

Description

The PowerLab/8SP is a data acquisition and analysis system for use in life science research. The system has 16 bit resolution (hardware and software supported), and is



capable of recording at speeds of up to 200,000 samples per second. Communication with a PC is via USB or SCSI interface. It incorporates eight general purpose BNC analog inputs for measuring external signals. It also features a built-in analog output for stimulation or pulse generation (software controlled), and a trigger input. The PowerLab/8SP is compatible with instruments, signal conditioners, and transducers carried by ADInstruments, as well as many other established brands. Chart and Scope software is supplied with the hardware unit at the time of purchase.

Computer System Compatibility

PC Computers

Pentium level processor or faster with minimum 16 MB RAM (32MB for Windows NT)

Windows 98 or later for USB interface

Windows 95/Windows NT4 or later for SCSI interface*

Macintosh Computers

PowerMac or faster & Mac OS 8.5 or later for USB interface

Macintosh computer with at least a 68020 CPU & Mac OS 7.0 or later for SCSI interface*

At least 4MB free RAM

*Not all SCSI cards are suitable. Contact your local PowerLab distributor for more information.

Chart & Scope Compatibility

The following versions of Chart and Scope software are required to operate a PowerLab/8SP.

WINDOWS

- | Chart v3.4.4 or later
- | Scope v3.6.5 or later

MACINTOSH

- | Chart v3.6.1 or later
- | Scope v3.6.1 or later

Applications

The PowerLab/8SP data acquisition system is suitable for research in the fields of human and animal physiology, pharmacology, neurophysiology, biology, zoology, biochemistry, and biomedical engineering.

Specifications (As tested at the time of printing and are subject to change)

Analog Inputs

Number of input channels:	8
Input configuration:	Single-ended
Amplification range:	<input type="checkbox"/> 2 mV to <input type="checkbox"/> 10 V full scale in 12 steps <input type="checkbox"/> 10 V <input type="checkbox"/> 5 V <input type="checkbox"/> 2 V <input type="checkbox"/> 1 V <input type="checkbox"/> 0.5 V <input type="checkbox"/> 0.2 V <input type="checkbox"/> 0.1 V <input type="checkbox"/> 50 mV <input type="checkbox"/> 20 mV <input type="checkbox"/> 10 mV <input type="checkbox"/> 5 mV <input type="checkbox"/> 2 mV
Maximum input voltage:	<input type="checkbox"/> 15 V
Input impedance:	~ 1 M Ω 47 pF @ DC
Low-pass filtering:	20 kHz to 1 Hz in 13 steps (software-selectable)
AC coupling:	DC or 0.16 Hz (software-selectable)
Frequency response (± 3 dB):	20 kHz @ <input type="checkbox"/> 10 V full scale, all ranges
DC drift:	Software corrected
CMRR (differential):	96 dB @ 50 Hz (typical)
Input crosstalk:	<input type="checkbox"/> 110 dB typical
Input noise:	< 24 μ V _{rms} referred to input

Sampling

ADC resolution:	16 bit (3125 μ V resolution at 10 V range)
Linearity error:	<input type="checkbox"/> 1 LSB (from 0 to 70 $^{\circ}$ C)
Maximum sampling rates:	200 kHz single channel 100 kHz/channel for 2 channels 40 kHz/channel for 3 or 4 channels 20 kHz/channel for 5 to 8 channels
Available sampling rates:	200 kHz down to 0.003 Hz using Chart for Macintosh 200 kHz down to 2 Hz using Scope 200 kHz down to 1 Hz using Chart for Windows Sampling on USB rather than SCSI may limit the maximum sampling rates.

