

# VikingQuest Portable

## Specifications



### General Specifications

**Power Supply** 100/120 V, 230 V $\pm$  10%, 50 Hz or 60 Hz

**Power Consumption** Approximately 50-80 W, depending on model of notebook

**Dimensions** Approx. 5"H x 13"W x 13"D (12.7 x 33 x 33 cm)

**Weight** Approximately 6.5 lbs (3 kg) base unit without notebook computer

#### Environmental Limits

##### Operating (in use)

Temperature: 60 to 90° F (15.6 to 32.2° C)

Relative Humidity: 20-80%, non-condensing

Altitude: 0-10,000 ft (0-3 km)

##### Non-operating (in storage)

Temperature: 0 to 132° F (17.7 to 55° C)

Relative Humidity: 10-90%, non-condensing

Altitude: 0-40,000 ft (0-12 km)

#### Features

System's base unit includes built-in medical power supply for full system including notebook computer

### System Architecture

**Central CPU** Intel® Core 2 Duo 2.26 GHz Processor or better with minimum 2 GB of memory

**ADC** 16-bit, 1 to 4 channels with 100 kHz maximum sample rate

**Mass Storage** Minimum 80 GB hard disk (formatted)

**8X DVD+/-RW or faster**

**Standard Interfaces** 1-Type I or Type II PCMCIA card, 4-USB 2.0 ports, 10/100/1000 Ethernet, Wireless 802.11g, Bluetooth®

**Base Unit** 2-USB 2.0 ports

**Hardcopy Device** HP InkJet

**Parallel Processing** Allows simultaneous waveform acquisition, display, plotting and real-time signal analysis including a wide spectrum of quantitative EMG techniques

**System Diagnostics** Full base unit, stimulator and amplifier diagnostics

### Operating System Software

Microsoft® Windows® XP Professional

### Display

**Size and Type** 14.1" TFT-LCD display

**Resolution** Maximum 1280 x 800 (WXGA)

### Features

Variable screen formats, depending on recording mode. Simultaneous display of waveforms, graphs and alphanumeric data. Multiple latency and amplitude cursor and trigger levels under computer and manual control, with on-screen read-out

### Averager Capabilities

**Number of Channels** 4 Channels

**Display Modes** Normal, odd and even, normal and plus/minus, and plus/minus

**Mode** Normalized dual buffer averaging with choice of display modes

**Artifact Reject** Fixed or variable threshold with adjustable delay of reject start time, or off, depending on test

**Averager Display Sensitivities** 0.001  $\mu$ V/division to 10 mV/division in 22 steps depending on test

### Waveform Acquisition, Display and Storage

**Timebase Range** 0.2 ms/division to 5 sec./division in 23 steps depending on test

**Timebase Type** Single, dual and individual, independently-selectable in specific tests

**Waveform Trigger** Computer and manual control, selectable for positive and negative slope and input channel

**Waveform Delay** 0 to 10 divisions in 1 division steps depending on test

**Waveform Storage** Number of waveforms that can be stored permanently varies depending on the specific test

**Free Run Storage** Store multiple records of free run EMG data and sound for up to 120 seconds each. 40 recordings/muscle

**Resolution** 16-bit A/D converter with 1  $\mu$ s effective time resolution

**Features** Roll and zoom capability in specific tests

### External Stimulus Control

**External Stimulus Output** Standard TTL logic levels

**External Stimulus Input** Standard TTL logic levels

**Input for Reflex Hammer**

CareFusion  
Middleton WI

[carefusion.com](http://carefusion.com)



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### Amplifiers

**Number of Channels** 2, 4

**Sensitivity** 1  $\mu$ V/division to 10 mV/division in 13 steps, 2V peak-peak max., full scale output

**Input Impedance** >100 M $\Omega$

**Common Mode Rejection Ratio**

110 dB, typical; >105 dB at 50 to 60 Hz, typical

**Low Filter Settings** 1 or 2 pole type with 6 or 12 db/Octave roll-off, software selectable settings of 1, 2, 5, 10, 20, 30, 150, 500, 1K, 2K, 5K (Hz)

