aireeg

Wireless EEG made simple – give freedom to the patient

During long-term EEG recording, the patient may need to spend many days connected to an EEG monitor in the hospital or clinic. This is a long and stressful time especially for a pediatric patient. Wireless data transmission with the aireeg wireless input unit (WEE-1200) gives the patient more freedom and quality of life during the long test.

Nihon Kohden trusts in the proven modular concept with the aireeg and offers 32- and 64-channel inputs as well as additional options such as video, photic stimulation and other innovative functions.

NIHON KOHDEN

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Pioneering technology for enhanced efficiency

Neurofax EEG systems, designed for high-acuity performance, feature cutting-edge technology to deliver superlative versatility for even the most demanding clinical requirements.

- **Polaris.one,** a powerful data management system, supports the straightforward administration and organization of diagnostic data. Modern communication interfaces (HL7 and GDT/BDT) enable integration into hospital and practice information systems.
- **Digital video** software allows synchronized digital video for EEG systems using webcam, professional HD camera, or picture-in-picture as per requirements.
- **EEG mapping** offers amplitude with spectral and frequency online mapping during acquisition, even with single channels and montages.
- **Spike and seizure detection** software with a high sensitivity and a stunningly low false positive rate
- **Polysmith*** combines sleep analysis software with recording devices to provide quick and precise data analysis – for a complete PSG solution customized to individual needs.

  * A product of Neurotronics Inc. USA

Progressive presentation for smart monitoring

Neurofax EEG systems feature a smart active display that enhances ease of use for more effective monitoring.

- **EEG trend program** converts EEG signals into clear trend graphs making them easy to interpret (aEEG, DSA, CSA, Power FFT).
- **Smart vital signs interface** for holistic multimodality assessment of patient, with capability to pull up 8 channels from bedside monitors.
- **Live View Panel** offers intuitive real-time management of diverse neuromonitoring data from a centralized location.

Practical functions for greater applicability

Designed with a modular approach, Neurofax EEG systems offer prudent, versatile functionality with many practical applications.

- **Comfortable, wearable transmitter:** The small size and light weight of the aireeg unit is desirable for long term EEG recording.
- **Simple operation:** Just plug the main unit cable into the transmitter. Data transmission mode seamlessly switches from wireless to wired without any gap in recording. Battery charging starts automatically when the transmitter is connected to the main unit. When the **aireeg** unit is taken out of wireless range of the EEG system, the measured EEG data continues to be saved in the internal memory. When the **aireeg** unit comes back within range of a wireless access point, the saved data is automatically transferred to the EEG system.
- **EEG scope:** data reviewer that allows review of previous EEG while monitoring, acquiring, and opening up to 4 EEGs at the same time.
- **3D voltage mapping:** whole head maps offer a complete overview and better interpretation of the topography of EEG abnormalities.

Features for increased convenience

Neurofax EEG has futuristic features that allow data integration with more flexibility, compatibility, and customization for efficient and convenient monitoring.

- **Customizable main menu** that allows registration of examination protocol buttons on the main menu. Each button has user-defined settings for an examination which can be adjusted for different examination conditions and methods.
- **Note window** offers to save up to 1,000 sections of waveforms for comparison by dragging and dropping. Up to 100 copied waveforms can be registered as sample data for comparison with other patients or teaching purposes.
- **NeuroReport,** which is integrated in all Nihon Kohden EEG systems, offers individually configured report templates, including adaptive auto text functions, for fast and simple reporting. It guarantees maximum flexibility and compatibility.

Specifications

WEE-1200

Display

Display resolution	Up to 1920x1080 pixels
Number of display channels	Up to 64 and one mark channel When multi-channel electrode junction box and mini junction boxes are used: up to 250 and one mark channel
Display modes	Overwrite and page-by-page
Waveform display color	16 colors
Waveform display on/ off /freeze	Provided
Waveform position adjustment	Provided
Waveform sweep speed	0.1, 0.2, 0.5, 1, 2, 5, 10, 15, 20, 30, 60 s or 5 min/page
Timing mark	0.1, 1s
Time scale	Off, 0.2, 1s
Event mark	Displayed
EEG scale	Provided
Multiple displays	Available

Data acquisition (JE-922A/JE-125AK)

EEG input	32/64
Sampling rate	up to 4,000 Hz
Input impedance	200 MΩ
CMRR	EEG 105 dB or more, Bipolar 100db or more
Noise level	1.5 µVp-p or less (0.53 to 60 Hz)
AD conversion	16 bit
DC input	2
SpO$_2$ connector	Yes
High-cut filter	1,200Hz (max.)
Low-cut filter	0.08Hz (max., time constant 2s)
AC filter	50 or 60 Hz (rejection ratio 1/25 or more)

