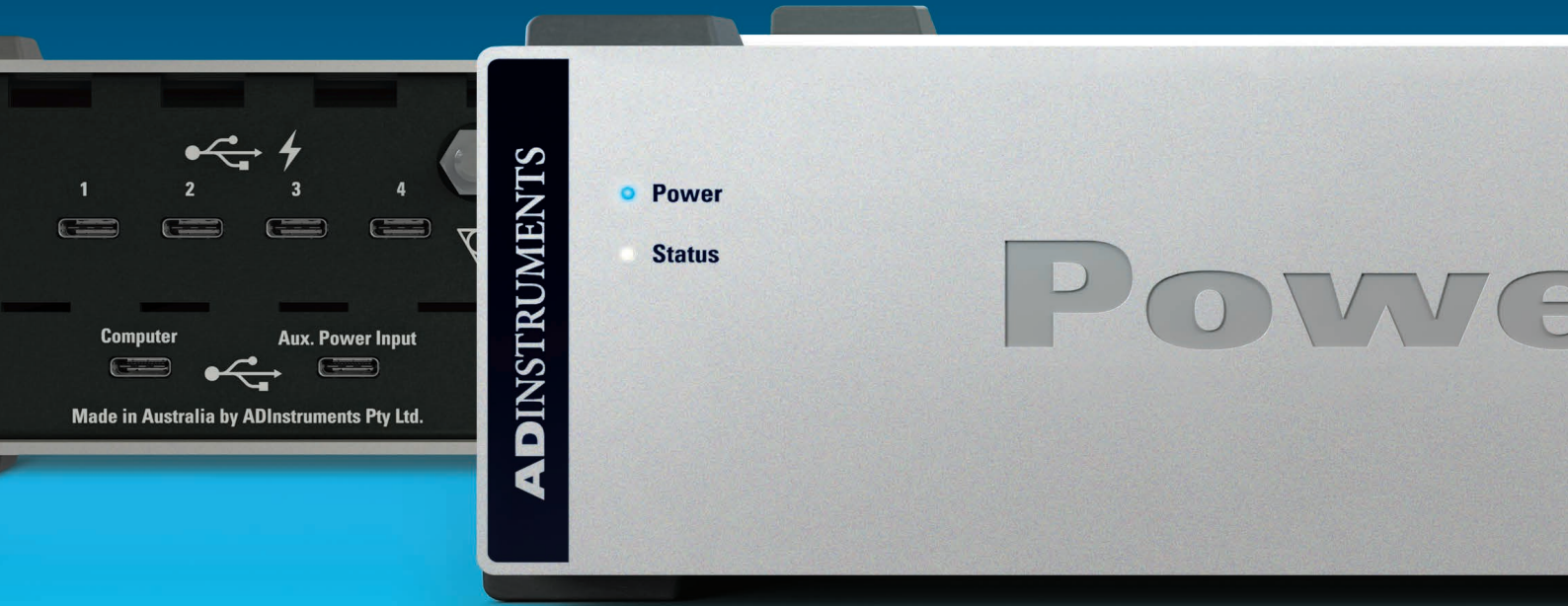




PowerLabs are high performance research data acquisition hardware engineered to record precise, reliable, consistent data.

PowerLabs are capable of high speed sampling and are compatible with instruments, signal conditioners, and transducers supplied by ADInstruments and many other leading brands.

Developed in 1985 and cited in more than 20,000 research papers, PowerLab has been a reliable data acquisition tool for an entire generation of scientists and educators. PowerLab has always offered a simple and flexible solution for almost all types of analog physiological data acquisition. With the addition of the PowerLab C for research, we are excited to continue supporting a whole new generation of scientists with unparalleled flexibility for both analog and digital data acquisition.

