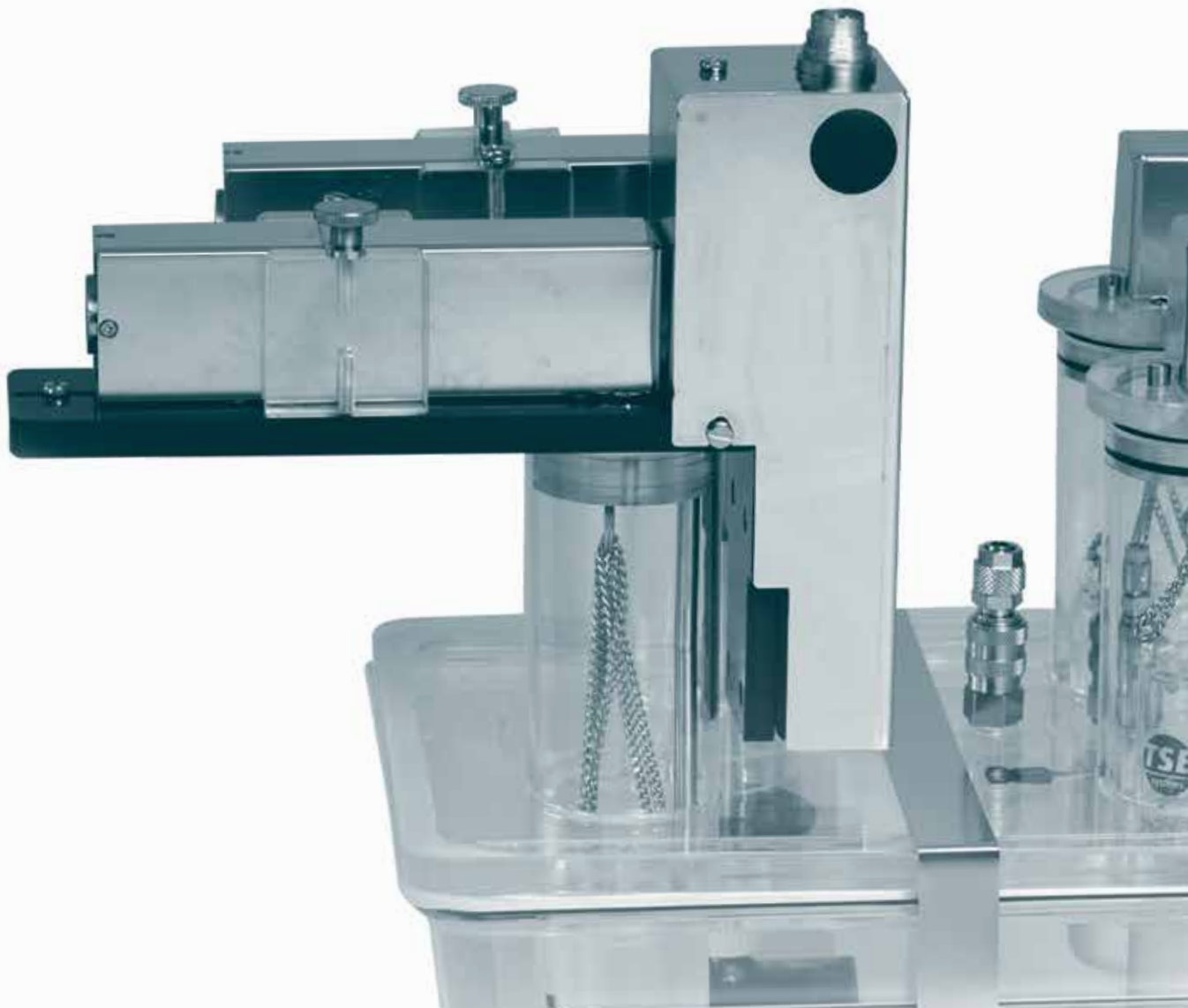


*Sophisticated Life Science Research Instrumentation*



# PhenoMaster

Drinking/Feeding/Body Weight Module



PhenoMaster: Flexibility Secured

[www.TSE-Systems.com](http://www.TSE-Systems.com)



## Drinking & Feeding

**The Drinking/Feeding modules of the PhenoMaster form the basis of long-term home cage measurements**

### YOUR BENEFITS

- **Precision: trusted sensor technology & spillage-protected containers**
- **Flexibility: sensors easily interchangeable, multiple set-ups possible**
- **Ease of use: minimum experimenter interference necessary**
- **Security: unbiased data**
- **Comprehensive software control**

### Home Cage Measurement

- Based on standard cage sizes
- Short animal habituation
- Easy maintenance and cleaning
- Non-invasive long-term monitoring without experimenter interference
- Highest flexibility: module combinable with activity measurement, operant conditioning or indirect calorimetry modules (see dedicated brochures)

### Sensor/Container Technology

- Lid-mounted sensors as in standard home cages, providing maximum space and optimized access even for obese or large animals
- High precision technology
- Specific nipple design ensures no loss of liquid
- Validated spillage protection containers
- Interchangeable modular set-up: drinking/feeding/body weight measurement uses same PermaSensors
- Food and drink containers of various sizes available
- Technical resolution: 10 mg or 10  $\mu$ l – orders of magnitude over biological dispersion
- Variable number of sensors depending on cage size (see table on reverse)
- Modular container structure simplifies cleaning, refilling, replacement and repair

### Assay types

- Choice preference: multiple feeding or drinking sensors
- Yoked/paired feeding via access control
- Time-control or amount-control via access control system
- Drug self-administration by food/drink
- Feeding/drinking rhythm, meal analysis
- Alternate food presentation through specific containers for powdered/pasty food

