

# OxyletPro™ System

Innovative Metabolic Monitoring

Modular Design

Maximum Flexibility

Optimal Results

# The OxyletPro™ System

## Innovative Metabolic Monitoring

OxyletPro is a modular system integrating:

- **Respiratory metabolism**  
(VO<sub>2</sub> consumption/VCO<sub>2</sub> production)
- **Food and drink intake**
- **Activity/rearing measurements**

OxyletPro, an optimized system for studies in laboratory research models, utilizes indirect calorimetry to evaluate respiratory metabolism.

Food and drink intake and activity are evaluated using Panlab's weight transducer technology. This highly stable technology permits the continuous assessment of consumption and spontaneous activity with superior accuracy. For a more comprehensive evaluation of activity, an Infrared (IR) frame can be added to monitor rearing behavior.

OxyletPro's unique modular design allows for simple expandability. Start with the configuration that meets your requirements today, and expand as needs change and grow.

Special configurations are available for calorimetry studies with neonatal rat pups as well as exercise physiology studies with our single lane, airtight treadmills.

OxyletPro can be used in the following applications: obesity, diabetes, metabolic disorders, nutrition studies, chronobiology/circadian rhythm studies, drug screening, phenotyping and more!



Modular Design • Maximum Flexibility • Optimal Results

# Modular Physiocage Setup

## Key Features

- Home cage advantage, minimizing stress to the subjects
- Easily expanded and upgraded as needs grow and change
- Optimized performance with minimal calibration and maintenance
- Unmatched versatility with small footprint; adaptable system for mice and rat models
- Special configurations for neonate testing and treadmill experiments
- Highly accurate monitoring of food and drink consumption; combining our specially designed dispensers with our weight transducer technology

## Indirect Calorimetry

OxyletPro uses a standard **rodent home cage** ① and uses an **airtight lid** ② to ensure the integrity of the sample environment. Simply change from a mouse lid to a rat lid - that is how easy it is to adapt the system for both species.

The home cages are autoclavable, making cleaning easy.

The **air supply and switching unit** ③ allows for independent flow control to each connected cage and sends the cage samples in tandem to the **gas analyzer** ④ for O<sub>2</sub> and CO<sub>2</sub> concentration analysis. Since the flow is independently controlled for each cage, the system has the flexibility to conduct simultaneous experiments of subjects of varying species and/or size, making OxyletPro extremely efficient.

Our **gas analyzer** ④ features a high quality laser diode O<sub>2</sub> sensor and Infrared spectroscopy CO<sub>2</sub> sensor, allowing 0.01% resolution.

We offer special configurations for neonatal rats and our single lane airtight treadmills.

## Food and Drink Intake

Opt for our airtight lids with **transducers** ⑤ to add on food and drink intake monitoring! High precision extensometric weight transducers are integrated into our airtight lid design and feature easy to access **food** ⑥ and **drink dispensers**. ⑦ This extremely stable technology allows intake monitoring with the highest possible accuracy (0.02 g for food and 0.01 g for liquid).

## Activity and Rearing

Add on the **sensor platform**, ⑧ which houses a third extensometric weight transducer and continuously record spontaneous activity to clearly identify circadian patterns and activity levels. This highly precise capability will allow you to detect activity without displacement; even the finest movements by mice are detected.

For additional activity monitoring, our **IR sensor bars** ⑨ are added to detect occurrence and duration of rearing events.



OxyletPro Gas Analyzer



OxyletPro Rodent Home Cage & Sensor Platform



OxyletPro Air Supply & Switching Unit

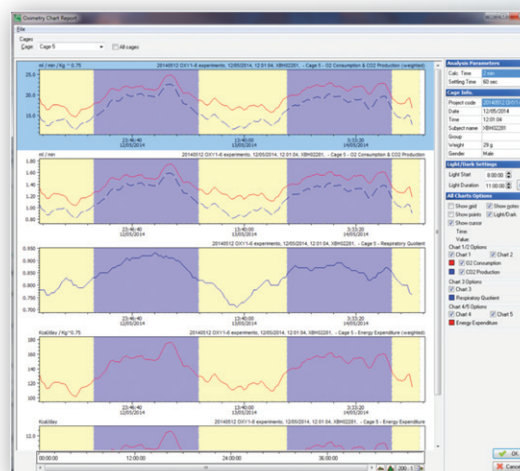
# Metabolism Software

## Modular software package for a modular system

Metabolism offers software modules for respiratory metabolism (METAOXY), intake (METAIN), and activity (METACT) to complement our OxyletPro modular hardware. The NEW user interface features an Experiment Assistant which simplifies and expedites the setup and an Advanced Scheduler Tool for organizing and managing OxyletPro experiments. The Data analysis enhancements include runtime viewers and charts for real time monitoring, batch analysis and an option for data averaging.

