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PowerLab®
ADInstruments

ML110 Bridge Amp

ADInstruments Signal Conditioners

Description



The ML110 Bridge Amp is a single channel, non-isolated, bridge amplifier suitable for use with force, pressure, displacement, and other strain gauge or semiconductor bridge based transducers. It uses chopper stabilised amplifier techniques to reduce temperature drifts and offers software controlled zeroing. A DIN input is supplied standard.

Compatibility

The Bridge Amp is compatible with PowerLab/4SP, /8SP, /16SP, PowerLab 2/20, and 4/20, as well as most older PowerLab and MacLab models (ask your local ADInstruments representative for further details).

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

MLT003	Hand Dynamometer	MLT0380	Reusable BP Transducer
MLT0015	Isotonic Transducer	MLT1020	IR Plethysmograph
MLT500	0 - 500 g Force Transducer	MLT844	Physiological Pressure Transducer
MLT050	0 - 50 g Force Transducer	MLT404	RTD Temperature Probe
MLT0201	Isometric Force Transducer	MLT409	Skin Temperature Probe
MLT0210	Teaching Force Transducer	MLT415	Nasal Temperature Probe
MLT1030	Wide Range Force Transducer	MLT0202	High-Sensitivity Force Transducer

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

Applications

The ML110 Bridge Amp is suitable for force and displacement measurements, animal arterial or venous pressure measurements, temperature and some respiratory experiments.

Specifications

Input

Number of inputs:	1 (8-pin DIN)
Input configuration:	Differential
Amplification range:	±50 μV to ±200 mV full scale in 12 steps (combined PowerLab and Bridge Amp)
	±200 mV ±100 mV ±50 mV ±20 mV ±10 mV ±5 mV ±2 mV ±1 mV ±500 μV ±200 μV ±100 μV ±50 μV
Amplification accuracy:	±0.5% (combined PowerLab and Bridge Amp)
Maximum input voltage:	±5 V
Input impedance:	2 × 10 kΩ
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 μV_{rms} referred to input at highest gain

Excitation and Zeroing

DIN excitation voltage range:	0 to 20 V DC (±10 V referred to ground), adjusted by external resistor
Grass excitation voltage range:	8 V DC (±4 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 μA, giving a resolution of ~0.075 mV for a transducer impedance of 300 Ω

Control Port

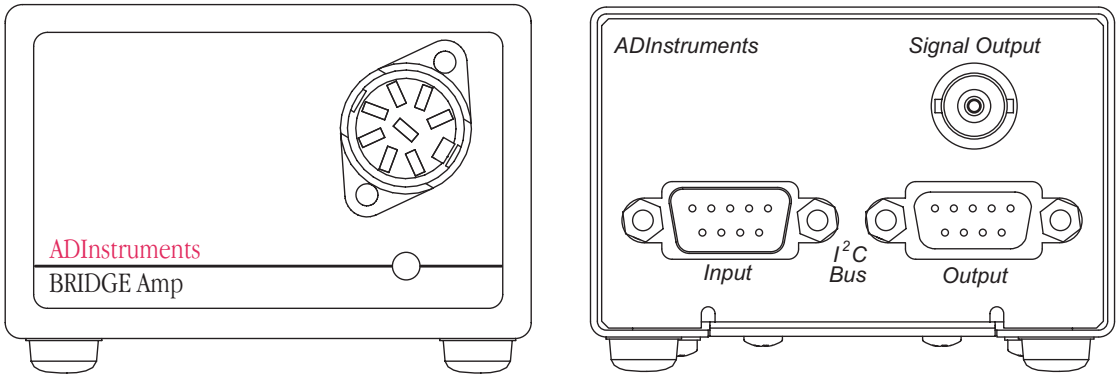
I^2C port:	Power and control bus for front-end units. Supports a number of front-ends dependent on the PowerLab. Interface communications rate of ~50 kbits/s.

Physical Configuration

Dimensions (h × w × d):	50 mm × 76 mm × 260 mm (1.96" × 3.0" × 10.2")
Weight:	710 g (1 lb 9 oz.)
Power requirements:	1.8 W (with no transducer)
Operating temperature range:	0 to 35 °C, 0 to 90% humidity (non-condensing)

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

Front and Back Panels



WARRANTY: ADInstruments PowerLab Systems, Front-end and Pod Signal Conditioners are warranted against defects in materials and workmanship for a period of 3 years from the date of purchase. Transducers are covered by a 12 month warranty. Third party products are covered by the manufacturer's warranty. Warranties are void if the product has been damaged due to negligence. Consumables and electrodes are not covered by a warranty. All questions regarding service and warranty should be directed to your nearest PowerLab authorized distributor or one of the offices listed below.

Ordering Information

ML110 Bridge Amp

Includes:

I^2C Cable (9-pin plug to 9-pin receptacle)
BNC to BNC Cable
Bridge Amp Users Guide

Optional:

MLAC11 Grass Adapter Cable

For use with:

MLT003 Hand Dynamometer
MLT0015 Isotonic Transducer
MLT500 0 - 500 g Force Transducer
MLT050 0 - 50 g Force Transducer
MLT0201 Isometric Force Transducer
MLT0210 Teaching Force Transducer
MLT1030 Wide Range Force Transducer
MLT0380 Reusable BP Transducer
MLT1020 IR Plethysmograph
MLT844 Physiological Pressure Transducer
MLT404 RTD Temperature Probe
MLT409 Skin Temperature Probe
MLT415 Nasal Temperature Probe
MLT0202 High-Sensitivity Force Transducer

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