12-Channel Analog to CAN Module

Model MUX-RTD100-12



- 12 inputs for PT100 sensors → 1 CAN/CAN FD signal OUT
- Output data up to 1,000 sps
- Stack up to 4 modules for synchronized 48 channel sampling
- Compact design for non-spinning and spinning applications
- Use with absolute quadrature encoders to output position and speed
- Used with 100 Ω platinum resistive temperature detectors (PT100 RTDs)

Description

Michigan Scientific's *MUX-RTD100-12* RTD Multiplexing Module is designed for high-accuracy measurement of up to 12 PT100 sensors. Each of the six radial connectors can mate with two PT100 sensors using 2 or 3-wire connection. MUX devices are software configurable allowing for independent channel configuration. MUX devices can be connected for applications requiring higher channel counts. Up to 4 devices can be connected to provide 48 channels of synchronously sampled data. Additionally, the configuration software allows for real-time data viewing and recording to a PC.

Slip Ring Configuration

MUX-RTD100-12 paired with an SR10AW/WFT slip ring



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11-6-26
Rev. A

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12-Channel Analog to CAN Module

Specifications

PARAMETER	SPECIFICATION
Measurement Inputs	
Type of Connections	2 or 3-wire
Input Range	-50 °C to 650 °C
Time Synchronization (max chan.-to-chan. skew)	5.5 µs
Data Out Rate (max per channel)	1000 sps
Data Out Resolution	16-bit
Hardware Input Filter	Low-pass, single-pole, approx. 5 kHz
Software Input Filter	Low-pass, FIR type, 4 to 400 Hz, selectable
Linearization	via NIST PT100 coefficients
Broken Sensor Detection	yes
Lead Wire Compensation	yes
Sensor Excitation	
Constant Voltage, ratiometric	4.5 V
Current, internally limited	approx. 1 mA
Frequency Response	
Bandwidth to -0.1 dB	215 Hz (@ 1 KSPS output rate)
Bandwidth to -3 dB	400 Hz (@ 1 KSPS output rate)
Measurement Deviation	
Offset (@ 25 °C), referred to input, max	0.2 °C
Offset Drift, referred to input, max	0.015 °C per °C
Gain Error (@ 25 °C), max	0.05 %
Gain Drift Error, max	10 ppm per °C
CAN Interface	CAN 2.0 CAN FD
Max Output Rate (with CAN FD)	1,000 sps (12 channels)
Max Output Rate (with CAN 2.0)	1,000 sps (12 channels)
CAN Bitrate, fixed	1 Mbps
CAN FD Bitrate, selectable	2 Mbps or 4 Mbps
Termination, fixed internal	2 kΩ
Galvanic Isolation	(No safety isolation for high voltage applications)
Channel to CAN, Channel to Power	200 V
Power Requirement	
Minimum Volts	10 Vdc
Maximum Volts	36 Vdc
Power Consumption (@ 12 Vdc, no sensors)	0.5 W typ.

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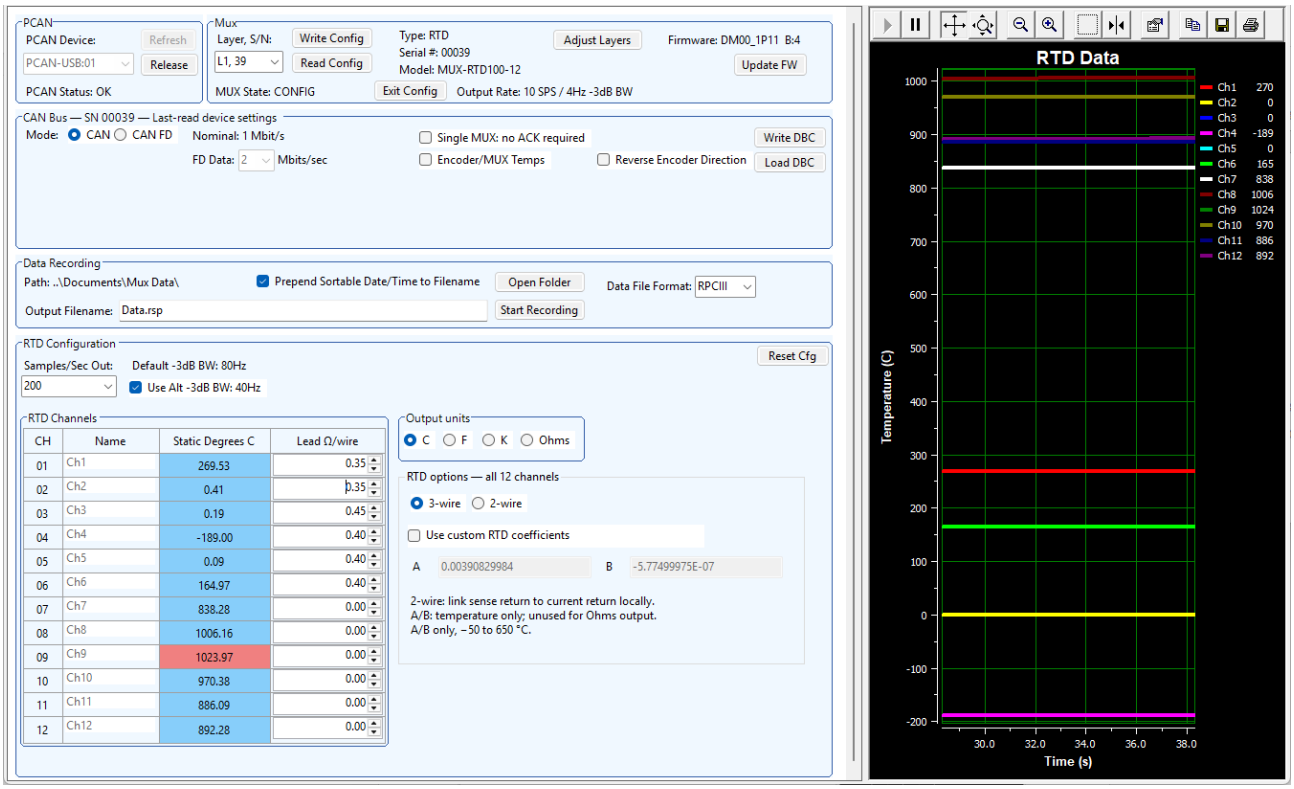
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12-Channel Analog to CAN Module

PARAMETER	SPECIFICATION
LED Indicators	
Single green	Power / status / synchronization
Housing	Aluminum, clear anodized
Diameter	D = 86 mm (3.375 in)
Height	H = 25.4 mm (1 in)
Mass	Approx. 300 g
Protection class (w/ stacking connectors)	IP67
Connectors	
Power/Data	16-pin, rectangular plug (top), receptacle (bottom)
Sensor inputs, circular metric M8	6-pin, receptacle with sockets, code A
Interface Power/Data Cable Requirements	
Length, max	15 m (approx. 50 ft)
Impendance	100 Ω or 120 Ω
Conductor	26 AWG min
Operating Temperature Range	-40 °C to 85 °C (-40 °F to 185 °F)

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Configuration and Recording Application



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