

EMG & NCS



Scalable Hardware and Software

Build the system you need with a variety of stimulators, amplifiers, and test protocols.

- Our most advanced amplifiers offer 1 -12 channels of sophisticated filtering and noise reduction
- Choose from a variety of carts, computers and monitors or provide your own
- Configure a portable Summit[™] system that can be set up for testing in a matter of seconds



Flexible and Familiar Design

- **See it how you want to:** Custom views give you full control of displays, colors, tables and test protocols
- **Hear it how you want to:** Our highest sound quality is achieved with instantaneous signal processing, dual high-quality speakers and full equalizer controls
- **Use it how you want to:** Customize your workflow with user-defined studies and tests that can be adjusted on the fly

Innovative Interface

StimTroller Plus[™] for NCS

- Perform an entire NCS from the palm of your hand
- Control intensity, pulse width, distance, nerve selection, site selection, trace selection and more.

StimTroller Plus[™] for EMG

- Control gain, sweep, run/stop, playback and volume controls exactly where you need them - right next to your needle.

Precise and responsive controls

- Simplified interface with programmable protocol-specific function keys and knobs



The Sierra® Summit™ is designed for the electromyographer who prioritizes reliability and durability. Passion, experience and focus are the building blocks of Cadwell's most advanced and innovative electrodiagnostic system.

REDUCE TESTING TIME

- Perform any NCS using only the StimTroller Plus™ controls
- Reduce interpretation time with real-time comparisons and Tabular Data Summary View
- Eliminate the need to report a summary of findings with auto findings composer with custom phrasing
- Create a personalized report with just a few mouse clicks using QuickReport™ and custom templates

IMPROVE WORKFLOW

- Synchronized Patient Database includes all studies, reports and other associated documentation
- Fail-safe storage and Auto Archiving
- Multiple EMR interface options include auto PDF export, HL7 ADT and ORM orders inbound and results outbound
- User management with user-specific system setup, user roles and single log-in with Active Directory integration

MAXIMIZE CLINICAL INFORMATION

Seamlessly transition from a standard muscle screen to a detailed investigation without adding time or complexity.

- Simple on-screen controls and settings can be changed on the fly
- Simultaneously display data in multiple formats to maximize extraction of clinical information and reduce study time
- Hands-free MUP triggering, Multi-MUP analysis, turns/amplitude analysis, and real-time interference pattern analysis
- Get immediate quantified results compared with published normals



STREAMLINED PROTOCOLS

Cadwell puts great effort into reducing examination time, minimizing patient discomfort and providing a simple interface. Our latest SFEMG+ protocol gives you hands-free recording, automatic peak detection and triggering, real-time analysis with live results and normative data for standard concentric needles. You can exclude traces and refine your results in seconds.

Request a demo to see how this powerful EMG/NCS system can increase your efficiency, accuracy and specificity.

TEST PROTOCOLS

NERVE CONDUCTION STUDIES

Motor Studies
Sensory Studies
Inching
F-Wave
H-Reflex
Mixed Studies
Repetitive Nerve Stimulation
Blink Reflex (Electric and Manual Stim)
Silent Period
Triple Stimulation
LLR
Near-Nerve Studies
MUNE - MPS/Incremental
Collision Studies*

ELECTROMYOGRAPHY

Routine EMG
Triggered EMG
Multi MUP Analysis
Auto Multi MUP Analysis
Turns v. Amplitude Analysis
Interference Pattern Analysis
SFEMG Stimulated/Volitional*
Macro EMG*
Multi-Channel EMG
Guided Injection Protocols

AUTONOMIC STUDIES

Heart Rate Variability (R-R Interval)
Valsalva, Deep Breathing, 30:15
Sympathetic/Galvanic Skin Response

