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ML112 Quad Bridge Amp

Signal Conditioner Series

Description

The ML112 Quad Bridge Amp (Wide Bandwidth) is equivalent to four ML110 Bridge Amps. It is useful if 2 kHz bandwidth is required or unconventional transducers are used. Suitable for use with force, pressure, displacement, and other strain gauge or semiconductor bridge based transducers. It uses chopper stabilized amplifier techniques to reduce temperature drifts and offers software controlled zeroing.



Compatibility

The Quad Bridge Amp is compatible with PowerLab and MacLab models and requires the following versions of software or later: LabChart v6, Chart v4 or Scope v3.

The following are some of the transducers suitable for use with the Bridge Amp:

MLT003/D	Hand Dynamometer	MLT0380/D	Reusable BP Transducer
MLT0015	High Grade Isotonic Transducer	MLT1020	IR Plethysmographs
MLT500/D	Force Transducer (0 - 500 g)	MLT050/D	Force Transducer (0 - 50 g)
MLT844	Physiological Pressure Transducer	MLT409/D	Skin Temperature Probe
MLT0201	Force Transducer (5 mg - 25 g)	MLT415/D	Nasal Temperature Probe
MLT1030/D	Wide Range Force Transducer	MLT0210/D	Teaching Force Transducer
MLT0202	Sensitive Force Transducer (0-25 g)		

For transducers with Grass connectors, a MLAC11 Grass Adapter Cable is required.

Applications

Includes cardiac and smooth muscle contraction studies, animal arterial or venous pressures measurements, force and displacement measurements and some respiratory experiments.

Specifications

Input

Number of inputs:	4 (8-pin DIN)
Input configuration:	Differential
Amplification range:	$\pm 50 \mu\text{V}$ to $\pm 200 \text{ mV}$ full scale in 12 steps (combined PowerLab and Bridge Amp) $\pm 200 \text{ mV}$ $\pm 100 \text{ mV}$ $\pm 50 \text{ mV}$ $\pm 20 \text{ mV}$ $\pm 10 \text{ mV}$ $\pm 5 \text{ mV}$ $\pm 2 \text{ mV}$ $\pm 1 \text{ mV}$ $\pm 500 \mu\text{V}$ $\pm 200 \mu\text{V}$ $\pm 100 \mu\text{V}$ $\pm 50 \mu\text{V}$
Amplification accuracy:	$\pm 0.5\%$ (combined PowerLab and Bridge Amp)
Maximum input voltage:	± 5 volts
Input impedance:	$2 \times 10 \text{ k}\Omega$
Low-pass filtering:	1 Hz to 2 kHz in eight steps (software selectable), using fifth-order, switched capacitance filter type
High-pass filtering:	DC or 0.1 Hz (software-selectable)
Frequency response (-3 dB):	2 kHz maximum at all gains with the 2 kHz filter selected
CMRR (differential):	100 dB @ 50 Hz (typical)
Input noise:	$< 2 \mu\text{V}_{\text{rms}}$ referred to input at highest gain

Excitation and Zeroing

DIN Excitation voltage range:	0 to 20 volts DC ($\pm 10 \text{ V}$ referred to ground), adjusted by external resistor
Grass Excitation voltage range:	8 V DC ($\pm 4 \text{ V}$ referred to ground)

Transducer drive current: ± 100 mA maximum
 Zeroing circuitry: Software-controlled, either manual or automatic
 Internal offset resolution: 12-bit (internal DAC) ± 2048 steps about 0 V.
 Maximum offset steps of ± 0.25 μ A, giving a resolution of ~ 0.075 mV for a transducer impedance of 300 Ω

Control Port

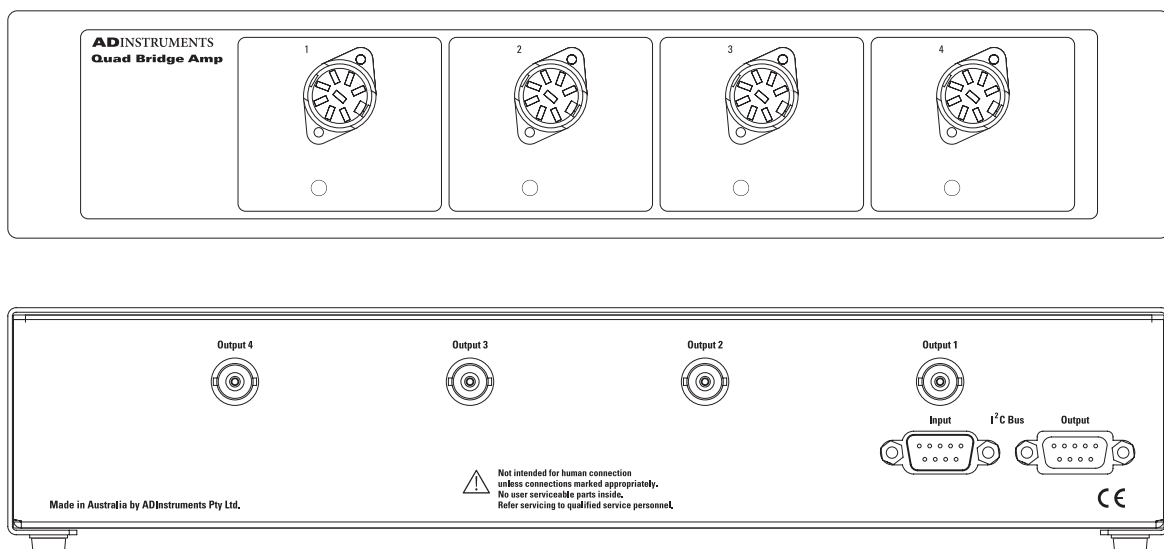
I²C port: Power and control bus for front-end units. Supports a number of front-ends dependent on the PowerLab. Interface communications rate of ~ 50 Kbits/s.

Physical Configuration

Dimensions (w \times d \times h): 300 mm \times 300 mm \times 60 mm
 (11.8" \times 11.8" \times 2.4")
 Weight: 3.1 kg (6.8 lb)
 Power requirements: 7.2 W (with no transducers)
 Operating temperature range: 0 to 35 $^{\circ}$ C, 0 to 90% humidity (non-condensing)

ADInstruments reserves the right to alter these specifications at any time.

Front and Back Panels



Caution

Read "Statement of Intended Use" on our website or in "Getting Started with PowerLab" before use.

Ordering Information

ML112 Quad Bridge Amp Wide Bandwidth

Includes:

I²C cable (9 pin plug to 9 pin receptacle)

BNC to BNC cables (4)

Bridge Amp Owner's Guide

Optional:

MLAC11 Grass Adapter Cable

For use with:

MLT003/D Hand Dynamometer

MLT0380/D Reusable BP Transducer

MLT0015 High Grade Isotonic Transducer

MLT1020 IR Plethysmographs

MLT500/D Force Transducer (0 - 500 g)

MLT844 Physiological Pressure Transducer

MLT050/D Force Transducer (0 - 50 g)

MLT409/D Skin Temperature Probe

MLT0201 Force Transducer (5 mg - 25 g)

MLT415/D Nasal Temperature Probe

MLT0210/D Teaching Force Transducer

MLT0202 Sensitive Force Transducer (0-25 g)

MLT1030/D Wide Range Force Transducer

ML112-DC-08A





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