Neurofax EEG-1200

Nihon Kohden diagnostic
and monitoring platform

NIHON KOHDEN

Amplifier Portfolio

Nihon Kohden amplifiers have long been regarded for delivering superior signal quality using the highest recording specifications available. Durability, innovation and superior signal processing have defined our amplifier engineering for decades. Our extensive library of amplifiers range from a 32-channel 10-20 amplifier to our newest dense array 64- to 256-channel options.

The flagship Nihon Kohden amplifier, the JE-921, provides economic sense, flexibility and configurability that is exclusive in the industry. With a full 10-20 electrode array, 7 bipolar channels, built in End Tidal CO_2 and SpO_2, the JE-921 will increase ease of use and recording power for all types of EEG and polysomnographic recordings.

The newest addition to the Nihon Kohden family is the JE-120 256-channel amplifier. Sampling rates from 200 Hz to 10,000 Hz along with superior engineering provide the highest quality signal processing for evaluating low amplitude, high frequency data. Connecting to the JE-120 through the LAN converter, a secondary data stream can be controlled by a local or network research station and sent to a separate file storage location.

Imagine the utility of starting the secondary data stream several days into the clinical recording: connect and disconnect whenever data of interest is needed, set sampling frequency independent of the clinical stream and even change electrode input selection without stopping or interrupting the clinical recording and without jumpers to bridge data to a secondary recording unit. This secondary file defaults to the compressed BESA® format and is easily converted to a variety of others (MEF, EDF, ASCII, Binary) for easy import to MATLAB® and other tools of interest.

Flexibility of use, superior data quality, patient-centric design, ease of installation, unparalleled research features, all backed by a high quality responsive support team—that is Nihon Kohden.

Amplifier Specifications

JE-921 10-20

Number of Inputs:	**Internal Noise Level:**
32 Channels Total	<3uV p-p (0.53-120Hz)
10-20 Input Layout	
3 Dedicated Bipolar Channels	**High-Cut Filter:**
4 Programmable Bipolar Channels	300 Hz (-18 dB/oct)
SpO_2, $EtCO_2$	
4 DC Channels	**Low-Cut Filter:**
Optically Isolated	0.016-160 Hz
Input Impedance:	**Sampling Frequency:**
100 MΩ	Up to 1000 Hz
CMRR:	
> 105 dB	

JE-120 64, 128 or 256 Channels

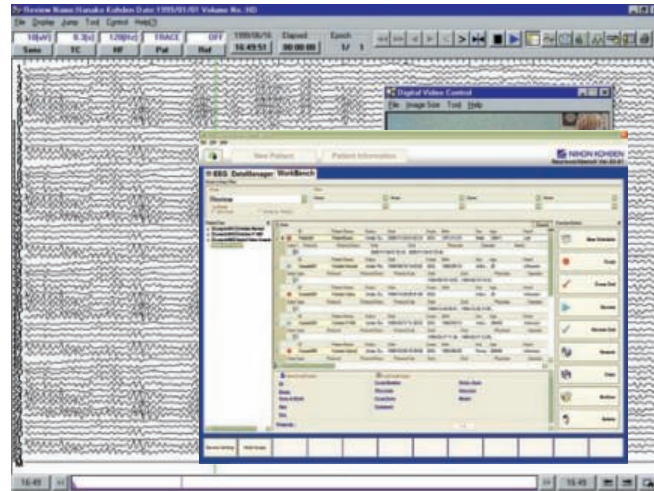|	
Number of Inputs:	**High-Cut Filter:**
4 Bipolar (with JE-125 input box)	15 to 3000 Hz (-18dB/oct) sample rate dependent
1 Common Reference (with JE-125 input box)	
SpO_2, $EtCO_2$	**Low-Cut Filter:**
16 DC Channels	0.016 to 160 Hz
Optically Isolated	
Input Impedance:	**Sampling Frequency:**
200 MΩ	Up to 2 KHz on all 256 channels
	Up to 10 KHz on 64 channels
CMRR:	Up to 5 KHz on 128 channels
>110 dB (EEG input)	
>100 dB (Bipolar input jack)	**SDS Sampling Frequency:**
	200, 500, 1000, 2000, 5000, and 10,000 Hz all channels
Internal Noise Level:	
<1.5 μVp-p (to 120Hz)	

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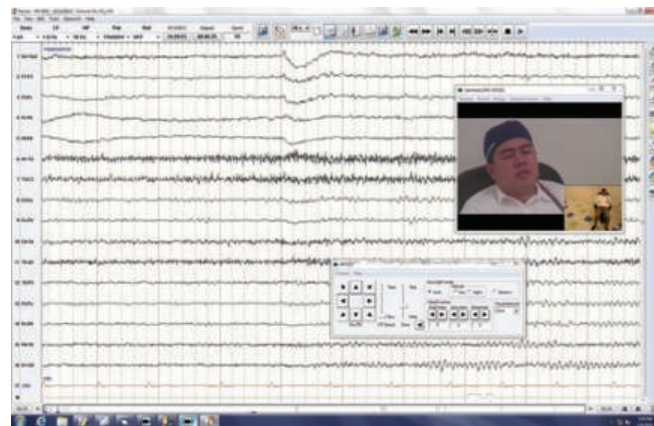
For more than 60 years, healthcare providers worldwide have relied on the quality and reliability of the Nihon Kohden line of comprehensive and innovative neuro-diagnostic and -monitoring instrumentation to aid in the diagnosis, information and treatment of their patients. The long legacy in Nihon Kohden EEG diagnostics and monitoring continues with the EEG-1200 that combines EEG, long term epilepsy, cEEG ICU monitoring and sleep testing for the most flexible and comprehensive recording system available today.

