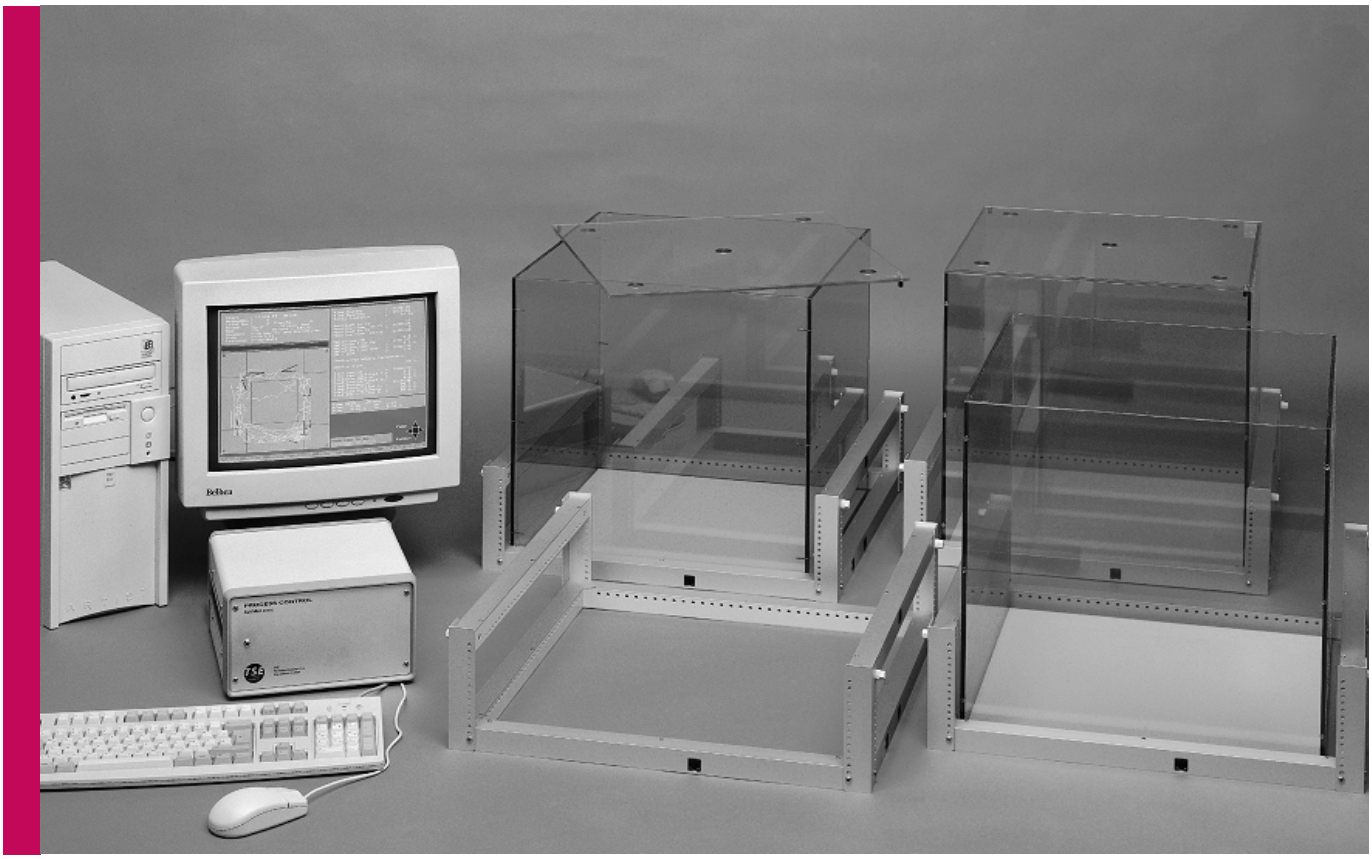
Product Overview

Sophisticated Life Science Research Instrumentation



TSE ActiMot / MoTil

Multi-Purpose Open Field, Hole Poke, Light-Dark & Home-Cage Activity System for Rats & Mice

www.TSE-Systems.com

– Specifications subject to change without notice –

TSE ActiMot / MoTil

System description

The **TSE ActiMot/MoTil** system is a flexible system for studying open field behavior, hole-board exploration and home-cage activity of small laboratory animals. It consists of the following components:

- **ActiMot** frames with appropriate test cages or
- **MoTil** frames for home cages,
- One or more control unit(s).
- one or more control interfaces (PCI slot).
- an IBM-compatible computer
- the ActiMot/MoTil software for Windows.

A large number of measuring stations can be controlled simultaneously with one computer.

ActiMot Configuration

The ActiMot frame is a square-shaped frame (the so-called *base unit*). This frame features two pairs of light-beam strips, each pair consisting of 1 transmitter strip & 1 receiver strip. These basic light barriers strips are arranged at right angles to each other in the same plane. They are used to determine the X and Y coordinates of the animal and thus its location (XY frame).

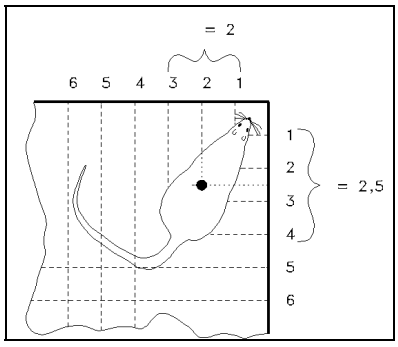
Each strip can be equipped with 16, 32, 48 or 64 infra-red sensors. The distance between adjacent sensors is 14mm, 28mm or 56mm depending on the resolution required (e.g. rats vs. mice).

480x480mm frame

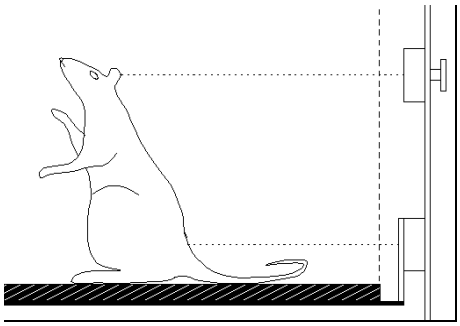
Please note that the internal spatial resolution is **twice** that the number of sensors due to the fact that whenever an even number of light-beams is interrupted the center of gravity is calculated to lie between adjacent sensors!

The following *standard frame configurations* are the one most often used:

- Size 250x250mm, 16x16 infra-red sensors, 14mm sensor distance for **mice**
- Size 480x480mm, 16x16 infra-red sensors, 28mm sensor distance for **rats**
- Size 920x920mm, 32x32 infra-red sensors, 28mm sensor distance for **rats**



Calculating the center of gravity



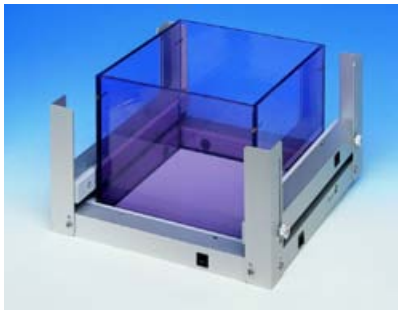
Detecting a rearing

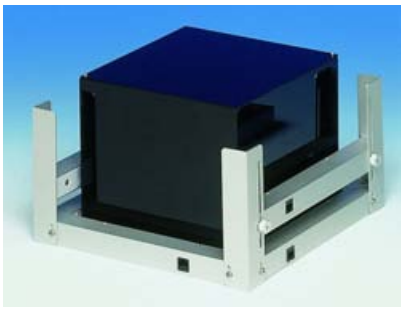
With up to 2 further pairs of unidimensional light-barrier strips (Z1 and Z2), whose height can be adjusted, **rearing** or **jumping** can be detected in addition to location (Rearing Indicators). Adjust the height of the rearing indicator to meet your individual requirements.

The light barrier levels are scanned with a frequency of 100 Hz each on fast computer platforms. They can be operated at almost any light condition, even in complete darkness.

"Open Field" Experiments

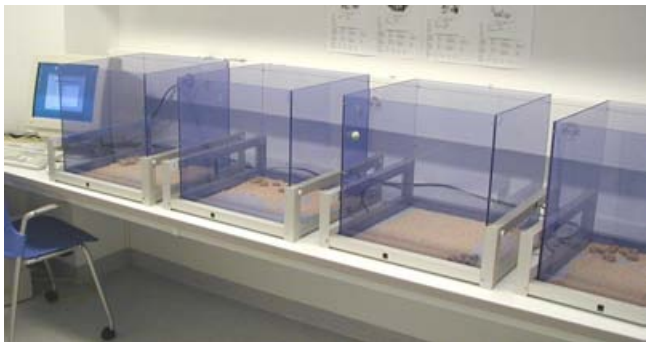
In the open field configuration the *ActiMot* frame is equipped with a square shaped inner cage.





250x250mm frame for mice (XY+Z1)
With transparent cage (left) and black infra-red permeable acrylic cage (right)

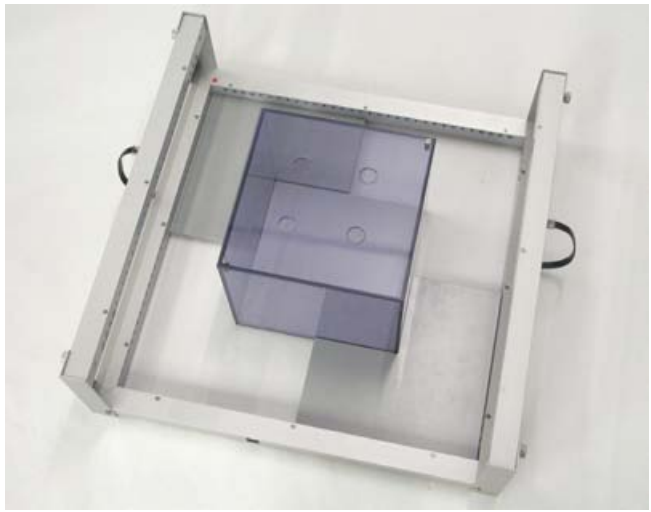
These cages are made from transparent or black acrylic material that is permeable to infra-red light. Low and high cages are available. A lid can be used to close the cage. A metal run grid is available for longer-lasting experiments. It is used in conjunction with a removable feces tray.



