Neuromaster MEE–1000A
Intra-Operative Monitoring System
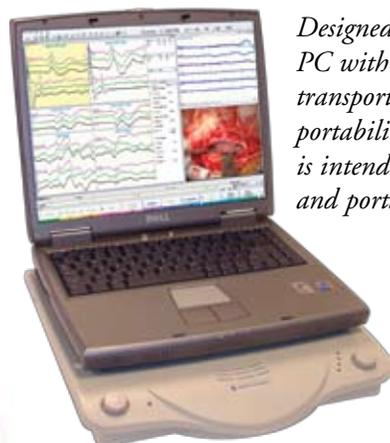
epilepsy monitoring • electroencephalography • ambulatory recording • polysomnography • icu/or monitoring • electromyography • ncv • evoked potentials • IOM

MEE 1000A

For more than 50 years, healthcare providers worldwide have relied on the quality and reliability of Nihon Kohden's comprehensive and innovative line of neuro-diagnostic and -monitoring instrumentation to aid in the diagnosis, information and treatment of their patients. The Neuromaster MEE-1000A is the latest addition to Nihon Kohden's long legacy of intra-operative monitoring systems offering the most flexible and comprehensive recording system available today.

Intra-operative Monitoring Solutions

The Neuromaster MEE-1000A IOM system monitors SSEP/ABR/VEP Evoke Potentials as well as EEG, EMG and TcMEPs. All measurements are displayed in a format to facilitate rapid interpretation. EP and TcMEP waveforms are displayed and stored continuously and the acquired waveforms are displayed in a waterfall/cascaded format. EEG waveforms are displayed and stored continuously and/or periodically and the waveforms can be displayed in a waterfall format in either CSA or DSA. EMG waveforms are displayed and stored continously and/or periodically. Measurement data can be displayed in the waterfall format or trend graph window. During all measurements, an event is time locked with every entry.

Clinical EPs are standard with Neuromaster and Clinical EEG is a low cost option. Neuromaster utilizes the same EP software as our MEB product line, which eliminates the need for additional training and provides a seamless interface for current Nihon Kohden users.

The Neuromaster ease-of-use, flexibility and multi-modality features make it the clear choice for all of your IOM needs.

Designed as a desktop PC with a cart for easy transport or a laptop PC for portability, the Neuromaster is intended for both hospital and portable monitoring use.

NIHON KOHDEN

Select the option of a 16-channel amplifier or the first FDA approved 32-Channel amplifier configuration.

The Neuromaster utilizes small and compact breakout boxes for waveform acquisition and stimulation. These individual breakout pods can be placed either at the head or foot of the OR bed to help eliminate extensions or long electrode wires.

The 16-channel amplifier can use either 1 or 2 breakout boxes for a total of 32, 40 or 48 inputs. The 32-channel amplifier uses up to three breakout boxes for a total of 64 inputs.

The JS-101B stimulator pod has 5 stimulation outputs (0mA-100mA). Four stimulation pods can be connected to provide up to 20 stimulators.

The JS-102B stimulation pod is designed for low level stimulation (0mA-10mA in 0.1 steps). Up to 2 low level pods can be connected.

Flexible Software Innovation
Workflow Solutions

NeuroWorkbench™ is the core integrator of Nihon Kohden's Neurology product portfolio. This common interface allows for examination scheduling, protocol administration and data management that improve workflow. NeuroWorkbench provides HIPAA Compliant access to clinical data and records with passwords and three levels of administrative rights, as well as audit trails. A flexible NeuroWorkbench option includes an HL7 interface.

The NeuroWorkbench SQL Database integrates all of Nihon Kohden's Neurology devices to provide a complete database across all neuro-diagnostic and -monitoring modalities.

