

The MedusaZ Amplifier

System 3

Overview. The MedusaZ Amplifier is a 4 channel, low noise digital bioamplifier. The device is powered by a Lithium-ion battery that provides 20-30 hours of continuous data acquisition. Select between 16-bit or 24-bit PCM analog-to-digital converters that provide quality acquisition, digitization, and amplification at up to 24.414 kHz with minimal delay. The amplified digital signal is sent to a TDT processor base station (such as the RZ2 or RZ6-A-P1) via a noiseless fiber optic connection.

User Settings. The MedusaZ allows the user to select between high resolution [24-bit] and standard resolution [16-bit] modes. The sampling rate can be set at 25, 12, 6 or 3 kHz and the corner frequency of the highpass filter can also be user selected. Anti-alias filters is fixed at 45% of the sampling rate.

I/O Connections. The MedusaZ has 6 x 1.5 mm male touchproof connectors; one for each channel plus a reference and ground. A 5 meter, dual fiber optic cable is provided and connects the preamplifier output to a TDT base station input.



Power Requirements. The Lithium-ion batteries fully charge in 7-8 hours. A 12 volt battery charger (tip is center negative) is included with the amplifier. The battery supplied with the system cannot be removed. If battery life longer than 30 hours is required, an external battery pack can be connected to the charger input.

Medusa Amplifier Part Numbers:

MedusaZ, 4-Channel Biological Amplifier

Technical Specifications for the Medusa Amplifier

Analog-to-Digital Converter	16-bit PCM. High-resolution mode: 24-bit PCM
Sample Rate	25k, 12k, 6k and 3k
Maximum Voltage In	+/- 10mV
Frequency Response	3dB from 0.1 Hz - 0.45*Fs (Fs=sample rate)
Highpass Filter	Changeable user setting: "OFF" (0.1Hz), 1Hz, and 3Hz.
Anti-Aliasing Filtering	Fixed at 45% of selected sampling rate
Signal-to-Noise [typical]	80 dB
Input Referred Noise	0.45 μ V RMS, Fs = 25 kHz, 300-3000 Hz
Power Requirements	150mA in single channel mode; 210mA in 4-channel mode
Battery	5000mAh. 30 [1-chan] - 23 [4-chan] hours between charges. 1000 cycles of charging; not user removable
Charger	External 12 VDC, 2.5 A power supply, center negative
Fiber Optic Cable	5 meters standard, maximum cable length 12 meters