

Surgical Monitoring

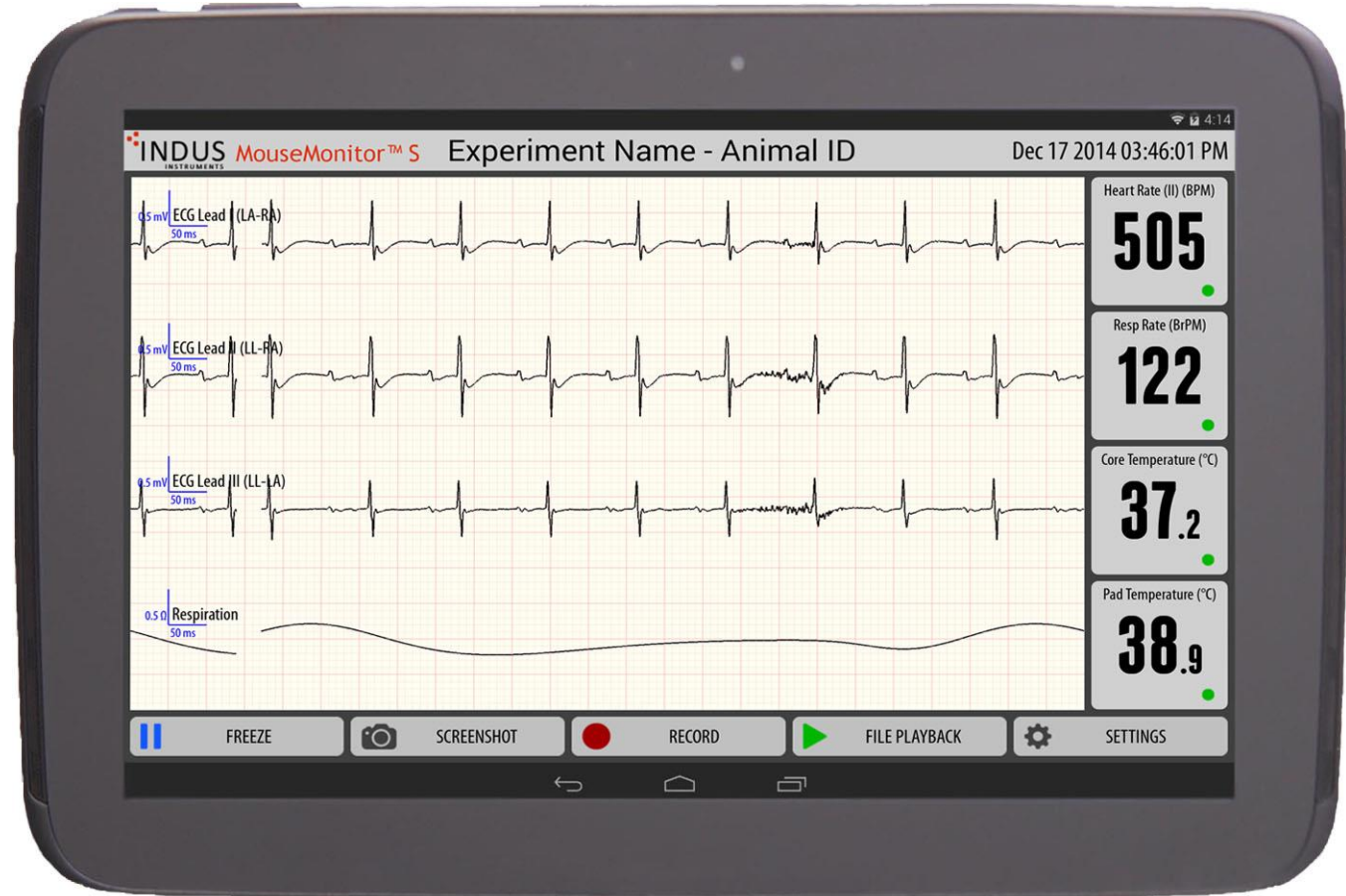
▶ An integrated approach can help your lab achieve consistent outcomes, increase survival rates & satisfy your IACUC

Presenter: Graham Sattler
Director of Product Development
Indus Instruments



Section Overview

- 1) Surgical Monitoring
- 2) Integrated Physiologic Monitoring
- 3) MouseMonitor S Capabilities
- 4) Focus on Ease of Use



Section 1: Surgical Monitoring

1) Surgical Monitoring

- **Why Surgical Monitoring?**
- **Sketch of a Surgery**
- **IACUC Surgical Requirements**
- **Surgical Monitoring & Me**
- **Repeatability is Key**

2) Integrated Physiologic Monitoring

3) MouseMonitor S Capabilities

4) Focus on Ease of Use



Why Surgical Monitoring?

How Does It Add Value to My Research?

- Increase Survival Rates
- Increase Surgical Consistency
- Reduce Study Variability
- Satisfy IACUC Requirements



Sketch of a Surgery

Surgery: An Area of Heightened Concern

- Induce Anesthesia
- Stabilize & Maintain Anesthesia
- Prepare Subject & Surgical Site
- Perform Surgical Procedure
- Recovery from Anesthesia

All While Avoiding Undesirable and Destabilizing Surgical Side Effects



IACUC Surgical Requirements

Latest Changes in *The Guide* : IACUC Research Protocol Requirements Increasing

- More Monitoring (p. 105, 112, 115, 119-123, 147)
- Improved Aseptic Technique (p. 34, 115-119)
- Preference for Non-Invasive Methods (p. 25)
- Better Thermoregulation (p. 46, 119, 122)
- More Documentation (p. 31, 34, 115-116, 119-120)

The MouseMonitor S Addresses All of These Concerns



Surgical Monitoring & Me

Researchers Have Many Responsibilities

- Researcher
- Anesthesiologist
- Surgeon
- Data Quality Control Officer
- IACUC Compliance Officer

