



Product News and In the Press.....2

| o Spring | o 2009



On the Manufacturing Floor, R&D, and People@TDT.....3



Tech Tips and Upcoming Meetings....4

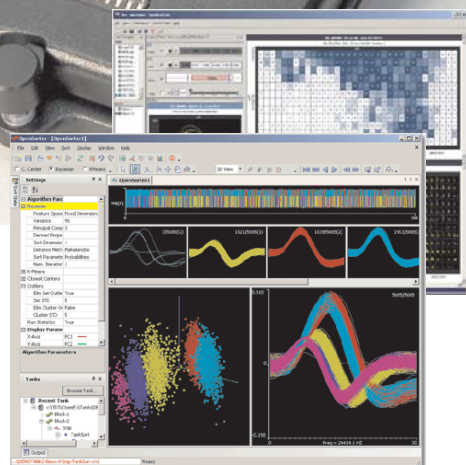
TDT news

Give your stimulus dollars an extra kick! Get a 10% discount on quotes for system of \$20,000 or more, now through June 30 2009. Ask us for your discount today at info@tdt.com. See IN THE PRESS, page 2, for a link to more information on the stimulus package.



Available now: MZ60 MEA System

TDT dishes out real-time DSP for your MEA application!



TDT recently added an integrated solution for *in vitro* recording to our popular System 3 product line.

The TDT MicroElectrode Array (MEA) System was developed in consultation with leading researchers in cell line and tissue slice based neurophysiology. With nearly twenty years experience serving the neurophysiology research market and with TDT systems appearing in over 3000 published articles since 2003, TDT is perfectly positioned to bring you the most versatile, high-performance MEA system on the market. The system supports simultaneous stimulation and recording, offers built-in environmental controls, and the optical isolation and real-time DSP of our proven system design.

Flexible Stimulation... Each MZ60 MEA Interface allows users to select multiple

stimulation channels from any of the 60 electrode sites and is compatible with a wide array of stimulators.

Temperature Control... Precise digitally controlled temperature regulation is provided by the HC10 Heater Control Unit, ensuring that your tissue sample remains in a homeostatic state. The HC10 provides temperature settings up to a tenth of a degree with offsets to provide flexible calibration.

Optically Isolated, Fast Data Transfer... Signals for the MZ60 are digitized on the PZ2, a battery powered amplifier-digitizer that provides 18-bit precision, optical isolation, fast data transfer rates, and low noise for cleaner, interference-free signals.

Real-time DSP... At the base of the system is our powerful RZ2 processor, which supports real-time spike-sorting, filtering, and

experiment control via our popular OpenEx Software Suite.

As part of our complete system, the MZ60 supports the study of cellular activity with a high degree of spatial and temporal resolution.

Whether you're looking for a new multi-MEA workstation or simply want to add an MEA Interface to your existing RZ2 System, we can provide a cost effective solution...all backed by the service and support you've come to expect from TDT. Contact our sales staff for more information at info@tdt.com.

IN THE PRESS

The New Yorker recently featured an excellent article on the “mystery of tinnitus” shining a spotlight on the work of TDT customers **Richard Salvi and Edward Lobarinas at University of Buffalo, Jean-Luc Puel at Montpellier in France, Theresa Schulz of NIOSH, and Pawel Jastreboff at Emory University**. The complete article, “That Buzzing Sound” by Jerome Groopman is available online at: www.tdt.com/Buzzing.php. •

Health Day reported on the work **Colleen Le Prell and colleagues at the University of Florida** are doing on noise-induced and age-related hearing loss, along with colleagues at Washington University in St. Louis, the University of Michigan, and OtoMedicine. The article, “A Pill to Prevent Hearing Loss? Early research in animals suggests it might be possible” by Robert Preidt is available online at: www.tdt.com/Prevent.php. The complete press release is online at: www.tdt.com/UFnews.php. •