Telemetry unit (ZB-120A)

Wireless LAN	IEEE 802.11a/b/g/n
Frequency band	2.4 or 5 GHz
Number of channels	2.4GHz 13, 5GHz 21
Security	WEP, WPA, WPA2
Battery	Lithium-ion (chargeable)
Battery life	10 hours, 30 hours with extension unit
Roaming Mode	Automatic connection with 1 up to 3 access points
Maximum usage of telemetry units in per environment	9
Internal memory	24 hours or more (64 channels and 2kHz)

Data processing

EEG Input	OFF, 1, 2, 3 (2.5), 5, 7, 10, 15, 20, 30, 50, 75, 100, 150, 200, 300, 500, 700, 1000 µ V/mm
DC inputs	OFF, 10, 15, 20, 30, 50, 75, 100, 150, 200, 300, 500, 700, 1000 mV/mm
Time constant (Low-Cut filter)	00.001, 0.003, 0.03, 0.1, 0.3, 0.6, 1.0, 2.0, 5.0, 10.0 s 0.016, 0.03, 0.08, 0.16, 0.27, 0.53, 1.6, 5.3, 53, 159 Hz (– 6 dB/oct)
Waveform shape (calibration waveform)	0.25 Hz step wave or 10 Hz sine wave
Voltage	2, 5, 10, 20, 50, 100, 200, 500, 1000 µV (×1000 for DC input signal)
ECG elimination filter	Available in acquisition and review programs
Impedance check	Electrodes are displayed on the screen in electrode position layout. Impedance for each electrode is displayed and electrodes with impedance higher than the pre-set impedance threshold are highlighted.
Indication on LED	LEDs on the electrode junction box with impedance higher than the pre-set impedance threshold light
Impedance threshold	2, 5, 10, 20 and 50 kΩ
Pattern	36 sets of programmable montages combined with programmable individual amplifier settings
Marking signal	Photic stimulation mark, Hyperventilation mark

Photic Stimulation

Maximum flash energy	1.28 J/Single
Stimulation modes	3 automatic (30 steps, programmable), manual, and single
Mode of operation	Continuous operation with intermittent loading

Automatic stimulation

Stimulus rate	0.5, 1 to 33 (1 Hz steps), 50 and 60 Hz
Stimulation period	1 to 99 seconds in 1 second steps
Pause period	1 to 30 seconds in 1 second steps
Manual stimulation	*Manually set frequency and stimulation period*
Photic frequency	0.5 Hz, 1 to 33 Hz in 1 Hz steps, 50 and 60 Hz
Stimulation time	1 to 99 s in 1 second steps and continuous stimulation
Pulse mode	Normal, random and double
Random stimulation	1 to 33 Hz in 1 Hz steps with ± 50%
Single stimulation	Manual key operation single stimulation or automatic single stimulation by external trigger signal
Trigger input	TRIGGER IN connector (1 to 5 V)
Trigger output	TRIGGER OUTPUT connector (3 V or more)

Dimensions

Telemetry unit (ZB-120A)	Size: 130 (W) x 130 (H) x 41 (D) mm Weight: 0.56 kg (inklusive Batterie)
MU-120A	Size: 225 (W) x 225 (H) x 50 (D) mm Weight: 1.3 kg
SB-120A	Size: 130 (W) x 130 (H) x 32 (D) mm Weight: 0.56 kg (incl. batteries)
JE-125AK	Size: 64 (W) x 160,5 (H) x 22,5 (D) mm Weight: 0.155 kg
JE-922AG	Size: 83 (W) x 128 (H) x 24 (D) mm Weight: 0.2 kg

Power requirements

Line voltage	Power supply unit SM-120AK AC 220 to 240 V
Line frequency	50/60 Hz
Power consumption	Power supply unit SM-120AK AC 220 bis 240 V

Safety

IEC 60601-1 ed.3:2005+A1:2012	
IEC 60601-1-2 ed.3:2007	
IEC 60601-1-6 ed.3:2010+A1:2013	
IEC 60601-1-9 ed.1:2007+A1:2013	
IEC 60601-2-26 ed.3:2012	
IEC 62304 ed.1:2006	
IEC 62366 ed.1:2007+A1:2014	
IEC 62133 ed.2:2012	
ISO 14971 ed.2:2007	
ISO 80601-2-61 ed.1:2011	
EN ISO 149701:2012	
EN 300 328 V1.9.1	
EN 301 893 V1.8.1	
EN 50566:2013	
Type of protection against electric shock	Class 1
Type CF applied part	Electrode jacks, bipolar jacks, SpO_2 connector, CO_2 connector
Mode of operation	Continuous

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