



Model 2210 10-Channel Microphone Signal Conditioner/Multiplexer



Applications

- Battery powered microphone signal conditioning for multichannel DAT recorders, analog tape recorders and computer-based data acquisition systems. Provides microphone polarization voltage, adjustable gain and filtering (A-weight, C-weight, or bandpass). Can also be used with ICP™ and charge-coupled accelerometers with the appropriate accessories.
- Automated sequential multichannel sound and vibration measurements using a single or dual channel analyzer under PC control via RS-232 interface. One example is the measurement of sound power using multiple microphones in anechoic, hemi-anechoic, or reverberation rooms as per the ANSI S12.30 series or the ISO 3740 series of standards. Another is the measurement of reverberation time, airborne sound transmission loss and impact isolation using multiple microphones.

Features

- Battery powered
- Adjustable gain, to 42 dB
- Lowpass and highpass filtering and broadband weighting (A & C)
- LED overload lights each channel; can be set to either instantaneous or latching mode
- Drives very long microphone cables (~1,000')
- RS-232 permits daisy chaining so one controller can control multiple 2210 units

- Facility for insert voltage calibration
- Dual MUX outputs permits use of two input channels simultaneously

Inputs/Outputs

10 Microphone Inputs	
Gain	0 - 42 dB in 2 dB steps, selectable per channel
Polarization	0, 28, 200 VDC selectable for all channels
Filters (selectable per channel)	
Broadband weighting	A, C satisfying ANSI S1.4-1983 and IEC 651-1979 Type 1
High Pass Filters	Flat above 1, 10, or 20 Hz
Low Pass Filters	Flat up to 5, 10, 20, or 100 kHz
Connectors	7-pin LEMO for use with Larson•Davis Model PRM902 Microphone Preamplifiers and compatible
Input Impedance	10 GΩ in parallel with 2 pF (with preamplifier)
2 External Inputs (signal conditioning optional)	
Connectors	BNC
1 Insert Voltage Calibration Input Connector 3.5 mm Miniature Phone Plug	
10 Microphone Outputs	
Connector	25 pin D to harness of 10 cables with BNC connectors (CBL067)
Output Impedance	50 Ω
2 Multiplexer Outputs	
Connectors	BNC
Output Impedance	50 Ω
Digital Control - RS-232	

Use with Microphones

Use Larson•Davis Model PRM902 microphone preamplifiers when using the Larson•Davis 1", 1/2", and 1/4" condenser microphones. When using 1" or 1/4" microphones, the adaptors ADP011 or ADP008, respectively, are required. The Larson•Davis Model PRM900B can also be used in conjunction with the CBL076 7-pin-LEMO-to-5-pin Switchcraft cable adaptor.

Use with Accelerometers

When using ICP™ accelerometers, a Larson•Davis Model PRA950 ICP accelerometer preamplifier at the outboard end of a microphone extension cable will provide the DC current (2–4 mA) required to power the accelerometer.

When using charge-coupled accelerometers, the Larson•Davis Model PRM902 microphone preamplifier at the outboard end of the microphone extension cable will provide sufficient input impedance. Use the adaptor ADP005 in place of the microphone for use with BNC connectors and the ADP007 for use with microdot connectors.

Mechanical Specifications

Dimensions	
Width	10 inch (25 cm)
Depth	9.5 inch (24.1 cm.)
Height	2.75 inch (7 cm)
Weight	6.0 lb (2.7 kg)

Environmental Specifications

Operating Temperature	13 to 122° F (-10 to 50° C)
Storage Temperature	-13 to 158° F (-25 to 70° C)
Relative Humidity	0 to 90%, non-condensing

Setup and Control

The Model 2210 can be completely setup manually using the LCD display and the front panel keys, or it can be set up via the RS-232 interface. When being used as a multiplexer, it should be controlled by a computer. The software driving the system should include a calibration routine which produces unique values of analyzer sensitivity corresponding to each channel. In operation, remote commands to switch input channels should be accompanied by commands to set the analyzer sensitivity appropriately. This calibration routine is included in Larson•Davis analyzer software available for use with the Model 2210, such as SWW_RTA_SNDPOWER (Sound Power Measurement) and SWW_RTA_CNTRL (Analyzer Remote Control).

Power

Internal NiCd battery pack:	operating time > 6 hours Charged internally using PSA004 DC Power Supply (included) or externally using PSA013 (not included) with PSA004
Time for complete recharge	16 hours
DC Power	PSA004 DC Power Supply (11-18 Vdc, 2A) included

Included Accessories

- PSA004 DC Power Supply; 12 Vdc, 2 Amp 90-264 Vac @ 50-60 Hz
- CBL067 Output Cable; 3 feet long 25-pin D connector to 10 X BNC female
- CBL045 RS-232 cable
- CBL061 BNC to miniplug (6') for insert voltage input

Available Accessories

- Larson•Davis air-condenser microphones, 1", 1/2", 1/4"; free-field and random
- Model PRM902 1/2" microphone preamplifier with 7-pin LEMO connector
- ADP011 1/4" microphone to 1/2" preamplifier adapter
- Larson•Davis accelerometers
- PRA950 ICP™ accelerometer preamplifier
- ADP005 1/2" microphone thread to BNC adapter for use with charge-coupled accelerometers
- ADP007 1/2" microphone thread to microdot adapter for use with charge-coupled accelerometers
- EXAXXX microphone extension cable, 7-pin LEMO connectors both ends
- PSA013 External Battery Charger, powered by PSA004 DC Power Supply
- BAT007 spare NiCd rechargeable battery module
- PSA004 DC Power Supply, secondary unit for charging external battery modules while using primary unit to power 2210 or charge batteries already inside 2210
- CBL049 Automobile Power Cable to power 2210 from cigarette lighter