

Rotometer

Cat. No. 43000

General

The Rotometer is widely used in research on motor assessment tests, in traumatic and acquired brain injury research and spinal cord injury research.

There are several well-characterized causes for animals to exhibit rotational behavior:

- Uneven/unilateral higher expression of levels of neurotransmitters (such as GABA or dopamine). Some brain tumors can cause aberrant expression levels to occur. Injury may also interfere with proper neurotransmitter expression and/or cause some localized change in neurotransmitter expression.
- Developmental anomalies can also cause rotational behavior.
- Anxiety/stress may cause this aberrant behavior.
- Exposure to some drugs, or drug abuse, or withdrawal from some drugs; all may cause rotational sequences.
- Physical lesions also can cause rotational behavior in an animal



No Tether !

No Jacket !

**TRULY
UNRESTRAINED
MICE**

Main Features

- No jacket or tether is necessary: the animal is completely free
- Stand-alone, with internal memory
- **Quick and simple to use:** no training, turn-key system with software included

Freely Moving Animals

To quantify rotational behavior in a freely moving mouse is a significant development.

This **new Rotometer** accomplishes this task precisely, using new and clever technology to count clockwise (CW) and counterclockwise (CCW) rotations in an open field.

The animal just carries a small magnet (not much larger than a grain of rice) on its nape or on its tail.

The magnet can be surgically implanted or injected subcutaneously; however, a convenient method is to attach it to the base of the mouse tail by using standard laboratory tape. This easy and efficient method, involves minimal stress for the animal, and has the advantage of requiring no anesthesia procedure.



Fig. 1: "2x15mm magnet, attached to the mouse tail"

Our **magnets** are encapsulated within a proven **bio-compatible material** (Paryline), to be implanted or injected subcutaneously, and fit within syringes normally used for the injection of identification transponders.



Fig. 2: "four Rotometers set up for high throughput screening, for testing several animals at the same time"

Principle of Operation

The animal is placed in the open field (20cm diam. circular arena, enclosed in a 25cm tall acrylic cylinder). Our Rotometer is dimensioned for mice, but small rats can also be tested conveniently.

The design of this detecting system is very advanced, to enable the arena to be quite large whilst the magnet aboard is very small.

When the mouse circles within the open field, or rotates in place, the magnet (carried by the mouse) also rotates.

Sensors below the open field pick up these rotations, and the electronics record their number over time, discriminating Clockwise from Counterclockwise rotation.

As CW and CCW rotations accrue, they are displayed on the front panel and stored in the instrument internal memory; experiments may be qualified with animal data, date, time, and other diagnostic data.

Data Acquisition

The 43000 is a microprocessor controlled unit. The experimental data, stored in its internal memory can be directly exported to the PC USB port, or to a flash drive (included).

Communication is managed by the dedicated CUB Data Acquisition Software Package, **Cat. 52050-13**, included as standard. The CUB Windows®-based Software Package enables the user to route the experimental data to the PC and store them into individual files, to be managed by most statistical analysis packages available on the market.

Ordering Information

43000 ROTOMETER, standard package, including:

43000-001 Main Unit with display

35100-286 Perspex Animal Restrainer (25cm h)

43000-302 Instruction Manual (on USB key)

E-E 018 Paryline-coated Magnet, 2x12mm (2pcs)

E-E 019 Paryline-coated Magnet, 2x15mm (2pcs)

E-AU 041 Memory Key

52050-13 CUB Data Acquisition Software Package and USB cable

Optional:

57145 Thermal MiniPrinter

43000-321 Syringe Kit, incl. implanter, replacement needle & injectable magnets, 2x12 & 2x15 mm, 10 each

43000-012 Set of 10 Paryline-coated Magnets (2x12mm)

43000-015 Set of 10 Paryline-coated Magnets (2x15mm)

43000-052 Set of 50 Paryline-coated Magnets (2x12mm)

43000-055 Set of 50 Paryline-coated Magnets (2x15mm)

Specifications:

Read-out multifunction graphic display
 Print-out by optional thermal MiniPrinter
 Universal Mains 85-264 VAC - 50-60Hz - 30 W max.

Dimensions 25(w)x37(d)x16(h)cm, plus restrainer
 Animal Restrainer 20 (diam.) x 25 (h) cm

Weight 3.5Kg
 Shipping Weight 7.0Kg approx.
 Packing 68x34x28cm