Rodent Treadmill

Cat. No. 47302 for Rats
Cat. No. 47303 for Mice

ng

General

"*Exercise is a multifactorial activity that affects virtually every organ and tissue in the body. Not only does exercise contribute many health benefits, but lack of exercise is implicated in many chronic health problems.*

As evidence continues to accumulate concerning the impressive range of health benefits that exercise confers, biomedical researchers have increasingly become interested in conducting systematic studies of exercise to further define those benefits"

*(from Resource Book for the Design of Animal Exercise Protocols, APS, Feb 2006)*

Ugo Basile introduces an original TREADMILL for rats and mice. The same device is suitable for tests on either rats or mice, by simply replacing the lane assembly.

Our model incorporates a shock grid at the back of the treadmill to deliver a mild electric shock, when an aversive stimulus is required.

The running-lane assembly can be manually tilted from -25° to +25°, in steps of 5°.
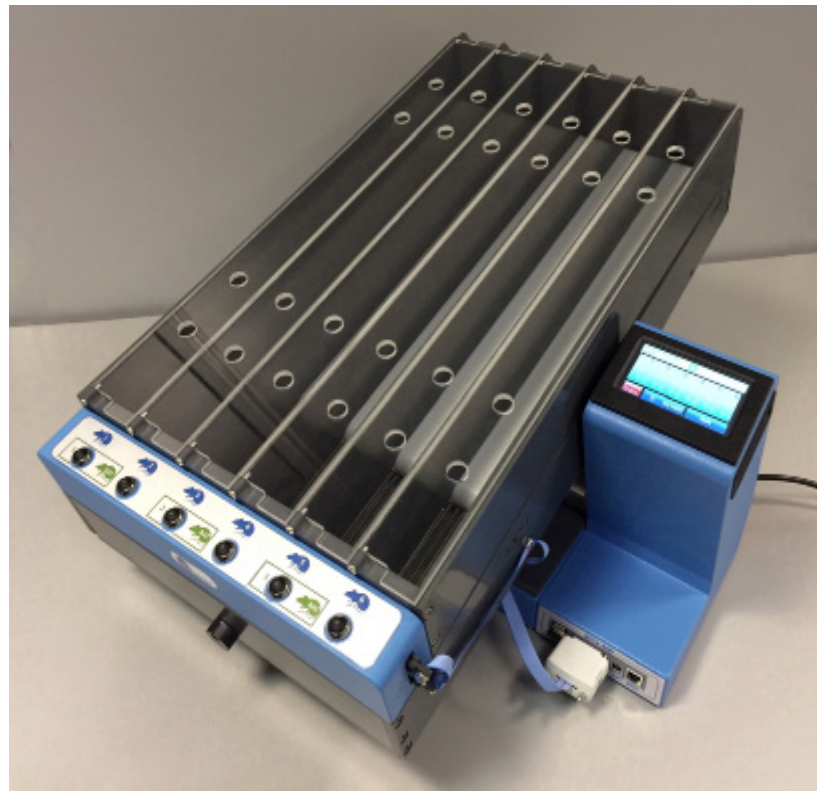
- **MEASURES ENDURANCE , DISTANCE, SPEED**

- **SAME DEVICE TO TEST RATS & MICE**

- **COMPACT AND USER-FRIENDLY:**
  test settings & monitoring controlled by the attached electronics and managed on the touch-screen.
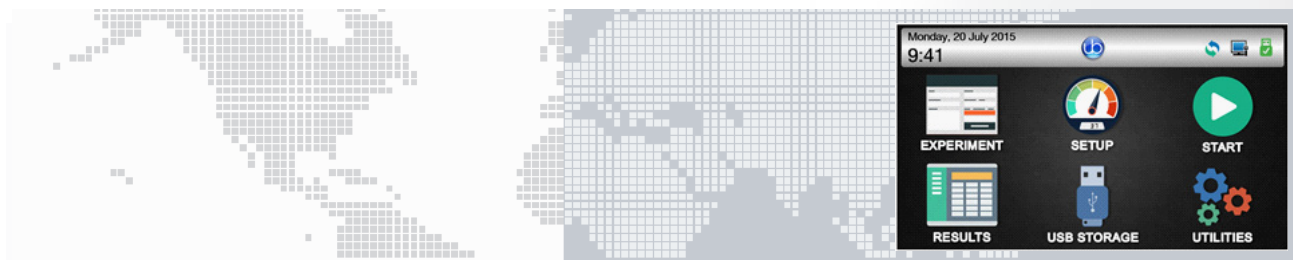
Main Features

- **SPEED:** from 3 to 100m/min, in steps of 1m/min

- **MODES:** constant, accelerating, custom ramps

- **SLOPE:** positive (uphill) or negative (downhill), from -25° to +25°

- **SHOCK:** from 0 to 2mA (in 0.1mA steps), included

- **CONTROLS:** 4"3 touch-screen to set and monitor the test

- ***X-PAD* SOFTWARE:** brand new, user-friendly version, to set the experiment and manage the results

- **DETECTION:** via incorporated electronic circuit automatically detects speed & absolute and relative distances

Ugo Basile: more than 10,000 citations

Instrument Description

Our Treadmill consists of a main unit, incorporating drive, shocker, running belt and shock grid, and a control unit with **4"3 touch-screen.**

Two different lane assemblies are available, to provide the ideal running tracks for either rats or mice. The running surface consists of an easy-to-clean alimentary-grade white belt, providing suitable grip. The device features an autocleaning tool and a pan to collect droppings.

