

# Rat & Mouse 5/9 Hole Boxes

## The Chamber

This carefully designed rat 9 hole Test Chamber retains all the features of the box defined in over 60 published papers by T.W. Robbins and others. Not a detail has been overlooked including the floor, pan, reward area, nose pokes, house lights, speaker, and more. It is fully integrated into the sound cubicle.

## Sound Attenuating Cubicle

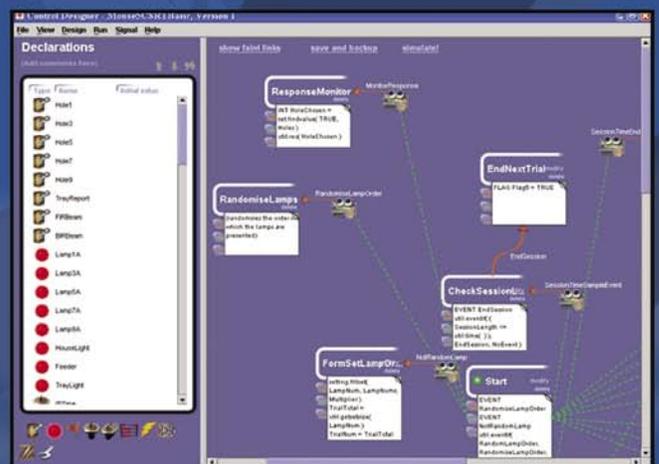
All 9 hole Test Chambers are shipped mounted to a slide out shelf that slides easily in and out of a durable light and sound attenuating cubicle for easy cleaning and maintenance. The core of the cubicle walls is a medium density composite selected for its excellent sound attenuating properties. The walls are first treated with an opaque anti mold fungicide and then coated with an acrylic protective finish to provide an impact and abrasion barrier, and to resist urine, water, alcohol, heat or other staining. The cubicle includes a ventilation fan, external connectors for all power and control, and an observation optic.

## The Task

The task (the serial five choice reaction time task) is a test of sustained and selective attention, which has been well characterized in the rat and mouse to show clinical validity in a variety of settings, including attentional deficits in Alzheimer's disease patients. It is the first in what is expected to be a growing set of operant based tests in mice, allowing the exploitation of molecular genetics methods in unraveling the genetic contribution to complex psychological and behavioral processes.

## Behavior Network Control System

The Behavior Network Control (BNC) hardware and software system permits the independent control of a number of operant chambers. The hardware includes a 14A power supply to power the operant chambers. The intuitive graphical programming language allows for fast, easy and flexible programming. Pre-written standard schedules are also available.



## Complete Rat 5/9 hole Box w/ pellet, Model 80600A-CP

## Complete Rat 5/9 hole Box w/ liquid, Model 80600A-CL

## Complete Mouse 5/9 hole Box w/ liquid, Model 80610A-CL

The complete 5/9 hole Rat and Mouse Test Chambers include integrated ambulatory photobeams, white noise distraction and dimming functions along with a deluxe reward area, pellet (or liquid) dispenser, and sound attenuating chamber. These chambers may be connected to the BNC Control system via a single 37 way cable or to the ABET Control system via two 25 way cables. The complete 9 hole plus dimming and white noise configuration uses 16 inputs and 16 outputs from a single BNC I/O card or ABET Interface module. Alternative programmable configurations are possible to make I/O available for 5 hole, dimming, white noise and levers.



Model 80600A-CP

### Features at a glance:

- Sound/Light Attenuating Cubicle
- Ventilation Fan
- Stainless steel and Polycarbonate Test Chamber
- Grid Floor and removable tray on baseboard (Rat) or Perforated Stainless Steel Floor (Mouse)
- Removable slide out base
- Pellet or Liquid Dispenser
- Reinforcement Tray
- Nine Holes with Stimulus LED's
- IR-Beam detection of nose poke
- Electronic Brightness control
- Houselight and loudspeaker
- 10m cable
- IR activity monitoring



