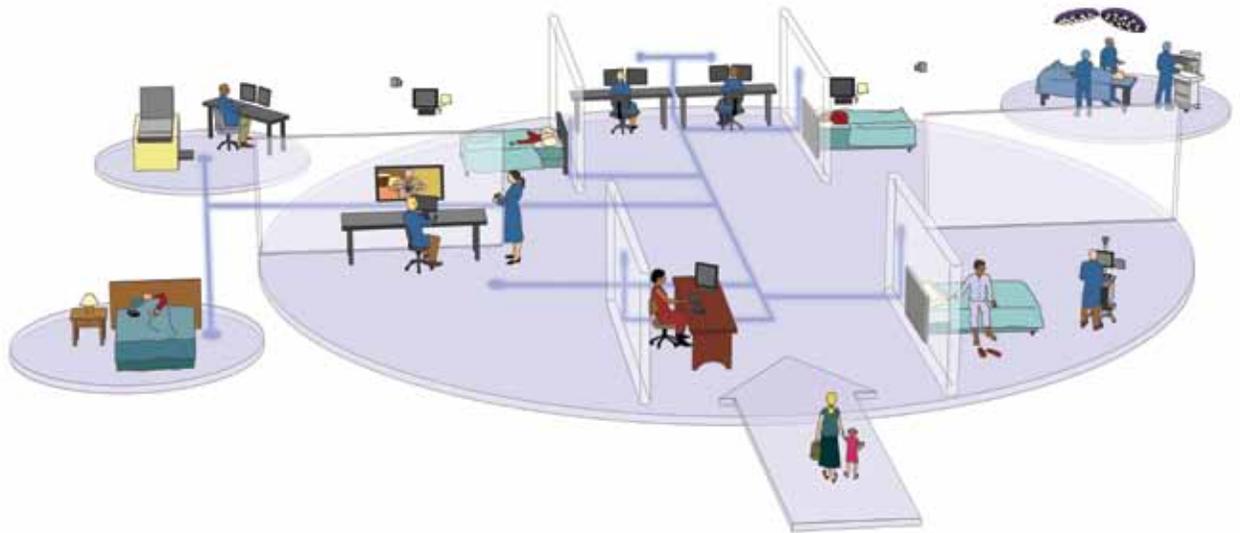


## Pioneering a New Direction in Sleep™

Visit our virtual sleep lab and let us show you an option just right for you.



**N**ihon Kohden offers the most comprehensive array of products and services in the world to address the sleep diagnostic market. We pioneered the first polysomnographs and continue to lead the way in developing cutting edge smart solutions for home sleep testing, polysomnography, combined EEG and PSG tools, data management and IT compatible solutions.

At Nihon Kohden, we focus on workflow and delivering the latest and best technology to keep your lab running smoothly. We provide 24/7 knowledgeable product support and service because we understand that you rely on your equipment day and night. Quality has been our priority for the 60 years since the development of our first EEG technology in 1951.



Visit [www.nkusa.com/neurology\\_cardiology](http://www.nkusa.com/neurology_cardiology) to see more.

home sleep testing • polysomnography • epilepsy monitoring • electroencephalography • ambulatory recording • ICU/or monitoring • electromyography • ncv • evoked potentials

Polysmith® Sleep



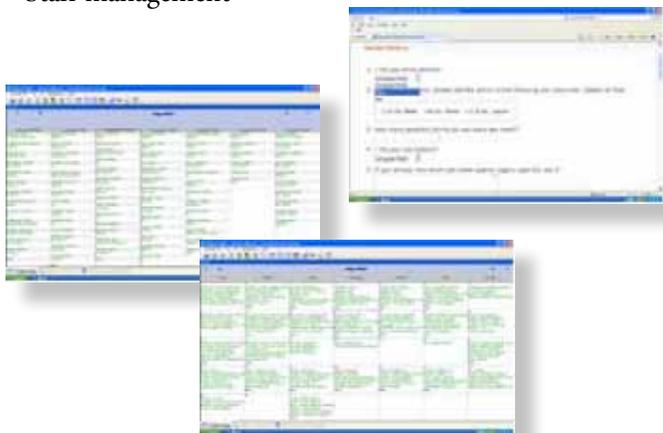
### Front Desk

Simplify your scheduling and patient tracking needs with Polysmith® DMS. Polysmith DMS can read HL7 ADT or orders from centralized scheduling and update patient and scheduling information automatically.