EVOKED POTENTIALS

SEPs
Dermatome SEPs
BAER*
MLR*
LLR*
VEMPs*
ECochG*
P300*
VEP*
ERG*

*Optional upgrade

NOTABLE FEATURES

SOFTWARE

QuickReport™
CadCapture™
Auto Findings Composer
EMG to AVI Converter
EMG Audio Export
DataLAB™
Anatomy View™
ASCII Output Utility
Internal Calibration Signals
CadLink™ Information Management
CadLink™ HL7 EMR Interface

HARDWARE

Dual High-Power Speakers with Equalizer
StimTroller PLUS™ full function remote and stimulator
1-12 Channel Amplifier Options
USB Footswitch
Hardware Diagnostics Suite
Electrode Continuity Check
Advanced Stim/Trigger
Dual Stimulators*
Trigger In x 4, Trigger Out x 4

BASE UNIT

- Dedicated keypad and knob controls
- Integrated stimulators
- Trigger in/out for peripheral equipment
- Dual high-powered speakers with software equalizer

AMPLIFIERS

- Montage switching
- RF immunity
- Very low noise
- Impedance
- Power switches
- Calibration signals
- Excellent signal quality
- Temperature measurement
- Electrode cable continuity checking
- Fast artifact recovery
- Internal analog-to-digital conversion

STIMTROLLER PLUS™

- Hand-held control to store traces, adjust intensity, deliver single or multiple stimulations, reverse polarity
- Adjust angle on probes or replace with standard bar or ring electrodes
- Program three buttons: run and stop EMG acquisition, distance entries, adjust EMG gain control, store EMG snapshots, move back and forth in the EMG buffer, playback EMG buffer, test selections, and volume

HARDWARE OPTIONS

- Programmable USB Footswitch
- Second electrical stimulator
- Skin temperature probe
- Reflex hammer
- LED goggles
- Ring/Bar Switchbox
- AEP Stimulator
- VEP Monitor
- Stackable jumper cables
- Trigger In/Out cable (3.5mm stereo to 2x RCA)
- Amp/Stim Switchbox (injection studies)
- Remote Input Box and cable
- Standard laptop PC
- High performance laptop PC
- All-in-One PC
- Small Form Factor PC
- Wireless or USB mouse
- Supplies, accessories and electrodes

CONFIGURATIONS

- Point of Care Cart: Can accommodate laptop PC, printer and UPS. Includes two arm mount brackets, shelf and bin. Options: flexible and articulating arms, extra arm brackets, pullout keyboard shelf, mouse pad holder, foot-switch holder, accessories bag and bins.
- T2 Cart: Can accommodate desktop PC, one or two monitors, printer and UPS. Includes two arm brackets, drawer and keyboard shelf. Options: flexible and articulating arms, extra arm brackets, cable holder, accessories bag, camera mount, camera and infrared illuminator.
- Portable system with carry case or wheeled case.



AT YOUR SERVICE & SUPPORT

www.cadwell.support



SIERRA[®] Summit[™]
EMG • NCS • EP • ULTRASOUND

ULTRASOUND



FUSING FORM AND FUNCTION

Cadwell® is excited to introduce Sierra® Summit™ with ultrasound, a completely integrated electrodiagnostic and imaging solution. Perform an ultrasound without switching machines or even applications.

