

## New PowerLab 35 series for better research



The new PowerLab 35 series is ADInstruments next generation of data acquisition systems for life science research.

The new-look systems with aluminum casings provide cleaner signals, compact size, lead-free content, and an extended warranty of 5 years.

### Key features and benefits

- New filters help to improve removal of electromagnetic interference from

electronic equipment in laboratories

- Compact design frees up lab space. Cases are approximately 33% smaller than previous PowerLab systems
- Non-slip, interlockable rubber feet ensure safety, stability and easy stacking
- Up to 40% lighter for even easier portability
- Components meet strict RoHS directive

- Modern extruded anodized aluminum casings for durability and long-lasting good looks
- High quality manufacturing enables our generous 5 year warranty on new PowerLabs units

A complementary range of stackable ADInstruments Front-Ends is available. These are also covered by a 5 year warranty.

[Read more on page 2.](#)

## PowerLab used by 100% of world's top biomedical and life science universities



Quacquarelli Symonds (QS) has announced the Top 100 Life Sciences and Biomedical Universities in the world for 2010, based on academic citations, peer review, recruiter review, faculty student ratio and international orientation.

ADInstruments is proud to announce that PowerLab data acquisition systems are used in 100% of these top universities.

View the list and find out how PowerLab is used at 6 of the top institutions at [www.adinstruments.com/top100](http://www.adinstruments.com/top100)

### More than 50,000 citations

Search Google Scholar to see how ADInstruments is used in over 50,000 papers and other scientific works or view almost 10,000 citations in our own searchable database at [www.adinstruments.com/citations](http://www.adinstruments.com/citations)

## An analysis of teaching success

LabTutor has been used by The Department of Pharmacology at the prestigious Goethe University, Germany, to assist its successful transformation from lecture-based teaching to an active learning course. The results have been published in *Advances in Physiology Education* 34:1-10, 2010.

*"significantly higher marks were reached, thus suggesting that the subjective positive evaluation of the practical orientation of the course was accompanied by objectively assessable learning success" (p. 9)*

**STOP PRESS** LabTutor Suite 4.2 available soon. See page 5.

## Events & workshops

See our website for more details

### Webex Event, UK

5 Jul 11, LabChart Training – Event Manager

### Oxford, UK

11–14 Jul, Physiology 2011

### Washington DC, USA

24–27 Jul, ISOTT 2011

### Zhengzhou, China

29 Jul–1 Aug, 9th Biennial Conference of the Chinese Neuroscience Society

### CO, USA

1–2 Aug, Techniques in Medical Education Workshop

### Boston MA, USA

14–18 Sept, Society for Psychophysiological Research 51st Annual Meeting

### ARC, Ukraine

1–6 Oct, III Congress of CIS Physiologists

### Hartford Conn, USA

12–15 Oct, Biomedical Engineering Society Annual Meeting

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# Cleaner signals, cleaner lab bench, cleaner environment

Record the cleanest data possible with the environmentally friendly, compact and stackable PowerLab 35 series for research – now with 5 year warranty.

## Industry-leading data acquisition

The new PowerLab 35 series offers useful advantages over previous models. It also continues to provide the following advanced features already valued by PowerLab users:

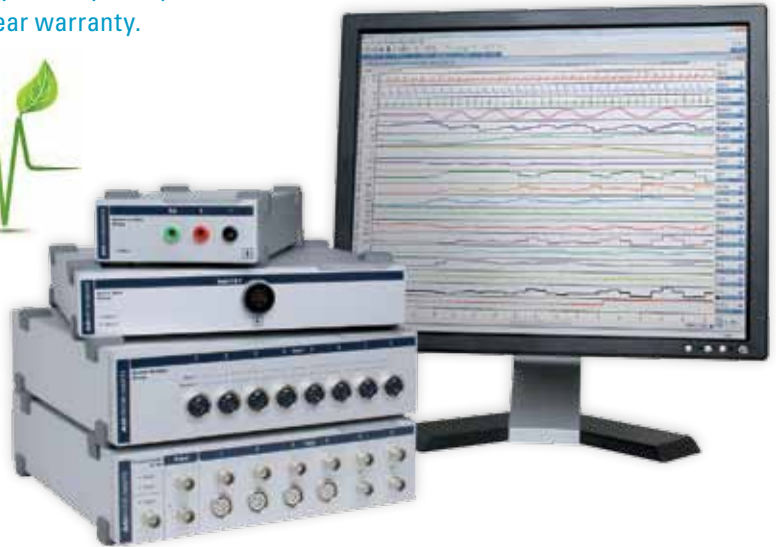
- 16 bit resolution on all gain ranges
- Variable sampling and online computation speeds of up to 200 000 samples/sec per channel (400 kHz aggregate all channels)
- Fast processor for real-time data acquisition without data loss
- Integrated pod ports for greater amplifier and transducer choice
- Digital inputs/outputs for external instrument control and triggering
- Independent stimulator outputs
- High-pass, low-pass and anti-aliasing filters
- AC/DC coupled inputs

