ADINSTRUMENTS
making science easier

Microvascular Studies

PowerLab® and DMT Wire Myograph Systems

The combination of PowerLab data acquisition systems with DMT wire myographs provides you with a complete solution for pharmacological investigations of vascular structure and function. Wire myograph systems can be used for *in vitro* studies of smooth muscle function in small tubular tissues of 60 µm or greater in diameter, including veins, arteries, bronchi and ureters.

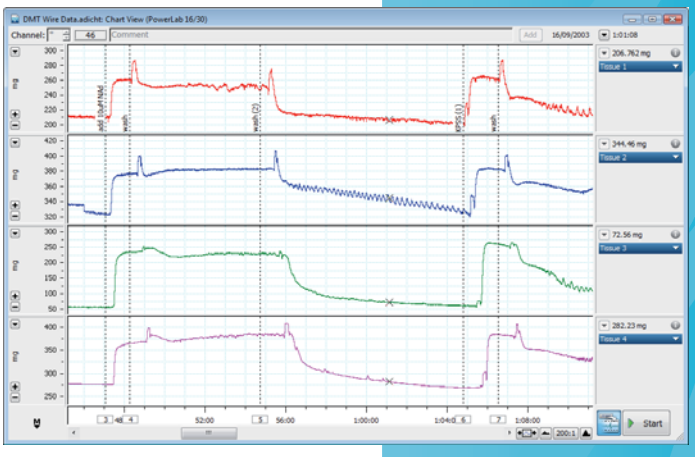
Wire myographs are available in single, dual and four-chamber models. A confocal wire myograph for use with laser scanning microscopy is also available. The myographs are high-quality precision instruments. They feature manual or automatic micropositioners for pretensioning of tissues, and highly sensitive transducers for accurate force measurement.

All myograph units feature built-in temperature control, oxygen and suction ports. The clearly-visible digital display provides menu access to a variety of calibration and parameter settings.

The analog signal from a wire myograph is acquired directly by the PowerLab data acquisition system. PowerLab digitizes the input measurement and LabChart® software continuously displays and records the data in real time. Powerful online and offline analysis features allow you to process results quickly.

Features & Benefits

- Complete microvascular research systems
- Single, dual and quadruple myographs
- Built-in heating, oxygen and suction ports
- High-quality precision instruments
- For use with small tubular tissues >60 µm in diameter
- High resolution force transducers
- Specialized software for calculating optimal pretension conditions
- Compact, solid design



Vascular tension responses from four pretensioned vessels with the addition of noradrenaline

Data Acquisition & Analysis

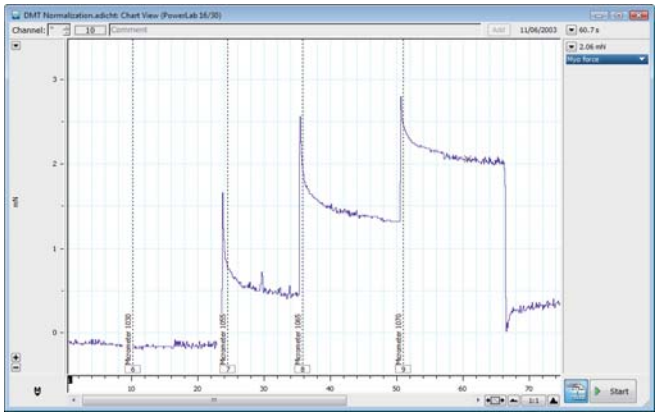
PowerLab Data Acquisition Systems

PowerLab data acquisition systems (comprising PowerLab hardware and LabChart software) provide seamless integration with the wire myographs. This allows you to record tension from *in vitro* vessel preparations. You can also use PowerLab systems, with suitable probes and transducers, to record, display and analyze other parameters such as pH and temperature.

You can easily calibrate recording channels into appropriate units such as grams or Newtons. The flexible LabChart display allows you to zoom in on different sections of the trace while recording and performing real-time calculations. You can mark and annotate events with comments, and extract and analyze signal data using the Data Pad feature.

