

www.cadwell.com

Flexible Electrodiagnostic Testing and Neuromuscular Imaging Solutions

Sierra Summit[®] is a flexible and full-featured electrodiagnostic and imaging system designed for electromyographers who prioritize reliability and efficiency.

- Our most advanced amplifiers offer 1 to 12 channels of sophisticated filtering and noise reduction, up to 100 kHz sampling, and 24-bit equivalent resolution
- Licensing allows you to select only the protocols that you need
- Durable controls with machined aluminum knobs and raised buttons rated for 100,000+ uses
- Electrode connectors rated for 100,000+ connections
- Industrial cables with locking aluminum connectors
- Test fixtures and electrode tester offer instant hardware diagnostics
- Perform an entire NCS from the palm of your hand and remotely control other protocols with the StimTroller Plus™ handheld electrical stimulator
- Intuitive and sophisticated Sierra software efficiently combines electrodiagnostics with ultrasonic imaging



High-Quality Ultrasonic Imaging

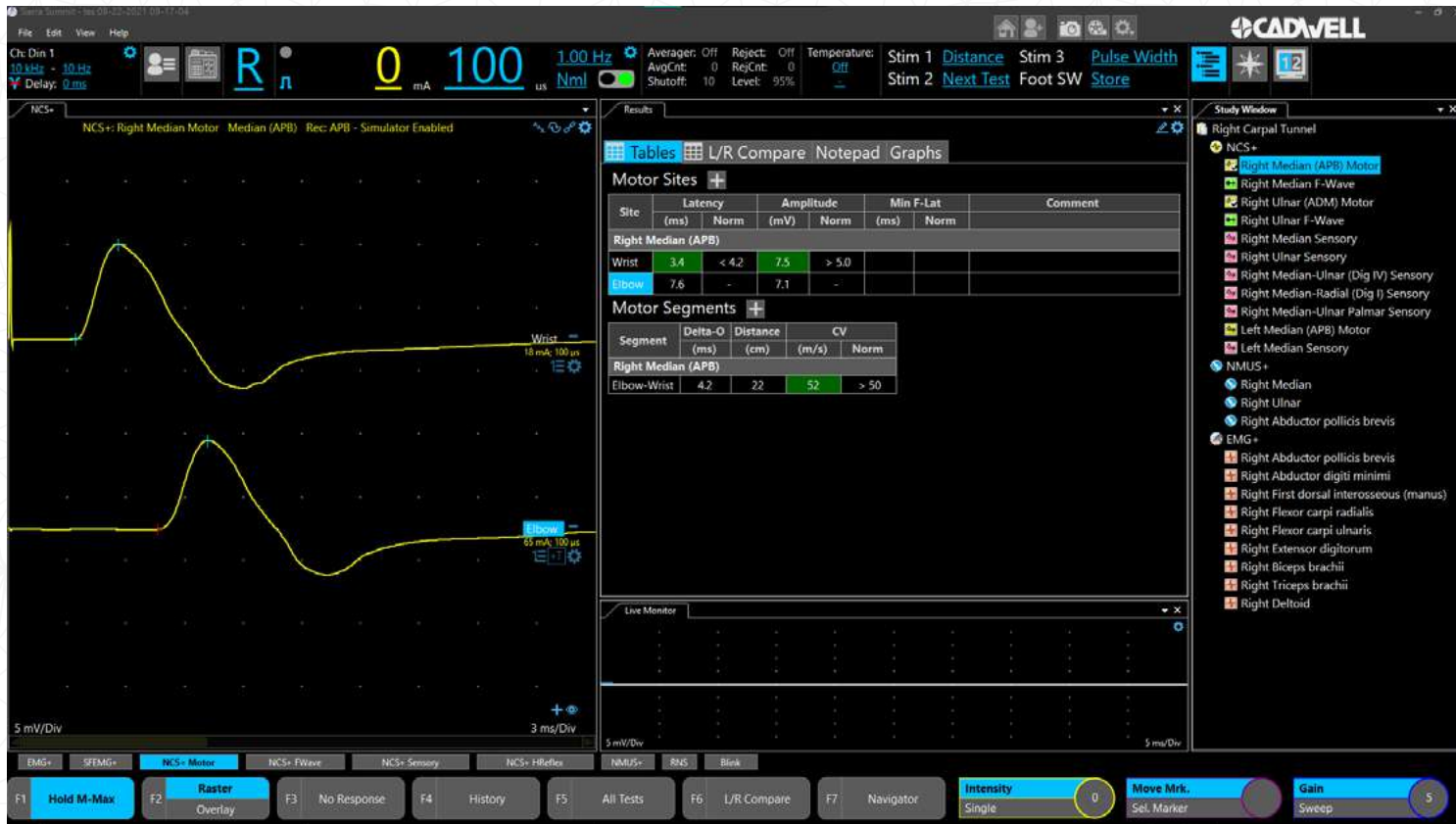
The Sierra NMUS1™ offers high resolution neuromuscular (NMUS) and musculoskeletal imaging and needle guidance.