Surgical Monitoring Helps at Every Step



Repeatability is Key

Surgical Monitoring Reduces Subject Variability

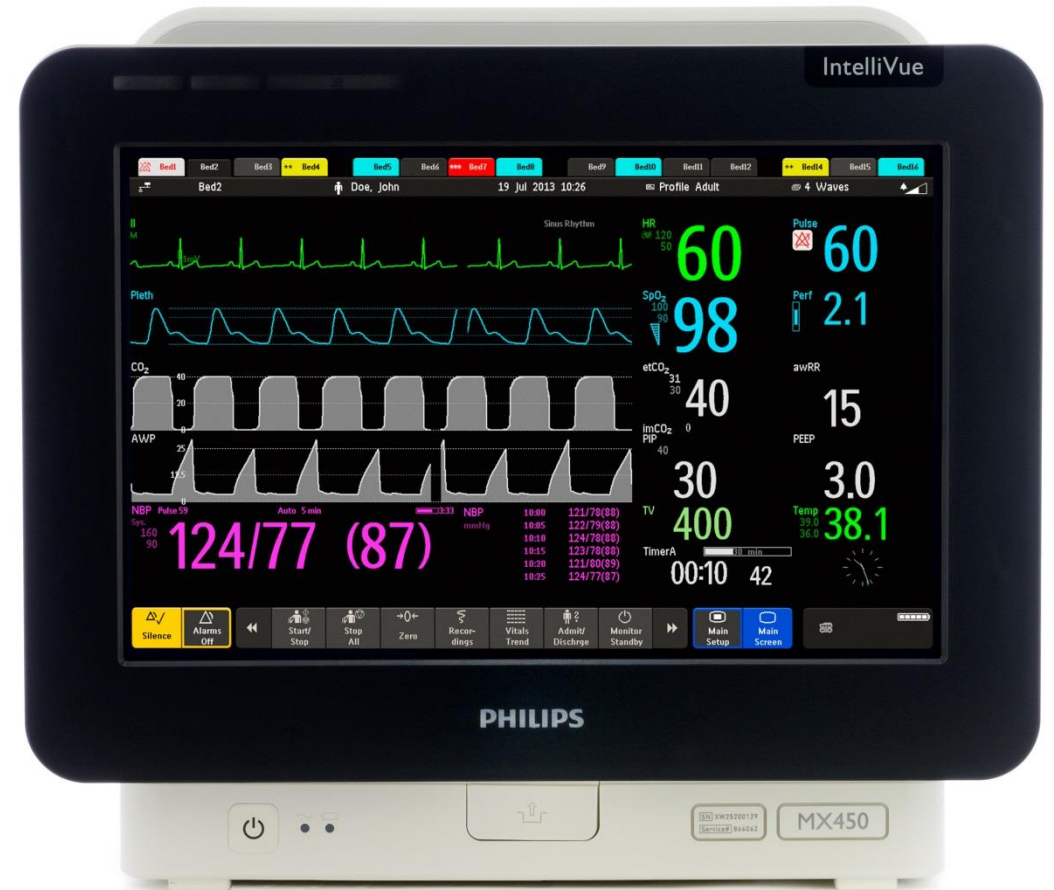
- Provide a Stable Preparation
- Spot Potential Problems Earlier
- Improve Surgical Consistency
- Improve Survival Rates

Doesn't Something Similar
Already Exist In the Clinical Space?



Section 2: Integrated Physiologic Monitoring

- 1) Surgical Monitoring
- 2) Integrated Physiologic Monitoring**
 - Integrated Physiologic Monitoring?
 - Brief History of Physiologic Monitors
 - Clinical Monitoring Benefits
 - *What The Guide Says*
 - A Preclinical First
 - Researcher Observations
- 3) MouseMonitor S Capabilities
- 4) Focus on Ease of Use

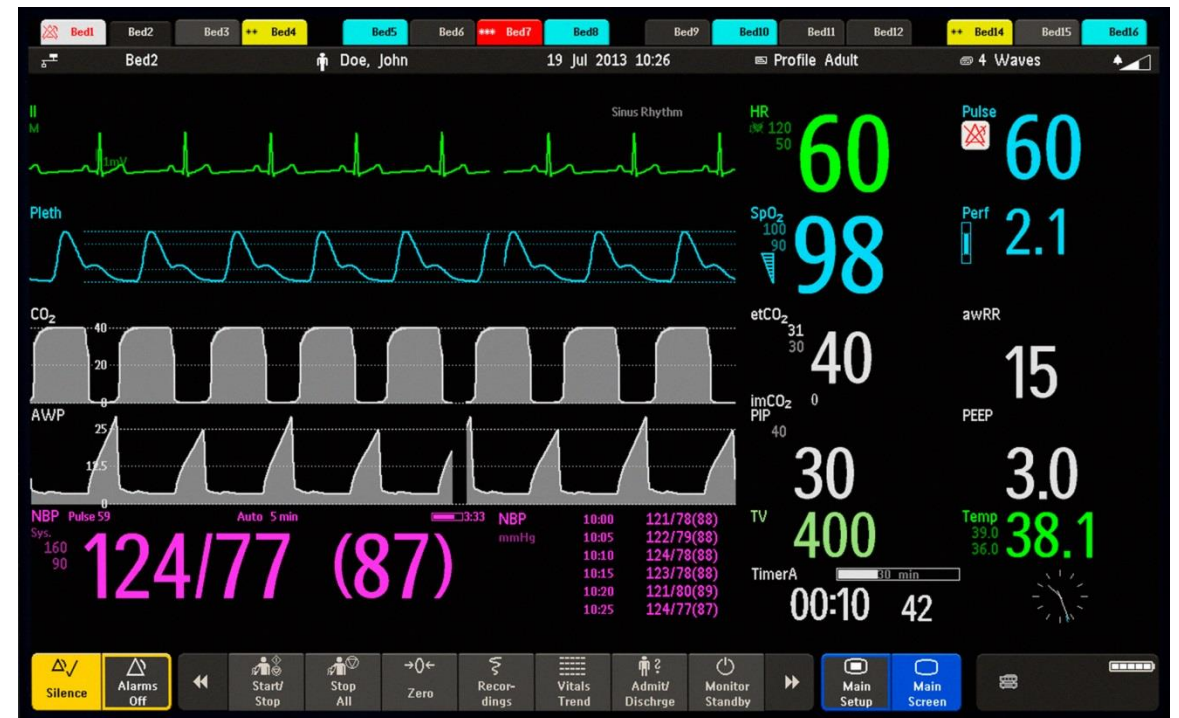


Integrated Physiologic Monitoring?

What is It?

