BioDAQ®

Rats and Mice

Automated Episodic Food & Liquid Intake Monitor

Home Cage

The BioDAQ Food/Liquid Intake Monitor automatically tracks natural feeding and drinking behavior of single-housed animals in a familiar home cage environment. Animals can live chronically in this environment with a variety of enrichment. Cages and hardware are easily cleaned with standard facility procedures.

Reduced Stress

Feeding and drinking modules attach outside the home cage for easy access by both animals and researchers. When networked, real-time data can be accessed and monitored remotely, reducing the need for frequent study room disturbances.

Electronic Sensors

Feeding and drinking modules are equipped with an electronic sensor that monitors hopper weight second by second. The software detects stable weight changes that identifies each interaction with the food or liquid source as a feeding or drinking bout. An integrated environmental monitor automatically records light cycles, temperature, and humidity.

Modular Hardware Design

Modular hardware design allows the researcher to configure the animal's cage to their specific study design.

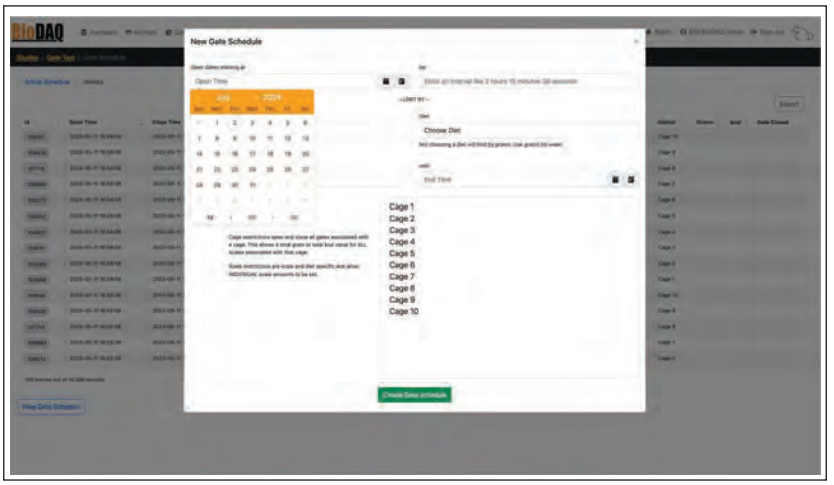
- Food Intake
- Liquid Intake
- Food Choice and Place Preference
- Liquid Choice and Taste Preference
- Accurate intake tracking for food/drug mixtures
- Compatible with Telemetry devices
- Optogenetic/Tethered Cage options
- Body Weight
- Intracerebral cannula-compatible hoppers
- Easy system expansion
- Low vibration rack - accurate measurements

BioDAQ® INTAKE MONITOR

GEN3 Data Analysis Software

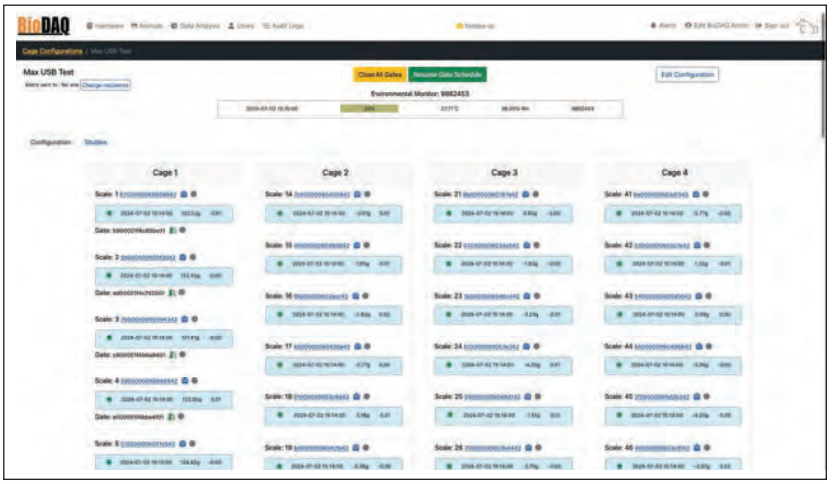
Gate Scheduler Tool
Manage individual access

- Supports multiple gate programs simultaneously
- Allows users to schedule future access dates
- Manage individual access for each food and liquid hopper