- Fully integrated into Sierra Summit hardware controls and software workflow
- Multiple probe options (Linear, Hockey-Stick, and Curvilinear) help localize nerves and muscles to confirm a diagnosis, or for ideal placements of EMG, biopsy, and injectable needles
- Easily compare results to normal or contralateral values
- Software-selectable frequencies (2-20 MHz, probe specific)
- Eight beam formers with four levels of spatial compounding
- Advanced speckle reduction and edge enhancement
- Intuitive measurement and annotation tools
- Integrated reports with high-quality ultrasound images and results tables
- Introducing Q-Mode: The future of ultrasonic diagnostics with advanced tissue quantification and live echo intensity measurements.

Cadwell is proactively advancing and promoting neuromuscular ultrasound. Our fully integrated imaging and electrodiagnostic solution is designed to assist you in providing accurate and efficient diagnoses with a streamlined workflow.

Sophisticated and Intuitive Software

Sierra® 4 software is designed to reduce examination time and expand clinical capabilities. Sierra software offers industry-leading trace resolution, advanced artifact reduction, and an optimized user experience with personalized workflows, test setups, and display options.



NCS+ Protocol

NERVE CONDUCTION STUDIES: NCS, RNS, BLINK, MEP, AND TST

NCS+ protocol is designed to improve efficiency, and it offers many unique and intuitive features:

- Glowing, Hold M Max, XY-Align, Trials, and Trace History offer quick ways to ensure reproducible and accurate results
- Easily add, move, or relabel data and fix mistakes
- Effortlessly edit test parameters, tables, and reference limits directly from the exam screen
- Improve patient comfort by simultaneously collecting sensory, motor, and F-Wave responses from the same stimulation
- Set up multiple trace displays for side-to-side and mixed nerve comparisons
- Show the entire examination in a single display with Tab Data Summary and automate findings generation for quick and accurate reporting
- Fully featured RNS, Blink, MEP, and TST protocols are also included as part of the NCS+ package

Classic NCV protocols are also available.



NMUS+ Protocol

NEUROMUSCULAR ULTRASOUND AND NEEDLE GUIDANCE

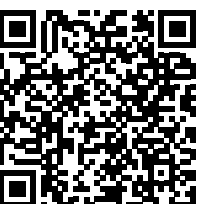
NMUS+ is the first software designed specifically for neuromuscular ultrasound (NMUS). The NMUS+ protocol uses workflow elements from NCS+ and EMG+ to make ultrasound a familiar and efficient part of the electrodiagnostic examination.

- Expand your diagnostic capabilities with B-Mode, CF Doppler, M-Mode, and our new Q-Mode for RF-based tissue quantification research
- Easy-to-use and customizable measurement and annotation tools
- Scan quickly and automatically label images and results by preselecting anatomical structures
- Sites can be pre-defined or inserted on the fly to designate specific scanning sites within a structure, e.g., wrist and forearm sites in the median nerve for comparison purposes
- Automate comparisons between structures and sides
- Compare results to normative data by adding reference limits for measurements, calculations, and left/right comparisons
- Customizable comment tables with free text and drop-down selections simplify reporting
- Fix mistakes, measure again, and annotate live or post-acquisition
- Show ultrasound images and results in a combined EDX report or a separate template
- Images and Cines can be automatically saved to a local or network location via Cadwell's CadLink® data management software
- Eight beamformers with spatial compounding offer high-quality tissue and needle imaging



LEARN MORE ABOUT SIERRA SOFTWARE

For more information about the capabilities and protocols of Sierra software, [visit our website](#) or scan the code to the right.





