

## Model 4000

# The MultiRecord

## 32-Channel Extracellular AC Amplifier



A-M Systems is proud to partner with industry leaders Datawave Technologies and Triangle BioSystems to bring to you a complete, yet easy-to-use, high-density extracellular recording system. The Model 4000 32-Channel Extracellular Amplifier is one component in a coordinated system to allow researchers to perform high density spike recordings from 31 to over 200 electrodes simultaneously. The MultiRecord system comes with everything required to perform cutting edge research: Just add the electrodes and you are ready!

Common applications for the Model 4000 MultiRecord System include, but are not limited to:

- Single-Unit Recording
- EEG / ECG / EKG / ERG / EMG
- Evoked Potentials
- Multiple-Unit Recordings
- Long-term Potentiation

### **Break the Limit!**

Is the size of your commutator limiting how many channels of neural data you can record? Stuck at 2 channels, when you want to record more than 30? Now you can record what you want as much as you want! The new MultiRecord system is capable of recording from 31 to 247 channels simultaneously from freely moving animals using a simple commutator. For example, a 31-channel system only requires a 3-line commutator thanks to the creative use of multiplexing technology found in the TBSI headstage package. Need to record from 62 channels? Then, you only need a 4-line commutator, rather than a break-the-bank custom engineered 62-line commutator. Several commutator options are available. Please contact us to determine the best commutator for your needs.

The MultiRecord package includes:

- TBSI Multiplexed Headstage, with all necessary control hardware and cables
- 3-Line commutator with appropriate cabling & connectors
- A-M Systems Model 4000 32-Channel AC Amplifier
- Datwave Technologies SciWorks Data Acquisition and Analysis system, including 32-channel 1.25MHz custom data acquisition card

*System components are detailed on the reverse side.*



*Multiplexed 31-Channel Record Only Headstage*



*32-Channel 1.25MHz A/D Board*

- Complete System: From Headstage to Data Acquisition and Analysis
- Start with 31 channels; Expands to over 200 channels!
- Developed by industry leaders A-M Systems, Datawave Technologies, and Triangle Biosystems
- Cost Effective
- Utilizes simple commutators
- Can add video tracking and analysis capability

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## Headstage



The unique TBSI headstage multiplexes its analog output prior to the commutator, and then re-sorts the multiplexed output to separate channels after the commutator. The basic system comes with a single 31-channel headstage. Expanding to greater channel counts requires the purchase of additional 31-channel headstages. With each additional headstage, only a single additional wire is required in the commutator.

## Amplifier



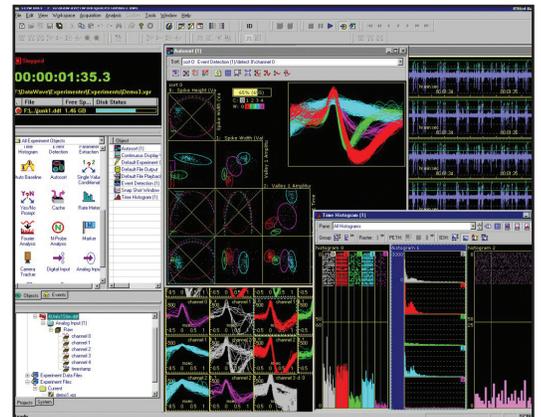
Output signals from the headstage are passed to the Model 4000 AC Amplifier. The Model 4000 has 32\* independent gain and filtering stages that are controlled in realtime by the Datawave Technologies software package during data acquisition. \* *There are 32 channels in the amplifier, but only 31 are utilized with the TBSI M-Series multiplexed headstages. If no commutator is required, then the amplifier can be paired with 32 channel headstages.*

Gain settings	1.0, 2.0, 5.0, 10.0, 20, 50, 100, 200
High-pass settings	0.3, 1.0, 3.0, 10.0, 30, 100, 300, and 500 Hz
Low-pass settings	0.1, 0.3, 0.5, 1.0, 3.0, 5.0, 10.0, and 20.0 kHz

## Software



SciWorks® Experimenter provides the user with a single interface to control instrumentation, perform real-time data analysis, including multi-unit spike sorting and separation, generate complicated stimulation patterns, and write data to a multiple of common industry defined data formats. Data Acquisition and Data Analysis processes are seamlessly integrated into a single software package. Users can define how the experiment should be run, collect data, run complicated analysis tools, and store raw and analyzed data all at the same time, without having to change software packages.



Data Acquisition is accomplished using a Datawave Technologies A/D PCI Card and input/output patch panel.

All acquired data can be analyzed off-line following the experiment. Further, analysis can be performed during data acquisition, and both the raw data and the analyzed data can be stored for subsequent analysis and review during an offline session. All data is timestamped to 1 microsecond resolution, and this resolution can be held across several days of continuous recording. Optional video tracking software is available.

## Ordering Information

Contact A-M Systems or your distributor for assistance in designing a system tailored to your requirements. On-line demonstrations of the Datawave SciWorks Data Acquisition and Analysis software suite are available.

### Distributed By:

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