

The HM-2 Feed and Water Intake and Activity Monitor automatically measures and records the undisturbed, real-time feed and water intake and the feeding and activity behaviour of multiple rodents housed in their home cage environment around the clock.

## Research Applications

- Obesity
- Diabetes
- Metabolic process
- Impact of treatment on health/behaviour
- Feed and liquid preference
- Eating behaviour
- Activity behaviour

## Benefits

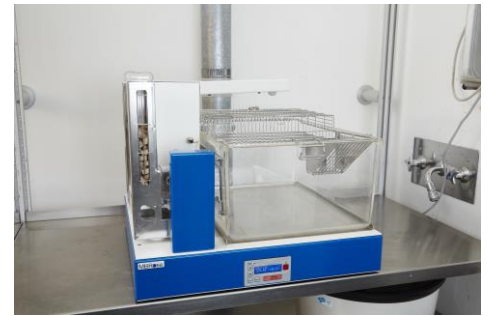
- Designed for high standards of hygiene in home cage environment, ease of feed and water filling and cleaning and control of spillage.
- RFID tag identification of individual animals housed in groups
- Full operational control at the HM-2 allows individual experiments to be started and stopped directly from the individual HM-2 station.
- Simple power and network cable connection to the data network and central Lab-PC.
- Up to 48 HM-2 stations may be connected through the network to the HM02Lab program at the central Lab-PC.
- Data collection in HMBase SQL database allows robust collection of information, which is made available by HMView or via interface filters to Excel®, SigmaPlot® and Graphpad Prism®.
- Simple station validation and tare function from the individual station keypad or system wide from the Lab-PC.
- Low power units with light dimmer on control and lamps enable easy rack-integration and use in shifted daylight applications.
- A built in calibration function allows load cell calibration to meet company quality standards.

## Food Consumption and Activity Monitored Online

The HM-2 continuously monitors feeding and drinking activity at two independent channels (e.g. feed and drink), which has been designed for low spillage, for high standards of hygiene, and for ease of operation and cleaning. The feeding and drinking data is collected without human intervention. The system records the start time of each meal, the amount of food consumed, the duration of the meal, and the finishing time. Activity is monitored cage-wide and each activity interval is recorded as an individual event. Setup configurations allow the researcher to establish the parameters for the experiment, study and session in advance. The system can operate without refilling the feed hopper for up to 4 days typical for 4 rats. It allows feed intake data to be collected automatically without disturbing the animal's normal eating behaviour.

## Data processing

The experiments, studies and sessions are centrally controlled by the HM02Lab application running at the central Lab-PC.



Front view



Feed/Water channel



For groupoused rats and mice



Rack mount of HM-2



Complete setup

The data collection software ensures robust storage of raw data in the HMBase SQL database and data view is available in HMView presenting the data quickly at the researcher's desk for check of experiment results.

Data may be extracted via filters in various formats, e.g. periodic circadian intervals or sub-periods, cage based aligned start for acute studies, feeding kinetics, non nutritive visits – For behavioural studies. Export data to SigmaPlot®, Graphpad Prism® and Excel®, for in-depth correlation with other research.

## RFID Identification of individual animals

The individual animals housed together in the same cage are identified using ISO FDXB RFID tags, e.g. DataMars®, Pet-ID®, e-Vet®. Tagging is a safe way of identifying individual animals and integrated with MBRose weigh stations and scanners it can secure a fully automated tracking of animals through the entire experiment.

| Parameter             | Abbreviation           | Value        | Unit | Note                 |
|-----------------------|------------------------|--------------|------|----------------------|
| Volume capacity       | Vmax                   | 1000         | ml   | Typical hopper, rats |
| Load capacity         | Lmax                   | 1000/500     | g    | Rats / Mice          |
| Load resolution       | Lres                   | 50/25        | mg   |                      |
| Load accuracy         | Lacc                   | 1            | g    |                      |
| Meal start detection  | T <sub>Det start</sub> | 5            | s    | 1                    |
| Meal end detection    | T <sub>Det end</sub>   | 5            | s    | 2                    |
| RFID reader frequency | F <sub>RFID</sub>      | 134.2        | kHz  | ISO FDXB             |
| Cable connection      | Con-Phys               | UTP/RJ45     |      | 3                    |
| Network               | Con-Sig                | 10/100 Ether |      | Std. Ethernet        |
| Weight of station     | WHM02                  | 11           | kg   |                      |

Note 1: The period in which the load cell readings are unstable before a meal session is started.

Note 2: The period in which the load cell readings are stable before a meal session is ended

Note 3: Standard UTP for 10/100 ethernet connection.

