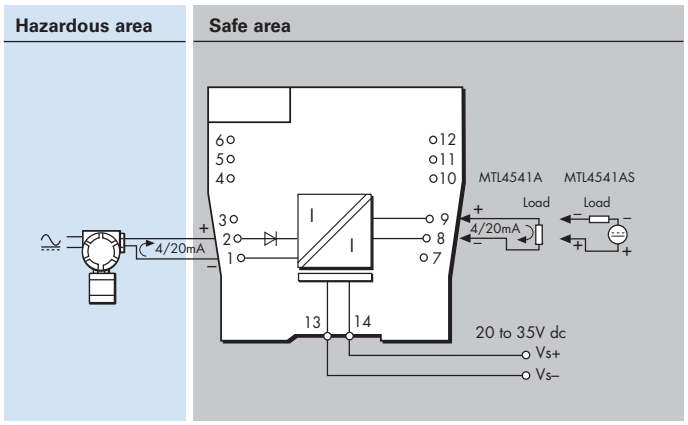

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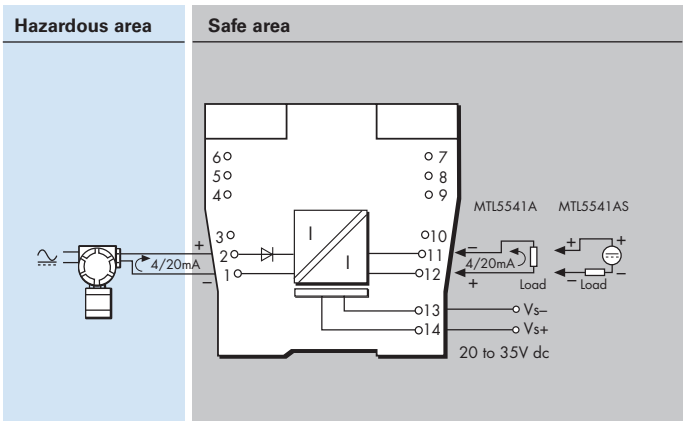

Power dissipation within unit (with 20mA signals)
MTLx541A 0.8W @ 24V dc
MTLx541AS 1.1W @ 24V dc

Safety description
Terminals 1 to 2:
U_m = 253V rms or dc.
8.6V (diode). This voltage must be considered when calculating the load capacitance.
Non-energy-storing apparatus ≤1.5V, ≤0.1A and ≤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.
SIL2 capable for a single device (HFT=0)
SIL3 capable for multiple devices in safety redundant configurations (HFT=1)
See data on MTL web site and refer to the safety manual.

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