



 **CASCADE[®] PRO**

Advancing medical technology to help you, help others.

 **CADWELL[®]**

CADWELL

Experience The Cadwell Difference – Since 1979

The benefits of owning a Cadwell system are numerous. Our development team understands and delivers what you need. Everyone at Cadwell stands behind our products, and we all have the same goal - to keep you as a loyal, devoted customer long into the future.

Innovative Neurodiagnostic Instruments

John Cadwell, BSEE, MD designed the first microprocessor-controlled EMG instrument. In 1979, he and his brother Carl, DDS, formed Cadwell Laboratories, Inc. and began selling their device. Since then, Cadwell has been a leader in the development and manufacture of innovative and reliable instruments for neurophysiology. Many of these instruments have been providing decades of service to their owners.

Numerous patents are held by Cadwell, including those for magnetic stimulators, cable shielding designs, neural network analysis of EEG, and database designs. Today, still located in Kennewick, Washington, John and Carl continue ownership of the company and come to work everyday to develop and market products ranging from EMG to EEG to PSG to IONM instrumentation and more. Cadwell has a firm hold of its identity and a dedicated focus on neurophysiology.

Advancing medical technology to help you, help others.



Setting the Standard in IONM.

- The Cascade® PRO is an innovative neuromonitoring system that takes the best of the Cascade and Cascade Elite systems and combines them into a single system that is yours to configure.
- This system offers the power of the Elite 32 channel signal processor, in a very portable package similar in configuration to the venerable Cascade.
- The Cascade PRO can be easily configured by the user to accommodate either one or two 16-channel amplifiers, providing you with greater flexibility in switching between 16- and 32-channel IONM systems.

Come stand above the rest.

 **CASCADE® PRO**



Cascade® PRO desktop system
on a narrow trolley cart

Features of the Cascade PRO

Cadwell's latest, most advanced, and flexible, intra-operative monitoring device was motivated by a few simple questions: Why be restricted to choose either a 16- or 32-channel system when you can have both in one? Can a single system function as both a cart-based and portable system? Can we maximize user-configurability and simplicity?

- Transforms between a 16- and 32-channel system in seconds
- Supports two new stimulators that increase your case-by-case flexibility: the ES-IX 2 and TCS-4
- Up to 32 channels and 64 inputs
- All-modality monitoring
- Robust and reliable hardware
- Industry-leading service support Cadwell is known for
- Low total cost of ownership
- Patented shielding technology in amplifier input extender cables for greatly reduced noise
- Patented quick-connect cable fasteners speed setup and teardown
- tceMEP stimulator with four configurable output channels (TCS-4)
- Intuitive and easy to use software that's fast to set up and simple to learn
- Remote monitoring for viewing data independent of unit in surgery
- Sixteen unique data-window types
- Up to 20 user-programmable data-window views
- Automatic report generator
- Automatic interleaving
- Automatic train-of-four testing
- Video software with auto-capture and multiple input support



Versatile System Configurations

- The Cascade PRO is available as a portable or cart-based system
- Space-saving amplifier housing allows base unit to sit on top of amplifiers
- Amplifier housing can be removed and amplifiers placed at bedside
- Thin and light base unit for maximum portability
- Laptop, base unit and amplifiers can be attached and ported together for easy setup and teardown
- Optional rolling case has smooth rolling wheels, a durable handle and looks professional

Whether you're taking your Cascade PRO down the hall, across town or across the country, be assured it will perform flawlessly.



Reliable Hardware

Another goal of the Cascade PRO was to continue Cadwell's tradition of making the most durable and longest lasting IONM instruments on the market.

The Cascade PRO is built on the same amplifier platform as the Cascade and Cascade Elite:

- Crosspoint Technology provides the flexibility of a referential amplifier with the super quiet qualities of a true differential amplifier
- Dynamic montaging allows any combination of inputs be connected to a channel for unlimited channel utilization



Stimulator Options

ES-IX 2

The ES-IX 2 represents a dramatic shift in Cadwell's line of electrical stimulators.

- 8 high current (0-100 mA) outputs
- 1 low current/voltage output that is software-configurable to 5mA/20mA constant current or 5V/20V voltage
- Two stimulators can be daisy-chained
- Reverse polarity, rapid trains, and current sensing available for all outputs
- Biphasic stimulation
- Built for durability. Dropped 500 times at one meter without a single failure.



