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Single Unit Activity Amplifier/Filter (SUA)

Product Features

- 8 amplifier channels
- Low-noise amplifier technique
- Differential input amplifier
- Individual gain settings from x50 up to x5000 (in different steps)
- Bandwidth 500Hz...20kHz (in different steps)
- AC coupled input circuit
- Low noise technique
- Two level window discriminator for each channel
- Integrated power supply



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Innovative Products for Neurophysiology

Technical Data

Parameter	Data
Number of Channels	Up to 8
Gain /Channel	50/ 100/ 250/ 500/ 1000/ 2500/ 5000
Input Impedance	2.2M Ω //10pF
High Pass Filter cut-off frequency	0,5 /1 /2 kHz (others on request)
Low Pass Filter cut-off frequency	2/5/10/20 kHz (others on request)
Max. output voltage	\pm 10V
Input circuit	AC coupled
Dimensions	485 x 330 x 250 mm
Weight	10kg
Power Supply	115V or 230V AC
Power Cons.	50VA



Figure 1: 7 channel SUA Filter/Amplifier with integrated Audio Monitor module and loudspeaker

The TREC Single Unit Activity Filter/Amplifier (SUA) is a multichannel, differential input main filter/amplifier for neurophysiological applications (e.g. extracellular recording with multiple microelectrodes). This SUA-Filter/Amplifier combines a **band pass filter** with variable cut-off frequencies, variable **signal amplification** and a **two level window discriminator** on each channel in one instrument.

The SUA-Filter/Amplifier contains a high-gain, low-noise differential amplifier stage followed by low frequency and high-frequency filters. The amplifier has a differential single unit activity (SUA) bandpass filter-amplifier. The amplifier offers two levels of signal gain (x10, x100) in a first stage and 4 additional levels (x5, x10, x25 and x50) in a final amplifier stage.

The amplifier has a band pass characteristic for single unit activity (SUA) 500Hz...20kHz. The cut-off frequencies are independently selectable for low pass filter 2, 5, 10, and 20 kHz and for high pass filter 0.5, 1 and 2 kHz.

Furthermore each SUA-Filter channel is equipped with a two level window discriminator. The **window discriminator** is an instrument for the separation of single neural spike trains from a multiunit recording containing more than one neural element. The window discriminator of the SUA-Filter produces a window in amplitude. The window can be adjusted in height, above or below baseline.

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