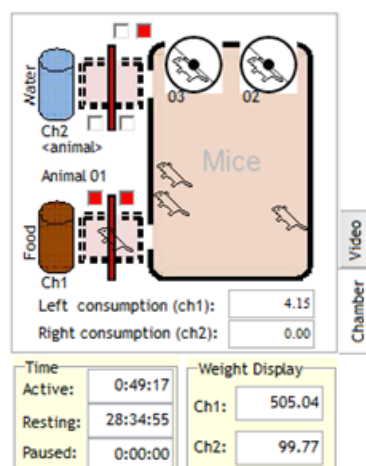


EXERCISE WHEEL [EW-2]

The EW-2 Exercise Wheel is an accessory designed for mouse configurations of the HM-2 Food-Water-Liquid Monitoring System. The EW-2 is a modular device that is placed directly inside the cage. RFID sensors are located within the wheel housing, which serve to identify which animal is in the wheel at any given time.

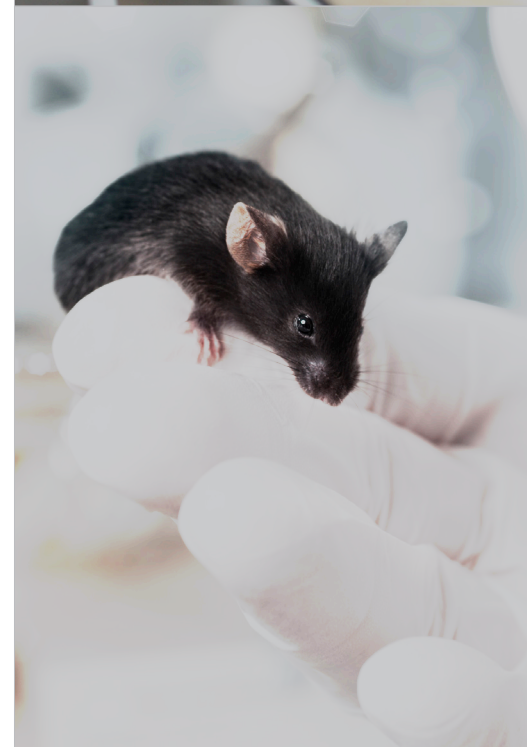
Setup, Data Processing and Analysis

Whether connected to the HM-2 network, or a stand-alone embedded controller [EMB-19i], experiments, studies and sessions involving the EW-2 are centrally controlled by the HM02Lab application running at the central Lab-PC. Running wheels appear in the HM02Lab application as two wheel icons in the detailed cage view (see image to the right). Wheel turns are saved as time stamped events in milliseconds and raw data can be extracted via predefined and custom filters to your preferred data analysis and visualization software, such as SigmaPlot®, Graphpad Prism® or Excel®. Built in reports calculate distance, duration and speed for selected bins down to 10 seconds.



Subject Identification [RFID]

Radio-frequency identification (RFID) uses electromagnetic fields to automatically identify and track tags/transponders attached to an object. The tag contains an electronic stored identification code. RFID in our field of work is a passive identification system, which means that the tag will only reveal its identity when asked from a reader. The reader supplies the energy for the tag to go active and picks up the identification code. Animals are identified using ISO FDXB RFID tags, e.g. DataMars®, Pet-ID®, e-Vet®. Tagging is a safe way of identifying individual animals, and when integrated with MBRose weigh stations and scanners provides fully automated subject tracking through the entire experiment.



Specifications

Parameter	Abbreviation	Value	Unit	Note
Height	H	195	mm	
Width	W	115	mm	
Depth	D	95	mm	
Wheel Diameter	DIA	96	mm	
Sensor 1	SEN1	Digital	0/1	Hall Effect
Sensor 2	SEN2	Digital	0/1	Hall Effect
Magnet size	M	2x10x10	mm	Power magnet
RFID reader frequency	F _{RFID}	134.2	kHz	ISO FDXB
Cable connection	Con-Phys	UTP/RJ45		3
Network	Con-Sig	COM 232, prop.		RS 232, Dig. I/O, PWR
Weight of unit	WHEW-2	670	gram	Without optional metal shield