TCS-4

The TCS-4 is a transcranial motor stimulator with four user-selectable outputs.

- Delivers high voltage, rapid trains of up to 9 pulses (all delivering up to 1000 V)
- Place multiple TCeMEP stim montages and utilize the one that evokes the best response



EP Stimulators

- Auditory stimulators include insert earphones and headphones
- Visual stimulators include flash goggles and LED pad



Peripherals

ES Detector module

The ES Detector module and clip prevent electro-surgery noise from contaminating your EMG and EP recordings. Simply attach the clip to the leads of the electrosurgical hand piece and turn on the appropriate options in the software. When the surgeon uses the electro-surgery device, the system mutes EMG audio, prevents the system from storing electrosurgical noise in the EMG, pauses the EMG stimulator if it's in use, and pauses EP modes.



Noise Detect Probe, 200EP Inductive Amplifier

This device allows the monitorist to quickly locate sources of noise in the operating room and make the necessary adjustments to avoid it.

Multi-Stage Clip-On

Multi-Stage Clip-On style lead wire has a 1.5mm touch-proof connector and auto adjusting crossover wire form that is ideal for clipping onto dilators and probes up to 3/4" in diameter, allowing stimulation without removing the tool.



Sound

Finally, a convenient way to get audible free-run EMG audio and notifications in the operating room.

- The sound bar speaker clips on to the bottom of cart-based computer monitor.
- The compact USB speaker provides powerful sound for laptop systems while eliminating the need for another power cord.



Cascade PRO Software

The Cascade PRO software is user-friendly, intuitive and easy to learn. You'll spend less time troubleshooting and more time taking full advantage of the extensive features found in the Cascade PRO to vastly improve patient care and bring greater value to the hospital. Choose the features and options you need to make the perfect system.

Start a procedure in just four easy steps.



1. Click the icon to launch the software.



2. Click to start a new procedure.



3. Choose a procedure from the list.



4. Enter the patient name.

Multimodality

Managing multimodality monitoring is quick and easy using Modes, Mode Controls, and Mode Groups. You choose exactly what you want to monitor, when to monitor it and how it's monitored.

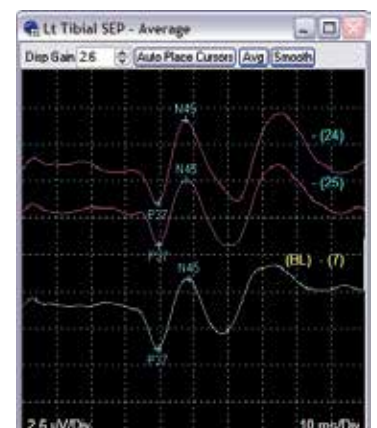
- Flexible setups for each spontaneous and evoked modality allow you to turn on all or some modes manually or in groups
- You have complete control of the stimulus, recording, display and storage for each mode individually
- The system can be set to run in fully automatic mode allowing you to focus on the monitoring



Efficiency

An extensive list of automated run options allow hands-free operation.

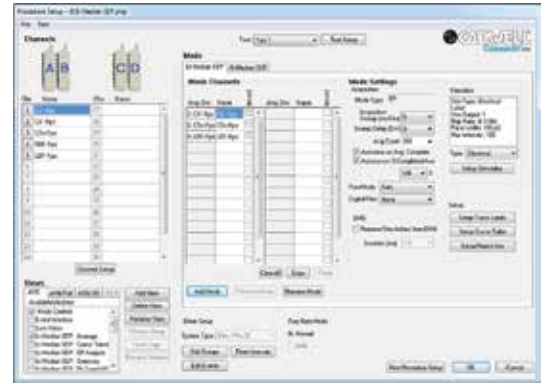
- Auto-placement of cursors
- Store waveforms, clear the average, and start a new trial
- Automatic interleaving of all modes provides faster data acquisition, quicker response time, and faster intervention
- Run multiple modes simultaneously; the system automatically adjusts the repetition rate as you start and stop modes
- Auto-store EMG activity that exceeds above a user-defined amplitude threshold



Intuitive

Easy and intuitive procedure setup menus save valuable time before and during surgery.