PortaView will allow you to download an IOM case to a CD/DVD enabling review capabilities on any Windows® XP computer.
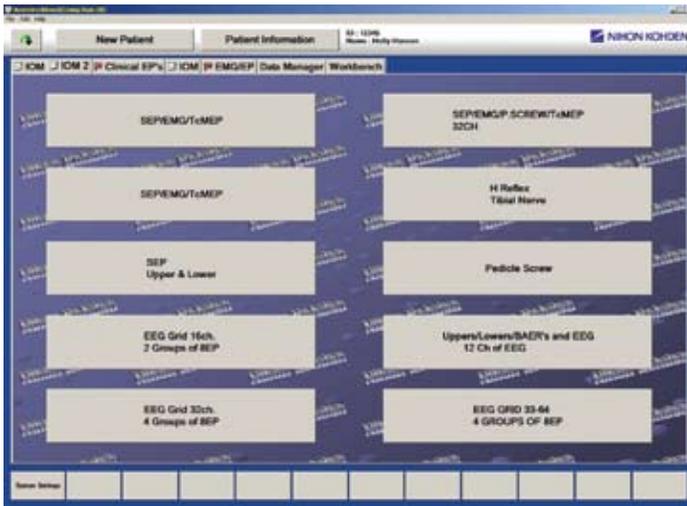
Menu Window for IOM Examination

Open IOM examination screens using the examination protocol menu.

Menu Tabs
• Up to 8 catagory tabs with 10 programs per tab for a total of 80 preset examination programs

Data Manager Tab
• Database files
• Copy, move and delete file
• Patient database with search and query function

Workbench Tab
• Scheduler
• Remote access
• Review patient files

Waterfall/Trendgraph Window

Displays:

• Baseline, current and previous EP and TcMEP waveforms
• Graph of measurement data
• EEG data in CSA or DSA graphs
• Current display or look-back mode
• Ability to hide unwanted waveforms
• Linear graph of measurement data (latency, amplitudes, frequency, etc.)
• Event page
• Numeric values of measurement data
• Ability to hide unwanted waveforms
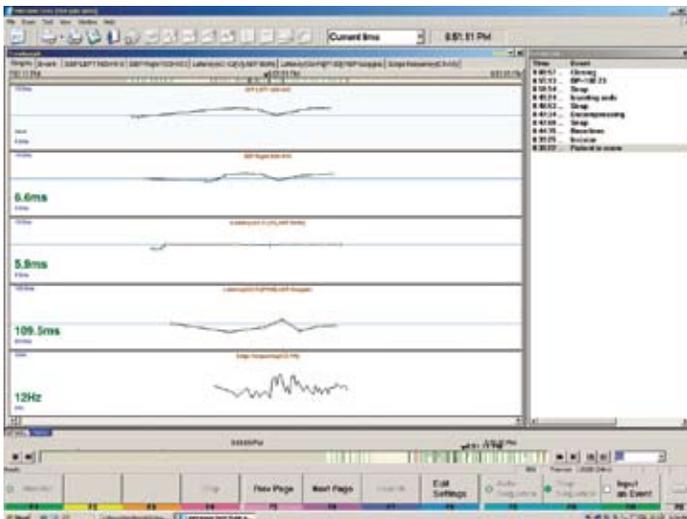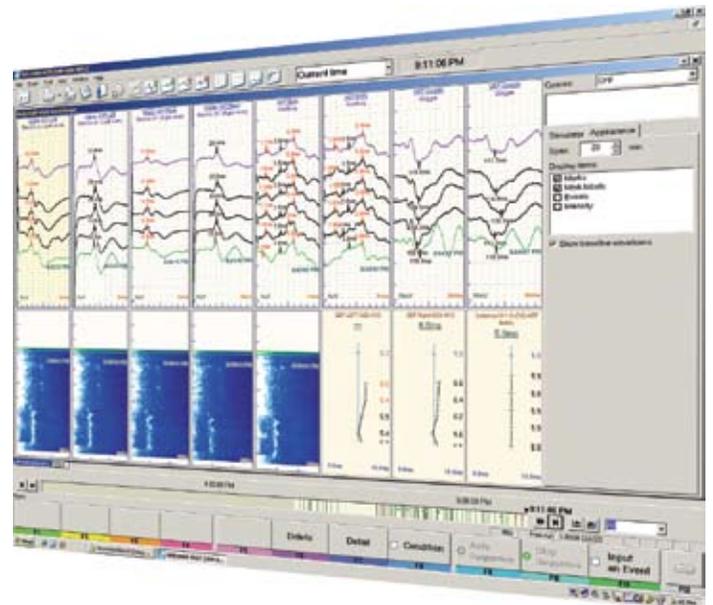
Event Window