EMG+ Protocol

ELECTROMYOGRAPHY: EMG, MULTI-CHANNEL EMG, AND EMG GUIDANCE

EMG+ offers many innovative features not found on competitor devices to maximize clinical information and decrease exam time.

- Auto trigger with MUP analysis – automatically adjusts trigger line to isolate and quantify voluntary and spontaneous action potentials
- Live values are displayed on the screen and can be highlighted in green or red compared to normative data
- Live recruitment ratio and firing rate analysis – displays the firing rate of multiple MUP trains along with the recruitment ratio with a normal value threshold
- Live MUP stability analysis – displays stability image and results for any triggered MUP
- Live Auto MUP analysis – hands-free multi-MUP analysis program that automatically collects, averages, and quantifies motor units and compares results to normative data
- Live Interference Pattern Analysis (IPA) automatically collects epochs of data from a muscle contraction and plots them as data points in IPA cloud plots to help distinguish between normal, neuropathic, or myopathic muscle activity
- Customizable muscle scoring with auto finding generator, converts scoring to findings text
- Customize the workspace with multiple views to meet any clinical workflow
- Multiple export options and API access for reporting and research



SFEMG+ Protocol

SINGLE FIBER EMG AND MACRO EMG

SFEMG+ quantifying nerve fiber stability has never been easier or faster. Designed with the help of industry experts to improve efficiency with intuitive and innovative features.

- Auto-trigger with peak detection and block handling offers a truly hands-free experience. SFEMG+ will handle the data collection allowing the clinician to focus on the patient and needle positioning.
- SFEMG+ saves all the EMG data, not just the triggered data, allowing the clinician to analyze multiple potentials from the same data set.
- Reduce examination time with multi-peak detection and automatic reference fiber selector
- Quickly reject artifact and unwanted traces by drawing an exclude box or adjusting the vertical and horizontal windows in the peak plot window
- Flexible workflow options; use fully automated interface or manually control acquisition, trigger location, peak rejection, and blocking
- Display results in a table or histogram with an auto jitter truncation option and auto selection of MSD/MCD

Macro EMG quantifies the amplitude, area, average count, jitter, and fiber density of an entire motor unit using 2-channel recordings and back averaging.

EVOKED POTENTIALS: SSEP, VEP, AEP, AND P300

The evoked potential protocols of Sierra 4 are smart and flexible with intuitive controls. Sierra offers a full suite of pre-configured VEP, AEP, SSEP and MEP protocols.

- **Innovative and Reliable Hardware:** Sierra Summit amplifiers offer advanced signal processing and noise reduction for clean and reproducible traces
- **Fully customizable:** use pre-configured protocols or create any new protocol from scratch with flexible and intuitive test setup options, custom workspaces, cursors, and calculations
- **Live Test Edit:** easily adjust parameters, protocols, and channel count during testing
- **External devices:** Sierra Summit includes 4x trigger-in and 4x trigger-out TTL ports for interfacing with magnetic stimulators, flash stimulators, research amplifiers, and a variety of other third party devices

SOMATOSENSORY

SEP Protocols: SEP, Dermatome SEP, Interleave SEP, Trigger-In and Trigger-Out

- Advanced post-processing: Compare, add, average, grand average, smooth, and invert trials
- Optional Remote Headbox with replaceable and customizable overlays ensure simple and accurate patient setup.



VISUAL

VEP Protocols: Pattern VEP, Flash*, ERG*, Goggle, Trigger-In, and Trigger-Out

- Selectable Fields, Check Sizes, and Targets
- Use any monitor with the Sierra Summit Calibration Sensor



*Flash stimulator not provided

AUDITORY

AEP Protocols: AEP, MLR, VEMP, ECoChG, P300 with Headphone, Bone Transducer, and Insert Earphones

- Condensation, Rarefaction, and Alternating
- Click, Tones, PIP 202, and PIP 212
- WAV, Trigger-In, and Trigger-Out



EMG Cart configured for Evoked Potentials



Median SEP 4-Channel



MUNIX+ Protocol

MOTOR UNIT NUMBER ESTIMATION: MPS, INCR, AND MUNIX+

Sierra 4 software offers several protocols for motor unit estimation including MUNE-MPS, MUNE-Incr, and the all new MUNIX+. These tests are typically studied over time to track the progress of neurogenic diseases such as ALS.