## Powerful software

Powerful LabChart data acquisition software is supplied with PowerLab 35 series. Extend capabilities with additional software available:

- **LabChart Pro** includes LabChart software, all LabChart Analysis Modules and 5 years of FREE software upgrades
- **LabChart Reader 7.2** enables viewing and limited analyses of LabChart data files on any computer (FREE to download)
- **GLP. 7.2 (new update)** is an easy and reliable data acquisition solution for a GLP and 21 CFR Part 11 compliant environment

## Quality & safety certification



## Record clean signals

Laboratories contain a range of electronic equipment from refrigerators to cell phones that can produce electromagnetic interference. This adds noise to a biological signal, resulting in an unsatisfactory recording.

PowerLab units already feature a number of hardware and software filters to maximize high integrity ('clean') data. The new hardware filters in the 35 series are located at the source of inputs to assist in preventing contamination before the signal is processed.

## Cleaner environment

Not only does the new PowerLab produce cleaner signal traces, it treads lightly on the earth – an important consideration in scientific research today.

## Green House Gases (GHG)

The 35 series has a new compact extruded aluminum casing, making the systems approximately 33% smaller and 40% lighter than previous PowerLab models. The decreased size, weight and number of parts appreciably reduce the GHG emissions of the 35 series manufacture, shipping and use.

## High quality and safety

All ADInstruments products are manufactured under ISO 9001:2008 Quality System. Because we take equipment and user/subject safety very seriously, we conform to internationally recognized quality safety standards including IEC, CE and UL.

## RoHS and WEEE

GHG emissions are not our only environmental concern – we also aim for both RoHS and WEEE compliancy. The new 35 series PowerLabs are built with parts that comply with the RoHS directive, resulting in the elimination of heavy metals from all components of the PowerLab unit (including solder).

## New PowerLab stacks better

The new inter-lockable non-slip rubber feet and compact design of PowerLab ensure stability on the bench top, and allow units to be stacked into a sturdy tower (please refer to your workplace OH&S guidelines).

In addition, complementary new Front-Ends (signal conditioners) are manufactured to an ideal size for stacking with PowerLab units. Not only does this reduce the bench space required to house equipment, it allows you to arrange hardware according to your research requirements, bench space and personal preference.

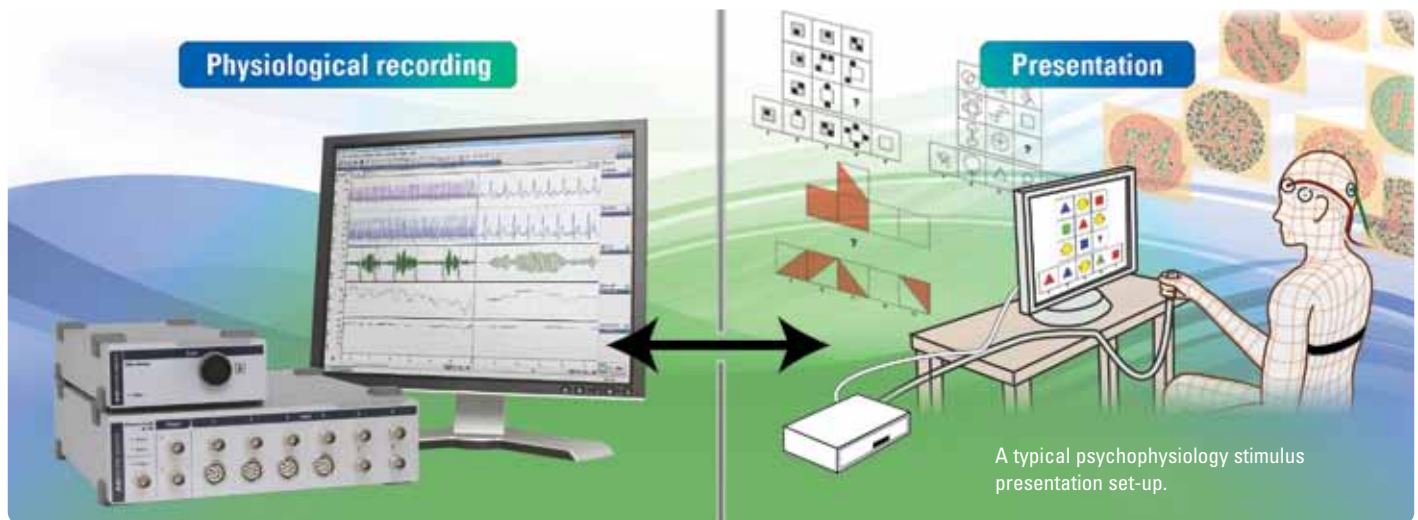
Read more about the new PowerLab 35 series at [www.adinstruments.com/pl35](http://www.adinstruments.com/pl35)

