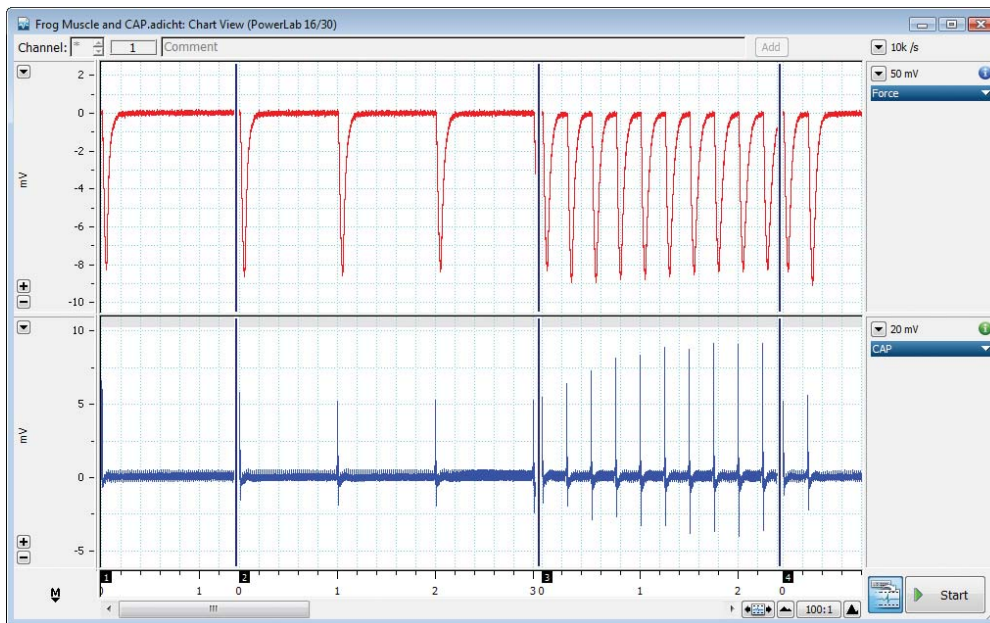


Tissue-Organ Bath Systems

PowerLab® Data Acquisition Systems and Radnoti Glassware



Isolated toad muscle recording in LabChart software. The sciatic nerve was stimulated in the lumbar region and the compound action potential was recorded on Channel 2. The corresponding contraction force was recorded in Channel 1.

Isolated tissue studies allow researchers to control the physiological environment and remove the influence of *in vivo* variables. ADInstruments provides complete solutions for isolated tissue research with the combination of Radnoti glassware and PowerLab data acquisition and analysis systems.

Radnoti Glassware

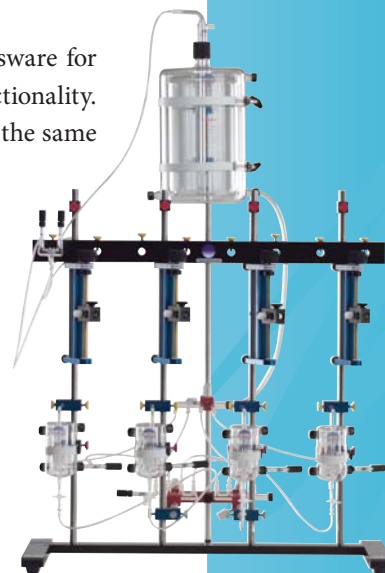
Radnoti Glass Technology has been manufacturing the finest in research glassware for over 35 years. Radnoti has set the standard in glassware technology and functionality. The modular tissue-organ bath design offers researchers the flexibility to adapt the same system for a range of studies by changing organ bath sizes and connecting additional components.

ADInstruments PowerLab Systems

ADInstruments is a world leader in developing and manufacturing data acquisition systems. PowerLab systems feature up to 16 inputs and high-speed USB connection to Windows® and Macintosh® computers. The powerful LabChart® software controls amplifiers and configures the acquisition settings. It also provides comprehensive online and offline analysis features. Used in private industry, institutes and universities worldwide, PowerLab and LabChart are the preferred choice for life science research.