## Features:

### Easy to use

- Simple to set up, connects directly to Windows or Mac via USB
- Streamlined integration with analysis software

### Reliable

- Excellent time synchronization between channels
- Built to last with 5 year warranty on research models
- Robust and portable
- High-speed, real-time data acquisition
- High resolution on even the smallest of signals
- Advanced filtering and noise reduction

### Flexible

- Record a broad range of signals simultaneously
- Compatible with a wide range of instruments, signal conditioners, and transducers
- Independent simulator outputs

### Trusted

- Trusted brand for over 30 years
- Cited in more than 30,000 peer-reviewed journals
- Certified to meet the strictest international safety standards for human and animal use

*"PowerLab simply WORKS. It never crashes or has to be rebooted, and is 100% reliable."*

**Dr. Giovanni Casotti,**  
Professor of Biology,  
West Chester University



ADInstruments equipment is used in the top 100 institutions for Life Science worldwide and is cited in more than 30,000 peer-reviewed papers.

# PowerLab<sup>C</sup>

## High-performance data acquisition hardware



The combination of PowerLab C and C Series Interfaces creates a modular data acquisition foundation system that provides unparalleled flexibility for researchers looking to invest in customizable, reliable solutions for both now, and in the future.

### PowerLab C

PLC01

PowerLab C is a digital data acquisition device that provides adaptive mains filtering, power management for peripheral devices (max 100 W via USB-PD) and sub- $\mu$ S time synchronization for up to four C Series compatible USB-C devices (currently up to 32 channels).



#### Modular System

Provides a modular data acquisition system that can grow as your research requirements grow.



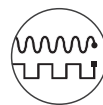
#### Powerful and Portable

PowerLab C provides unique power management options for increased portability and system customization.



#### Digital framework for the future

A complete product pipeline of C Series digital DAQ devices in development so you can sample data with unparalleled precision and time synchronization across all aspects of your research.



#### Analog Compatible

Based on modern digital architecture, PowerLab C integrates data from up to four C Series compatible USB-C devices. When connected to the PowerLab C, our C Series Interfaces allow you to integrate any existing analog technology, ADInstruments or otherwise, with sub- $\mu$ S time synchronization and seamlessly stream data into LabChart 8 for analysis, allowing continued use of existing equipment in your lab!

## C Series Interfaces



### Instrument Interface

PLCI1

Connected to either a PowerLab C, or directly to a computer, the C-series Instrument Interface provides 4 channels of input from analog instruments, with up to 100 kHz sampling and 20 mV to 10 V range.



### Front End Interface

PLCF1

Converts analog data from existing (and majority of legacy) ADInstruments Front-Ends such as Bridge Amps and Bio-Amps, so that they can be digitally sampled by the PowerLab C. Up to 8 channels at 50 kHz, or 4 channels at 100 kHz. Comes in 1, 2, 4 and 8 channel variants (different cables).

Find out more at [adi.to/powerlab](https://adi.to/powerlab)

## Configuration Options

Both C Series interfaces are designed to work with the PowerLab C for adaptive mains filtering and sub- $\mu$ S time synchronization with other C Series compatible devices. Alternatively, for simple setup requirements, you can connect them directly to a computer.



The ADInstruments line of data acquisition products are engineered for unparalleled accuracy and precision in data collection. Unleash your research potential with our specialized suite of DAQ hardware including DAQ devices, transducers, instruments and signal conditioners. Our PowerLab platform sits at the heart of this modular system, enabling unprecedented configuration and flexibility for both research and educational data acquisition applications.

## PowerLab C Specifications

|                                      |                          |
|--------------------------------------|--------------------------|
| Data communication                   | USB 2.0                  |
| Mains powered option                 | Yes                      |
| USB-PD powered option                | Yes                      |
| Power available for external devices | Up to 350W (via USB-PD)  |
| Dedicated trigger Input              | No                       |
| Analog input channels                | Up to 32                 |
| Single ended inputs                  | Up to 16                 |
| Built in differential inputs         | 0                        |
| Differential inputs via Front Ends   | Up to 32                 |
| Input voltage range                  | $\pm 2$ mV to $\pm 10$ V |
| Data resolution                      | 16 bit                   |
| Min sampling rate                    | 1 S/10 min               |
| Max sampling rate per channel        | 100 kS/s                 |
| Input crosstalk                      | >90dB                    |