## 5 year warranty

As tangible evidence of ADInstruments commitment to quality, we have increased our warranty for PowerLab systems from three years to five (5) years. This period is **five times longer** than the general industry standard.

# New! Psychophysiology stimulus-presentation systems

ADInstruments, in partnership with Cedrus Corporation, has released new range of complete psychophysiology systems for stimulus presentation and evoked response research. A cost effective kit for use in education is also available.



A typical psychophysiology stimulus presentation set-up.

ADInstruments new psychophysiology systems for research are ideal for experiments based on stimulus presentation and evoked response.

The new systems present and collect data using two computers. The first computer presents stimuli to a subject (SuperLab software) and the second records evoked responses (LabChart software).

## Typical applications

- Response or Reaction Time (RT)
- Mental chronometry
- Psychometric psychology (as an indicator of processing speed)
- Biofeedback
- Stress response

## System components

Research systems are provided with all the hardware and software required for stimulus presentation experiments including:

- 35 series PowerLab unit
- LabChart Pro software (including LabChart, all LabChart Modules and 5 years of FREE upgrades)
- SuperLab 4.5 stimulus presentation software

## Stimulus presentation packages

Product Number	Name	Application
PL3508B110	Stimulus Presentation Foundation System	Research
PL3516B111	Stimulus Presentation Ultimate System	Research
PTK26	Stimulus Presentation Kit	Education

- Transducers
- Accessories

There are SuperLab software package options for researchers who already use a PowerLab system.

## Components to extend experiments

Additional components and accessories are available separately for additional experiments, including

- Response pads for spatial orientation experiments
- Smart voice keys for experiments requiring a vocal response
- A response meter with slide controls for subject responses to a range of stimuli

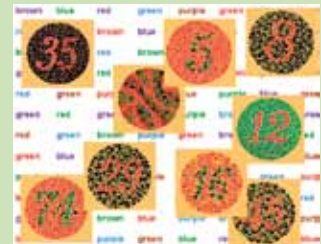
## Kit for educators

The Stimulus Presentation Kit for education is a cost effective package for use with PowerLab teaching systems. It runs SuperLab experiments that record variable responses via the Response Meter, Response Pad, Push Button Switch or Smart Voice Key.

[Read a PowerLab psychophysiology case study on page 5.](#)

## SuperLab 4.5 software

SuperLab stimulus presentation software enables the development of experiments with visual or auditory stimuli and the collection of data including highly accurate reaction times from subjects.



An example of a visual presentation set-up using SuperLab

## Features:

- Synchronizes with LabChart data acquisition software
- Stimuli lists with up to 150 words/pictures
- Event randomization
- Movie file support (QuickTime, avi and mpg)
- Image file support (jpeg, gif, png and tiff)
- Multiple input devices in the same experiment
- Multiple correct responses (more than 1 Button can be designated as correct)
- Built-in support for Rapid Serial Visual Presentation and self-paced reading

# New systems for telemetry research

ADInstruments and Telemetry Research (TR) have released new research systems with hi-tech components for wireless acquisition of signals in laboratory animal subjects.



Our telemetry systems facilitate stress-free, long-term wireless monitoring/recording in conscious free-roaming small subjects.

New systems include the following hi-tech components:

**Telemeters:** select from 5 fully implantable telemetry transmitters including 3 TR/Millar pressure telemeters that incorporate high fidelity solid state Millar Mikro-Tip® catheters.

**SmartPad:** detect up to 16 different telemeters with this receiver/charger. It automatically configures analog outputs and sends data to PowerLab systems for display and analysis with LabChart.

**Configurator:** enables wireless control of Telemeters and SmartPads. You can change/configure Telemeter and SmartPad channel frequencies (1–16) as well as obtain diagnostic information about Telemeter (such as battery charge level) and SmartPad function.