• Displays time and comments
• 50 preprogrammed events
• Free text on the fly
• Capture patient image with inputting events
• Editing events is available
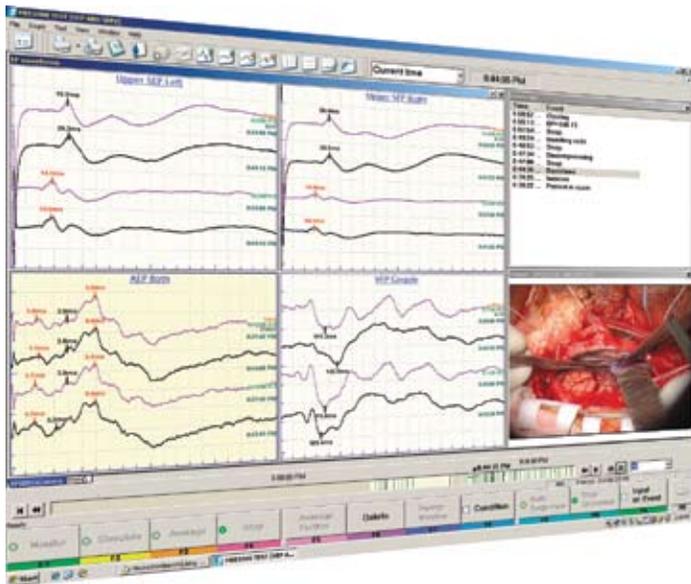
EP Window
- Up to 32 EP waveforms in 16 displays areas
- Baseline, current and previous waveforms
- Latency and amplitude measurements
- All channel or individual channel control
- Auto sequence: automatically start, stop, and restart
- Displays montage, time, avg/rej counts, intensity
- Step back feature allows removal of noisy average
- Live video display from microscope and slave monitor or camera
- Snap shot saves one frame of patient image as a JPEG file