480x480mm frame for rats or mice (XY+Z1)
Cage = transparent acrylic

920x920mm frame for rats (XY+Z1)
Cage = transparent acrylic

The small cages can also be used in larger frames. Special distance plates (Templates) are available for this configuration.

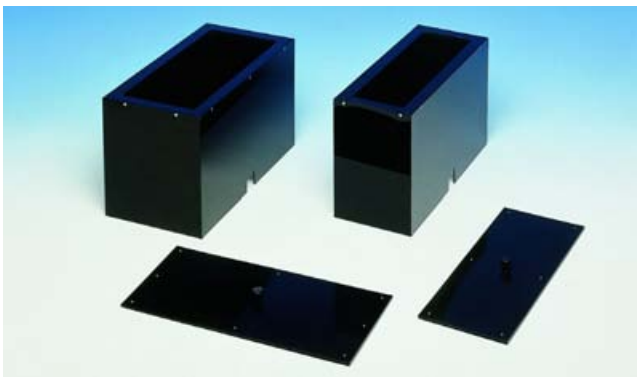


480x480mm frame (XY+Z1)
Cage = small mouse cage placed in a special template

The option 2 Boxes / Frame is an operation mode in which 2 smaller boxes (each a quarter of the size of a normal box) can be placed diagonally into a single frame that has 16 or 32 light beam sensors. The distance between the light beam sensors is either 14 mm or 28 mm. This allows the observation of 2 animals within one frame. Each animal is analyzed separately.

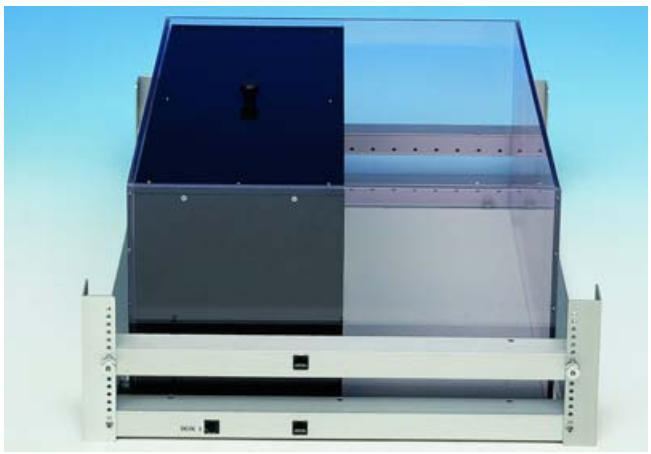
2 boxes / frame configuration

"Light / Dark" Experiments



Black compartments for Light/Dark experiments

In order to carry out anxiety tests a dark compartment with a central gate and a lid is available. This compartment is placed into the transparent acrylic cage and covers either 50% or 33% of the total box area (please specify on your order). The material is permeable to infra-red light.



480x480mm frame with black compartment for Light/Dark experiments (50%-50% configuration)

Data analysis allows to divide the box area into 2 zones ("areas") in order to calculate parameters such as visits to dark area or latency to first visit. The parameters provided are described in detail later.

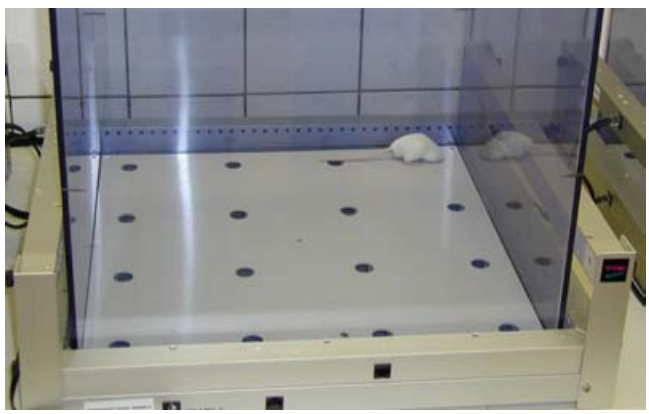
"Hole-Poke" Experiments

In order to carry out hole-poke experiments (exploration test) the ActiMot boxes can be equipped with floor inserts, the so-called hole-poke inserts (hole-boards) that feature 16 holes. The floors are available in rat and mouse configuration:

- **Hole Dimensions**
  Mouse: 16 mm diameter
  Rat: 32 mm diameter

For hole-poke evaluation one XY frame that is positioned below the board is used. If a test animal investigates a hole then the light barriers beneath this hole are interrupted and the system records a visit to the hole. Frequency and duration of hole visits can then be output in the analysis.

- **Unidimensional** light barriers in the Z1 level can additionally by used to record activity, i.e. travelled distance (XY+Z1 configuration).
- In order to perform detailed activity analyses in addition to monitoring exploratory behavior a **second** XY-frame (XY-type Rearing indicator) can be combined with the hole-board frame (XY+2ndXY or XY+2ndXY+Z1 configuration).



Advanced Hole-Poke configuration for mice

"Place-Preference" Experiments

For Place Preference experiments special inserts can be used. These inserts are placed into the acrylic cages providing two compartments with a central gate to let the animal pass. Different surface structures of the floor inserts of both compartments provide different environments.

ActiMot Options

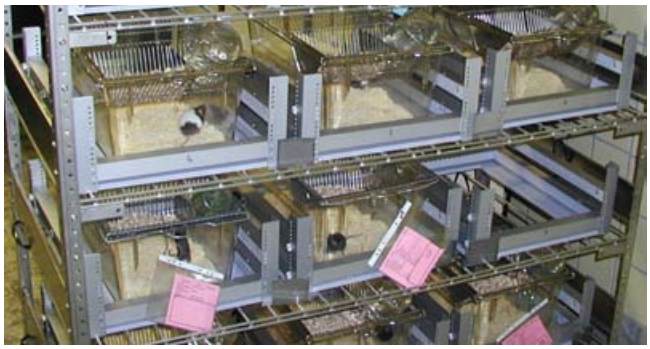
- Several XY frames (up to 4!) stacked upon each other can also be used for advanced Open Field analysis in several planes! In this combination the first frame is the base unit, the other frames are so-called Rearing Indicators Type “2nd-XY-axis”.
- The ActiMot boxes can be operated in special sound-attenuating housings. These housings feature a sliding-floor for easy removal of the test box, an observation window, a ventilator and a manually operated house light.
- If you are interested in combining the ActiMot cage with a shockable floor grid in order to monitor conflict drinking („Vogel Test“) please contact us.

MoTil Configuration

The **MoTil** system is an adaptation of the ActiMot system for recording activity in home cages.

Rectangular frames are used here: in the basic configuration these have a pattern of 2x6 sensor pairs in the X-Y axis and - optionally - 4 light barriers in the Z axis. Extra sensors can be added to increase sensor grid density if required. Data acquisition and evaluation in the MoTil system is performed with the MoTil extension of the ActiMot software package (*to be ordered separately*).

Home cage size III frame



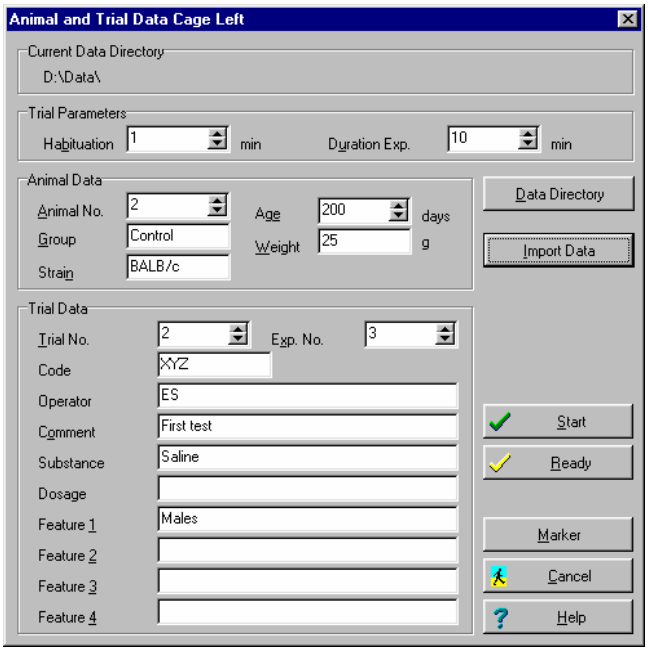
MoTil system mounted in racks

The ActiMot/MoTil Software

The software controls the complete system, records the movement of the test animals and stores the measuring data for subsequent analysis. The software runs under the operating system Windows.

Trial Preparation

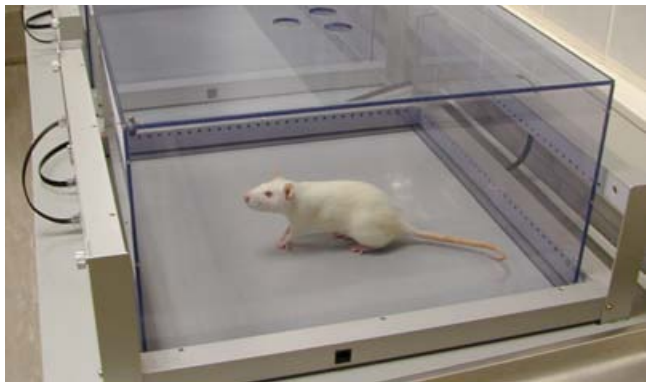
In the trial preparation phase all control and descriptive parameters are entered by the user.



Starting the Trial

After the test preparation has finished, the animal is placed in the cage and data acquisition is started in this specific box

- by pressing a key on the keyboard or
- by the interruption of light barriers combined with the movement of the animal.