LabChart Software Advantages

- Data Pad feature can be used to extract experimental results easily and efficiently
- Data Pad mini windows clearly display current statistics or measurements
- Easy calibration (using Units Conversion) allows you to display the signal with meaningful units
- Macros allow automation of experimental procedures and efficient data analysis
- Data can be transferred easily into spreadsheet and graphing programs



Data recorded with LabChart software and PowerLab showing step-wise distension and force measurement of the tissue.

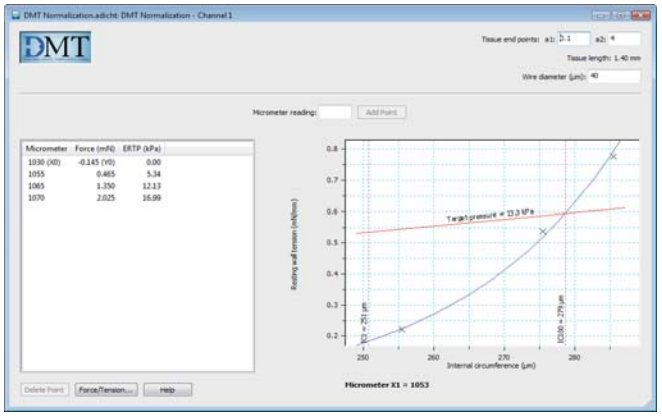
DMT Normalization Module

The DMT Normalization Module for LabChart (Windows® and Mac® OS) allows you to calculate the pretension conditions quickly and easily in experiments using microvessels, or any small tubular tissues.

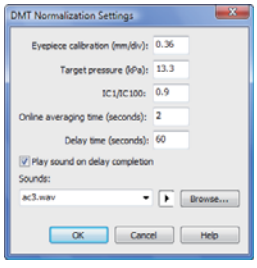
The DMT Normalization Module automatically calculates effective pressure and determines optimal micrometer setting (pretension) for each piece of tissue prior to experimentation.

This ensures that factors such as contractile tissue volume and size of tissue are taken into account before experimentation and makes interpreting the resultant experimental data easier.

As pretension can affect the function of smooth muscle, it is important to standardize the tension placed on individual tissues. The normalization procedure involves sequential stretching of the tissue and recording of the resultant force. From the force measurement the Module calculates and displays an exponential curve of the tissue's internal circumference to resting wall tension. The software uses previously validated and published algorithms to calculate the final micrometer setting for standardizing each piece of tissue.



Above: DMT Normalization Module window with step-wise distension of the tissue using the micrometer and the recorded developed force. The curve is automatically generated from the calculated internal circumference and resting wall tension by the module.



Left: DMT Normalization Settings dialog.

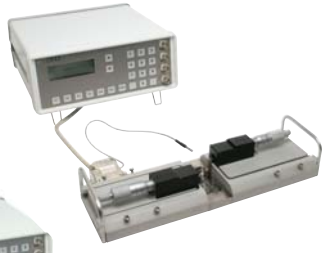
Product Selection

DMT Myographs

All myograph units feature unique stainless steel jaws that accommodate tubular structures of diameters between 60 µm and 3 mm. The user mounts tissue segments on the jaws as ring preparations, with stainless steel wire (25 µm or 40 µm). You can also study vessels up to 8 mm in diameter using special pin supports supplied with the DMT610M. One jaw is attached to a micropositioner to control vessel circumference and pretension. The other jaw is attached to the sensitive built-in transducer for the measurement of force. All wire myograph chambers are temperature controlled and have ports for oxygenation and removal of solution.

DMT310A Single Wire Myograph

The DMT310A features a single chamber (10 mL) suitable for examination of vessels ranging from 60 µm to 3 mm diameter. This model has a window in the chamber base and is ideal for morphological and fluorescence measurements.

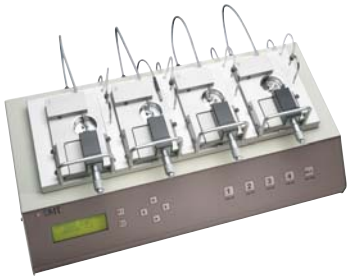


DMT410A Dual Wire Myograph

The DMT410A is suitable for simultaneous testing of two vessels exposed to identical drug concentrations. The chamber can be divided into two 5 mL compartments, so you can simultaneously test different drugs or experimental conditions. You can obtain morphological and fluorescence measurements using the window in the base of the chamber.

