

MTL4046/4046C

ISOLATING DRIVER

for 4–20mA HART® 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 $\leq 50\Omega$)

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_s

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

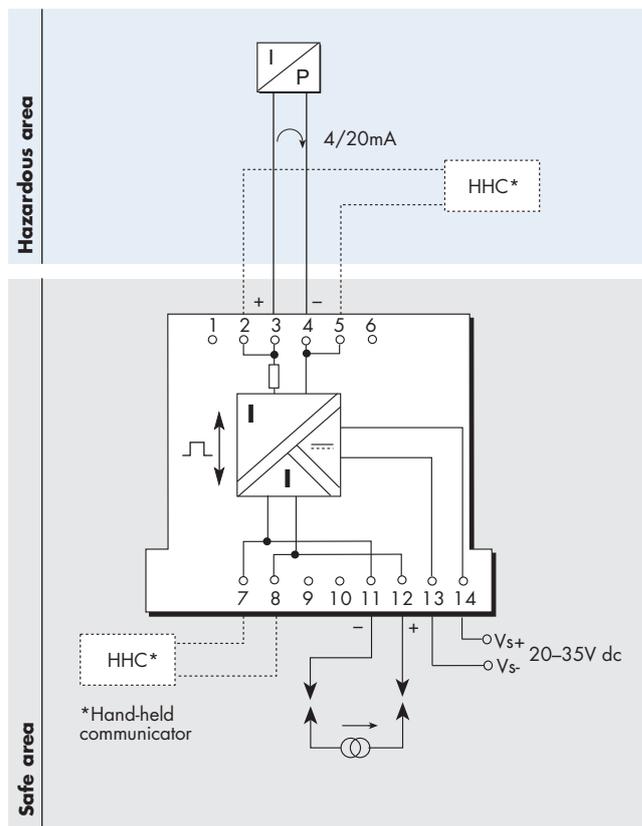
Isolation

250V ac between safe- and hazardous-area circuits

Input circuit is floating

Safety description

28V, 300Ω, 93mA, U_m = 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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