Alternatively several cages can first be put into a "*ready*" state in order to start the trials later either

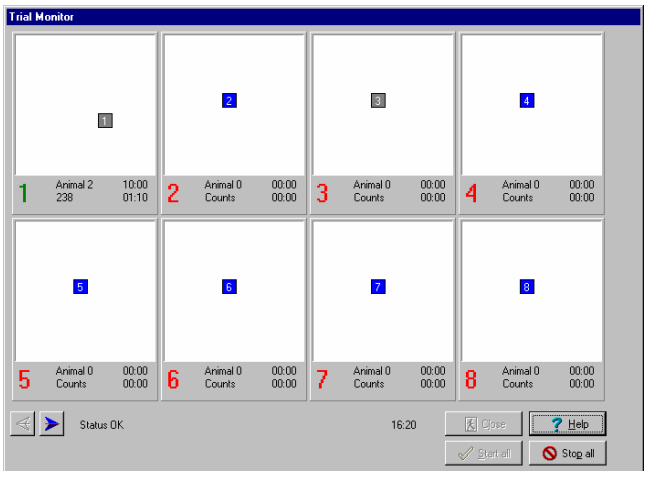
- simultaneously by pressing a key on the keyboard after all animals have been placed into the cages or
- successively by introducing the animals one after he other into the cages using the "trial start at light-beam interruption" option. The trial will start in the corresponding box when in each of both axes (x and y) two light barriers are interrupted simultaneously and at the same time an alteration in the center of gravity takes place, i.e. an animal movement occurs.

This procedure facilitates handling of larger setups.

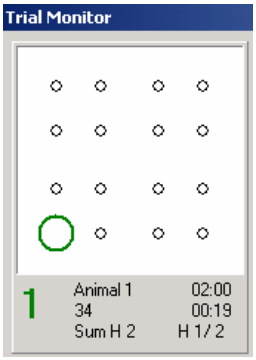
If a *Habituation Time* has been defined in the trial data window data acquisition is started as soon as this time has elapsed.

Trial Monitor

During the trial a schematic diagram of the boxes connected is shown. The actual location of the test animal is represented by a square whose position changes as the animal moves. This square corresponds to the centre of gravity calculated from the interrupted light beams. Rearing is indicated by a change in color. This trial monitor thus allows a continuous check to be carried out on the trial during data acquisition.



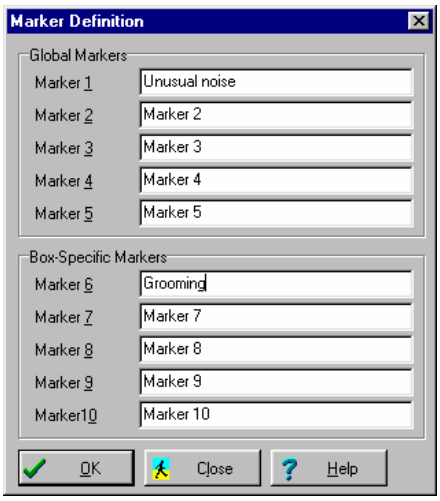
A histogram can be called up any time. The activity data acquired so far are displayed in a line graph.



During **hole-board** experiments the trial monitor displays if a hole is visited by the animal, outputs the total number of visits in this hole as well as the total number of hole visits.

Event Markers

During the running trial so-called *event markers* can be set by the user in order to document particular events. Event markers can be defined *before* the start of the experiment and *while* the experiment is being carried out.



Trial End

In normal cases the experiment in a specific box will be stopped **automatically** when the duration has been elapsed. Data acquisition in other boxes is not affected. Theorectically a trial can last up to 500 hours! The test can also be terminated prematurely in a specific box or in all boxes simultaneously.

In order to reduce file size in long-lasting experiments and to allow for intermediate analysis it is possible to automatically stop data acquisition in all connected boxes at a user-defined clock time and to **immediately restart the measurement**. New data files are generated by this procedure - no user intervention is required.

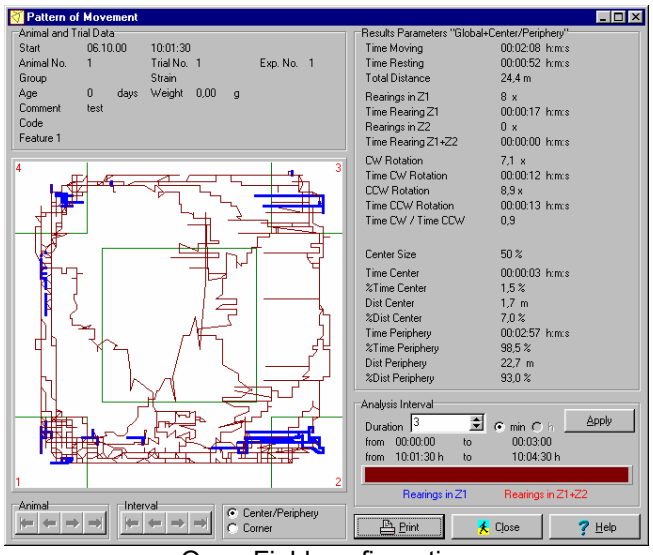
Data-Analysis – Activity-Data

For *Open Field* and *Light/Dark* experiments a differentiation is made between single and group analysis.

For Single analysis each trial is assessed separately. Instruments used are the **Pattern of Movement**, the **Histogram** and a **Results Table** generator. With the **Spacial Analysis** the distribution of animal activity is visualized in a graph and a table. For Group analysis individual results parameters are analyzed at selected time intervals for a whole group of animals. The calculated data are shown as a **Graph** and a **Table**.

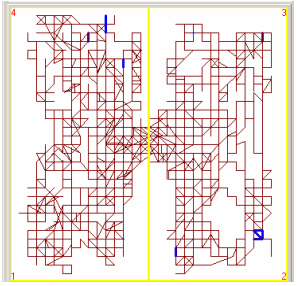
Pattern of Movement

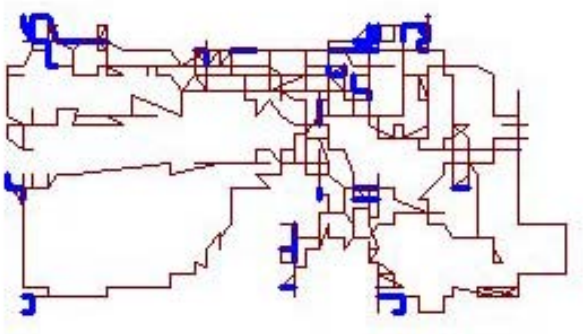
Here the movement of the animal is displayed graphically. The track can be displayed for the whole of its time course. Alternatively a time window can be selected. If a time window is chosen then the results parameters displayed are calculated only for this interval!



Open Field configuration

Rearings of the test animal in the Z1 or Z2 levels are documented with different colors. In a system with multiple XY-frames each level can be displayed in a separate graph.


Light/Dark configuration

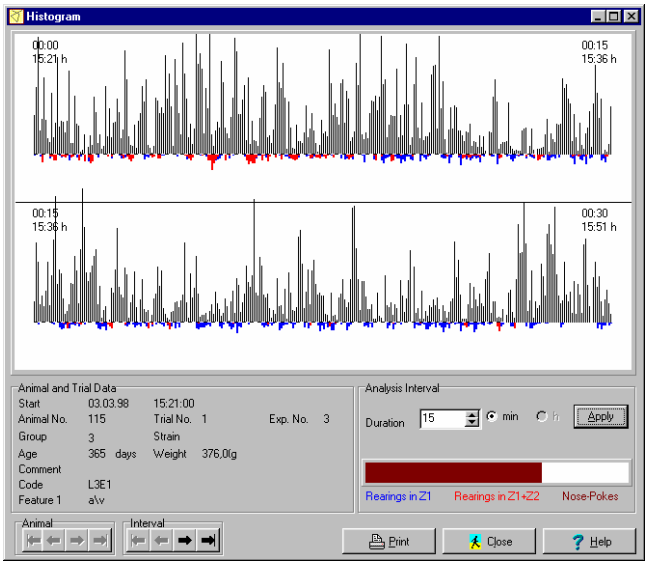

MoTil cage

Further information is also provided

- about the width of the current time gate,
- about the position of the time gate relative to the start of the trial and
- about the absolute position in time (clock time).

Histogram

In the histogram the distance moved in the analysis window is shown as a line diagram (activity graph). In addition the number of **rearings** registered in levels Z1 or Z2 are shown in different colors. The histogram is always shown for two successive analysis windows (if available).

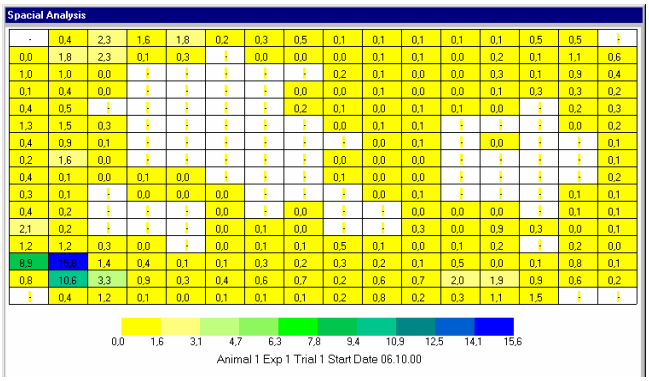


Histogram

Relative and absolute times for both intervals as well as the size of the current time gate are also given. Below the histogram is a bar in which the relationship between the analysis window and the whole trial is shown.

Spacial Analysis

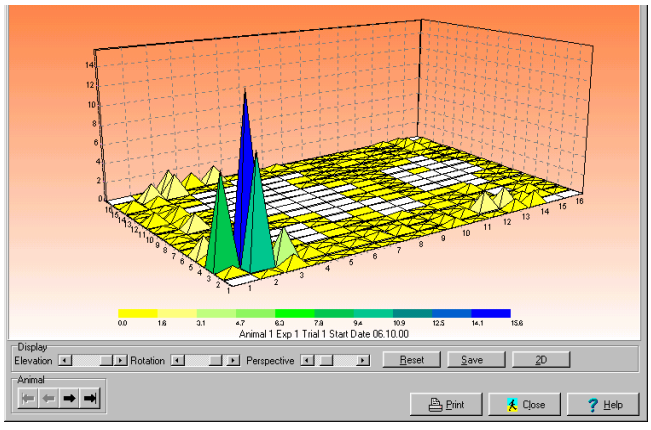
The spacial analysis generates a **Graph** and a **Table**.