COMPLEMENT YOUR ELECTRODIAGNOSTIC TESTING

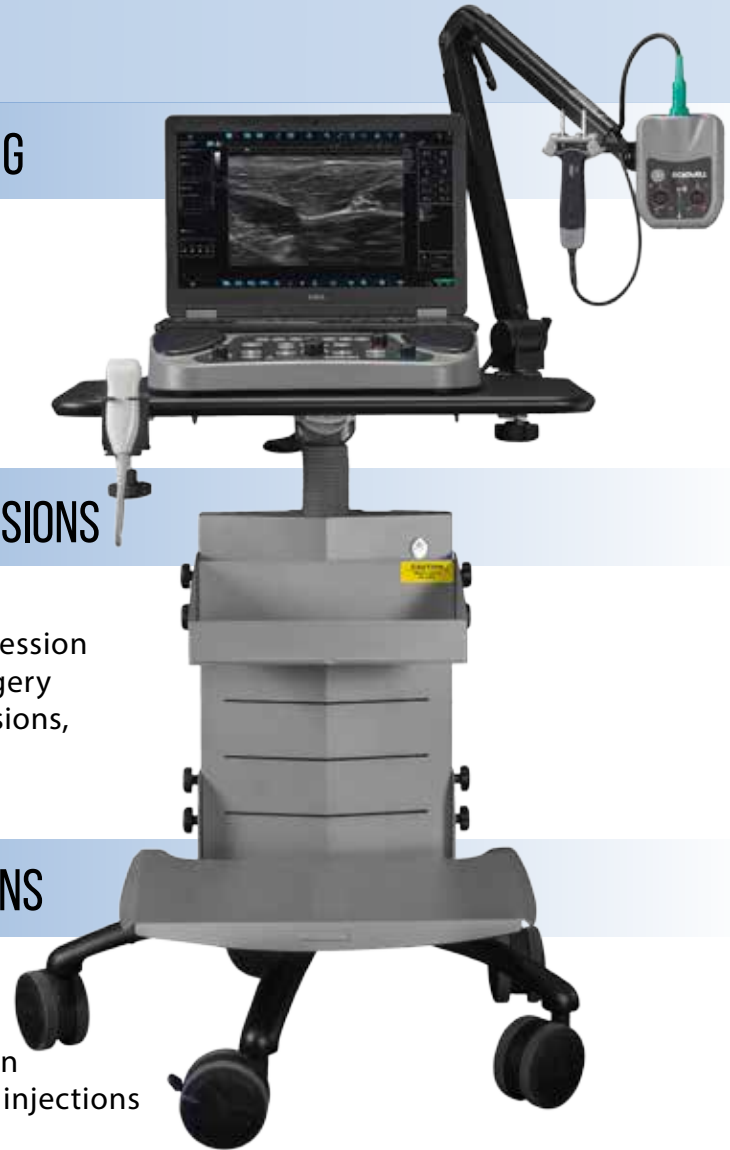
- Confirm electrodiagnostic findings
- Detect early stage nerve damage
- Provide insight into muscle functionality
- See how movement effects the nerve
- Study the nerve along its entire course

IMPROVE YOUR DIAGNOSIS AND TREATMENT DECISIONS

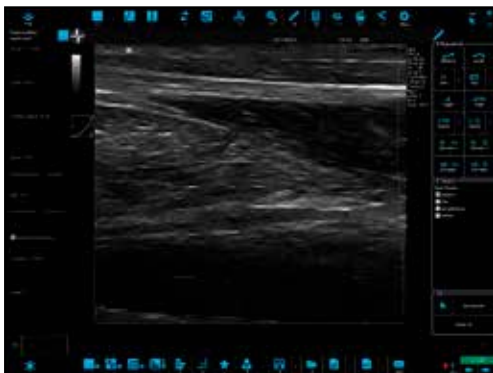
- Improve accuracy and specificity of a diagnosis
- Identify the site of involvement and origin of compression
- Determine the need and expected outcomes of surgery
- Detect additional evidence: cysts, lipomas, compressions, entrapments, tumors, traumas and causes of lesions

AUGMENT YOUR NEEDLE GUIDANCE AND INJECTIONS

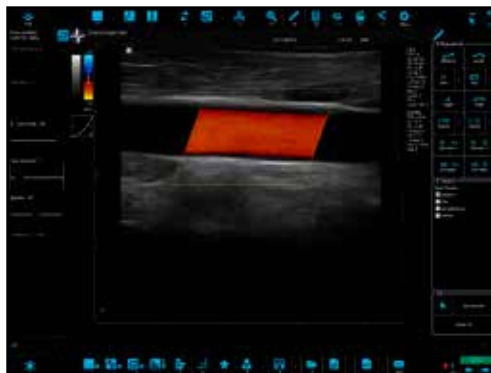
- Ensure the needle is inserted in the correct muscle
- See the location of the needle within the muscle
- Measure muscle functionality pre- and post-injection
- Simultaneously hear, see and stimulate for accurate injections