Now with an improved, 1-minute switching time, OxyletPro and Metabolism provides greater resolution for the following parameters for each user-defined time interval:

- $VO_2/VC O_2$  concentration
- $VO_2/VC O_2$  consumption
- Air flow rate
- Respiratory Quotient ( $VO_2/VC O_2$ )
- Energy expenditure
- Treadmill data (if applicable)
- Food and drink consumption
- Mean spontaneous activity
- Rearing data



## Specifications

Oxygen Sensor	
<b>Technology</b>	Laser diode absorption
<b>Measurement Range</b>	2 - 100%
<b>Resolution</b>	0.01%
<b>Linearity</b>	±0.2%
<b>Noise</b>	±0.03% (20 ms average)
<b>Accuracy</b>	±0.2% (24 hours)
Carbon Dioxide Sensor	
<b>Technology</b>	Infrared spectroscopy
<b>Measurement Range</b>	0 - 10%
<b>Resolution</b>	0.01%
<b>Accuracy</b>	< 0.3% absolute of reading <5% CO <sub>2</sub> ; < 10% of reading between 5 - 10% CO <sub>2</sub>
Gas Analyzer	
<b>Gas Analyzer Dimensions</b>	260 x 330 x 120 mm (W x D x H)
<b>Gas Analyzer Output</b>	RS232 (RS232 to USB adapter supplied)
Air Flow and Switching Unit	
<b>Standard Unit Air Flow</b>	0.2 to 2.5 l/min per cage
<b>Neonate Unit Air Flow</b>	0 to 2 l/min
<b>Switching Cycle</b>	Cycle between 2-4 chambers in interval from 1 to 99 min
<b>Flow Adjustment</b>	Independent regulator for each cage
Sensor Platform	
<b>Intake Amplifier Resolution</b>	20 mg for food and drink
<b>Intake Amplifier Drift</b>	<0.1 mg/day

## Ordering Information

Order No.	Product
<b>Home Cage</b>	
<b>76-0800</b>	Oxylet Pro Home Cage, Requires Lid
<b>Airtight Lid Options</b>	
<b>76-0801</b>	Oxylet Pro Airtight Lid, Rat
<b>76-0802</b>	Oxylet Pro Airtight Lid, Mouse
<b>76-0804</b>	Oxylet Pro Airtight Lid, No Intake Monitoring, Rat
<b>76-0805</b>	Oxylet Pro Airtight Lid, No Intake Monitoring, Mouse
<b>Home Cage Floor Options</b>	
<b>76-0806</b>	Grid Floor, Rat
<b>76-0807</b>	Grid Floor, Mouse
<b>76-0808</b>	Plastic Floor, Rat
<b>76-0809</b>	Plastic Floor, Mouse
<b>Indirect Calorimetry Hardware</b>	
<b>76-0810</b>	O <sub>2</sub> /CO <sub>2</sub> Analyzer
<b>76-0811</b>	Air Supply and Switching Unit, up to 2 Chambers
<b>76-0812</b>	Air Supply and Switching Unit, up to 4 Chambers
<b>Intake Hardware</b>	
<b>76-0821</b>	Drink Dispenser with Bottle, Rat
<b>76-0814</b>	Drink Dispenser with Bottle, Mouse
<b>76-0822</b>	Food Dispenser, Rat
<b>76-0815</b>	Food Dispenser, Mouse
<b>Activity Hardware</b>	
<b>76-0813</b>	Activity Platform
<b>76-0816</b>	Rearing Monitoring IR Frames
<b>Software</b>	
<b>76-0817</b>	Metabolism V3.0 Platform
<b>76-0818</b>	Indirect Calorimetry Software Module
<b>76-0819</b>	Intake Software Module
<b>76-0820</b>	Activity Software Module

For more information on the OxyletPro System, or any of Panlab's quality products, please visit us at [www.panlab.com](http://www.panlab.com)