



## Measure data from closer to the heart with this isolated heart system for retrograde perfusion

Enhance your cardiovascular research with the ADInstruments Rodent Langendorff System. This apparatus is ideal for small animal hearts, such as mouse and rat, and allows you to measure cardiac contractile strength (inotropic effects), heart rate (chronotropic effects) and vascular effects, without influence of neuronal and hormonal factors.

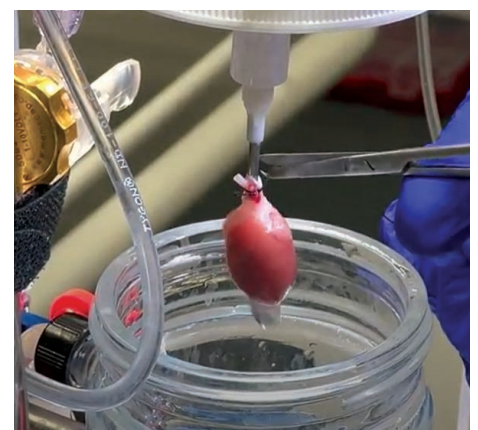
Our modular, yet compact, design maintains the heart in a temperature-controlled chamber, while perfusing the coronary arteries with a nutrient solution. Evaluate cardiac function under conditions of constant perfusion flow or constant perfusion pressure.

### Highlights

- Modular design for flexible experiment requirements
- Measure signals closer to the heart with the Direct Perfusion Core
- Quick perfusion from reservoir to the heart
- Double walled glassware for stable temperature maintenance
- Clear perfusate pathway, with no visual blockages to identifying bubbles or particulate matter
- Simple to switch between constant perfusion flow and perfusion pressure modes
- Monitors, records, displays and analyzes coronary artery function and perfusion pressure in real time

### Typical Studies

- Vascular biology
- Ischaemic reperfusion injury
- Hypertension
- Diabetes
- Heart failure
- Cardiac model development
- Cardiomyopathies
- Arrhythmia
- Cardiotoxicity



Mounting a rat heart on the ADInstruments Rodent Langendorff Apparatus

# Tailor your Langendorff System to your needs

Combined with the C Series modular data acquisition systems and LabChart Lightning, the ADInstruments Rodent Langendorff Foundation System is ideal for researchers looking to invest in customizable solution which can expand as your research does.