2-D display

The graph provides an overview about the time distribution of the animal's movement in the box using the coordinates of the X- and Y- sensor levels. The total box area is divided into 256 elements. For each element the system calculates the **total visit time**. The **percentage of visit time** compared to the total time in the box is then output in each element.

The elements are shaded with a pattern of dots or colored in a specific color in order to allow a quick overview about the animal´s length of stay. The display can be switched to a three-dimensional graph if required.

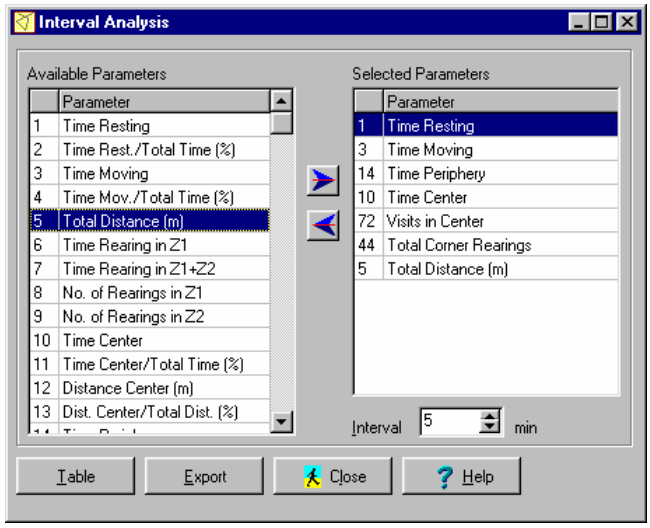


3-D display

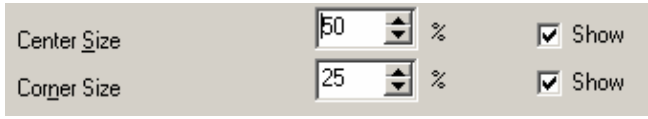
In the corresponding table of results the calculated percentages of visit time for each element are arranged in 16 columns (x-coordinate) and 16 lines (y-coordinate). This table can be exported as an ASCII file for further statistical evaluation.

Results Table

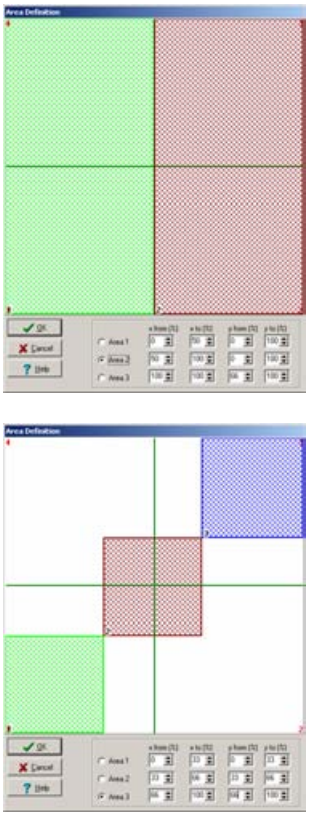
Here the user can choose among a variety of different results parameters to be calculated for each animal and for a user-defined time interval. The analysis interval is the running time interval calculated from the start of the trial.



For spatial parameters the size of the central area (the periphery is automatically calculated from this value) and the corner sizes are set by the user.

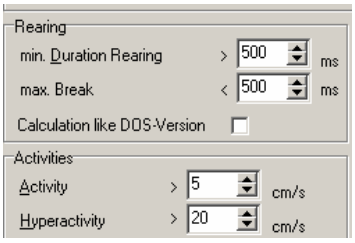


In addition the system allows to define **3 further regions** inside the box. These **areas** (area 1, 2 and 3) can be used to evaluate exploratory behavior in a light/dark box or to evaluate the animals stay in other regions of interest.



Zone definition

A variety of analysis parameters allows to adjust the calculation of the parameters according the requirements of the user (such as Activity & Hyperactivity thresholds, Rearing duration threshold).



Locomotion/Activity Parameters

Time resting (in h:min:s)
Time resting/total time (in %)
Time moving (in h:min:s)
Time moving/total time (in %)
Time hyperactive (in h:min:s)
Time hyperactive/total time (in %)
Total distance (in m)
Locomotory speed (cm/s)
Overall speed (cm/s)
Moves/Counts

Rearing Behavior

Rearing time in Z1 (in h:min:s)
Rearing time in Z1+Z2 (in h:min:s)
Number of rearings in Z1
Number of rearings in Z2
Rearing time in corner 1 (h:m:s)
Rearing time in corner 2 (h:m:s)
Rearing time in corner 3 (h:m:s)
Rearing time in corner 4 (h:m:s)

Spatial Parameters

Center / Periphery Parameters
Time in center (in h:min:s)
Time in center/total time (in %)
Distance in center (in m)
Distance in center/total distance (in %)
Number of visits in center
Rearing time in center (h:m:s)
Time in periphery (in h:min:s)
Time in periphery/total time (in %)
Distance in periphery (in m)
Distance in periphery/total distance (in %)
Latency first entry center
Latency first entry periphery
Corner parameters
Distance in corner 1 ... 4 (in m)
Time in corner 1 ... 4 (in h:min:s)
Number of visits in corner 1 ... 4
Total corner distance (in m)
Total corner time (in h:min:s)
Total number of visits in all corners
Rearings in corner 1 ... 4
Total number of rearings in all corners
Area1 – area 2 – area 3
Time area 1 … 3 (in h:min:s)
Time area 1 … 3 /total time (in %)
Time resting area 1 … 3 (in h:min:s)
Time resting area 1 … 3 /total time (in h:min:s)
Time moving area 1 …3 (in h:min:s)
Time moving area 1 …3 /total time (in %)
Distance area 1 …3 (in m)
Distance area 1 …3 /total distance (in %)
Rearings area 1 …3
Time Rearing area 1 …3 (in h:min:s)
Speed area 1 (in cm/s)
Number of visits area 1 …3
Latency first entry area 1 …3 (in h:m:s)
Latency first exit area 1 …3 (in h:m:s)

Turning Behavior

Time moving in clockwise direction (in h:min:s)
Clockwise movement/total time (in %)
Number of clockwise rotations
Time moving in counterclockwise direction (in s)
Counterclockwise movement/total time (in %)
Number of counterclockwise rotations
Ratio clockwise/counterclockwise time

New parameters are continuously added to this selection list. If your paradigm requires specific calculations to be implemented please contact us.

The selected results parameters are shown in a table that can be printed out and exported for statistical calculations.

Interval Analysis

Analysis	29.10.01 11:27:34
Parameter 1	Time Resting
Parameter 2	Time Moving
Parameter 3	Time Periphery
Parameter 4	Time Center
Parameter 5	Visits in Center
Parameter 6	Total Corner Rearings
Parameter 7	Total Distance (m)
Animal No.	1
Trial Start	06.10.00 10:01:30
Duration	03:00 (h:)min:s
Group	
Strain	
Age	0 days
Weight	0,0 g
Experiment No.	1
Trial No.	1
Code	
Operator	Liebenhoff
Comment	test
Feature1	
Feature2	
Feature3	
Feature4	
Substance	
Dosage	
Habituation	0 min
Analysis Interval	1 min
Center	50%
Corner	20%
Area 1	50%
active	> 2 cm/s
hyperactive	> 20 cm/s
min. Duration Rearing	1000 ms

from	to	1	2	3	4	5	6	7
0:00	0:01	00:10	00:50	01:00	00:00	2,0	5,0	10,3
0:01	0:02	00:14	00:46	01:00	00:00	3,0	5,0	8,6
0:02	0:03	00:28	00:32	00:58	00:02	3,0	1,0	5,5
	MV	00:17	00:43	00:59	00:01	2,7	3,7	8,1

Analysis design

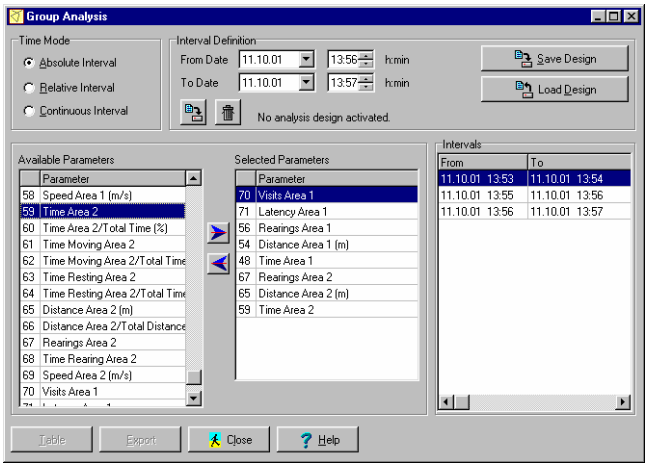
Group analysis has the aim of calculating in a **single** complex calculation step

- the selected data records at
- predetermined time intervals
- to give certain result parameters

and to display these in a table or store them in an export file. In contrast to the results table for single analysis the number of the parameters is not limited here.

Choose between a variety of **time interval** modes in order to adapt the data output to meet your individual requirements.

- The *absolute* interval allows to calculate the activity for a certain time span, e.g. between 17:00 and 18:00 h on a specific day (calendar date).
- The *relative* interval refers to the time which has elapsed since the start of the trial. Start and finish of each interval are defined; days are defined as running days since start of the trial.
- For *continuous* intervals only the length of the interval is laid down. From the start of the trial this interval is continuously calculated.



Pre-defined analysis designs can be stored in files for future use.

Mean values are calculated per line and per column. The table can be printed and exported in a file.