Technology Review featured the work of **Justin Williams and colleagues at the University of Wisconsin**, testing electrical stimulation of the tongue as an adjunct to visual feedback for brain-controlled computer interfaces. The article, “Tongue Control Sensory Feedback via the tongue might improve neural prostheses” by Emily Singer is available on line at: www.tdt.com/Tongue.php. •

The work of **Robert Frisina and colleagues at the University of Rochester** made the news in an Associated Press article discussing the brain’s role in age-related hearing loss. The article, “Hard to hear at holiday parties? Blame your brain” by Malcolm Ritter is available online at: www.tdt.com/Blame.php. •

NIH will receive \$10.4 billion from the Recovery and Reinvestment Act. Find out about funds for Challenge Grants, equipment purchases, and more in an update from Acting NIH Director Raynard S. Kington, M.D., Ph.D at: www.tdt.com/Stimulus.php. •

Product News

Packet up and go...

Designed to transfer data through a dedicated Ethernet card, the new UDP interface upgrade could very well be bringing your PC network and RZ closer together. This Ethernet interface is mounted directly on your RZ device and provides a Universal Data Protocol for sending packets of data between your PC and RZ device. The new protocol is fully supported in RZvdsEx and is easily implemented through the use of two new macros which handle transfer and receiving of the data packets.

The UDP upgrade is an affordable option for researchers seeking command and control solutions for multiple systems, BMI (Brain Machine Interface), and sending and receiving stimulus parameters from external devices such as eye trackers. •

Array alert...

New options for 500 μm electrode spacing and flexible land available now on our custom microwire arrays. •

...From X to Z

In 2003 TDT introduced the RX5, launching our popular line of RX high performance real-time multiprocessor devices. Each of the four RX devices were optimized for a specific function, from multi-channel recording to microstimulation.

When we introduced the RZ2 in 2006 we knew it would be the start of something even bigger. With even faster DSPs networked on a novel bus architecture, the RZ2 streamlined data acquisition, eliminated data transfer bottlenecks and increased realizable sample rates. For the first time, a single device could support up to 256 channels of data acquisition. In the first three years after launching these powerful new processors, we’ve shipped nearly seventy RZ2 units and demand continues to grow.



Now we’re porting the functionality of the RX line to the RZ platform. The Z-Series DSPs offer more processing power and the Z-Series design easily supports a broad range of I/O functions, allowing us to incorporate more functionality in each device. The all-in-one form factor with onboard power and communication also helps lower the base cost of each system.

The RZ5, introduced in 2008, efficiently consolidates the functionality of the RX5 and RX7 into a single RZ device. The cost for the RZ5 is comparable to an RX5 with caddie and power supply. That’s improved processing power and the functionality of two RX devices for the price of one!

Later this year we will release the RZ6, a device designed to incorporate all the functionality needed for psychoacoustic and evoked potential applications. At TDT, we are always looking for ways to improve performance while keeping costs low and offering innovative solutions...from X to Z. •



On the Manufacturing Floor...

Not your run of the Mill...

With quality control and customer service always in mind, we continually improve and expand the capabilities of our in-house manufacturing facility. We've recently put two new Hurco CNC (Computer Numerical Control) machines into production, providing TDT with a fully operable machine shop capable of automated 3 and 5 axis milling.

These new machines increase run-time productivity while reducing 3D surface machining time and improving surface finish. Ultimately, they lower the cost of manufacturing existing products and support design improvements and new product development.

Watch for new products and new versions of popular TDT products like our ZIF-Clip® Headstages -now offered in a fully machined aluminum finish for enhanced durability and quality.

TDT is now shipping aluminum finish ZIF-Clip® Headstages...

Get the same great low insertion force performance as our original ground-breaking design, now with a more rugged finish. This design lasts longer under a broad range of experimental conditions.

Contact your sales consultant for upgrade information at info@tdt.com.



R&D, Searching for Something

Special... *10% Discount Offer*



Video capture and video tracking are coming to TDT. Based on customer demands, we have begun development of a Video Capture system that is time synced to your data acquisition device. This configuration will allow you to view neural data and time-matched video data along the same time axis while using TDT's OpenEx Software Suite. The video tracking system will combine basic monitoring with behavioral quantification in applications such as mazes, response boxes, and movement analysis.

