

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

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

Typical studies:

- Arrhythmia
- Cardiac contractility and compliance
- Cardiac model development
- Cardiac transplantation
- Cardiotoxicity
- Cardiovascular biology
- Heart failure



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

Applications include:

Cardiomyopathies • Diabetes • Hypertension • Ischaemic reperfusion injury

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



Radnoti Heart Chamber
for rats and mice

Langendorff Systems - Radnoti

Monitor an isolated heart while perfusing the coronary arteries with a nutrient solution. This allows you to record and analyze multiple cardiac parameters such as left ventricular developed pressure, HR and more.

The ADInstruments Radnoti Langendorff Foundation Systems combine the corresponding high-quality glass apparatus with a versatile PowerLab and LabChart data acquisition system for rodent (mice and rats) Langendorff isolated heart perfusion experiments. Benefits of these systems include:

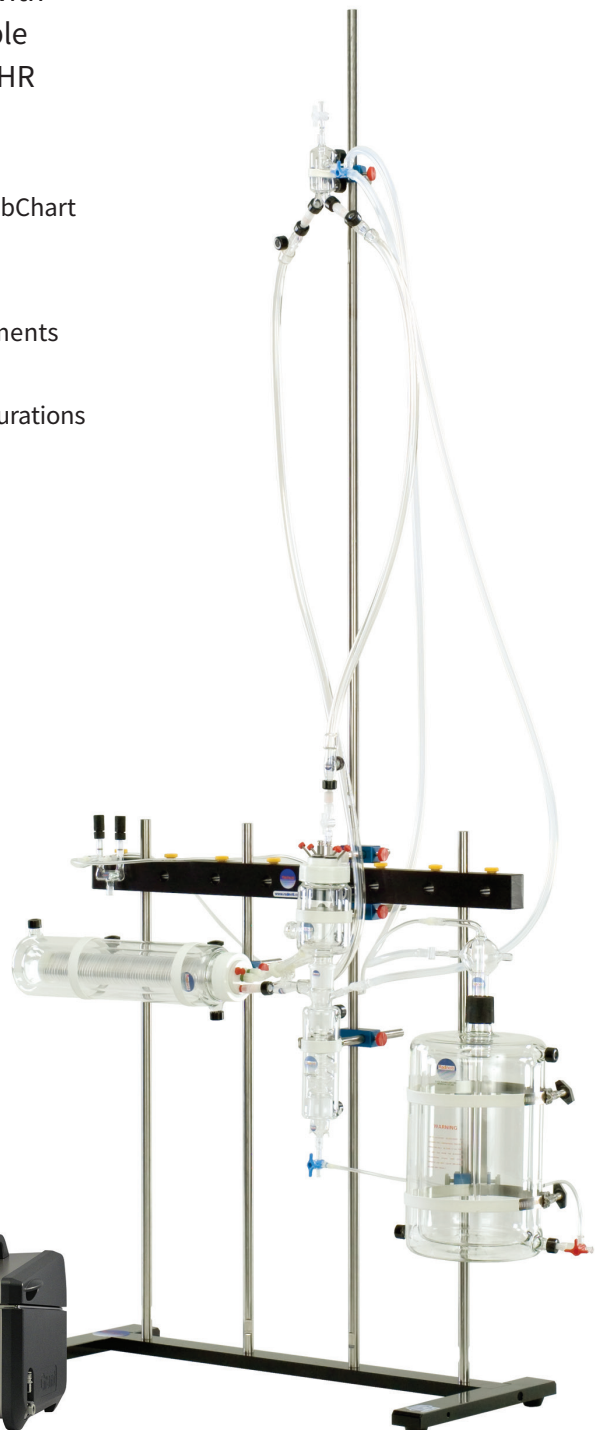
- Modular glass apparatus providing easy and straightforward fine adjustments including:
 - Available in constant perfusion pressure or constant perfusion flow configurations
 - Option to recirculate the perfusate
 - Measuring from multiple locations in the perfusion circuit
- LabChart Pro software providing powerful real-time and offline analysis features
- Freedom to tailor required measurements by selecting from a range of associated kits and accessories

