

MTL4532 – MTL5532

PULSE ISOLATOR

pulse & 4/20mA current outputs

The MTLx532 isolates pulses from a switch, proximity detector, current pulse transmitter or voltage pulse transmitter located in a hazardous area. It is ideal for applications involving high pulse rates and fast response times, by repeating the pulses into the safe area. An analogue output proportional to frequency is also provided, together with a relay output, which may be configured to act as an alarm. Configuration is carried out with a personal computer.

SPECIFICATION

See also common specification

Number of channels

One, fully floating

Sensor type

Switch or proximity detector (NAMUR/BS EN 60947-5-6:2001)
2- or 3-wire voltage or pulse transmitter

Location of switch

Zone 0, IIC, T6 hazardous area
Div. 1, Group A, hazardous location

Location of proximity detector or transmitter

Zone 0, IIC, T4-T6 if suitably certified
Div.1, Group A, hazardous location

Input

Switch input:

Output ON if switch is closed

Proximity detector input:

Excitation: 7.0 to 9.0V dc from 1k Ω nominal

Output ON if input > 2.1mA* (< 2k Ω)

Output OFF if input < 1.2mA* (> 10k Ω)

Switching hysteresis: 0.2mA (650 Ω) nominal

*NAMUR and BS EN 60947-5-6:2001 standards

Current pulse input:

Transmitter supply: 16.5V dc at 20mA

Short circuit current: 24mA

Output: $I_{in} > 9.0mA = ON$, $I_{in} < 7.0mA = OFF$

Switching hysteresis: 0.5mA

Voltage pulse input

Input impedance: > 10k Ω

Switching point voltage (V_{sp}): 3, 6, or 12V nominal

(User selectable by switches on the side of the module)

Output: $V_{in} > V_{sp} = ON$, $V_{in} < V_{sp} = OFF$

Switching hysteresis: 100mV + (0.1 x V_{sp}) typical

Safe-area pulse output

Maximum delay: 10 μ s

Maximum off-state voltage: 35V

Maximum off-state leakage current: 10 μ A

Maximum on-state resistance: 25 Ω

Maximum on-state current: 50mA

Output OFF if supply fails

Note: LFD signal is Zener-diode protected against inductive loads

Safe-area current output

Input capture delay: 2 signal periods (5ms min.)

Signal range: 4 to 20mA

Under/over range: 0 to 22mA

Load resistance: 0 to 450 Ω @20mA

Output resistance: >1M Ω

Ripple: < 50 μ A peak-to-peak

Accuracy: better than 20 μ A at 20 $^{\circ}$ C

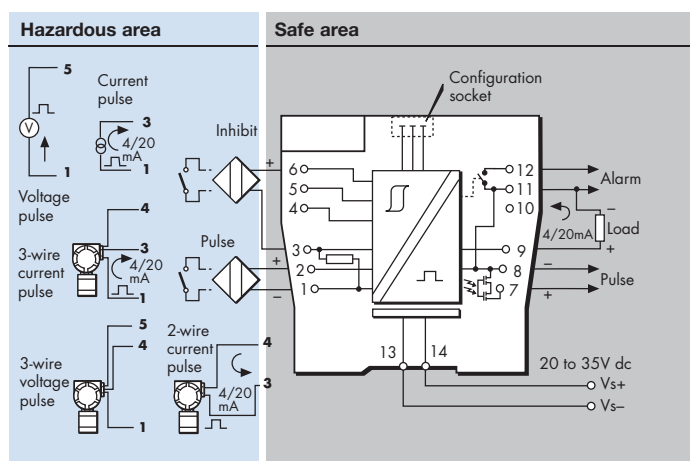
Temperature drift: < 1 μ A/ $^{\circ}$ C

Risetime (10% - 90%, after step change): 60 ms

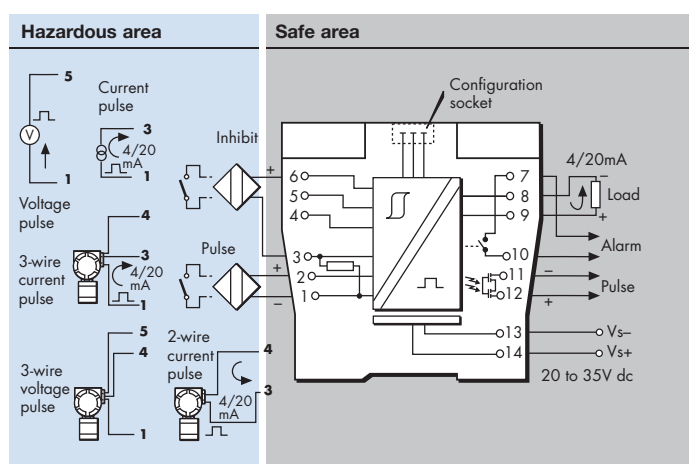
Alarm output

Relay ON in alarm, 0.5A @ 35Vdc max.

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Pulse width

High: 10 μ s min

Low: 10 μ s min

Frequency range

0 - 50kHz - pulse output mode

0 - 10kHz - for analogue output

LED indicators

Green: power indication

Yellow: on when output circuit is on

Red: flashing when line fault or error

Power requirement

65mA at 24V dc

70mA at 20V dc

55mA at 35V dc

Power dissipation within unit

1.35W maximum at 24V

1.75W maximum at 35V

Safety description ($U_m = 253V$ rms or dc)

Terminals 2 to 1 and 6 to 1

$U_o = 10.5V$ $I_o = 14mA$ $P_o = 37mW$

Terminals 4 to 3 and 1

$U_o = 28V$ $I_o = 93mA$ $P_o = 651mW$

Terminals 3 to 1

Non-energy-storing 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

Terminals 5 to 4 and 1

$V_{max} \leq 28V$, $I_{max} \leq 94mA$, $P_{max} \leq 0.66W$

Configurator

A personal computer running MTL PCS45 software with a PCL45USB serial interface.

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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