- Compact Display of Vital Signs
- Easy to Use Information
- Actionable Information

All Critical Health Parameters
Clearly Displayed at your Fingertips



Brief History of Physiologic Monitors

Evolution of a Standard of Care

- First Clinical Use in 1950
- Larger, Better Displays
- Modular Functionality
- Customizable Alarms & Alerts
- Monitor Multiple Parameters



Clinical Monitoring Benefits

Outcome Improvements Drove Adoption

- Increased Surgical Consistency
- Quicker Recovery Rates
- Increased Survival Rates
- Endorsed by Surgery, Nursing & Anesthesia Professional Organizations

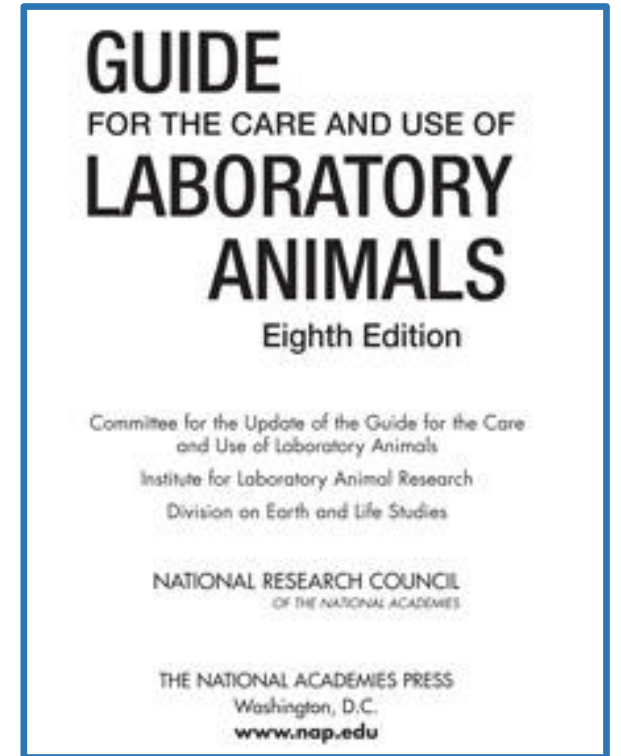
Better Patient Outcomes Encouraged
More and Easier Physiologic Monitoring



What *The Guide* Says

Preclinical Recommendations Mirror Clinical

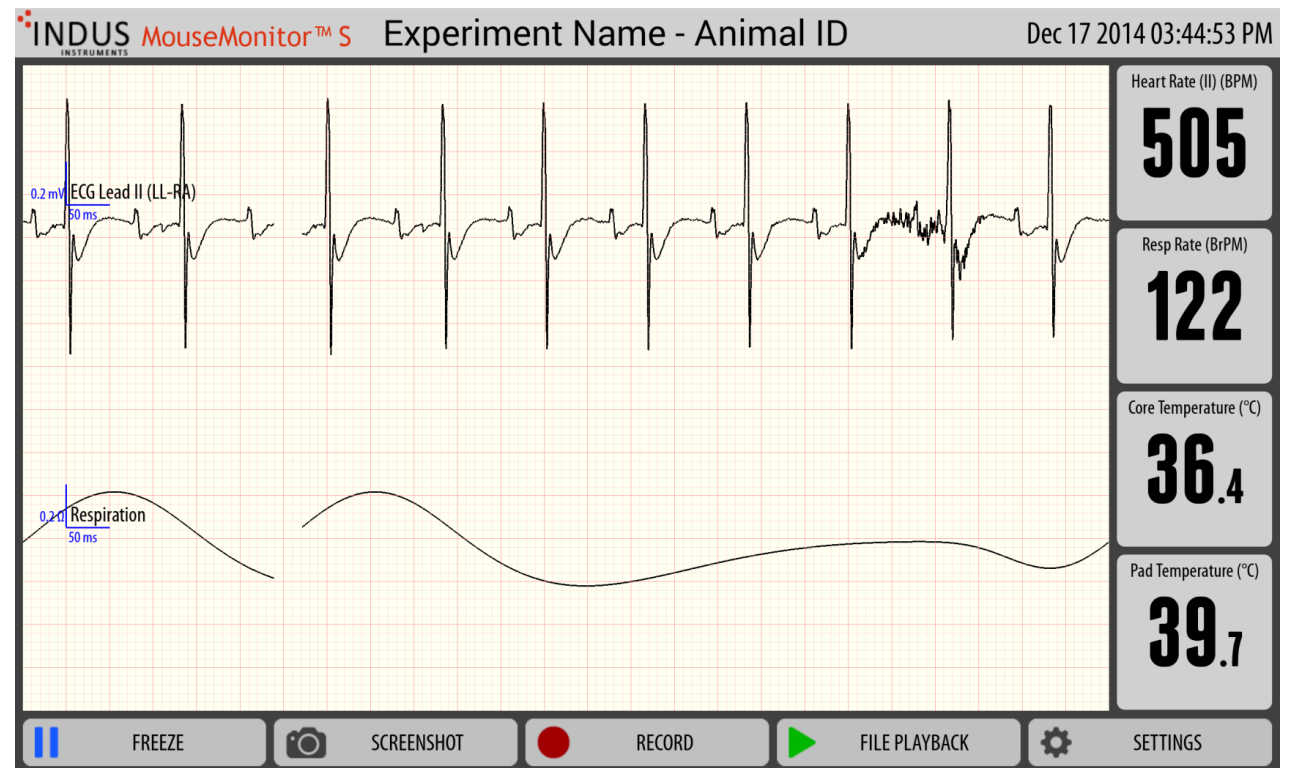
- NRC's Guide for the Care and Use of Laboratory Animals
- Adopted by all Laboratory Animal Care Organizations
- Driving Increased IACUC Requirements



A Preclinical First

Integrated Physiologic Monitoring with the MouseMonitor S

- Harness Clinical Advancements
- Reduce Mortality
- Improve Surgical Consistency
- Identify Problems Faster
- Research Focused Features:
Screenshots, Recordings,
Presets & Recording Playback



Section 3: MouseMonitor S Capabilities

- 1) Surgical Monitoring
- 2) Integrated Physiologic Monitoring
- 3) MouseMonitor S Capabilities**
 - **Non-Invasive Rodent Monitoring**
 - **Quick & Responsive Heating**
 - **Rigid Surgical Platform**
 - **Research Quality Data**
 - **Easy Study & IACUC Documentation**
- 4) Focus on Ease of Use