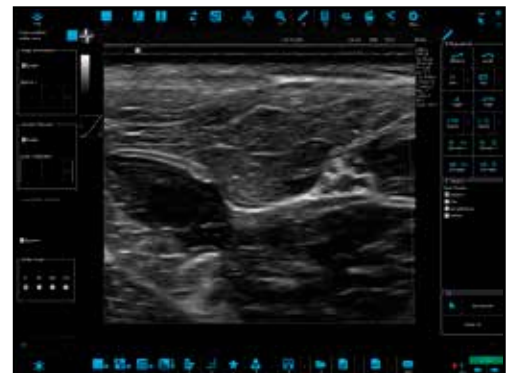
Median Nerve and Tendon



Doppler



Median Transverse



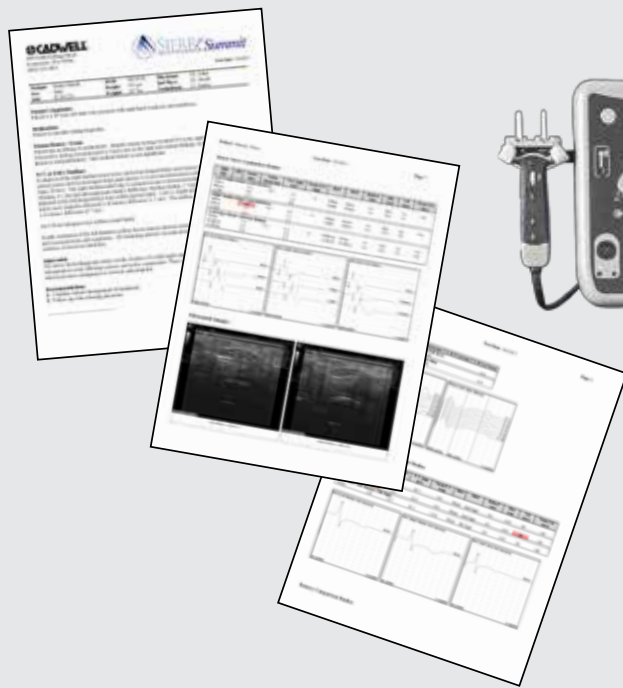
Full integration makes real-time imaging a natural part of the electrodiagnostic workflow.

Integrated Controls

Easily adjust focus, frequency, depth, power, gain, grayscale modes and playback with the Sierra® Base Unit.

Integrated Reports

Include ultrasound images complete with measurements and annotations with your electrodiagnostic results.



Integrated Settings

Pre-define ultrasound structures in the Sierra Summit™ with presets for depth, focus, frequency, gain and power to save time and improve clarity of specific structures.

Integrated Workflow

Switch between ultrasound and EMG or NCS with the push of a button. Include ultrasound sites in your NCS and EMG Study Lists.

Concurrent Use



Perform an ultrasound while simultaneously running volitional or stimulated EMG. Hear and Visualize while stimulating for more accurate injections and needle guidance.



Ultrasound Options

Two ultrasound hardware solutions with a variety of probes make the Sierra® Summit EMG with integrated ultrasound affordable, flexible and functional.

The SmartUs is CE marked and is currently undergoing premarket review by FDA.

