

RA4LI - Four Channel Headstage

The RA4LI headstage is designed for low impedance electrodes with input impedances between <1 kOhm and 20 kOhm. Electrode connectors are standard 1.5 mm safety connectors making it easy to connect to standard needle and surface electrodes for recording evoked potentials and EEG's. The headstage connects directly to the RA4PA Medusa preamplifier's 25-pin connector. A built in impedance checker can be used to test each channel and the reference. Additional 20x gain on the headstage improves signal-to-noise of low voltage signals.

Impedance Checking with the Low-Impedance Headstage

The Impedance checker on the RA4LI provides a simple check of the channel impedance relative to ground. To check the impedance level, press the button next to the channel indicator. The highest-level light indicates the maximum impedance between the channel and the ground. If all impedance lights are illuminated it is likely that one of the channels is not properly connected. The (-) impedance button checks the impedance between the reference and the ground.



Headstage Voltage Range

When using a TDT preamplifier the voltage input range of the preamplifier is typically lower than the headstage and must be considered the effective range of the system. Check the specifications of your amplifier for voltage range. Also keep in mind that the range of the headstage varies depending on the power supply provided by the preamplifier. TDT preamplifiers supply ± 1.5 VDC, but third party preamplifiers may vary. TDT recommends using preamplifiers which deliver ± 2.5 VDC or less. Check the preamplifier voltage input and power supply specifications and headstage gain to determine the voltage range of the system.

The table below lists the input voltage ranges for the RA4LI headstage for either a +/- 1.5 VDC or +/- 2.5 VDC power source.

Headstage input range when using +/- 1.5 VDC power source	Headstage input range when using +/- 2.5 VDC power source
+/- 33 mV	+/- 80 mV

Headstage Technical Specifications

Warning! When using multiple headstages ensure that all ground pins are connected to a single common node. See “Headstage Connection Guide” on page 6-99, for more information.

Input Referred Noise	rms 0.1 μ V bandwidth 300-3000 Hz 0.3 μ V bandwidth 2-8000 Hz
Headstage Gain	20x
Highpass Filter	2.2 Hz
Lowpass Filter	7.5 kHz
Input Impedance	10^6 Ohm