Panlab

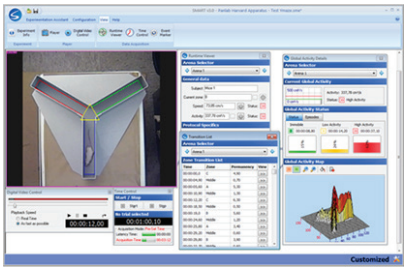
A Division of Harvard Bioscience

Product Overview

Panlab is a world leading developer and manufacturer of solutions for behavioral neuroscience research in small laboratory animals as well as for physiological and pharmacological research (basic science, phenotyping, and drug screening).

Behavioral Neuroscience

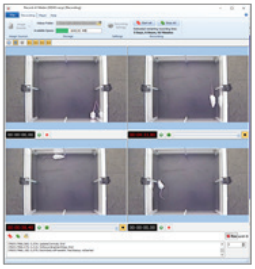
VIDEO-TRACKING AND ACCESSORIES



The SMART video tracking system is a flexible and easy-to-learn software for the automated evaluation of behavior in the widest range of standard applications for pre-clinical and neuroscience research.

- Video-tracking, built-in video recording and manual scoring
- Flexible zone editor for any experimental arenas
- Wide range of detection modes (center of mass, 3-body points, color, global activity, multiple-animals, manual detection, etc.)
- Modular structure for fitting all experimental needs and budget
- Optimal cost/performance ratio
- Compatibility with a wide range of cameras and video file formats
- SMART-IO package for combination with Optogenetics, in vivo Electrophysiology or third-party systems
- Provided data:
  - Summary tables directly exportable to Excel and providing calculation for each user-defined zones and/or time intervals
  - Wide variety of standard calculations related to tracking: time/distance/entries in zones, average speed... - Advanced calculations also available: alternation triplet, Whishaw's error, mean directionality, parallel index, turning tendency, rotations, rearings, etc.
  - Zone transition, global activity and events list reporting the time evolution of specific calculations and distribution of their occurrence
  - Track coordinates reports (X,Y)
  - Group evolution graphs and Track image exportation (2D/3D maps)

RECORD-IT! MEDIA



The RECORD-IT! MEDIA is an external video-recording software and player that can be used alone or in combination with other of our products:

- Multiple-camera recording (up to 8 cameras)
- Compatibility with a wide range of cameras (webcam, USB digital, WIA, Network-IP cameras) and video file formats
- Capacities embedded in the SMART IO video-tracking system
- Possibility of synchronization with third-party software

MAZES AND EXPERIMENTAL ARENAS

Panlab mazes are designed to meet standard experimental needs in Neuroscience Research. The mazes are commonly used for the study of central nervous system (CNS) functions as well as for screening of new compounds with potential therapeutic properties for CNS-related diseases, such as Alzheimer's, Parkinson's, depression, etc.

- Optimized for video-tracking purposes
- Made of durable non-reflective material that does not absorb odors and is easy to clean
- Most are also entirely demountable to enable storage in a minimum amount of space
- Consulting services are available, enabling customization of techniques and products
- Maze list
  - Activity (Open-field)
  - Learning & Memory (open-field, water maze, T maze, Y maze, Barnes maze, radial maze, aquatic radial maze)
  - Neurology/coordination (body reversal corridor, beam balance test, Foot misplacement corridor)
  - Anxiety & Depression (open-field, elevated plus maze, elevated zero maze, dark-light box, forced swimming test cylinders)
  - Social Interaction (open-field, social box, tube dominance test)
  - Reward & Addiction (place preference box)

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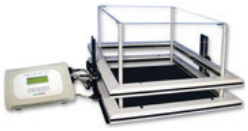
PAIN AND ANALGESIA

For the evaluation of pain & analgesia for drug screening in animal models of hyperalgesia, allodynia, inflammation, neuropathy.

