# The ANY-maze Operant interface L

## Overview

The ANY-maze Operant interface L is designed to directly connect ANY-maze to the popular range of Operant conditioning equipment available from Lafayette instruments.

## General

- Allows ANY-maze to read inputs and control outputs.
- Works as a drop-in replacement for an existing Lafayette instruments *ABET Mini I/O Module Connection Block*.
- Connects directly to the computer via USB; no Lafayette Instruments ABET interface is required.

- The interface can either be powered from the ANY-maze Operant hub, or from a standalone power supply.

## Inputs

- 8 independent inputs
- Inputs use the same screw terminals as the Lafayette Connection Block.

## Outputs

- 16 independent outputs
- Outputs are available both on screw terminals and *intensity* connectors, the same as the Lafayette Connection Block.
- All outputs can optionally dim lights or LEDs connected to them

## Technical specification

| **Connection to PC** | |
|---|---|
| Connection type | USB (USB1.1, USB2.0, USB3.0 compatible) |
| Interface power | The interface itself is powered from the USB bus |
| Maximum current drawn from USB | 100mA |
| | |
| **Power supply** | |
| Input voltage | 90 - 264 VAC |
| Output voltage | 28 VDC |
| Output current | 2.5A minimum |
| LED (note 1) | Off             No power connected<br>Red             Connected to 28V power but not to USB<br>Flashing green   Connected to USB but not to 28V<br>Solid green     Connected to USB and 28V |
| | |
| **Inputs** | |
| Number of channels | 8 |
| Input isolation | 3750 $V_{RMS}$ |
| Input voltage range | 0 – 28V |
| Connector | Two row screw terminal block:<br>  Upper row = GND (0V)<br>  Lower row = Input signals |
| | |
| **Outputs** | |
| Number of channels | 16 |
| Output isolation | 3750 $V_{RMS}$ |
| Output on voltage (note 2) | 0V |
| Output off voltage (note 3) | 28V |
| Light/LED dimming capability | Available on all channels (note 4) |
| Connectors | Two row screw terminal block:<br>  Upper row = 28VDC power<br>  Lower row = Output signal<br><br>Five RJ12 *Intensity* connectors:<br>  Intensity connector 1 uses outputs 1, 2, 3<br>  Intensity connector 2 uses outputs 4, 5, 6<br>  Intensity connector 3 uses outputs 7, 8, 9<br>  Intensity connector 4 uses outputs 10, 11, 12<br>  Intensity connector 5 uses outputs 13, 14, 15 |

**Notes**
1. LED can be supressed, which is useful for tests performed in darkness and/or to avoid providing potential cues to the animals.
2. When on, each output signal pin can sink a maximum of 0.5A. The absolute maximum current across all outputs is 2.5A.
3. When off, each output signal pin can source almost no current (it is pulled high through a 10K resistor).
4. Light dimming is performed using Pulse Width Modulation (PWM) at 320Hz.

# Supported Lafayette Instruments components

If you have a component that is not listed here please contact us at support@anymaze.com to confirm compatibility.

## Audio stimuli

- 80223          Sonalert module
- 80223M14          Sonalert module
- 80223          Sonalert audible stimulus system
- 80223HM          High frequency Sonalert module
- 80136M          White noise generator module
- 80136M14          White noise module
- 81415          Tone generator
- 81415M          Tone generator for modular operant chambers
- 81407TM          Volume Controller
- 80135CTL          Speaker control cable

## Stimulus lights

- 80221          Stimulus light
- 80225M          White stimulus light for rat modular chamber
- 80225M14          White stimulus light for mouse modular
- 80226M          White variable intensity stimulus light for rat modular chamber
- 80226M14          White variable intensity stimulus light for mouse modular chamber
- 81407LM          Light intensity controller

## House lights

- 80224          Top panel house light
- 80224AM          House light for rat modular chamber
- 80224AM14          House light for mouse modular chamber
- 80227M IR          House Light for Rat Modular Chamber
- 80227M14 IR          House Light for Mouse Modular Chamber

## Levers

- 80110          Standard response lever
- 80110M          Response lever for rat modular chamber
- 80120M          Mouse response lever for rat modular chamber
- 80120MM          Response lever for mouse modular chamber
- 80112M          Thick profile response lever for rat modular chamber
- 80111          Omnidirectional lever
- CI4460-M          Low profile retractable response lever for rat modular chamber
- CI4461A-M14          Retractable lever for mouse modular chamber
- CI4461A-M          Retractable lever for mouse modular chamber (grid floor)
- 4460A          Retractable lever for rat
- 4460A-M          Retractable lever for rat modular chamber

- 4461A             Retractable lever for mouse
- 4461A-M14       Retractable lever for mouse modular chamber
- 4461A-M         Retractable lever for mouse modular chamber (grid floor)
- 80113            Retractable lever
- 80113M           Retractable lever for modular test chamber

## Nose pokes

- 80116OR          Rat nose poke with open hole
- 80116ORM         Nose poke with open hole for rat modular chamber
- 80116O           Mouse nose poke with open hole
- 80116S           Mouse nose poke with stimulus light
- 80116T           Mouse nose poke with tri-color light
- 80116TR          Rat nose poke with tri-color stimulus light
- 80116TM          Nose poke with tri-color light for modular chamber
- 80116TM14        Nose poke with tri-color light on mouse modular panel
- 80116TRM         Nose poke with tri-color light on rat modular panel
- 80117RM          Nose poke (conical entry) with tri-color light on rat modular panel

## Pecking keys

- 80125            Standard pecking key
- 80125M           Standard pecking key for modular panel
- 80123            Pecking key with 3-colour display
- 80123M           Pecking key with 3-colour display for modular panel
- 80130            Multi-display pecking key

## Photobeam sensors

- 81413            Infrared photobeam
- 81413A           Infrared photobeam
- 80004AM          Ambulatory monitor

## Liquid dispensers

- 80201            Liquid dispenser
- 80204            Liquid Pump
- 80204A           Precision Liquid Feed Pump
- 80204M           Peristaltic pump for liquid reward

## Pellet and food dispensers

- 80209-20         Pellet dispenser
- 80209-20M        Pellet dispenser for modular chamber
- 80209-45         Pellet dispenser (45mg)
- 80209-190S       Pellet dispenser (190mg)

## Pellet and liquid dispenser receptacles

- 80210M-R        Pellet trough for rat modular chamber with head entry and door
- 80210LM-R       Liquid / pellet trough for modular chamber with head entry and door
- 80210RAX        Pellet/dual liquid reward area for rat
- 80210RAX-M      Reward area for rat modular panel
- 80211RAX        Liquid and pellet reward area for mice
- 80211RAX-M      Liquid and pellet reward area for mouse modular chamber
- 80211RAX-MM     Liquid and pellet reward area for modular chamber
- 80210RAXMML     Extra-large reward area for mouse modular panel

## Syringe pumps

- 80203           Modified syringe pump