MUNIX is a simple procedure using surface electrode recordings of a muscle CMAP and EMG interference pattern epochs (SIP) at various force levels to derive a motor unit number index

- Customizable procedure setup to ensure a complete investigation
- SIP quality control with auto reject
- Graphical and numeric presentation of results

MUNE-Incr compares SMUP values acquired at incremental stimulus levels with a maximum CMAP value to provide a motor unit estimate

- Auto ALT function automatically detects and reject traces that show alteration

MUNE-MPS averages SMUP values from different stimulus sites and compares them to the maximum CMAP value to provide a motor unit number estimate

- Supports both standard and adapted methods of multi-point stimulation



R-R Interval

AUTONOMIC TESTING: R-R INTERVAL AND SSR

R-R Interval is a simple examination to determine how the nervous system works to control heart rate.

- Adjustable peak detection and artifact reject thresholds offer simple and clean data collection
- A constant stream of live data with live analysis offers immediate results for the clinician
- The flexible interface allows users to edit data points, add calculations and manually reject artifact as needed
- Select your optimal workflow with customizable procedures and settings

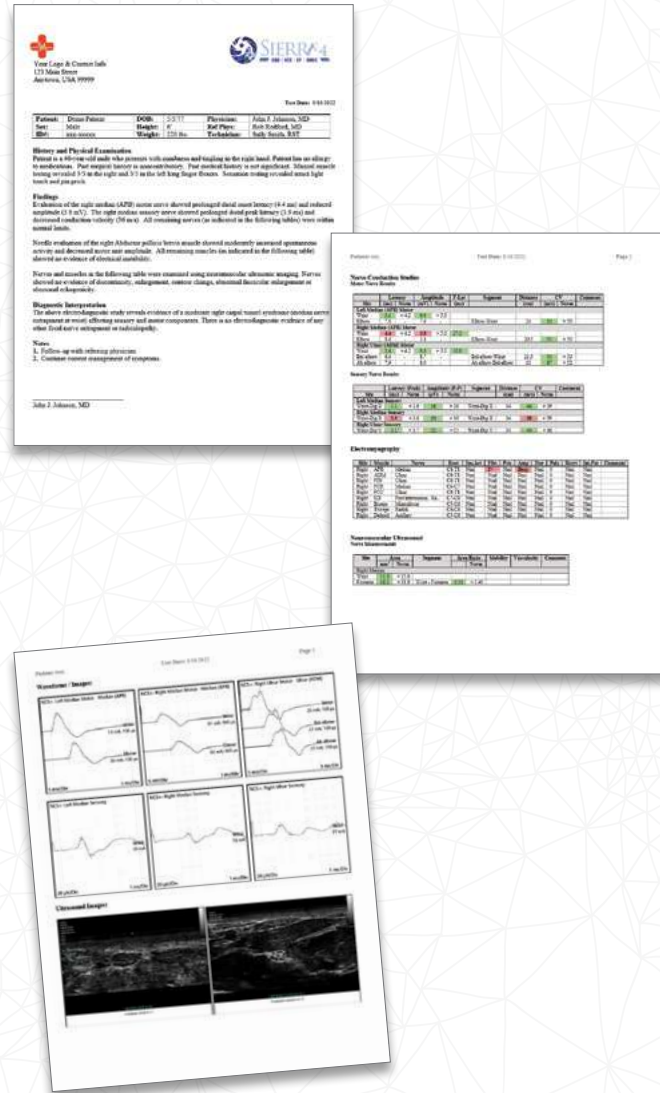
SSR (Sympathetic Skin Response) measures changes in epidermal resistance due to sweat gland activity which can demonstrate the function of the sympathetic pathway.

- Simplified workflow allows the test to be completed quickly and accurately
- Possible to record upper and lower limb responses simultaneously
- Record and compare multiple trials of the response or an averaged response
- Fully customizable parameters and workflow

REPORT GENERATION

Cadwell understands that efficiently and effectively reviewing and communicating diagnostic results is a top priority. Sierra software is designed with many time-saving and intuitive report features to help you capture detailed information and create comprehensive reports.

