

Isolated Heart Systems

Langendorff and Working Heart Studies with PowerLab Systems

ADINSTRUMENTS
making science easier

Never miss a beat with powerful Langendorff and Working Heart research systems

Achieve great results with research grade Radnoti glassware, reliable PowerLab data acquisition and the flexible analysis of LabChart Pro. Offering a wide range of signal conditioners and transducers, ADInstruments complete systems provide everything you need for your isolated heart research.

Whether you want to monitor mechanical and electrical cardiac parameters without the influence of other physiological processes, examine the influence of preload and afterload on cardiac work or record atrial and aortic pressures, our systems can support your research with simple set up, flexible recording and powerful analysis.

World-leading LabChart Pro software lets you automate valuable calculations including EC₅₀ and Hill slopes, easily calculate arterial and ventricular pressure signals as well as detect and report on PQRST intervals and amplitudes.

Highlights

- Complete research solutions for small animal studies
- Modular glassware for simple assembly and reconfiguration
- Software-controlled data acquisition hardware and signal conditioners
- Easy-to-use and powerful LabChart Pro software for data acquisition and display
- Specialized software Add-Ons for BP, dose response and ECG analysis

Modular glassware

Each Isolated Heart system includes easy to assemble Radnoti glassware that can be easily adapted for a range of studies.

- Modular design allows for extreme flexibility and system reconfigurations
- Complete water-jacketed glassware and tubing for superb temperature control
- Powerful Thermal Bath/Circulator provides start-up to 37°C in 15 minutes with excellent accuracy
- Hi-tech heart chamber with threaded cap and access ports for easy insertion of cannulae and probes
- Quick and easy disassembly with quick-disconnect tubing
- Independently adjustable preload and afterload pressure
- Single pass perfusion or recirculation modes for experiment flexibility
- Fully autoclavable crystal clear borosilicate glassware



Langendorff Systems

Study heart function with ADInstruments versatile Langendorff systems. Systems include modular Radnoti glassware and comprehensive LabChart Pro software for powerful analysis.



Key components of the Langendorff system for rats. For a full list of components visit adi.to/complete

Constant Perfusion Flow

Examine the changes in coronary resistance using pressure measurements, without coronary flow autoregulation. The system is ideal for drug titration experiments (syringe pump purchased separately).

Constant Perfusion Pressure

Monitor and relate coronary flow changes to the agonistic/antagonistic effects of drugs or other interventions.

Langendorff System Parameters

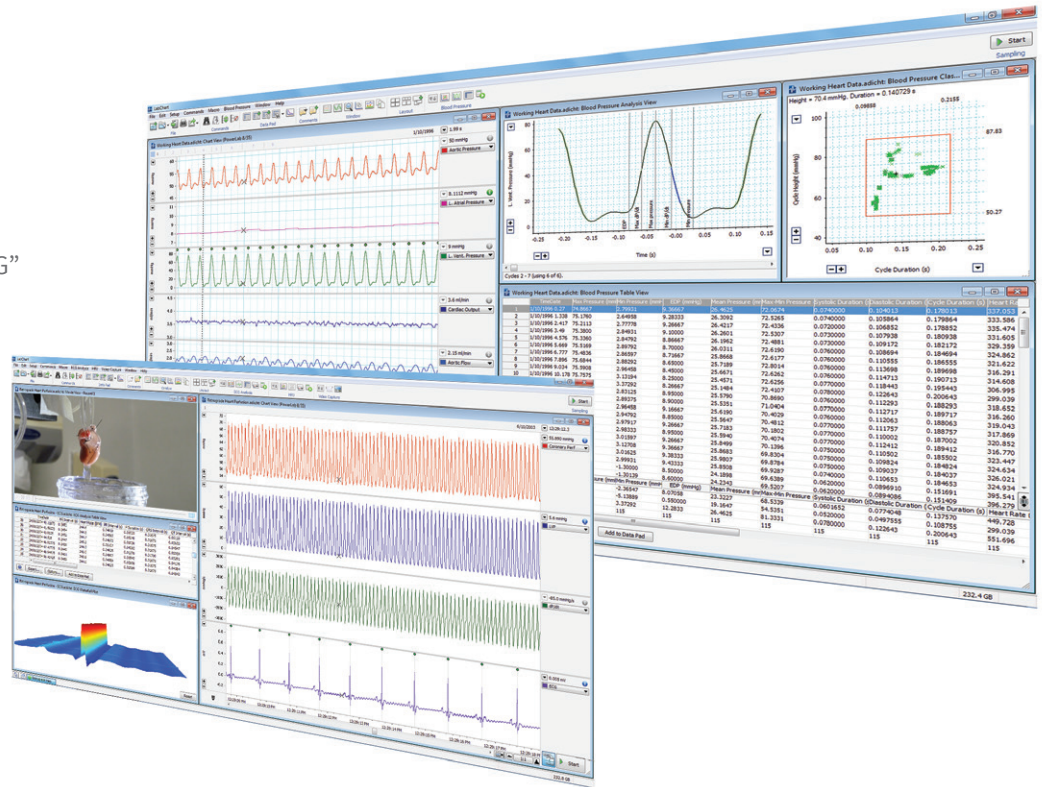
- Perfusion Pressure
- Left Ventricular Developed Pressure
- Biphasic Action Potentials “ECG”
- Heart Rate
- Temperature

