

# MTL4046/4046C

## ISOLATING DRIVER

for 4–20mA HART<sup>®</sup> valve positioners 

with line fault detection

The MTL4046 accepts a 4/20mA floating signal from a safe-area controller to drive a current/pressure converter (or any other load up to 800Ω) in a hazardous area. For HART valve positioners, the module also permits bi-directional transmission of digital communication signals so that the device can be interrogated either from the operator station or by a hand-held communicator (HHC). Process controllers with a readback facility can detect open or short circuits in the field wiring: if these occur, the current taken into the terminals drops to a preset level. The MTL4046C is identical to the MTL4046 except that it provides open circuit detection only (no short-circuit detection).

### SPECIFICATION

See also common specification, cable parameters and approvals

#### Number of channels

One

#### Location of I/P converter

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

#### Working range

4 to 20mA

#### Digital signal bandwidth

500Hz to 10kHz

#### Maximum load resistance

800Ω (16V at 20mA)

#### Minimum load resistance

90Ω (short-circuit detection at <math>\leq 50\Omega</math>)

#### Output resistance

>1MΩ

#### Under/over range capability

Under range = 1.0mA

Over range = 26.0mA (load  $\leq 520\Omega$ )

#### Input and output circuit ripple

<math>< 40\mu\text{A}</math> peak-to-peak

#### Transfer accuracy at 20°C

Better than 20μA

#### Input characteristics

<math>< 4.0\text{V}</math> with the field wiring intact

<math>< 0.9\text{mA}</math> with the field wiring open-circuit (and short-circuit on the MTL4046)

#### Response time

Settles within 200μA of final value within 100ms

#### Temperature drift

<math>< 1.0\mu\text{A}/^\circ\text{C}</math>

#### LED indicator

Green: one provided for power indication

#### Power requirement, V<sub>s</sub>

58mA at 24V dc

70mA at 20V dc

40mA at 35V dc

#### Power dissipation within unit

1.2W typical at 24V with 20mA loop current

1.4W worst case

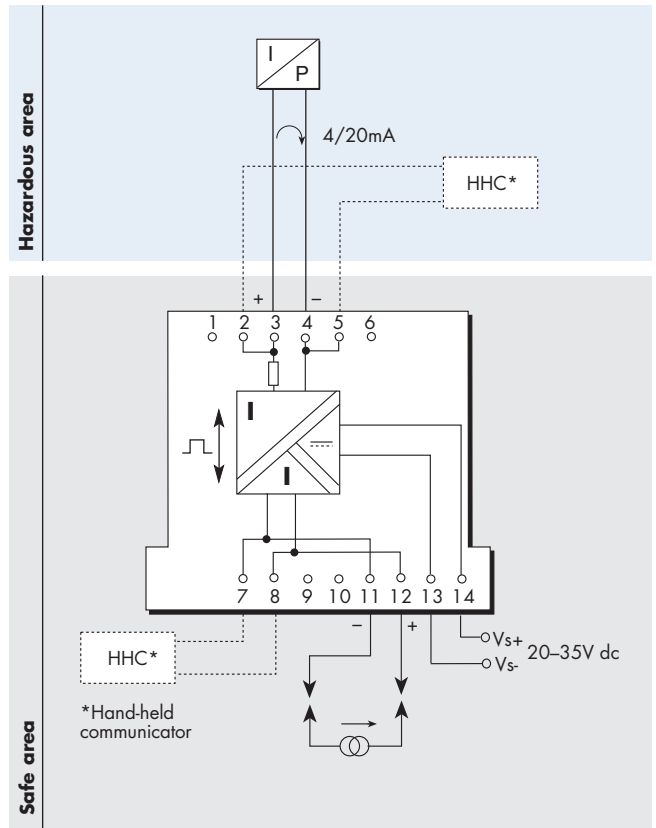
#### Isolation

250V ac between safe- and hazardous-area circuits

Input circuit is floating

#### Safety description

28V, 300Ω, 93mA, U<sub>m</sub> = 250V rms or dc



| Terminal | Function                    |
|----------|-----------------------------|
| 2        | Optional HHC connection +ve |
| 3        | Output +ve                  |
| 4        | Output -ve                  |
| 5        | Optional HHC connection -ve |
| 7        | Optional HHC connection -ve |
| 8        | Optional HHC connection +ve |
| 11       | Input -ve                   |
| 12       | Input +ve                   |
| 13       | Supply -ve                  |
| 14       | Supply +ve                  |

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