- **Quick Report:** Complete your report while you are performing the examination with custom templates and selections accessible during patient entry, acquisition, and review. Create a personalized report with just a few mouse clicks.
- **Tab Data Summary View:** See all test results and waveforms with the click of a button, and complete your report without switching screens. Adjust cursors, replay buffers, and edit the muscle scoring table.
- **Auto Findings Composer:** Sierra software will transform your EMG scoring to sentences and compare your NCS and EP results with normative data, instantly summarizing your findings in paragraphs or bullet points. Personalized wording and language give you full control of how your results are communicated.
- **Custom Reports:** Several professional report templates are included with the Sierra Summit, however you have full control to modify or create your own report templates.
- **Traces and Images:** Report templates can include full size or a grid view of ultrasound images and trace data to support billing requirements. Electrophysiological and imaging results can be combined into a single report.
- **Export Options:** Reports can be emailed, printed, or saved locally or to a remote server. Multiple formats are available including .PDF, .DOCX, and .RTF. With CadLink data management software integration, reports can be automatically sent to the patient's EMR as embedded data or as an attachment.



Add Mobility to Your System

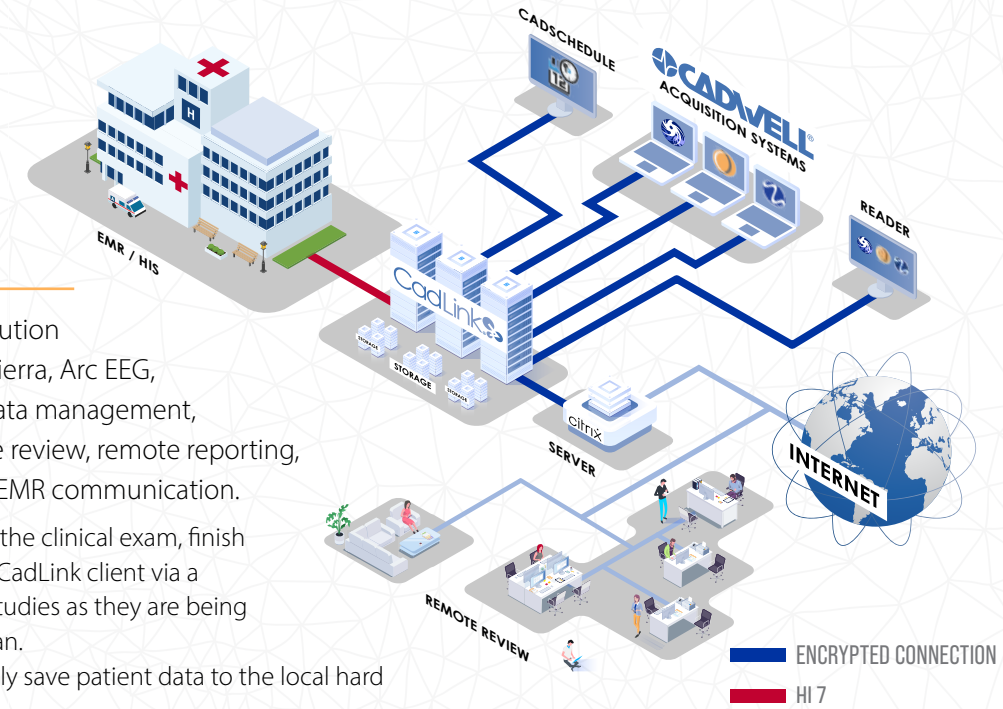
Enable transport of the Sierra Summit for mobile practices with a wheeled travel case featuring a retractable handle.



Finish the Diagnosis and Report Anywhere

CadLink® provides a common network solution for Cadwell's electrodiagnostic software; Sierra, Arc EEG, and Cascade® IONM, offering encrypted data management, documented user involvement, remote live review, remote reporting, optional auto-archiving, and optional HL7-EMR communication.

- **Review and monitor from anywhere:** After the clinical exam, finish your diagnosis, review, and report from any CadLink client via a local network, Internet, VPN, or Citrix. View studies as they are being acquired by a technician or resident physician.
- **Ensure fail-safe data storage:** Simultaneously save patient data to the local hard drive and network storage.
- **Secure data communication:** CadLink software ensures HIPAA-compliant secure data communication and fail-safe data storage. Encrypted process-to-process communication eliminates the need for shared network folders and user permissions, and ensures secure data communication, even over the Internet.
- **Synchronized settings:** Have an identical experience from any PC with synchronized settings and role-based user management. User settings, preferences and report templates can be automatically synchronized to all systems connected with CadLink software.
- **Powerful integrated user management:** Create granular users, user types, user roles, user-specific system setup, integration with Active Directory, and much more.
- **Empower collaborative functionality:** Access, review, and edit patient data and reports from anywhere on the CadLink network, and document user involvement for HIPAA compliance.