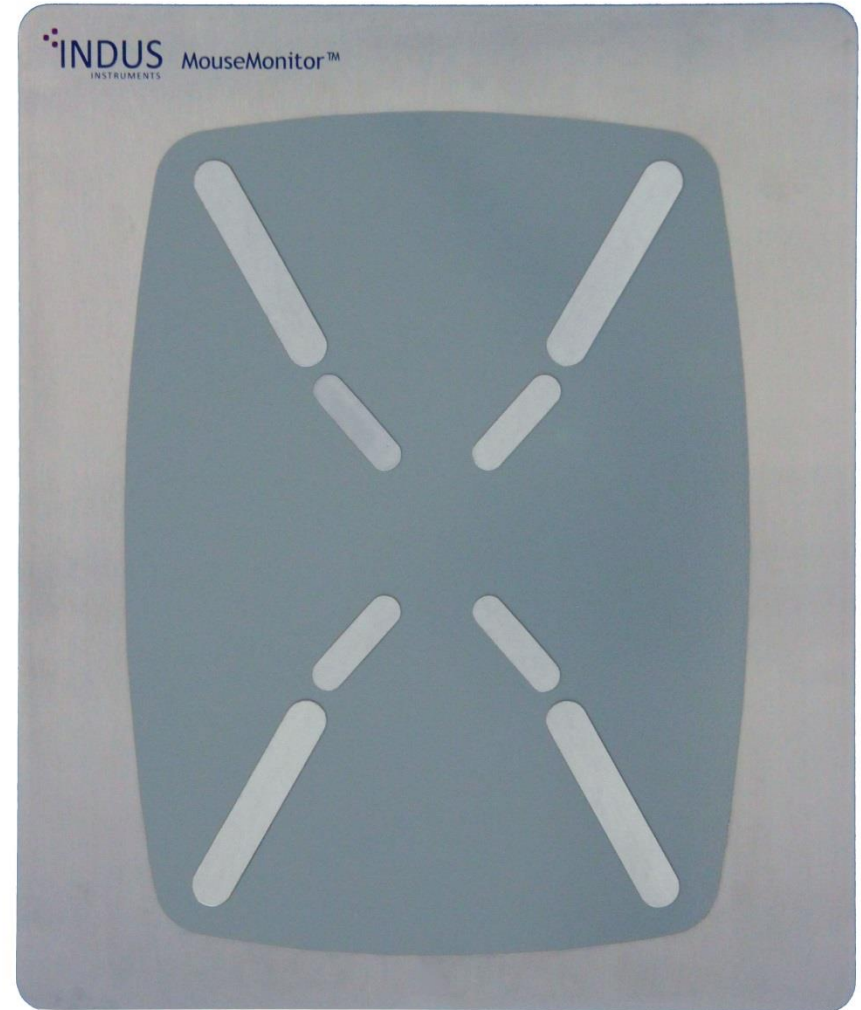


Non-Invasive Rodent Monitoring

One Device Monitors Heart Rate, Breath Rate, Core Temperature & Blood Oxygenation

- Surface ECG & Respiration Electrodes
- Rectal Temperature Probes
- Thigh or Foot Pulse Oximeter Clip

Monitor Without Increasing Subject Burdens



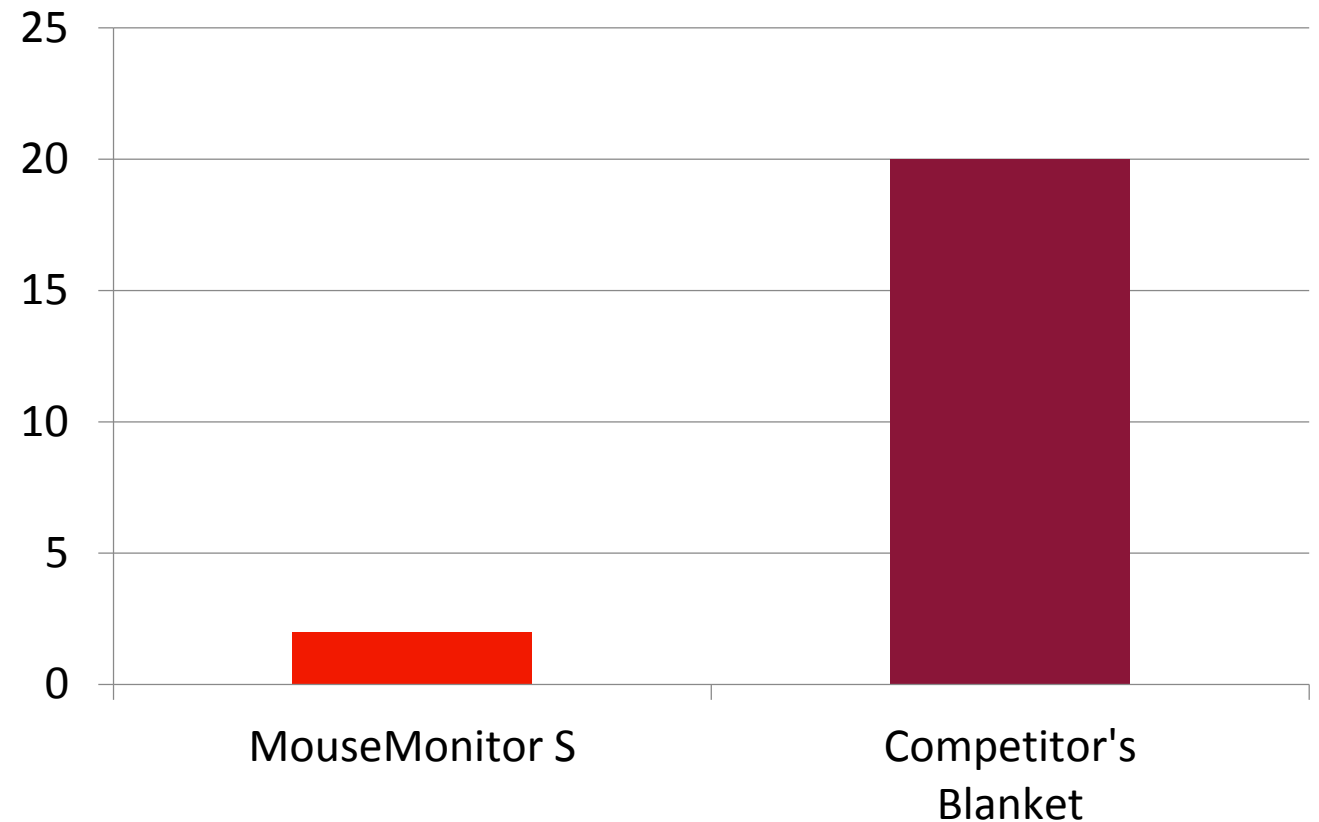
Quick & Responsive Heating

An Intelligent Heating Solution

- Zone-Based Electronic Heating
- Reaches Temperature 10x Faster
- Responds to Changing Surgical Needs and Changing Lab Central Heating or Cooling
- Hardware Limits Pad Temp to 43°C