**High Filter Settings** 2 pole type with 12 db/Octave roll-off; settings of 15, 30, 100, 250, 1.5K, 2K, 3K, 10K (Hz)

**Notch Filter** 50 Hz, 60 Hz, On or Off, in all tests

**Noise** <1  $\mu$ V RMS from 1 Hz - 10 kHz with input shorted

**Safety Isolation** Fully optically isolated European isolation of type BF

### Temperature Meter

Built-in temperature meter with optional temperature probes

### Isolated Electrical Stimulator

**Independent Outputs** 1 or 2 channel

**Stimulus Intensity** 0 to 100 mA or 0 to 400 V continuously adjustable intensity within user selectable maximum range into a 4 kW load

**Stimulus Duration** 0.01 - 1 ms

**Stimulus Modes** Single, train, recurrent and non-recurrent operation

**Stimulus Rate** 0.1 - 100 per second, depending on test

**Isolation Features** Fully isolated outputs

**Level Control** Console/Remote mode for adjusting stimulus intensity either from console or remotely from electrical stimulator probe

**Stimulus Type** Choice of stimulus type: selectable constant current or constant voltage

**Stimulator Probe (Handpiece)** Electrical stimulator probe with reversible polarity and optional stimulus intensity control

**Level Readouts** Separate current (or voltage) readout on screen for each waveform

#### Features

"Impedance limit" indicator in constant-current mode when stimulus electrode impedance is too high to allow delivery of requested current. Removable isolated electrical stimulus unit for placement close to patient

### 2015 Visual Stimulator (optional)

Refer to separate product specifications

### LED Goggles Visual Stimulator (optional)

**LED Stimulus**

High efficiency red LEDs (635 nm) in 3 x 5 array in each eyepiece

**LED Flash Rate** 0.1 to 100 per second

**LED Flash Duration** .01 to 1 msec in .05 steps under software control

**System Interface** Single 15' cable

### Photic Stimulator (optional)

Manual auto flash presentation. Auto stimulation is user definable

Flash rates available 1 - 60 Hz in 1 Hz steps

### Auditory Stimulator (optional)

**Signal Types** Click, tone pip or tone burst

**Stimulus Rates** 0.1 - 91.1 per second in 20 steps

**Stimulus Intensity** 0 to 139 dB pSPL or -31 to 109 dB nHL, depending on stimulus type and frequency and transducer type

**Stimulus Attenuators** Keyboard controlled, separate units for right and left signal channels, each with 140 dB dynamic range selectable in programmable step size

**Click Polarity** Condensation, rarefaction and alternating

**Click Duration** 100  $\mu$ sec

**Tone Frequencies** 250, 500, 750, 1K, 1.5K, 2K, 3K, 4K, 6K, 8K (Hz)

**Tone Pip Ramp** 2 cycles

**Tone Pip Plateau** 0 cycles

**Tone Pip Envelope** Blackman

**Tone Burst Ramp** 10 ms

**Tone Burst Plateau** 200 ms

**Tone Burst Envelope** Linear

**Noise Masking** Broadband, 0 to 140 dB in 1dB steps, differential Transducers (300 $\Omega$ )

TDH-39 Headphones; TIP 300 Insert Phones; Bone Vibrator

### NicVue™ Patient Administrator Software (optional)

Manage Nicolet EMG, EP, EEG and Monitoring data through a centralized interface

Integrated to Microsoft® Access™ database

### Quality Standards

Manufactured, designed, developed and marketed by CareFusion NeuroCare under ISO 13485

### Compliance/Regulatory Standards

Designed, tested, manufactured and certified to meet the following domestic (USA), Canadian, European and International Standards:

**UL 60601-1** Medical Electrical Safety Standard (USA)

**CAN/CSA-C22.2 no. 601.1-M90** Medical Electrical Safety Standard (Canada)

**EN/IEC 60601-1** Medical Electrical Safety of Medical Equipment (International and Europe)

**IEC 60601-2-26** Particular Safety of electroencephalographs equipment

**IEC 60601-2-40** Particular Safety of electromyography and evoked response equipment

**EN 60601-1-2** Collateral safety standard for EMC

**European Community (CE Mark)**

Class 2B, Medical Device Directive (MDD) product

Specifications, design options and terms quoted are subject to change without notice  
U.S. Patents: 5,657,763 7,424,322

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