

# The CamTouch Technical Standard

All Bussey-Saksida Touchscreen Tasks, developed at the University of Cambridge, are performed on hardware conforming to the following technical standard.

This standard defines all aspects of the animals interactions, as follows:

- Display of the stimulus
- Recording and timing of the response
- The reward delivery
- The chamber environment



Due to the complexity of touchscreen system hardware, electronics and software this standard ensures conformity. Comparisons are valid and simple to carry out.

## Display of the Stimulus

### Display Type

- TFT

### Screen Size

- Mice: 12.1 inch (landscape)
- Rats: 15.0 inch (portrait)

### Screen Resolution

- Mice: 800 x 600
- Rats: 768 x 1024 (rotated)

### Screen Refresh Rate

- 60Hz

### Image Format

- Bitmap

### Image Size and Shape

- Task specific  
(based on grid size – scaled or cropped to fit)

### Mask Dimensions

- Relates to image size and shape (Task specific)

### Software Image Presentation

- Whisker® [www.whiskercontrol.com](http://www.whiskercontrol.com)  
ABET II Touch® (Whisker Client) Lafayette Instrument images held in cache memory for presentation timing and concurrent display

## Recording of the Response

### Touch Array and Sensitivity

- Infra-red with increased sensitivity

### Touchscreen Computer Specifications

- 2.5GHz Pentium Dual Core
- 4GB RAM
- Configure for multiple IR array and Multiple SVGA
- Network system (if installed) to be free from interference by running of other applications, especially anti-virus and other security software scanning

### Software for Touch Capture

- Universal Pointer Device Driver (UPDD)  
[www.touchbase.com](http://www.touchbase.com)
- Whisker® [www.whiskercontrol.com](http://www.whiskercontrol.com)
- ABET II Touch® (Whisker Client) Lafayette Instrument Company

## Reward Systems

### Rat

- 45mg grain based food pellet

### Mouse

- Sweet liquid reward calibrated to 7ul

## Chamber Environment

### Bussey Trapezoidal Walls

- Mice: 185mm
- Rats: 345mm

### Environment Square Area

- Mice: 188 cm<sup>2</sup>
- Rats: 368 cm<sup>2</sup>

### Perforated Floor

- Mice: 6mm diameter with 9mm pitch
- Rats: 10mm square with 14mm pitch

### Mask Dimensions

- Task specific (as above)

## Evolving Standards

We anticipate that The CamTouch Standard will develop and evolve as more tasks are developed.

### Currently under development

- Visual acuity test
- Moving images tasks

### Other chamber configurations that have already been developed, include

- Grid bar floor
- Plain floor
- Square smooth-sided walls
- Square modular walls