The convenient user interface keeps everyone assigned to the patient informed of the patient's study status. You can also rely on Polysmith PQ to electronically capture patient questionnaire information and update the database. At Nihon Kohden, we understand the demands and budgetary constraints of a sleep lab. We continue to develop our product to maximize efficiency and streamline workflows, so you can focus on patient care and satisfaction.

Managing patient throughput presents challenges that are addressed by the following:

- Daily, weekly and monthly views
- Single click re-scheduling
- Block out dates
- ADT/orders scheduling from HL7
- Manage procedure orders
- Polysmith PQ electronic patient questionnaire (Not available outside the U.S.)
- Internet compatible
- Email compatible
- Patient and record status management
- Staff management



### Patient Room

Meet your sleep recording needs with Nihon Kohden amplifiers. We offer PSG compatible amplifier choices ranging from 27-192 channels. The JE-921 provides flexibility and configurability that is exclusive in the industry. With a full 10-20 electrode array, 14 bipolar inputs, built in End tidal CO<sub>2</sub> and SpO<sub>2</sub>, this technology will increase ease of use and recording power for all types of EEG and polysomnographic recordings.



JE-921

All amplifiers are available with built in SpO<sub>2</sub> and external DC inputs. The reliable AirPSG combines wireless technology with the ultimate in flexibility and ease of use. AirPSG comes in a 24 channel dedicated sleep format designed specifically for use in the sleep lab. AirEEG 32 and 64 channel multimodality configurations allow you to get the most out of your recordings.



(Sphinx® not available in all markets.)



AirPSG

Nihon Kohden's legacy of creating industry changing technology started with the invention of Pulse Oximetry in the late 1970s and now continues with the Cap One™ flow through EtCO<sub>2</sub> technology. In an effort to overcome the difficulties of monitoring carbon dioxide in different environments, the engineers at the Nihon Kohden developed a miniaturized flow through EtCO<sub>2</sub> sensor for Cap One. The goal of this new development was not only to create technology that could monitor EtCO<sub>2</sub> in the critical care environment, but also to create a solution that could better monitor CO<sub>2</sub> in Polysomnography. The result improves the way CO<sub>2</sub> is monitored and interpreted. Benefits of the Cap One EtCO<sub>2</sub> system include:

- Integrated airflow pressure interface
- Breath to breath EtCO<sub>2</sub> values
- No calibration
- Miniature size
- Built in interface to JE-921 amplifier
- Stand alone OLG-2800A model for interface with DC channel
- Very low dead space for added accuracy



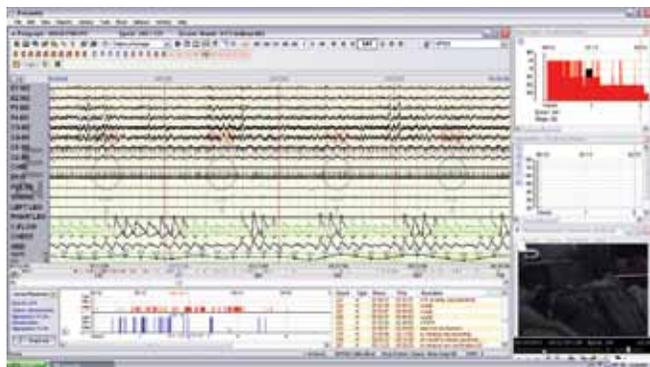


### **Control Room**

Seamless data acquisition is the basis for the Polysmith recording interface. A direct interface with Polysmith DMS scheduler eliminates the need for patient information entry to begin a recording. Simply point and click on the name of the patient to start a recording or view other recordings ongoing in your lab. A configurable interface allows the user to customize the software to best suit their role in the lab. Our full featured Polysmith software suite is used in a variety of sleep lab environments and provides a comprehensive approach to studying your patients. From easy to use scoring and recording tools to convenient remote access solutions, using Polysmith allows you to work with your entire lab's data from the convenience of the control room.

Diagnostics are the specialty of your sleep lab. These features help technologists manage their patients and data easier.