Liquid  
Dispenser

### Dimensions

#### Sound Cubicle Exterior:

**Rat:** 580H x 490W x 490D (mm) (22.83" x 19.29" x 19.29")

**Mouse:** 450H x 450W x 420D (mm) (17.72" x 17.72" x 16.54")

#### Sound Cubicle Interior:

**Rat:** 520H x 430W x 425D (mm) (20.47" x 16.93" x 16.73")

**Mouse:** 390H x 390W x 355D (mm) (15.35" x 15.35" x 13.97")

#### Weight (complete):

**Rat:** 40.5Kg (89.3 lb)

**Mouse:** 33Kg (72.75 lb)

### Electrical

**Voltage:** 24-28VDC

**Current:** (9HB Only) 400mA

**Fuse:** T5A

**Additional Capacity:** 24-28V rail Max 3A, 5V rail Max 100 mA

#### Output Line:

**Switch Current:** 1A Max

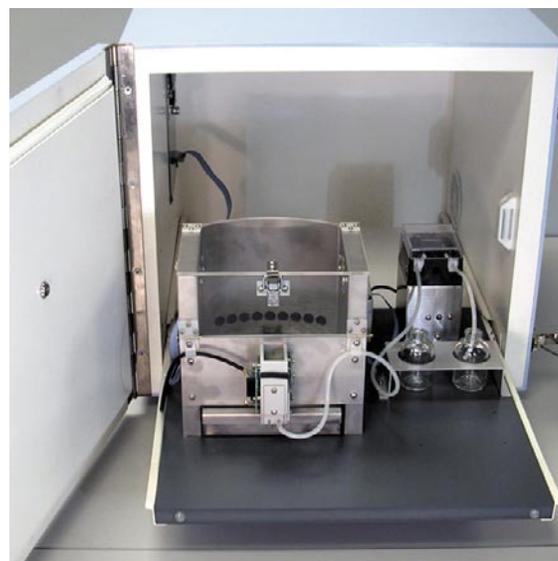
**Switch Type:** Common Drain (Negative Switching)

#### 9 Hole Array:

**Beam Response:** IR Reflective

**Dimming:** 8 Levels factory calibrated (fully on brightness of a 24V, 3W bulb, as used in the original 9 Hole Box)

Model 80610A-CL



# BehaviourNet Control (BNC) System

*BehaviourNet Control has been designed to overcome the challenges not met by other operant control systems.*

## BNC MKII Control System Interface with internal PSU, Model 80626-3

### BNC MK2 Control System Interface with internal PSU

Work with Confidence with the Largest and Most Sophisticated Operant Control System Available. **The BNC MK II Control Cabinet** is just one piece of the system. It houses one to twelve Model 80626-I/O Modules each with 32 control lines configurable in blocks of 8 for input or output. This results in a cabinet capacity of up to 1,920 lines. Standard I/O configuration is 16 Inputs and 16 Outputs. The DC Power supply is rated at 24 V DC 14A with circuits that are overload protected against power surges. This permits independent control of any number of operant chambers. The rack mounted cabinet can sit on a desk or counter or it can be installed in a standard 19" rack or equipment cabinet.

Actual Control is provided by the **Model 80626-PC an Industrial PC** with imbedded software. 5CSRT and DMTS Applications in the **BNC Icon** graphical programming format may be downloaded from a Windows PC via a standard network. This system provides a real time operating system to ensure accurate millisecond timing and individual chamber control. Additional programming support is available via the Whisker development system for programmers. Pre-written standard schedules are also available.

#### The Software:

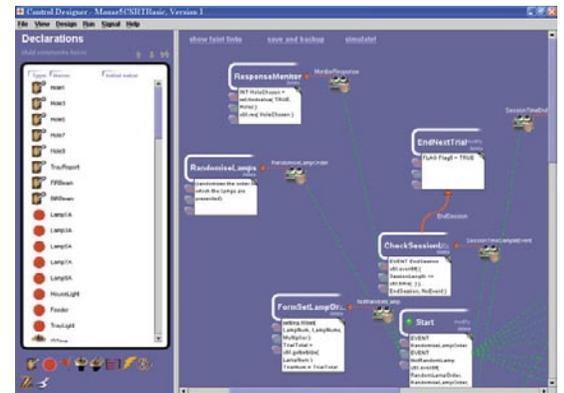
**BNC Icon** and **Whisker** are two completely different software concepts offering choices of ease of use, flexibility, complexity, security and accuracy.

## BNC Icon Software, Model 80630

This is the only graphical programming designer available for behavioral or operant scheduling and data collection. It is Windows 2000, XP, and Vista compatible and runs on most modern PC's. It communicates through a network to the dedicated controller PC, which has real-time embedded software to run the experiments and store data. The remote Windows PC starts, stops and monitors but is not required to run & store data and can be used for all the normal office functions.

#### Five Independent Elements to the BNC Icon software:

- **The Designer:** create new programs
- **The Simulator:** test and debug programs
- **The Settings Editor:** adjust simple variable values and program elements as needed for each animal
- **The Network Manager:** establish hardware configuration, load, label, run and monitor tests.
- **The Results Manager:** manage and analyze your data



## BNC MKII Industrial PC, Model 80626-PC

This rack mount industrial computer is a critical part of the control hardware and is supplied with embedded software that allows it to run programs written with the BNC Icon Designer on the user's PC. Communication between the Industrial PC and User PC is via a standard Ethernet.



## BNC MK II I/O Card, Model 80626-I/O





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