## Parameters measured include:

- EEG
- EOG
- ECG
- EMG
- Intravascular pressure
- Intraluminal pressure

## Features and benefits:

- 2 kHz sampling rate
- Battery replacement not required
- Simultaneous recording and recharging
- Telemeters transmit data to the SmartPad which is fully compatible with PowerLab data acquisition systems
- Software controlled configurator provides Telemeter/SmartPad configuration and diagnostic information

- Transmission range up to 5 meters
- Efficient housing: 16 independent transmission frequencies eliminate the need for animal isolation (ie. cages can be placed side-by-side)

## Advantages of telemetry

Telemetry minimizes interference with a subject's normal behavior, enabling stress-free animals and long-term studies.

## Complete research solutions

The new systems include all the software and hardware required to record pressure and biopotential signals from untethered animal subjects.

Each research system is supplied with a 35 series PowerLab, SmartPad, Configurator and LabChart Pro (LabChart software plus LabChart Analysis Modules and free upgrades for 5 years).

Telemeters are selected and purchased separately. Ask your ADInstruments representative for advice on the most suitable Telemeters for your research.

Telemetry systems that record SNA are also available.

[Read about our telemetry systems at www.adinstruments.com/telres](http://www.adinstruments.com/telres)



Subjects implanted with telemeters can be housed side-by-side in non-conductive enclosures.

## New! Products for the laboratory classroom

### PTK23-V Pharmacology Kit II

This cost effective, high quality kit includes all the components required for isolated tissue studies. It is ideal for performing passive and stimulated isolated striated, smooth or cardiac muscle tissue experiments (including drug titrations, drug metabolism and kinetics, dose responses, washout experiments, muscle force, and stress measurements).



### New range of force transducers

Cost effective and high quality, the new range of aluminum force transducers is suited for teaching isolated tissue and organ bath experiments.

The transducers are automatically detected by the current version of LabTutor when directly connected to a teaching PowerLab.

New sensitive research quality force transducers are also available (up to 20 g force measured).

### PTB4268 Health Science Teaching System (26T)

This complete system is supplied with a PowerLab, LabTutor software, plus transducers and accessories required for LabTutor Medical Laboratories (some additional common consumables may be required for some laboratories).

Please quote code PTB4267 to get LabChart software with this system (in addition to LabTutor).

# LabTutor 4.2 Suite adds new course organization features

Key features include new 'Archive Data' button for fast archiving of student data between courses/semesters and the option to email unfinished (unsubmitted) reports to any email address or completed reports to a course-specific email address.

LabTutor 4.2 Suite gives educators access to over 100 self-contained experiments and 600 exercises that are taught and administered in their entirety using a single computer program.

The soon to be released LabTutor 4.2 Suite will offer new features for LabTutor Server, LabAuthor and LabTutor Online.

## LabTutor Server

New email and archive features optimize organization of student reports.

Administrators or educators can:

- Configure a course-specific email address to which students can submit their completed reports as PDF files
- Allow reports to be sent as PDF files to any email address
- Archive student data between courses
- Gain access to archived student data via LabTutor Server or Online
- Allow students without the benefits of LabTutor Online to email incomplete reports as Word (.docx) files



Incomplete reports can be emailed home. Completed reports can be submitted to a course-specific email.

## LabAuthor

Save time by using the convenient new short-cuts in LabAuthor to find linked content when editing or creating LabTutor experiments.

## LabTutor Online

Access to LabTutor experiments and reports is now extended to users of iPads and iPhones. Online help on Apple Mobile Devices is accessible from the student home page.



New features allow educators to:

- View and categorize archived student data by course and subject

- View archived experiments in PDF format or choose to have them downloaded to a specified location



LabTutor Online offers more than student access to experiments and reports via an Internet connection, it includes features for easier course administration.

## Upgrade for FREE

If you are a LabTutor 3 user, now is a perfect time to upgrade to the new LabTutor Suite free of charge. Contact your ADInstruments representative to find out more.

Check our website for latest updates [www.adinstruments.com/updates](http://www.adinstruments.com/updates)

# PowerLab in use: Psychophysiology at UNSW



Group members L-R: Cameron Hanford, A/Prof. Ute Volmer-Conna, Dr. Burton and Udara Gunawardane

The psychophysiology research group at the University of New South Wales (UNSW), led by Associate Professor Ute Volmer-Conna, examines many aspects of how the mind and body work together.

A/Prof. Volmer-Conna's early and continued success with research exploring the relationships between psychological state, physiology and health has allowed significant expansion of her team and areas of investigation.