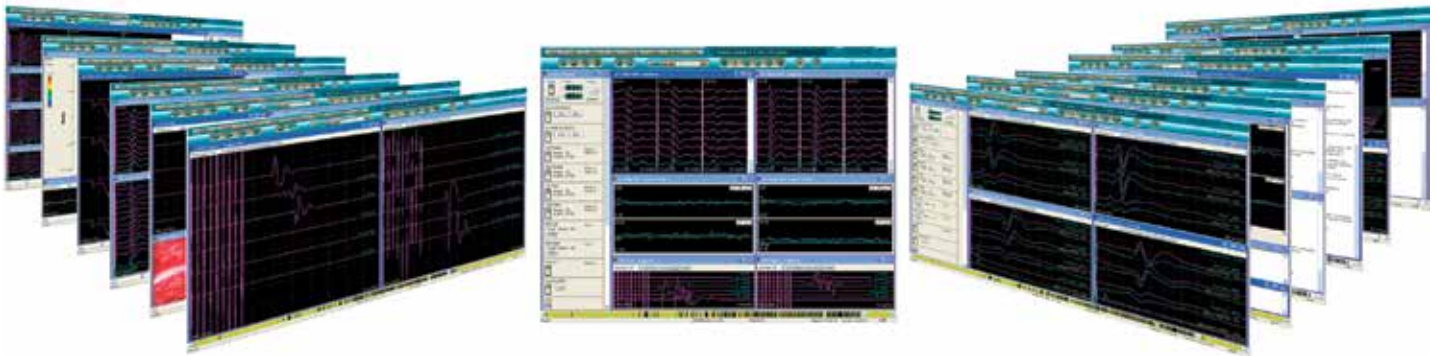
- Graphic displays make it easy and intuitive
- Views can be defined and arranged in the procedure setup so you are ready to monitor when the procedure begins
- Edit procedure settings on the fly without exiting the patient record



Flexible Data Presentation

Using windows and views, all users can customize the way data is presented.

- Display data in a variety of window types – averaged; stacked; numeric trends; 3D waveform trends and waveform analysis
- To accommodate the massive amounts of data generated by multimodality monitoring, you can create up to 20 unique views. Views are comprised of a select set of data display windows. It's easy to switch views with one mouse click to quickly access the data you need
- Windows, screens and event lists can be copied and pasted into outside applications such as Microsoft® Word documents
- All Cadwell instruments run on familiar Microsoft Windows® operating systems



Remote Monitoring

Cadwell's optional remote monitoring feature allows multiple reviewers to connect to a single Cascade system, and also allows one reviewer to remotely monitor multiple Cascades at the same time. Remote readers can review data, change views and data presentation instantly without affecting the acquisition system.

To use remote monitoring, users simply connect to a network, type in the name or IP address of the system to be monitored and go.

Report Generation

Reports are automatically generated from data acquired during the case with just a few mouse clicks.

- Customizable report templates let you quickly create reports tailored to your needs
- Waveform stacks and tables of numeric data let you quickly generate a report showing data for an entire procedure
- Sentence generator creates grammatically correct sentences with just mouse clicks and no typing
- Reports are generated as .rtf and can be opened in Microsoft® Word or other word processing programs

Video

Our optional video package allows you to be more than an observer in the operating room and allows the whole team to provide better patient care. Video snapshots allow excellent post-operative and intraoperative review.

- Displays video images from multiple sources including microscope or overhead cameras in the Cascade software
- Allows up to 2 video sources simultaneously
- Adjustable refresh rate of up to 30 frames per second makes for a smooth video image
- Cameras with adjustable resolution allows the user to enlarge the image up to full screen to see more detail if desired
- Store a snapshot when any or all of these occur:
 - EMG event
 - EP average complete
 - Event comment entered
 - Time interval



Cadwell Customer Support



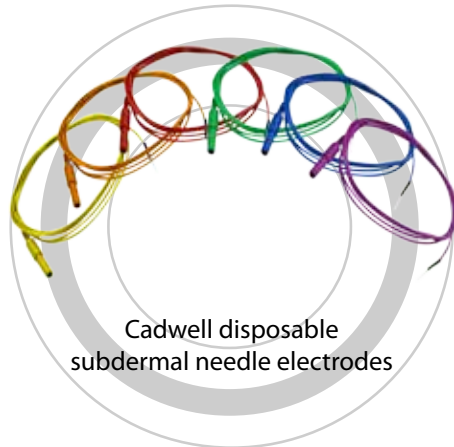
Cadwell is focused on making you a satisfied, loyal customer for years to come. Our telephone support is second to none. We answer every call during business hours with a real person. Our in-house employee technicians are trained professionals. Our web-based support program allows our technicians to troubleshoot real-time – as if they were in your office. Our flexible service contracts will meet your specific needs. Just ask.

