



## Automated Monitoring & Data Collection System

The Repeated Acquisition and Performance Chamber “RAPC” System is designed to enhance the accuracy of recording temporal measurements and error scoring during spatial learning and memory experiments through the use of electronic sensors and automated data acquisition software.

**Automated Chamber Description:** The chamber is divided into five compartments of equal size separated by four transparent panels, each equipped with three electronically monitored one-way doors that allow for highly sensitive and accurate data collection by computer. The chamber is equipped with two Mylar speakers for white noise generation, connected to a central controller that provides operator instruction during each experiment.

### RAPC System Features:

- Electronic door sensors and automated data collection guarantee extremely high data validity and reliability
- Acrylic chamber construction allows for easy observation of subject
- Electronic controller provides clear operator instructions
- Single computer collects data from up to 15 chambers operating simultaneously
- Data stored as tab delimited text file that can be imported into data analysis programs
- RAPC Edit™ software application is used to design and configure experiments
- RAPC Experiment™ application controls experiment and collects data

**Advantage:** Since temporal measurements and error scoring are the key variables monitored during maze-based experiments, the RAPC System is designed to eliminate the need for visual monitoring and manual scoring by the attending observer, resulting in more reliable and accurate data collection.

**Paradigm:** The RAPC System has been used with a positive reinforcement-based operant paradigm that has alternating learning and performance components during each experiment session, with different auditory stimuli signaling which component is currently in effect. This unique positive reinforcement based paradigm allows the researcher to evaluate learning versus rote performance on a within-subject and within-behavioral test session basis (Brooks et al. 2000 and 2002).

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