|                                       |                           |
|---------------------------------------|---------------------------|
| Frequency response                    | -3 dB (24kHz, all ranges) |
| CMRR                                  | >85 dB (110Hz)            |
| Input impedance                       | 1 M $\Omega$              |
| Output amplifier                      | No                        |
| Output channels                       | 0                         |
| Output resolution                     | -                         |
| Output voltage ranges                 | -                         |
| Digital output channels               | -                         |
| Digital input channels                | -                         |
| Supports external Bio-Amps            | Up to 32 channels         |
| Built-in bio-amplifier                | No                        |
| Safety rating                         | IEC60601-1                |
| Supports external isolated stimulator | Yes                       |
| Built in isolated stimulator          | No                        |

*"It was one of the few pieces of equipment which worked well with the generator at basecamp."*

**Dr. Philip Ainslie**, Centre for Heart, Lung, and Vascular Health, University of British Columbia

*"Other systems do not match PowerLab, it is a great product."*

**Dr. Kengatharan**, President and COO, Armetheon, Inc.

# LabChart

## All your analysis in one place

Easily develop an integrated and customized set-up for your unique research requirements.

LabChart data analysis software creates a platform for all your recording devices to work together, allowing you to acquire biological signals from multiple sources simultaneously and apply advanced calculations and plots as your experiments unfold. LabChart allows you to record and display up to 32 channels of data in real-time, performing online calculations at high sampling rates, giving you full control of your research.

### Simple to use

- Pre-configured settings files for one-touch recording
- Change recording settings in seconds
- Recall data and experimental settings
- Annotate data with comments
- Smart detection of ADI peripheral devices

### Customize your workflow

- Scripting and automation
- Custom arithmetic
- Import/export data in various formats
- Manual or event-driven sampling
- Generate customized stimulus outputs

### Feature rich

- Wide range of sophisticated add-ons purpose built for life science
  - Extensions eg. Spirometry
  - Modules
  - Device enablers
- Record from multiple PowerLabs or from LabChart compatible devices

## Specialized analysis with Add-On modules

Get the full suite of modules with LabChart Pro. The range includes:

*(Some modules are not available on Mac)*

|                        |                                                                                                             |                               |                                                                                                                                |
|------------------------|-------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| <b>Cardiac Output</b>  | Calculates cardiac output from a LabChart recording of a thermodilution curve measured in animals           | <b>Dose Response</b>          | Generates dose response curves, $EC_{50}$ values and additional parameters                                                     |
| <b>Metabolic</b>       | Provides real-time measurements of parameters such as $VCO_2$ , $VO_2$ , $V_E$ and RER                      | <b>Heart Rate Variability</b> | Displays and analyzes variation in the interval between heartbeats in human and animal ECG                                     |
| <b>Blood Pressure</b>  | Automatically detects, analyzes and reports parameters from arterial or ventricular pressure recordings     | <b>Video Capture</b>          | Allows the synchronized recording and playback of a QuickTime movie and LabChart data file                                     |
| <b>Spike Histogram</b> | Detects, discriminates and analyzes extracellular spike activity generating a range of plots and statistics | <b>Peak Analysis</b>          | Automatic detection and analysis of multiple, non-overlapping peaks in recorded waveforms                                      |
| <b>ECG Analysis</b>    | Detects and reports the onset, amplitude and interval times of PQRST from human and animal ECG signals      | <b>DMT Normalization</b>      | Calculates and standardizes optimal vessel pretension conditions using the wire myograph                                       |
|                        |                                                                                                             | <b>PV Loop</b>                | Analyzes left and right ventricular pressure and volume data, calculates loop area and a wide range of hemodynamic parameters. |

## Hardware Compatibility

LabChart can be used with any ADInstruments PowerLab to sample and analyze data from virtually any analog signal.

LabChart can also stream data directly from a range of compatible digital and wireless devices. These are available from manufacturers such as DSI, Oxford, DMT, Equivital, Delsys, and Kent.

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