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Single, Quad and Octal Bridge Amps Signal Conditioners

Description

The FE221, FE224 and FE228 Bridge Amps are designed to allow the PowerLab to connect to most DC bridge transducers, including commonly available force transducers, temperature probes, light meters, displacement transducers, pressure transducers, and similar devices. They are capable of supporting various powered transducers, and certain low-impedance unpowered transducers.

An overload light on the front of each input indicates whether the attached transducer is operating correctly or incorrectly. If the overload

light is on the transducer is incompatible with the Bridge Amp and should be disconnected. Contact your ADInstruments representative for assistance.



Compatibility

The Bridge Amps are compatible with PowerLab /SP, /20, /25, /26, /30 and /35 series or later.

The FE221, FE224 and FE228 require the following software versions or later: LabChart v6, Chart version 5.4.2. The FE221, FE224 and FE228 will also only operate with Scope for Windows (3.7.8 or later), Scope for Mac (4.0.3 or later) or LabTutor (version 3 or later).

Visit www.adinstruments.com/downloads/ for Windows and Mac operating system compatibility. For more information please contact your ADInstruments representative.

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

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
MLT1199 Blood Pressure Transducer/cable kit	MLT0202 Sensitive Force Transducer (0-25g)

Applications

Used for measuring force, displacement and physiological pressures. Ideal for multi-channel isolated tissue studies.

Specifications

Input

Number of inputs:	1 (Single), 4 (Quad) or 8 (Octal) (8-pin DIN)
Configuration:	Differential
Input range:	$\pm 200 \mu\text{V}$ to $\pm 5 \text{ V}$ full scale in 14 steps (combined PowerLab and Bridge Amp) $\pm 5 \text{ V}$ $\pm 2 \text{ V}$ $\pm 1 \text{ V}$ $\pm 500 \text{ mV}$ $\pm 200 \text{ mV}$ $\pm 100 \text{ mV}$ $\pm 50 \text{ mV}$ $\pm 20 \text{ mV}$ $\pm 10 \text{ mV}$ $\pm 5 \text{ mV}$ $\pm 2 \text{ mV}$ $\pm 1 \text{ mV}$ $\pm 500 \mu\text{V}$ $\pm 200 \mu\text{V}$
Accuracy:	$\pm 0.5\%$ (combined PowerLab & Bridge Amp)
Maximum input voltage:	$\pm 10 \text{ V}$
Input impedance:	2 x 1 M Ω (Single-ended) 2 M Ω (Differential)
Low-pass filtering:	1 Hz to 1 kHz in seven steps (software selectable)
Frequency response (-3 dB):	2 kHz maximum at all gains with the 2 kHz filter selected.
CMRR (differential):	100 dB at 50 Hz (typical).
Noise:	$< 1 \mu\text{V}_{\text{rms}}$ referred to input at highest gain

Excitation and Zeroing

Excitation voltage range:	0-20 volts DC ($\pm 10 \text{ V}$ referred to ground), adjusted by external resistor
Transducer drive current:	$\pm 45 \text{ mA}$ maximum
Zeroing circuitry:	Software-controlled, either manual or automatic
Internal offsetting range:	$\pm 10 \text{ V}$ (1 V - 5 V range) $\pm 1 \text{ V}$ (100 mV - 500 mV range) $\pm 100 \text{ mV}$ (200 μV - 50 mV)

Internal offset resolution: 16 bit (internal DAC) \pm 32 000 steps about 0V.
1, 2, 5 V -310 μ V/step
100 mV, 200 mV, 500 mV - 31 μ V/step
200 μ V to 50 mV - 3 μ V/step

Control Port

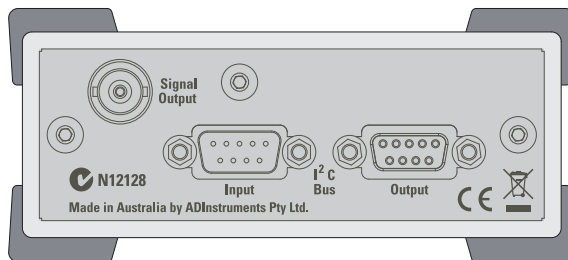
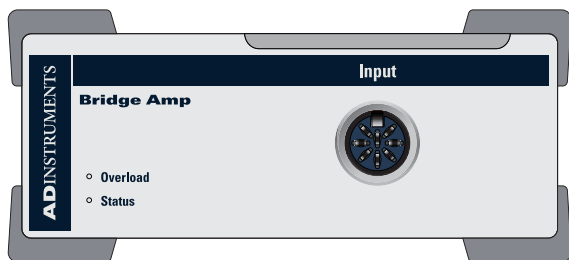
I²C port: Power and control bus for front-end units. Supports a number of front-ends dependent on the PowerLab.
Interface communications rate of ~50 Kbits/s.