Customer Care Unmatched in the Electrodiagnostic World

Cadwell customers appreciate the ease of onboarding our neurodiagnostic solutions:

- Installation assistance and application training ensure a smooth transition for you and your staff.
- How-to videos, regular software updates, and Live Chat on our cadwell.support site keeps your staff up-to-date in the use of your equipment.
- CadCare® Customer Support Programs give you additional options to protect your investment and ensure uptime for your practice with extended service plans. CadLink software support and maintenance programs are also available.

Multiple ownership options are available: purchase, lease, or rent. Ask your Cadwell Sales Representative about financing options.



EMG Cart

The unique features and options of the EMG Cart help ensure an optimal solution for your clinical needs. It is purpose-built for integrated ultrasound in an electrodiagnostic workflow.

- The EMG Cart worksurface is designed to hold the Sierra Summit Base Unit with a positioning handle on the front and dedicated storage for cables, probes, bottles, and supplies
- A Swivel Arm enables full range of motion to reach patients on either side of the cart (only available with monitor configurations)
- Compatible with a variety of PCs, monitors and laptops



EMG Cart configured with Sierra Summit, 1-12 channel amplifier, Sierra NMUS1, and a Mini PC.

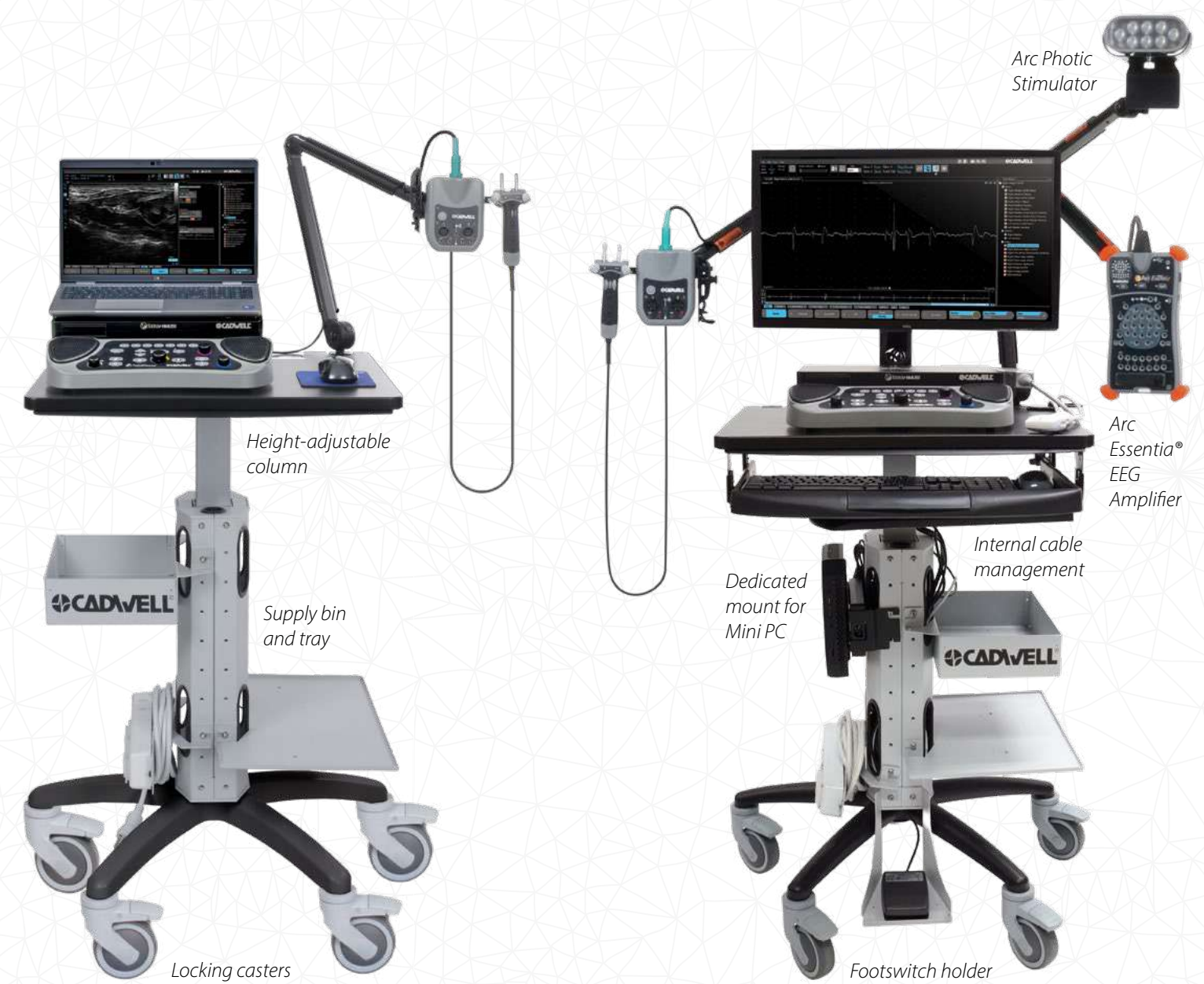