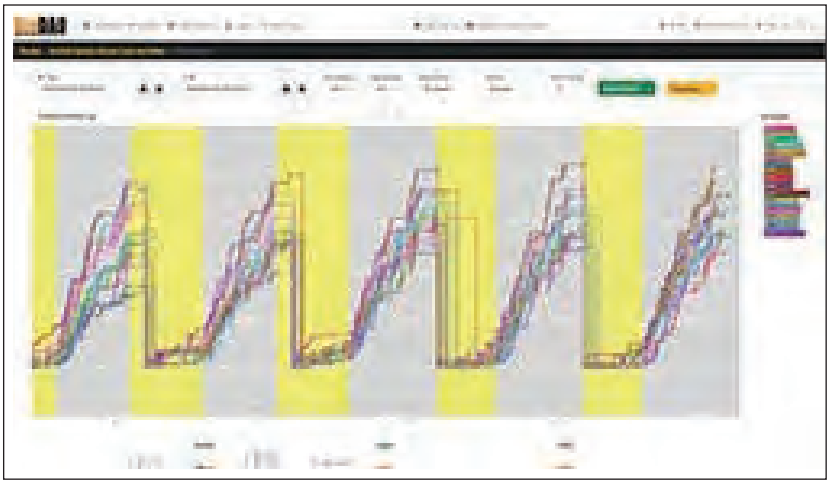
User-Friendly Software
New Rapid Interface

- Easy Data Analysis
- Enables seamless import of individual animal data
- Streamlines sorting and analysis for greater efficiency
- Several systems can be run together
- Multiple studies can be run on one rack
- Data can be securely accessed remotely by numerous users at a time