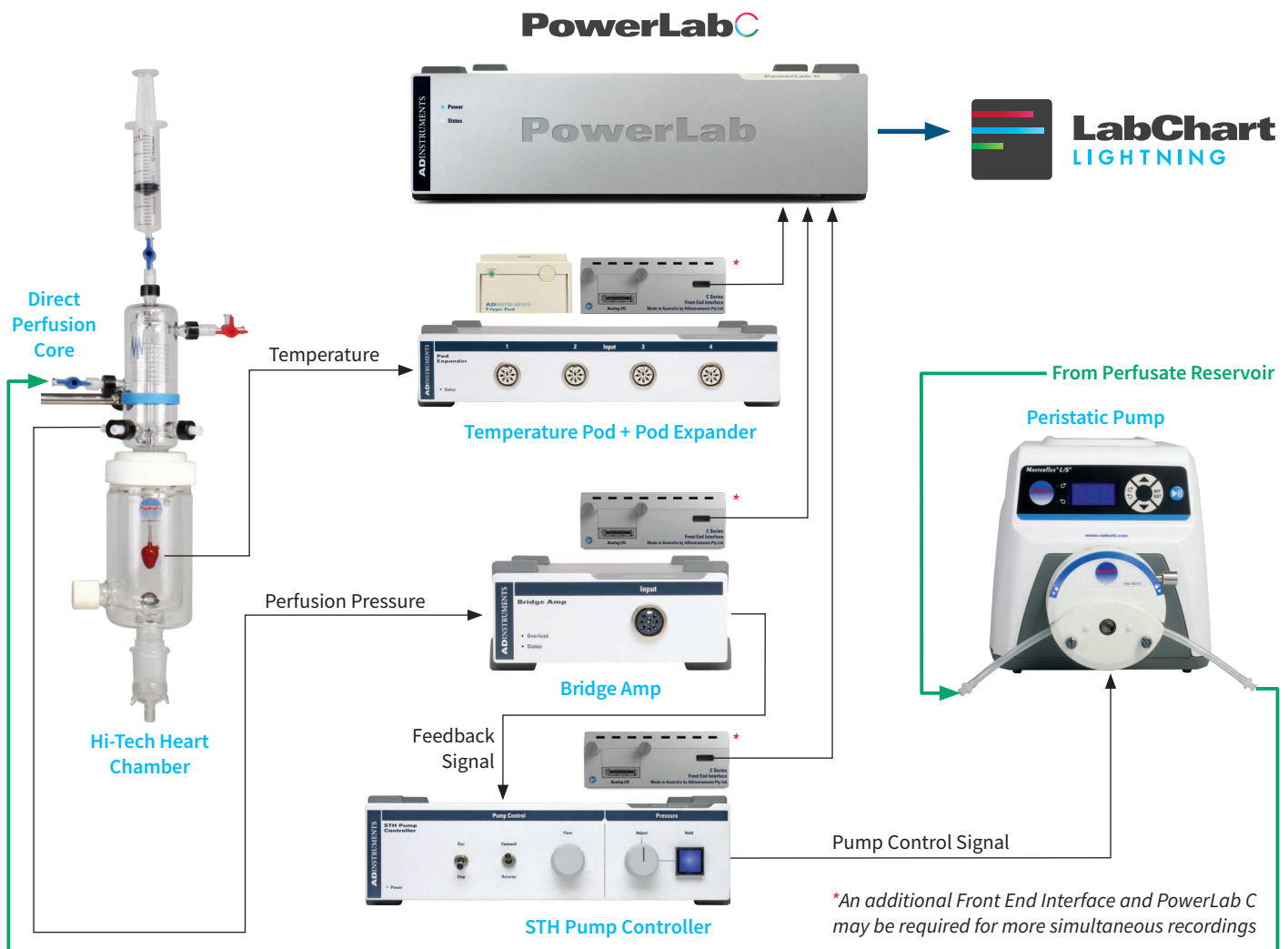
Simultaneously record up to 32 channels of data with the PowerLab C. Achieve sub- $\mu$ S time synchronization for seamless data acquisition, and manage power delivery for four peripheral devices.

Record and analyze data across multiple recordings in LabChart Lightning, with unlimited channels and custom calculations to support innovative researchers in making unique scientific discoveries.



PowerLab C Rodent Langendorff Foundation System

## Overview of the Rodent Langendorff Foundation System



# A redesigned apparatus to better quality research

The Rodent Langendorff System features a unique design, benefiting from the combined experience and expertise of ADInstruments and Radnoti.



## Direct Perfusion Core

Unique to the ADInstruments Rodent Langendorff, the Direct Perfusion Core allows you to measure signals from closer to the heart for more accurate data. Insert measuring sensors in any of four perfectly crafted luer ports. Re-oxygenate your buffer during waiting time. Take advantage of a built-in compliance chamber that traps any air bubbles and reduces pressure oscillations due to the pump.

## Hi-Tech Heart Chamber

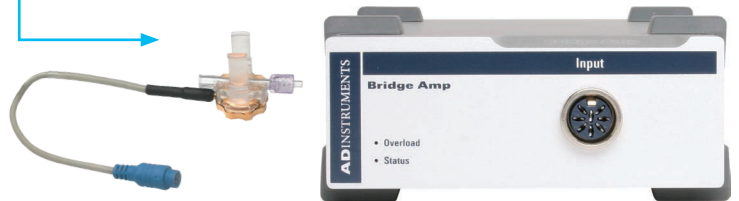
Tailor the heart chamber to different experimental needs, such as a side port for direct force measurement at the heart's apex with an Apical Force Pulley Assembly, or securely fastening to its lid to allow filling of the chamber.

