12-Channel Analog to CAN Module

Model MUX-TCK-12



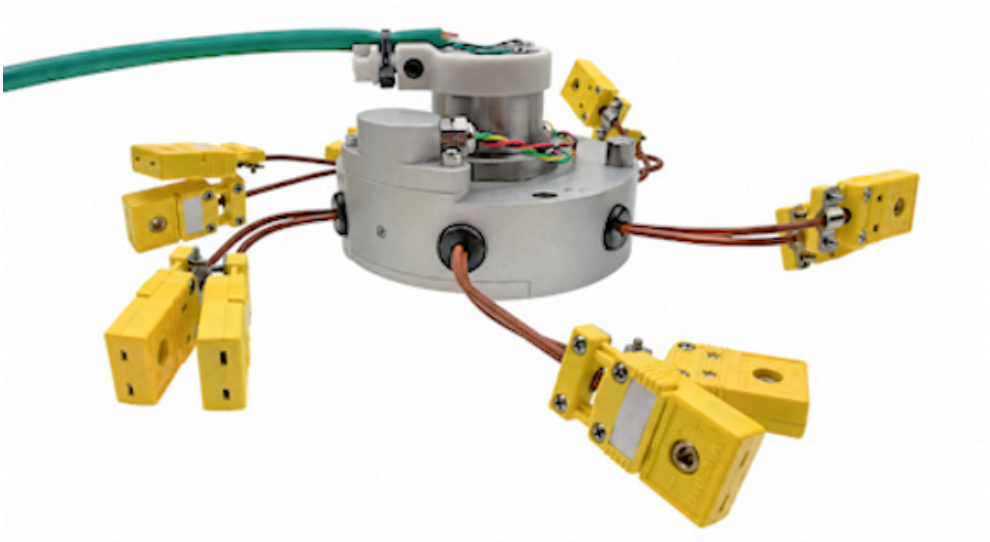
- 12 thermocouples IN → 1 CAN/CAN FD signal OUT
- Output data up to 1 ksps (CAN FD) / (CAN 2.0)
- Stack up to 4 modules for synchronized 48 channel sampling
- Compact design for non-spinning and spinning applications
- Use with absolute quadrature encoders to output position and speed
- Used with type K thermocouples

Description

Michigan Scientific's *MUX-TCK-12* Thermocouple Multiplexing Module is designed for high-accuracy measurement of up to 12 type K thermocouples. Each module features twelve miniature type K thermocouple connectors with 3-inch thermocouple-wire pigtails for convenient sensor connection. For applications requiring additional channels, up to four modules can be interconnected, providing 48 channels of synchronized data acquisition. The modules are fully software-configurable, with accompanying software that enables real-time data monitoring, visualization, and recording directly to a PC.

Slip Ring Configuration

MUX-TCK-12 paired with an S4 slip ring



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Rev. A

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12-Channel Analog to CAN Module

Specifications

PARAMETER	SPECIFICATION
Measurement Inputs	
Type of Connections	Mini-TC
Input Range	-200 °C to 900 °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
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	1.5 °C
Offset Drift, referred to input, max	0.5 uV per °C
Gain Error (@ 25 °C), max	0.2%
Gain Drift Error, max	40 ppm per °C
Noise	
0.1 Hz to 10 Hz, referred to input	Approx. 250nVpp
Density, referred to input	Approx. 12 nV per sqrt(Hz)
CAN Interface	CAN 2.0 CAN FD
Max Output Rate (with CAN FD)	1 ksps (12 channels)
Max Output Rate (with CAN 2.0)	1 ksps (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	20 Vdc
Power Consumption (@ 12 Vdc, no sensors)	0.5 W typ.

*preliminary specifications, subject to change

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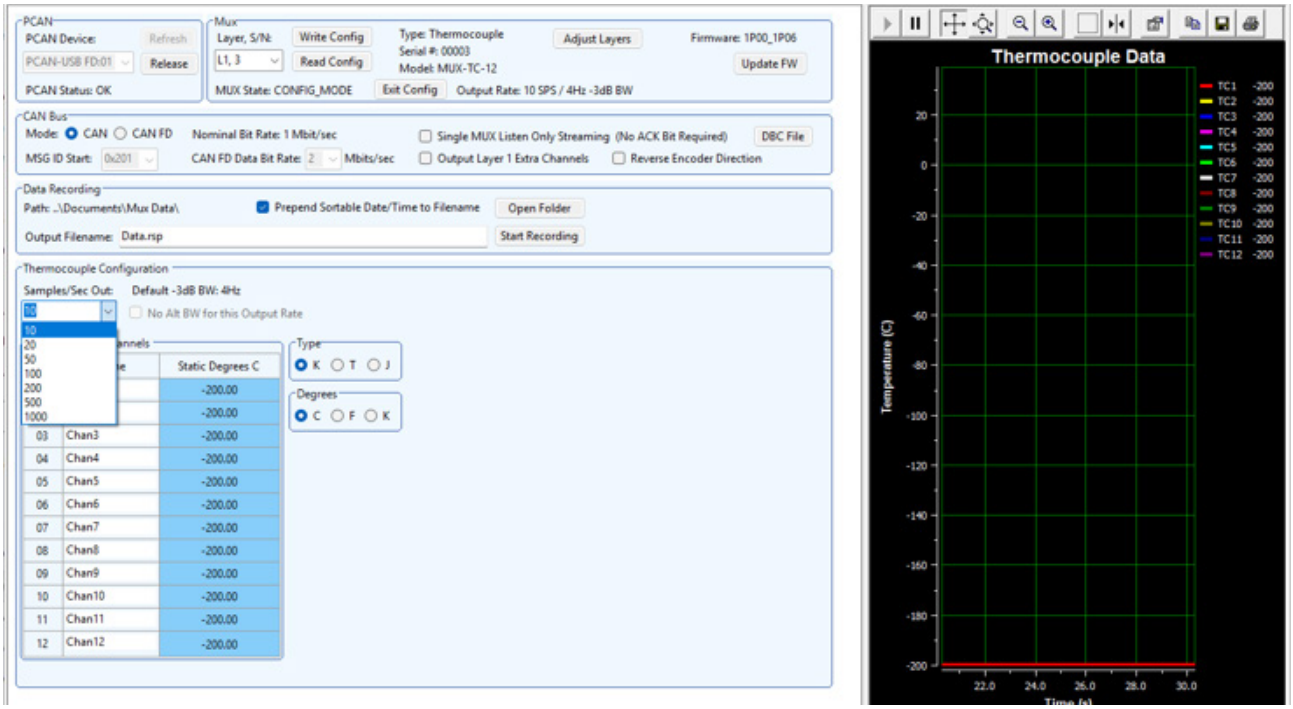
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12-Channel Analog to CAN Module

PARAMETER	SPECIFICATION
LED Indicators	
Single green	Power / status / synchronization
Housing	
Diameter	D = 86 mm (3.375 in)
Height	H = 25.4 mm (1 in)
Mass	Approx. 300 g
Protection class	Not specified
Connectors	
Mini-TC type	2-pin, receptacle
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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