Animal Safety is Always A Priority

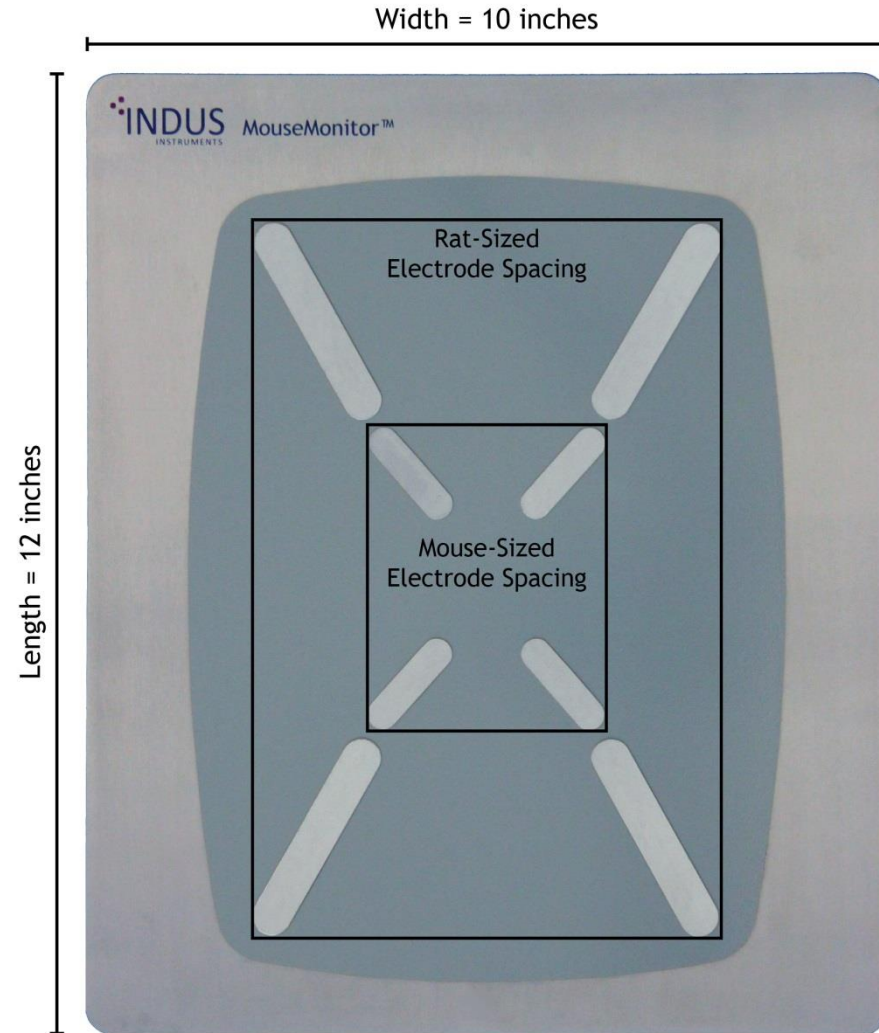
Minutes to Reach 39°C Set Temperature



Rigid Surgical Platform

Designed for Rodent Surgery

- Rigid, Stable Work Surface
- Easily Cleanable & Sterilizable
- Enough Space to Rest Hands



Research Quality Data

Data – It's What Research is All About

- High Resolution Signals
- Non-Interfering Modalities
- Shielded, Low Noise System Design
- Built-In Data Recording
- 8 Channels of Analog Output



Easy Study & IACUC Documentation

Easily Tell Your Research Story

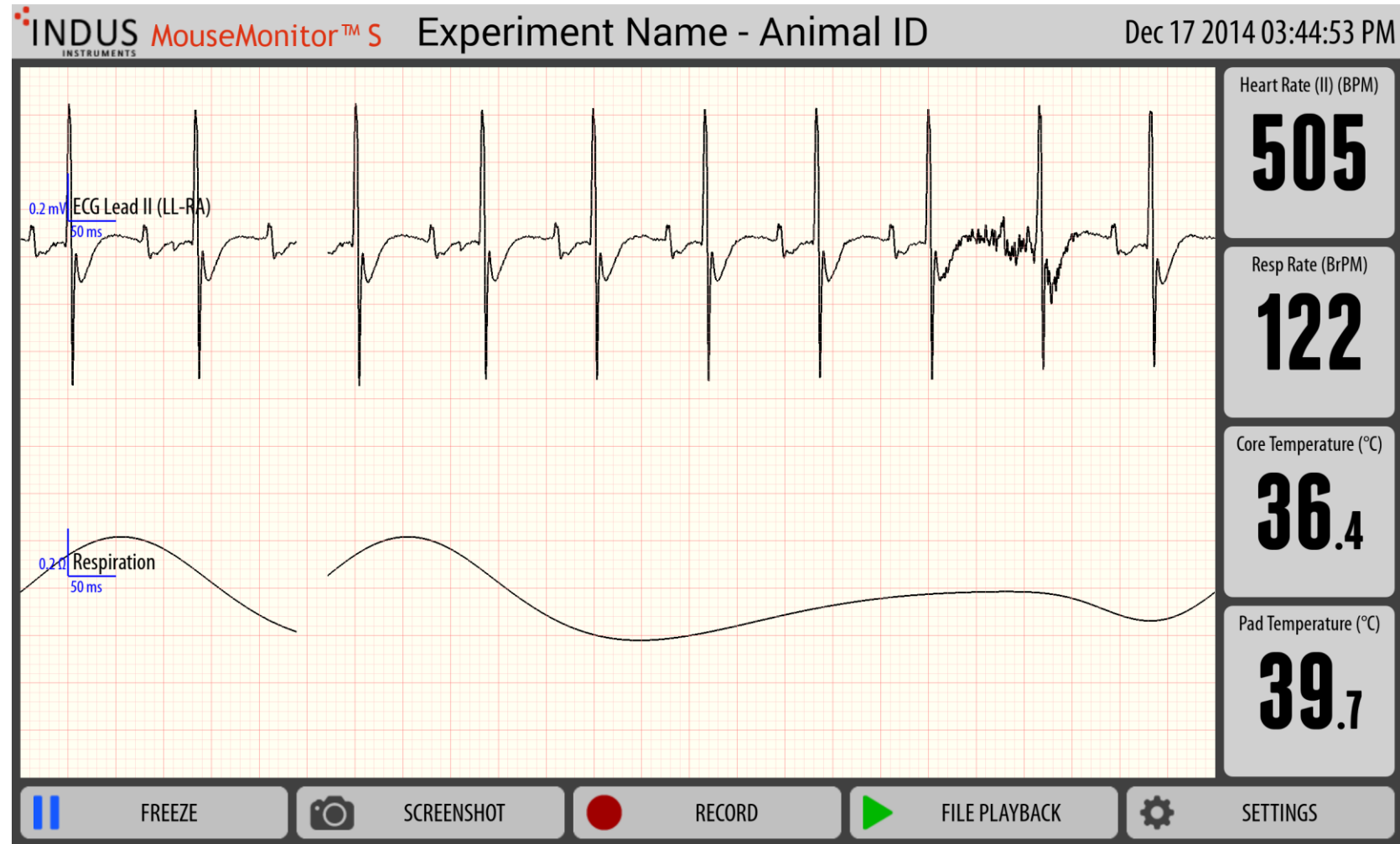
- On-Demand Screenshots
- Scheduled Screenshots
- One-Touch Data Recordings
- Built-In Recording Playback

