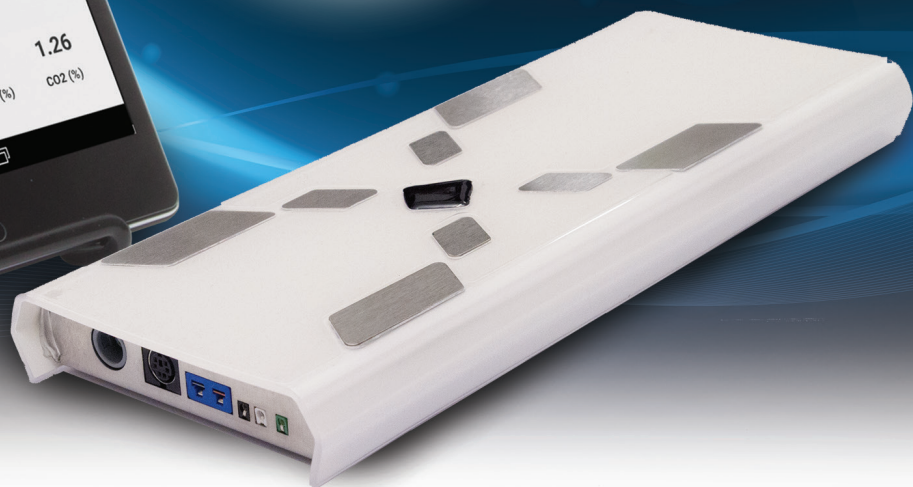


Small Animal Physiological Monitoring System

ECG • Respiration • Heart Rate • Warming & Temperature
Blood Pressure • SpO₂ • EtCO₂



Small Footprint
Integrated & Ergonomic
Intuitive Touchscreen
Real-Time Numeric
& Graphic Display



Small Animal Physiological Monitoring System



The Small Animal Physiological Monitoring System

is an instrument integrating multiple physiological parameters on one single small platform.

The objective behind this new instrument is to provide superior monitoring results, while making surgery and other manipulations on small animals easier.

The platform integrates monitoring of the rectal temperature, electrocardiogram (ECG), respiration, oxygen saturation (SpO_2), blood pressure and exhaled CO_2 (EtCO_2). It also includes a controlled heating surface to maintain the animal's body temperature at the desired level.

The system has many benefits regarding surgical procedures. It demands less installation time at the beginning of procedures and it reduces the required space and the number of wires around the animal. A single data/power cable connects to a small wireless communication module. All data is transferred to an Android tablet by Bluetooth for display and saving.

The Physiological Monitoring System features a real-time display which provides numeric values as well as waveforms that can be customized by the user. Multiple signals can be displayed on each of the three graphs.

The Physiological Monitoring System is available with a stereotaxic adaptor option, which includes ear bars, a tooth bar and either a nose bar or an anesthesia mask. The stereotaxic device is fixed to the platform, but can easily be removed depending upon the application.