- Single click initiation of recording from calendar
- Live trending of multiple parameters
- Selectable video and audio quality
- On-line scoring and editing
- On-line AHI and total sleep time
- On-line arousal index
- Remote viewing of live data
- Auto append
- Automatic MSLT\MWT timer and recording tool
- Off-line video monitoring



### **Hospital Room—Combo System**

Multi-modality electrodiagnostic equipment represents increasing value for hospitals that need to add polysomnography to their existing services when space is at a premium and reimbursements are threatened. The Nihon Kohden EEG-1200A with PSG offers the channel set to provide your facility the best of both worlds. Capable of working independently as an EEG or PSG system or as a combined unit, Nihon Kohden offers a full range of hardware and software features to fit your needs by providing easy to use analytical software, flexible montages, built-in SpO<sub>2</sub>, EtCO<sub>2</sub>, photic and more. To meet your epilepsy monitoring needs as well as expand your PSG capabilities, your EEG-1200 combo system can be expanded to record 64, 128 or even 192 channels.



Add polysomnography to your EEG/EMU environment and Nihon Kohden can add the following benefits:

- Simultaneous scrolling of live PSG and EEG data in separate montages
- Separate recording modalities for daytime EEG and night time PSG
- Spike and seizure analysis
- Photic stimulation
- Real time quantitative EEG trending
- Create PSG studies instantly using long term monitoring data
- Compatible with amplifiers ranging from 27 to 192 channels
- Up to 16 DC channels available
- Full routine EEG capability
- Full PSG capability





### Home Sleep Testing

Record and track your home sleep testing (HST) studies via Polysmith DMS. Our Type II (Trackit™ 18+8 and Sleepwalker) and Type III (Nomad®) recorders use the same interface as our in-lab studies for scheduling, initialization, download and scoring. A common interface reduces training time and facilitates better tracking of your sleep records; thereby increasing efficiency.

Rest assured, you can expect that our HST devices incorporate signal quality, reliability and durable construction, the hallmarks of Nihon Kohden.

Nihon Kohden offers integrated home sleep testing solutions. Run exclusively home sleep tests or manage both PSG and HST through the same portal.

Scheduler integrated initialization and download, Smart Start SpO<sub>2</sub> initiated recording, Polysmith DMS data integration, and customizable sleep reports are features of our type II and III recorders (Nomad and Trackit Sleepwalker).



### Peri-operative OSA Management

Obstructive sleep apnea is a serious condition that complicates patient care surrounding patients undergoing general anesthesia. Developing products and solutions to aid in peri-operative care are a priority for Nihon Kohden. The Nomad home sleep testing recorder and Polysmith PQ are useful tools in identifying patients who are at risk of developing complications as a result of OSA combined with anesthesia and pain management.

Properly managing data via the Polysmith DMS scheduler and database is also essential in improving outcomes and patient care. We make it our goal to study clinical pathways that use our solutions to overcome the obstacles surrounding surgical care environment and obstructive sleep apnea.

	Nomad	Trackit Sleepwalker	Trackit 18+8
Reorder Type	III	II/III	II
Number of Channels	12	16	18 ref and 8 poly
EEG	N/A	4	Assignable
EOG	N/A	3 poly	Assignable
Airflow Channels	Therm and pressure	Pressure	Assignable
Snore	Yes	Yes	Assignable
Respiratory Effort	2	2	Assignable
Built-in Body Position	Yes	Yes	No
Built-in SpO <sub>2</sub>	Yes	Yes	Optional
PLM	2	1	Assignable
DC Channels	1	4 optional	1

## Doctor's Office



Remotely access your data with Citrix® compatible Polysmith, Polysmith DMS and Surveysmith® report viewer. With HL7 compatibility, electronic signature, and drop down dictation fields, Surveysmith report viewer creates an efficient environment for the physician on the go. Verifying Surveysmith report data using the exclusive interactive report feature allows the office or remote based physician the ability to navigate and verify all of the sleep data via the results in the report. Integrating all aspects of the patient's evaluation through Polysmith DMS gives the physician the ability to access a patient's status without being in the lab or picking up a phone.

We take into consideration the demands placed on the reading physician when designing our tools and services for healthcare providers. For those who thrive on accessibility and an intuitive user interface, Polysmith offers the following conveniences:

- Remote access via Citrix and Polysmith Tracer
- Customizable report builder
- 24/7 phone support
- Scanned attachments
- Polysmith PQ electronic questionnaire integration into reports
- Customizable normative data
- Interactive report allowing navigation of the recording through the report
- Over 5,000 fields that can be queried in Polysmith DMS
- Report compatibility with Excel® and Word®
- Report compatibility with PDF
- HL7/electronic medical records
- Dictation field storage in database

A screenshot of a software interface titled "Diagnostic Polysomnographic Report". The interface shows a patient's name, study date, and various data points. It includes a table with columns for "Study", "Score", "Status", "Event", "Score", and "Percentage". The table contains several rows of data, including "Apnea Type", "Hypopnea Type", "Arousal Type", "REM Sleep", "REM Latency", "REM Duration", "REM %", "REM Latency", "REM Duration", "REM %", "REM Latency", "REM Duration", "REM %".