Output Amplifier

Number of outputs:	2
Output configuration:	Single channel (complementary) or 2 independent outputs
Output resolution:	14 bits (0.6 mV resolution at 10 V range)
Maximum output current:	□12 mA
Output impedance:	0.1 ω typical
Slew rate:	6 V/□s
Settling time:	2 □s (to 0.01% of FSR for LSB change)
Linearity error:	□1 LSB (from 0 to 70 □C)
Output range:	□200 mV to □10 V full scale in six steps □10 V □5 V □2 V □1 V □500 mV □200 mV

External Trigger

Trigger threshold:	3.3 V □0.4 V
Hysteresis:	>0.2 V
Input load:	1.2 k ω
Maximum input voltage:	□12 V
Minimum pulse width:	5 □s

Microprocessor and Data Communication

CPU:	16 MHz 68340
RAM:	512 K
Data communication:	SCSI (up to 4 megabytes/s, maximum, dependent on computer) USB (up to 500 kilobytes/s, maximum, dependent on setup)

Expansion Ports

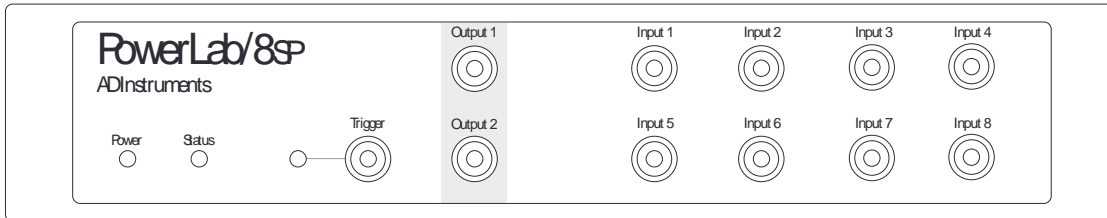
I ² C expansion port:	Power and control bus for Front-end units. Supports up to 16 Front-ends but limited to PowerLab's free connectors. Interface communications rate of up to 10,000 bits/s
Digital output:	8 independent lines, TTL output level (50 mA maximum load per line, 250 mA maximum total load)
Digital input:	8 independent lines, TTL input level, threshold 2.2 V

Physical Configuration

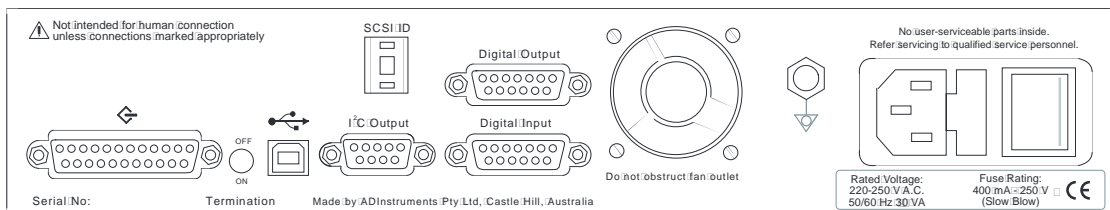
Dimensions (w x h x d):	300 x 60 x 300 mm (11.8" x 2.4" x 11.8")
Weight:	4.8 kg (10 lb 8 oz)
Operating voltage:	220-240 V or 110-120 V (internally set)
Nominal power needs:	25 VA (no Front-ends or Pods attached)
Maximum power needs:	50 VA (full complement of Front-ends and Pods)
Operating temperature:	0 to 35 □C; 0 to 90% humidity (non-condensing)

WARRANTY: ADInstruments PowerLab Systems, Front-end and Rod 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.

PowerLab/4SP Diagrams



Front panel



Back panel

Ordering Information

ML785 PowerLab/8SP

- Includes:**
- 1 PowerLab/8SP 8-Channel Data Acquisition System
 - 1 Chart & Scope Software Installer CD
 - 1 Cable Kit including Power Cord, BNC to BNC test cable, USB Cable (SCSI cable optional, contact your local distributor for compatibility information)
 - 1 Getting Started with PowerLab Manual
 - 1 Finger Pulse Transducer

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ADInstruments Pty Ltd
ISO 9001 Certified



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