Analysis Parameter Time Resting

Date	From	To	MV	1	2	3
14.11.00	11:16	11:17	00:09	00:10	00:11	00:08
14.11.00	11:17	11:18	00:17	00:20	00:10	00:21
14.11.00	11:18	11:19	00:21	00:17	00:16	00:31
14.11.00	11:19	11:20	00:16	00:14	00:18	00:17
*	*	MV		00:15	00:14	00:19

Analysis Parameter Time Moving

Date	From	To	MV	1	2	3
14.11.00	11:16	11:17	00:51	00:50	00:49	00:52
14.11.00	11:17	11:18	00:43	00:40	00:50	00:39
14.11.00	11:18	11:19	00:39	00:43	00:44	00:29
14.11.00	11:19	11:20	00:44	00:46	00:42	00:43
*	*	MV		00:45	00:46	00:41

Analysis Parameter Time Center

Date	From	To	MV	1	2	3
14.11.00	11:16	11:17	00:05	00:06	00:01	00:07
14.11.00	11:17	11:18	00:03	00:05	00:01	00:02
14.11.00	11:18	11:19	00:03	00:04	00:04	00:01
14.11.00	11:19	11:20	00:05	00:09	00:01	00:06
*	*	MV		00:06	00:02	00:04

Group analysis: absolute interval
(3 data records chosen)

Data Analysis – Hole-Poke Data

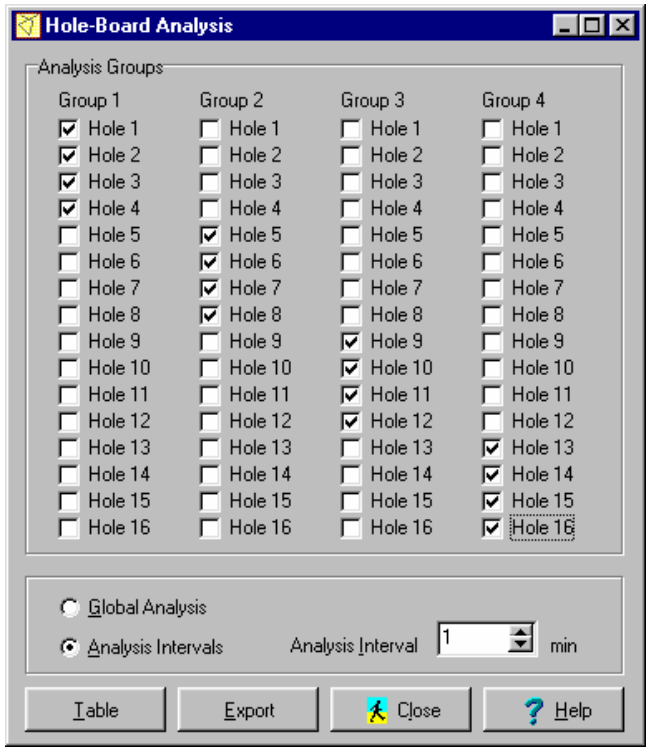
This evaluation requires a special software extension and is only possible if hole-poke inserts are available in the system. Two different evaluation algorithms are implemented.

The *Table of Results* has the format shown below. In the example the insert has 16 holes. The table outputs one line for each hole defined. For each hole the following parameters are listed:

HoleNo.	Visits	Visits%	Duration	Duration%
1	2	4,8	00:00	1,9
2	5	11,9	00:02	8,3
3	3	7,1	00:01	4,3
4	11	26,2	00:08	42,5
5	5	11,9	00:01	3,9
6	1	2,4	00:00	0,9
7	1	2,4	00:00	0,9
8	1	2,4	00:01	2,8
9	2	4,8	00:00	2,7
10	2	4,8	00:01	5,4
11	1	2,4	00:00	0,7
12	3	7,1	00:01	7,0
13	1	2,4	00:02	12,3
14	3	7,1	00:01	4,3
15	1	2,4	00:00	2,1
16	0	0,0	00:00	0,0

- the number of **visits**,
- the percentage share of the visits compared to the total number of hole visits (**visits%**),
- the total visit time per hole (**Duration**) and
- the percentage share of this visit time in relationship to the total trial period (**Duration%**)

In the second type of analysis several holes holes can be grouped together to form so-called analysis groups. One or more holes can be assigned to each group. Additionally the width of the analysis interval is laid down here.



Group definition

In this summary the following information is given:

- the current **Analysis interval**,
- the **Distance** in m covered within the analysis interval as a parameter for the activity of the test animal (only if Z1 or Z2 sensor levels are present)
- the number of **Hole visits** n for each analysis group as well as
- the total **Time** t which the animal has used to inspect the holes.

Gr 1=1,2,3,4,
Gr 2=5,6,7,8,
Gr 3=9,10,11,12,
Gr 4=13,14,15,16,

from	to	Run in m	1 n	1 t	2 n	2 t	3 n	3 t	4 n	4 t
0:00	0:01	0,0	4	00:02	1	00:00	1	00:00	1	00:00
0:01	0:02	0,0	5	00:04	0	0	0	0	0	0
0:02	0:03	0,0	2	00:00	2	00:01	4	00:01	0	0
0:03	0:04	0,0	9	00:04	1	00:00	3	00:01	2	00:03
0:04	0:05	0,0	1	00:00	4	00:00	0	0	2	00:00

Analysis interval 1 minute

If several holes are switched to active within a group then the *total* of the results of the individual holes will be given. Additional parameters provided are:

- Hole Parameters

  Number of visits to each hole 1 … 16
  Total visit time for each hole 1 … 16
  Number of hole repetitions for each hole 1 … 16
  Latency to first hole visit

In a hole-board system equipped with a second XY frame (XY-type rearing indicator) behavior *on the board* can also be analysed using all the locomotory and spatial parameters provided for Open Field evaluation.

Additional parameters provided are:

- Quadrant Parameters

  (the board is divided into 4 quadrants of equal size each containing 4 holes)

  Number of visits in each quadrant 1 … 4
  Time spent in each quadrant 1 … 4
  Average speed in each quadrant 1 … 4
  Locomotory distance in each quadrant 1… 4
  Number of rearings in each quadrant 1 …4
  Time resting in all quadrants
  Time moving in all quadrants

Data export

For further processing of the results with the aid of complex statistical programs all the calculated parameters can be stored in user-defined export files. Selectable column and decimal separators allow the adaptation of the export file (ASCII format) to the particular import program used.

TSE “Drinking + Feeding + MoTil”-System

The MoTil home cage frames can be combined with our **TSE Drinking & Feeding Monitor**. This allows concurrent measurement of liquid and food consumption in addition to animal activity.

In this combination system **TSE Drinking & Feeding & MoTil Monitor** the motility data are acquired within the Drinking & Feeding software.

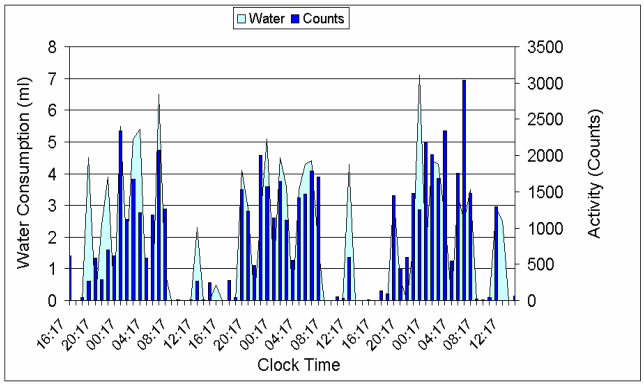
Home cage size III frame with dual-sensor lid for rats

Motility data is integrated into consumption tables and meal analysis tables (basic evaluation = counts).

Rat in a home cage equipped with 1 Drinking & 1 Feeding sensor and placed into a MoTil frame

Sensor 15 -Substance	H2O			
Sensor 16 -Substance	UAR03			
Analysis Interval	12:00:00 (h:min:s)			
Interval End	Sensor15 h:min:s	Sensor15 ml	Sensor16 g	Counts
22.07.2000 04:38:56 after	12:00:00	16,3	21,6	14754
22.07.2000 16:38:56 after	24:00:00	11,1	10,0	8138
23.07.2000 04:38:56 after	36:00:00	18,3	21,1	23007
23.07.2000 16:38:56 after	48:00:00	9,7	9,1	6095
24.07.2000 04:38:56 after	60:00:00	20,0	22,7	16851
24.07.2000 16:38:56 after	72:00:00	8,2	9,5	6940

Results table - 12h interval analysis – differentiated



Results table - water consumption + activity measured per hour in a 3-day experiment after data import in Excel

Sensor 15 -Substance	H2O						
Sensor 16 -Substance	UAR03						
Intermeal Interval	00:15:00 (h:min:s)						
Analysis Interval	12:00:00 (h:min:s)						
Sampling Interval	00:01:00 (h:min:s)						
Sensor 15	Interval Start h:min:s	Nos.	Dur. h:min:s	Qty. ml	MV Dur. h:min:s	MV Qty. ml	Counts
21.07.2000 16:38:56 after	00:00:00	9	01:13:05	16,3	00:08:07	1,8	14754
22.07.2000 04:38:56 after	12:00:00	4	00:58:05	11,1	00:14:31	2,8	8138
22.07.2000 16:38:56 after	24:00:00	10	01:43:07	20,6	00:10:19	2,1	23007
23.07.2000 04:38:56 after	36:00:00	4	00:25:02	7,5	00:06:16	1,9	6095
23.07.2000 16:38:56 after	48:00:00	11	01:41:07	20,0	00:09:12	1,8	16851
24.07.2000 04:38:56 after	60:00:00	4	00:10:00	8,2	00:02:30	2,0	6940
24.07.2000 16:38:56 after	72:00:00	0	00:00:00	0,0	00:00:00	0,0	0
		42	06:10:26	83,6	00:08:29	2,1	

Meal interval analysis table – water sensor – 12h interval

Sensor 15 -Substance	H2O							
Sensor 16 -Substance	UAR03							
Intermeal Interval	00:15:00 (h:min:s)							
Sampling Interval	00:01:00 (h:min:s)							
Sensor15	Time h:min:s	No.	Dur. h:min:s	Qty. ml	Gap h:min:s	Rate/Meal ml/min	Counts	
21.07.2000 17:31:02	00:52:05	1	00:01:00	1,3	01:27:08	1,30	465	
21.07.2000 18:59:09	02:20:13	2	00:03:00	1,7	01:44:09	0,56	1686	
21.07.2000 20:46:18	04:07:22	3	00:03:00	2,2	01:31:08	0,74	2949	
21.07.2000 22:20:26	05:41:30	4	00:19:02	2,7	00:26:02	0,14	6890	
21.07.2000 23:05:30	06:26:34	5	00:01:00	0,2	00:28:03	0,19	7169	
21.07.2000 23:34:33	06:55:37	6	00:13:01	2,3	00:16:01	0,18	8878	
22.07.2000 00:03:35	07:24:39	7	00:05:00	1,5	00:53:05	0,30	9813	
22.07.2000 01:01:40	08:22:44	8	00:18:01	3,5	00:22:02	0,20	11499	
22.07.2000 01:41:44	09:02:48	9	00:10:01	0,9	02:57:15	0,09	13199	

Meal sequence table - water sensor

For further reaching analysis the locomotory data can also be read into the MoTil software package for detailed analysis of activity and locomotion.