DMT510A Auto Dual Wire Myograph

In addition to the features described above for the DMT410A, the DMT510A features automated control of the micropositioners. This enables you to determine passive length-tension relationships of the vessels.



DMT610M Multi-Chamber Myograph

The DMT610M is ideal for simultaneous testing of multiple vessels, with 10 mL chambers conveniently arranged side by side in a single unit. It is useful in work requiring high throughput, such as drug screening. Each chamber of the DMT610M features needle valves for individual control of chamber oxygenation, automatic time control of chamber suction and selectable force ranges.

DMT120CW Confocal Wire Myograph

The DMT120CW is used to measure vessel tension during highly–resolved imaging of fluorescent dyes within living tissues using laser-scanning microscopy. You can make simultaneous measurements of isometric force and intracellular Ca^{2+} or pH (optical equipment not included).

DMT800MS Muscle Strip Myograph

This system is used for simultaneous measurements of up to four isolated skeletal or cardiac muscle preparations, up to 15 mm in length. The rectangular shape of the chambers in the muscle unit can be used to study large strips of various organs, including large pieces of smooth muscle. The unit is supplied with clamp supports with an optional chamber cover with electrodes for field stimulation available.

Ordering Information

Complete Wire Myograph Systems

ML870B21 Single Wire Myograph System	
1 x ML870	PowerLab 8/30
1 x DMT310A	Single Wire Myograph
1 x MLS260	LabChart Pro

ML870B22 Dual Wire Myograph System	
1 x ML870	PowerLab 8/30
1 x DMT410A	Dual Wire Myograph
1 x MLS260	LabChart Pro

ML870B23 Auto Dual Wire Myograph System	
1 x ML870	PowerLab 8/30
1 x DMT510A	Auto Dual Wire Myograph
1 x MLS260	LabChart Pro

ML870B24 Multi-Chamber Wire Myograph System	
1 x ML870	PowerLab 8/30
1 x DMT610M	Multi-Chamber Wire Myograph
1 x MLS260	LabChart Pro

ML870B25 Confocal Wire Myograph System	
1 x ML870	PowerLab 8/30
1 x DMT120CW	Confocal Wire Myograph
1 x MLS260	LabChart Pro

Complete Wire Myograph Systems include LabChart Pro software. LabChart Pro contains all ADInstruments LabChart Modules, including the DMT Normalization Module.

Individual Items & Software

Code	Description
DMT310A	Single Wire Myograph
DMT410A	Dual Wire Myograph
DMT510A	Auto Dual Wire Myograph

Code	Description
DMT610M	Multi-Chamber Wire Myograph
DMT120CW	Confocal Wire Myograph
DMT800MS	Muscle Strip Myograph

Normalization Module
MLS065/6 DMT Normalization Module (Win & Mac)

GraphPad Prism	
MLS080	GraphPad Prism® (Win)
MLS081	GraphPad Prism® (Mac)

GLP Software
MLS330/6 GLP Client (Win)
MLS335/6 GLP Server (Win)

About the Manufacturers

ADInstruments is a leading developer of computer based data recording equipment for life science research. Since 1988, we have been developing and manufacturing the data acquisition system that researchers prefer to use – PowerLab. Offering the functionality of a multichannel, real-time chart recorder, variable sampling speeds and computer based data handling, PowerLab systems continue to revolutionize the way scientists collect, record and analyze data.

DMT is a medical and biotechnology company with more than twenty years experience in the development and manufacture of myograph equipment. Basing the designs and techniques on the methodologies of Professor M. J. Mulvany, (University of Aarhus, Denmark), DMT has integrated the needs of the user with first class mechanical, electronic and software engineering to become one of the world's leading designers and manufacturers of wire myographs.

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

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.

GLP 21CFR Part11 Compliance

ISO 9001:2000 Certified Quality Management System

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