Lafayette
LIFE SCIENCE

Product and Research Application Areas

Neuroscience

Lafayette INSTRUMENT | Campden Instruments | ACTIMETRICS | aurora SCIENTIFIC | alzet OSMOTIC PUMPS

The Lafayette Instrument Family

We manufacture biometric instruments for life science research, public safety and healthcare. Leveraging over 75 years of experience, our team is committed to listening to customers and serving as a trusted partner, as we play our part to improve the quality of life for people around the world.

Lafayette INSTRUMENT CO.

Established 1947

From Activity Monitoring Systems, Operant Test Chambers, to Motility Testing Solutions, Lafayette Instrument Company (LIC) offers an extensive range of products for behavioral neuroscience studies. These products are designed to support researchers with conditioning, learning, activity monitoring, cognitive evaluation, and sleep deprivation studies.

Campden Instruments

Joined 1998

Well known for their vibrating microtome, the Campden Instruments (CI) vibrotome has been used for over 30 years to produce high-quality, industry-leading tissue slices for visual patching, extracellular recording and imaging. Their offerings also include advanced touch screen chambers for cognitive testing in rodents and non-human primates, and customizable modular systems.

aurora SCIENTIFIC

Joined 2023

For over 30 years, Aurora Scientific (ASI) has been a leading provider of physiology systems that aid in characterizing muscle function in models of neurodegeneration and neuromuscular disease. Aurora offers olfactometers for reliable odor generation, and miniPID photoionization detectors for precise odor detection. Beyond these solutions, ASI provides state-of-the-art Dual-Mode Indenters for mechanical stimulation in touch, pain and stretch research.

ACTIMETRICS

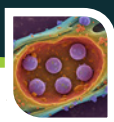
Joined 2023

Within neuroscience, Actimetrics is known for creating tools that seamlessly integrate with animal behavior experiments. Actimetrics has pioneered several new analysis methods, creating easy-to-use programs for behavioral experiments, circadian biology, and luminometry.

alzet® OSMOTIC PUMPS

Joined 2024

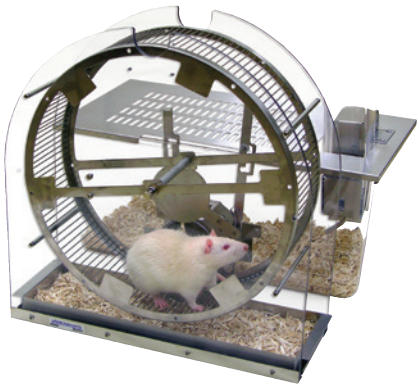
ALZET manufactures miniature osmotic pumps widely used for preclinical neuroscience research to provide continuous, controlled drug delivery in research applications such as addiction, cerebrovascular disease, metabolic disorders and neurodegeneration. ALZET also distributes iPRECIO® implantable pumps designed for more complex dosing studies.

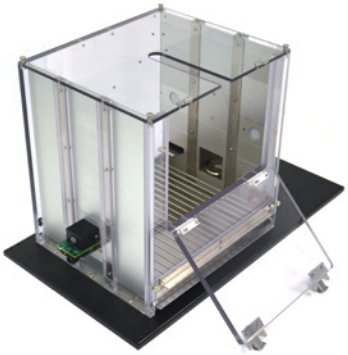



Lafayette INSTRUMENT

Activity Systems: Activity Wheel Systems + Scurry

Lafayette Activity Wheel Systems for rodents include both free and forced running along with systems that include living chambers designed for both long term circadian rhythm and general activity studies.



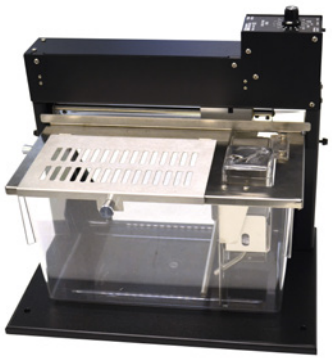


Operant Behavior: Standard and Modular Chambers + ABET

Built for durability and powered by our robust ABET software, our operant chambers are designed to support a large number of research areas while providing both the ease of use for those with minimal operant conditioning experience and the power to run complex schedules for the experimental analysis of behavior.

Sleep Deprivation: Sleep Fragmentation Chamber

Sleep Fragmentation Chamber for studying sleep patterns in rodents, designed for controlled exercise and sleep deprivation studies in both mice and rats. The chamber supports continuous and cyclical sweeps while maintaining a normal living environment for the animal.



Cognition: CANTAB

The Monkey CANTAB Intellistation™ was designed to administer the Cambridge Neurological Test Automated Battery, offering configurations with liquid or pellet rewards. The CANTAB portfolio allows for versatile testing of cognitive functions for a variety of animal types - not only primates.