EEG Window
- Displays up to 32 channels of EEG
- Store continuously or periodically
- Span can be adjusted in window
- Layout in monitoring, stack or side by side for easy comparison
- Stimulation is available
- Turn on or off waveforms from window
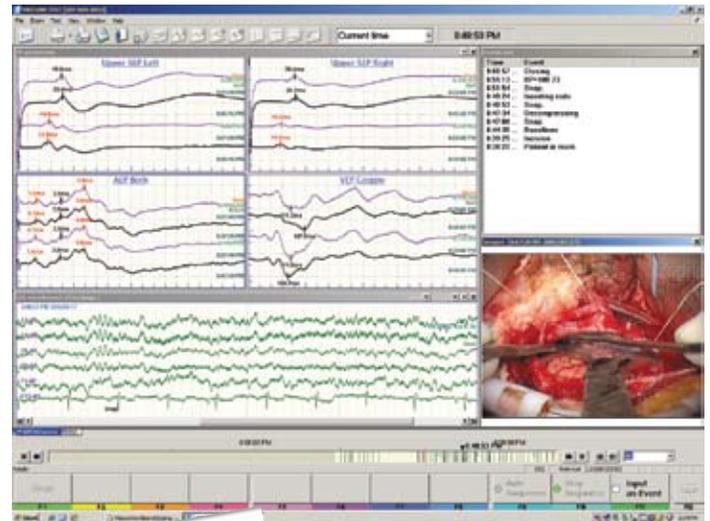
Free run (EMG) Window
- Displays up to 32 waveforms
- Turn on or off waveforms from window
- Store continuously or periodically
- Layout in monitoring, stack or side by side for easy comparison
- Stimulation is available
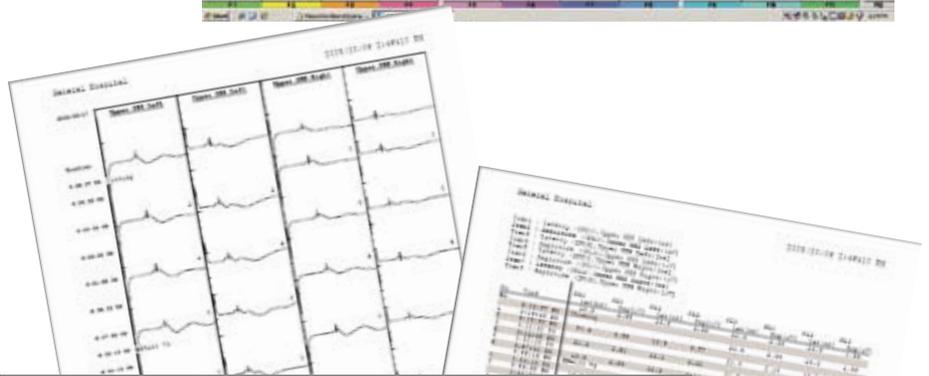
Printouts
- Print hardcopy/screen copy
- Print event list, trendgraphs, EEG, EMG or waterfall waveforms and numeric
- Make a PDF file and save with the patient data file, which helps eliminate the need for paper
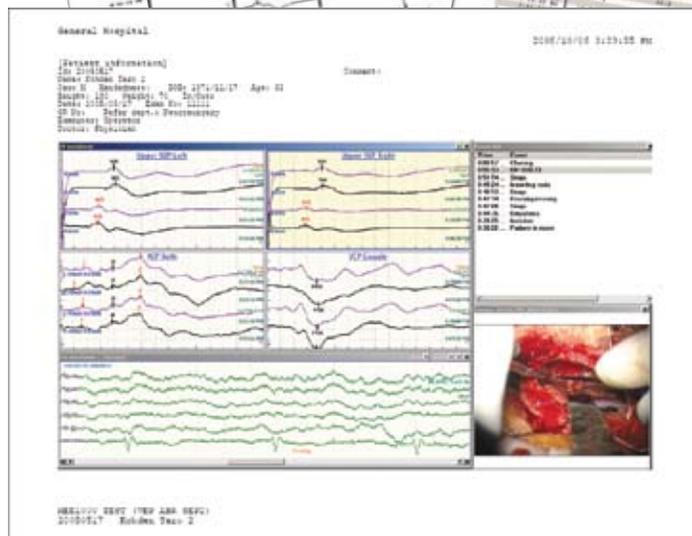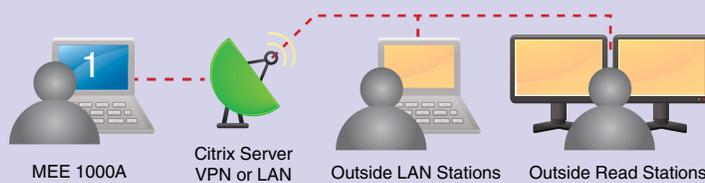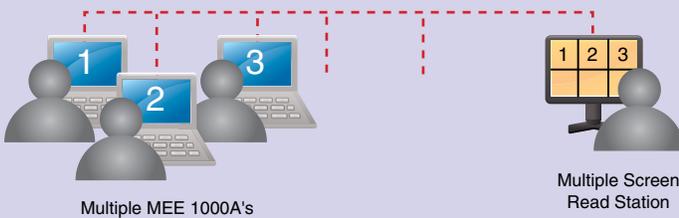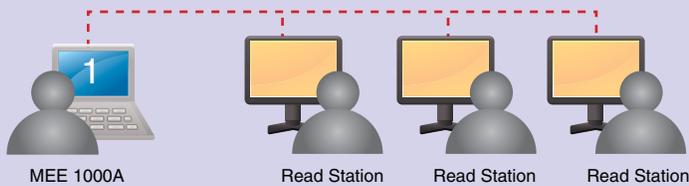
Remote Monitoring

Using Nihon Kohden remote software, the remote viewer display is totally independent of the acquisition screen. The remote viewer can look at trendgraphs, waterfall waveforms or previous data/numerics without affecting the acquisition screen.

Remote Monitoring Alternatives

MEE 1000A | Read Station | Read Station | Read Station

Multiple MEE 1000A's

Multiple Screen
Read Station

MEE 1000A | Citrix Server VPN or LAN | Outside LAN Stations | Outside Read Stations

- Remote viewing either within hospital and/or outside hospital

- One acquisition system can be reviewed by multiple users

- Remote viewer can look at multiple acquisition systems in the OR

- Chat window is available either in Event window or separate window

- Alarm notification when a chat is delivered

- Remote monitoring is available in several ways:

  - Hospital network (access required)

  - Citrix Server®

  - 3rd party software; ie. Windows® Remote Desktop, LogMeIn®

Comprehensive Customer Care and Services

Clinical and Technical Training

To maximize utilization and satisfaction with your new system, registered Clinical Support Specialists are available for customized product training programs at your facility.