Features & Benefits

- Complete research systems
- Precise and functional glassware with easy-to-adjust modular design
- Powerful data acquisition system
- Easy-to-use software with online and offline analysis
- Specialized dose response analysis software
- Software-controlled signal conditioners
- Research quality transducers



Tissue-Organ Bath Systems

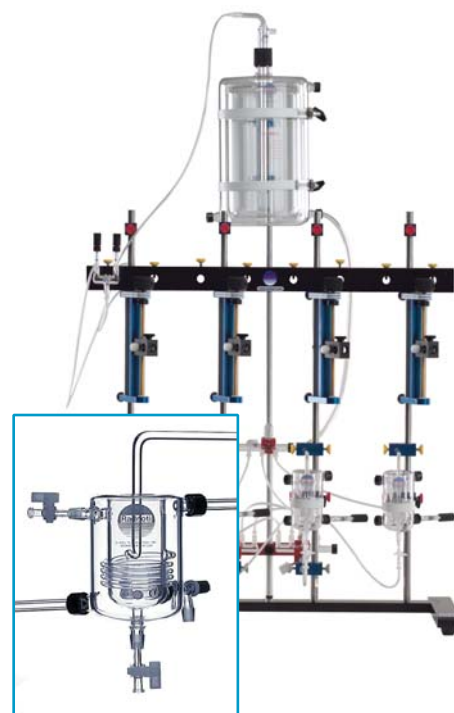
Radnoti Tissue-Organ Bath Systems are the gold standard in pharmacological isolated tissue research and are frequently cited in research papers and validation studies. The high quality glassware and the modular systems allow you to easily add and substitute components. Unique features such as the water-jacketed perfusate tubing and glassware reflect the attention to detail and functionality in design synonymous with Radnoti.

PowerLab data acquisition systems easily integrate with Radnoti glassware to accurately and efficiently record isolated tissue and organ data. ADInstruments has developed four, eight and 16 chamber tissue-organ bath systems that feature the glassware, hardware and software required for a range of isolated tissue studies.

System Components

Tissue-Organ Bath System

- Modular design supports 2, 5, 10, 25, 50, 100, 200 and 300 mL bath sizes. Baths are individually mounted, allowing researchers to easily add and substitute components.
- Conversion kits are available for joining 4 chamber units to create eight and sixteen chamber systems.
- Temperature-controlled, water-jacketed 2 L reservoir for buffer solution. Additional reservoirs can be purchased for complex drug addition and wash-out protocols.
- The perfusate flows through a glass manifold system with flow adjustment valves.
- Each water-jacketed high-tech tissue bath has its own force transducer and micropositioner for rapid adjustment, positioning and measurement.
- Ability to operate in constant flow mode where waste perfusate exits through the overflow outlet located at the top of the bath.



Thermo/Bath Circulator

This bench-top unit provides constant water circulation using a two-stage force and suction pump with a maximum flow rate of 15 L/min and a maximum pump pressure of 0.5 bar. The high-watt heater rapidly warms the water bath to levels between 12°C and 200°C, with a stability level of $\pm 0.01^\circ\text{C}$.

Force Transducers

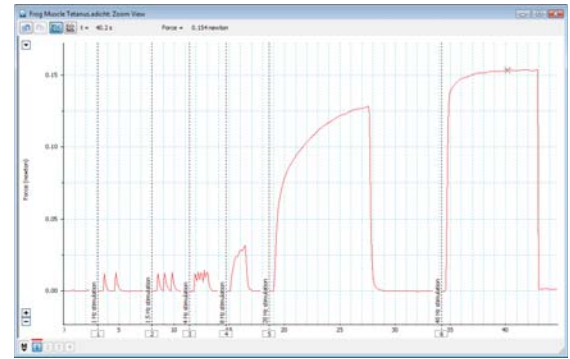
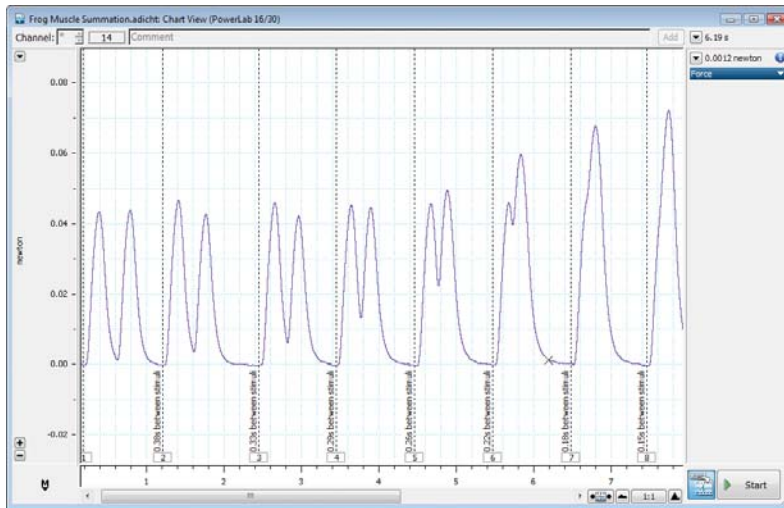
The Force Transducers included with the complete research systems have been specifically configured for use with Radnoti tissue-organ baths. They are ideal for isolated tissue studies where forces of up to 20 g are expected. A highly sensitive isometric transducer with a range of 0 to 25 g is also available separately.