Campden Instruments

Cognition: Bussey-Saksida Touchscreen Systems + ABET

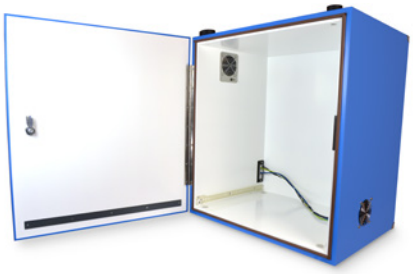
The Bussey-Saksida touchscreen system was developed as a partnership with Professors Tim Bussey and Lisa Saksida of the Translational Cognitive Neuroscience Lab at Cambridge University. It is a progression of the CANTAB touch screen systems for NHP and Human subjects used in cognitive testing and diagnosis. Originally featuring a unique trapezoidal wall shape in order to focus the animal's attention, these chambers have also been adapted for modular usage.

Tissue Slicing: Vibrating Microtomes and Tissue Choppers

Campden vibrating microtomes have been used for over 30 years to produce tissue slices for visual patching, extracellular recording and imaging of neurological (e.g. brain slice, spinal cord), heart and lung tissue. Boasting high-precision, these microtomes also offer user-friendly controls and customizable configurations cater to diverse laboratory needs, ensuring optimal performance in tissue preparation.

Experiment Isolation: Environmental Cabinets

Available for standard and electromagnetic isolation, these cabinets were designed in consultation with the Institute of Sound and Vibration University of Derby to provide a controlled environment for sound, light, and electromagnetic interference. Ergonomic design enhances animal handling and welfare, with custom sizes and optional accessories available.



Episodic Memory: cNOR OL Chamber and Tasks + ABET

These tasks were developed by Prof. Alexander Easton as tests of memory. The tasks rely on the rodent's natural behavior and not food restriction. Our chambers offer many solutions to reduce experimental time, handling confounds and numbers of animals used.


aurora SCIENTIFIC

Muscle Function Systems: Whole Animal System

Measures muscle contractility in rodents and small animals for in-situ, in-vivo, and in-vitro applications. Features a Dual-Mode lever system for precise force and length measurements to enable dynamic contraction measurements along with a high-power bi-phasic stimulator. Pre-loaded software simplifies experimental setup and data analysis, supporting protocols like twitch, tetanus, fatigue, eccentric and force-velocity.

Odor Delivery: Olfactometer

The 220A Olfactometer generates precise and reliable odors for olfaction experiments, configurable with 4, 8, 12, or 16 vials. Fluid design ensures consistent odor profiles with a rapid 25 ms switching time, allowing multiple applications without vial changes. The 220A utilizes a three mass flow controller setup for repeatable odor delivery and features continuous washing of odorant residues to minimize cross-contamination.

Mechanical Stimulation: Dual-Mode Indenters

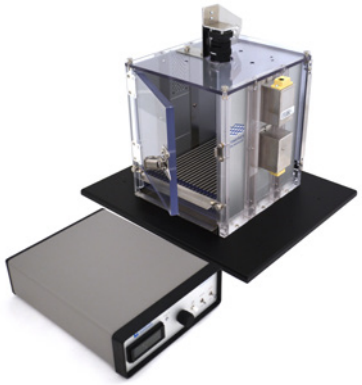
The 300E-I Dual-Mode Indenter is an automated, computer controlled device for precise mechanical stimulation. It measures and controls force and length at a single application point, enhancing experimental reliability by reducing variability. The indenter ensures consistent delivery by applying constant force for set durations and adjusts force at predetermined rates.

Odor Validation: miniPID

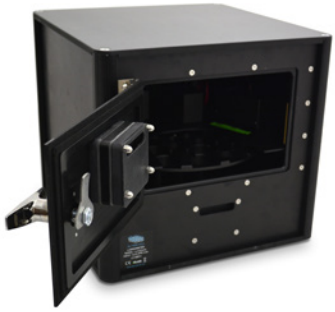
The 200C miniPID Fast Response Olfaction Sensor is a fast, compact photo-ionization detector for olfaction experiments used for numerous olfaction studies involving humans, mice, rats, dogs, Drosophila, moths, mosquitoes, ants, and more. Researchers and manufacturers have been using the miniPID to characterize olfactometers, including Aurora's 220A.

ACTIMETRICS

Fear Conditioning: Fear Conditioning Chamber + FreezeFrame



Fear conditioning test chamber package was designed from the ground up to be easy to order, easy to set up, easy to run and easy to maintain. Up to four test stations may be run on a single computer. Features a unique camera mount may be top or rear panel mounted making this chamber suitable for all fear conditioning protocols including optogenetics. Integrates FreezeFrame software with a sensitive motion detection algorithm to capture minute movements for detailed analysis beyond traditional methods.