	MicrUs	SmartUs
Description	Pocket-sized, point of care, digital, black and white ultrasound diagnostic system	Color, doppler, digital, portable ultrasound diagnostic system
Modes	B, M, B+M, 4B, B+B, Spatial Compound, Trapezoid Imaging, B-Steer, Zoom	B, B+B, 4B, M, B+M, B-steer, Color Doppler, Power Doppler (PDI), Directional Power Doppler (DPDI), Continuous Wave (CW) Spectral Doppler, Pulsed Wave (PW) Spectral Doppler, High Pulse Repetition Frequency (HPRF), Duplex (B+PW/CW), Triplex (B+Color Doppler+PW/CW)
Measurements	Brightness (B): distance, length, area, circumference, volume, angle, stenosis % Motion (M): distance, time, velocity, heart rate, stenosis %	B-mode and M-mode: same as MicrUS PW-CW Spectral Doppler: velocity, PG, PR, RI, etc. PW Doppler automatic tracing and calculations
Probes/ Transducers	<p>6 - 15 MHz Linear, 25mm 5 - 12 MHz Linear, 40 mm</p> <p>Wide bandwidth, multifrequency Automatic transducer recognition 2 > 31 cm scanning depth</p> 	<p>10 - 18 MHz Linear, 30mm 7.5 - 15 MHz Linear, 40mm 7.5 - 15 MHz Linear, 25mm (Small footprint)</p> <p>Wide bandwidth, multifrequency Automatic transducer recognition</p> 
Imaging	Automatically adjust US image size to screen resolution. Full motion and full-size real-time US. Imaging up to 120 fps. Zoom from 60 - 600% in all modes	
Save Formats	AVI, JPG, BMP, PNG, TIF, XLSX, DCM, TPD, TVD	
Software	Echo Wave II (32/64-bit Windows)	
Connections	USB 2.0/3.0 power cable	12V power adapter
Dimensions	4.2W x 4.1D x 0.8H (inches); 0.44 lb 106W x 105D x 21H (mm); 0.2 kg	6.5W x 8.2D x 2.5H (inches); 4 lbs 165W x 210D x 62H (mm); 1.8 kg

