Digitimer
NeuroLog System

NeuroLog SYSTEM

A Complete Solution to Your Electrophysiology Needs

The NeuroLog System provides a modular and highly versatile means of carrying out **intracellular**, **extracellular or transducer-based recordings**, **signal conditioning**, **pulse generation or electrical stimulation** within one compact device.

The **NL900D Case & Power Supply** unit allows up to thirteen modules to be installed. This means that a single NeuroLog System can be used to amplify several different parameters, such as extracellular spikes, intracellular potentials or even blood pressure, as well as produce outgoing trigger pulses to other pieces of equipment or electrically stimulate a preparation.

Amplification & Signal Conditioning

The NeuroLog System provides AC or DC coupled amplification of biological signals from transducers, single electrode or multi electrode configurations. DC coupled amplifiers output absolute voltage levels and are most commonly employed for intracellular or transducer recording where baseline membrane potentials or slow voltage shifts are of interest.

With AC coupled amplifiers, the "DC baseline" is removed by high-pass filtering. Such amplifiers are used for extracellular recording of action potentials in neuronal preparations, ECG, EMG or EEG waveforms. The variety of NeuroLog pre-amplification and amplification modules means that users can develop systems specifically suited to their particular application. The NeuroLog range also contains a number of filter and signal conditioning modules which can be used prior to final data acquisition.

Extracellular AC Recording

The **NL100AK** head-stage and **NL104A AC PRE-AMPLIFIER** provide an excellent combination suitable for extracellular recordings from neuronal preparations with sharp electrodes. They can be used in single-sided or differential recording modes, provide impedance matching for micro-electrode recording and feature low noise amplification. Continuously adjustable bandpass filtering from 0.1Hz to >50kHz is available through the **NL125/6 FILTERS**. In addition, the **NL201 SPIKE TRIGGER** can be used to convert spikes into uniform TTL pulses which can then be counted, converted to frequency or further analysed using other modules. Use of the **NL120S AUDIO AMPLIFIER** and **NL985S LOUDSPEAKER** would allow the spikes to be monitored audibly.

Extracellular DC Recording

As an alternative, an **NL100A** head-stage can be coupled to the **NL107 RECORDER AMPLIFIER**, providing a DC coupled amplification system. This particular configuration is particularly suited to grease-gap recording in neuronal preparations. Under these conditions, pharmacological studies of drug-induced DC shifts can be measured.

Intracellular DC Recording

The **NL102G DC PREAMPLIFIER** is a suitable amplifier for intracellular recording (it can also be used for extracellular micro-electrode recordings). Used with the **NL106 AC/DC AMPLIFIER** it provides a total gain up to x1,000, while the **NL125/6 FILTERS** give continuously adjustable bandpass (and notch) filtering from DC to >50kHz. The NL102G features capacitance neutralization, current injection (up to 100nA) and impedance checking. Internally generated current injection and impedance checking can both be controlled by other devices or NeuroLog modules. The NL102G now includes the **NL412 PULSE** box, which allows remote and full activation of the capacitance compensation circuitry. This "buzz" process can aid penetration during electrode impalement.

Four Channel Isolated Amplification for EEG, EMG or ECG Recording

An ideal system for multi-channel AC recording of physiological signals such as EEG, EMG or ECG in the research environment. The system provides a wide range of amplification and filter settings. The **NL824 4-CHANNEL PREAMPLIFIER** can be positioned near the recording site, so reducing the length of the electrode cables and minimising interference. The outputs are connected to the **NL820A ISOLATOR** (housed in the NeuroLog case), where further amplification of the signals can be selected on a channel by channel basis. Further filtering can be carried out by the various **NL134/5/6 or NL144 FILTERS**, while the signal can be conditioned for ADC input using the **NL530 CONDITIONER**.

Transducer Measurements

The **NL108A PRESSURE AMPLIFIER** provides an easy method of monitoring physiological pressure changes and can be used in combination with your own or our disposable (**NL108T2**) / reusable (**NL108T4**, shown opposite) pressure transducers. A pressure transducer and appropriate lead can be connected to the NL108A module, allowing continuous monitoring of parameters such as blood or intra-tracheal pressures. The output of the NL108A can be fed directly to a chart recorder or ADC interface for PC-based acquisition.

Pulse Generation & Electrical Stimulation

The NeuroLog range includes several modules capable of pulse generation. Pulse patterns can be pre-defined in a variety of ways, allowing you to control other modules within the NeuroLog rack or send TTL compatible trigger pulses to external devices, such as stimulators or acquisition systems. The NeuroLog range includes the small constant current **NL800 STIMULUS ISOLATOR** which can be controlled by other NeuroLog modules. Our new **NL512 BIPHASIC BUFFER** allows one or two NL800's to be controlled by an analogue waveform, such as that produced by a computer controlled DAC.

For a full NeuroLog brochure and pricing details please contact:

AutoMate Scientific, Inc.
336 Baden Street
San Francisco, CA 94131, USA
Tel: (415) 239-6080 Fax: (415) 239-6801
E-mail: info@autom8.com Website: www.autom8.com