PowerLab Data Acquisition System & Bridge Amps

Each complete research system includes either an eight or sixteen channel PowerLab data acquisition unit and bridge amplifier for acquiring and recording incoming signals in real time. The supplied force transducers connect seamlessly to the quad (4 channel) or octal (8 channel) Bridge Amps, and the signals are recorded and analyzed in LabChart Pro software, which includes a number of analysis modules including Dose Response. The systems provide eight or sixteen input channels with software controlled signal conditioning and easy data display, extraction and analysis features.



Data Acquisition & Analysis



Left: Isolated frog muscle summation recorded in LabChart. Each comment corresponds to an electrical stimulus. Above: Frog muscle tetanus recording displayed in LabChart's Zoom View for easy analysis.

LabChart Software

LabChart software is included with every PowerLab research system, and offers the acquisition and analysis power required for isolated organ and tissue studies. It can record and display up to 32 channels of raw or derived data both online and offline. LabChart software provides a simple way to control parameters of PowerLab units or signal conditioners including signal amplification, sampling speed and unit conversion. You can easily calibrate recording channels into units such as grams or Newtons.

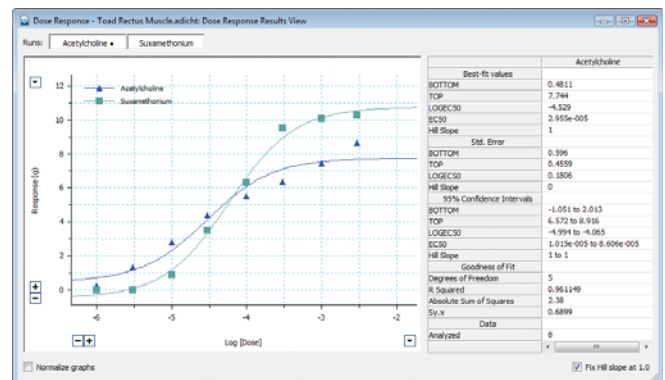
The flexible display in LabChart allows you to review different sections of the trace while still recording. The powerful Data Pad facility calculates and extracts data from recordings. In addition, you can easily export extracted parameters to popular spreadsheet and presentation programs.

LabChart features include:

- Fast experiment set-up and data collection using Settings Files with all experimental settings stored for later use
- Timed Add to Data Pad menu command for automatic, fast and easy extraction of results
- Addition and search of comments (such as dose additions) during or after the experiment
- Real-time display of recorded values in large, easy to view DVM floating windows
- Use of software macros to automate experimental procedures and data analyses
- Support for easy data sharing with colleagues and publishers using the free LabChart Reader application
- Optional Modules for advanced analysis including Dose Response and Peak Analysis

Dose Response Module

The Dose Response Module for LabChart speeds up analysis of isolated tissue recordings. It automatically generates dose response curves and calculates dose response data including EC_{50} values and Hill Slopes from LabChart recordings online and offline.



Dose response curves and parameters generated by the Dose Response Module from a LabChart recording of toad rectus muscle response to Acetylcholine and Suxamethonium.

Dose Response is available as part of the LabChart Pro software package. LabChart Pro is included with each ADInstruments Isolated Tissue-Organ Bath System.

GLP & 21 CFR Part 11 Compliance

ADInstruments GLP Client and GLP Server software operate with LabChart software and PowerLab data acquisition units to provide a data acquisition solution for GLP and 21 CFR Part 11 compliant environments.

The GLP Client provides a non-editable audit trail of all file operations. The GLP Server is a centralized user and signature authorization system that verifies user validity each time a LabChart file is opened or saved.