MULTI-MODALITY

COMPLETE NEURODIAGNOSTIC *Solutions* EEG, EMG, NCS, EP & ULTRASOUND

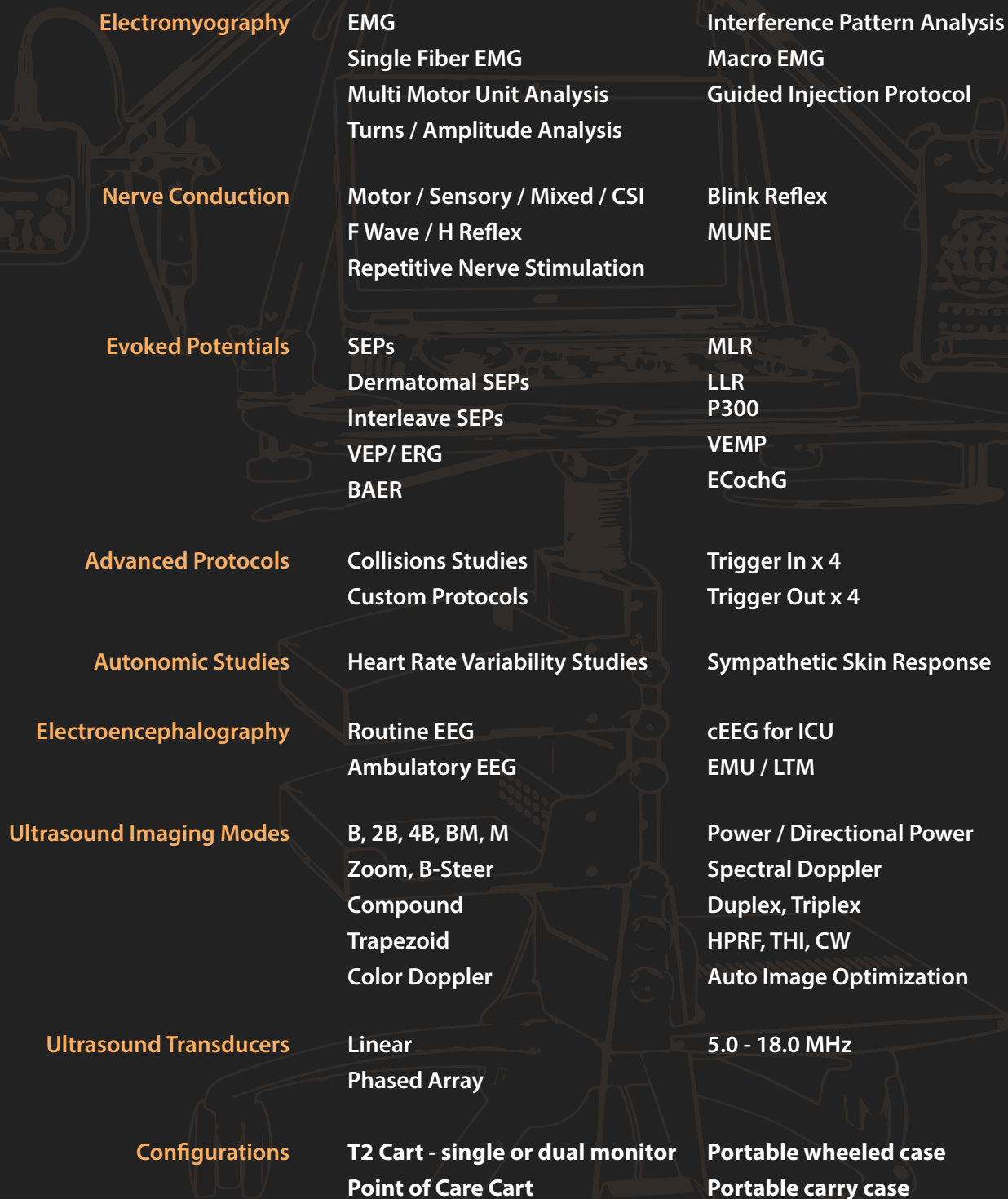


Cadwell neurodiagnostic solutions are engineered to work on a single cart or as separate systems connected with CadLink[®] data management.

Cadwell is dedicated to engineering smart and affordable neurodiagnostic technology.

ONE SYSTEM THAT CAN DO IT ALL

Tailor-made



Electromyography	EMG Single Fiber EMG Multi Motor Unit Analysis Turns / Amplitude Analysis	Interference Pattern Analysis Macro EMG Guided Injection Protocol
Nerve Conduction	Motor / Sensory / Mixed / CSI F Wave / H Reflex Repetitive Nerve Stimulation	Blink Reflex MUNE
Evoked Potentials	SEPs Dermatomal SEPs Interleave SEPs VEP/ ERG BAER	MLR LLR P300 VEMP ECochG
Advanced Protocols	Collisions Studies Custom Protocols	Trigger In x 4 Trigger Out x 4
Autonomic Studies	Heart Rate Variability Studies	Sympathetic Skin Response
Electroencephalography	Routine EEG Ambulatory EEG	cEEG for ICU EMU / LTM
Ultrasound Imaging Modes	B, 2B, 4B, BM, M Zoom, B-Steer Compound Trapezoid Color Doppler	Power / Directional Power Spectral Doppler Duplex, Triplex HPRF, THI, CW Auto Image Optimization
Ultrasound Transducers	Linear Phased Array	5.0 - 18.0 MHz
Configurations	T2 Cart - single or dual monitor Point of Care Cart	Portable wheeled case Portable carry case



SIERRA[®] Summit[™]
EMG • NCS • EP • ULTRASOUND

EVOKED POTENTIALS



THE SIERRA® SUMMIT™ OFFERS A FULL SUITE OF EVOKED POTENTIAL TESTS THAT CAN BE CONFIGURED TO FIT THE SPECIFIC NEEDS OF YOUR PRACTICE.