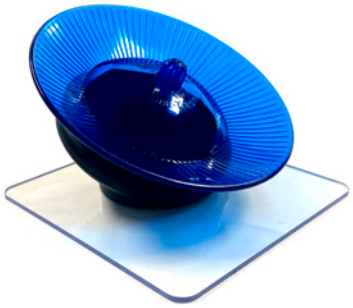


Luminometry: LumiCycle

The LumiCycle is a luminometer designed for high-throughput analysis in circadian biology. The systems are equipped with photon-counting photomultiplier tubes, each selected for low dark counts and high sensitivity in the green portion of the spectrum. LumiCycle software offers real-time data analysis, data export for statistical processing, and advanced features for effective assessment of circadian rhythms

Operant Feeder: mealPOD

A robust pellet dispenser when combined with Actimetrics' innovative wireless protocol, it becomes an unlimited, cable free data collection hub residing within existing rodent home caging. Each connected unit can be monitored and programmed in real time, to administer different simple operant schedules.



Activity Systems: Low Profile Wheel + ClockLab

ClockLab provides a comprehensive data collection and analysis system designed for circadian biology research. Powered by ClockLab, our low-profile wheel is a mainstay in activity monitoring while fitting in a standard shoebox home cage. A standard ClockLab set up includes light-tight cabinets with programmable lights, temperature, and humidity sensors, along with vertical and horizontal running-wheel cages.

Actimetrics Tel: (765) 423-1505 inquiry@actimetrics.com www.actimetrics.com

alzet®
OSMOTIC PUMPS

ALZET Miniature Infusion Pumps

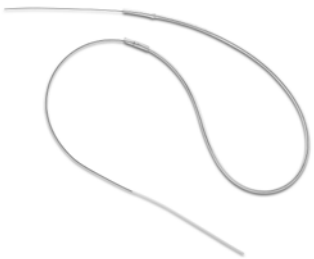
ALZET Pumps are miniature infusion pumps that provide convenient and precise delivery of test agents in lab animals as small as mice. Thirteen pump models are available in 3 different sizes with various release rates and durations ranging from 1 day to 6 weeks. These fully implantable, self-powered devices require no external connections or frequent animal handling, offering a superior alternative to repeated injections and tethered pumps. Implanted either subcutaneously or intraperitoneally, ALZET Pumps can also be connected to a catheter for targeted delivery to areas like the central or peripheral nervous systems.

iPRECIO Programmable Pumps

iPRECIO Programmable Pumps are advanced infusion devices for drug delivery applications in mice, rats and larger animals. With versatile programmable functions and refillable reservoirs, these implantable infusion pumps enable full control over dosing studies and empowers researchers to execute even the most complex dosing protocols.

ALZET Brain Infusion Kits and Cannula Holders

Designed for use with ALZET Pumps, ALZET Brain Infusion Kits provide precise CNS delivery. Three cannula designs reach 1–5 mm from the skull surface, and with our cannula holders, they are compatible with standard stereotaxic equipment. ALZET Cannula Holders securely hold the removable tabs on all ALZET brain cannulae, ensuring accurate stereotaxic placement. Compatible with most stereotaxic equipment, they support consistent, reproducible CNS delivery.



Intrathecal Catheters

Designed to attach to any ALZET Pump, ALZET Intrathecal Catheters for rats and mice are constructed with high quality materials for increased patency and reduced tissue trauma. Useful features include: flexible and secure catheter junctions to minimize kinking and leaking; teflon-coated, stainless-steel stylet to facilitate placement.


Supported Research Applications

Research Area	Product	Provider
Activity Tracking	Operant Feeders	Actimetrics
	Video Tracking	
	Activity Wheels and Monitoring Systems	Lafayette Instrument
	Eating and Drinking Analysis	
Aging and Neurodegenerative Disease	Fear Conditioning Chamber + Freezeframe	Actimetrics
	Lumicyle + Cell Cycle + Clocklab	
	Operant Feeders	
	ALZET Pumps	ALZET
	iPRECIO Pumps	
	IT Catheters	
	Brain Kits	
	Cannula Holders	
	Muscle Function systems	Aurora Scientific
	Odor delivery and validation Tools	
	Bussey-Saksida Touchscreen	Campden Instruments
	Novel Object Recognition	
	Vibrating Microtome	
	Activity Wheels	Lafayette Instrument
	CANTAB	
	Forced Exercise / Walking Wheel System	
	Sleep Fragmentation Chamber	
Cerebrovascular Disease	ALZET Pumps	ALZET
	iPRECIO Pumps	
	IT Catheters	
	Brain Kits	
	Cannula Holders	
	Mechanical Stimulator	Aurora Scientific
	Bussey-Saksida Touchscreen	Campden Instruments
	Vibrating Microtome	
	Staircases	Lafayette Instrument
	Miss-step activity wheels	
	Home cage activity monitor	