Tissue-Organ Bath Systems

PL3508B60/C-V Radnoti 4 Chamber Tissue-Organ Bath System†*

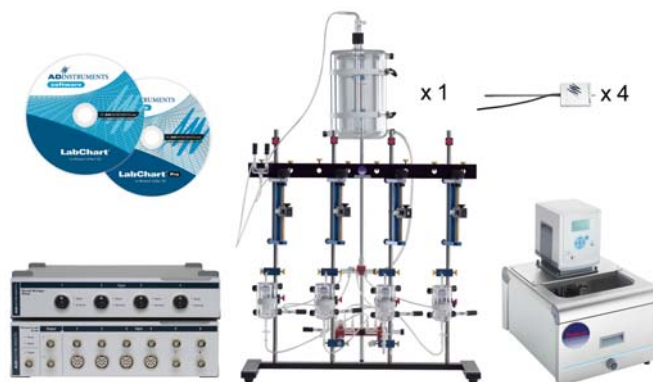
1 x PL3508/P PowerLab 8/35 with LabChart (Win & Mac) includes LabChart Pro software

1 x FE224 Quad Bridge Amp

4 x MLT0420/RAD Force Transducer (20 g)

1 x 159920-X1/C Tissue-Organ Bath†

1 x 170051A-V Thermo Bath/Circulator*



PL3508B61/C-V Radnoti 8 Chamber Tissue-Organ Bath System†*

1 x PL3508/P PowerLab 8/35 with LabChart (Win & Mac) includes LabChart Pro software

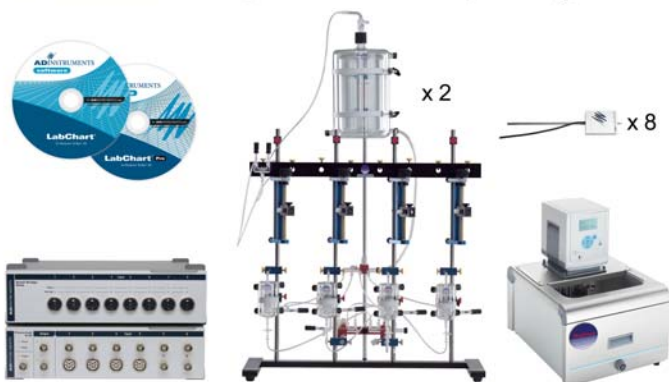
1 x FE228 Octal Bridge Amp

8 x MLT0420/RAD Force Transducer (20 g)

2 x 159920-X1/C Tissue-Organ Bath†

1 x 170051-V Thermo Bath/Circulator*

1 x 120140-C 4 to 8 Chamber Conversion Kit



PL3516B62/C-V Radnoti 16 Chamber Tissue-Organ Bath System†*

1 x PL3516/P PowerLab 16/35 with LabChart (Win & Mac) includes LabChart Pro software

2 x FE228 Octal Bridge Amp

16 x MLT0420/RAD Force Transducer (20 g)

4 x 159920-X1/C Tissue-Organ Bath†

2 x 170051-V Thermo Bath/Circulator*

2 x 120140-C 4 to 8 Chamber Conversion Kit



† Specify tissue chamber: C = 5, 10, 25, 50, 100, 200 or 300 mL

* Specify mains power: V = 115 for 110-115 V or V = 220 for 220-240 V

Software

MLS060/7 LabChart (Win and Mac)

MLS330/7 GLP Client and MLS335 GLP Server (Win)

MLS260/7 LabChart Pro

(Includes the modules listed below. Modules are also available for individual purchase.)

MLS390/7 Dose Response

(Win)

MLS310/7 Heart Rate Variability

(Win and Mac)

MLS340/7 Cardiac Output

(Win)

MLS065/7 DMT Normalization

(Win and Mac)

MLS240/7 Metabolic

(Win and Mac)

MLS320/7 Video Capture

(Win and Mac)

MLS370/7 Blood Pressure

(Win)

MLS062/7 Spike Histogram

(Win and Mac)

MLS395/7 Circadian Analysis

(Win)

MLS360/7 ECG Analysis

(Win)

MLS380/7 Peak Analysis

(Win)

MLS375/7 PV Loop

(Win)



Share your data with colleagues. Free LabChart Reader – download to view and analyze LabChart data.

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PowerLab systems and signal conditioners meet the European EMC directive. ADInstruments signal conditioners for human use are approved to the IEC60601-1 patient safety standard and meet the CSA C22.2 No. 601.1-M90 and UL Std No. 2601-1 safety of medical electrical equipment standards.



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