

MTL4043 REPEATER POWER SUPPLY

4/20mA, HART, current sinking



The MTL4043 provides a fully floating dc supply for energising a conventional 2- or 3-wire 4/20mA transmitter or a 'HART' transmitter located in a hazardous area, and controls the current in another safe area circuit. For HART[®] 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). The safe-area connections (terminals 9 and 11) are 'current sinking' making the MTL4043 suitable for use with analogue inputs which act as the current source.

SPECIFICATION

See also common specification, cable parameters and approvals

Number of channels

One

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

4 to 20mA

Over-/under-range

1.0mA to 21.5mA

Digital signal bandwidth

50Hz to 8kHz

Safe-area load

Source voltage: 30V max

Minimum load resistance: 0Ω at up to 20V source voltage

200Ω at up to 24V source voltage

500Ω at up to 30V source voltage

Load resistance for HART operation: 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 20mA signal

49mA at 24V dc

57mA at 20V dc

36mA at 35V dc

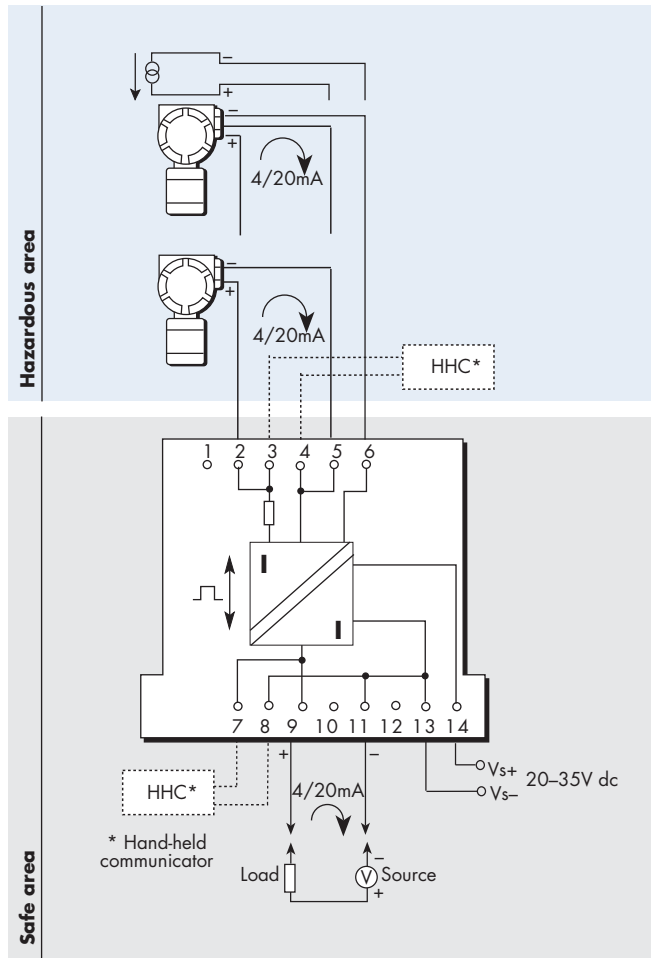
Power dissipation within unit, with 20mA signal

1.2W at 24V

1.4W at 35V

Isolation

250V ac between safe- and hazardous-area circuits



Terminal	Function
2	Tx supply +ve
3	Optional HHC connection +ve
4	Optional HHC connection -ve
5	Current input -ve
6	Common
7	Optional HHC connection +ve
8	Optional HHC connection -ve
9	Output +ve
11	Output -ve
13	Supply -ve
14	Supply +ve

Safety description

Terminals 2 to 5 and 6

28V, 300Ω, 93mA

Terminals 5 to 6

Non-energy storing apparatus ≤1.2V, ≤0.1A, ≤20μJ and ≤25mW; can be connected without further certification into any IS loop with open-circuit voltage not more than 28V

Note: terminals 5 to 6 only support HART communications in one direction from field device to safe-area connections 9 and 11.

FM entity parameters

Terminals 2, 5 and 6

$V_t = 28V$ dc, $I_t = 141mA$, $C_a = 0.13\mu F$, $L_a = 1.9mH$

Terminals 2, 4 and 5

$V_t = 28V$ dc, $I_t = 93mA$, $C_a = 0.13\mu F$, $L_a = 4.2mH$

HART[®] is a registered trademark of HART Communication Foundation



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