### Access Control

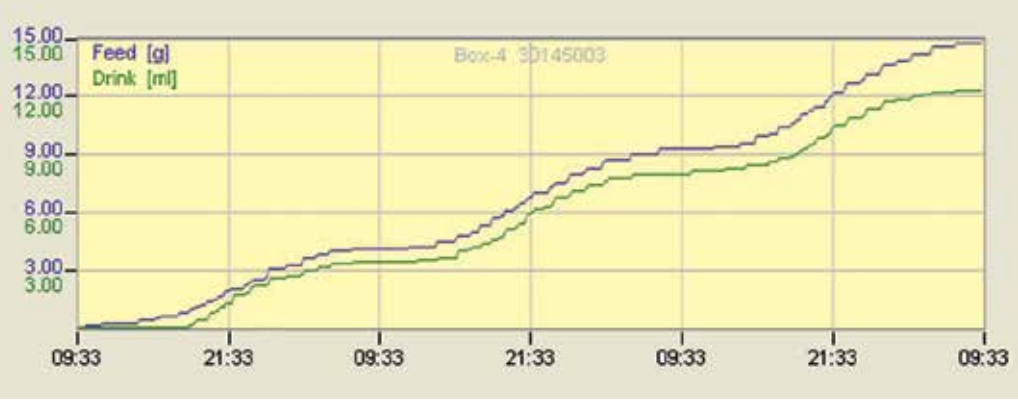
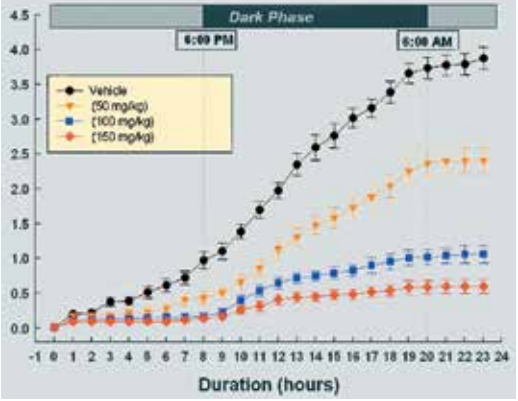
- Access to food or drink is granted/denied by a sliding cylinder sheath
- Full computer control

### LITERATURE EXAMPLE

#### Neuropeptides & Obesity

*Nogueiras et al., J Neurosci 2009*

The study showed that GLP-1 perfusion of the mouse CNS directly decreased lipid storage independently of dietary intake. The effect was reduced in obese mice, suggesting a developing adipocyte resistance. Energy expenditure, food intake and activity were recorded over 4 days in a PhenoMaster system.



# & Body Weight Software

## General Features

- Same PermaSensor technology as drinking/feeding – interchangeable basis
- Lid-mounted sensor constitutes enriched environment

## Body Weight Monitoring

- For mice or rats
- Minimal experimenter interference
- High precision technology: 0.01 g resolution
- Balance housing constitutes enriched environment
- Adjustable height of housing for easy access

## Software Concept

- Modular concept
- All paradigms controlled by PhenoMaster software
- Full experimental design, in-process, and analysis control
- Multiple PhenoMaster systems can be controlled by single software
- More than 100 parameters available for measurement
- User-defined feeding/drinking protocols and upper limits of consumption
- Test data and exercise profiles stored for re-use
- Status overview: monitor running experiments at a glance by status bars
- Raw or sorted data analysis
- Easy data export for further statistical analysis
- Versatile graphic display options available
- Graphic display of data from different modules can be combined

## YOUR BENEFITS

- **Flexibility: experimental design and analysis/data export**
- **Easy to use: one modular software platform for all paradigms**
- **Versatile: combinatorial paradigms**
- **State-of-the-art: continuous further development of open software platform**
- **Security: 2-year ALL-IN warranty**
- **Minimum user maintenance: remote service option**

## LITERATURE EXAMPLE

### Obesity Treatment

Day et al. *Nature Chem Biol* 2009  
 The study describes the characteristics of a glucagon agonist peptide that can reduce body fat through decreased food intake and increased energy expenditure. Long-term food intake and calorimetry were studied with the PhenoMaster system.

CALORIMETRIC CAGE STANDARD OPTIONS*						
CAGE TYPE	I	II GREENLINE	II	II US	III	IV
SPECIES	M	M	M	M	R	R
VOLUME (L)	2.5	6.5	4.9	7.1	14.4	28.5
LENGTH (MM)	195	379	267	186	425	435
WIDTH (MM)	92	199	207	298	265	315
HEIGHT (MM)	140	130	140	128	180	208
WEIGHT WITH LID & SENSORS (KG)	2.0	4.0	4.0	3.0	5.0	6.0
MAX. # OF SENSORS 50/100 G OR ML	3	5	5	5	6	9

\* Based on Tecniplast standard cages. Other cage types available on request.  
M = mouse, R = rat

TECHNICAL DATA DRINKING/FEEDING/BODY WEIGHT	
DEPENDING ON CAGE TYPES	
BOTTLE SIZE RANGE (ML)	50–600
BASKET SIZE RANGE (G)	50–600
MEASURABLE BODY WEIGHT RANGE (G)	5–2000
ADJUSTABLE CONTAINER DISTANCE TO FLOOR (MM)	10–200

Please enquire for custom-made variants



Specifications subject to change without notice

### International Projects



[www.TSE-Systems.com](http://www.TSE-Systems.com)

[Info@TSE-Systems.com](mailto:Info@TSE-Systems.com)