

# MTL4575 – MTL5575

## TEMPERATURE CONVERTER

### THC or RTD input + Alarm

The MTLx575 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 PCS45 software and PCL45USB configuration cable. A single alarm output is provided and may be configured for process alarm or to provide notice of early thermocouple failure.

## SPECIFICATION

See also common specification

### Number of channels

One

### Signal source

THC types J, K, T, E, R, S, B or N to BS 60584 and XK  
mV input  
RTDs 2/3/4-wire platinum to BS 60751  
Pt 100, Pt 500, Pt 1000  
Cu-50 & Cu-53  
Ni 100/500/1000 DIN 43760

### Location of signal source

Zone 0, IIC, T4-6 hazardous area  
Division 1, Group A, hazardous location

### Input signal range

-75 to +75mV, or 0 to 400Ω (0 to 1000Ω Pt & Ni sensors)

### Input signal span

3 to 150mV, or 10 to 400Ω (10 to 1000Ω Pt & Ni sensors)

### RTD excitation current

200μA nominal

### Cold junction compensation

Automatic or selectable

### Cold junction compensation error

≤ 1.0°C

### Common mode rejection

120dB for 240V at 50Hz or 60Hz (500ms response)

### Series mode rejection

40dB for 50Hz or 60Hz

### Calibration accuracy (at 20°C)

(includes hysteresis, non-linearity and repeatability)

Inputs: (500ms response)

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

RTD: ± 80mΩ

Output: ± 11μA

### Temperature drift (typical)

Inputs:

mV/THC: ± 0.003% of input value/°C

RTD: ± 7mΩ/°C

Output: ± 0.6μA/°C

### Example of calibration accuracy and temperature drift

(RTD input - 500ms response)

Span:

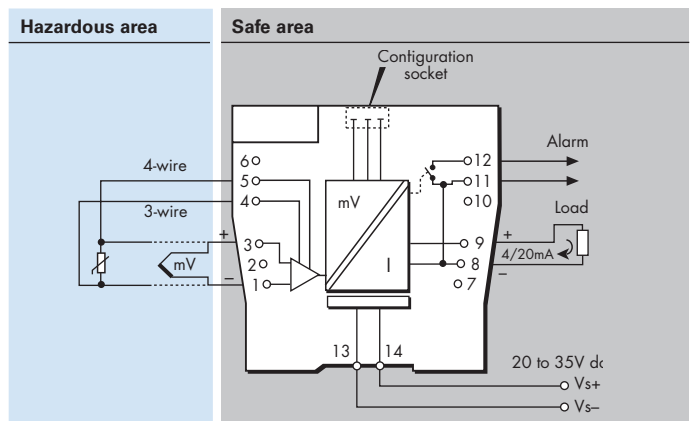
Accuracy: ± (0.08/250 + 11/16000) × 100%  
= 0.1% of span

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

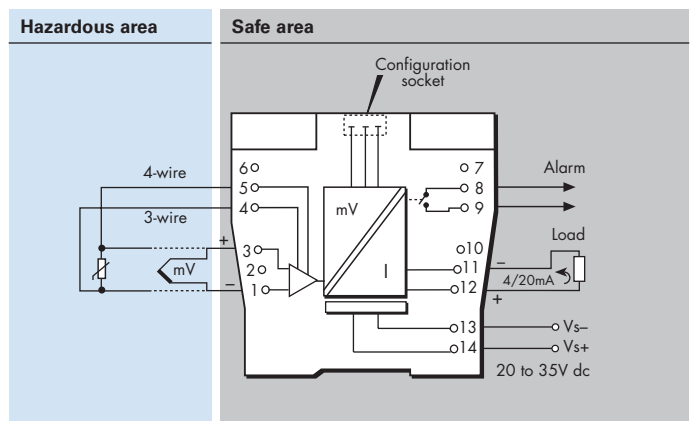
### Safety drive on sensor failure

Upscale, downscale, or off

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### Early burnout

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

### Output range

4 to 20mA nominal into 600Ω max.

### Alarm output (configurable)

Relay ON in alarm, 250mA @ 35V max

### Maximum lead resistance (THC)

600Ω

### Response time

Configurable - 500 ms default  
(Accuracy at 100/200ms - contact MTL)

### LED indicator

Green: power and status indication, EBD alarm indication  
Yellow: alarm indication, on when contacts are closed

### 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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