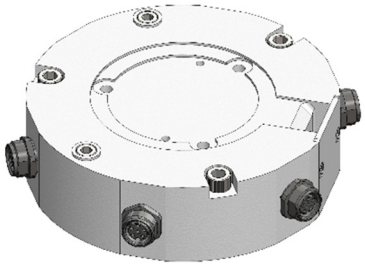
Multiplexing Strain Gauge Amplifier

Model MUX-BC-12



- 12 channel Multiplexing strain gauge amplifier unit
- 12 strain channels IN → 1 CAN/CAN FD signal OUT
- Software included for configuration and data recording
- Integrated shunt resistors, software controlled
- Gain adjustable per channel, software controlled
- Integrated bridge completion resistors
- Units are stackable and can be synchronized
- Ideal for high channel count rotating strain measurements
- Measure up to 48 strain channels by stacking four MUX-BC-12 units
- For rotating applications, pair with a Michigan Scientific four connection slip ring

Description

The Michigan Scientific's *MUX-BC-12 is* a twelve channel strain gauge amplifier and multiplexing unit. Each of the six radial connectors can mate with two 3-wire hook-up quarter arm strain gauges. The *MUX-BC-12* provides bridge completion, bridge excitation, amplification, and digitization of the signals. The *MUX-BC-12* has four output connections: two for power, and two for CAN/CAN FD. The output data is CAN 2.0 or CAN FD compatible. A shunt calibration can be initiated at power-up or initiated by user with the MUX configuration software. Additionally, the software allows for independent channel configuration and data recording to a PC.

Slip Ring Configuration

MUX-BC-12 paired with an S4 slip ring

8500 Ance Road
Charlevoix, MI 49720
Tel: 231-547-5511
Fax: 231-547-7070
05-28-25
Rev. A

MICHIGAN SCIENTIFIC corporation

http://www.michsci.com
Email: mscinfo@michsci.com

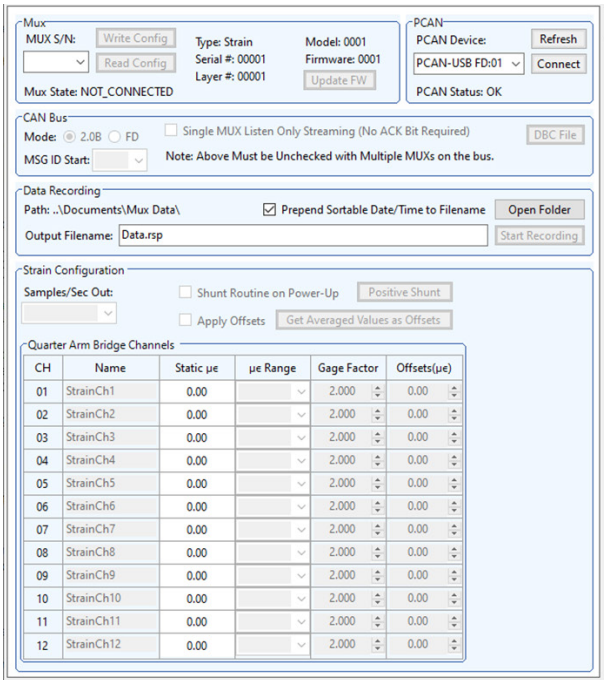
321 East Huron Street
Milford, MI 48381
Tel: 248-685-3939
Fax: 248-685-5406

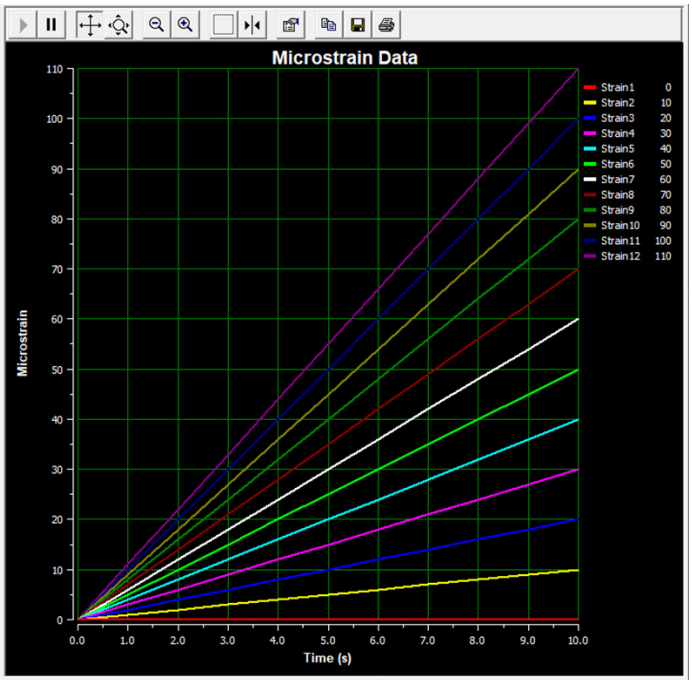
Multiplexing Strain Gauge Amplifier

Specifications

PARAMETER	SPECIFICATION
Bridge Amplification	
Bridge Type	Quarter Arm Bridge (3 wire hook-up)
Channel Count	12 per unit (stackable)
Bridge Excitation	4.5 V (ratiometric)
Strain Range	Configurable ±1000 με or ± 5000 με
Nominal Strain Gauge Resistance	350 Ω
Integrated Shunt Calibration	Positive and negative shunt calibration
Shunt Resistance	100 kΩ (other resistances emulated)
Shunt Accuracy	0.075 %
Output Type	CAN 2.0 or CAN-FD
Max Output Rate (with CAN FD (4 Mb)	8 ksps (12 channels)
Max Output Rate (with CAN 2.0)	2 ksps (12 channels)
Frequency Response @ -3 dB	1.6 kHz (@ 4ksps or 8 ksps output rate
Frequency Response @ -0.1 dB	500 Hz (@ 4ksps or 8 ksps output rate)
Noise Level	< 4 µVp-p
Galvanic Isolation	(No safety Isolation for high voltage applications)
Channel to CAN	400 V
Channel to Power	400 V
Power Supply	
Voltage	12 Vdc to 36 Vdc
Power Consumption (@ 12 Vdc nominal)	2 W typ. (12 bridges powered)
Operating Temperature	-40 °C to 85 °C (-40 °F to 185 °F)
Dimensions (Diameter and Height)	86 mm (3.375 in) housing OD; 99 mm (3.875 in) diameter with connectors Height: 25.4 mm (1.00 in)

Configuration and Recording Application





8500 Ance Road
Charlevoix, MI 49720
Tel: 231-547-5511
Fax: 231-547-7070

MICHIGAN SCIENTIFIC corporation
http://www.michsci.com
Email: mscinfo@michsci.com

321 East Huron Street
Milford, MI 48381
Tel: 248-685-3939
Fax: 248-685-5406

05-28-25
Rev. A