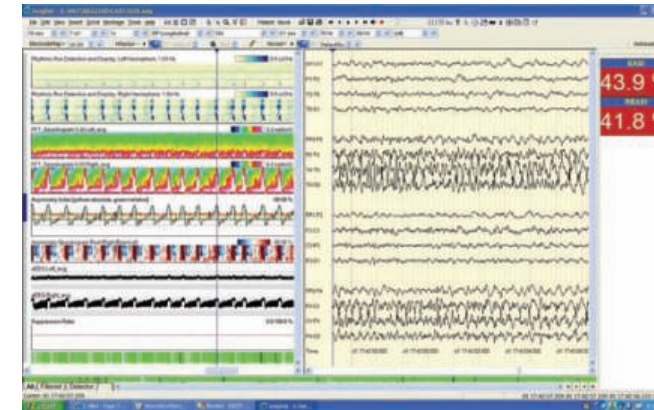# Long Term Monitoring for Epilepsy

NeuroWorkbench

Dual streaming video with picture in picture

Those laboratories currently conducting extended monitoring studies for epilepsy will be pleased with innovations exclusive to the EEG-1200.
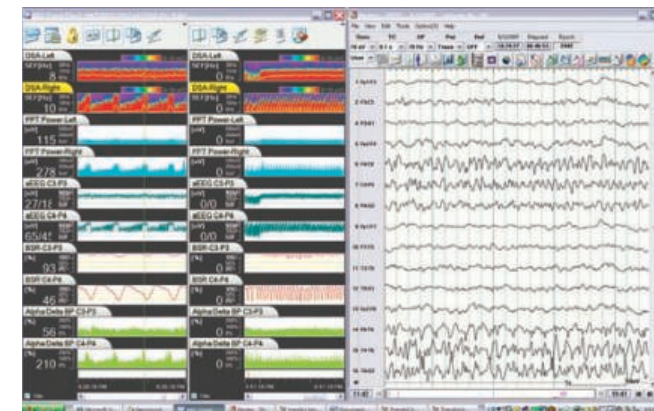
Simply select from the extensive Nihon Kohden library of amplifier configurations and customize the system to better suit your needs. Data is simultaneously sampled for optimum quality at rates up to 10,000 Hz for discrete localization purposes. Our MPEG4 digital video software offers precise synchronization and impressive playback to 1/30th of a second with full motion video at multiple, user selectable standard or high-definition recording rates. Select the Nihon Kohden dual IP camera option to integrate two separate independently controlled video feeds with the EEG data. This option is ideal for capturing simultaneous wide-angle ambulant patients in-room as well as tight facial or full body video.

Patient image and physiologic data throughput is optimized to allow remote network editing of the EEG and video during recording. Our post acquisition PTZ video function allows up to four levels of zoom for enhanced review.
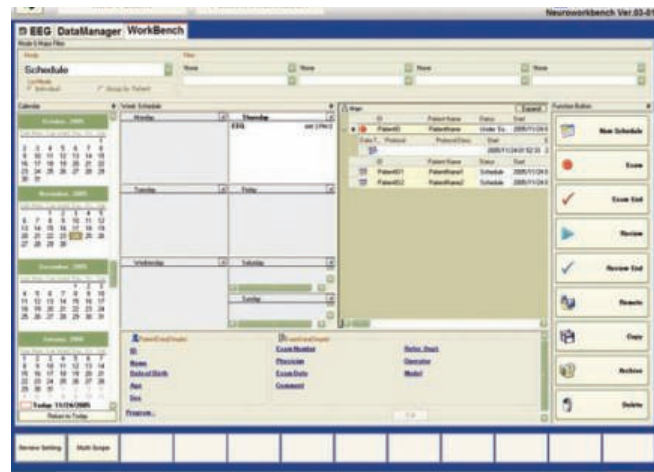
cEEG Monitoring in the ICU

CPA

QP-160

The use of continuous EEG (cEEG) monitoring can enhance the neurologic assessment and care of critically ill patients through early detection of neurological deterioration at a reversible stage.