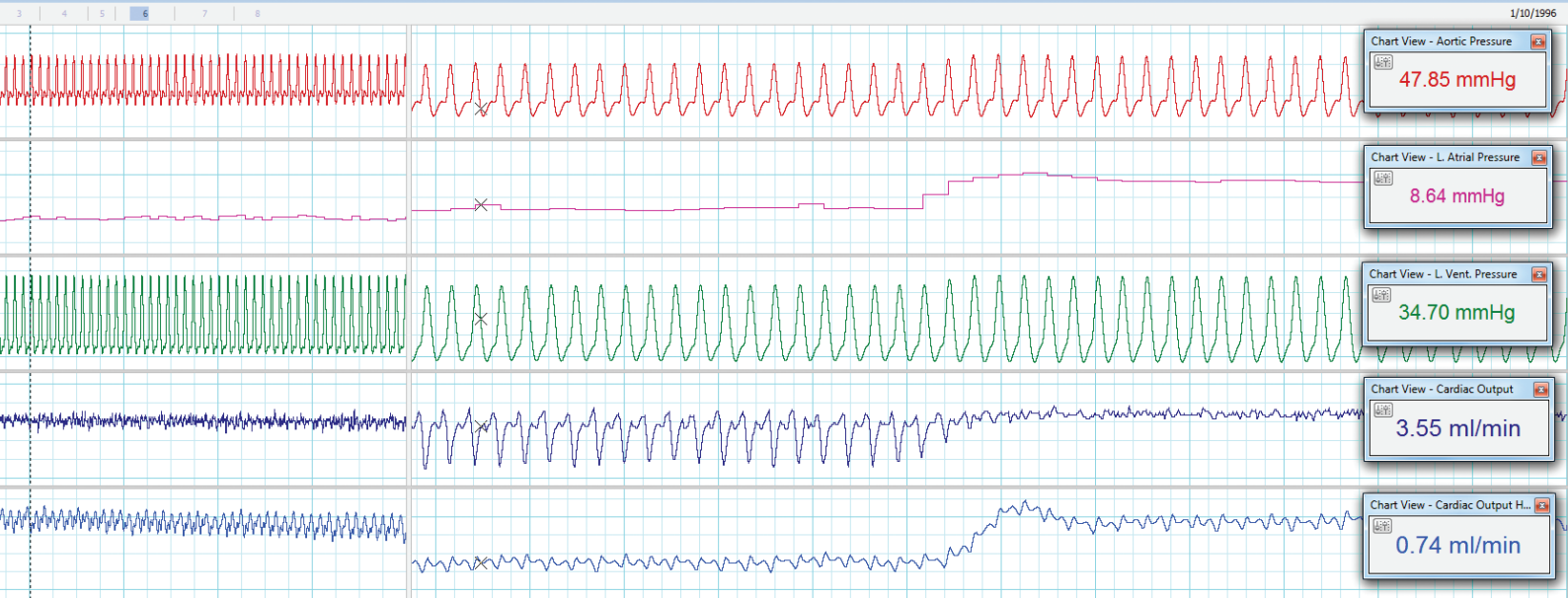
Isolated Heart Kits *(purchased separately)*

- Isolated Heart Pressure Kits
- Isolated Heart Action Potential Kits
- Isolated Perfusion Temperature and pH Kit
- Isolated Perfusion O₂ and CO₂ Kit
- Isolated Heart Pacing Kits
- Isolated Heart Volume Flow Kits

Accessories *(purchased separately)*

- Pressure Gauge Kit
- Pressure Transducer Simulator/Tester
- Water Jacketed Flow Through Electrode Holders





Working Heart analysis in LabChart

Working Heart Systems - Radnoti

Radnoti Working Heart apparatuses are designed to physiologically perfuse isolated heart preparations, maintain its cardiac function, and are available in recirculating and non-recirculating configurations.