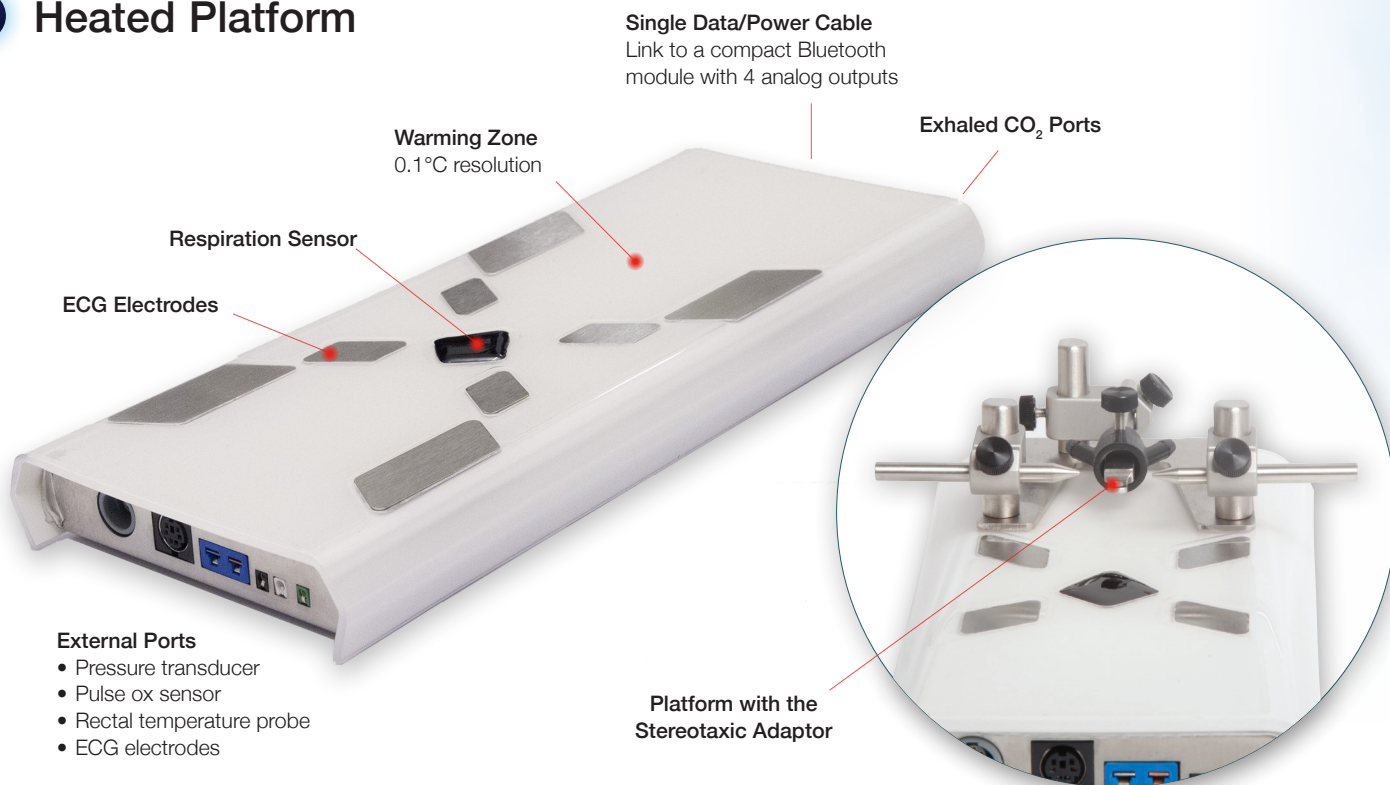
The Physiological Monitoring System comes complete with a heated platform (mouse or rat and mouse), an Android tablet with case and stand, Bluetooth communication module, a rectal probe and electrode gel.

Data can be saved and comments can be added with the press of a button. At the end of experiments, recorded data can easily be transferred to any computer for analysis. Scripts and utilities are provided to convert data in LabChart or CSV format and to display signals in Excel and Matlab.





Heated Platform



Physiological Parameters

ECG

Integrated electrodes under the paws & external electrodes

Respiration

Waveform acquired with a sensor under the animal

Heart & Breath Rate

Real-time display from the ECG and respiration waveform

Warming & Temperature

Heated platform and rectal probe for precise control and monitoring

Blood Pressure (option)

Connection for a pressure transducer (purchased separately)

SpO₂ (option)

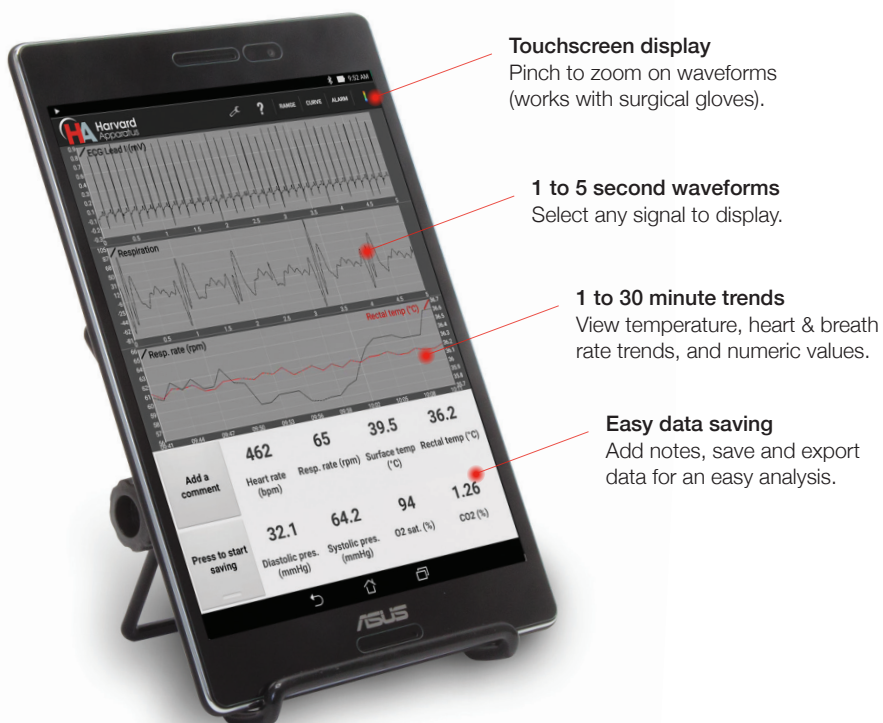
Pulse oximetry and oxygen saturation with a paw/tail sensor (included with option)

