1. Key components

- Five choice chamber
- Control box

2. Five choice chamber

2.1 Components

- Five nose poke apertures
- Five aperture cue lights
- One pellet dispenser
- One chamber cue light
- Shocker

2.2 Nose poke apertures

- Five nose poke apertures
- Aperture dimension: 1.3 x 1.2 x 1.2 cm width x height x depth for mouse
- Each aperture is equipped with an infrared sensor capable of detecting the insertion of the animal's nose
- Each aperture is equipped with a cue light with color (white, red, green or blue)
- Nose poke behaviors are used to determine the pellet reward or shock

2.3 One chamber cue light

- One chamber cue light is on the top of pellet port

2.4 Pellet dispenser

- The pellet dispenser is controllable by program. It delivers a pellet to the food receptacle given certain condition. The sensor on receptacle detects pellet being consumed by animal
- 20 mg pellet dispenser is the default choice for mice (tested with pellets from https://www.bio-serv.com/). 45 mg pellet dispenser is used for rats.

2.5 Shocker

- Shock current from 0.1 to 4.0 mA in 0.1 mA steps, programmable control
- Removable grid - mouse rod diameter 4mm, spacing 5 mm; rat rod diameter 6mm, spacing 10mm
- Start / stop is controlled by software or manually

3. Control boxes

3.1 Components

Each chamber unit has one control box that controls the operations of the corresponding five choice chamber.

On the front panel, there are power switch button, nose poke, pellet and shock indicators.

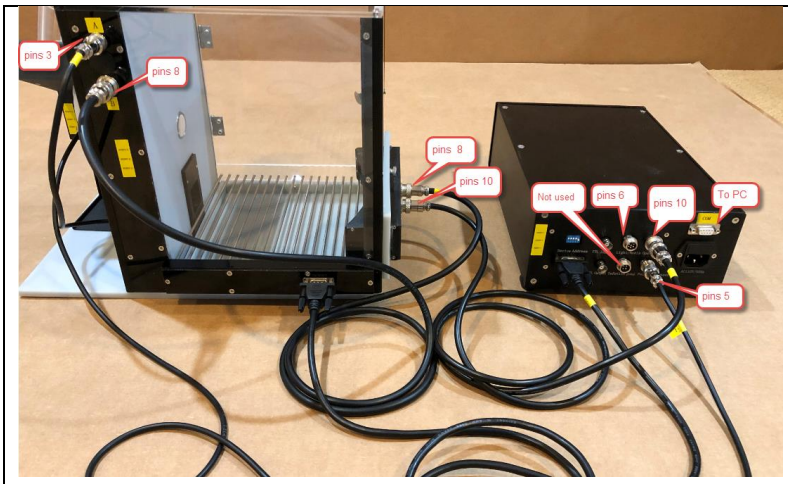
If there are more than two chambers, there is a main controller that communicates with chamber control boxes.

Comm status: when the communication between the control box and the main controller is established, the com status light turns on and stays on. This is not applicable to one chamber.

3.2 Connections

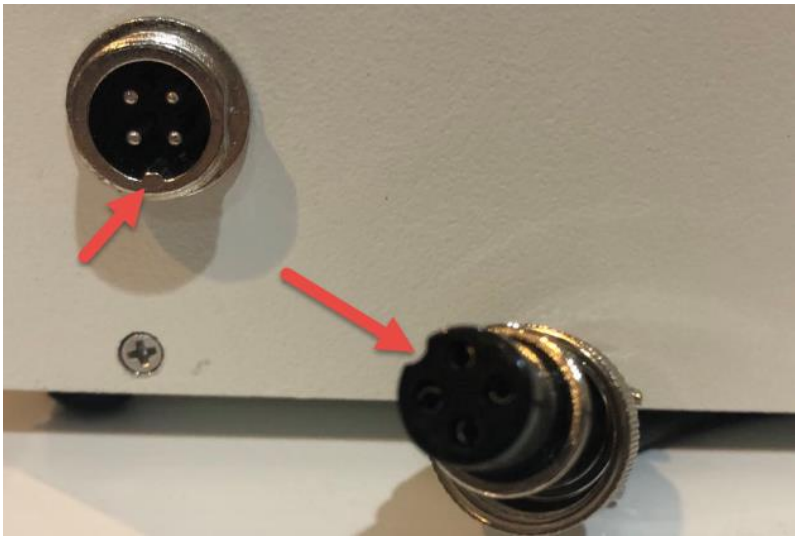
Five cables are connected between the control box and its five-choice chamber:

- 4 pin cable: pellet drop and pellet poke detection (not connected to the control box)
- 5 pin cable: to control pellet
- 8 pin and 10 pin cables: to the chamber to control the chamber components (like nose pokes, cue lights, pellet and shock). The 8 pin cable is sometime replaced with 6 pin cable.
- Square shock cable: to the shock grid
- 6 pin cable: connected to external cubicle (not used here)



3.3 Other things

- The chamber ID switch is located on the back panel. It is a 5-bit switch (blue color) and the control box ID ranges from 0 up to 31. So, this control boxes work in a system of up to 32 five choice boxes. If the chamber ID is switched advertently, the system will behave incorrectly. You should not need to switch the chamber ID.
- TTL Input and Output on the back panel are not used. They are for special request only.
- **Make sure the connector types match; and the male and female connector indentations match too**. If the connector types match and the tracks match, it should be very easy to plug in the connectors.



4. Main controller

- If there are more than two chambers, a main controller is used.
- The main controller connects to the PC via a USB (RS-232) cable and communicates with Maze Engineers Five-Choice software (Conduct Five Choice) on the PC.
- The main controller connects to all chamber control boxes via wireless communication. This eliminates the need for many cable connections between the main controller and chamber control boxes.
- After the power is on for the main controller and chamber control boxes, the communication between the main controller and the control boxes will be automatically established. Please check the Comm Status on the chamber control box to make is on.
- There is a way to check the communication status on the software as well

5. Operation steps and safety

5.1 Operation steps

- Turn on the power of the main controller if the system contains a main controller (more than 2 unites of five choice chambers)
- Turn on chamber control box(es)
- Check for the communication status if the system contains a main controller
- Run the software. See software user manual for details.

5.2 Safety

- Voltage: check the label on the volts on the back panel of the control box
- Do not attempt to connect or disconnect components while power is on
- Do not spray any liquid on the connectors
- Keep inflammables far from the instruments