Physical Configuration

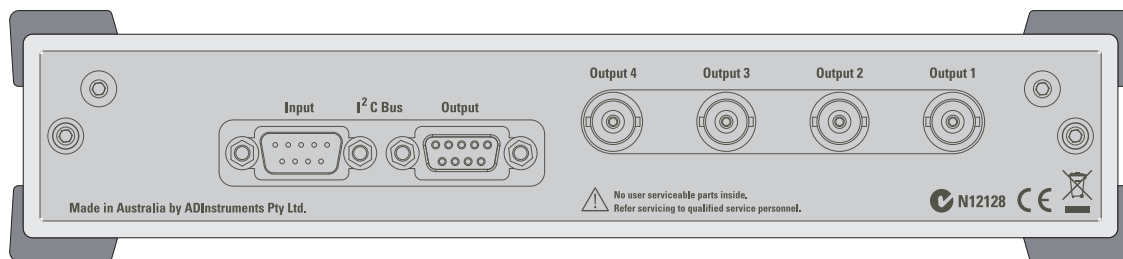
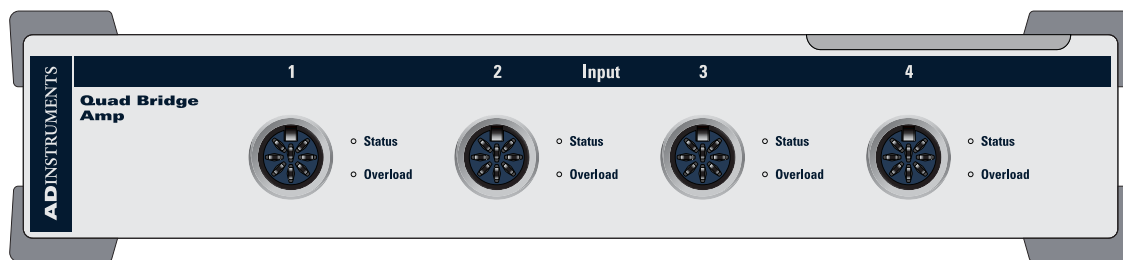
Model	Dimensions and weight
Single (FE221):	55 mm (h) x 120 mm (w) x 260 mm (d); 1.2 kg
Quad (FE224):	55 mm (h) x 240 mm (w) x 260 mm (d); 2.1 kg
Octal (FE228):	70 mm (h) x 240 mm (w) x 260 mm (d); 2.6 kg
Power requirements:	(Without transducer attached)
Single (FE221):	0.8 W
Quad (FE224):	2.5 W
Octal (FE228):	5.0 W
Operating temperature range:	10 to 40 °C, 0 to 90% relative humidity (non-condensing)