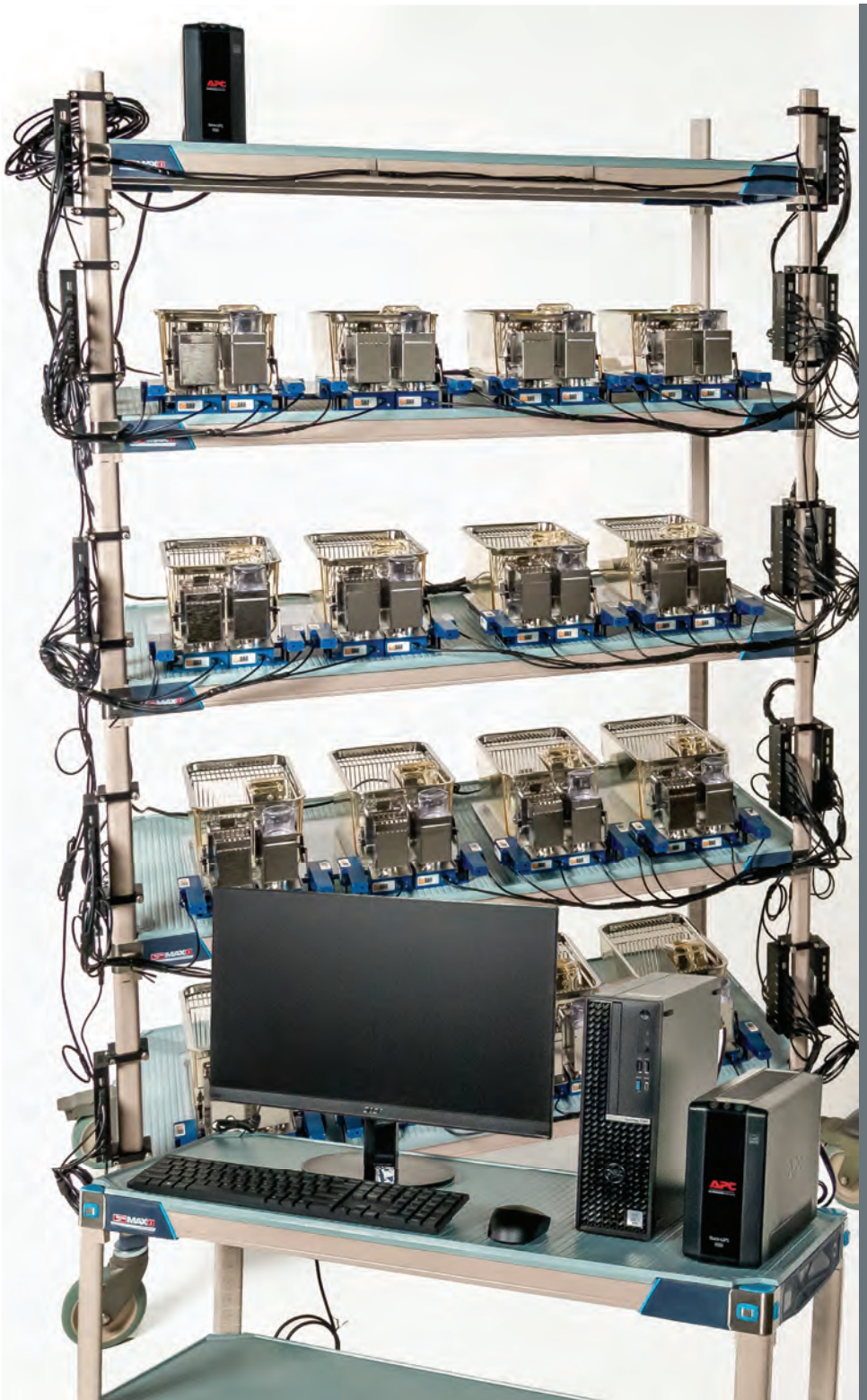
Graphing Tool
Visual data

- Features an intuitive interface
- Vivid graphing visualizations
- Seamless data export for effortless analysis



HOME CAGE
phenotype assessment

BioDAQ GEN3 Electronic
Automated Episodic Intake (same rack and hardware)



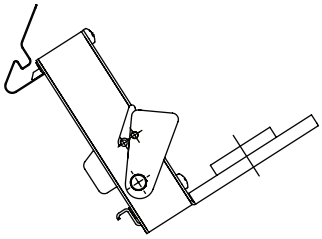
MOUSE CAGES
Modified standard mouse cages and stands are used for singly housed mouse studies.

RAT CAGES
Modified standard rat cages are used for singly housed rat studies.

NO LEAKS
The BioDAQ liquid intake bottle is designed not to leak. The drinking bout data is the animal's fluid intake, not a combination of intake and dripping.

REDUCE SPILLAGE
BioDAQ Extended mouse food hoppers retain the crumbs so that the weight is recorded as uneaten.

Biological Data Acquisition



Automated Gate Controller

Program access by time or amount consumed

The BioDAQ Automated Gate Controller lets researchers schedule openings based on time or a specified food/liquid intake. Mounted to the sensor, it integrates with the manual gate mechanism for seamless operation.

- Automated control enhances accuracy
- Reduces stress
- Minimizes researcher visits
- Pair feeding
- Intermittent fasting
- Binge eating
- Remotely fast animals in dark cycle

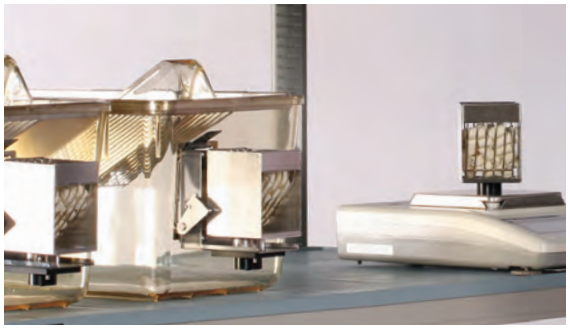
Body Weight Scale

Our new body weight scale enables automated body weight measurements at regular intervals throughout the day. The enclosed, dimly lit space naturally attracts mice, encouraging them to enter the hopper with ease.

- Allows for frequent body weight throughout the day to correlate with food and water intake data
- Easily check animal health remotely
- When the cage is open mice will enter the weight hopper reducing animal stress and allowing the researcher to remove for handling, dosing or visual inspection

Unplugged

Manual Periodic Intake



BioDAQ Unplugged includes cages and hardware with an adapter instead of an electronic sensor.

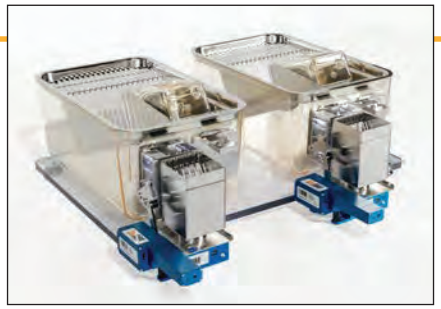
- Manually measure periodic intake
- Reduce spillage
- Reduce researcher/animal interaction
- Limit stress

Easily upgraded to BioDAQ GEN3 Electronic capabilities.