Partial list of users

- Abbott GmbH & Co. KG, Ludwigshafen, Germany
- ACTELION Pharmaceuticals AG, Allschwil, Switzerland
- Altana Pharma AG, Barsbüttel, Germany
- Astrid Lindgren Children's Hospital, Stockholm, Sweden
- Bayer HealthCare AG, Wuppertal, Germany
- Bayer Schering Pharma AG, Berlin, Germany
- Beroendecentrum Stockholm, Stockholm, Sweden
- Boehringer-Ingelheim GmbH & Co. KG, Biberach, Germany
- Bristol Myers Squibb GmbH, Regensburg, Germany
- Charité - Universitätsmedizin Berlin, Berlin, Germany
- Columbia University, New York, NY, USA
- Deutsches Primatenzentrum GmbH – DPZ, Göttingen, Germany
- Dr. Willmar Schwabe GmbH & Co. KG, Karlsruhe, Germany
- Eberhard Karls Universität Tübingen, Tübingen, Germany
- elbion AG, Radebeul / Dresden, Germany
- Ernst Moritz Arndt Universität Greifswald, Greifswald, Germany
- ETH Zürich, Zürich, Switzerland
- Evotec Neurosciences GmbH, Hamburg, Germany
- F. Hoffmann-La Roche AG, Basel, Switzerland
- Fraunhofer Institut für Toxikologie & Exp. Medizin, Hannover, Germany
- Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, Germany
- Georg-August-Universität Göttingen, Göttingen, Germany
- GlaxoSmithKline R&D Ltd. – GSK, Harlow, Essex, Great Britain
- Grünenthal GmbH, Aachen, Germany
- GSF-Forschungszentum f. Umwelt & Gesundheit, GmbH, Neuherberg, Germany
- Hallym University, Gangwon-Do, South Korea
- JSW-Research Forschungslabor GmbH, Graz, Austria
- Karolinska Institute, Stockholm, Sweden
- Max-Planck-Institut für Experimentelle Medizin, Göttingen, Germany
- Medimod Pharmacology Services GmbH, Reutlingen, Germany
- Merck KGaA, Darmstadt, Germany
- Merck Research Laboratory, Rahway, NJ, USA
- National University of Singapore, Singapore, Singapore
- National Yang Ming University, Taipei, Taiwan
- Nestec S.A., Lausanne, Switzerland
- NOVARTIS PHARMA AG, Basel, Switzerland
- Otto-von-Guericke-Universität Magdeburg, Magdeburg, Germany

- Pennsylvania State University, Hershey, PA, USA
- Pfizer Global Research & Development – PGRD, Sandwich, Kent, Great Britain
- Queen's University, Kingston, Ontario, Canada
- Res. Inst. of Hygiene Occup. Pathol. & Human Ecol., St. Petersburg, Russia
- Rheinische Friedrich-Wilhelms-Universität, Bonn, Germany
- Sanofi-Aventis Deutschland GmbH, Frankfurt am Main, Germany
- Scantox, Lille Skensved, Denmark
- Solvay Pharmaceuticals GmbH, Hannover, Germany
- Universita di Cagliari,Cagliari (CA), Italy
- Universität Basel, Basel, Switzerland
- Universität Bremen, Bremen, Germany
- Universitätsklinik Hamburg-Eppendorf – UKE, Hamburg, Germany
- Universität Tübingen,Tübingen, Germany
- Universität Ulm, Ulm, Germany
- University of Aarhus, Risskov, Denmark
- University of Cincinnati, Cincinnati, OH, USA
- University of Copenhagen, Copenhagen, Denmark
- University of Malta, Msida, MSD, Malta
- University of Tartu, Tartu, Estland
- University of Texas at San Antonio, San Antonio, TX, USA
- University of Texas - Southwestern Medical Center, Dallas, TX, USA

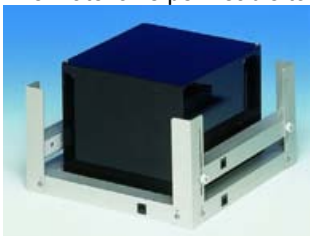
References

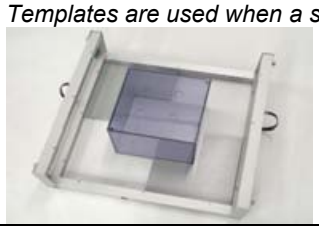
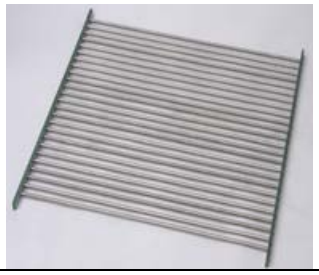
- **Bilkei-Gorzo A, Rácz I, Michel K, Darvas M, Maldonado R, Zimmer A.** A common genetic predisposition to stress sensitivity and stress-induced nicotine craving. Biological Psychiatry 2007.
- **Bonnet N, Bernard P, Beaupied H, Bizot JC, Trovero F, Courteix D, Benhamou CL.** Various effects of antidepressant drugs on bone microarchitectecture, mechanical properties and bone remodeling. Toxicology and Applied Pharmacology 2007; 221: 111-8.
- **Christoph T, Gillen C, Mika J, Grunweller A, Schafer MK, Schiene K, Frank R, Jostock R, Bahrenberg G, Weihe E, Erdmann VA, Kurreck J.** Antinociceptive effect of antisense oligonucleotides against the vanilloid receptor VR1/TRPV1. Neurochemistry International 2007; 50(1): 281-90.
- **Becker A, Schmitz M, Grecksch G.** Kindling modifies morphine, cocaine and ethanol place preference. Experimental Brain Research 2006; 168(1-2): 33-40.
- **Christoph T, Schiene K, Englberger W, Parsons CG, Chizh BA.** The antiallodynic effect of NMDA antagonists in neuropathic pain outlasts the duration of the in vivo NMDA antagonism. Neuropharmacology 2006; 51: 12-7.
- **Huebner A, Mann P, Rohde E, Kaindl AM, Witt M, Verkade P, Jakubiczka S, Menschikowski M, Stoltenburg-Didinger G, Koehler K.** Mice lacking the nuclear pore complex protein ALADIN show female infertility but fail to develop a phenotype resembling human triple A syndrome. Molecular and Cellular Biology 2006; 26(5): 1879-87.
- **Michalakis S, Reisert J, Geiger H, Wetzel C, Zong X, Bradley J, Spehr M, Huttl S, Gerstner A, Pfeifer A, Hatt H, Yau KW, Biel M.** Loss of CNGB1 protein leads to olfactory dysfunction and subciliary cyclic nucleotide-gated channel trapping. The Journal of Biological Chemistry 2006; 281(46): 35156-66.
- **Becker A, Eyles DW, McGrath JJ, Grecksch G.** Transient prenatal vitamin D deficiency is associated with subtle alterations in learning and memory functions in adult rats. Behavioural Brain Research 2005; 161: 306-12.
- **Bilkei-Gorzo A, Racz I, Valverde O, Otto M, Michel K, Sarstre M, Zimmer A.** Early age-related cognitive impairment in mice lacking cannabinoid CB1 receptors. Proceedings of the National Academy of Sciences 2005; 102(43): 15670-5.
- **Drews E, Schneider M, Koch M.** Effects of the cannabinoid receptor agonist win 55,212-2 on operant behavior and locomotor activity in rats. Pharmacology Biochemistry and Behavior 2005; 80: 145-50.
- **Langen B, Egerland U, Bernoster K, Dost R, Unverferth K, Rundfeldt C.** Characterization in rats of the anxiolytic potential of ELB139 [1-(4-chlorophenyl)-4-piperidin-1-yl-1,5-dihydro-imidazol-2-on], a new agonist at the benzodiazepine binding site of the GABAA receptor. The Journal of Pharmacology and Experimental Therapeutics 2005; 314(2): 717-24.
- **Peters HC, Hu H, Pongs O, Storm JF, Isbrandt D.** Conditional transgenic suppression of M channels in mouse brain reveals functions in neuronal excitability, resonance and behavior. Nature Neuroscience 2005; 8(1): 51-60.
- **Schneider M, Drews E, Koch M.** Behavioral effects in adult rats of chronic prepubertal treatment with the cannabinoid receptor agonist WIN 55,212-2. Behavioural Pharmacology 2005; 16: 447-53.
- **Schneider M, Koch M.** Behavioral and morphological alterations following neonatal excitotoxic lesions of the medial prefrontal cortex in rats. Experimental Neurology 2005; 195: 185-98.
- **Schneider M, Koch M.** Deficient social and play behavior in juvenile and adult rats after neonatal cortical lesion: effects of chronic pubertal cannabinoid treatment. Neuropsychopharmacology 2005; 30(5): 944-57.
- **Scott L, Forssberg H, Aperia A, Diaz-Heijtz R.** Locomotor effects of a D1R agonist are DARPP-32 dependent in adult but not weanling mice. Pediatric Research 2005; 58(4): 779-83.
- **Xi ZX, Gilbert JG, Pak AC, Ashby CR, Heidbreder CA, Gardner EL.** Selective dopamine D3 receptor antagonism by SB-277011A attenuates cocaine reinforcement as assessed by progressive-ratio and variable-cost-variable-payoff fixed-ratio cocaine self-administration in rats. European Journal of Neuroscience 2005; 21(12): 3427-38.
- **Abo-Salem OM, Hayallah AM, Bilkei-Gorzo A, Filipek B, Zimmer A, Mueller CE.** Antinociceptive effects of novel A2B adenosine receptor antagonists. The Journal of Pharmacology and Experimental Therapeutics 2004; 308(1): 358-66.