The team's research encompasses topics such as:

- Autonomic responses to acute infection
- HRV during sleep in chronic fatigue syndrome and acute infection

- Depression following acute coronary disease
- Reading emotion in the eyes.

## Use of PowerLab with LabChart

A PowerLab 15T connected to a laptop is used to record ECG and HRV data from acute coronary disease inpatients. Its compact size is ideal for constant relocation.

In the laboratory, the group employs a dual computer setup. One machine runs LabChart 7 and the other, a battery of customized psychological tests developed in conjunction with Dr Jim Lemon (UNSW).

At the heart of this team's research systems, a PowerLab 16/30 integrates and synchronizes signals from the psychological testing computer with LabChart 7. R-wave threshold signals from an ECG provide a trigger for auditory cues when testing interoceptive sensitivity.

The flexibility of macros in LabChart 7 allows the group to test subject responses and record observations with both auditory and visual cues.

See our new range of psychophysiology systems on page 3.

## Congratulations to our 2011 grant recipients!



Dr. Gregor Belusic, inaugural winner of the ADI Macknight Progressive Educator Award (top) and Dr. Virginia Lehmkuhl-Dakhwe, Winner of the NABT/ADI Technology Innovation Grant (below).



ADInstruments is committed to giving initiatives that advance life science education and research. View grant information at:

[www.adinstruments.com/corporate\\_giving](http://www.adinstruments.com/corporate_giving)

# Free online training at the convenience of your desk

Join a WebEx training session to master the implementation and advanced analysis options of ADInstruments software.

A range of online software training courses for researchers and educators of all levels is available on the ADInstruments website via WebEx.

The free WebEx sessions include introductory courses for those new to our software, and more in-depth courses for experienced users interested in advancing and fine-tuning their skills.

## LabChart sessions include:

- LabChart basics and Modules
- Application specific analyses
- Macros and automation

## LabTutor sessions include:

- LabTutor basics
- Experiment tailoring (LabAuthor)
- Medical Laboratories

Sign up for training or let us know what you'd like covered in our sessions: [www.adinstruments.com/webex](http://www.adinstruments.com/webex)



The correct fitting of a sphygmomanometer is demonstrated during a WebEx training session.

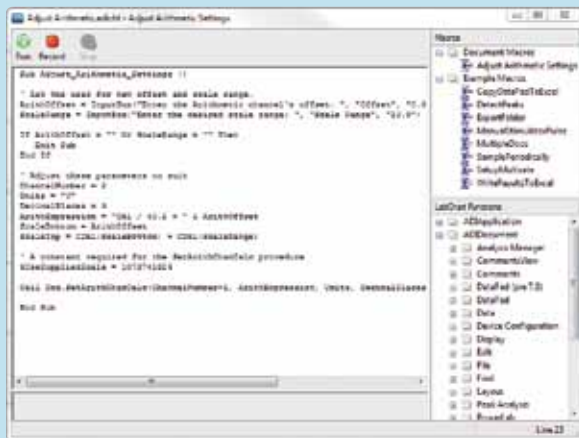
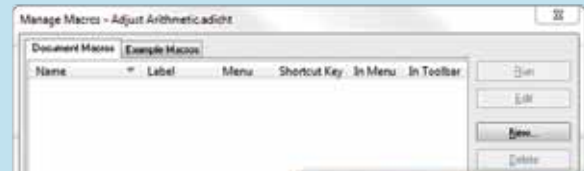


## Software tip

## Use macros to automate repetitive tasks

LabChart macros are a great way of automating complex or repetitive tasks, such as performing custom analysis over an entire file or adjusting recording settings at different stages of an experiment. The macro below is an example of how to simplify setting up complicated Arithmetic channel calculations. This can be very useful when only a few parameters of interest vary between runs of an experiment or when the channel calculation needs to be updated frequently. The macro asks for input and uses this information to update an Arithmetic channel calculation automatically.

1. Open LabChart 7.2.
2. Select the 'Macro' menu on the menu bar and open the 'Manage Macros' dialog box (shown top right).
3. Click on NEW to begin creating a new macro.
4. Enter a name for the macro in the 'New Macro' dialog box, e.g. Adjust Arithmetic Settings (shown right)
5. Paste the macro code in the Macro window (below). Copy the code from <http://www.adinstruments.com/arithmacro>



6. After you have closed the macro, it will appear in the 'Macro' drop down menu and the ToolBar in LabChart (shown below).



The macro is ready to run.

Share macros at: [www.adinstruments.com/forum](http://www.adinstruments.com/forum)

Upgrade to LabChart 7.2 software at [www.adinstruments.com/update](http://www.adinstruments.com/update)

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