MTL4675
TEMPERATURE CONVERTER
THC or RTD input + Alarm

MTL4675

The MTL4675 converts a low-level dc signal from a temperature sensor mounted into a 4/20mA current for driving a 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 SAF-CJC plug on terminals 1–3 includes an integral CJC sensor). Configuration is carried out using a personal computer. A single alarm output is provided and may be configured for high or low 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

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:　　　　　　　250Ω
　Accuracy:　　　　　± (0.08/250 + 11/16000) x 100%
　　　　　　　　　　　= 0.1% of span
　Temperature drift:　± (0.007/250 x 16000 + 0.6) µA/°C
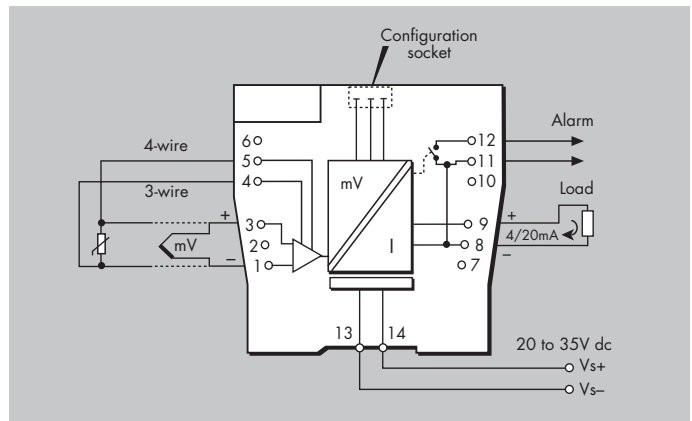　　　　　　　　　　　= ±1.0µA/°C

Safety drive on sensor failure
　Upscale, downscale, or off

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. (direct or reverse)

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
　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

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

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