Supplies and Accessories - www.estore.cadwell.com

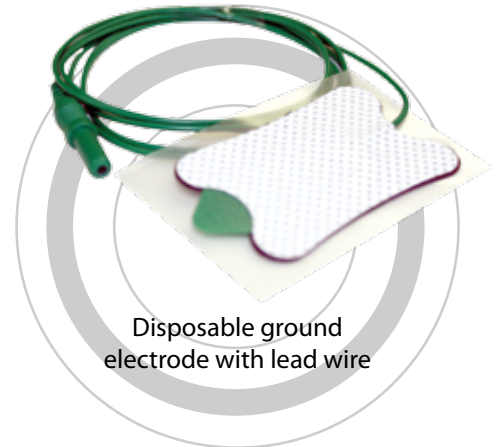
You can also count on Cadwell for a complete range of quality, reliable supplies including subdermal needles; disposable and reusable surface electrodes; and a wide variety of stimulating probes. We are your one-stop source for everything neurophysiology related.



Cadwell twisted pair subdermal needle electrodes



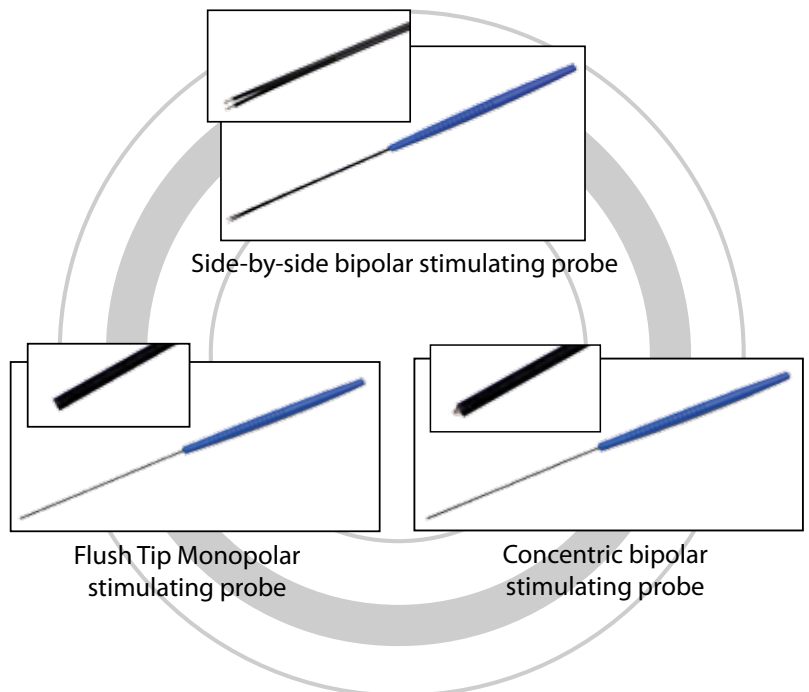
Cadwell disposable subdermal needle electrodes



Disposable ground electrode with lead wire



Cadwell subdermal corkscrew



Side-by-side bipolar stimulating probe

Flush Tip Monopolar stimulating probe

Concentric bipolar stimulating probe

Cadwell's intraoperative neurophysiological monitoring software and products are not intended for intraoperative lateral transposas monitoring that employs automated methods of nerve threshold detection ("ILTM applications"). Cadwell disclaims all use of its intraoperative neurophysiological monitoring software and related products for any use for ILTM applications. With the exception of support Cadwell has a legal and ethical obligation to provide, Cadwell does not support or provide assistance for any use of its intraoperative neurophysiological monitoring software and products for ILTM applications. The use of Cadwell's intraoperative neurophysiological monitoring software and products for ILTM applications is not recommended and at the user's own risk.



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