BioDAQ® INTAKE MONITOR

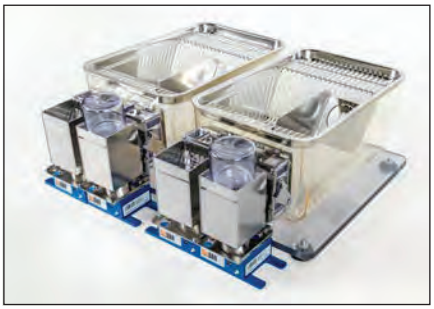
BioDAQ home cages can be customized with one or multiple feeding and drinking modules, adapting to any study design. The attachable hardware accommodates both food hoppers and liquid bottles, offering flexibility for researchers. Each cage includes a standard top and water bottle.

Applications

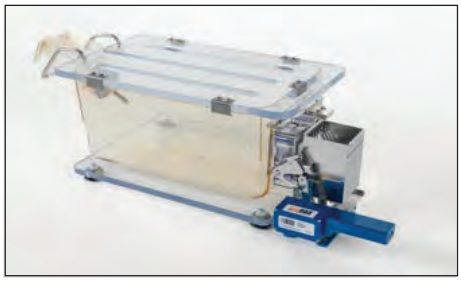


Food

Body Weight



Food & Liquid

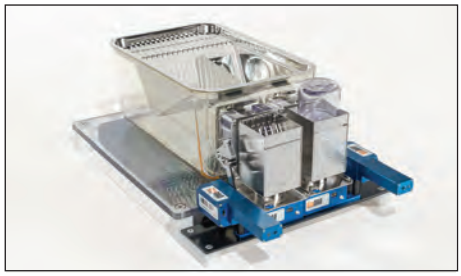


Slotted Lid

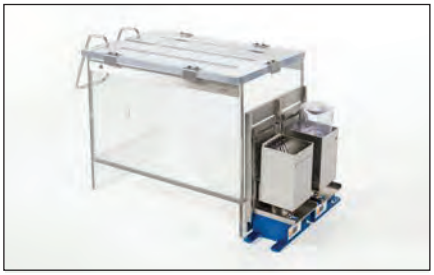
Food and Liquid CHOICE

Split Cage and Lid

Automated Gate

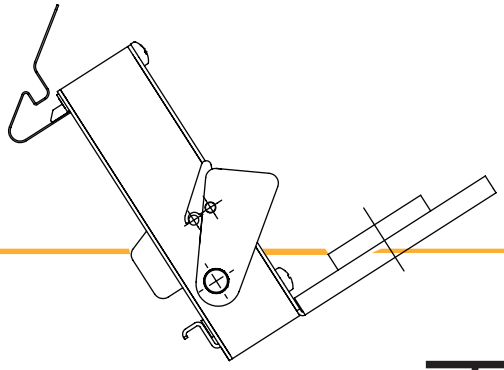


Telemetry Cages



Optogenetic Cage

Biological Data Acquisition



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Publications

Intracerebral Cannula

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2. Sanchez-Navarro MJ, Borner T, Reiner BC, Crist RC, Samson WK, Yosten GLC, et al. **GPR-160 Receptor Signaling in the Dorsal Vagal Complex of Male Rats Modulates Meal Microstructure and CART-Mediated Hypophagia**. Nutrients. 2023 May 11;15(10):2268.
3. Yin TC, Mittal A, Buscaglia P, Li W, Sebag JA. **Activation of amygdala prokineticin receptor 2 neurons drives the anorexigenic activity of the neuropeptide PK2**. Journal of Biological Chemistry. 2022 Dec 17;299(1):102814–4.

Tethered and Optogenetics

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2. Cimino I, Kim H, Tung YCL, Pedersen K, Rimmington D, Tadross JA, et al. **Activation of the hypothalamic–pituitary–adrenal axis by exogenous and endogenous GDF15**. Proceedings of the National Academy of Sciences of the United States of America. 2021 Jul 6;118(27):e2106868118.
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Automated Gates

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3. Reichenbach A, Stark R, Méquinion M, Lockie SH, Lemus MB, Mynatt RL, et al. **Carnitine acetyltransferase (Crat) in hunger-sensing AgRP neurons permits adaptation to calorie restriction**. The FASEB Journal. 2018 Jun 22;32(12):6923–33.

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2. Yang TY, Gardner JC, Gentile JD, Liang NC. **Sex and individual differences in meal patterns mediate the persistency of running-associated high-fat diet avoidance in rats**. American journal of physiology Regulatory, integrative and comparative physiology 2019 Jan;316(2):R130–43.
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3. Chen YW, Barson JR, Chen A, Hoebel BG, Leibowitz SF. **Hypothalamic peptides controlling alcohol intake: Differential effects on microstructure of drinking bouts**. Alcohol. 2014 Nov;48(7):657–64.

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