Technical Support

With greater demand for product standardization, data integration and networking, Nihon Kohden employs highly qualified Applications and IT Specialists to work with you to design a customized solution and site plan around your workflow, data access and data management requirements. Nihon Kohden's direct Field Service Support are backed by a team of certified Technical and Clinical Support Specialists available to assist around the clock with hardware and applications support and can securely connect into your system using remote diagnostics tools if additional help is needed.

Service Agreements

To assist you in delivering maximum system uptime, we offer flexible service agreement options and extended warranties available at the time of purchase or at any time during the warranty period.

Supplies and Accessories

To supplement the superior performance offered by the MEE-1000A, we offer a full line of quality electrodes, needles and supplies.

Our Commitment to You

When performance counts, you can rely on Nihon Kohden to assist you in delivering the highest quality patient care as efficiently as possible. Nihon Kohden is committed to bringing trusted and innovative solutions to the changing demands of the neurodiagnostics field today and into the future.

SPECIFICATIONS

Amplifiers

Number of channels:
JB-116B: 16, JB-132B: 32

Maximum number of connectable break-out boxes. (Maximum total of input jacks)
JB-116B: 2 (48), JB-132B: 3 (64)

Input impedance:
$>$100 MΩ (Differential mode),
≥ 1000 MΩ (Common mode)

Noise: 3 µ Vpp or less at 1 Hz to 3 kHz with input shorted

Common mode rejection ratio:
≥106 dB (Balanced mode),
≥ 112 dB (isolation mode)

Sensitivity

EP/free-run waveform: 0.05, 0.1, 0.2, 0.5, 1, 2, 5, 10, 20, 50, 100, 200, 500 µV/div, 1 2, 5, 10, 20, 50 µV/div ±5%

EEG waveform: 5, 7, 10, 15, 20, 30, 50, 70, 100, 150, 200, 300, 500, 750, 1,000, 1,500, 2,000, 3,000, 5,000, 10,000 µV/div ±5%

Low-cut filter

EP/free-run waveform: 0.08, 0.1, 0.2, 0.5, 1, 2, 5, 10, 20, 30, 50, 100, 200, 500 Hz, 1, 2, 3 kHz 6 dB/oct (±20%)

EEG waveform: 0.08, 0.16, 0.27, 0.53, 1.6, 5.3, 53, 159 Hz at 6 dB/oct (±20%)

Time Constant: 0.001, 0.003, 0.03, 0.1, 0.3, 0.6, 1, 2 s

High-cut filter

EP/free-run waveform: 10, 20, 50, 100, 200, 500 Hz, 1, 1.5, 2, 3, kHz at 12 dB/oct (±20%)

EEG waveform: 15, 30 35, 60, 70, 120, 300 Hz at 12 dB/oct (±20%)

AC interference notch filter: 50 or 60 Hz (Rejection ratio: $<$ 1/2-0)

Amplitude calibration: 1 div (within ±5%)

Skin-electrode contact impedance check:

2, 5, 10, 20, 50, 100, 200, kΩ indication (within ±20%)

Dimensions and Weight

Main unit, DC-110B: 340 (W) x 41 (H) x 355 (D) mm, 2.3 kg

Amp unit JB-116B: 160 (W) x 210 (H) x 84 (D) mm, 2.0 kg

JB-132B: 265 (W) x 210 (H) x 84 (D) mm, 2.7 kg

Extension unit, MS-110B: 162.5 (W) x 194 (H) x 50 (D) mm, 1.0 kg

Break out box, JB-101B/JB-102B: 60 (W) x 156 (H) x 27 (D) mm, 0.58 kg

Stimulation pod, JS-101B/JS102B; 60 (W) x 103 (H) x 27 (D) mm, 0.36 kg

Power Requirements

Line voltage: 100 to 240 V AC ±10%

Line frequency: 50/60 Hz

Power input: 75 VA (DC-110B)

Environment

Operating temperature: 10 to 35°C (50 to 95°F)

Operating humidity: 20% to 80%

Operating atmospheric pressure: 70 to 106 kPA

Storage temperature:
-20 to +65°C (-4 to 149°F)

Storage humidity: 20 to 80%

Storage atmospheric pressure: 70 to 106 kPa

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