

# MTL4573 – MTL5573 TEMPERATURE CONVERTER

THC or RTD input

The MTLx573 converts a low-level dc signal from a temperature sensor mounted in a hazardous area into a 4/20mA current for driving a safe-area load. Software selectable features include linearisation, ranging, monitoring, testing and tagging for all thermocouple types and 2-, 3- or 4-wire RTDs. (For thermocouple applications the HAZ-CJC plug on terminals 1–3 includes an integral CJC sensor). Configuration is carried out using a personal computer.

## SPECIFICATION

See also common specification

### Number of channels

One

### Location of signal source

Zone 0, IIC, Hazardous area

Division 1, Groups A-D, hazardous location

### Signal source

Input	Type		Min. span
THC	J,K,T,E,R,S,B,N	BS EN 60584-1:1996	3mV
	XK	GOST P8.585-2001	
mV	-75 to +75mV		3mV
RTD 2/3/4 wire	Pt100, Pt500, Pt1000	BS EN 60751:2008	10,50,100Ω
	Cu-50, Cu-53	GOST 6651-94	10Ω
	Ni100, Ni500, Ni1000	DIN43760:1985	10,50,100Ω
Resistance	0 to 400Ω		10Ω

### RTD excitation current

200µA nominal

### Cold junction compensation, THC input

Selectable ON or OFF

### Cold junction compensation error

≤ 1.0°C

### Common mode rejection

120dB for 240V at 50Hz or 60Hz

### Series mode rejection

40dB for 50Hz or 60Hz

### Calibration accuracy (at 20°C)

(includes hysteresis, non-linearity and repeatability)

Inputs:

mV/THC: ± 15µV or ± 0.05% of input value  
(whichever is greater)

Pt 100 - RTD: ± 80mΩ

Output: ± 11µA

### Temperature drift (typical)

Inputs:

mV/THC: ± 0.003% of input value/°C

Pt 100 - RTD: ± 7mΩ/°C

Output: ± 0.6µA/°C

### Example of calibration accuracy and temperature drift (RTD input)

Span: 250Ω

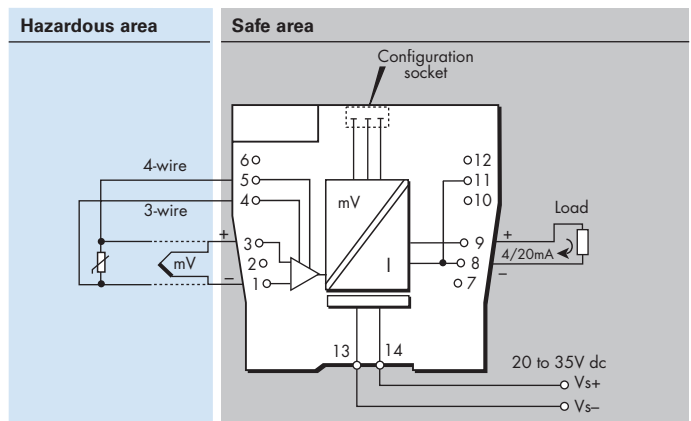
Accuracy: ± (0.08/250 + 11/16000) × 100%  
= 0.1% of span

Temperature drift: ± (0.007/250 × 16000 + 0.6) µA/°C  
= ±1.0µA/°C

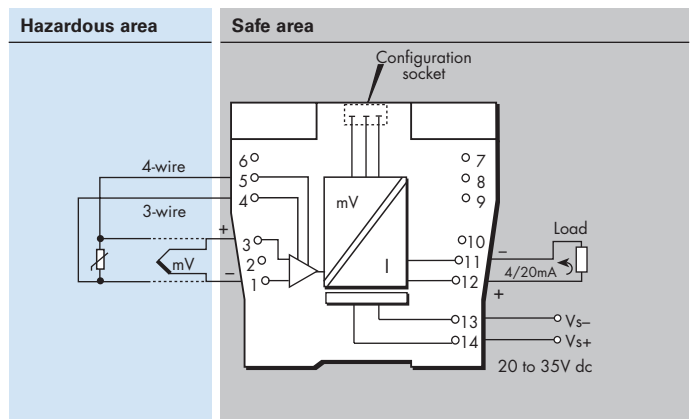
### Safety drive on sensor failure

Upscale, downscale, or off

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### Early burnout

Early burnout detection for thermocouples (when selected)  
EBD indicated when loop resistance increase is > 50Ω

### Output range

4 to 20mA nominal into 600Ω max.

Out of range characteristic - MTL or NAMUR NE43

### Maximum lead resistance (THC)

600Ω with safety drive on sensor failure enabled.

>10kΩ with safety drive on sensor failure disabled

### Response time

Typical 500 ms

### LED indicator

Green: EBD alarm indication, power and status indication

Yellow: alarm indication

### Maximum current consumption (with 20mA signal)

50mA at 24V

### Power dissipation within unit (with 20mA signal)

1.2W at 24V

### Safety description

Refer to certificate for parameters.  $U_m = 253V$  rms or dc

### 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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