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MTL5082 RESISTANCE ISOLATOR

CE

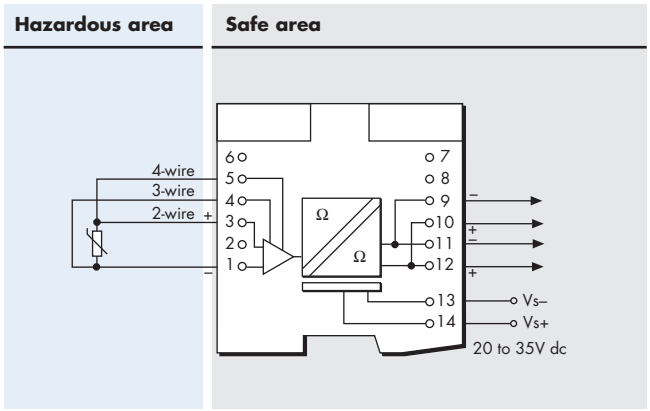
The MTL5082 connects to a 2-, 3-, or 4-wire resistance temperature device (RTD) or other resistance located in a hazardous area, isolates it and repeats the resistance to a monitoring system in the safe area. The module is intended typically (but not exclusively) for use with Pt100 3-wire RTDs. Switches located on top of the module allow selection of 2-, 3-, or 4-wire RTD connection. The MTL5082 should be considered as an alternative, non-configurable MTL5074, for use in RTD applications where a resistance input is preferred or needed instead of 4/20mA. The design is notable for its ease of use and repeatability. The number of wires which can be connected on the safe-area side of the unit is independent of the number of wires which can be connected on the hazardous-area side. The module drives upscale in the case of open-circuit detection.

SPECIFICATION

See also common specification

Number of channels
One
Location of RTD
Zone 0, IIC, T4 hazardous area
Div 1, Group A hazardous location
Resistance source
2-, 3-, or 4-wire* RTDs to BS 1904/DIN 43760 (100Ω at 0°C)
*user selectable by switches located on top of the module (factory set for 3-wire)
Resistance range
10Ω to 400Ω
RTD excitation current
200µA nominal
Output configuration
2, 3 or 4 wires (independent of mode selected for hazardous-area terminals)
Output range
10Ω to 400Ω (from a 100µA to 5mA source)
Temperature drift
±10mΩ/C° typical (0.01%/°C @ 100Ω)
Response time
To within 4% of final value within 1s
Safety drive on open-circuit sensor
Upscale to 420Ω nominal
Transfer accuracy

Input		Output accuracy								
		At excitation current of								
		0.2mA			0.5mA			1 to 5mA		
Temp. °C	Pt100 resist. Ω	Ω	Ω, % Input	°C	Ω	Ω, % input	°C	Ω	Ω, % input	°C
-	10.0	0.25	2.5%	0.65	0.24	2.4%	0.62	0.23	2.3%	0.60
-200	18.5	0.26	1.4%	0.68	0.24	1.3%	0.62	0.23	1.2%	0.60
-100	60.3	0.28	0.5%	0.73	0.24	0.4%	0.62	0.23	0.4%	0.60
0	100.0	0.31	0.3%	0.81	0.24	0.2%	0.62	0.23	0.2%	0.60
100	138.5	0.34	0.2%	0.88	0.24	0.2%	0.62	0.23	0.2%	0.60
200	175.8	0.37	0.2%	0.96	0.25	0.1%	0.65	0.23	0.1%	0.60
400	247.0	0.44	0.2%	1.14	0.26	0.1%	0.68	0.23	0.1%	0.60
600	313.6	0.51	0.2%	1.32	0.27	0.1%	0.70	0.24	0.1%	0.62
-	400.0	0.59	0.1%	1.53	0.28	0.1%	0.73	0.24	0.1%	0.62



Terminal	Function
1	RTD input –ve
3	RTD input +ve
4	3-wire RTD input –ve
5	4-wire RTD input +ve
9	RTD output –ve
10	RTD output +ve
11	RTD output –ve
12	RTD output +ve
13	Supply –ve
14	Supply +ve

LED indicator
Green: one provided for power and status indication
Power requirements, Vs
55mA at 24V
65mA at 20V
45mA at 35V
Maximum power dissipation within unit
1.4W at 24V
1.6W at 35V
Isolation
250V ac between safe- and hazardous-area circuits and power supply
Safety description
Terminals 1 and 3
U_o = 1.1V
I_o = 4mA
P_o = 1mW

These terminals meet clause 5.4 of EN50020 : 1994 'simple apparatus' ($U \leq 1.5V$, $I \leq 0.1A$, $P \leq 25mW$) and can be connected without further certification into any IS loop with open circuit voltage of not more than 10V. For higher voltages contact MTL. See certificate for further details.

Terminals 1 and 3 and 4 and 5
U_o = 6.6V
I_o = 27mA
P_o = 50mW

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