ADINSTRUMENTS

ML301 Bridge Pod

Pod Series

Description

A low-cost signal conditioner designed to work with bridge-type transducers and PowerLab data acquisition systems. The Bridge Pod provides a stable +2.5 V excitation source for full-bridge strain-gauge transducers. A 300 Hz low-pass filter is built-in to reduce signal noise and a manual DC offset adjustment is provided.

System Compatibility

The Bridge Pod connects to any PowerLab hardware units with Pod ports (8-pin DIN inputs). PowerLab and MacLab (except 4s, 8s and 16s) units without Pod ports require the FE305 Pod Expander.

The ML301 Bridge Pod is supported by the following versions of software:

WINDOWS	MACINTOSH
• LabChart v6 or later	• LabChart v6 or later
• Chart v3.4.8 or later	• Chart v3.6.3 or later
• Scope v3.6.3 or later	• Scope v3.6.3 or later
• LabTutor 1.3 or later	

Note: Earlier software versions do not support Pods.
Visit our website for information on operating system requirements.

Transducer Capability

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

- MLT1030/A Wide Range Force Transducer (10 mg - 1 kg)
- MLT0380/A Reusable Blood Pressure Transducer
- MLT0210/A Teaching Force Transducer

Applications

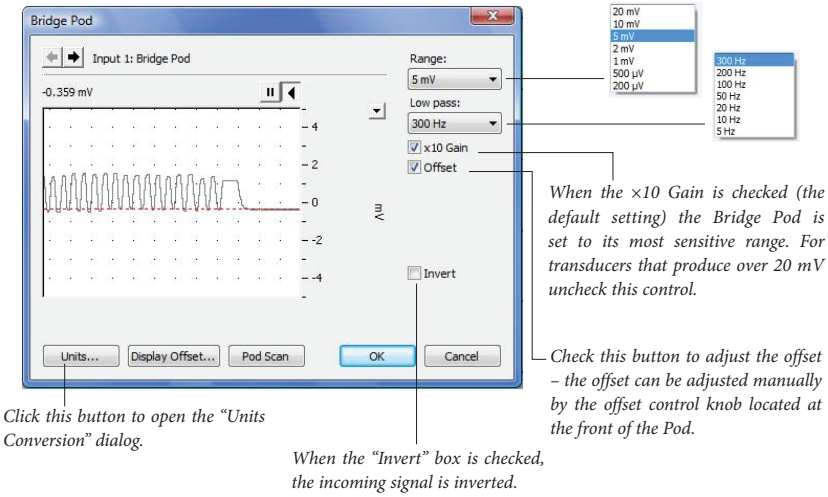
Typical measurements using strain-gauge transducers include force, smooth muscle contractions, displacement, animal arterial and venous pressure.

Theory of Operation

The Bridge Pod provides excitation and signal amplification for strain-gauge transducers in a single device. An excitation voltage of 2.5 V is applied to the transducer with the transducer output signal being differentially amplified and then low pass filtered to remove high frequency signals. Offset adjustment is provided by a 10-turn potentiometer on the front of the Bridge Pod, allowing transducer offsets or pretension load signals to be removed before recording. The offset control provides ±200 mV of offset range (at input) on the low gain setting and ±20 mV of offset range (at input) on the high gain setting.

Operating Instructions

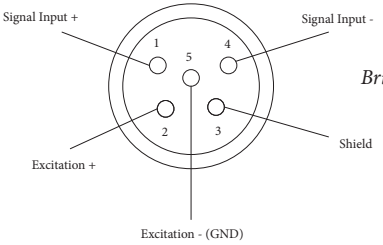
Connect the transducer to the 5-pin (mini audio type) connector on the rear panel of the Bridge Pod. Connect the 8-pin DIN cable from the Bridge Pod to a PowerLab Pod port (or a Pod Expander connected to the PowerLab). Do not connect other devices such as Front-ends or Instruments to the corresponding BNC connector on the channel used by the Pod Pods can be connected to the PowerLab unit while LabChart, Chart or Scope software is running, but not when recording data. Once detected, the functions of the Bridge Pod are combined with those of the PowerLab and software, replacing the Input Amplifier dialog with the Bridge Pod dialog (shown below)



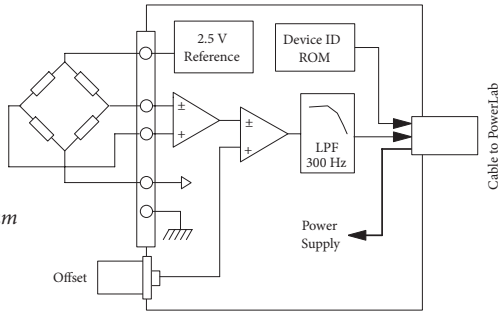
Stacking and Unstacking Pods

Pods stack by clicking into place on top of each other. To separate stacked Pods, push the top Pod towards the back and then pull them apart from the back. See picture on right.

Technical Diagrams



Bridge Pod pin-out diagram (front view)



Bridge Pod block diagram

Caution

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

Specifications

Input impedance:	~470 K || 3 pF Differential
Input ranges:	200 µV to 20 mV in 1:2:5 steps (×10 Gain selected)
	50 mV to 200 mV in 1:2:5 steps (×10 Gain deselected)
DC drift:	2 µV/°C
DC excitation:	2.5 V nominal
Minimum load resistance:	300 Ω
Amplifier noise	<1 µV RMS (10 Hz bandwidth)
Low-pass filter :	300 Hz, 3rd order Bessel
DC offset adjustment range:	±200 mV, 10-turn potentiometer, software selectable
Operating conditions:	0 – 35 °C, 0 – 90% humidity — non-condensing
Input connector:	5-pin mini audio connector
Enclosure size (l×w×h):	108 × 58 × 35 mm
Cable length:	1.5 m
Weight:	~200 g

All specifications were tested at the time of printing and are subject to change.

Ordering Information:

ML301 Bridge Pod

For use with:

MLT1030/A	Wide Range Force Transducer (10 mg – 1 kg)
MLT0380/A	Reusable Blood Pressure Transducer
MLT0210/A	Teaching Force Transducer

/A denotes Pod connection compatibility.