Mouse Lane-Assembly

The mouse assembly, a structure which is quickly and easily fitted to the main unit, consists of 7cm high external walls and inside partitions, to divide the running belt into 6 lanes, each 45x5.5cm. Each lane is provided with a transparent lid.

Rat Lane-Assembly

The rat assembly has different dimensions: walls and partitions are 15cm high, and the running belt is divided into 3 lanes, each 45x11cm.

Shock & Detection Circuit

The grid (3mm bars, placed 8mm apart.) attached to either mouse or rat assembly, delivers the light foot-shock. Shock intensity and frequency can be preset via the controller module, as well as the cut-off number of shocks. The setting is common to all lanes.

The same grid also functions as detection system: distance, both absolute and relative, and speed are detected and recorded

Experimental Configuration

Via the *X-PAD* software, the operator can easily **organize** the experiment on her/his PC, and upload it to the Treadmill via the USB key.
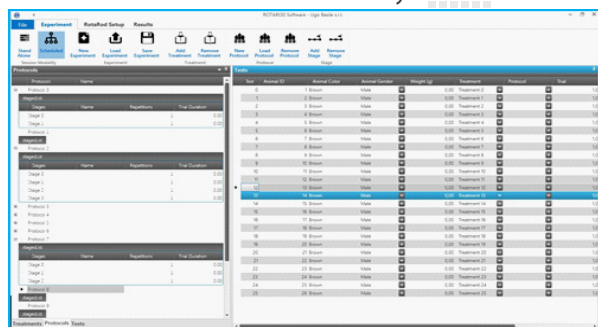
Treatments, protocols, stages, animals, and various test features (speed, mode, distance, etc.) can be quickly defined and saved for future use.

Data Collection and Management

A basic version of the collected data can be viewed on the touch-screen; when transferred to PC via USB drive, test results appear in full version.

The software automatically classifies the data, combining configuration settings with test results. The user can add information, before or after the test. Results appear in a tree-like structure, where columns can be dragged and dropped to customize the layout.

Configurations and data are exported as **Text**, **Excel** or **Pdf** reports.

Connections
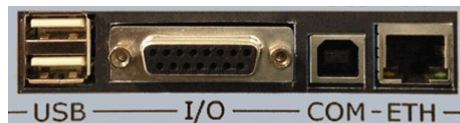
USB connectors are provided for data exchange and firmare upgrades; the lower USB port accommodates the USB storage key.

The D-SUB 15 connector provides TTL outputs for shock status for each lane, and speed.

Additional ports are provided for factory use and remote diagnosis.

Ordering Information

47302 **Rat Treadmill NG:** tapis-roulant with touch-screen controller & shocker. 3-lane partition assembly 47300-002 (each lane 45x11x15(h)cm), manual tilting (-25°/+25°), transparent cover. Complete with X-PAD software, USB output, USB flash drive

47303 **Mouse Treadmill NG:** as above, with 6-lane partition assembly 47300-003 (each lane 45x5.5x7(h)cm).

X-PAD Dedicated SW Package (on USB)

47300 Combo-Package for Mouse & Rat

Working with both rats and mice? Consider the Combination Package 47300, including the main unit and both Mouse & Rat interchangeable lane-assemblies!

Special model for tethered mice:

47300-013 Mouse 6-lane assembly (each lane 45x5.5 x**15**(h)cm, without lid, for tethered mice)

Specs:

Speed	**3 to 100m/min, in steps of 1m/min**
Shock	0 to 2mA, 1, 2 or 3Hz
Slope	from -25° to +25°, in steps of 5°

Physical

Universal input	85-264 VAC, 50/60Hz
Dimensions	56(w)x67(d)x35(h)cm
Weight	Kg 22-27 (with 1 or 2 lane assy)
Shipping Weight	Kg 35-40 (approx.)
Packing:	wooden crate, 77x65x63 / 82x71x57cm

Bibliography, Method Papers

- American Physiological Society: "Resource Book for the Design of Animal Exercise Protocols" Feb. 2006
- O.J. Kemi et alia: "Intensity-Controlled Treadmill Running in Mice: Cardiacand Skeletal Muscle Hypertrophy" J. Appl. Physiol. 93: 1301-1309, 2002
- X.Q. Wang & G.W. Wang: "Effects of Treadmill Exercise Intensity on Spatial Working Memory and Long-Term Memory in Rats" Life Sc. 149: 96-103, 2016
- M. Shinozaki et alia: "Combined Treatment With Chondroitinase ABC and Treadmillrehabilitation for Chronic Severe Spinal Cord Injury in Adult Rats" Neuroscience Res 113: 37-47, 2016