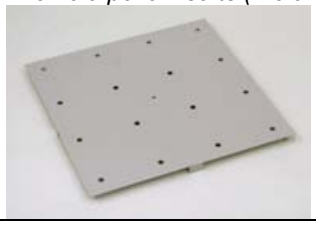
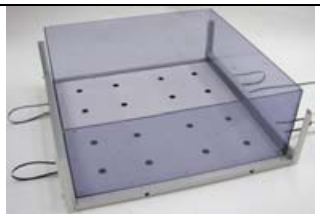
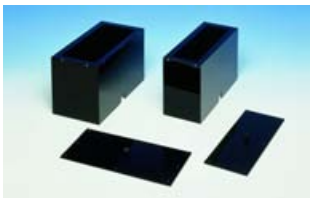
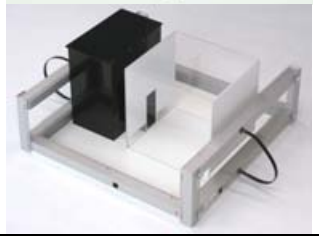
- **Bilkei-Gorzo A, Racz I, Michel K, Zimmer A, Klingmuller D, Zimmer A.** Behavioral phenotype of pre-proenkephalin-deficient mice on diverse congenic backgrounds. Psychopharmacology 2004; 176: 343-52.
- **Diaz Heijtz R, Scott L, Forssberg H.** Alteration of dopamine D1 receptor-mediated motor inhibition and stimulation during development in rats is associated with distinct patterns of c-fos mRNA expression in the frontal-striatal circuitry. European Journal of Neuroscience 2004; 19(4): 945-56.
- **Herrmann M, Stern M, Vollenweider F, Nitsch C.** Effect of inherent epileptic seizures on brain injury after transient cerebral ischemia in Mongolian gerbils. Experimental Brain Research 2004; 154: 176-82.
- **Srinivasan J, Schmidt WJ.** Functional recovery of locus coeruleus noradrenergic neurons after DSP-4 lesion: effects on dopamine levels and neuroleptic induced-parkinsonian symptoms in rats. Journal of Neural Transmission 2004; 111(1): 13-26.
- **Srinivasan J, Schmidt WJ.** Treatment with alpha2-adrenoceptor antagonist, 2-methoxy idazoxan, protects 6-hydroxydopamine-induced Parkinsonian symptoms in rats: neurochemical and behavioral evidence. Behavioural Brain Research 2004; 154(2): 353-63.
- **Srinivasan J, Schmidt WJ.** Behavioral and neurochemical effects of noradrenergic depletions with N-(2-chloroethyl)-N-ethyl-2-bromobenzylamine in 6-hydroxydopamine-induced rat model of Parkinson's disease. Behavioural Brain Research 2004; 151: 191-9.
- **Becker A, Peters B, Schroeder H, Mann T, Huether G, Grecksch G.** Ketamine-induced changes in rat behaviour: A possible animal model of schizophrenia. Progress in Neuro-Psychopharmacology & Biological Psychiatry 2003; 27: 687-700.
- **Schneider M, Koch M.** Chronic pubertal, but not adult chronic cannabinoid treatment impairs sensorimotor gating, recognition memory, and the performance in a progressive ratio task in adult rats. Neuropsychopharmacology 2003; 28: 1760-9.
- **Shearman LP, Rosko KM, Fleischer R, Wang J, Xu S, Tong XS, Rocha BA.** Antidepressant-like and anorectic effects of the cannabinoid CB1 receptor inverse agonist AM251 in mice. Behavioural Pharmacology 2003; 14(8): 573-82.
- **Srinivasan J, Schmidt WJ.** Potentiation of parkinsonian symptoms by depletion of locus coeruleus noradrenaline in 6-hydroxydopamine-induced partial degeneration of substantia nigra in rats. European Journal of Neuroscience 2003; 17(12): 2586-92.
- **Becker A, Grecksch G, Kraus J, Loh HH, Schroeder H, Hollt V.** Rewarding effects of ethanol and cocaine in mu opioid receptor-deficient mice. Naunyn-Schmiedebergs Archives of Pharmacology 2002; 365: 296-302.
- **Bilkei-Gorzo A, Racz I, Michel K, Zimmer A.** Diminished anxiety- and depression-related behaviors in mice with selective deletion of the Tac1 gene. The Journal of Neuroscience 2002; 22(22): 10046-52.
- **Heijtz R, Beraki S, Scott L, Aperia A, Forssberg H.** Sex differences in the motor inhibitory and stimulatory role of dopamine D1 receptors in rats. European Journal of Pharmacology 2002; 445(1-2): 97-104.
- **Yilmazer-Hanke DM, Faber-Zuschratter H, Linke R, Schwegler H.** Contribution of amygdala neurons containing peptides and calcium-binding proteins to fear-potentiated startle and exploration-related anxiety in inbred Roman high- and low-avoidance rats. European Journal of Neuroscience 2002; 15(7): 1206-18.
- **Kask A, Vasar E, Heidmets LT, Allikmets L, Wikberg J.** Neuropeptide Y Y5 receptor antagonist CGP71683A: the effects on food intake and anxiety-related behavior in the rat. European Journal of Pharmacology 2001; 414: 215-24.
- **Koks S, Volke V, Veraksits A, Runkorg K, Sillat T, Abramov U, Bourin M, Huotari M, Mannisto PT, Matsui T, Vasar E.** Cholecystokinin2 receptor-deficient mice display altered function of brain dopaminergic system. Psychopharmacology 2001; 158: 198-204.
- **Maul B, Siems WE, Hoehe MR, Grecksch G, Bader M, Walther T.** Alcohol consumption is controlled by angiotensin II. The FASEB Journal 2001; 15(9): 1640-2.
- **Stobrawa S, Breiderhoff T, Takamori S, Engel D, Schweizer M, Zdebik A, Boesl M, Ruether K, Jahn H, Draguhn A, Jahn R, Jentsch T.** Disruption of CIC-3, a chloride channel expressed on synaptic vesicles, leads to a loss of the hippocampus. Neuron 2001; 29: 185-96.
- **Grecksch G, Bernstein HG, Becker A, Hollt V, Bogerts B.** Disruption of latent inhibition in rats with postnatal hippocampal lesions. Neuropsychopharmacology 1999; 20(6): 525-32.

- **Koks S, Bourin M, Voikar V, Soosaar A, Vasar E.** Role of CCK in anti-exploratory action of paroxetine, 5-HT reuptake inhibitor. International Journal of Neuropsychopharmacology 1999; 2: 9-16.
- **Koks S, Soosaar A, Voikar V, Bourin M, Vasar E.** BOC-CCK-4, CCK(B) receptor agonist, antagonizes anxiolytic-like action of morphine in elevated plus-maze. Neuropeptides 1999; 33(1): 63-69.
- **Hinz VC, Blokland A, Van Der Staay FJ, Gebert I, Schuurman T, Schmidt BH.** Receptor interaction profile and CNS general pharmacology of metrifonate and its transformation product dichlorvos in rodents. Drug Development Research 1996; 38: 31-42.

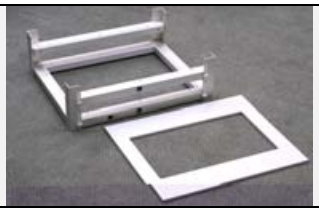
Ordering Information

Cat.No.	Description
ActiMot System	
1. Base Units & Rearing Indicators	
a. 250x250mm	
302020/250/16-16	ActiMot base unit 250x250mm, 16*16 ISP (X-Y axis), **D: 14mm**
302020/250/16-R*	Unidimensional Rearing indicator for 302020/250/16-16: 16 ISP (**Z axis**), D: 14mm
302020/250/16-16-R	Rearing indicator for 302020/250/16-16: 16*16 ISP (2nd X-Y axis), D: 14mm
b. 480x480mm	 ***Example*** 1 pc. 302020/480/16-16 Base unit + 1 pc. 302020/480/16-R **Z-axis** Rearing Indicator
302020/480/16-16	ActiMot base unit 480x480mm, 16*16 ISP (X-Y axis), **D: 28mm**
302020/480/16-R*	Unidimensional Rearing indicator for 302020/480/16-16: 16 ISP (**Z axis**), D: 28mm
302020/480/16-16-R	Rearing indicator for 302020/480/16-16: 16*16 ISP (2nd X-Y axis), D: 28mm
302020/480/32-32	ActiMot base unit 480x480mm, 32*32 ISP (X-Y axis), **D: 14mm**
302020/480/32-R*	Unidimensional Rearing indicator for 302020/480/32-32: 32 ISP (**Z axis**), D: 14mm
302020/480/32-32-R	Rearing indicator for 302020/480/32-32: 32*32 ISP (2nd X-Y axis), D: 14mm
c. 920x920mm	
302020/920/16-16	ActiMot base unit 920x920mm, 16*16 ISP (X-Y axis), **D: 56mm**
302020/920/16-R*	Unidimensional Rearing indicator for 302020/920/16-16: 16 ISP (**Z axis**), D: 56mm
302020/920/16-16-R	Rearing indicator for 302020/920/16-16: 16*16 ISP (2nd X-Y axis), D: 56mm
302020/920/32-32	ActiMot base unit 920x920mm, 32*32 ISP (X-Y axis), **D: 28mm**
302020/920/32-R*	Unidimensional Rearing indicator for 302020/920/32-32: ISP (**Z axis**), D: 28mm
302020/920/32-32-R	Rearing indicator for 302020/920/32-32: 32*32 ISP (2nd X-Y axis), D: 28mm
302020/920/64-64	ActiMot base unit 920x920mm, 64*64 ISP (X-Y axis), **D: 14mm**
302020/920/64-R*	Unidimensional Rearing indicator for 302020/920/64-64: 64 ISP (**Z axis**), D: 14mm
302020/920/64-64-R	Rearing indicator for 302020/920/64-64: 64*64 ISP (2nd X-Y axis), D: 14mm
	**** Unidimensional Z-axis type Rearing Indicators: You can combine up to 2 indicator units (Z1+Z2) with each ActiMot base unit. They are mounted on different heights.***
2. Inner Cages	*Heights other than the ones mentioned below are available on request*
a. For 250x250mm base unit	
302020-SIC/250	TRANSPARENT acrylic cage with lid for ActiMot unit 250x250mm, height **200mm** 
302020-SIC/250-IR	BLACK acrylic cage with lid for ActiMot unit 250x250mm, height **200mm** The material is permeable to infra-red light. 
302020-SIC/250-OX	TRANSPARENT acrylic cage with lid for ActiMot unit 250x250mm for O_2, CO_2 etc. measurements

