

Acute Headstages

RA16AC - 16 Channel Acute Headstage

The 16 Channel acute headstage is recommended for extracellular neurophysiology using silicon electrodes, metal microelectrodes or microwire arrays with recommended input impedances from 20 kOhm to 5 Mohm unless otherwise noted.

The 16 channel acute headstage has an 18-pin DIP connector that can be used with standard high impedance metal electrodes. The pinout of the RA16AC matches the wiring of NeuroNexus electrodes to allow for direct connection to the headstage. TDT recommends connecting electrodes to an 18-pin socket and then connecting the socket to the headstage to protect the headstage from unnecessary wear and tear. The RA16AC4 provides 4x gain and is used with electrodes with a recommended impedance range of 20 kOhm to 300 kOhm.

The headstage connects to a System 3 Medusa preamplifier (such as the RA16PA) via a DB25 connector or to a PZ series preamplifier via a mini 26-pin connector.

Part Numbers:

RA16AC—16 Channel Acute Headstage for Medusa PreAmps, with unity (1x) gain

RA16AC4—16 Channel Acute Headstage for Medusa PreAmps, with 4x gain

RA16AC-Z—16 Channel Acute Headstage for Z-Series (PZ) PreAmps, with unity (1x) gain



The headstage has sensitive electronics. Always ground yourself before handling.

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 RA16AC headstages for either a ± 1.5 VDC or ± 2.5 VDC power source.

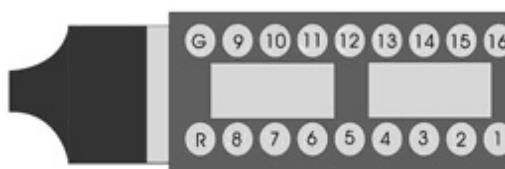
	Headstage input range when using ± 1.5 VDC power source	Headstage input range when using ± 2.5 VDC power source
RA16AC4	± 0.37 V	± 0.62 V
RA16AC	± 0.9 V	± 1.9 V

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 $3 \mu\text{V}$ bandwidth 300-3000 Hz rms $6 \mu\text{V}$ bandwidth 30-8000 Hz
Headstage Gain	RA16AC - Unity (1x) RA16AC4 - 4x RA16AC-Z - Unity (1x)
Input Impedance	10^{14} Ohms

Pinout



(looking into connections)

The numbers in the diagram above show the channel connections to the amplifier. The electrode connector accepts 0.5 mm diameter male pins.

For pinouts for the preamplifier connector, see the corresponding preamplifier.