The EEG-1200 offers flexible monitoring solutions that are sensitive to the restrictions in the ICU environment and provides comprehensive quantified data and trending that assists with timely intervention. Nihon Kohden is uniquely positioned to offer a solution with clinical recordings, seizure detection, and trending integrated with your existing vital signs patient monitors. With our QP-160 software, the neuro-intensivists can now remotely review raw and trended EEG information, event detections and selected physiological data (ICP, HR, CO_2, SPO_2, etc.) on a single time-line display.
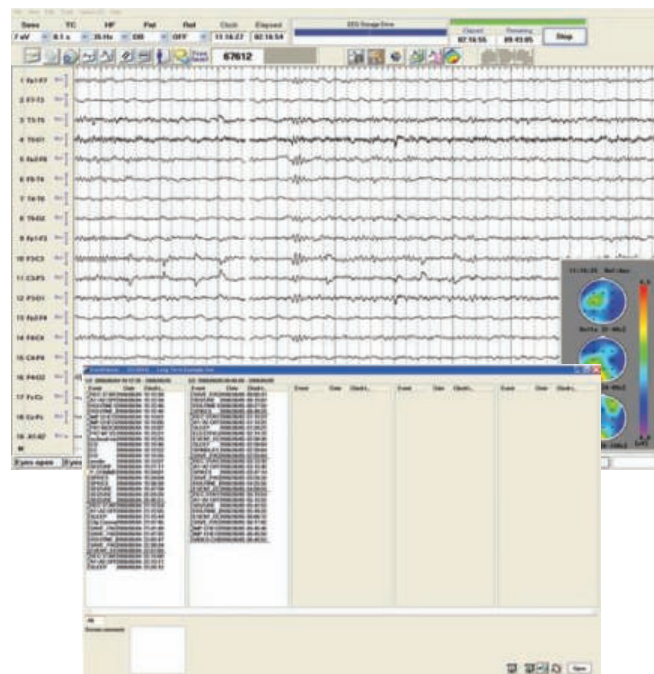
Routine Testing

NeuroWorkbench Patient Scheduler

The EEG-1200 boasts superior flexibility, and is capable of growing with your laboratory as your testing requirements expand. For example, our 10-20 system amplifier allows you the ability to perform sleep studies, as well as EEG. Add our Polysmith® sleep analysis software and take advantage of the system's dedicated respiratory inputs and optional DC channels.

To enhance workflow, studies can be managed based on their status (scheduled, under examination, under review and completed). For portable EEGs, simply disconnect from the network to perform the study and our auto-copy function will transfer the studies to the database upon network reconnection.

Data Analysis and Review

Event Viewer

Standard with the EEG-1200 review software is on-line FFT during acquisition as well as off-line source localization, 3D voltage maps and FFT DSA traces.

Managing large amounts of data is easy and flexible using multiple filters. With the event viewer, all annotations throughout the patient's entire study are visible. Filter the annotation list to view only what is important and easily jump to any day or time within the entire patient stay. All recordings are linked for fast comparison of activity over many days of data acquisition.

Automatic editing of data is easily done using annotations placed into the recording during the review process. The editing features are flexible and customizable.
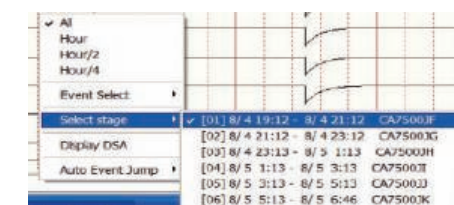
Data Management and Report Generation

NeuroWorkbench® (NWB) is the core integrator of the Nihon Kohden neurology product portfolio of IOM, EP/EMG and EEG systems.

This user friendly interface assists the staff with multi-modality scheduling, examination, reviewing, and archiving. Overall data management and workflow streamlines access to clinical data and patient information. NWB's MS-SQL database provides workflow status, data location and has a companion "NeuroReport™" feature for technician, nurse and physician reporting.

NeuroWorkbench is designed to make your patient's data secure, with HIPAA compliant features that include an audit trail, individual logon and user rights, auto logoff and password protected functions such as archive and delete.

An optional HL-7 program provides communication between NWB and other hospital information systems using HL-7 messages. These include: Patient Registration (patient information into NWB), Calendar (schedule examination in NWB), Reporting (export reports created by NeuroReport).

Contributions to Teaching and Research

Slideshow

Slide Show View

The EEG-1200 offers many features that are ideal for a teaching and research setting. The secondary data stream is just one example. Our integrated slide show toolbar enables easy access to our unique "create and play" features that allow the clinician to design a meaningful presentation including pertinent selections of long term monitoring data. Present annotated events in any order with selectable montage and/or filter settings. Quickly and accurately move through important clinical findings while viewing EEG and synchronized video. Slide shows can be created using either raw long term recordings or edited files which also can be archived in the libraries registered to the NWB database.

Functional/Language Mapping

Cortical mapping with PE-210 software

When used with the JE-120 amplifier and the MS-120-EEG cortical stimulator, the Nihon Kohden PE-210 software stimulator switch box provides excellent time management when performing complicated and simple cortical mapping.

The software streamlines the creation of customized grid and depth electrodes patterns that are used for selection of active and reference electrodes, which are annotated directly into the EEG data. In addition to selecting which electrodes will be stimulated, a complete stimulation session report is generated including: stimulation intensity, train duration, patient tasks, patient responses and after discharges customized electrode map. The software places all stimulation parameters and electrodes directly into the EEG recording for archiving.

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