Exhaled CO₂ (option)

Gas ports for precise CO₂ measurements (must be used with an external ventilator)

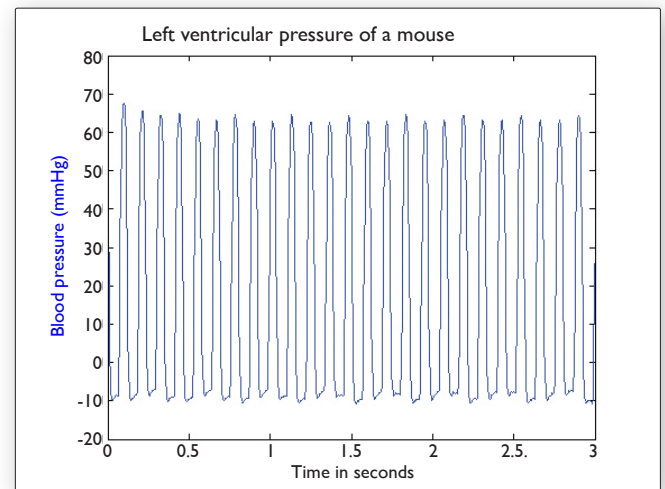
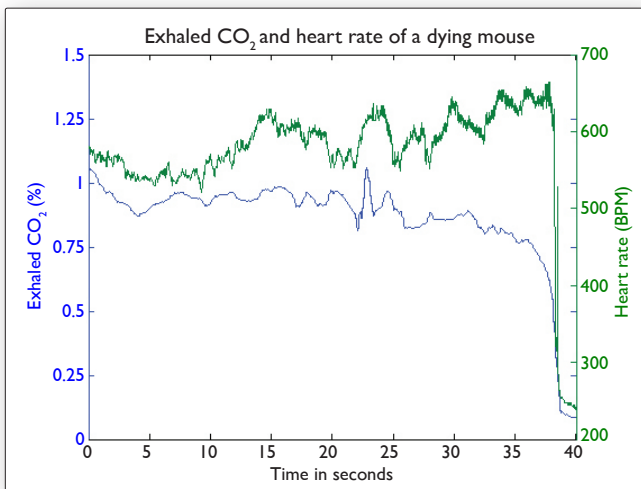
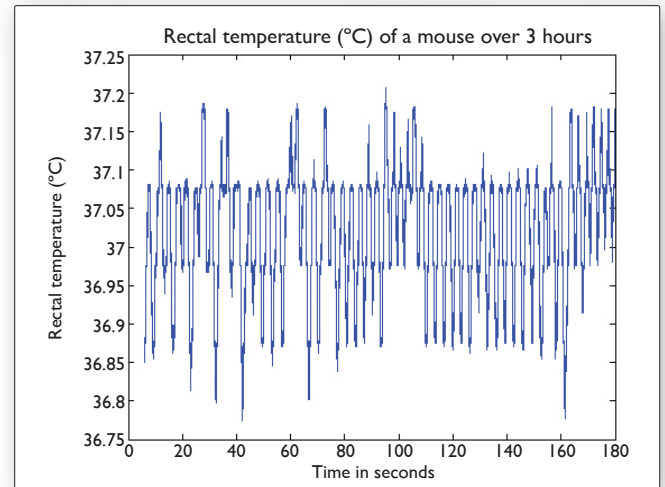
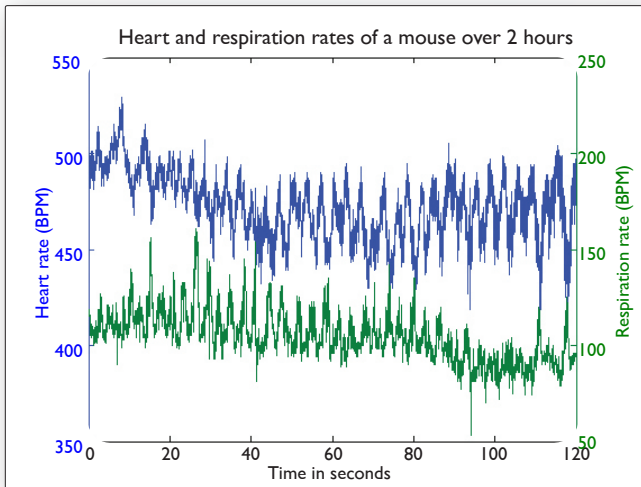
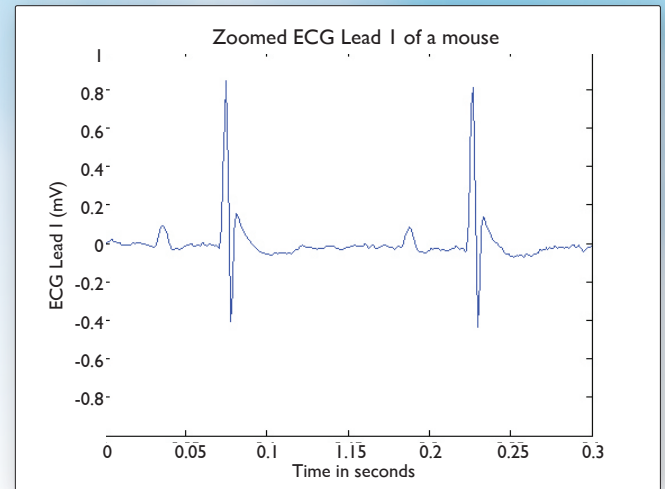
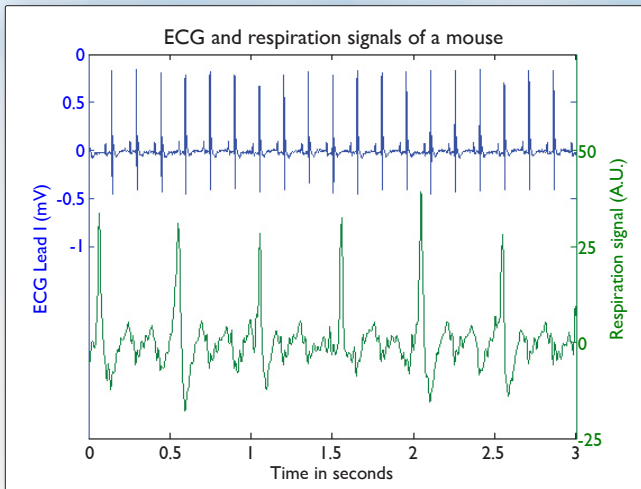