b. For 480x480mm base unit	
302020-SIC/480	TRANSPARENT acrylic cage with lid for ActiMot unit 480x480mm, height **400mm** 
302020-SIC/480-200	TRANSPARENT acrylic cage with lid for ActiMot unit 480x480mm, height **200mm** (*used for mice*) 
302020-SIC/480-IR	BLACK acrylic cage with lid for ActiMot unit 480x480mm, height **400mm** The material is permeable to infra-red light.
302020-SIC/480-IR-200	BLACK acrylic cage with lid for ActiMot unit 480x480mm, height **200mm** (*used for mice*) The material is permeable to infra-red light.
302020-SIC/480-OX	TRANSPARENT acrylic cage with lid for ActiMot unit 480x480mm for O_2, CO_2 etc. measurements.
c. For 920x920mm base unit	
302020-SIC/920	TRANSPARENT acrylic cage with lid for ActiMot unit 920x920mm, height **400mm** *(will be shipped disassembled)*
302020-SIC/920-IR	BLACK acrylic cage with lid for ActiMot unit 920x920mm, height **400mm** The material is permeable to infra-red light. *(will be shipped disassembled)*
302020-SIC/920-OX	TRANSPARENT acrylic cage with lid for ActiMot unit 920x920mm for O_2, CO_2 etc. measurements *(will be shipped disassembled)*
3. Templates	*Templates are used when a smaller cage is to be placed in a larger base unit* 
302020-SIC/250-480/S	Template for cage 302020-SIC/250 for use in ActiMot unit 480x480mm
302020-SIC/250-920/S	Template for cage 302020-SIC/250 for use in ActiMot unit 920x920mm
302020-SIC/480-920/S	Template for cage 302020-SIC/480 for use in ActiMot unit 920x920mm
4. Grid Floor Sets	*The grid floor sets have to be ordered together with the inner cage. Retrofitting of existing cages with grid floors is not possible. They come complete with a stainless steel feces tray.* 
302020-FG-250	Non-shockable stainless steel floor set "**Mouse**" for ActiMot unit 250x250mm Rod ∅ 4 mm, distance (rod center to rod center) 8.9mm
302020-FG-480-M	Non-shockable stainless steel floor set "**Mouse**" for ActiMot unit 480x480mm Rod ∅ 4 mm, distance (rod center to rod center) 8.9mm
302020-FG-480	Non-shockable stainless steel floor set "**Rat**" for ActiMot unit 480x480mm Rod ∅ 6 mm, distance (rod center to rod center) 19.5mm

5. Hole-Poke Inserts	*The hole-poke inserts ("hole-boards") are made from grey PVC.* 
a. Mouse	
302020-HB/250-M	Hole Poke insert „**Mouse**" with 4x4=16 holes for ActiMot unit 250x250mm Hole diameter: 16mm
302020-HB/480-M	Hole Poke insert „**Mouse**" with 4x4=16 holes for ActiMot unit 480x480mm Hole diameter: 16mm
302020-HB/920-M	Hole Poke insert „**Mouse**" with 4x4=16 holes for ActiMot unit 920x920 mm Hole diameter: 16mm
b. Rat	 ***Example:*** 1 pc. 302020/920/32-32 Base unit + 1 pc. 302020/920/32-R **Z-axis Rearing Indicator** + 1 pc. 302020-HB/920-R Hole-Poke Insert Rat
302020-HB/480-R	Hole Poke insert „**Rat**" with 4x4 holes for ActiMot unit 480x480 mm Hole diameter: 32mm
302020-HB/920-R	Hole Poke insert „**Rat**" with 4x4 holes for ActiMot unit 920x920 mm Hole diameter: 32mm
6. Light-Dark Inserts	*a) These inserts are made from BLACK acrylic material which is permeable to infra-red light.*  *a) Stand-alone inserts*  *b) Stand-alone light-dark box with separate tunnel*
a. For 250x250mm base unit	
302020-LDB/250-33	Light/Dark Box **33 %** for ActiMot unit 250 x 250 mm. For use in acrylic cage types 302020-SIC/250. Black compartment & lid, with central gate to let the animal pass. Covers 33 % of the cage area.
302020-LDB/250-50	Light/Dark Box **50 %** for ActiMot unit 250 x 250 mm. For use in acrylic cage types 302020-SIC/250. Black compartment & lid, with central gate to let the animal pass. Covers 50 % of the cage area.
b. For 480x480mm base unit	
302020-LDB/480-33	Light/Dark Box **33 %** for ActiMot unit 480 x 480 mm. For use in acrylic cage types 302020-SIC/480. Black compartment & lid, with central gate to let the animal pass. Covers 33 % of the cage area.
302020-LDB/480-50	Light/Dark Box **50 %** for ActiMot unit 480 x 480 mm. For use in acrylic cage types 302020-SIC/480. Black compartment & lid, with central gate to let the animal pass. Covers 50 % of the cage area.
c. For 920x920mm base unit	
302020-LDB/920-33	Light/Dark Box **33 %** for ActiMot unit 920 x 920 mm. For use in acrylic cage types 302020-SIC/920. Black compartment & lid, with central gate to let the animal pass. Covers 33 % of the cage area.

302020-LDB/920-50	Light/Dark Box **50 %** for ActiMot unit 920 x 920 mm. For use in acrylic cage types 302020-SIC/920. Black compartment & lid, with central gate to let the animal pass. Covers 50 % of the cage area.
7. Control Units	
302020-C/***X***	Control unit for 2, 4, 8, 16, 24 or 32 ActiMot units. Includes one or more PCI slot interfaces. *Please replace **X** with the respective number.*
8. Place Preference Inserts	
302020-PPI/250	Place Preference Insert for Motility Measuring Unit ActiMot **250 x 250 mm**. For use in an acrylic cage 302020-SIC/250 series. Complete and consisting of: • Partition wall (black, permeable to infra-red light) with central gate, mounted to the center of the ceiling • Each compartment has its own lid (clear, on request black) with a hinge on the rear side to introduce the animal • Manual vertical door (black, permeable to infra-red light), built into the partition wall • Two floor inserts with different surface structures
302020-PPI/480	Place Preference Insert for Motility Measuring Unit ActiMot **480 x 480 mm**. For use in an acrylic cage 302020-SIC/480 series. Complete and consisting of: • Partition wall (black, permeable to infra-red light) with central gate, mounted to the center of the ceiling • Each compartment has its own lid (clear, on request black) with a hinge on the rear side to introduce the animal • Manual vertical door (black, permeable to infra-red light), built into the partition wall • Two floor inserts with different surface structures
302020-PPI/920	Place Preference Insert for Motility Measuring Unit ActiMot **920 x 920 mm**. For use in an acrylic cage 302020-SIC/920 series. Complete and consisting of: • Partition wall (black, permeable to infra-red light) with central gate, mounted to the center of the ceiling • Each compartment has its own lid (clear, on request black) with a hinge on the rear side to introduce the animal • Manual vertical door (black, permeable to infra-red light) built into the partition wall • Two floor inserts with different surface structures

9. Software	
302020-S/*X*	Software package for 2, 4, 8, 16, 24 or 32 ActiMot units (incl. Open Field & Dark-Light evaluation). *Please replace X with the respective number.*
302020-S-HB	Software package extension for Hole-Poke tests.
10. Housings	
302020-HOU-250	Sound-attenuating housing for 1 ActiMot unit 250x250mm
302020-HOU-480	Sound-attenuating housing for 1 ActiMot unit 480x480mm
302020-HOU-920	Sound-attenuating housing for 1 ActiMot unit 920x920mm
MoTil System	
1. Base Units & Rearing Indicators	
302013-HC	MoTil base unit: Basic resolution = X-axis with 6 ISP, Y-axis with 2 ISP. *Please specify cage size with order.* A special template will be delivered with each frame to hold the cage in place.
302013-R	Unidimensional rearing indicator = Z axis with 4 ISP Suitable for cage lids with integrated food cribs.
302013-IR	1 additional infra-red sensor pair (for X, Y or Z axis) *The suitable infra-red sensor configuration depends on the animal species and the required resolution of the acquired data*

2. Control Units	
302013-C	Control unit (1 pc. for each group of 14 measuring units). Includes one or more PCI slot interfaces.
3. Software	
302013-S	Software package MoTil

ISP=Infra-red sensor pairs, D=Distance between sensor pairs

Sophisticated Life Science Research Instrumentation

TSE Systems is a leading supplier of sophisticated research instrumentation in the global life science market. Our focus is on providing the total customer solution, with modular designs of integrated hardware and software platforms for neuroscience, metabolic and behavioral phenotyping, drug screening and toxicology.

For further information please contact us.

North America Headquarters
TSE Systems, Inc.
17826 Edison Avenue
Chesterfield, MO 63005
USA

Phone: +1-636-536-6502
Fax: +1-636-536-0840

Toll-Free (USA / Canada)
Phone: +1-866-466-8873
Fax: +1-866-467-8873

European / Asian Headquarters
TSE Systems GmbH
Siemensstr. 21
61352 Bad Homburg
Germany

Phone: +49-(0)6172-789-0
Fax: +49-(0)6172-789-500

India

Axiom Biotek, Inc.
Inc. Uniline House,
2nd Floor
198 / 23, Ramesh Market,
East of Kailash
New Delhi 110 065
India

Phone: +91-11-4657-9762
Fax: +91-11-2648-1469
E-mail: India@TSE-Systems.com

TSE_ActiMot MoTil_20101013

info@TSE-Systems.com www.TSE-Systems.com