EMG Cart configured with Sierra Summit, 1-2 channel amplifier, and a Laptop PC.

Fuzion Cart

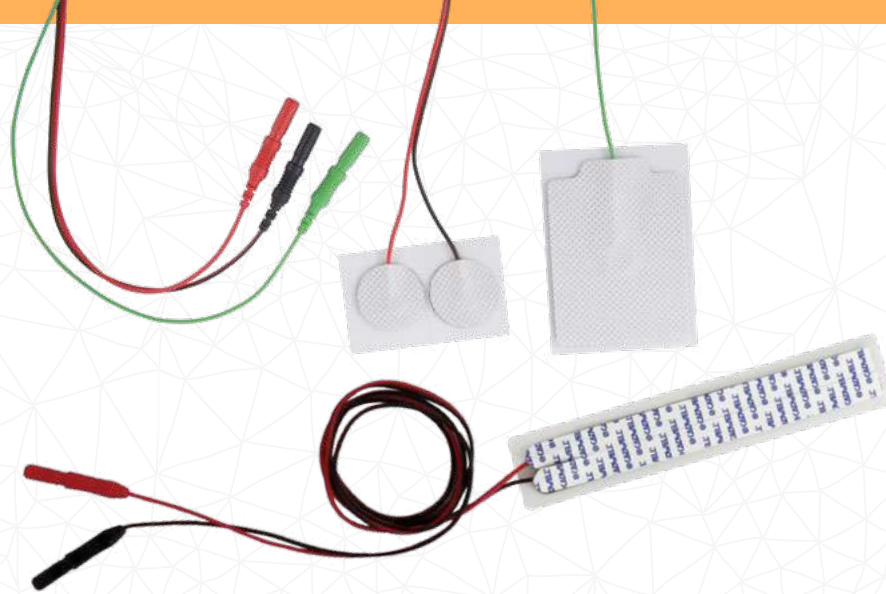
The Fuzion Cart is a lightweight, height-adjustable cart solution for hospitals, clinics, and private practices.

- Comes standard with a large worksurface, bin, large shelf, transport handle, integrated tool-free cable management, and two arm mounts
- Add a retractable keyboard and mouse tray, a footswitch holder, extra storage bins and shelves, and a supply bag
- Use with Sierra Summit and Sierra NMUS1, or as a multi-modality cart with Sierra and Arc EEG.



Fuzion Cart configured with Sierra Summit, 1-2 channel amplifier, Sierra NMUS1, and a Laptop PC.

Multi-Modality: Fuzion Cart configured with Sierra Summit, 1-2 channel amplifier, Sierra NMUS1, Arc EEG, PC, and monitor



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info@cadwell.com

Cadwell Industries, Inc.

909 N Kellogg St Kennewick, WA 99336 USA

1 (800) 245-3001 | +1 (509) 735-6481 | +1 (844) 364-1283 Fax

*Front cover: The main components of the Sierra Summit system are Made in the USA as defined by the Federal Trade Commission.

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Ready for a Demo?

See how easy it is to use and customize the Sierra Summit system and how it can improve your electrodiagnostic workflow. Scan the code on the right or visit www.cadwell.com/contact-us to request a demonstration.

