

Non-Invasive Blood Pressure (NIBP)

NIBP measurements in rodents



ADInstruments NIBP Controller

Ideal for teaching and research applications, the ADInstruments NIBP System is an intuitive and reliable method of measuring systemic blood pressure and cardiovascular parameters in rats, mice and other animals without the need for invasive surgery.

Featuring the MLT125 NIBP Controller (specifications overleaf), the system operates by occluding blood flow to the tail with a specialized tail cuff. The pulse transducer then intermittently measures blood pressure based on the periodic occlusion of blood flow in the tail.

Easy to use:

- One-push 'On' button with low noise pressure pump
- Three position filter switch to adjust pulse signal filtration between animals and species
- Automated deflation driven separately for each animal (also minimizes tail lesions)
- Suited for use with rodents
- Available with mouse or rat tail cuff transducer.

Reliable and accurate:

- Provides reliable consecutive BP measurements
- Trigger-in connector starts and stops the NIBP measuring cycle
- Trigger-out connector ensures you only record data during your specified measurement cycle
- Analog signal output enables registration of cuff pressure and pulse signal

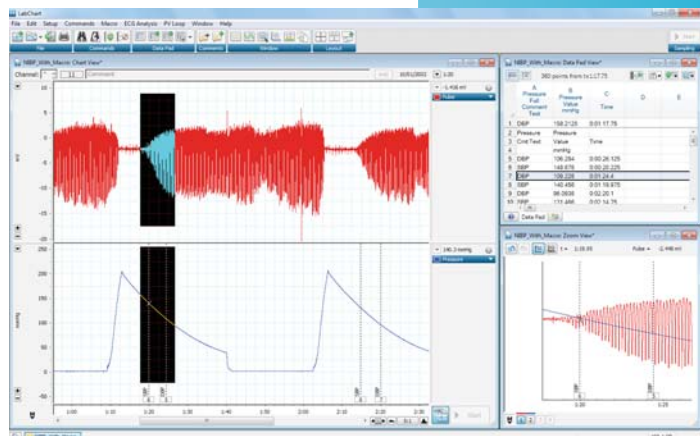
Customizable:

- Choose a 2, 4, 8 or 16 channel PowerLab unit with LabChart or LabChart Pro software
- Choose from a range of Rodent Restrainers for rats or mice (shown right)



Typical Applications

- Hyper/hypotension
- Drug screening
- Phenotyping
- Obesity
- Nephrology
- Endocrinology
- Sepsis and toxicology
- Surgical monitoring



LabChart Chart View of rat blood pressure

Ordering Information

ML125/R Non-Invasive Blood Pressure System for Rats

1 x Non-invasive Blood Pressure Controller
1 x Pulse Transducer/Pressure Cuff for Rat NIBP

ML125/M Non-Invasive Blood Pressure System for Mice

1 x Non-invasive Blood Pressure Controller
1 x Pulse Transducer/Pressure Cuff for Mouse NIBP

Data acquisition hardware and software

ML826	Two Channel PowerLab with LabChart
PL3504/P	Four Channel PowerLab with LabChart Pro
PL3508/P	Eight Channel PowerLab with LabChart Pro
PL3516/P	Sixteen Channel PowerLab with LabChart Pro

Optional items (available separately)

MLA5025	Rodent Restrainer (440 to 550 g)
MLA5016	Rodent Restrainer (up to 35 g)
MLA5018	Rodent Restrainer (up to 50 g)
MLA5020	Rodent Restrainer (80 to 200 g)
MLA5022	Rodent Restrainer (180 to 320 g)
MLA5024	Rodent Restrainer (300 to 440 g)
MLA5030	Rodent tail cuff holder
ML295/M	Homeothermic Controller and Plate (for mice)
ML295/R	Homeothermic Controller and Plate (for rats)

MLT125 NIBP Controller Specifications

Operating Requirements

Power Requirements: PowerLab/MacLab I2C interface: +9 V @ 100 mA
±18 V @ 50 mA

Operating Conditions: 5–35 °C, 0–90% humidity (non condensing)

Cycle Operation

Measurement Cycle Time: 90–420 BPM (rats): 22 s (for 200 mmHg)
41 s (for 280 mmHg)
240–600 BPM (mice): 18 s (for 200 mmHg)
40 s (for 280 mmHg)
40–150 BPM (large animals): 44 s (for 200 mmHg)
87 s (for 280 mmHg)

Cycle Control: Microprocessor based. Performs inflation, deflation, and fast deflation sequences automatically.

Operation Indication: Trigger output (normally low, but high during inflation and deflation cycle). Front panel Status indicator shows inflation and deflation operation.

Operation Abort: The cycle can be terminated at any point by pressing Start/Stop button on the front panel. Pressure is automatically released.

Fast Release Time: ~1.2 s from 280 to 40 mmHg at 40–150 BPM
~0.5 s from 280 to 40 mmHg at higher ranges

Control Sources: Front panel push button; External signal source (voltage level); Remote contact closure.

Max Inflation Pressure: 200 or 280 mmHg (switch-selectable)

Manual Start/Stop Input

Operation: Contact the closure input for starting or stopping measurement cycle. Shorting the input signal results in a start or stop operation.

Remote Trigger Input

Operation: Voltage level input for starting or stopping NIBP cycle. TTL compatible input. High level operates a start/stop.

Input Voltage: 3–5 V
Minimum Trigger Pulse: 1 ms

Pulse Input

Input Impedance: Differential Input: 10 GΩ (high gain)
Single-ended Input: 1 MΩ (low gain)
Input Signal Range: Differential: (0–25 μV) up to (0–75 μV), depending on rear panel Gain Adj setting.
Single-ended: (0–50 mV) up to (0–150 mV), depending on rear panel Gain Adj setting.
Bandwidth: 40–150 BPM: 0.7–2.5 Hz; 90–420 BPM: 3–7 Hz; 240–600 BPM: 4–10 Hz

Pulse Output Max: ± 5 V

Trigger Output

Operation: High (+5V) output level during measurement cycle. Otherwise zero.

Pressure Output (Cuff Pressure)

Sensitivity: 0–1 V : 0–300 mmHg (factory calibrated)
Frequency Response: DC to 10 Hz

Physical Configurations

Dimensions (h×w×d): 65 mm × 200 mm × 275 mm (2.56" × 7.9" × 10.8")
Weight: 1.7 kg

ADInstruments reserves the right to alter these specifications at any time

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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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