- Stand-alone easy-to-use devices
- Thermal Tests
  - Tail-flick test
  - Hot plate and Hot-Cold plate
- Mechanical tests
  - Tail-Paw pressure test
  - Von Frey test
- Weight Bearing tests
  - Incapacitance test
- Inflammation
  - Plethysmometer test

IR ACTIMETER



The Panlab Infrared (IR) Actimeter allows the study of spontaneous locomotor activity, rearings and optionally hole-board test parameters for exploration in rodents.

- A reliable system for easy and rapid drug screening and phenotype characterization in both day and night lighting conditions
- Interchangeable frames can be used without distinction for either REAR, ACT or POKING modes
- Can be used in home cage conditions for long term studies
- Can be used with or without any computer (independent control units)
- Can be associated with the ACTITRACK or SEDACOM software
- Provided data (SEDACOM); photobeams counting for:
  - Slow/fast locomotor activity
  - Slow/fast stereotypies
  - Slow/fast rearing (vertical activity)
  - Slow/fast nose-poking (holeboard)
- Provided data (ACTITRACK):
  - Analysis of animal tracking: distance covered, speed, rearings, permanence time in selected zones, etc.
  - Rearing number and duration
  - Anxiety parameter: Thygmotaxis
  - All SEDACOM data

ACTIVITY WHEELS

The rodent Activity Wheel represents a very simple and clever way to register voluntary animal exercise in its home cage environment. The use of this high throughput tool is particularly relevant for research involving circadian rhythms, phenotyping and drug testing.

- A reliable system for easy and rapid drug screening and phenotype characterization in both day and night lighting conditions
- The total number of wheel rotation made by the animal is displayed on the external LE907 individual counter or LE3806 multicounter devices (up to 30 wheels)

TREADMILLS

Treadmills are used for forced exercise training and testing of fatigue in rodents. They represent a popular tool for studying the physiological adaptations and possible benefits resulting from exercise with applications in a wide range of research interests such as sport performance, metabolism diseases, cardiovascular disorders, spinal cord injury recovery and chronic pain models.

- Touchscreen graphic user interface
- Adjustable belt speed from 0.4 to 150 cm/s
- Positive and negative belt slope from -25 to +25 degrees
- Models from single to five lanes for mice and rats; single lane for rabbits
- Convertible Rat/Mouse models
- Constant electrical shock intensity (adjustable from 0 to 2 mA)
- Automated user's defined stop condition
- Optional air-puff accessory (interchangeable with shock as motivating stimulus to force exercise)
- Optional SEDACOM software for communication with PC for data storage
- Models available for indirect calorimetry (respiratory metabolism studies)
- Can be used in combination with DSI telemetry for physiologic endpoint collection
- Data given:
  - Distance traveled
  - Total stimulation duration
  - Number of stimulation episodes
  - Belt speed
  - Trial duration

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ROTARODS

Rotarods provide an easy way to test the effects of drugs, brain damage, or diseases on motor coordination or fatigue resistance in rodents.

- Touchscreen graphic user interface
- Models for 5 mice, 4 rats, combined 4 rats/mice, 2 large rats
- Mechanical detection of fall
- Individual lane timers
- Constant speed and fixed acceleration rate modes
- Data given:
  - Animal latency to fall
  - Rotation speed when fall occurs

GRIP TEST

The grip strength meter allows the study of neuromuscular functions in rodents by determining the maximum force displayed by an animal. This test is included in the Functional Observational Battery (FOB) to screen for neurobehavioral toxicity and in animal model of neurodegenerative diseases (Parkinson, Huntington...).

- Pre-calibrated easy to use system
- Highly accurate sensor
- Fit to Rats and Mice with a simple change of grip accessories
- Stand alone system, no need of computer
- Multi-units display : Kg, gram, lb, Newton...
- Internal memory for data storage
- Potent internal statistical computation

ROTAMETER

Rotational behavior has proved a popular technique for screening the behavioral effects of a wide variety of lesions, drugs, and other experimental manipulations on the brain of rodents. This test is widely carried out in experiments using animal models of Parkinson disease with unilateral lesions in the dopaminergic nigrostriatal system.