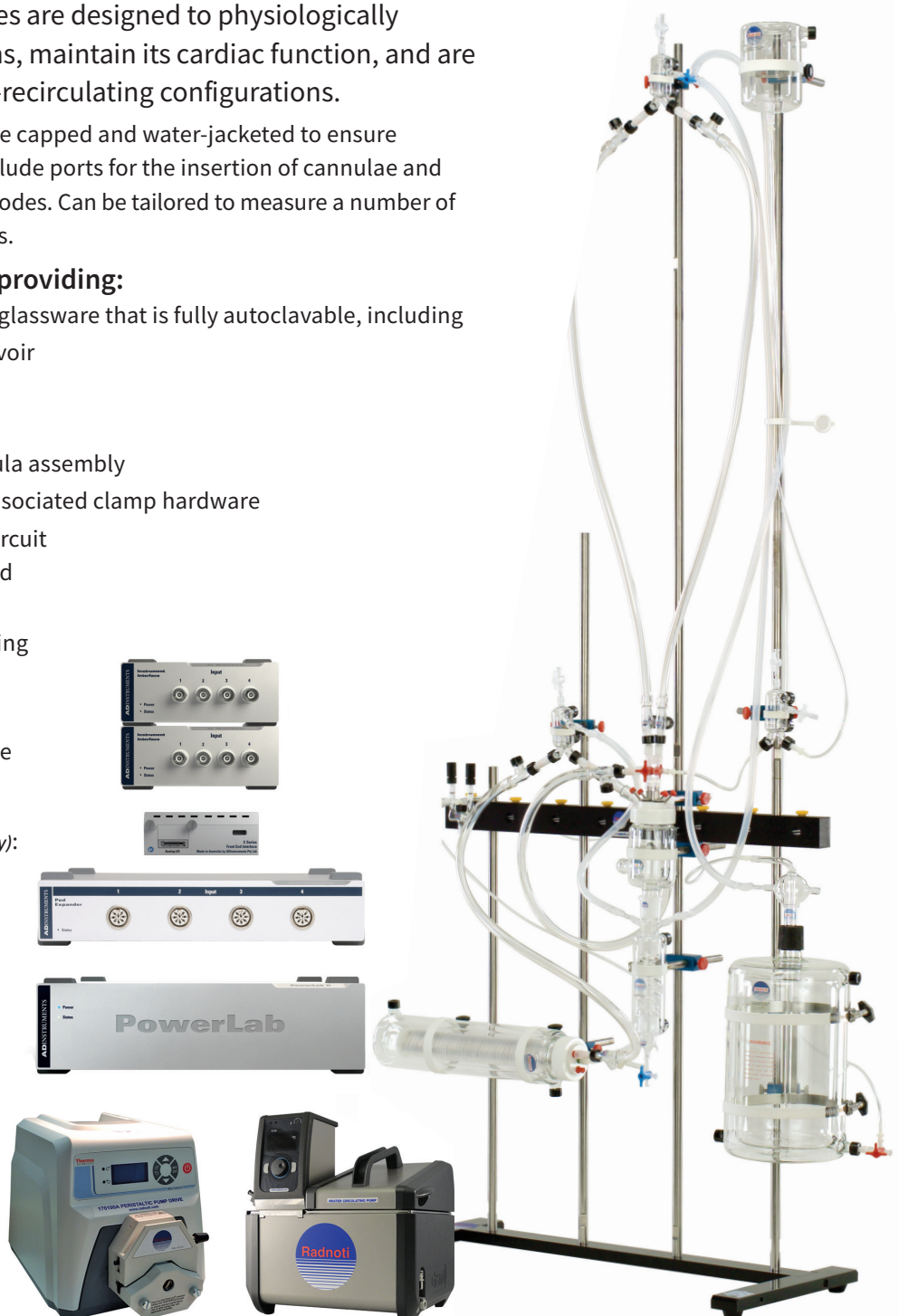
With options for mice or rats, systems are capped and water-jacketed to ensure constant perfusate temperature and include ports for the insertion of cannulae and commonly-used packing and ECG electrodes. Can be tailored to measure a number of research parameters via streamlined kits.