The Sierra Summit evoked potential system is...

SMART

- Customize existing or create new protocols
- Simultaneously display live, averaged and grand average data
- Easily adjust parameters and positions of individual traces or entire trials
- Customize the calculations of Latency, Amplitude, Interlatency, Interamplitude, percentages, ratios and side-by-side comparisons
- Incrementally smooth or unsmooth data live or post-acquisition

FLEXIBLE

- Select the channels and tests you need and easily add more later
- Software-controlled montages and inputs can be changed on the fly
- Control settings and parameters directly from the test screen
- Compare side-by-side with vertical or horizontal split screen
- Use the Remote Headbox for tight spaces and better patient mobility

EFFICIENT

- Fully customize Auto Cursors and highlight abnormal values
- Use Tabular Data Summary View to see all test results on one screen
- Use Auto Findings Composer to generate a summary of findings based on normative data
- Create a personalized report with just a few clicks using QuickReport and custom templates

AUDITORY

AEP Protocols: BAER, MLR, VEMP, ECochG, ERG, P300

- Headphones, Inserts, Bone Transducer
- Condensation, Rarefaction, Alternating
- Click, Tones, PIP 202, PIP 212
- WAV, Trigger-In, Trigger-Out



VISUAL

VEP Protocols: Pattern VEP, Flash VEP, ERG, EOG, Trigger-In, Trigger-Out

- Selectable Fields, Check Sizes and Targets
- Get accurate results with any external LCD monitor with the Calibration Sensor



SOMATOSENSORY

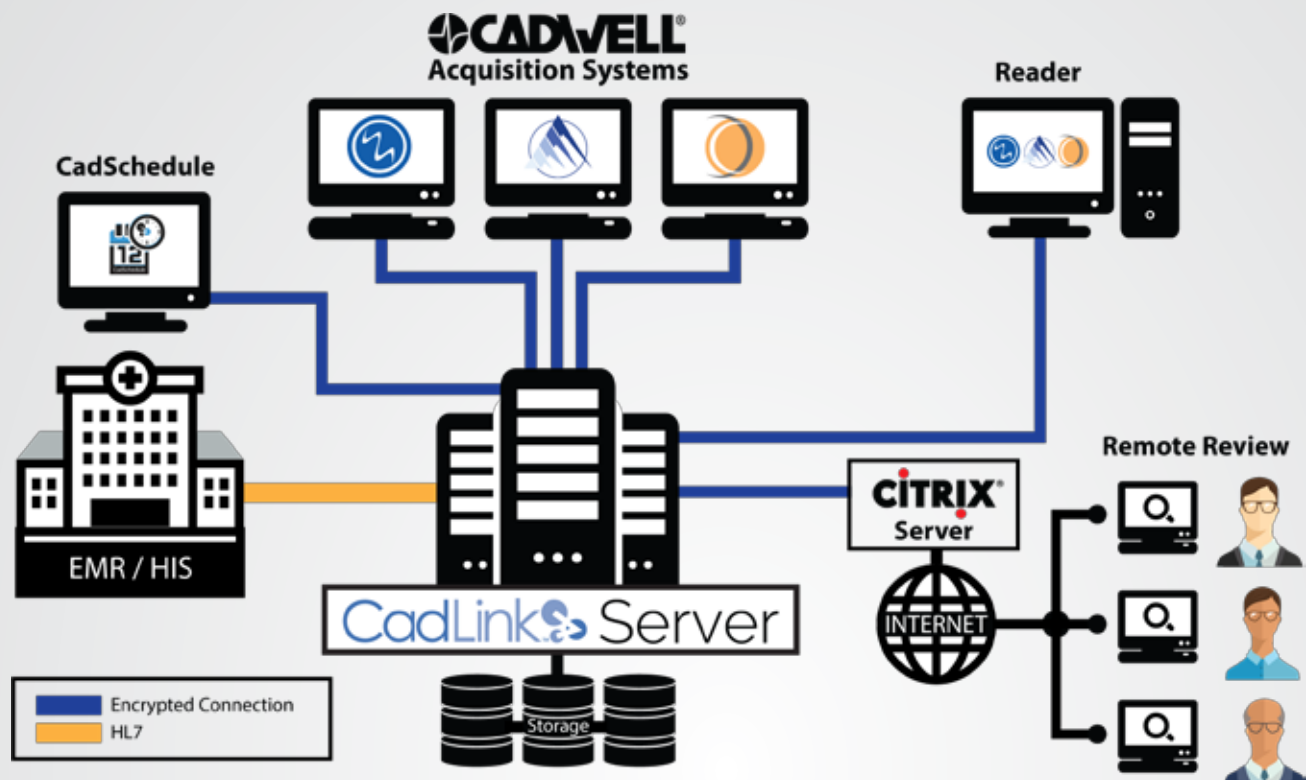
SEP Protocols: SEP, Dermatome SEP, Interleave SEP, Trigger-In, Trigger-Out