All Hands-Free or with 1 Button Press!



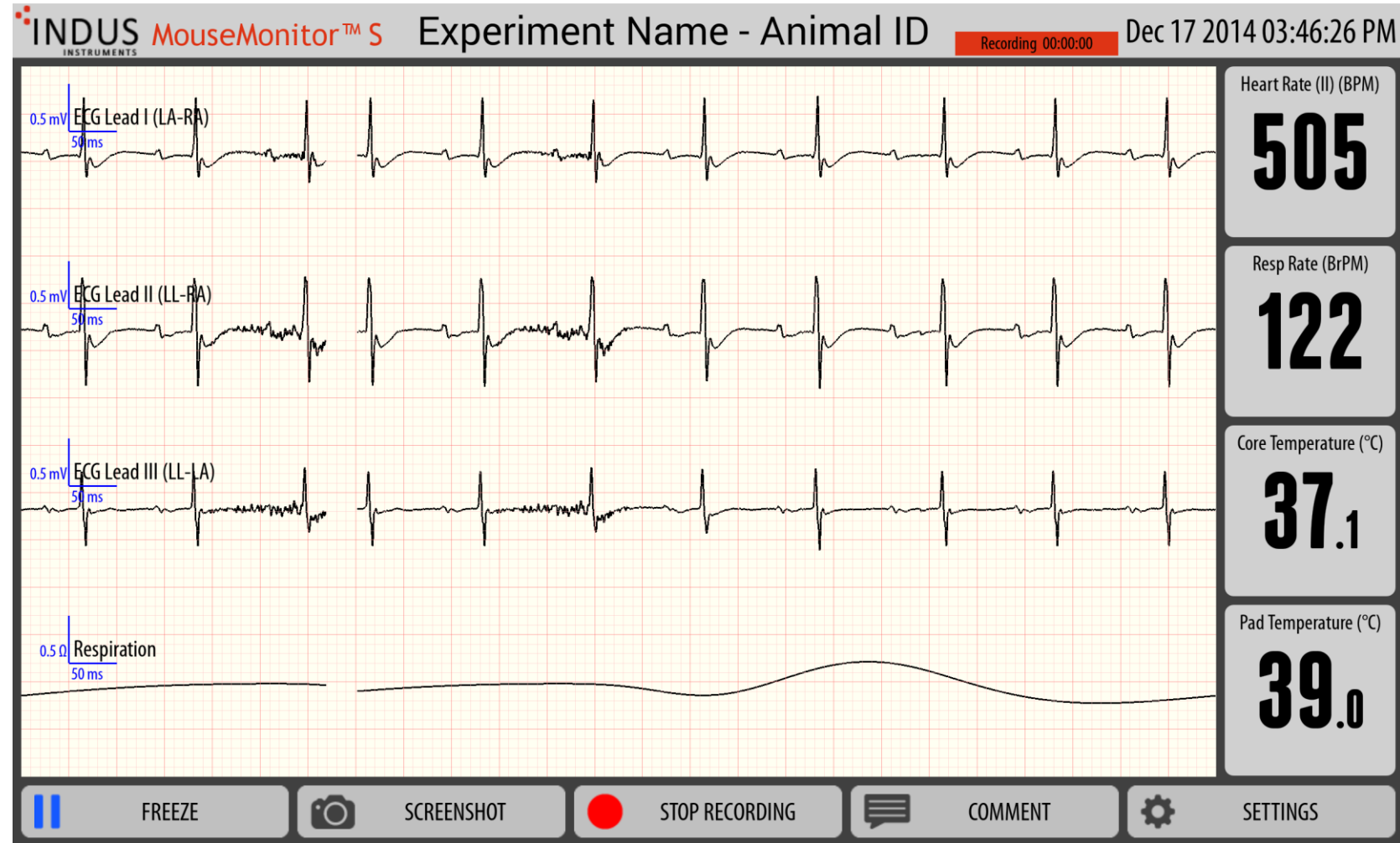
Easy Study & IACUC Documentation

**Main Screen:
Monitoring
Mode**



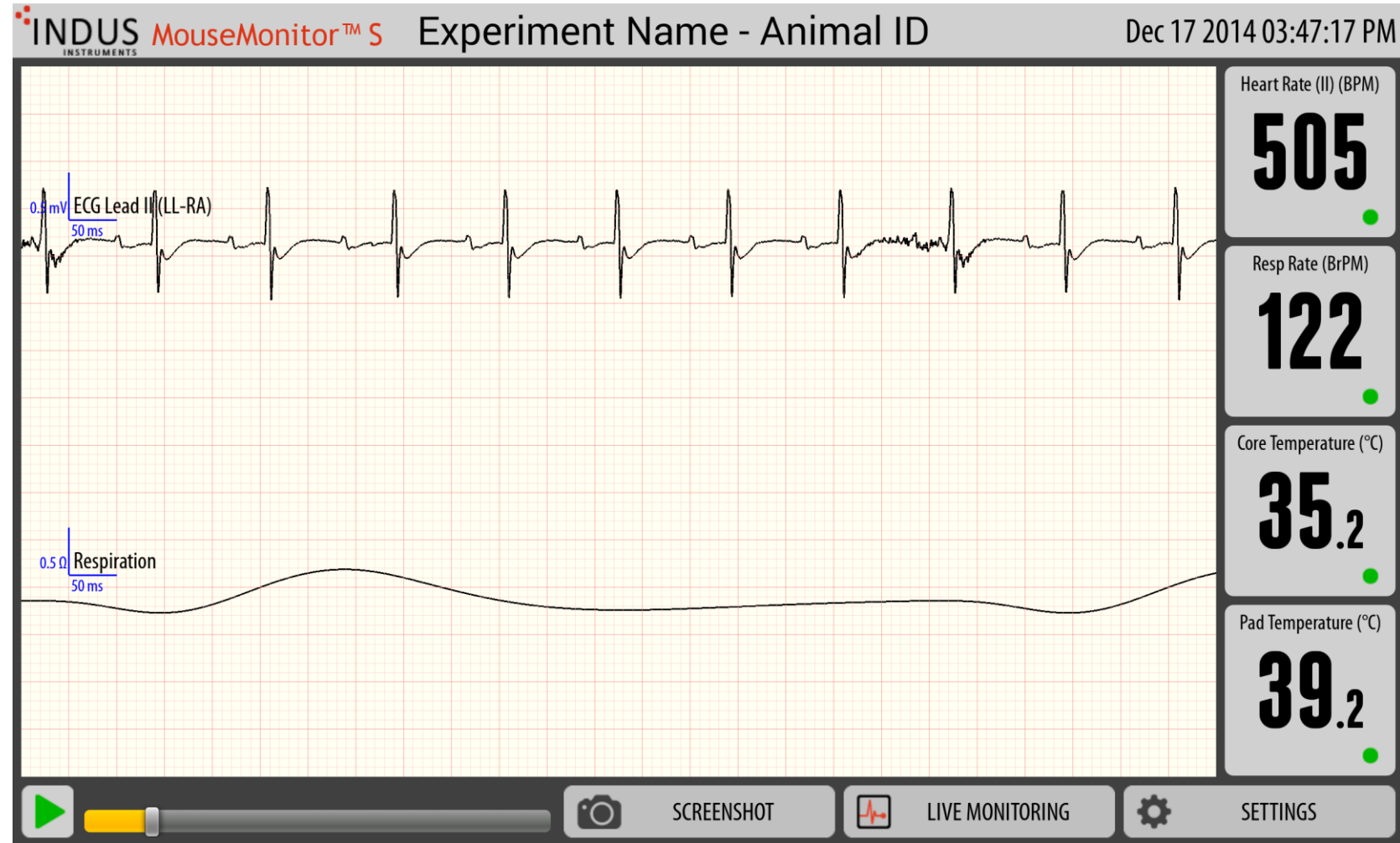
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**Main Screen:
Recording
Mode**



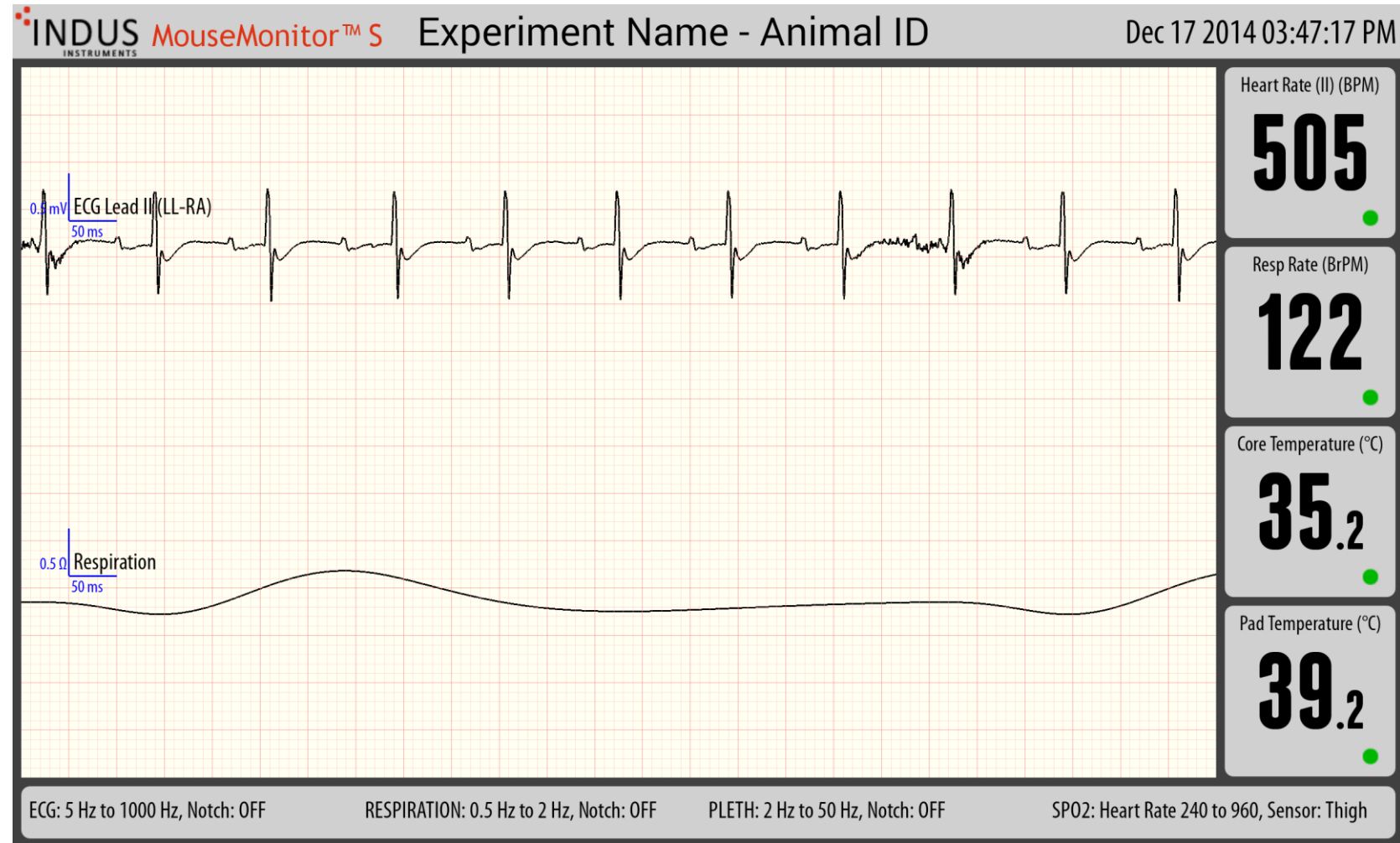
Easy Study & IACUC Documentation

**Main Screen:
Recording
Playback
Mode**



Easy Study & IACUC Documentation

Example Screenshot



Section 4: Focus on Ease of Use

- 1) Surgical Monitoring
- 2) Integrated Physiologic Monitoring
- 3) MouseMonitor S Capabilities
- 4) Focus on Ease of Use**
 - **Designed for Daily Stress-Free Use**
 - **At-A-Glance Monitoring**
 - **A Powerful Research Tool**
 - **Flexibility & Value**



Designed for Daily Stress-Free Use

The Day is Already Short Enough

- Quick Subject Setup
- Easy to Use Touch Screen Interface
- Powerful, Customizable Presets
- Heating & Monitoring in One Device!