## Technologist Scoring

The technologist is the center of any sleep services operation. Every day and night is a combination of patient care, data management, scoring and review. With innovative tools in both Polysmith DMS and Polysmith software, the technologist's work day is made more manageable. Finding and editing patient information, querying data and customized scoring are a big part of the technician's job. Polysmith DMS allows the technician to instantly know which patient's are already scored and which one's need to be scored.

In the ever changing sleep medicine environment, the only constant is the need for quick and efficient data scoring and processing. We have kept this in mind with the following:

- Customized event wizard
- Single click editing
- Patient status tracking
- Auto updating of patient information
- Auto record tracking
- Slide show
- File size management through file migrator
- LTM tool for use with LTM EEG or EMU files
- Custom workspaces
- Custom channel creation
- Custom normative data
- Custom watermarks
- Configurable keyboard and mouse keys
- Edit scoring from trend plots

## 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 sleep diagnostic solution, 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 sleep diagnostic field today and into the future.

## SPECIFICATIONS

### JE-912 PSG Amplifier

Number of inputs: 20 unipolar  
14 bipolar inputs  
Optically isolated  
Input impedance: 100 M $\Omega$   
Input circuit current: < 5 nA  
CMRR: > 105 dB or greater at 60 Hz (bipolar input: 60 dB or greater)  
Internal noise level: < 1.5  $\mu$ Vp-p (0.53 to 60 Hz)  
High cut filter: 120 Hz (-18 dB/oct)  
Low cut filter: 0.08 Hz (TC = 2 s)  
Offset tolerance:  $\pm$ 600 mV  
Sampling frequency: up to 500 Hz  
USB interface  
Cat5 connectivity



### JE-921 Multimodality 10-20 System Amplifier

Number of inputs: 32 channels total  
10-20 input layout  
3 dedicated bipolar channels  
4 programmable bipolar channels  
4 DC channels  
Optically isolated  
Input impedance: 100 M $\Omega$   
CMRR : > 105 dB  
Internal noise level: < 3  $\mu$ Vp-p (0.53-120 Hz)  
High cut filter: 300 Hz (-18 dB/oct)  
Low cut filter: 0.016-160 Hz  
Sampling frequency: up to 1000 Hz  
USB interface  
Cat5 connectivity



### Nomad Type III Home Sleep Testing Device

Battery type: 2 x AA batteries  
Weight: 155 g (without batteries)  
Size: 11.75 cm x 7.24 cm x 2.54 cm (L x W x D)  
ADC resolution: 16 bits  
5 bipolar inputs  
3 respiratory channels  
2 limb movement channels  
1 DC input  
Integrated Nonin SpO<sub>2</sub>  
Integrated body position sensor  
Pressure transducer channel with derived snore channel  
Sampling frequency: up to 250 Hz



### Sphinx

ADC resolution: 16 bits  
1000 Hz sampling frequency  
25 unipolar channels  
16 bipolar inputs  
Integrated Nonin SpO<sub>2</sub>  
Pressure transducer  
Sampling frequency: up to 1000 Hz



### Air EEG/PSG Wireless Acquisition

Input impedance: EEG input/extra input: 200 M $\Omega$   
DC input: 1.5 M $\Omega$   
Input circuit current: 10 nA or less  
Internal noise level:  
EEG input/extra input: 3  $\mu$ Vp-p or less  
DC input: 10 mVp-p or less  
CMRR: EEG input/extra input: 105 dB or greater (60 Hz)  
Bipolar input: 100 dB or greater (60 Hz)  
Low-cut filter: 0.08 Hz ( $\tau$  = 2 s)  
High-cut filter: 60 Hz (-18 dB/oct)  
A/D conversion: 16 bits (97 nV/LSB)  
Sampling and hold: All electrodes at the same time  
Sampling frequency: 200 Hz  
Impedance threshold: 2, 5, 10, 20 and 50 K $\Omega$



*Polysmith, Surveysmith, Sphinx, and Nomad are registered trademarks of Neurotronics, Inc., a Nihon Kohden Company. Citrix is a registered trademark of Citrix Systems, Inc. Word and Excel are registered trademarks of Microsoft Corporation.*



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