Advanced Display Interface





Example Waveforms





Detailed Specifications

ECG

- Display Leads I, II, III, aVL, aVR & aVF
- Supine or prone position
- 1 kHz, 24-bit acquisition
- 3 external electrode connections (2 mm)

Respiration

- 250 Hz acquisition
- Heart and breath rate
- 200 to 800 beats/min
- 25 to 330 breaths/min
- Calculated every second

Warming & Temperature

- Heated surface up to 45°C
- 0.1°C resolution
- Closed loop PID controller keeps the animal within $\pm 0.1^\circ\text{C}$ of set temperature

Blood Pressure

- Full waveform display
- Systolic and diastolic numeric values
- Comes standard with Redel 5-pin connector
- Adaptor available for 8-pin DIN connector
- 250 Hz acquisition, 24-bit bridge amplifier

Exhaled CO₂

- Connect ventilator directly to the platform (1/8 inch tubing)
- 1 Hz refresh rate
- 0.1% accuracy

SpO₂

- 80 to 100% saturation
- 250 Hz, 24-bit acquisition
- Red and infrared channel display



System Information

Heated Platform

- Easy to clean surface
- 10 x 21 x 2.5 cm (mouse)
- 12 x 30 x 2.5 cm (rat and mouse)

Tablet

- 8-inch in Android tablet (10.1-inch available)
- High resolution touchscreen display
- Capacity of over 400 hours of saved data
- 5-8 hours battery life
- USB cable and charger

Communication Module

- Bluetooth and analog outputs are in a separate enclosure to avoid interference
- 9 x 11 x 2.5 cm
- 100-240 V power supply
- Bluetooth
- 15 to 25 meters typical range between the communication module and the display unit

Analog Outputs

- 4 configurable outputs
- BNC connectors, ± 5 V range
- 1 kHz, 16-bit refresh rate

Data Analysis

- .csv conversion tool
- MATLAB® & Excel® import and display scripts
- Compatible with third-party analysis software (LabChart)

For more complete product details, and part number listings, please visit our website:
www.harvardapparatus.com



Ordering Information

Order No.	Product
75-1500*	Physiological Monitoring System for Mouse (10g to 100g)
75-1501*	Physiological Monitoring System for Rat and Mouse (10g to 600g)
75-1502	Blood Pressure Option (BP Transducer purchased separately)
75-1503	End Tidal CO ₂ Option
75-1504	SpO ₂ Option (Pulse Ox Sensor included with option)

Order No.	Product
73-4905	APT300 Pressure Transducer for HA Physiological Monitoring System
73-5019	ECG Needle Electrodes
75-1540	Stereotaxic Kit with Gas Anesthesia Mask for 75-1500 Platform
75-1542	Stereotaxic Kit with Gas Anesthesia Mask for 75-1501 Platform

*NOTE: At the end of the part number add EU for Europe, UK for United Kingdom and CN for China models.

Contact us for more information!



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