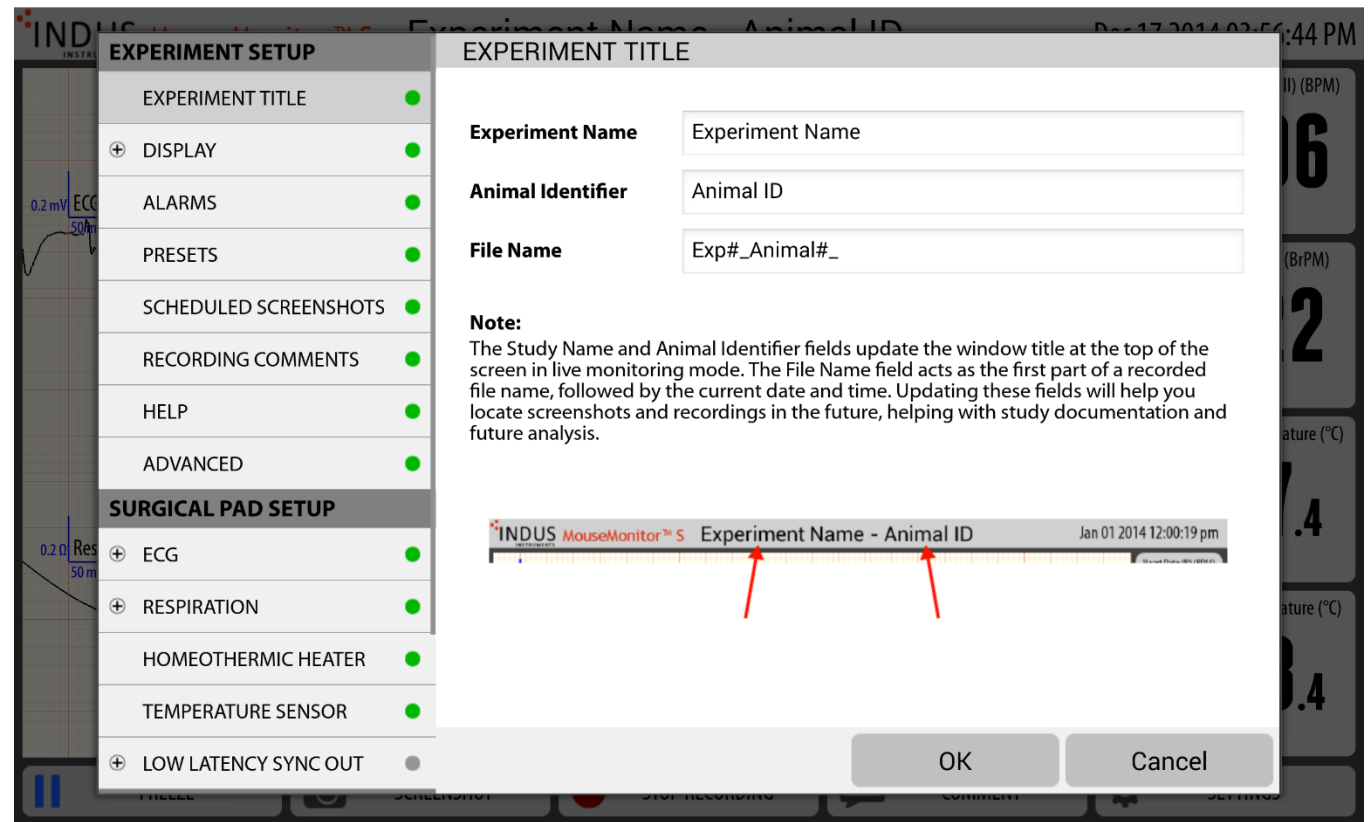
Designed to Save You Time & Help
Improve Your Research



A Powerful Research Tool

Capture and Publish Quality Data

- Capture Valuable Data
- Quickly Find & View Data from Different Experiments
- Spend Less Time on IACUC Compliance
- High Resolution Screenshots Suitable for Publishing



Researcher Observations

What MouseMonitor S Customers are Saying



Increased Surgical Quality & Survival Rate

The MouseMonitor S is a complete and effective tool to view physiological parameters and they have proven extremely effective. Our survival rate has gone up, and the quality of our surgeries has also improved.

– Max Z.

Researcher Observations

What MouseMonitor S Customers are Saying



Great Surgical Monitoring Solution

The MouseMonitor S has been a great addition to the Mouse Phenotyping Core, we use it for monitoring the mice and maintaining body temperature during various surgical procedures. It has proven to be a very effective and cost-efficient alternative to telemetry but it still provides excellent ECG signals from all three leads.

– Corey R., Ph.D.

Researcher Observations

What MouseMonitor S Customers are Saying



Easy to Use & Quality ECG

We are very impressed by the ease of use and the quality of the ECG signals and R trigger.

– Mathieu P., Ph.D.

Flexibility & Value

A Wide Range of Capabilities

- Works with Mice, Rats and Everything in Between in Multiple Surgical Positions
- Expansion Ports Enable the MouseMonitor S to Grow with Your Lab
- Future Software Updates are Free

Great Value for a Combination Warming, Monitoring, Recording & Documentation Research System



Conclusion

Supports All Phases of Your Research

- Integrated Physiologic Monitor
- Non-Invasive Rodent Monitoring
- Quick & Responsive Heater
- Platform Designed for Rodent Surgery
- Research Quality Data
- Easy Surgery & IACUC Documentation



Conclusion

Surgical Monitoring Improves Outcomes

- Increases Survival Rates
- Enables Better Surgical Responses
- Increases Surgical Consistency
- Reduces Study Variability
- Simplifies IACUC Compliance



Questions & Contact



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with Webinars & More Product Info