Research Area	Product	Provider
Circadian Biology	Lumicyle + Cell Cycle + Clocklab	Actimetrics
	Operant Feeder	
	ALZET Pumps	ALZET
	iPRECIO Pumps	
	IT Catheters	
	Brain Kits	
	Cannula Holders	
	Muscle Function Systems	Aurora Scientific
	Forced Exercise / Walking Wheel System	Lafayette Instrument
	Sleep Fragmentation Chambers	
Exercise and Metabolism	Operant Feeders	Actimetrics
	ALZET Pumps	ALZET
	iPRECIO Pumps	
	IT Catheters	
	Brain Kits	
	Cannula Holders	
	Muscle Function systems	Aurora Scientific
	Activity Wheels and Monitoring Systems	Lafayette Instrument
	Eating and Drinking Analysis	
	Forced Exercise / Walking Wheel System	
	Treadmill with Shocker	
Excitation-Contraction Coupling & Muscle Spindles	Muscle Function systems	Aurora Scientific
Learning and Memory	Lumicyle + Cell Cycle + Clocklab	Actimetrics
	Fear Conditioning Chamber + Freezeframe	
	Operant Feeders	

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Supported Research Applications

Research Area	Product	Provider
Learning and Memory (continued)	ALZET Pumps	ALZET
	iPRECIO Pumps	
	IT Catheters	
	Brain Kits	
	Cannula Holders	
	Odor delivery and validation Tools	Aurora Scientific
	Bussey-Saksida Touchscreen	Campden Instruments
	Novel Object Recognition	
	Vibrating Microtome	
	CANTAB	Lafayette Instrument
	Sleep Fragmentation Chamber	
	Forced Exercise / Walking Wheel System	
	Activity Wheels	
Neuroinflammation	ALZET Pumps	ALZET
	iPRECIO Pumps	
	IT Catheters	
	Brain Kits	
	Cannula Holders	
	Mechanical Stimulator	Aurora Scientific
	Bussey-Saksida Touchscreen	Campden Instruments
	Vibrating Microtome	
	Staircases	Lafayette Instrument
	Miss-step activity wheels	
	Home cage activity monitor	
Neurophysiology	ALZET Pumps	ALZET
	iPRECIO Pumps	
	IT Catheters	
	Brain Kits	
	Cannula Holders	
	Muscle Function systems	Aurora Scientific
	Tissue Choppers	Campden Instruments
	Vibrating Microtome	

Research Area	Product	Provider
Olfaction	ALZET Pumps	ALZET
	iPRECIO Pumps	
	Brain Kits	
	Odor delivery and validation Tools	Aurora Scientific
	Bussey-Saksida Touchscreen	Campden Instruments
	Operant Chambers	Lafayette Instrument
Operant Behavior	Operant Feeders	Actimetrics
	ALZET Pumps	ALZET
	iPRECIO Pumps	
	IT Catheters	
	Brain Kits	
	Cannula Holders	
	Bussey-Saksida Touchscreen	Campden Instruments
	Novel Object Recognition	
	CANTAB	Lafayette Instrument
	Operant Chambers	
	Sleep Fragmentation Chamber	
Pain and Somatosensation	Fear Conditioning Chamber + Freezeframe	Actimetrics
	ALZET Pumps	ALZET
	iPRECIO Pumps	
	IT Catheters	
	Brain Kits	
	Cannula Holders	
	Mechanical Stimulator	Aurora Scientific
Psychiatric Disorders	Operant Feeders	Actimetrics
	Activity Tracking	
	Circadian Monitoring	
	Fear Conditioning	

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Supported Research Applications

Research Area	Product	Provider
Psychiatric Disorders (continued)	ALZET Pumps	ALZET
	iPRECIO Pumps	
	IT Catheters	
	Brain Kits	
	Cannula Holders	
	Odor Delivery & Validation Tools	Aurora Scientific
	Bussey-Saksida Touchscreen	Campden Instruments
	Vibrating Microtome	
	Drug Self-Administration	Lafayette Instrument
	Operant Chambers	
Sleep	LumiCycle, Clocklab, Cell cycle	Actimetrics
	Operant Feeders	

Research Area	Product	Provider
Sleep (continued)	ALZET Pumps	ALZET
	iPRECIO Pumps	
	IT Catheters	
	Brain Kits	
	Cannula Holders	
	Bussey-Saksida Touchscreen	Campden Instruments
	CANTAB	Lafayette Instrument
	Eating and Drinking Analysis	
	Sleep Fragmentation Chambers	
	Forced Exercise / Walking Wheel System	
Tissue Biology and Histology	Tissue Choppers	Campden Instruments
	Vibrating Microtome	

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Selective list of supported research applications.
Contact us for more information!

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