MZ60 MEA Interface

This fast fact sheet provides basic reference information for the MZ60 micro-electrode array interface and related devices. For more detailed information on using the MEA System see the System 3 and RPvdsEx Manuals.

The MZ60 is compatible with the standard 49x49 mm arrays from NMI or Ayanda Biosystems and can accommodate a wide selection of readily available arrays.

To install the MEA plate:

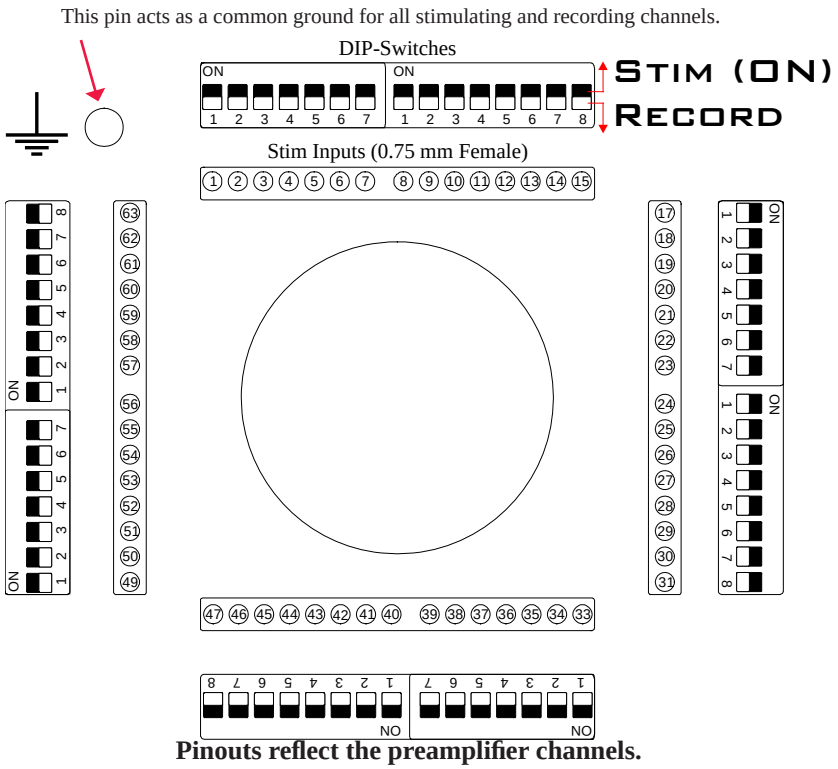
1. Turn the knob at the base of the MZ60 counterclockwise, then open the housing.

2. Gently position the array on the aluminum plates inside the MZ60.

3. Close the housing, ensure that all spring contacts are fully engaged then turn the knob clockwise to secure the MEA plate.

Configuring the Channels

Four DIP-switch banks, each corresponding to 15 electrode sites, are located around the MEA opening. DIP-switches toggle between stimulate or record modes for the corresponding electrode sites. A 0.75mm input pin is also provided for stimulus input for each electrode site.



Pinouts reflect the preamplifier channels.

Note: Channels 16, 32, 48, and 64 are grounded on the preamplifier.

Channel Modes

The MZ60 MEA Interface provides 60 analog I/O channels. Channels are organized in four individual channel banks that correspond to banks of channels on the PZ2 Amplifier. Each bank includes 15 electrode channels and a sixteenth channel that is grounded internally on the PZ2.

Each channel can be set to one of following two states:

Record: Channels in record mode are connected to an amplifier input channel.

Stimulate: In stimulate mode the corresponding headstage channel is shorted to GND and the electrode channel is connected to the stim pin on the MEA interface. Stimulus input voltage/current passes from the the stim pin to the corresponding electrode.

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Environmental Control

The HC10 Temperature Controller provides control over the internal heating coil on the Microelectrode Array Interface. The value displayed on the left-side of the LED screen is the temperature reading of the heater plate plus any user defined offsets. An on-screen menu provides access to display and offset options.