ADInstruments reserves the right to alter these specifications at any time

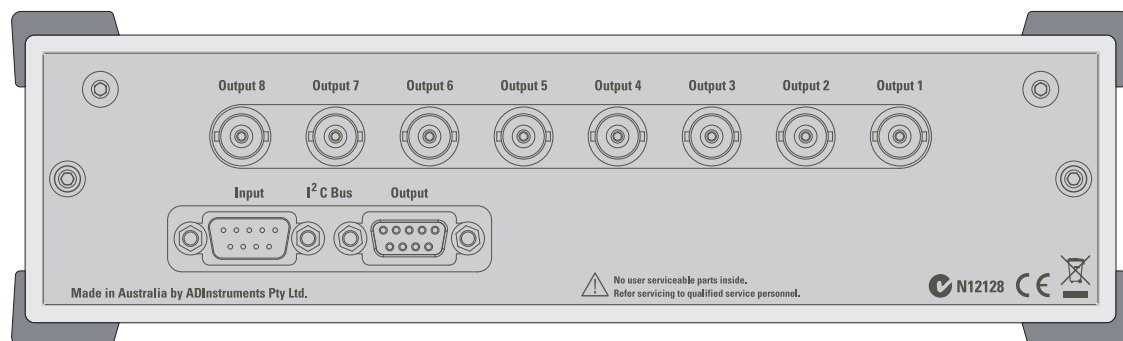
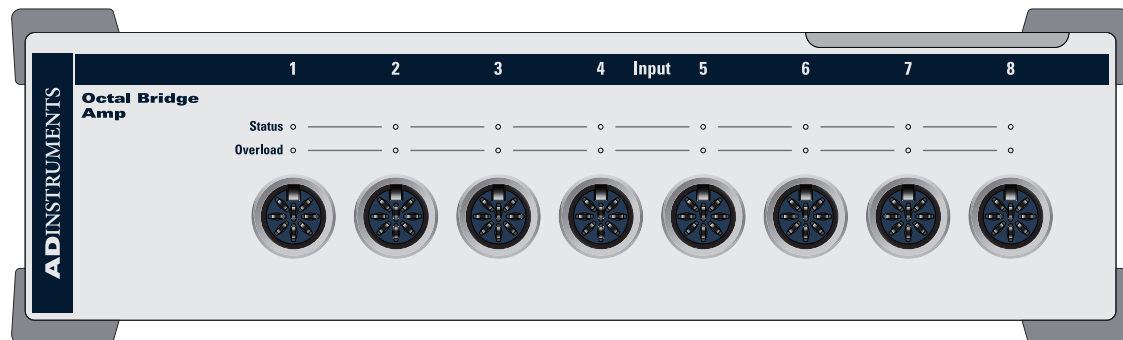
Front and Back Panels



FE221



FE224



FE228

WARRANTY: ADInstruments PowerLab data acquisition units (Product Number Prefix: PL), Front-end Signal Conditioners (Product Number Prefix: FE) are warranted against defects in materials and workmanship for a period of 5 years from the date of purchase. Other PowerLab data acquisition units and ADInstruments manufactured Front-end and Pod Signal Conditioners, and Instruments are warranted of a period of 3 years from the date of purchase. 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 ADInstruments representative or one of the offices listed below.

Caution

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

Ordering Information

FE221 Bridge Amp

FE224 Quad Bridge Amp

FE228 Octal Bridge Amp

FE221 Includes:

I²C Cable (9-pin plug to 9-pin receptacle)

BNC to BNC Cables (1)

DIN Connector Kit (1)

Bridge Amp Owner's Guide

FE224 Includes:

I²C Cable (9-pin plug to 9-pin receptacle)

BNC to BNC Cables (4)

DIN Connector Kits (4)

Bridge Amp Owner's Guide

FE228 Includes:

I²C Cable (9-pin plug to 9-pin receptacle)

BNC to BNC Cables (8)

DIN Connector Kits (8)

Bridge Amp Owner's Guide

A MLAC11 Grass Adapter Cable may be ordered as an optional extra for connecting transducers with grass connectors to the bridge amps.

FE221-FE228-DC-11A



ADINSTRUMENTS.com

North America

Tel: +1 888 965 6040

Fax: +1 719 576 3971

info@adinstruments.com

United Kingdom

Tel: +44 1865 332 050

Fax: +44 1865 332 051

info.uk@adinstruments.com

Germany

Tel: +49 6226 970105

Fax: +49 6226 970106

info.de@adinstruments.com

North Asia

Tel: +86 21 5830 5639

Fax: +86 21 5830 5640

info.cn@adinstruments.com

South East Asia

Tel: +60 3 8024 5296

Fax: +60 3 8023 6307

info.sea@adinstruments.com

Japan

Tel: +81 52 932 6462

Fax: +81 52 932 6755

info.jp@adinstruments.com

South America

Tel: +56 2 356 6749

Fax: +56 2 356 6786

info.cl@adinstruments.com

Brazil

Tel: +55 11 3266 2393

Fax: +55 11 9266 2392

info.br@adinstruments.com

Indian Subcontinent

Tel: +91 11 4306 5615

Fax: +91 11 4306 5614

info.in@adinstruments.com

Australia

Tel: +61 2 8818 3400

Fax: +61 2 8818 3499

info.au@adinstruments.com

New Zealand

Tel: +64 3 477 4646

Fax: +64 3 477 4346

info.nz@adinstruments.com

International

Tel: +61 2 8818 3400

Fax: +61 2 8818 3499

info.au@adinstruments.com

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