- Custom Trace Labels
- Advanced Stim Modes

DATA MANAGEMENT



CadLink data management platform provides secure and efficient access to clinical information when and where you need it.



OPTIONS

CADSCHEDULE

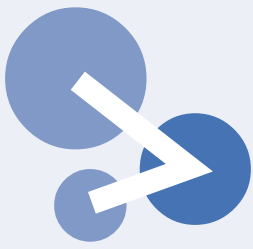
Schedule appointments for any of your Cadwell EMG, EEG or IONM equipment from any computer connected to the CadLink network. Optimize the use of personnel, rooms and equipment.

EMR INTERFACE

CadLink uses HL7 messaging to integrate with existing EMR systems and supports ADT and ORM messages, embedded results, custom demographics, and much more. Auto-populate your Cadwell equipment with patient visits directly from the EMR, eliminating the redundancy of manual reentry of patient information. When exams and reports are finished, send results back to the EMR with a single button click.

AUTO-ARCHIVING

Achieve full data management from the time the data is acquired until it is archived, eliminating the need for user intervention. User-specific rules define how and what data to archive, and alerts are automatically sent via email when the storage capacity is reached.



THE BENEFITS OF CADLINK™

CadLink provides a common network solution for all of Cadwell's EDX products, including Sierra® EMG/NCS/EP/Ultrasound, Arc® EEG and Cascade® Surgical Studio IONM.

Ensure fail-safe data storage	Simultaneously save patient data to the local hard drive and network storage. Once the complete study is on the network storage, the local copy is erased. In case of network failure, the data is kept on the local computer until network connection is restored.
Empower collaborative functionality	Access, review and edit patient data and reports from anywhere on the CadLink network, and document user involvement for HIPAA compliance.
Synchronized settings	User settings, preferences and report templates can be automatically synchronized to all systems connected with CadLink.
Secure data communication	Encrypted process to process communication eliminates the need for shared network folders and user permissions and ensures secure data communication, even over the Internet.
Powerful integrated user management	Create granular users, user types, user roles, user-specific system setup, integration with Active Directory, and much more.
Access anywhere	Access ongoing and stored recordings from anywhere using LAN, VPN, Citrix, Internet, Remote Desktop and other technologies to ensure optimal access to Cadwell data.
Enable remote live review	Review multiple studies simultaneously from any CadLink client via a local network, Internet, VPN or Citrix. Remote reviewers can customize their own view settings. Remote Arc EEG users can also take full control of a study.

CadLink™ USE CASES

- Physicians can access and review the nerve conduction results directly from a review station and advise technicians if any additional tests need to be completed before the needle EMG test is performed.
- Physicians can easily access previous studies including EEG and IONM cases, and compare them with current results.
- Physicians can leave the exam room and finalize the study, adjust cursors, score muscles and complete reports from the office or from any computer connected via CadLink.