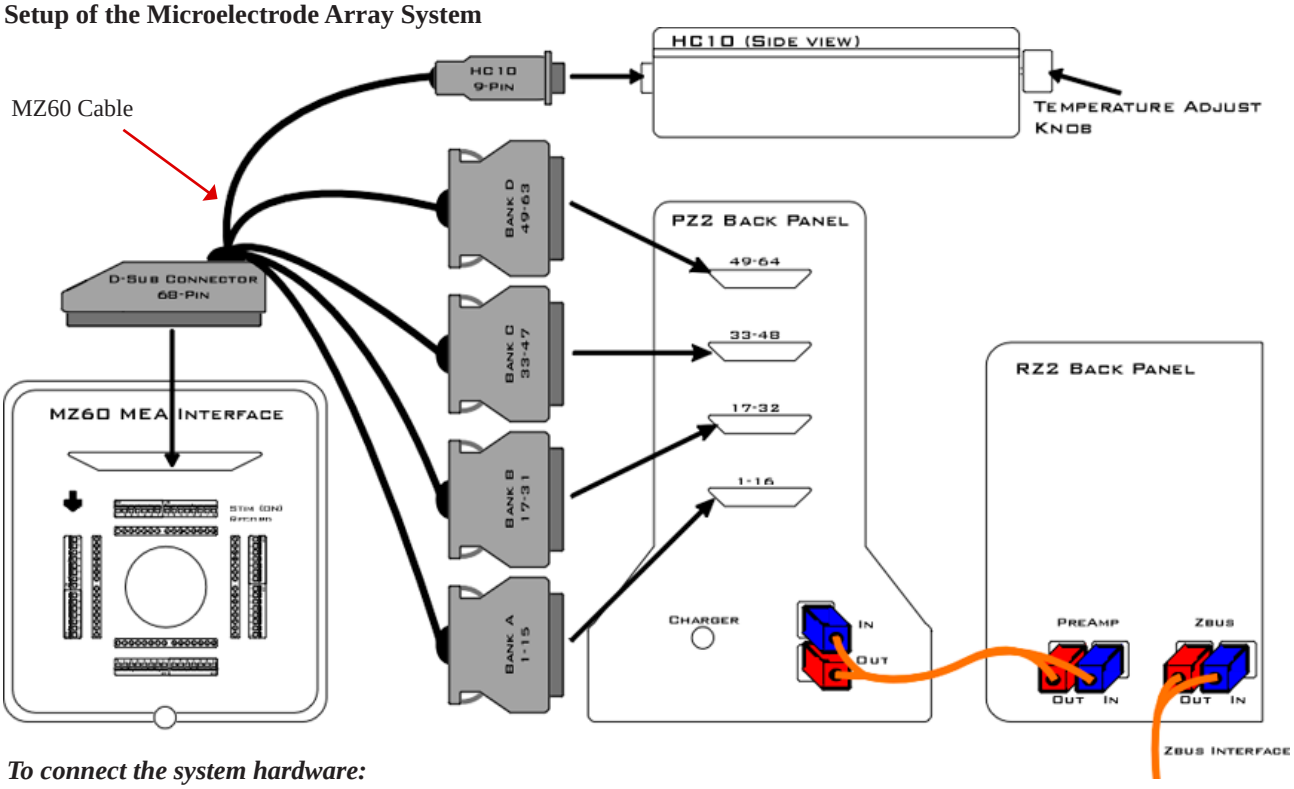
To adjust the temperature: Turn the knob until the desired temperature is displayed on the right-side of the LED screen.

To access the options menu: Gently press the knob inward to access the menu. Once the desired option is displayed, press the knob inward again to access the selected option. Rotate the knob to adjust the settings. Press the knob inward to confirm the new setting.

Microelectrode Array System

A typical system consists of an RZ2 Bioamp Processor, a PZ2 Amplifier, the MZ60 MEA Interface, and the HC10 Temperature Controller. An optional stimulus generation device may also be used with the Microelectrode Array Interface.

Setup of the Microelectrode Array System



To connect the system hardware:

1. Attach the 68-pin D-Sub connector on the MZ60 interface cable provided with your system to the corresponding connector on the MZ60 MEA Interface.

2. Attach each of the labeled Mini-DB26 connectors to the corresponding channel bank connector on the PZ2 Amplifier.

3. Connect the PZ2 Amplifier to the RZ2 Processor using the provided fiber optic cable. The fiber optic wires are keyed and color coded to reduce connection errors.

4. If heating is desired, connect the HC10 Temperature Controller to the 9-pin connector provided on the MZ60 interface cable. Plug in the AC power cable provided with the HC10 then connect it to the power port located on the back of the HC10 housing. Using the power switch on the front panel, power on the HC10 and allow it to heat to the desired temperature.

5. Power on the RZ2 Processor and PZ2 Amplifier.