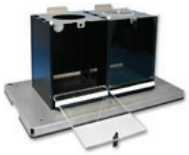
- Cylinder or Bowl transparent containers
- Rotation sensor with adjustable TTL output signal
- Configuring experiment duration and time intervals of counting
- Counting the number of partial and complete left and right turns
- Easily adjustable harness

STARTLE AND FEAR CONDITIONING SYSTEM

The StartFear Combined system is a polyvalent system for conducting both fear conditioning and startle reflex experiments in one same enclosure, regardless the animal is a rat or a mouse.

- Combined system for startle/freezing
- Combined system for rats/mice
- Weight transducer sensitivity optimized for mice
- Different spatial context configurations available for fear conditioning paradigms
- Accurate and traceable data
- Up to 8 Active Boxes can be controlled at once from a PC
- Data given for Fear Conditioning:
  - Time of experiment at which each freezing event has occurred
  - Duration of each freezing event
  - Summary table of the total amount of freezing in each state of the experiment
  - Number and duration of freezing episodes in each user-defined intervals of time
- Data given for Startle experiment:
  - Maximum startle amplitude, latency to maximum, latency to onset, startle duration, startle average amplitude, startle amplitude means for each block of trials

ACTIVE AND PASSIVE AVOIDANCE BOXES



Panlab Shuttle Boxes provide the ideal environment to carry out conditioned reflexes (Active and Passive Avoidance test) in learning and memory studies.

- Up to 8 Active Boxes can be controlled at once from a PC
- Highly sensitive weight transducer system for accurate animal detection
- Safety System which guarantees that the shock intensity received by the animal is always the same value independently of the grid bars treaded
- Straightforward SHUTAVOID software for protocol edition and data analysis
- Yoked procedure management

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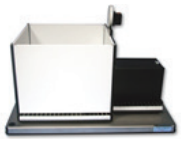

- Data given for active avoidance test:
  - Number and latencies of avoidance/conditioned responses
  - Number and latencies of escape/unconditioned responses
  - Number of Null responses
  - Changes during intertrial time
- Data given for passive avoidance test:
  - Latency of entry to the black compartment

OPERANT/BEHAVIORAL BOXES

The Panlab Operant/Behavioral box is an entirely modular experimental enclosure designed to conduct standard operant conditioning and behavioral procedures for the study of cognition (motivation, attention, decision-making...) and emotion in animal models of Alzheimer, schizophrenia, anxiety, depression, drug addictions in small laboratory animals.

- Operant boxes, 5/9 hole boxes, self-administration boxes, Vogel test, etc.
- Advanced system using the potent PACKWIN software:
  - User-friendly interface; simulator and Boxes test panels
  - Highly versatile and easy-to-use "State-logic" based protocol editor (no need of programming knowledge); built-in Yoked procedure settings
  - Assistant panel and specific reports for 5/9 holes box procedure and Vogel test
  - Potent batch-analysis module and reports (numerical and graphs), analysis time intervals settings
  - Result traceability
  - Simplified communications to hardware: Only one cable connect the Link Box to the PC through RS232/USB communication
  - Easy installation and maintenance

OXYLETPRO METABOLISM SYSTEM

Modular system for the evaluation of respiratory metabolism, food and drink intake and activity. OxyletPro can be used in the following applications: obesity, diabetes, metabolic disorders, nutrition studies, chronobiology/circadian rhythm studies, drug screening, phenotyping, etc.

- 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 treadmill experiments
- Can be used in combination with DSI telemetry for physiologic endpoint collection
- Data given:
  - VO2/VCO2concentration
  - VO2/VCO2 consumption
  - Air flow rate
  - Respiratory Quotient (VO2/VCO2)
  - Energy expenditure
  - Food and drink consumption
  - Mean spontaneous activity
  - Rearing data
  - Treadmill data (if applicable)