Working Heart Systems

Advance cardiac investigations with ADInstruments Working Heart and Working Heart Ultimate systems. All systems include high quality Radnoti glassware, powerful PowerLab data acquisition hardware, LabChart Pro analysis software and high quality components for measuring cardiac parameters.

Working Heart System parameters

- Aortic Pressure (Afterload)
- Left Atrial Pressure (Preload)
- Aortic Line Systolic & Diastolic
- Biphasic Action Potentials “ECG”
- Heart Rate
- Temperature



Working Heart Ultimate System parameters

In addition to recording the core Working Heart System parameters, the Working Heart Ultimate System includes a 16 channel PowerLab and high quality hardware to also measure:

- **Left Ventricular Pressure (LVP)**
with Millar Mikro-Tip® Pressure Transducer Catheter
- **Atrial Inflow & Aortic Outflow**
with Transonic Transit-Time Ultrasound Technology Flowmeter and Flowsensors
- **Oxygen (O₂) Concentration**
with Microelectrodes Oxygen Microelectrode
- **pH**
with ADInstruments pH Amp
- **Pacing/Electrical Stimulation**
with ADInstruments Stimulus Isolator

For a full list of components visit adi.to/heart

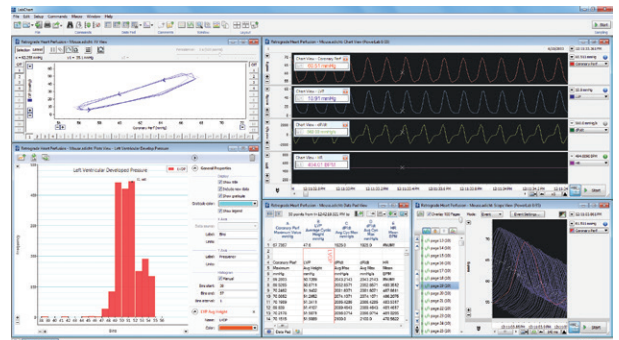


Data acquisition and analysis

Record and analyze data quickly and easily using LabChart Pro software.



- Easy software control of PowerLab units and signal conditioners
- Powerful real-time software analysis
- Settings files with saved parameters for quick experiment set-up and reproduction
- Automatic extraction into Data Pad (LabChart's built-in spreadsheet) for fast statistical analysis
- 32 channels for data display and extensive channel calculations
- Real time advanced and automated analysis with Add-Ons for Blood Pressure, ECG Analysis, HRV, Peak Analysis and Dose Response



Compare Systems

PowerLab	Mouse Langendorff	Mouse Working Heart	Mouse Ultimate Working Heart	Rat Langendorff	Rat/Rabbit Working Heart	Rat Ultimate Working Heart
PowerLab 35 Series	8 channels	8 channels	16 channels	8 channels	8 channels	16 channels
System measurements						
Temperature	✓	✓	✓	✓	✓	✓
Biphasic Cardiac Action Potential	✓	✓	✓	✓	✓	✓
Heart Rate	✓	✓	✓	✓	✓	✓
Pressure						
Perfusion/Aortic Pressure	✓	✓	✓	✓	✓	✓
dP/dt	✓	✓	✓	✓	✓	✓
Left Ventricular (LV) Developed Pressure	✓	✓	✓	✓	✓	✓
LV Pressure			✓			✓
Left Atrial Pressure			✓			✓
Flow						
Atrial Inflow			✓			✓
Aortic Outflow			✓			✓
pH			✓			✓
O ₂ Concentration			✓			✓
Pacing/Stimulation			✓			✓

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 international standards. ISO 9001:2008 Certified Quality Management System. PowerLab and LabChart are trademarks of ADInstruments Pty Ltd. All other trademarks are the property of their respective owners.



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