Features of each design includes providing:

- High quality crystal clear borosilicate glassware that is fully autoclavable, including
 - Radnoti 2.0 L Water Jacketed Reservoir
 - Compliance Bubble Trap (5 ml)
 - Radnoti Hi-Tech Heart Chamber
- An appropriate aortic and atrial cannula assembly
- A sturdy lab stand assembly and all associated clamp hardware
- A complete water jacketed perfusion circuit and all necessary tubing pre-assembled
- A Radnoti Tubing Adapter Kit for connector replacements or minor tubing customizations
- Radnoti Thermal Bath/Circulator
- Peristaltic Pump Drive with compatible Easy Load Pump Head

Isolated Heart Kits (purchased separately):

- Working Heart Pressure Volume Kits
- Isolated Heart Pressure Kits
- Isolated Heart Action Potential Kits
- Isolated Perfusion Temperature and pH Kit
- Isolated Perfusion O₂ and CO₂ Kit
- Isolated Heart Pacing Kits
- Isolated Heart Volume Flow Kits
- Isolated Heart Intracardiac Electrophysiology Kits



Hardware Connectivity

PowerLab

+ Front End Interface
(recommended)



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

PowerLab

Data with integrity

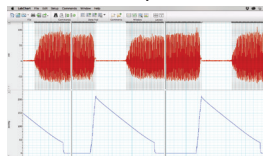


PowerLab is engineered for precise, consistent, reliable data acquisition for life science research, giving you the reproducible data you need while meeting the strictest international safety standards.

Software Connectivity

LabChart

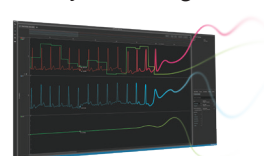
All your analysis
in one place



LabChart data analysis software creates a platform for all of your recording devices to work together, allowing you to acquire biological signals from multiple sources simultaneously and apply advanced calculations and plots.

LabChart LIGHTNING

Data acquisition and
analysis re-imagined



LabChart Lightning is the latest iteration of our 34-year history of creating easy to use data acquisition and analysis software, empowering innovative researchers to make unique scientific discoveries with unlimited freedom and flexibility.

Each foundation system is supplied with a PowerLab C, LabChart 8 Pro Software, a Thermal Bath/Circulator, Peristaltic Pump, two Instrument Interfaces and a Pod Expander. They can be instrumented with compatible isolated heart kits as required. Additional PowerLab C and Instrument Interface may be required depending on the complexity of the final configuration.

Foundation System Comparison

Product Configuration	Langendorff				Working Heart	
Animal Heart	Mice		Rat		Mice	Rat
Mode	Constant Flow	Constant Pressure	Constant Flow	Constant Pressure	Langendorff/ Working Heart	Langendorff/ Working Heart
Isolated Heart Kits						
Temperature & pH	✓	✓	✓	✓	✓	✓
Heart Pacing	✓	✓	✓	✓	✓	✓
Fluid-Filled Pressure	✓	✓	✓	✓	✓	✓
Ventricular Developed Pressure			✓	✓		
Mikro-Tip Pressure	✓	✓	✓	✓	✓	✓
Single Monophasic Action Potential	✓	✓	✓	✓	✓	✓
Single Biphasic Action Potential			✓	✓		✓
Multi Biphasic Action Potential			✓	✓		✓
Volume Flow		✓		✓	✓	✓
Pressure Volume					✓	✓

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