## Easy-to-use Langendorff Apparatus

This system is easy to assemble and clean. Made from the highest quality borosilicate glass, each piece can be autoclaved or replaced as needed. Detect air bubbles or contaminants easily with a transparent perfusate pathway. Spend less time maintaining lab cleanliness with a spill tray to collect overflow, and corrosion-resistant metal. Benefit from system flexibility with single- or double-reservoir options.

## Accurate Pressure Measurements

Piezo-resistive Physiological Pressure Transducers are highly accurate and robust. Easy-to-fill domes connect to transducers quickly and easily, without leakage. The software-controlled, Bridge Amp amplifies pressure signals with low drift.



## Customize your Langendorff system with accessories

Choose from a range of accessories including fluid-filled, balloon-tipped catheter to monitor LVDP in rats, needle electrodes for cardiac potential measurements, and a pressure gauge for calibration.



## Innovative Pump Controller

The STH Pump Controller constantly monitors perfusion pressure, measures and controls the perfusion flow rate without requiring an additional cost of a flowmeter. Once set, the pressure can be held at a constant value, removing the need for elevated pressure apparatus. Easily switch between constant perfusion flow and constant perfusate pressure with the touch of a button (right), minimizing timing delays.





# 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. LabChart Lightning empowers innovative researchers to make unique scientific discoveries with unlimited freedom and flexibility.

## Unlimited Channels and Overlays

Record data into an unlimited number of channels. Create as many calculated signals as you like. Overlay signals by dragging and dropping them between channels.

Overlay channels with drag and drop

Signal  
ECG Cyclic Measurement Rate  
CALCULATED SIGNAL  
Calculation: CMRate  
Calculates how often events or cycles of a cyclic waveform repeat.  
Signals: Show Readout Remove From Channel  
Calculation: /v Add Calculated Signal...

## Cross-Recording Analysis and Table View

Analyze data across multiple recordings within a project. Organize recordings and channels by subjects or groups. Convert time-based data from recordings to discrete values to use in statistical analysis.

Assign group data by regions

Organize data by groups and subjects

	Baseline	Wall Sit	BRS	Mixed units
Female				
Mean	143.3	833.6	176.6	28.67
Mean	146.1	740.5	189.0	25
Mean	137.2	881.6	153.8	31
Mean	149.3	769.7	178.0	15
Mean	131.1	800.5	154.4	28
Mean	166.3	768.6	202.4	60
Mean	129.9	1,040e+3	175.9	13
Male				
Mean	128.2	826.8	181.6	
Mean	107.0	828.7	172.8	
Mean	161.1	951.9	202.7	
Mean	161.2	768.7	208.2	
Mean	131.9	812.6	169.1	-19
Mean	99.73	772.3	155.2	2

Add custom calculations to a table

## Custom Calculations

Create custom calculations by dragging and dropping functions from our extensive function library. See the effect of custom calculations on your original data to optimize your calculations. Share your calculations with colleagues.

Search for functions

Function Library  
All functions: subtract  
Subtract: Subtracts the data values in y from the values in x (i.e. x minus y)

Recordings  
Search recordings...  
ALL Recordings: 2  
Subjects: 6  
SAVED SEARCHES: No saved searches  
HISTORY: Today: 2, Yesterday: 2, Past Week: 2, Past Month: 2, Past Year: 2

## Licenses

LabChart Lightning's user-based online licensing allows you to log in and use Lightning wherever you are, while offline licensing allows you to assign a license to a computer for longer-term or offline recording. The new license group administration features put licensing into your own hands, allowing you to assign or revoke licenses within your group and maintain control over license usage.

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