Development is guided by our customers' needs. We invite you to participate in a brief questionnaire which will help assure we don't miss your specific requirements - and offer a 10% discount for your participation.

Look for the questionnaire at: www.tdt.com/Survey.php

People @ tdt.com

At TDT we know that people are one of our most valuable assets. We'd like to introduce two new team members who play very different roles in bringing you fantastic new products.

In 2008, **Xeve Silver** joined TDT as a Business Development Engineer, charged with investigating new markets for TDT products. His work has already contributed to development of the MZ60 MEA Interface and he is currently involved in our ongoing video capture and tracking system R&D projects.

Previously, Xeve worked for the University of Florida Tissue Bank where he was on the Tissue harvesting team and at UF's Brain Institute at the Advanced Magnetic Resonance Imaging and Spectroscopy Facility where he worked with scientists to develop better and novel imaging setups.

Xeve earned degrees in Psychobiology, Chemistry and Mathematics and did graduate work in biomedical engineering. He published on numerous topics including: stem cells, muscle damage, imaging techniques (MRI, fMRI), and neurological damage.

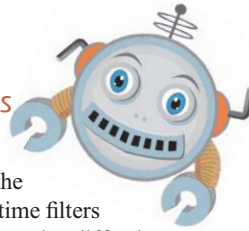
When he is giving his brain a rest he likes music, sports, exercise, and technogadetry.

Charlie Shanks recently joined TDT as a production engineer for our high precision Pick and Place machine and Microwire Array manufacturing.

Before joining TDT, Charlie worked for Harris Corporation in Melbourne, FL for over 16 years as a production engineer, worked in the Bahamas with Raytheon, and has even owned his own software company. Using his vast experience in electrical engineering, Charlie maps out all of the electrical components which comprise the heart of all of TDT's devices before they are sent to the reflow oven.

When he's not baking boards for TDT, he enjoys playing tennis.

TECH TIPS



Does filtering your epoch data return fewer events than you expected?

If you answered yes, then you might need a new version of the TTankSrv.dll. In versions 2.6 and 2.8 of OpenEx, using epoch value and time filters together can lead to lost data. Because only some events are lost it can be difficult to determine if your filtering paradigm is generating lost events. If you use both epoch and time filters, you should download and use the new .dll file we've made available on our website. You can download the corrected .dll file as a .zip file, from Tech Note 0836 found online here:

<http://www.tdt.com/T2Support/FlashHelp/0836.htm>.

After you download the file, extract the new .dll file and place it into the following folder to replace the old TTankSrv.dll: C:\WINDOWS\system32\

This issue will be corrected in the next release of OpenEx. •

A Programmer's Delight...

We have updated all TDT ActiveX based objects to support formless programming implementations. Console based solutions are ideal for developers that are accustomed to traditional coding or who wish to implement a formless application which simply runs in the background.

Several new methods have also been added to TTankX designed to specifically handle BSTR (Basic or Binary STRing) variables. A BSTR variable stores the size of the string in its first two bytes. The remaining bytes of the variable contain the string itself. This increases compatibility with languages that have tighter data type restrictions such as Python. •

For more tech tips see the SUPPORT page on the
TDT Website...

www.tdt.com



Tucker-Davis Technologies

11930 Research Circle

Alachua, FL 32615

Upcoming Meetings:

See us on the road...

German Neuroscience Society
March 25-29, 2009
Göttingen, Germany

Neural Control of Movement
April 28-May 3, 2009
Waikoloa, HI

Canadian Neuroscience
May 24-27, 2009
Vancouver, Canada

EMBC 09
September 2-6, 2009
Minneapolis, MN

Neuroscience 2009
Oct. 17-21, 2009
Chicago, IL

American Epilepsy Society
December 4-8, 2009
Boston, MA